



Brian Clancey

THE 20-MONTH YEAR

The Farmer's Perspective

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By Brian Clancey

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The Never-Ending Cycle

Old timers at the Chicago Board of Trade used to tell newcomers that the fastest way to make a million dollars trading commodity futures is to start with two million.

What they are saying is that “buying low” and “selling high” is much harder than it sounds. Because farmers grow what they sell, “buying low” is relatively easy. But, “selling high” is hard. Just like many newcomers at the Chicago Board of Trade learn, it is really hard to be objective when it is your money that is on the line. This is why people sometimes wait until they are absolutely certain that markets are going against them before they act.

Farmers do not generally have a problem selling field crops for more than their production costs. Without doubt, problems caused by bad weather, insects and/or disease sometimes make it impossible to make a profit. Even in those years, it is important to make decisions which result in the best possible return on the year’s production. This involves everything from making sure offgrade product is not put into the same bin as food grade product; eating harvested pulses to make sure they cook; keeping a record of the chemicals used throughout the season and during harvest; or doing germination and disease tests to see if some of the crop can be marketed as common planting seed.

Working to maximize the income potential of crops starts before they are planted. Planting crops with similar seed sizes on the same land can have unexpected consequences. There is always a certain amount of seed loss during harvest and those grains can sprout the following year. If the volunteer seeds cannot be separated from the main crop, both the grade and the value of the crop can plunge. As a result, mustard should not be grown on the same land as canola. Canaryseed should not be planted after flaxseed or canola. Small green and red lentils should not be grown on the same land. The

result is called Christmas lentils and they can face steep discounts.

Pushing rotations by growing the same crop on the same land more than one year in a row and sometimes every second year can be a bad idea. Any diseases that were present the previous year, even if at nearly undetectable levels, will be happy to see their hosts return. The same holds true with planting seed. It is important to make sure that any seed used is disease free. Commercial seed should come with testing certificates. Any seed held back from the previous harvest needs to be tested for disease, even if the field appeared to be disease free. Given the right conditions, any disease spores already in the land or put there with the seed will explode into action, reducing yields and possibly quality.

If diseases such as *Ascochyta* blight infect a field, it is generally recommended that the same crop not be planted on the same field for at least three years. Moreover, fungicides need to be rotated during the growing season because the disease can become resistant to the active ingredient. This has already happened in North Dakota, where *Ascochyta* blight in chickpeas became entirely resistant to strobilurin fungicides. The same resistance in peas has also been detected in Saskatchewan and Alberta. Seeds from plants infected with *Ascochyta* blight can still be eaten, but they are degraded because the disease creates visible damage on the seeds.

After the crop has been planted, there is nothing that can be done about weather conditions. It is still possible to minimize the damage caused to the crop by some insects and weeds. Weeds not only reduce yields because of the competition for available nutrients, but if they happen to be green when the crop is harvested they can make it more susceptible to staining and dirt tagging. Similarly, combining crops when there is still dew in the field can have a major impact on whether or not the harvested seed becomes dirt tagged. This is one of the reasons desiccants are used to kill crops. This gives farmers more control over the timing of the harvest. However, the choice of herbicide can have a significant impact on whether or not the crop can be sold. It is not only important to use pre-harvest herbicides or desiccants in strict accordance with the labels, it is important to document what was used on the field and how many applications were used, and to provide this information to prospective buyers. Failing to do so could result in something being shipped to a country which has very low tolerances or which does not allow residues of the active ingredient on imported products. If it is detected, the country could shut down all imports from your country.

Chemical Residues Can Destroy Markets

Most of the pulses and other specialty crops grown in Canada and Australia are for export, as is a large percentage of those grown in the United States. That means that not only must the industry obey national rules about chemical residues, they need to meet the rules of any country to which they are exporting. In July of 2012, the Alberta Pulse Growers, Saskatchewan Pulse Growers, and Manitoba Pulse Growers put out a joint statement to western Canadian farmers, saying they need to be careful that they do not unintentionally create a product which exceeds the maximum residue limits (MRLs) for the various chemicals and herbicides used during harvest.

Desiccants, or harvest management tools, are applied late in the crop year to dry the

crop and create uniformity of plant material at harvest. Because of the late-season application of these products, some residue may remain on the crop, and as a result, most countries or markets have in place maximum acceptable levels of residue. In some markets, the MRLs are very low, but the provincial grower groups, alongside Pulse Canada and other industry partners, are working on harmonizing these limits internationally in an effort to ensure Canadian growers remain competitive in the global marketplace.

Glyphosate faces the fewest problems. The only market where glyphosate is an issue is Japan, where the MRL is set at a low level. Japan buys small quantities of the various classes of peas, along with some lentils, dry edible beans and soybean varieties intended for use to make tofu and natto.

Diquat is only a problem for product being shipped to the United States. The diquat MRL has not yet been harmonized between the two countries.

Saflufenacil faces problems in all markets except the United States. However, the European Union and CODEX countries such as India and Pakistan are expected to have MRLs in place sometime in 2013.

In the summer of 2012, Roundup Weathermax was registered for use as a desiccant for mustard seed even though the United States, Canada's most important market for mustard seed, and all other countries outside the European Union have MRLs that are so low, the product cannot be used on mustard seed.

Addressing the issue, the Saskatchewan Mustard Development Commission said, "Growers should be aware that not all jurisdictions have set maximum residue limits (MRLs) to levels that would accommodate the glyphosate level that would arise out of preharvest use of glyphosate in mustard. Some countries have relatively high allowable levels of glyphosate in tame mustard seed and others have no MRL set. For this reason, growers should consult with the exporter or processor to whom they are selling the crop before they use glyphosate on tame mustard. In instances where the crop is going to be marketed primarily in countries outside the European Union, it may be wise to forego the use of glyphosate on tame mustard so that the crop is not potentially rejected due to glyphosate residues."

The MRL for the European Union is 10 parts per million. It is 0.1 parts per million in the United States, Mexico and Australia. There is no MRL in Japan or Korea or countries which use the Codex standard, such as India. If there is no MRL, zero residues is the wisest choice.

The Saskatchewan Mustard Development Commission added, "Preharvest applications of Roundup Weathermax have been registered under the minor use system in Canada. This use is permissible for Canadian growers and it consists of applying 0.67 L/acre of the 540 g/L formulation of Roundup Weathermax at a time when pods of the mustard plant are green to yellow and seed is yellow to brown. Growers should note that missing this timing (too early or too late), or application of higher rates than those that are labelled, can result in higher levels of glyphosate than are acceptable."

Losing a Grade is Costly

It is not possible to control the timing of frost, rain, heat or drought during the growing season. It is possible to exert some control over many of the other factors which cause crops to lose quality and/or yield. Of course, those are business decisions. How much money to invest in reducing infestations and in controlling the timing of the harvest is directly related to current market conditions. Quality discounts, for instance, rise and fall. They tend to be biggest when the price for the top quality tends to be at the upper end of its historic range. They tend to be smaller when the prices for the best quality is at the lower end of its historic price range. How do you know when this happens? This book contains the decile tables for each of the crops covered. Those tables clearly show where today's prices are in relation to the history of the crop.

Normally, the price drop from the Number 1 to the Number 2 grade is not as big as the price drop from Number 2 to Number 3 grade product or sample grade. Between 2008 and 2012, the average bid for Number 2 grade large green lentils in Canada was 2.56 cents per pound less than the average bid for Number 1 product. Extra 3 grade large green lentils were discounted another 4.64 cents per pound and Number 3 grade lentils were discounted another 4.6 cents per pound. Accidentally, lowering the grade of a Number 1 Canada large green lentils to Extra 3 cost an average 7.2 cents per pound.

Discounts for yellow mustard are more severe. Between 2008 and 2012, the average bid for Number 2 grade yellow mustard seed in Canada was 7.41 cents per pound less than the average bid for Number 1 product. Number 3 grade yellow mustard was discounted another 3.94 cents per pound and Number 4 grade was discounted another 1.66 cents per pound. Accidentally, lowering the grade of a Number 1 Canada yellow mustard to Number 4 cost an average 12.01 cents per pound.

For some crops, the quality situation is simpler. Canaryseed is either canaryseed or it is not canaryseed. Yellow peas are either suitable for human consumption markets or they need to be fed to livestock. Green peas have become more complicated with the development of a market for peas with up to 25% bleach on the Indian subcontinent.

The last chance farmers have to influence the basic quality is after harvest. If the grade in a field or a section of a field is clearly different from the rest of the harvest, binning it separately is a good strategy. Mixing a small quantity of sample grade product into something which would otherwise fall into the top two grades can result in a significant decline in the value of an entire bin.

Quality is not just Grade

Grades make quality seem simple. Unfortunately, just because something makes grade does not mean it is the right quality for the market. Some of the grades that exist today are the result of market development efforts by individual companies. The Extra 3 grade for lentils was invented by Canadian exporters and later adopted by the Canadian Grain Commission. The same is true of the feed pea grading standard. Sometimes grades do not include quality parameters which are critical to end users. This was one reason Canada's red lentil grades were amended at the beginning of the 2012-13 mar-

keting year to include tighter tolerances for copper colored in red lentils and tolerances for wrinkled seed coats in Number 1 and Number 2 Canada lentils.

Effective August 1, 2012, the color definition for red lentils was changed to state: “Color is evaluated after the removal of damaged lentils (excluding wrinkled). Bleached and copper seeds are evaluated to determine the overall color. Tolerances for bleached and copper are reflected in the Primary Grade Determinant Table. Bleached seeds have a whitened seed coat that is distinctly faded from the natural red color of sound lentils. The discoloration must affect the entire seed coat. Lentils having a lighter pink shade that are contrasting with the overall sample are considered sound. The red lentil color guide may be used to assist in the determination of bleached seeds. Copper seeds have a rust color covering both sides of seed and the entire seed coat. The rust color is in distinct contrast with the natural red color of sound lentils. The red lentil color guide may be used to assist in the determination of copper seeds.”

The wrinkled seed tolerance for Canadian lentils allows for a maximum of 2% in No 1 Canada lentils and 5% in No 2 Canada lentils, with no maximum for lower grades. Canada’s lentil grade now states: “Wrinkled seeds are characterized by a seed surface that has sharp ridges and pronounced depressions that could also be described as seed coat folds and indents. Wrinkles may be evident only on one side of the lentil. Lentils that only have dimpled seed coat or folds restricted only to the outside ring of the seed are considered sound. The red lentil wrinkled guide may be used to assist in the determination of wrinkled seeds.”

What is not included in the grading standards are tolerances for water absorption rates, milling and splitting rates, or cooking times. Simply put, making grade does not mean people can actually eat the product. If pulses do not soak, canners cannot use them. If pulses do not cook, families cannot eat them. Shipping something like that to those markets only encourages people to buy from another origin or switch to another food.

“I’m a Lentil Grower and I’m Proud to Eat what I Grow!”

It is impossible to go a livestock convention and find a vegetarian who raises cattle, hogs or chickens. It is equally impossible to find a rancher who will not proudly eat the meat they produce. Go to the annual meetings of the provincial pulse grower associations and it is easy to find people who almost never eat pulses. If pea and lentil growers do not proudly eat what they grow, how will they know if they are growing food or vegetarian stones?

A farmer asked me how he would know if his peas were good enough to ship to India. I replied, “Ask your wife to cook them. If she won’t, they’re not good enough.”

Sometimes, peas and lentils look good enough to eat, but they do not cook. This happened in 2010 with a shipment of Number 2 Canada large green lentils to Chile. The 2009 crop lentils were uniform in color and very nice in appearance, but there are several factors that affect cooking time. Older lentils cook more slowly than freshly harvested lentils, and smaller lentils cook faster than larger lentils. When growing conditions are hotter than normal, cooking times for lentils normally increase. Cooking time is not normally taken into account when lentils are being bred.

Most lentils imported by Latin America are sold directly to consumers in plastic or cellophane bags of up to one kilogram. Cooking time is critically important. If consumers discover that a certain brand of lentils or split peas do not cook in a reasonable time, they will ignore the brand, and that importer will think twice about buying from the companies that supplied the pulses, and possibly even the country.

Cooking time is also critically important to canners. This, along with concerns over cracked seed coats, has seen the dry edible bean industry develop two market streams for beans. Beans targeting the canning industry normally trade at a premium to beans going into the packaging industry. While both need to cook, canners have additional quality needs. Peas and lentils are not normally traded this way, but some buyers do require cooking tests. Grinders and millers do not need to worry about cooking time. Most of the peas sold to China are ground into flour to make noodles, or into a sweet paste for confectionary and dessert items. Some are deep fried. India grinds a fraction of every type of pulse eaten into flour. The fractionation trade is growing in size, with organizations such as pulse Canada working closely with the food manufacturing industry to see where protein, starch or fiber isolates from pulses add value to food products. They have already found a role in gluten-free foods and as additives to veggie burgers, nutritional bars, baked goods, pet foods and other products.

Farmers are the first line of defence in making sure pulses go into the right market. However, farmers cannot play their part if they do not eat what they grow. That is the only way they will know if their harvest can go to packagers and canners, or should be directed to grinders and fractionators. Processors are the next line of defence in making sure buyers receive the right quality of product. Exporters are the final line, having the responsibility to make sure the merchandise shipped not only meets their obligations under the contract, but meets the needs of the buyer. None of this is possible if people across the marketing chain do not talk to one another, do not share information, and do not cook and eat the pulses they trade or grow. Communication must occur for any industry to reach its full potential.

Documentation, responsibility and accountability are also vital. The dry edible bean industry was an early adopter of “identity preserved” or IP traceability. (This is discussed in introduction to the dry edible bean chapter.) They are also used by Cargill for the export of the Intermountain canola variety to Japan; by General Mills for a variety of white wheat; DowAgro Sciences for Nexera canola exports to Japan; and Canada’s dry edible bean industry for white bean exports to canners and food grade soybeans to Japan. To support their IP marketing programs, many companies are becoming HACCP certified. Some are starting to talk about the need for farmers to also become HACCP certified so that there is full traceability and documentation throughout the entire marketing chain—from field to table. More importantly, this would make it easier for the correct quality to be shipped to millers, canners and packagers. This could become more important in destinations which also receive bulk conventional shipments, because it would guarantee niche market buyers that they are getting exactly what they need.

HACCP certification has already come to farms in North America. Programs to help vegetable and livestock producers become HACCP certified are supported by both industry and government.

Marketing Your Grade

Over the years, Canadian exporters have done a good job of developing markets for virtually all grades and qualities of pulses and other specialty crops. Green peas that cannot make grade because of up to 25% bleach were once diverted into livestock feed markets. Now, they are routinely exported to the Indian subcontinent. In some markets, lentil importers prefer to buy Extra 3 and Number 2 grade lentils because there is no real difference between them and No 1 lentils when they are cooked. But since the prices are lower, this makes them a good fit in price conscious regions.

However, not all offgrade lentils are created equal. Buyers do not like lentils that lose grade because of cracked seed coats, chipping and splitting, or from heating and frost damage. They prefer the distinct damage which comes from disease, but they do not mind sun weathered lentils as long as the appearance is uniform. This makes it important to look at the factors that are causing your lentils to grade lower, and to discuss the quality processors you deal with want.

Matching quality to the market can often result in a better price. This could be a key consideration in marketing the balance of your green lentil crop, especially low grade material. The price spreads between high and low quality lentils are affected by the grade distribution. When supplies of offgrade lentils increase, the spreads increase. When supplies tighten, the spreads tend to become smaller. Grower bids provide an indication of the supply situation. The final crop report of the year from Saskatchewan Agriculture and Food normally includes a break down of the grade distribution for individual crops.

Knowing the reasons behind the grade spreads is always helpful, but getting the best value out of offgrade pulses requires having truly representative samples and showing these to prospective buyers. This helps processors and exporters target sales efforts based on better knowledge of what is available and where it is located. It is also important for growers to know whether or not the companies they deal with have well established outlets for offgrade product. Those that do, will be in a better position to buy product closer to the farmer's timetable and not just when they see momentary demand. A clear sign that a specific quality or commodity is in short supply is when people who do not normally deal in that product or quality start looking. This happened in green pea markets in the fall and winter of the 2012-13 marketing year. Even cash grain brokers from Chicago were looking for green peas. As it happened, that was a powerful indication prices had not peaked.

Demand Elasticity

An important question to ask when marketing any crop or quality segment is whether or not demand is price elastic. Markets always use price to discourage demand. When supplies are tight, prices keep rising until buyers start cutting back on how much they are using. This "rations" the available supply across all users. It also encourages farmers to increase production, resulting in an increase in supply and lower prices. There is a more important question; do below average prices result in above average

demand? If so, demand is price elastic. When demand is only hurt by high prices, it is not price elastic.

An example of a commodity where demand is price elastic are field peas. As with every commodity, the higher the price, the less demand. But, as prices fall, interest in the product grows. This is because peas can be used across a wide range of markets and in a wide range of products. Feed manufacturers in Europe, for instance, have many years of experience with peas and will move quickly to increase the quantity they use when peas become price competitive with grains and protein meals. At lower prices, food manufacturers start trying out peas in their products, sometimes resulting in new outlets.

This happened in China when mung beans became more expensive than imported peas. Vermicelli noodle makers started working with pea starch and discovered it was a good substitute for mung bean starch. Peas became one of the dominant ingredients used to make noodles. Just as is the case with mung beans, there is now a certain base demand which will not go away. However, it could be that the biggest part of the market for pea starch could be lost to other sources of starch if prices become uncompetitive with those sources for a lengthy period of time.

An example of a commodity where demand is fairly price inelastic is canaryseed. There is only one use for canaryseed—as an ingredient in birdseed mixes. When the price of canaryseed rises relative to millet and other small seeds, birdseed packagers may reduce the percentage of canaryseed in their mixes. When canaryseed becomes inexpensive relative to those other seeds, birdseed packagers might use a higher percentage of canaryseed in their mixes. There is no precise estimate of how much demand can move, but many industry participants have felt it is in a plus or minus 10% range. More importantly, it does not matter how cheap canaryseed gets, other uses for the seed do not appear. Since canaryseed stores as well as flaxseed on farms, experienced growers do not bother trying to find markets when prices fall to levels which might attract livestock feed demand. They bin their canaryseed and withdraw from selling until canaryseed recovers.

Knowing whether markets for a quality or commodity are price elastic makes a big difference in how marketing needs to be approached. In inelastic markets, when it is obvious that there is an oversupply, it is important to take advantage of opportunities to sell at good prices. It may also be important to be prepared to carry product over into the following marketing year. Prices normally keep moving lower until the available supply more closely matches the quantity which is consumed each year.

Products where demand in price is elastic do not normally behave the same. While over-supply causes prices to drop, demand tends to increase as prices drop. It is not a one-for-one relationship. For example, when pea prices fall low enough to become truly competitive with other sources of protein and energy, livestock demand can start building rapidly. It is important to realize that there is a moment when pea prices become truly competitive. It is not incremental. Once that moment arrives, demand can start building. Naturally, this only happens if livestock feeders, mills and compound feed manufacturers know peas are truly competitive. That job falls to sellers. The same is true of encouraging new uses in the food industry. Individual sellers need to complement industry efforts to build demand. And, as with feeding peas, there will be mo-

ments when prices are attractive enough for a food manufacturer to commit to a proper trial. If the product works, a new market could open. It is much harder to do this when prices are high. At those times, prices are usually high because there is not enough product to meet normal demand.

Supply-Demand Forecasts

Supply and demand forecasts offer some insight into whether demand is price elastic. If usage does not rise significantly as supplies rise, it is a sure sign of a market that is not price elastic. The supply and demand tables in this book show four marketing years along with the average supply and demand situation for a five-year period.

What you want to see is that export sales and/or sales to domestic users increase when the available supply increases. Available supply is the total of how much was grown, how much was carried in from the previous marketing year, and how much was imported. This does not mean that ending stocks cannot increase. But, if demand is price elastic, it will result in a smaller increase in ending stocks that would be the case if demand was not price elastic. There are times, though, that prices do not respond strongly enough to increases in supply to create new demand. Peas probably provide one of the most obvious examples. Sometimes, prices do not drop enough to be competitive to European compound feed manufacturers.

Another key area to look at in supply and demand tables is the stocks to use ratio. In a nutshell, this shows many days or weeks worth of product was carried over from one marketing year to the next. Markets also pay attention to this number. When the stocks to use ratio drops under 10%, a commodity is generally considered to be sold out, partly because there may not be enough product left to cover the period from the end of the marketing year until new crop merchandise is being sold by farmers. This is a bigger problem when the harvest is delayed. As stocks drop under 10%, markets worry about what percentage is held by farmers who do not sell in rising markets. That fraction might not be available until the harvest starts and prices drop.

As confident as markets are about when a commodity is effectively “sold out”, there is no consensus about the point at which stocks become burdensome. Stocks typically rise when the industry is having a hard time moving everything that was grown. As stocks rise, prices normally decline to encourage demand. The combination of slow movement and lower average prices normally results in a reduction in seeded area. The amount by which seeded area is expected to change has a major effect on whether ending stocks are expected to be burdensome. If plantings fall sharply, markets might want to see a 40% to 50% stocks to use ratio to help prevent a shortage from developing the following marketing year. If, on the other hand, it becomes clear that farmers will not reduce plantings by a big amount, markets might believe that a stocks to use ratio above 25% would start to become burdensome. What is going on here is markets are thinking about how much will be available to sell in the coming season. At its most basic, that is the sum of the carry-over from the previous marketing year and the current harvest.

The stocks to use ratio or ending stocks number describes the situation on the last day of the marketing year. The available supply describes the situation on the first day of the marketing year. These numbers suggest whether prices will be higher or lower

on average than they were the previous marketing year. That could be called the 64,000 foot or 20,000 meter view of the market. Hidden in the usage numbers is everything that will happen on a day to basis from the start of harvest through the end of the marketing year. Price movement throughout the season reflects the day-to-day supply and demand situation and not the supply and demand outlook for the entire marketing year. This means that prices can move in ways which make the big picture numbers look wrong.

At its simplest, supply is the amount of product farmers want to sell on any given day, while demand is the amount of product processors need to buy to cover short term shipping commitments. Day to day supply also includes deliveries by growers against production and forward sales contracts, unsold inventory in processing plants and primary elevators, and any product that companies want to sell to other companies in their country. Day to day demand can come from many sources. Processors need to buy product from other processors for immediate movement. They might also need to buy because a delivery was not the quality they expected or needed. Exporters might be buying to cover a recent sale. An end user might buy something from an exporter at the beginning of the day, causing the exporter to buy from one or more processors who then buy from one or more growers. Unexpected problems in one area could result in the need to ship product from another area, resulting in a brief increase in demand for product for immediate delivery into and shipment from processing plants. Day to day supply and demand is the sum total of all the actions taken by people across the entire marketing chain.

Outside Factors are Important

Outside factors also affect the day to day supply and demand picture.

Serious weather in major producing and consuming regions can have a dramatic impact on the ongoing supply and demand dynamic of markets. Russia's 2010 drought forced exporters to default on feed grain sales to western Europe, which increased demand for grains and protein meals from other origins, including European peas. That pushed up the floor price for field peas on world markets even though Europe's compound feed mills did not buy many peas from non-European sources. Below normal monsoon rains can result in a smaller pigeon pea harvest, which could see demand for green lentils improve because when they are dehulled they look pigeon peas. Drought or killing frosts during the rabi growing season on the Indian subcontinent can result in a surge in demand for desi chickpeas, red lentils and yellow peas. Problems with Australia's crops can lead to a shortage of fababeans in the Middle East and reduced competition for demand on the Indian subcontinent. Mexico's 2010 and 2011 droughts contributed to a fundamental shortage of dry edible beans in the North American Free Trade zone, which resulted in increased imports from China and Argentina. Canada's weather disaster in 2010 left the world short of good quality green lentils and contributed to an over-supply of lentils in the 2011-12 and 2012-13 marketing years.

Weather events often sneak up on markets because of the natural hope that tomorrow will bring what is needed for crops to develop properly, or seeding and harvest activities to proceed. Sometimes weather events just happen, catching weather forecasters

and markets off-guard.

Political and economic events can also a big impact on markets for pulses and other specialty crops. This was brought into clear focus for lentil markets starting in the fall of 2011. Because of trade sanctions, most business to Iran was routed through the United Arab Emirates, Egypt and other countries in the Middle East which specialize in reselling product in the region. Nearly all international trade is in U.S. dollars, which means that buyers need to convert their local currency into U.S. dollars to pay for purchases. To conserve its foreign exchange reserves in the face of deepening economic sanctions, Iran limited the amount of U.S. dollars companies could obtain at the official exchange rate. This created a black market for currency. In February of 2012, Iran's official exchange rate was around 12,500 Rials per dollar. But, unable to secure enough U.S. dollars at the official rate, some buyers converted Rials into the U.S. dollars on the street market. Unofficial exchanges rates soared 10% between the middle of December and the last half of January, reaching almost 17,000 Rials per dollar. Then, on January 15 of 2012, Iran banned the street trade in currency to control the outflow of funds. The situation worsened on February 6, 2012, when President Obama signed an administrative order freezing all Iranian government assets held or traded in the United States.

Before the sanctions and currency controls tightened in early 2012, Canada's lentil industry already had a problem. The need to buy U.S. dollars at a highly inflated exchange rate resulted in a situation where several Iranian importers told their suppliers they could not pay for the merchandise without going bankrupt. Some of the affected resellers who had bought from Canada and sold to Iran told their Canadian suppliers that they could not pay for the lentils because their buyers had defaulted. Some exporters were able to divert shipments to other destinations. Some were able to stop shipments before they left Canada. Others were left with product sitting on docks in various locations in the Middle East.

When something is afloat or in a foreign port and needs to be resold, it is often described as a distressed sale. Not only does the shipper bear additional costs, they may need to sell at a discount. The availability of distressed merchandise not only hurt the chances for people to make fresh sales, they can have a profound impact on spot markets. To get a sense of the full scope of the problem, you need to think about how business happens. For instance, if an importer is trying to buy pulses in February, it is most likely looking for product for shipment in April, May and June. Some might be looking for product for shipment after the harvest. Only a few would be looking for product for shipment in March.

As the shipping period approaches, the seller would buy or call product in from growers to cover the sale. After cleaning and possibly bagging, it is loaded into railcars or containers for movement to port, where it is then loaded onto a ship. For a country such as Canada, 45 to 60 days can easily pass between the time a farmer delivers product and the time it arrives in the buyer's country. Moreover, 90 to 160 days can easily pass between the time a sale is made and the time the goods arrive at their destination. A lot can happen in 45 days. The world can change in 120 days.

Applying this timeline to the problems in Iran, it is clear that product sold between August and October of 2011 reached the region just as Iran's currency was becoming more volatile. More product would have arrived as the government banned street trad-

ing in currency. Pulses may have still been arriving as the U.S. government sanctions become stronger and Iran became more watchful about currency flows.

Iran does not buy many pulses directly from Canada. Much of the trade goes through resellers in the United Arab Emirates, Turkey and other countries in the region. Between August and December of 2011, 44% of all lentils and 21% of all chickpeas shipped from Canada went to Iran, Egypt, the United Arab Emirates and Turkey. This amounts to roughly 251,000 metric tons of lentils and just over 5,000 metric tons of chickpeas. Not everything was destined for Iran; and some buyers might have used Iran as a proxy their own problems maintaining margins.

There are not many choices available to exporters when they might never get paid for something if they release the goods to the end user. As a result, companies try to resell the product on regional markets. This could push prices below replacement cost. That means they are selling them for less than they need to pay farmers. Which makes it hard, if not impossible to make fresh sales until all those containers are gone. This backs right up to the farm as a reduction in demand. If it happens at a time when farmers are eager to sell, the available supply of product could easily be more than markets need, possibly causing prices to decline. As much as high prices are intended to make buyers think twice about entering markets, low prices are intended to make farmers think twice about selling or growing a specific commodity.

Cross-Commodity Competition

Lentil, pea, canaryseed, mustard or chickpea growers and traders can become completely absorbed by the ongoing supply and demand dynamics for their commodity. That is a mistake, because the supply and demand dynamics for canola, spring wheat, durum, corn or soybeans can have a big impact on production levels and the price end users are willing to pay. Called cross-commodity competition, it affects the thinking of end-users as well as farmers.

Products which are eaten need to maintain a price relationship with other major ingredients to keep their place in the diet. When prices get out of line, demand can move between products. It does not matter if it is a home-maker or a food manufacturer or a livestock feeder, each is trying to make a dollar go as far as possible without compromising nutrition. By the same token, farmers want to maximize the income potential of their land and labor, without compromising future income.

Competition between field crops for the attention of consumers and the attention of farmers has resulted in a situation where prices tend to move in the same relative direction. As a group, pulses and other specialty crops tend to lag oilseeds and grains when prices are trending upward. But, when the trend reverses, prices in the specialty crop sector tend to drop just as rapidly. The situation can differ for individual crops, but overall, the relationship is strong enough that oilseed and grain price trends and outlooks can be used as indicators of likely trends for pulses and other specialty crops.

Since 2006, there has also been a strong relationship between price direction for crude oil and for field crops. This is not because energy prices impact production costs. It is because enough corn, soybeans and canola are used to make ethanol and bio-diesel to link field crop prices with oil. The United States government has mandated that a

specific quantity of renewable fuels are blended with gasoline and diesel each year. If companies do not use enough, they pay a penalty. Renewable fuels will be blended as long as that is profitable or the cost is less than the penalty for failing to do so. The implication for corn, soybean and canola is that prices cannot rise to a level which makes it cheaper for the petroleum industry to pay the penalty for failing to use renewable fuels. That maximum value rises and falls with the price of crude oil. In the case of corn, 38% of all corn available during the 2012-13 marketing year was expected to be used to make ethanol, up from 37% in 2011-12 and 35% during the 2010-11 marketing year. That is the second largest market for the corn. The largest are the food and manufacturing sectors. The third most important is livestock feed, with exports pulling up the rear.

The addition of ethanol has resulted in a situation where corn acreage needs to be higher on average than was the case prior to 2006. This had an immediate impact on soybeans because the two crops are grown in rotation in many parts of the United States. To prevent land in soybeans from falling too much, grower bids rose. Corn markets countered and the war was underway. Other field crops had no choice but to respond. The initial expansion in acreage in corn had a profound impact on world markets. Average prices for oilseeds, cereal grains and pulses reached their first peak during the first half of 2008, with prices on international markets more than double values seen prior to 2006. The production response drove average trading levels sharply lower for all commodities. But, because supply and demand were tightly balanced between 2008 and 2012, crop failures in Russia, Mexico and some other countries helped keep average field crop prices near their historic highs.

Competition for acreage has always been a factor in world markets. But, prior to 2006 it was muted. So much so that the pulse and specialty crop industry did not seriously consider canola, wheat, corn or soybeans as strong competitors for land use. That is no longer the case. Higher average prices for corn, soybeans and wheat since 2006 have forced markets for pulses and other specialty crops to be higher on average to keep farmers growing those crops. This reflects the fact that when returns from growing pulses and specialty crops drop below what farmers think of as a normal relationship with returns from grains and oilseeds, they plant less specialty crops. On the other hand, when returns from specialty crops are better than usual when compared to those from other crops, land in special crops tends to increase.

United States Loan Program

Governments also make decisions which directly affect markets. One decision which had a profound impact on pulse production levels in North America happened in 2002 when lentils, peas and chickpeas were included in the U.S. Farm Bill. In simple terms, this put those pulses on an equal footing with grains and oilseeds by making them eligible for loans and loan deficiency payments (LDP).

The USDA's Farm Service Agency provides a good explanation of how this works:

"Marketing assistance loans provide producers interim financing at harvest time to meet cash flow needs without having to sell their commodities when market prices are typically at harvest-time lows. Allowing producers to store production at harvest facilitates more orderly marketing of commodities throughout the year.

“Marketing assistance loans for covered commodities are nonrecourse because the commodity is pledged as loan collateral and producers have the option of delivering the pledged collateral to the Commodity Credit Corporation (CCC) as full payment for the loan at maturity. Market loan repayment provisions specify, under certain circumstances, that producers may repay loans at less than principal plus accrued interest and other charges. Alternatively, loan deficiency payment (LDP) provisions specify that, in lieu of securing a loan, producers may be eligible for an LDP. For ELS cotton, LDP provisions do not apply and marketing assistance loans must be repaid at the loan rate plus interest.

“Marketing assistance loan repayment and LDP provisions are intended to prevent delivery of loan collateral to CCC, minimize accumulation of CCC-owned stocks, and allow U.S. produced-commodities to be marketed competitively. Accumulating CCC-owned stocks tends to make U.S.-produced commodities less competitive in world markets and can result in substantial storage costs to taxpayers. . . .

“A producer who is eligible to obtain a loan, but who agrees to forgo the loan, may obtain an LDP. The LDP rate equals the amount by which the applicable loan rate where the commodity is stored exceeds the alternative loan repayment rate for the respective commodity. The LDP equals the LDP rate times the quantity of the commodity for which the LDP is requested.”

The impact of these changes are discussed in the lentil and pea chapters. To summarize the effect, not only did land in peas, lentils and chickpeas increase between 2002 and 2012, but interest in the crops expanded beyond the traditional growing areas into North Dakota and Montana. By the end of the 10-year period, those states had become the most important pea and lentil producing areas in the United States.

Price Heat Maps

Knowing that commodity groups tend to move in the same direction is useful information when it comes to pulses and specialty crops. It means that it is possible to look at futures markets for crude oil, grains and oilseeds and get a sense of forward price performance for pulses and specialty crops as a group. That information is not as helpful when looking at individual crops within the category. It is still important to look at the supply and demand outlook for each individual crop, paying close attention to overall supply situation. At the same time, even when markets are following the underlying trend, there can be big differences in prices from one part of the year to the next. This often leads to the question, what’s the best month sell my peas, or lentils, or canaryseed, or pinto beans?

History helps. The statistical portions of each chapter contain price heat maps. Each row is a month, starting with August and ending with July. Each column is an individual marketing year.

What the price heat maps show is where individual months rank as a percentage of the average price for the entire marketing year. In most cases there are two price heat maps. One heat map is only a color map. The second price heat map includes average monthly prices. Looking at the second heat map, May might be hottest month for price two years in a row, but the average prices could be totally different. This happens be-

cause the average price for May is only compared to the average price for that specific marketing year and not average prices in other marketing years.

Using color and putting several marketing years side by side makes it possible to quickly see if there are periods when prices are consistently hot, or strong. As it turns out, there is no single month or period when prices consistently peak. However, there is a strong tendency for prices to follow the same pattern two or three years in a row. That might see bids set their highs before January for two years and then set their highs after January for two or three years.

Since prices follow similar patterns for two or three years in a row, there should be a larger number of people who are determined to sell when prices had been peaking. If that happens to be after January, then growers could become reluctant to sell in the August through December period. To the extent that causes grower selling to fall behind the quantity needed to meet demand from end users, prices rise between August and December, only to fall after January because farmers want to sell more than the market needs. Thinking that was just an unusual event, enough growers might once again stress selling between February and May to once again cause the season highs for the marketing year to be set before January. Realizing their mistake, they increase sales in the August through December period, making it unnecessary for prices to rise to attract product from farmers. And then markets set their season highs after January because farmers have done selling.

It should be clear from the rest of this chapter that prices are influenced by more than just the pattern of grower selling. But, the psychology of sellers, just like the psychology of buyers, plays a significant role in defining price expectations and tendencies within a marketing year.

Movement Heat Maps

Statistical sections in each chapter also contain movement heat maps for product destined for export. The maps use monthly export data that has been adjusted to better reflect the pace of deliveries by farmers into processing plants and other primary facilities. The monthly totals are shown as a percentage of the annual total. What the heat maps show are the periods when demand tends to be strongest.

Unlike prices, there is a greater tendency for movement to be stronger during specific periods. Often, this is the three to four months following the harvest. For small acreage commodities and ones where export markets are less important, the pace of export movement can vary significantly from one year to the next. It is good to know whether your commodity has strong or weak demand patterns. The weaker the demand pattern, the more important it is to stay in touch with prospective buyers. If you are the last supplier they talked to, there is a better chance you will be one of the first suppliers they call when they need product.

Price heat maps compliment movement heat maps. People want to sell when they “believe” prices are strongest; but markets need people to sell when movement is strongest. The resulting tension between one group’s expectations and another group’s needs contributes to the multi-year price patterns observed in the price heat maps.

Deciles

Looking at grower bids over a long period of time shows that there is no specific month when prices are always higher or when prices are always low. On the other hand, it is possible to get a sense of the “upside potential” and “downside risk” of the market on any given day. Deciles help answer those questions, as well as answering doubts about whether today’s prices are any good.

Deciles let you see where today’s prices stand in relation to history. They show you the percentage of times prices were above or below a certain level. The decile zero value is the lowest bid on record and the decile 10 value is the highest on record. This does not mean that prices cannot go higher or lower in the future.

Many products have set new record high prices since 2007, with several classes of dry edible bean doing so during the 2011-12 marketing year; and white proso millet and green peas doing so during the 2012-13 marketing year. When new record highs are set, the decile 10 value can move considerably, but the shifts in other deciles are usually smaller. Sometimes, other deciles do not change at all. This means that the decile tables have a fairly long shelf life.

If that is the case, why are there two sets of decile tables in this book? One covering the full history of prices and one set covering the period since 2007?

In the summer of 2012, grower bids for pulses looked really good compared to prices over the past quarter century. In all cases, farmers received less money 75% of the time or more. But, everything changes if you only look at grower bids since 2007. While peas were the upper end of their 2007-to-2012 price ranges—and therefore at a higher decile level—lentils and chickpeas are near the bottom of their 2007-to-2012 price range.

There was nothing arbitrary about picking 2007 as the time to start a new decile series. That was the year when pulse markets finally realized grain and oilseed prices had stopped trending lower. The U.S. decision to force fuel manufacturers to put ethanol in gasoline and vegetable oil in diesel completely changed the amount of grain and oilseeds that needed to be grown each year. The need to increase land in those crops forced prices higher. In order to keep land from moving way from pulses and other specialty crops into grains and oilseeds, those markets also needed to move higher. The link between corn, soybean, canola, sugar and oil markets has also become stronger because of the biofuel mandates. The net result is that field crop markets tend to rise and fall with crude oil. At the same time, competition for acreage among all crops, means that they tend to move together.

The deciles in this book were developed using STAT Publishing’s database of week ending grower bids. The database was started in August of 1987. It originally focussed on lentils, peas, canary and mustard seed. Over the years, dry edible beans, chickpeas, millet, red lentils, and other crops were added. The long term deciles cover between 14 and 25 years of data or up to 1,300 weeks.

To see where today’s prices fit in, go to the table for the commodity and see which two values the bid is between. If it is between the values for decile seven and eight, that tells you that prices were lower 70% of the time and higher 20% to 30% of the time. That means that the risk that prices will go lower is greater than the chance prices will

go higher. If the current bid for something is between decile 3 and 4, then prices were lower 30% of the time and higher 70% to 60% of the time. That means that the risk that prices will go lower is smaller than the chance prices will go higher.

Deciles do not tell you whether to sell or wait, nor do they tell you how long it will take for prices to move higher or lower. On the other hand, knowing the “upside potential” and “downside risk” of the market at any given time helps with that decision. Generally speaking, if prices are in decile 1 or 2 territory, there is no reason to sell more than enough to cover immediate cash flow needs. While prices can go lower, the risk of further price drops is much less than the “upside potential”. This is absolutely true if prices are so low that it costs more to grow the crop than it is worth in the market.

On the other hand, when markets are in decline nine territory, there is nothing wrong with thinking that you should sell at least 90% of your inventory by the end of the crop year. When prices are at or near their record highs, there is only one compelling reason to carry product over into the following marketing year: if it is obvious production will fall because of extreme weather or another reason.

Support and Resistance

One of the oldest sayings in trading is “the trend is a friend”. For farmers and anyone else with a “long” position the only trend that is a friend is the upward trend. That automatically raises the question of whether it is possible to know if the trend might reverse direction.

Technical analysis used in futures or stock markets can be applied to specialty crops with some success. The only tool we will look at is calculating support and resistance levels. In simple terms, resistance and support levels are prices at which markets would be stopped from rising or falling. They are price points which help judge whether the underlying market is bullish or bearish. It is a good sign if prices break through the first resistance level and keep heading up. It is not good when they fall through their support levels, because it infers market momentum is down.

Any period can be used to calculate resistance and support levels. Calculating it at the end of each calendar month seems to work well for specialty crops. A simple formula to calculate support and resistance levels is included in this section.

In the formula below, H stands for the highest price for the period used for the calculation; L is the lowest price in the period; and C is the closing price on the last day of the period. R1 is the first resistance level and R2 is the second resistance level. S1 is the first support level and S2 is the second support level.

$$\begin{aligned} P &= (H + L + C) / 3 \\ R1 &= (P \times 2) - L \\ R2 &= P + (H - L) \\ S1 &= (P \times 2) - H \\ S2 &= P - (H - L) \end{aligned}$$

Resistance levels are always higher than support levels. Resistance stands for prices which markets have trouble breaking through to go higher; while support levels are prices which markets have trouble falling through to go lower. When they break through either of those, markets are thought to be moving into a new trading range. Considering the way people think

and talk about prices, support and resistance levels should be rounded to the nearest quarter, half or whole number instead of left as odd numbers. For resistance, round up. For support, round down. For instance, use 27 cents per pound for resistance instead of 26.82 or use \$5.50 per bushel for support instead of \$5.64.

Resistance and support levels are should not be calculated every day. All that happens is that the numbers move up and down with the market. As mentioned previously, because pulse and specialty crop markets are less volatile than those traded on futures markets, recalculating support and resistance at the end of each month seems to work reasonably well. Care should be used when markets are making the transition from one crop year to the next. Before that happens, start tracking new crop prices and calculate their support and resistance levels separately.

Seasoned technical analysts do not use formulas. They graph prices and look for the range within which prices tend to move. They are looking for prices to break out on the high or low side to show that markets have changed direction. Barring such an event, they wait for prices to move closer to their resistance levels before selling. That is, the upper end of their recent range. Such analysts also update their support and resistance lines over time to keep them “fresh” and in line with current market conditions.

There are almost no free and open sources of public price information for specialty crops. STAT Publishing makes daily high-low-average grower bids for Canadian pulses and specialty crops freely available at <http://www.statpub.com/stat/prices/spotbid.html>

STAT Publishing’s numbers are provided by several of Canada’s pulse and specialty crop trading companies and a broker who specializes in helping farmers sell their products. The companies submit their bid sheets. The highest, lowest and average bid are published each day. Prices are not shown on a company by company basis. Local bids can be very different than those in the daily bid sheet. Local buyers may have specific needs they are trying to meet or products they are trying to avoid buying, resulting in premiums and/or discounts for individual products and grades. It does not matter if you use the daily bid sheet from STAT Publishing or canvas your local market. The only requirement is that data is collected on a daily basis.

The 20-Month Year

All agriculture commodity markets follow a specific cadence or pattern which starts several weeks or months before the crop is planted and lasts until the following year’s crop is harvested. The heat maps in this book show how prices and movement performed within each marketing year. Deciles show how current prices stack up to the long history of the crop and separately for the period since 2007. Technical analysis tools show whether current prices are at the upper or lower end of their trading range and whether prices have broken out and are establishing a new trading range. The calendar is the last tool we will discuss.

The marketing year officially starts with the harvest and ends with the following harvest. Supply and demand tables, heat maps, export summaries, and so forth are all based on the 12 month marketing year. But, each marketing year is closer to 20 months in length, starting in December and ending 20 months later with the start of the following marketing year’s harvest. For this book’s purposes, we will describe the year mainly

in terms of Canada, because it is the most important exporter for several of the commodities we are discussing.

December: The last month of the calendar year is actually the first month of the 20-month marketing year. This is the month when Canada publishes its final crop production estimates for peas, lentils, canaryseed, mustard, dry edible beans, chickpeas, sunflower and other crops. With that number in hand, markets start to think more deeply about what will be planted in the coming spring. Many companies also finalize their crop production contracts for the coming year, setting seed prices and their initial bid levels for crop production contracts. Farmers have also formed their initial impressions of the mix of crops they want to seed in the coming year based on the prices they have received so far, the way their harvest went, and the kind of demand they are seeing for their crops. Based on what was planted that year, most have a broad idea of the mix of grains, oilseeds and other crops they will seed. Some may already have prepared land for specific crops, leaving only a fraction of their land up for grabs by the market.

January and February: This is the farm meeting season. Crop Production Week, held in Saskatoon every year at the beginning of January, has become the most important specialty crop meeting in the northern hemisphere. There are two components, the annual meetings of most of Saskatchewan's farm commodity associations at a convention center, and the trade show at the city's indoor fairgrounds. Traders attend the meeting to gauge the mood of growers. Farmers attend to find out what prices are available on new crop contracts and to hear the current outlooks for the current and coming marketing year. This is quickly followed by conferences in North Dakota; regional workshops in Saskatchewan, and the annual meetings of the pulse grower associations in Manitoba and Alberta. These meetings give growers their first opportunities to market the coming season's pulses and specialty crops. Companies may offer crop production contracts with "Act of God" clauses, which mean the farmer is released from the contract if there is a crop failure or the crop cannot be planted. Fixed price and quantity contracts may also be available, with or without "Act of God" clauses. Growers who sell this early want to lock in a price for a reasonable percentage of what they expect to grow. The level of interest farmers show in individual pulses and specialty crops at these meetings as well as toward the new crop production contracts begin to set the tone for new crop markets. Grower attitudes affect the kind of new crop prices exporters put in front of their buyers. They also affect any fine tuning to new crop contracting programs with farmers.

March and April: These two months are among the most critical. This is when farmers are finalizing their seeding plans for the year. Those decisions can be strongly influenced by the way prices behave at this time of year. Commodities which suddenly become strong attract grower interest. Those which show signs of weakness start losing grower interest. Markets also get a clear picture of what growers are thinking. The USDA releases its seeding intentions estimates at the end of March. Statistics Canada follows at the end of April. The USDA includes estimates for dry edible beans, peas, lentils and sunflower. The dry edible bean numbers are by state and not by class. Even so, state level numbers give a good idea of what will happen to acreage for individual classes of beans. Statistics Canada normally provides a national estimate for peas, and provincial estimates for lentils, chickpeas, mustard, sunflower and canaryseed. The pro-

vincial numbers cover such a high percentage of what is grown that markets view them as national numbers. Even though seeding intentions are not the same as seeded area, markets respond as if this is the case. Price reaction can be prompt and significant if the numbers are a lot bigger or smaller than expected. From time to time growers ignore what markets are saying. But, normally, they adjust what they plant in response to changing prices. Even then, markets can feel like they are being ignored. Each farmer is looking at the overall profitability of their own business and shifting among the various options to get the best overall outcome. By contrast, lentil traders sometimes only see lentils, just as a mustard seed trader might think every decision made by farmers only targets their commodity.

May and June: Pulses and specialty crops are being planted in Canada and the United States. This marks the beginning of the long weather market period. That remains in place until the harvest is complete, rising and falling in intensity depending on whether farmers are having trouble seeding crops; whether there are problems with germination; or how well crops are developing after they emerge. The first seeded area estimates for pulses and other specialty crops are released at the end of the June. Depending on how well seeding has progressed, the reports can be seen more as updated seeding intentions than the first peak into what was actually planted. This happened in 2010 when unusually wet conditions delayed seeding in Saskatchewan and parts of Manitoba. In the end, farmers in Saskatchewan were not able to plant everything they intended. Wet weather interrupted seeding again in 2011, this time preventing farmers in Manitoba, North Dakota and parts of Montana from planting everything they intended. That had a profound impact on new crop trading values during seeding as markets tried to figure how much was not planted and whether that which was planted could survive. As confidence about what was planted rises, companies often like to add to their new crop sales. This creates chances for farmers to sell product for delivery after harvest, especially at moments when weather worries peak.

July and August: These two months are the time when spot markets transition from old to new crop. For many products, average monthly trading levels are lower in August than they were in July. From time to time, new crop markets set their highs in August. This can happen when there is a fiercely bullish weather market caused by weather events which are expected to reduce yields or delay the harvest. Until the harvest is well underway and real yield data becomes available, markets tend to put more weight on news or comments which would support, rather than break the trend. Because farmers are in the field, they are sometimes in a better position to judge whether the market is heading toward a correction, again creating opportunities to sell some product at what could be good prices. However, farmers need to be careful about thinking their local conditions are representative of the general condition of the crop. Many farmers who jump on early bull moves do so after having done a fairly extensive crop tour to make sure conditions on their farm are not out of the ordinary. During these two months, processors and exporters start to think exclusively about new crop. Most made their last sales for movement in old crop shipping positions in June. Nearly all business from the start of July is for movement in new crop shipping positions. Several will have sold product for movement from origin in August or September. They will be looking for off-combine deliveries to meet those sales targets. That can also become a

factor in prices for August, with growers who planted and harvested early sometimes having good chances to make off-combine sales at premiums to the prices being paid for delivery in September or October. Several important reports are released during these two months. In July, the USDA releases its seeded area estimate for field peas and lentils. Though that report does not contain a yield estimate, the confirmation of seeded area gives market enough information to come up with an idea of how much of each crop will be grown in the United States. The USDA's August crop report contains the first estimate of dry edible bean seedings by state and class for the United States. The report includes state-level yield forecasts for edible beans, but not for each class. Even so, this is enough information to begin to come up with an idea of how many pinto, navy, black, or other classes of beans will be produced in the United States. That is followed by Statistics Canada's first crop production estimates of the year. These reports can influence prices into October.

September to November: These are the months during which the harvest wraps up in western Canada and the United States. These are also busy months for processors and exporters. In many cases, almost half of everything that will be shipped during the entire marketing year needs to be bought and received from farmers before the end of November. Price performance during this period is influenced by numerous factors. They include: grower psychology, harvest weather conditions, and the available supply outlook. The period starts with the release of Canada's July 31 stocks in all positions report. This is the official carry-over. Any surprises in the report affect markets because they affect the supply outlook. Canada's second production estimate is released in October. Markets have strong opinions about what was grown, with the result that if the numbers are a lot bigger or smaller than expected, prices will react. That report is followed by the USDA's October crop estimate, which includes an updated production estimate for dry edible beans and the USDA's first sunflower seed estimate. In November, the USDA released its first estimate of pea and lentil production in the United States. This combination of reports give markets a good idea of the North American supply situation for pulses and other specialty crops. By November, markets remain sensitive to the crop reports, but they have less influence on price. By this time, the eagerness of farmers to sell is the most import supply-side factor.

December and January: International trade in pulses and other specialty crops can be slower during these months because of the large number of holidays and celebration. It is not unusual for prices to relax during the period. It is quite rare for markets to set their season highs in either month. This is also the time when production levels are finalized for both Canada and the United States. Interestingly, because companies are often bidding the same or slightly more for deferred delivery as for spot delivery within the same marketing year, it may be possible in October or November to sell product for delivery in December and January at a better price than would be obtained by waiting to sell on a spot market basis during these two months.

February and March: These two months can see relatively good movement. March creates special problems for farmers because that is the month that western Canada's provincial governments place limits on the weight of vehicles travelling on rural roads because melting snow makes it easier for roads to be damaged by heavy vehicles. This makes it harder for farmers to deliver product, turning many into reluctant sellers. This

results in a strong tendency for prices to rise above levels seen in December and January. It is important to realize that this does not happen every year. When markets are trapped in a significant down-trend because of excess supplies, prices keep falling in February and March. In years where supplies are more closely matched to the market's needs or are considered low, this can be the time when prices start to move upward.

April and May - This is the time when crops are being planted in Canada and the United States, with the result farmers are less active in markets. This is especially true of May, with the result it is not uncommon for grower bids in May to be slightly higher than during April. The implication is that if there is time, May can be a good month to move some product. Markets have a better idea of what will be planted. If acreage of a crop is declining, anxiety over supply in the coming marketing year can have an impact on markets during the closing quarter of the marketing year. If buyers are worried that acreage is too small and that prices in the coming season will be higher on average than during the current season, they may buy more product than normal for shipment during the last two to three months of the marketing year. This was clearly the case for small green lentils between 1998 and 2004. In 2002-03 and 2003-04, only 6% of the crop was exported in June and July and prices kept moving lower. Buyers were not worried about the new crop supply situation in those two years. On the other hand, during the previous three marketing years, exports in June and July ranged from 14% to 22% of the annual total—and prices trended upward into the fall shipping period. Buyers were worried that prices would be higher on average after harvest than during the spring and early summer.

June and July - Spot market demand slows down considerably in these months. Even so, prices can be more volatile in these two months than during the rest of the year. One reason is that “old crop” prices are sometimes just as affected by “weather markets” as “new crop” prices. This can create opportunities to sell “old crop” product before the harvest begins. But, because there is much less demand, it is easier to have a negative influence on price when trying to sell product. That makes it important to be careful when shopping for the best bid. With every phone call, the amount of lentils being offered on the market may seem larger as each processor and exporter asks their customers if they need product.

The Bottom Line

This book does not tell you how to sell at the highest price of the year. But, it includes tools and ideas which can help you sell at prices that are profitable and give you a good chance of doing better than the average price for the year. However, not even that is possible without discipline. Movement heat maps help you understand the times when demand is most likely to peak. Price heat maps show you the rhythm that exists within and between marketing years. They also remind you that selling when prices were highest last year is likely to be a losing strategy half the time. Deciles give a direct answer of just how good today's prices are in relation to the history of the crop. Support and resistance calculations make it possible to figure out the current trading range for prices. However, it takes discipline to gather the data needed each and every day without fail and it takes even more discipline to sell when your price targets are met. In

the end, your own personal discipline is the key to being able to generate above average returns for your crops. In the end, your own personal discipline is the key to not waiting for markets to move solidly against you before selling.

Lentils

Canada is the world's largest export producer of lentils. This is true of both green and red lentils. Over the five years spanning 2006 through 2010, Canada completely dominated world trade in lentils. It exported an average of 976,000 metric tons per year, for a 58% share of the global market.

Interestingly, Turkey and the United Arab Emirates are both among the top 10 exporters and importers of lentils. This is because they import lentils for resale, with much of the product destined for countries in the Middle East. While the United Arab Emirates resells what is delivered to it, Turkey hulls and splits the lentils before re-exporting them. While Canada is giving up value added processing when it ships whole lentils to Turkey, it is transferring risk. In 2011 and 2012, the risk of not getting paid jumped on sales to Middle Eastern destinations because of civil unrest and extreme volatility in currency markets.

Red lentils are considered the most widely consumed and produced lentils in the world. There is no hard data on the split between red and green lentil exports. But, available data suggests green lentils account for around 40% of world trade and reds 60%. This is reflected in the list of the top 10 importers. The top seven buy mainly red lentils, while the bottom three consume green. Among the top three green lentil buyers in the world, Algeria prefers medium and small sizes, while Colombia and Spain prefer large.

Between 2008 and 2012, Canadian lentil growers planted half their land to red lentils and half to green. Red lentil seedings peaked at 56% of total area in 2010, but dropped back to 41% in 2012 because of low prices during the 2011-12 marketing year. Among the remaining competitors for lentil market share, the United States and China

World’s Top 10 Lentil Traders

(5-year average trading volume in metric tons)

| Exporters | Quantity | Importers | Quantity |
|------------|----------|------------|----------|
| Canada | 976,280 | India | 152,193 |
| Turkey | 176,511 | Turkey | 128,713 |
| U.S.A. | 163,072 | Bangladesh | 116,147 |
| Australia | 111,154 | Sri Lanka | 104,749 |
| Syria | 84,019 | Arab Emir. | 93,173 |
| Arab Emir. | 33,622 | Egypt | 85,432 |
| Nepal | 24,528 | Pakistan | 74,784 |
| India | 24,419 | Algeria | 65,909 |
| China | 17,207 | Colombia | 64,450 |
| Ethiopia | 10,283 | Spain | 49,420 |

Source: United Nations Food and Agriculture Organization (FAO). This table shows the average annual trading volume for the period between 2006 and 2010.

grow mainly green lentils. Turkey, Australia, Syria, Nepal and India grow mainly red lentils.

On average, Canadian lentil growers see more demand in the September through November period than at any other time of the year. Between the 2007-08 and 2011-12 marketing years, farmers sold over a third of their lentils in September, October and November. In a normal year, half the lentils that will be exported from Canada are bought for delivery from farmers between harvest and the end of December.

Farmers in the United States harvest their lentils before Canadians, but they experience similar demand patterns. The peak demand period is September, October and November, with over a third of all the lentils exported, moving from farms and local processing plants during those three months. As is the case in Canada, over half the lentils shipped each year move between harvest and the end of December.

Australia harvests its lentils in November and December. However, Australian lentil sales are not always concentrated in the months immediately following harvest. Most of its lentils go to the Indian subcontinent, which means there is a strong relationship between the status of that region’s winter or rabi season lentil harvest and demand for Australia product. When the Indian subcontinent grows fewer lentils, Australia tends to see stronger post harvest demand than when the Indian subcontinent grows more lentils. Demand for Australian lentils is also affected by the fact the crop is small and there can be sharp year-to-year swings in yield and seeded area. When there are problems, processors and exporters may discover that they do not have enough product bought from farmers. In an effort to cover that need, they may increase grower bids and increase asking prices to their customers. In this case, higher prices are intended to make importers buy the smallest amount of lentils needed to cover their needs; while encouraging farmers to sell more than they might otherwise.

Consumption

About 55% of the lentils grown in the world are consumed where they are produced. Global production has been shifting away from net consuming to net exporting countries. This does not seem to be having an effect on lentil consumption around the world. During the last half of the 1990s, per capita lentil for the entire world was 510 grams or about 1.12 pounds per person per year. That rose to 540 grams or 1.19 pounds per person between 2005 and 2009, and averaged 530 grams or 1.17 pounds per capita between 2008 and 2012.

In a report published in August of 2010, Agriculture Canada wrote, “(Lentils) are canned or packaged, whole or split, for retail sale, or processed into flour. They are then used in soups, stews, salads, casseroles, snack food and vegetarian dishes. In southern Asia, split red lentils are used in curries. Lentil flour is added to cereal flour to make breads, cakes and baby foods. Lentils are often used as a meat extender or substitute because of the high protein content and quality. Lentils have a shorter cooking time than other pulses and do not need to be pre-soaked.

“Only a relatively small volume of low quality lentils are used for livestock feed when degrading factors such as chipping, wrinkling or staining make them undesirable for human food uses where visual attributes are important. However nutritional analysis indicates that they make an excellent feed.”

Pulses, including lentils are increasingly being used in health-conscious diets to promote general well-being, reduce the risk of illness and heart disease. They are low in fat; low in sodium; cholesterol free; high in protein; and are an excellent source of both soluble and insoluble fibre, complex carbohydrates, and vitamins and minerals, especially B vitamins, potassium and phosphorus.

Despite the wide range of foods in which lentils can be used, consumption is not as price elastic as might be thought. Until new ways of using lentils in processed foods are discovered, it can be tough to convince families to make lentils a bigger part of their diet. Work is ongoing in this area. Pulse Canada is working with food manufacturers to help them be able to make more specific health claims on their labels. For instance, combining lentils, peas or other pulses with rice or wheat can improve the Protein Digestibility Corrected Amino Acid Score (PDCAAS) for both grains and pulses.

Food manufacturers would be taking advantage of the complimentary amino acid profiles of pulses and grains. Pulse Canada’s report on the Protein Quality of Cooked Pulses notes, “the protein in pulses is higher in lysine and lower in sulphur amino acids, while cereal grains such as wheat or rice are lower in lysine and higher in sulphur amino acids. . . . The optimal addition of lentil, black bean or pea to either wheat or rice increases the overall PDCAAS values ranging from 0.43 and 0.64 in the individual pulse or cereal to 0.71 and 0.75 in the blends. The improved protein quality of combined pulses and cereals can have nutritional advantages when using these blends for formulating food products.” Specifically, they may allow a protein claim under the current US Food Labeling Regulations.

Elasticity of Demand

The world lentil supply and demand table shows that demand is not very elastic. While shortages force lentil consumption lower because there is not enough product to go around, surpluses do not result in a significant increase in consumption. For lentils, price do a better job of moderating production than encouraging consumption. When prices are high, world production tends to increase while demand tends to fall. When prices are low, world production tends to decrease, but demand does not increase much beyond its trend.

The fact that lentils are not well accepted by livestock feed markets is a big part of the problem. Normally, as prices drop, more price conscious buyers and markets become interested in a commodity. Ultimately, the threat of losing supply to livestock feed markets forces buyers to stop trying to push prices lower. Lentil importers do not feel that this is a legitimate threat.

The issue was discussed in Pulse Canada's 2003 guide to using peas in livestock feed. Dave Hickling, Ph.D., noted, "Whereas peas and lupins are often grown intentionally for animal feed, the other major feed pulses such as lentils, chick peas and beans are grown mainly for human consumption. Occasionally they are downgraded for use in animal feeds. They can be good nutrient sources and effective feed ingredients; however, their economic value in feed is lower than feed peas. Relatively high levels of tannins in both lentils and fababeans limit their use in swine and poultry feeds."

Hickling explained, "Tannins are phenolic compounds found widely in pulses—mostly concentrated in the seed coat. The condensed tannins cause reduced protein and amino acid digestibility by forming indigestible linkages with protein. They are also bitter and may reduce feed intake."

The inability to count on the livestock feed sector to consume large quantities of cheap lentils became a factor in 2005 and again following the 2010 harvest. In 2005, it was a simple problem of over-supply that took longer to resolve because livestock feed demand is limited. In 2010, the problem was that a significant portion of lentils harvested in Canada and the United States were unsuitable for human consumption. Those lentils are slowly being fed to animals, but they remained for several years on supply and demand balance sheets in the form of unusually high ending stocks. This needs to be taken into account when thinking about how the market will deal with a large crop. That affects both the timing of sales and the decision about how much or whether to plant lentils.

World Lentil Supply and Demand

(hectares, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| Area (ha) | 3,786,000 | 4,268,000 | 4,202,000 | 3,700,000 | 3,872,600 |
| Yield (kg) | 1,058 | 1,107 | 961 | 980 | 992 |
| Production | 4,007,000 | 4,723,000 | 4,040,000 | 3,625,000 | 3,861,800 |
| Carry-in | 92,000 | 100,000 | 884,000 | 778,000 | 407,200 |
| Supply | 4,099,000 | 4,823,000 | 4,924,000 | 4,403,000 | 4,269,000 |
| | | | | | |
| Export Trade | 1,799,000 | 1,866,000 | 1,981,000 | 1,972,000 | 1,787,600 |
| Inferred Use | 3,999,000 | 3,939,000 | 4,146,000 | 3,690,000 | 3,755,600 |
| Ending Stock | 100,000 | 884,000 | 778,000 | 713,000 | 513,400 |
| Stock-to-Use | 2.5% | 22.4% | 18.8% | 19.3% | 13.2% |
| Per Capita (kg) | 0.590 | 0.575 | 0.598 | 0.527 | 0.548 |

In the above table, area is in hectares; yield and per capita consumption are in kilograms; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from many sources, including: the FAO, Statistics Canada, the USDA, and private traders.

Canada Lentil Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

Canada Lentil Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 10% | 4% | 9% | 8% | 11% | 8% | 6% | 5% | 10% |
| Sep | 12% | 10% | 11% | 9% | 11% | 14% | 14% | 10% | 12% |
| Oct | 12% | 13% | 11% | 8% | 11% | 11% | 15% | 14% | 13% |
| Nov | 13% | 12% | 10% | 7% | 9% | 9% | 13% | 11% | 10% |
| Dec | 10% | 9% | 9% | 7% | 8% | 7% | 10% | 8% | 6% |
| Jan | 9% | 8% | 8% | 7% | 7% | 8% | 11% | 9% | 7% |
| Feb | 7% | 8% | 7% | 8% | 7% | 11% | 9% | 9% | 7% |
| Mar | 8% | 8% | 6% | 8% | 7% | 10% | 7% | 7% | 8% |
| Apr | 7% | 8% | 6% | 9% | 8% | 9% | 6% | 5% | 8% |
| May | 5% | 7% | 8% | 10% | 8% | 7% | 4% | 5% | 10% |
| Jun | 3% | 6% | 7% | 9% | 7% | 4% | 3% | 7% | 8% |
| Jul | 4% | 8% | 8% | 10% | 6% | 3% | 2% | 9% | 2% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

Improving Protein Quality in Foods With Pulses

| | Amino Acid Score | True Protein Digestibility (%) | PDCAAS |
|--------------------------------|------------------|--------------------------------|--------|
| Pea (yellow, split) | 0.73 | 87.9 | 0.64 |
| Pea (green, split) | 0.59 | 85.2 | 0.50 |
| Lentil (green, whole) | 0.71 | 87.9 | 0.63 |
| Lentil (red, split) | 0.59 | 90.6 | 0.54 |
| Chickpeas | 0.61 | 85.0 | 0.52 |
| Pinto Beans | 0.77 | 76.2 | 0.59 |
| Kidney Beans | 0.70 | 78.6 | 0.55 |
| Black Beans | 0.76 | 70.0 | 0.53 |
| Navy Beans | 0.83 | 80.0 | 0.67 |
| Soy Flour | 0.92 | 83.5 | 0.77 |
| Wheat Flour* | 0.47 | 92.3 | 0.43 |
| Rice Flour* | 0.54 | 92.0 | 0.50 |
| Lentil-Wheat (25:75) Blend* | 0.78 | 91.0 | 0.71 |
| Lentil-Rice (20:80) Blend* | 0.82 | 90.0 | 0.74 |
| Black Bean-Rice (25:75) Blend* | 0.81 | 93.0 | 0.75 |
| Pea-Wheat (30:70) Blend* | 0.83 | 90.0 | 0.75 |
| Casein | 1.04 | 96.6 | 1.00 |

Amino acid score is limiting the amino acid with the lowest ratio relative to the established amino acid requirement values for humans, aged 2 to 5 years old. AOAC Method 991.29 (n = 10). PDCAAS = Amino Acid Score x % True Protein Digestibility.

Red Lentils

Red lentils are the most widely consumed and produced lentils in the world. Available data suggests red lentils account for around 60% of world trade and a higher proportion of world production. This reflects the fact that most lentils are consumed where they are grown.

Canadian farmers did not start growing red lentils on a commercial scale until well after green were firmly established. Acreage grew slowly through the 1990s as varieties which were better adapted to conditions in Saskatchewan emerged. By the year 2000, reds accounted for 18% of total lentil area in Canada. The following year, seedings jumped to 31% of the total area, before dropping back under 20% by 2004 and 2005.

Over-production of green lentils in 2004 and 2005 resulted in an explosion in interest in red lentils because they became more income competitive than greens. By 2008, reds accounted for over half of all lentil seedings in Canada. However, land usage dropped to 41% in Canada in 2012 because of low prices during the 2011-12 marketing year.

The expansion in red lentil area in Canada and events affecting the price performance of red lentils between 2005 and 2009 is part of a trend which is seeing world lentil production migrate from net consuming to net exporting countries. Between 2000 and 2004, combined area for green and red lentils in Canada, Australia and the United States accounted for an average 21% of all lentils planted in the world. Between 2006 and 2010, those three countries planted an average 30% of the world lentil crop. Their share peaked at 41% of total world area in the year 2010, up from 23% in the year 2000. Canada alone accounted for an average 15% of the world lentil area between 2000 and 2004 and 22% between 2006 and 2010. The migration of green lentil production from consumers to exporters is virtually complete. Recent years has seen the same trend with red lentils. However, there is no reason to believe net importing regions like Indian sub-continent will stop growing red lentils. Pulses are considered a strategically important food ingredient. India, in particular, is working hard to encourage farmers to increase pulse production to help limit imports instead of focusing on exportable crops such as wheat and rice.

Red Lentil Prices Often Lower Than Green

Other than the period between 2005 and the first half of 2009, grower bids for red lentils are normally lower than green lentils. Annual average red lentil bids were only higher than large greens six out of the 16 years between the 1996-97 and 2011-12 marketing years. They were higher than medium greens five out of those 16 seasons and higher than small green lentils for seven seasons.

Between the 2007-08 and 2011-12 marketing years, farmers were paid an average 4.1 cents per pound or \$90 per metric ton less than large green lentils; 4.55 cents a pound or \$100 per metric ton less than medium green lentils; and 1.92 cents per pound or \$42 per metric ton less than small green lentils. However, in the 2007-08 and 2008-

Canada Red Lentil Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|-----------|-----------|---------|-----------|
| Area (acres) | 1,235,000 | 1,920,000 | 1,222,775 | 950,000 | 1,156,555 |
| Yield (lbs/acre) | 1,400 | 1,211 | 1,394 | 1,213 | 1,259 |
| Production | 784,100 | 1,055,000 | 773,000 | 522,600 | 673,760 |
| Carry In | 3,000 | 14,000 | 473,000 | 398,000 | 90,800 |
| Supply | 787,100 | 1,069,000 | 1,246,000 | 920,600 | 764,560 |
| | | | | | |
| Exports | 716,827 | 533,321 | 638,400 | 570,800 | 517,877 |
| Seed | 45,000 | 37,200 | 29,700 | 30,400 | 34,720 |
| Other Domestic | 11,273 | 25,479 | 179,900 | 79,400 | 47,183 |
| Total Usage | 773,100 | 596,000 | 848,000 | 680,600 | 599,780 |
| Ending Stocks | 14,000 | 473,000 | 398,000 | 240,000 | 164,780 |
| Stocks/Use | 2% | 79% | 47% | 35% | 27% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from Statistics Canada. All forecasts are by STAT Publishing.

09 marketing years, red lentils fetched higher average prices than both large and small green lentils.

In percentage terms, average prices paid for red lentils were 12% less than large greens between 2007 and 2012, 18% less than medium, and 7% less than small green. Between 2007 and 2011, red lentil yields averaged 8% higher than large green, 2% lower than medium, and 3% higher than small green. Red and small green lentils share one advantage, as they mature more quickly than large and medium green lentils. This makes them an option when crops need to be seeded late or to improve harvest management by including crops which mature quickly.

From a management perspective, once farmers start growing red lentils, they should not grow small green lentils on the same land. Volunteer plants can result in a crop which includes both green and red lentils. Sometimes called “Christmas lentils”, they can be used by some canners, but packagers expect steep discounts. As a result, once a farmer starts growing red lentils, they might not be able to grow Eston-type again, thereby shrinking the available land base.

Canadian Red Lentils Deciles Since 1987

(CDN cents per pound delivered plant Saskatchewan)

| Decile | No 1 | No 2 | Extra 3 | No 3 |
|--------|-------|-------|---------|-------|
| 0 | 6.65 | 6.63 | 3.09 | 1.57 |
| 1 | 10.15 | 10.00 | 6.09 | 4.57 |
| 2 | 13.65 | 13.25 | 9.09 | 7.57 |
| 3 | 15.60 | 15.50 | 12.09 | 10.00 |
| 4 | 16.65 | 16.50 | 13.15 | 10.60 |
| 5 | 17.65 | 17.63 | 14.09 | 11.57 |
| 6 | 18.85 | 18.50 | 15.09 | 12.57 |
| 7 | 20.00 | 19.63 | 16.09 | 14.00 |
| 8 | 22.00 | 21.63 | 18.00 | 15.57 |
| 9 | 26.75 | 26.63 | 21.09 | 17.75 |
| 10 | 52.75 | 52.75 | 37.75 | 37.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Canadian Red Lentils Deciles Since 2007

(CDN cents per pound delivered plant Saskatchewan)

| Decile | No 1 | No 2 | Extra 3 | No 3 |
|--------|-------|-------|---------|-------|
| 0 | 14.75 | 14.75 | 9.00 | 5.00 |
| 1 | 18.50 | 18.00 | 14.00 | 10.00 |
| 2 | 19.75 | 19.00 | 14.75 | 13.75 |
| 3 | 20.75 | 20.25 | 16.00 | 14.00 |
| 4 | 23.00 | 22.75 | 18.00 | 14.75 |
| 5 | 25.00 | 25.00 | 18.25 | 15.00 |
| 6 | 26.75 | 26.00 | 20.00 | 17.00 |
| 7 | 30.00 | 30.00 | 22.00 | 17.75 |
| 8 | 35.00 | 34.25 | 25.00 | 20.00 |
| 9 | 42.75 | 42.75 | 28.00 | 20.00 |
| 10 | 52.75 | 52.75 | 37.75 | 37.00 |

Canada #2 Red Lentils Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

Canada #2 Red Lentils Average Price

(CDN cents per pound delivered plant Sask)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 17.14 | 16.60 | 14.64 | 11.62 | 22.05 | 42.95 | 32.25 | 23.62 | 20.06 |
| Sep | 16.75 | 18.82 | 13.96 | 12.90 | 23.12 | 34.06 | 27.12 | 27.06 | 19.70 |
| Oct | 16.22 | 18.84 | 14.00 | 14.75 | 22.88 | 33.80 | 26.55 | 27.40 | 20.12 |
| Nov | 16.15 | 18.25 | 13.96 | 15.15 | 23.10 | 31.25 | 31.12 | 24.88 | 18.81 |
| Dec | 16.32 | 18.14 | 12.66 | 14.56 | 23.12 | 25.69 | 34.55 | 25.00 | 16.75 |
| Jan | 17.28 | 18.70 | 12.88 | 15.25 | 26.70 | 32.45 | 37.19 | 25.56 | 17.18 |
| Feb | 19.35 | 18.85 | 11.81 | 15.06 | 35.44 | 37.00 | 32.00 | 25.75 | 17.75 |
| Mar | 19.91 | 18.12 | 11.75 | 16.40 | 36.12 | 39.31 | 29.38 | 21.62 | 18.65 |
| Apr | 19.80 | 18.00 | 13.62 | 19.06 | 35.56 | 43.00 | 28.10 | 21.15 | 19.21 |
| May | 18.90 | 18.75 | 13.00 | 18.25 | 47.70 | 43.75 | 25.06 | 18.00 | 19.88 |
| Jun | 18.30 | 18.50 | 12.50 | 18.60 | 52.00 | 45.50 | 23.94 | 18.94 | 19.75 |
| Jul | 16.48 | 17.07 | 11.50 | 20.69 | 48.62 | 43.00 | 24.35 | 21.95 | 18.50 |

Canada Red Lentil Movement From Farms

(the darker the color the more commercial demand)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | |
| Sep | | | | | |
| Oct | | | | | |
| Nov | | | | | |
| Dec | | | | | |
| Jan | | | | | |
| Feb | | | | | |
| Mar | | | | | |
| Apr | | | | | |
| May | | | | | |
| Jun | | | | | |
| Jul | | | | | |

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Canada Red Lentil Monthly Movement

(sales as a percent of the marketing year total)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | 10% | 9% | 7% | 5% | 10% |
| Sep | 13% | 20% | 17% | 10% | 9% |
| Oct | 11% | 15% | 18% | 16% | 10% |
| Nov | 8% | 9% | 14% | 12% | 6% |
| Dec | 9% | 7% | 10% | 7% | 2% |
| Jan | 7% | 9% | 11% | 10% | 9% |
| Feb | 8% | 10% | 8% | 9% | 8% |
| Mar | 7% | 7% | 6% | 6% | 10% |
| Apr | 7% | 5% | 4% | 4% | 10% |
| May | 8% | 3% | 2% | 3% | 14% |
| Jun | 6% | 3% | 2% | 7% | 11% |
| Jul | 6% | 2% | 1% | 11% | 2% |

The above table shows monthly movement as a percentage of the entire marketing year’s export movement.

Market Timing

More often than not, demand is strongest for red lentils from the start of harvest through the end of the calendar year. It is normally easier to sell when liquidity is greatest. By contrast, red lentils have tended to have the best prices in April, May and June. There are two things which have a direct bearing on the value of red lentils after March. First is the size of the red lentil harvest on the Indian subcontinent, and the second is the size of the Turkish crop.

Neither Turkey nor India publish seeding intentions estimates for lentils. Part of the problem is the size of farms. The average farm in Saskatchewan is 675 hectares or 1,668 acres. The average farm in India is under two hectares and in Turkey around six hectares. While a Canadian farmer might not plant less than 100 acres of any individual crop, vast numbers of farmers in countries like India and Turkey plant less than an acre. The situation is more complex in India because some farmers grow more than one crop at the same time on the same piece of land. The net result is traders in those countries believe it is more accurate to think about the direction of change than the magnitude.

Coming up with a reasonable answer to the question of what might be happening in India and Turkey is easier than it seems. A farmer could simply ask, "Given what I know about the price and demand for lentils compared to other crops, would I grow red lentils?" Asking that question in August and September gives a clue about whether farmers on the Indian subcontinent will increase or decrease red lentil area. Likewise, asking that question in September and October gives a clue about whether farmers in Turkey are likely to increase or decrease red lentil area. If there is good reason to believe red lentil area will increase on the Indian subcontinent, then waiting to sell later in the marketing year could be a riskier strategy than if it looks like acreage will fall.

If production on the Indian subcontinent rises, import demand for red lentils would be expected to ease by the end of the calendar year. Conversely, if it falls, import demand would be expected to increase starting as early as May. Because the crop is harvested in February and March, it will take time for deliveries from farmers to slow to the point where prices rise enough to make imports profitable.

Land for red lentils in Turkey has fallen to the point where rising production will not have as much effect on demand for red lentils as a smaller harvest. Problems with Turkey's crops in 2008 and 2009 were the main reason for strong red lentil markets at that time. It also marked the moment when Turkey became an important reseller of split lentils. They bought whole lentils from Canada, processed them, and exported them to traditional customers in the Middle East.

The red lentil market will be more complex than the green lentil market as long as major consumers are also major producers. However, since farmers in every part of the world respond to markets in roughly the same way, it is not hard to come up with realistic ideas of what will happen to seeded area. That makes it easier to think about the timing of red lentil sales to take advantage of peaks and valleys in demand. Since the goal is to try to beat the season average price, it is important to try to anticipate whether red lentils will be in greater or lesser demand during the last half of the marketing year.

Large Green Lentils

Modern large green lentils are a made in Canada solution to the desire of some buyers in the world to eat a larger lentil. This class is still known as Laird lentils, bearing the name of the first lentil variety released in 1978 by Dr. Al Slinkard at the Crop Development Centre of the University of Saskatchewan. As production of Laird lentils expanded in Canada, so did that country's presence on world pulse markets and so did demand for lentils. While peas, canary and mustard seed have a longer history in Canada than lentils, Laird lentils are often thought of as the crop that launched Canada's specialty crop industry.

Large green lentils typically command a premium over small and medium green lentils. During the 2007-08 through 2011-12 marketing year, the average premium over medium green lentils was 3.12 cents per pound or \$70 per metric ton. The average premium over small green lentils was 4.07 cents per pound or almost \$90 per metric ton. From time to time, one of the other classes can move to a premium to large green lentils. This can happen when production of one of the classes collapses or when there is unexpected demand.

Since the start of the 1988-89 marketing year, there has never been a year in which the season average grower bid for medium green or Richlea lentils was higher than the bid for large green. The same is not true of small green, or Eston lentils. In eight out of 25 years, small green lentils fetched a higher average price than large green. The premium was as little as 14 cents per pound in 1988-89 and 25 cents in 2005-06; and as high as 5.9 cents per pound in 1993-94 and 4.55 cents in 2004-05. By contrast, large green premiums ranged from a low of 3 cents per pound in 1989-90 and 58 cents in 1997-98 to a high of 9.25 cents in 2002-03 and 6.97 cents in 2010-11.

Since 2007, large green lentils have accounted for 38% of the total seeded area for lentils in Canada. Among green lentils planted in Canada, large greens account for an average 77% of the seeded area. Other countries produce limited quantities of large green lentils, with most generated by size grading local lentil crops.

Canada is the largest lentil exporter in the world, with a 58% share of the total market. In green lentils, Canada supplies around 70% of the market, with its large green lentils accounting for roughly 54% of total world trade in green lentils.

Canada Large Green Lentil Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|-----------|-----------|-----------|---------|
| Area (acres) | 815,000 | 1,220,000 | 1,070,000 | 1,230,000 | 870,000 |
| Yield (lbs/acre) | 1,452 | 1,238 | 1,247 | 1,350 | 1,285 |
| Production | 536,900 | 685,000 | 605,400 | 753,200 | 505,580 |
| Carry In | 9,000 | 13,000 | 186,000 | 236,000 | 91,460 |
| Supply | 545,900 | 698,000 | 791,400 | 989,200 | 597,040 |
| | | | | | |
| Exports | 475,658 | 450,699 | 393,131 | 556,500 | 416,630 |
| Seed | 49,800 | 43,700 | 50,200 | 32,400 | 41,000 |
| Other Domestic | 7,442 | 17,601 | 112,069 | 84,300 | 30,670 |
| Total Usage | 532,900 | 512,000 | 555,400 | 673,200 | 488,300 |
| Ending Stocks | 13,000 | 186,000 | 236,000 | 316,000 | 108,740 |
| Stocks/Use | 2% | 36% | 42% | 47% | 22% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from Statistics Canada. All forecasts are by STAT Publishing.

Quality Control Starts on the Farm

Large green lentils are popular in Europe and South America, where they are often sold to retail consumers in 500 to 1000 gram bags. This makes the visual appearance of large green lentils very important. Consumers want to see a product which is uniform in size and color, with as few peeled and broken lentils as possible. Some large green lentils are canned, but few are used by splitters or grinders.

Apart from visual appearance, cooking time is important for lentils. Cooking time is rarely discussed when exporters and importers negotiate. But if the lentils do not cook, it can cause problems across the marketing chain and, on rare occasions, can limit demand for lentils from a specific origin for a period of time.

Farmers are as responsible as anyone in the marketing chain to make sure their lentils are suitable for the market to which they are destined. Unlike grains and oilseeds, most large green lentils are directly consumed by people. Other than being mechanically cleaned by a local processor and washed by the end user, most large green lentils undergo no further processing. This actually makes it easy for growers to know whether or not their lentils are suitable for human consumption. Bring some into the kitchen and ask that they be cooked for dinner. If you will not cook them, why would your customers?

Another good reason to eat your own pulse production is so that you know wheth-

Canadian Large Green Lentils Deciles Since 1987

(CDN cents per pound delivered plant Saskatchewan)

| Decile | No 1 | No 2 | Extra 3 | No 3 |
|--------|-------|-------|---------|-------|
| 0 | 10.00 | 6.50 | 5.00 | 4.00 |
| 1 | 14.00 | 11.75 | 9.38 | 7.50 |
| 2 | 15.50 | 13.61 | 11.50 | 9.50 |
| 3 | 17.00 | 15.01 | 13.00 | 11.00 |
| 4 | 18.50 | 16.60 | 14.75 | 12.51 |
| 5 | 20.00 | 18.10 | 16.00 | 14.00 |
| 6 | 21.60 | 20.00 | 17.45 | 15.00 |
| 7 | 24.00 | 22.00 | 19.00 | 16.00 |
| 8 | 27.75 | 25.75 | 22.00 | 18.50 |
| 9 | 34.50 | 30.75 | 27.00 | 22.00 |
| 10 | 45.75 | 42.75 | 38.75 | 32.75 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Canadian Large Green Lentils Deciles Since 2007

(CDN cents per pound delivered plant Saskatchewan)

| Decile | No 1 | No 2 | Extra 3 | No 3 |
|--------|-------|-------|---------|-------|
| 0 | 14.00 | 13.50 | 8.75 | 7.75 |
| 1 | 17.25 | 15.75 | 13.75 | 11.75 |
| 2 | 25.00 | 22.00 | 18.00 | 14.75 |
| 3 | 26.75 | 24.75 | 20.50 | 15.75 |
| 4 | 29.00 | 27.50 | 22.00 | 16.00 |
| 5 | 32.00 | 30.00 | 23.75 | 18.75 |
| 6 | 34.00 | 30.75 | 26.75 | 20.75 |
| 7 | 36.00 | 32.75 | 27.75 | 23.50 |
| 8 | 38.75 | 35.75 | 30.00 | 25.00 |
| 9 | 40.75 | 37.75 | 33.75 | 25.75 |
| 10 | 45.75 | 42.75 | 38.75 | 32.75 |

Canada #1 Large Green Lentils Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

Canada #1 Large Green Lentils Grower Average Price

(CDN cents per pound delivered plant Sask)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 21.90 | 18.52 | 15.20 | 13.44 | 19.35 | 37.60 | 39.31 | 29.81 | 31.75 |
| Sep | 21.06 | 23.52 | 14.10 | 14.50 | 22.25 | 36.69 | 30.12 | 36.12 | 31.35 |
| Oct | 20.02 | 22.30 | 13.00 | 14.50 | 23.38 | 34.80 | 29.75 | 39.15 | 31.12 |
| Nov | 19.10 | 21.50 | 12.43 | 15.40 | 24.85 | 30.62 | 35.38 | 40.50 | 29.25 |
| Dec | 19.14 | 20.10 | 11.90 | 14.19 | 25.62 | 24.69 | 37.95 | 39.40 | 28.45 |
| Jan | 19.66 | 19.77 | 11.69 | 14.62 | 28.00 | 26.80 | 38.31 | 39.56 | 27.94 |
| Feb | 21.10 | 17.88 | 11.50 | 15.50 | 33.56 | 30.62 | 34.25 | 40.56 | 26.62 |
| Mar | 23.60 | 17.24 | 11.00 | 16.05 | 35.44 | 33.88 | 32.75 | 39.25 | 25.10 |
| Apr | 26.26 | 17.30 | 10.94 | 16.88 | 34.75 | 36.56 | 32.05 | 36.30 | 25.69 |
| May | 24.77 | 17.60 | 10.88 | 17.06 | 40.30 | 43.15 | 28.50 | 37.25 | 26.12 |
| Jun | 21.80 | 17.15 | 11.55 | 17.00 | 43.75 | 40.75 | 30.88 | 35.75 | 26.00 |
| Jul | 20.50 | 17.00 | 11.75 | 17.06 | 39.12 | 40.75 | 33.35 | 35.75 | 22.75 |

Canada Green Lentil Movement From Farms

(the darker the color the more commercial demand)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | |
| Sep | | | | | |
| Oct | | | | | |
| Nov | | | | | |
| Dec | | | | | |
| Jan | | | | | |
| Feb | | | | | |
| Mar | | | | | |
| Apr | | | | | |
| May | | | | | |
| Jun | | | | | |
| Jul | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

Canada Green Lentil Monthly Movement

(sales as a percent of the marketing year total)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | 12% | 7% | 4% | 5% | 10% |
| Sep | 11% | 9% | 10% | 11% | 14% |
| Oct | 10% | 8% | 12% | 12% | 15% |
| Nov | 8% | 8% | 13% | 11% | 13% |
| Dec | 8% | 6% | 11% | 8% | 9% |
| Jan | 6% | 8% | 12% | 7% | 6% |
| Feb | 7% | 12% | 11% | 9% | 6% |
| Mar | 7% | 11% | 8% | 9% | 6% |
| Apr | 9% | 11% | 7% | 8% | 6% |
| May | 8% | 9% | 5% | 7% | 6% |
| Jun | 7% | 6% | 4% | 7% | 7% |
| Jul | 7% | 3% | 3% | 7% | 2% |

The above table shows monthly movement as a percentage of the entire marketing year’s export movement.

er or not they cook. Cookability is a significant issue in direct human consumption markets. This is especially true of lentils. Without being soaked, they should be fully cooked in 30 to 40 minutes. If they do not, there will be problems if those lentils go to traditional markets. It would be better if they could be sold to a country which would split them or grind them into flour. When lentils that do not cook end up in the wrong market, consumers lose confidence in the brand or the place the lentils came from. They are more likely to actively seek out lentils coming from another source. Cookability is one of the arguments used by the U.S. industry when trying to take market share away from Canadian large green lentils. Market share lost because of quality problems is harder to regain than market share lost because of price. Lentil growers are the first line of defence in retaining market share. Quality control for the entire industry, literally starts on the farm.

Managing Quality

Some growers go an extra step in their quality control efforts. They try hard to combine crops in such a way as to maximize the quality potential of the harvested product. This might mean combining around low spots, where lentils might not be as mature or damaged by diseases that are helped by moist soils. This can also involve binning lentils with an eye to quality, trying to keep better quality product apart from lower quality product. This could result in higher average prices by reducing the risk of unintentionally lowering the amount of high quality lentils harvested.

For the five years ending with the 2011-12 marketing year, the average spread between a Number 1 large green lentil and a No 2 was 2.42 cents per pound or \$53 per metric ton. The average price paid for Canada's Extra 3 grade large green lentil was 4.76 cents per pound or \$105 per metric ton lower than for Number 2 grade product. Farmers with Number 3 grade large green lentils were paid 5.15 cents per pound or \$114 per metric ton less than they would be if the lentils had fallen into the Extra 3 grade. Accidentally turning a Number 1 grade crop into an Extra 3 grade crop costs an average of 7.18 cents per pound or \$158 per metric ton.

Managing quality also involves making sure lentils are harvested at the right moment. Desiccants are commonly used to control the timing of the harvest. However, it is now important for farmers to tell their buyers what desiccant they used, because countries have different tolerances for herbicide residues in lentils and other pulses. It is equally important to not over-use desiccants because countries are more frequently testing for residues. If a shipment exceeds the MRL, all shipments from the offending country could be subject to testing. This increases the cost and risk of doing business. More importantly, some importers might switch to another origin.

Places Where Desiccant Can be a Problem

The following comments are derived from a information pamphlet issued in July of 2012 by Pulse Canada, Alberta Pulse Growers, Saskatchewan Pulse Growers, and Manitoba Pulse Growers:

Glyphosate faces the fewest problems. The only market where glyphosate is an issue is Japan, where the MRL is set at a low level. Japan buys small quantities of the various classes of peas, along with some lentils, dry edible beans and soybeans varieties intended for use to make tofu and natto.

Diquat is only a problem for product being shipped to the United States. The diquat MRL has not yet been harmonized between the two countries.

Saflufenacil faces problems in all markets except the United States. For product destined for the European Unions, the MRL for saflufenacil use as a preharvest use pattern is not projected to be set until 2013 for all pulses. Therefore refrain from using saflufenacil as a preharvest dry down product for this season if the crop is destined for the European Union. (This applies to the preharvest use pattern only).

In CODEX countries (e.g. India, Pakistan, many others), the MRL for saflufenacil use as a preharvest use pattern is not projected to be set until 2013 at CODEX for lentils. MRLs for saflufenacil have been set for field peas at CODEX. Therefore refrain from using saflufenacil as a preharvest dry down product for this season if the crop is destined for CODEX countries for lentils. (This applies to the preharvest use pattern only).

In Japan, the MRL for saflufenacil use as a preharvest aid is not projected to be set until 2013 at the earliest in Japan. Therefore, refrain from using saflufenacil as a preharvest dry down product for this season if the crop is destined for Japan. (This applies to the preharvest use pattern only).

Timing Lentil Sales

Over the years, well defined markets have emerged, which are able to take all qualities of lentils harvested. Most buyers in Europe and North America prefer Number 1 Grade large green lentils. In Spain, there is an additional niche market for extra large green lentils. Demand from those regions is typically stronger in the August through November period because pulse consumption peaks in the winter months.

South America is a good destination for Extra 3 and No 2 grade large green lentils. Seeds which have been distinctly damaged by a disease such as ascochyta work well in those markets. However, weathered lentils can pose problems. If the seed coats are wrinkled or loose, buyers do not want them. That type of lentil can be prone to splitting during handling. This creates a marketing problem because they are typically sold in clear, plastic bags, and lentils that are falling apart in the package lack visual appeal. South America buys lentils throughout the marketing year. There is also a tendency for importers to move together in individual countries, so that the sector has a similar cost structure.

Lentils as low as Number 3 grade can be sold to the Indian subcontinent. Many of the pulses imported into the region are ground to make flour or the hulls are removed and they are sold as peeled or peeled and split product. Frost damaged lentils do not work in these applications because they would discolor the final product. That type of lentil is only suitable for livestock feed. The timing of demand from the Indian subcontinent has more to do with their local conditions and whether importing lentils is more profitable than covering needs with locally grown lentils and other substitutes. There seems to be some relationship between the size of India's local pigeon pea or tur crop

and demand for green lentils, but it is dangerous to assume that a small pigeon crop would result in more green lentil sales. If green lentils are cheap enough relative to other pulses, there is a good chance the Indian subcontinent will import.

Having such diverse outlets for large green lentils means that they are being exported all year round. However, movement tends to be heaviest in the months following harvest. Between the 2007-08 and 2011-12 marketing years, farmers sold half of the large green lentils they would sell by the end of December. A third of all the lentils sold during the year moved from farms in September, October and November.

It is important to bear in mind that large lentil movement normally peaks in the September through November period because that is when many of the largest users of this type of lentil need them. As a result, filling this demand is important because people never replace what they did not eat. If lentils are not available, people might substitute another pulse or some other food ingredient. If food manufacturers consistently face supply problems, they will switch to another origin or another product. Every time either of those events take place, the amount of lentils available relative to the outstanding needs of the market goes up.

When farmers think about the timing of lentil sales they are really looking at two things: when do prices peak, and when is demand strong. There is nothing worse than trying to sell when prices are high only to discover that most people are just posting quotes because they cannot sell lentils at that price to end users. Using the farm movement heat map together with the price heat map helps answer the question about when demand is good and whether prices are often good during that period. Comparing current bids with decile tables for each grade makes it easier to see if the upside potential is better than the downside risk.

Medium Green Lentils

The first lentil grown in Canada were medium green lentils imported from the United States. Originally known as regular or Chilean lentils, this class of lentil is now better known as Richlea in Canada. That name comes from the first widely-adopted medium green lentil variety developed by the University of Saskatchewan. Though medium green lentils are referred to as Richlea, few farmers actually grow that variety because it is susceptible to ascochyta blight. The disease is caused by the fungus *Ascochyta lentis*, which became more aggressive as the acreage devoted to lentil increased over the years (Andrahennadi, 1997). *Ascochyta* blight was first reported in western Canada in 1978 (Morrall and Sheppard, 1981).

Since 2007, medium green lentils have accounted for 2% of Canada's total lentil area and around 4% of the green lentil area. Land in medium green lentils rose sharply in 2012 in response to strong prices during the 2011-12 marketing campaign. Preliminary data from Statistics Canada revealed farmers in Saskatchewan, Alberta and Manitoba probably planted 95,000 acres of medium green lentils. That is up from the previous five-year average of 46,500 acres. Canada used to plant a higher proportion of this class of lentil. Between 2000 and 2004, seeded area averaged 174,200 acres per year. However, increased competition from the United States has hurt interest in the crop in Canada.

Farmers have been consistently paid less for medium green than large green lentils. Between the 2007-08 through 2011-12 marketing years, returns from medium green lentils averaged 3.12 cents per pound or \$70 per metric ton less than large green lentils.

The price relationship between small and medium green lentils has been more volatile. On average, grower bids for medium green lentils are higher. The premium averaged 0.96 cents per pound or \$21.14 per metric ton for the five years ending in 2011-12 and 0.35 cents per pound or \$7.66 per metric ton for the 10 years ending in 2011-12. Four times during that 10-year period, average grower bids for medium green lentils were lower than for small green. In 2004-05, medium green lentils were worth 6.13 cents per pound or \$135 per metric ton less than small greens. At the other end of the spectrum, medium green were worth 2.98 cents per pound or almost \$66 per metric tons more than small greens in 2008-09.

The reason grower bids for large and medium green lentils seem more closely related is that there is a certain amount of overlap in the markets for the two classes. Each has its own niches, but they also compete in some markets. One reason is that there can be a lot of variation in the size of both large and medium lentils from one year to the next and from one area to next. Under-sized large green lentils can fit into medium green markets, just as over-sized mediums can fit into some of the large green lentil markets. At one time large green lentils were obtained by size-grading regular or Chilean-type lentils. There is not the same sort of overlap in markets between these and small green lentils. Size-grading medium lentils might yield a certain percentage of small caliber product, they are not same product as the small lentil varieties and do not meet the needs of many small lentil buyers.

Canada Medium Green Lentil Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 85,000 | 60,000 | 55,000 | 65,000 | 54,600 |
| Yield (lbs/acre) | 830 | 1,304 | 1,114 | 1,119 | 1,221 |
| Production | 32,000 | 35,500 | 27,800 | 33,000 | 28,140 |
| Carry In | 1,000 | 1,000 | 12,000 | 11,000 | 3,540 |
| Supply | 33,000 | 36,500 | 39,800 | 44,000 | 31,680 |
| | | | | | |
| Exports | 29,500 | 21,600 | 20,400 | 31,100 | 22,613 |
| Seed | 1,900 | 1,700 | 2,100 | 1,500 | 1,880 |
| Other Domestic | 600 | 1,300 | 6,300 | 3,400 | 1,847 |
| Total Usage | 32,000 | 24,500 | 28,800 | 36,000 | 26,320 |
| Ending Stocks | 1,000 | 12,000 | 11,000 | 8,000 | 5,360 |
| Stocks/Use | 3% | 49% | 38% | 22% | 20% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from Statistics Canada. All forecasts are by STAT Publishing.

Medium Green Incentives Absent in Canada

One of the consequences of a strong relationship between Canadian medium and large lentils is there is little difference in the way markets have performed during the marketing year. This becomes clear when comparing the price heat maps for medium and large green lentils. Other than the differences in value, medium greens follow large green lentil market tendencies closely. Comparing prices over the long term reveals that large green lentil growers bids were 11% higher than the average bids for medium greens. On the other hand medium greens have an advantage over large—they have averaged 10% greater yields in recent years.

There are a couple of implications in these observations. One is that there is no advantage, from a market timing perspective, in growing medium rather than large green lentils in Canada. The other is that there is no long term income advantage in growing medium over large green lentils. The net result is that medium green acreage has remained small in Canada, which in turn affects the ease of marketing this class of lentil. Since medium greens account for around 2% of Canada's total lentil area, they are not attracting the same market development effort as the other 98%. This is especially so when there is a certain degree of inter-changeability between mediums and larges.

Canadian Medium Green Lentils Deciles Since 1987

(CDN cents per pound delivered plant Saskatchewan)

| Decile | No 1 | No 2 | Extra 3 | No 3 |
|--------|-------|-------|---------|-------|
| 0 | 7.69 | 6.15 | 4.50 | 2.95 |
| 1 | 12.00 | 10.15 | 8.50 | 6.75 |
| 2 | 14.00 | 12.50 | 10.50 | 8.95 |
| 3 | 15.50 | 14.06 | 12.02 | 10.00 |
| 4 | 16.60 | 15.15 | 13.50 | 11.52 |
| 5 | 18.00 | 16.60 | 14.50 | 12.95 |
| 6 | 19.60 | 18.15 | 15.60 | 13.95 |
| 7 | 21.69 | 20.15 | 18.00 | 15.00 |
| 8 | 25.00 | 23.50 | 20.00 | 17.00 |
| 9 | 31.00 | 28.75 | 25.00 | 20.75 |
| 10 | 42.75 | 39.75 | 36.75 | 30.75 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Canadian Medium Green Lentils Deciles Since 2007

(CDN cents per pound delivered plant Saskatchewan)

| Decile | No 1 | No 2 | Extra 3 | No 3 |
|--------|-------|-------|---------|-------|
| 0 | 12.00 | 10.50 | 8.75 | 6.75 |
| 1 | 16.00 | 14.75 | 12.75 | 10.75 |
| 2 | 23.75 | 20.50 | 16.75 | 14.00 |
| 3 | 24.75 | 22.75 | 18.75 | 15.00 |
| 4 | 27.00 | 25.75 | 20.00 | 15.00 |
| 5 | 28.75 | 27.75 | 22.75 | 17.00 |
| 6 | 30.75 | 28.75 | 24.75 | 20.00 |
| 7 | 32.50 | 30.75 | 25.75 | 22.00 |
| 8 | 34.75 | 32.75 | 27.75 | 23.75 |
| 9 | 36.00 | 33.75 | 30.75 | 24.75 |
| 10 | 42.75 | 39.75 | 36.75 | 30.75 |

Canada #1 Medium Green Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

Canada #1 Medium Green Average Price

(CDN cents per pound delivered plant Sask)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 19.61 | 17.52 | 13.88 | 9.88 | 17.55 | 35.20 | 34.69 | 26.00 | 30.06 |
| Sep | 19.86 | 21.40 | 13.00 | 11.90 | 20.50 | 36.06 | 26.12 | 32.81 | 29.35 |
| Oct | 19.08 | 19.32 | 11.50 | 12.12 | 21.44 | 33.35 | 26.75 | 34.15 | 29.44 |
| Nov | 18.60 | 19.27 | 11.12 | 13.80 | 24.05 | 31.00 | 32.88 | 34.75 | 27.75 |
| Dec | 18.90 | 19.00 | 10.30 | 14.00 | 24.75 | 24.75 | 34.60 | 33.70 | 25.40 |
| Jan | 19.14 | 18.25 | 10.00 | 13.25 | 25.50 | 24.70 | 34.62 | 35.25 | 25.00 |
| Feb | 20.35 | 16.82 | 10.00 | 12.00 | 30.19 | 27.81 | 29.75 | 34.62 | 25.00 |
| Mar | 22.05 | 17.00 | 9.40 | 13.30 | 33.88 | 30.75 | 29.06 | 32.50 | 24.00 |
| Apr | 25.24 | 16.00 | 9.44 | 14.50 | 32.00 | 33.75 | 28.90 | 32.00 | 24.75 |
| May | 24.25 | 16.45 | 9.88 | 15.56 | 35.65 | 39.75 | 26.75 | 28.19 | 24.62 |
| Jun | 21.40 | 15.90 | 9.35 | 15.75 | 40.56 | 36.75 | 28.50 | 28.19 | 22.40 |
| Jul | 18.80 | 14.22 | 9.50 | 15.56 | 37.06 | 36.00 | 31.05 | 28.75 | 20.00 |

Small Green Lentils

Developed in 1980 by Dr. Al Slinkard at the Crop Development Centre of the University of Saskatchewan, Eston has become the trade name for small, Persian-type green lentils. As is the case with large green lentils, Canada is the largest exporter of this type of lentil. Small green lentils are both smaller and plumper than large and medium greens, both of which are Chilean-type. It is possible to size grade Chilean type lentils to produce 4-5mm small greens. However, most consumers do not want a small green shaped like the Chilean types.

Though small green lentils are not as widely consumed as large greens, they have still managed to become the second most widely grown type of green lentil in Canada. Between 2007 and 2011, small green lentils accounted for 11% of Canada's total lentil area and around 20% of the green lentil area. Land in small green lentils rose sharply in 2012 in response to unusually strong prices during the 2011-12 marketing campaign. Preliminary data from Statistics Canada revealed farmers in Saskatchewan, Alberta and Manitoba planted 260,000 acres of small green lentils in 2012. That is up from the previous five-year average of 223,400 acres. Canada used to plant a higher proportion of this class of lentil.

Normally, the smaller the green lentil, the lower the price. This is reflected in the average price relationship between grower bids for large, medium, and small green lentils. Prices paid to farmers for medium green lentils are consistently below those paid for large. On average, farmers are paid less for small greens than for medium or large. But, there are times when small greens fetch a premium in the market. This reflects the fact that large and medium green lentils cannot readily be substituted for smalls, and in some markets, buyers will only accept Eston or Persian-type small greens.

More significantly, small green lentils have penetrated markets which traditionally consume Chilean-type lentils because some consumers think they taste better. This has happened in both Chile and Mexico. In fact, exporters say import demand from Mexico during the 2011-12 marketing year was the main reason small green lentils moved to a premium to other lentils that season. Mexico imported a record 40,264 metric tons of lentils in 2011-12. One reason was that small green lentils were significantly cheaper than dry edible beans, encouraging some consumers to increase the amount of lentils they eat. This has changed the demand fundamentals for small green lentils. What is not known is whether Mexican consumption of small green lentils has permanently increased or it will return to normal once dry edible bean prices decline. It is safer to assume that demand will decline once beans are more reasonably priced.

Canada Small Green Lentil Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 250,000 | 235,000 | 200,000 | 260,000 | 225,000 |
| Yield (lbs/acre) | 1,510 | 1,310 | 1,241 | 1,348 | 1,348 |
| Production | 171,200 | 139,600 | 112,600 | 159,000 | 137,740 |
| Carry In | 8,000 | 11,000 | 45,000 | 36,000 | 22,220 |
| Supply | 179,200 | 150,600 | 157,600 | 195,000 | 159,960 |
| | | | | | |
| Exports | 160,100 | 97,200 | 92,700 | 115,600 | 124,243 |
| Seed | 5,300 | 4,500 | 5,900 | 4,000 | 5,120 |
| Other Domestic | 2,868 | 3,900 | 23,000 | 16,400 | 6,991 |
| Total Usage | 168,200 | 105,600 | 121,600 | 136,000 | 136,340 |
| Ending Stocks | 11,000 | 45,000 | 36,000 | 59,000 | 23,620 |
| Stocks/Use | 7% | 43% | 30% | 43% | 17% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from Statistics Canada. All forecasts are by STAT Publishing.

Stacking Up Against Other Lentils

Between the 2007-08 and 2011-12 marketing years, farmers were paid 4.07 cents per pound or \$90 per metric ton less than large green lentils; and 0.96 cents a pound or \$21 per metric ton less than medium green lentils. However, during the 2011-12 marketing year, small green lentils earned farmers an average 2.81 cents per pound or \$62 per metric ton more than large greens and 4.88 cents or \$107 per metric ton more than medium green lentils. Other than the size of the premium, this is not unusual. From time to time, small green lentils rise to a premium to medium, large, or both.

In percentage terms, average prices paid for small greens were 12% less than larges between 2007 and 2012, and 4% less than mediums. While some greens outperform either class of lentil on individual farms by 10% or more, the western Canadian average is lower. Between 2007 and 2011, small green lentil yields averaged 4% higher than large green and 2% lower than medium. However, there is one way in which small green lentils do have a distinct advantage over the other classes. They mature far more quickly, which makes them an excellent option when crops need to be seeded late or to improve harvest management by including crops which mature quickly.

Within the lentil industry, small green lentil acreage faces pressure from another source. Expansion of red lentils in western Canada has made farmers more aware of the problem with volunteer lentils, especially from another class, as mentioned previously.

Boom and Bust Cycle

Comparing the price performance heat map for small green lentils with those for large and medium shows that prices for the three classes generally move as a group. Most of the time the observations about why prices behave within a marketing year apply equally to all three classes.

Whenever prices for small green lentils move to a substantial premium to large and medium green lentils, acreage rises. Typically, prices fall back into a normal relationship the following season. This means that more times than not, any small green lentils carried over into the next marketing year are worth less because there ends up being more product available than needed by the market.

Obviously, if there is not a very strong acreage response or there is an unusual bulge in demand, there is a chance the premium could stay in effect for another year. Such was the case in both 1988 and 1999 and again in the 2004 and 2005 marketing years. But, the price difference was smaller the second year. In 1998-99, growers were paid an average 2.92 cents a pound or \$64 per metric ton more for small green lentils than large, while in 1999-2000 the premium shrank to 0.69 cents per pound or \$15 per metric ton. Small green prices were below large green for the next four years. Then in 2004-05, grower bids averaged 4.55 cents per pound or \$100 more for small than large green lentils. The premium shrank to 0.25 cents per pound or \$5.50 per metric ton the following year. Average grower bids for small green lentils then fell below bids for larges for the next six years.

Knowing this does not help farmers time sales within a given marketing year, but it does tell growers that it is important to carry as little product over into the following marketing year as possible. This is especially true when small greens hold their premium for a second year. The reason is that acreage could continue to expand and prices will drop back into their normal relationship, with small greens discounted to larges. Knowing that acreage is likely to rise also suggests that if a farmer is going to stick with lentils, it might be worthwhile thinking about growing more large greens than more small greens, so as not to get caught on the downturn.

Canadian Small Green Lentils Deciles Since 1987

(CDN cents per pound delivered plant Saskatchewan)

| Decile | No 1 | No 2 | Extra 3 | No 3 |
|--------|-------|-------|---------|-------|
| 0 | 10.00 | 7.50 | 5.75 | 5.00 |
| 1 | 12.50 | 10.75 | 9.00 | 7.00 |
| 2 | 14.00 | 12.25 | 10.00 | 8.50 |
| 3 | 15.50 | 14.25 | 12.00 | 10.00 |
| 4 | 17.50 | 17.50 | 13.00 | 11.00 |
| 5 | 20.00 | 19.50 | 15.00 | 13.50 |
| 6 | 21.50 | 20.50 | 16.75 | 14.50 |
| 7 | 23.50 | 23.75 | 19.00 | 15.75 |
| 8 | 25.75 | 26.75 | 20.75 | 18.00 |
| 9 | 29.75 | 29.75 | 23.75 | 20.75 |
| 10 | 35.75 | 35.00 | 27.75 | 25.75 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Canadian Small Green Lentils Deciles Since 2007

(CDN cents per pound delivered plant Saskatchewan)

| Decile | No 1 | No 2 | Extra 3 | No 3 |
|--------|-------|-------|---------|-------|
| 0 | 14.00 | 11.00 | 9.75 | 7.75 |
| 1 | 16.50 | 14.75 | 11.75 | 10.75 |
| 2 | 22.75 | 20.00 | 17.00 | 15.00 |
| 3 | 25.75 | 23.25 | 18.75 | 15.00 |
| 4 | 27.00 | 25.00 | 20.00 | 15.75 |
| 5 | 28.75 | 26.25 | 20.75 | 16.75 |
| 6 | 29.75 | 27.25 | 20.75 | 18.75 |
| 7 | 30.75 | 28.00 | 22.75 | 20.00 |
| 8 | 32.00 | 29.75 | 23.75 | 21.75 |
| 9 | 33.75 | 30.75 | 25.75 | 23.00 |
| 10 | 35.75 | 35.00 | 27.75 | 25.75 |

Canada #1 Small Green Lentils Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

Canada #1 Small Green Lentils Grower Average Price

(CDN cents per pound delivered plant Sask)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 17.49 | 17.27 | 15.43 | 14.38 | 17.95 | 35.00 | 32.00 | 24.38 | 30.50 |
| Sep | 17.07 | 23.02 | 14.00 | 14.45 | 20.31 | 32.56 | 28.50 | 29.75 | 29.60 |
| Oct | 17.05 | 24.00 | 13.07 | 14.25 | 21.06 | 30.80 | 24.80 | 32.85 | 29.81 |
| Nov | 16.71 | 24.55 | 13.14 | 14.60 | 21.35 | 27.25 | 27.69 | 32.56 | 29.50 |
| Dec | 16.80 | 25.60 | 12.40 | 14.38 | 21.50 | 23.25 | 30.60 | 31.90 | 29.75 |
| Jan | 17.24 | 26.60 | 12.06 | 14.44 | 21.95 | 23.35 | 31.56 | 32.75 | 29.69 |
| Feb | 17.82 | 24.25 | 11.25 | 14.62 | 25.50 | 24.44 | 29.12 | 32.75 | 29.00 |
| Mar | 18.95 | 23.00 | 10.50 | 14.90 | 28.50 | 26.38 | 27.75 | 31.38 | 30.60 |
| Apr | 22.84 | 23.15 | 10.88 | 15.69 | 27.50 | 28.25 | 26.75 | 29.95 | 32.56 |
| May | 24.40 | 23.60 | 11.12 | 15.75 | 31.50 | 33.40 | 24.19 | 28.50 | 33.44 |
| Jun | 22.90 | 24.60 | 11.65 | 15.50 | 35.75 | 33.88 | 24.62 | 28.25 | 34.00 |
| Jul | 19.44 | 24.36 | 12.00 | 16.12 | 34.88 | 33.80 | 26.00 | 30.20 | 27.00 |

Other Lentils

Beyond the major classes of lentils, there are a wide range of niche varieties based on color and regional markets. These include French green, a dark green or du Puy lentil; Spanish brown or Pardina lentils; and black lentils, sometimes referred to as caviar lentils.

As the name implies, the principle market for French or dark green lentils is France, while the principle market for Spanish brown or Pardina lentils is Spain. Production of black caviar lentils is limited. Some cooks say this lentil needs to be steamed to preserve its color, adding to its status as a niche, possibly, gourmet lentil.

Between 2007 and 2011, less than half of one percent of all lentil acreage was planted to these varieties. This amounted to just over 10,000 acres per year, with production averaging just under 5,000 metric tons per year. In Canada, French green are generally the most widely grown of these types of lentils; while in the United States, Pardina or Spanish brown appears to be the most widely grown niche variety.

Companies involved with these varieties are not as public about their activities and the prices they are paying growers. Moreover, because of the small size of the market, many companies will only become involved with these lentils if they are approached by growers. If they are approached by end users, it is a clear sign that importers are having trouble covering their needs from their normal suppliers.

It has been possible to track Canadian grower bids for French dark green lentils, but not for the other classes, neither of which has long a history in Canada. Average published bids for dark green lentils are generally lower than green lentils. This was the case during the 2001 and 2002 marketing years as well as during the 2011-12 marketing year.

Between the 2007-08 and 2011-12 marketing years, farmers were paid 4.74 cents per pound or \$104 per metric ton less than large green lentils; 1.66 cents a pound or \$36 per metric ton less than medium green lentils; and 0.66 cents a pound or roughly \$15 per metric ton less than small green lentils. However, during the 2011-12 marketing year, French green lentils earned farmers an average 10.61 cents per pound or \$234 per metric ton more than large greens; 12.67 cents or \$279 per metric ton more than medium green lentils; and 7.79 cents or \$172 per metric tons more than small green lentils. Overall, that was the largest premium paid to farmers for that class of lentil in the crop's history in Canada.

Niche market crops are almost impossible to market other than to try to be in a position to sell when there is demand. It is more critical to maintain good and open communication with processors and exporters who handle these classes of lentils. This makes it easier to take advantage of any surges in demand or price. Trying to time niche sales is virtually impossible.

Canadian French Green Lentils Deciles Since 1987

(CDN cents per pound delivered plant Saskatchewan)

| Decile | No 1 | No 2 | Extra 3 | No 3 |
|--------|-------|-------|---------|-------|
| 0 | 7.68 | 6.40 | 0.58 | 0.16 |
| 1 | 10.68 | 9.50 | 5.00 | 3.66 |
| 2 | 13.50 | 12.00 | 7.00 | 5.66 |
| 3 | 14.68 | 13.52 | 9.00 | 8.00 |
| 4 | 17.00 | 16.00 | 10.00 | 8.75 |
| 5 | 18.68 | 17.52 | 11.58 | 9.66 |
| 6 | 20.00 | 19.02 | 13.00 | 10.66 |
| 7 | 22.00 | 20.75 | 15.00 | 12.16 |
| 8 | 24.00 | 23.00 | 16.00 | 14.00 |
| 9 | 28.18 | 26.75 | 18.75 | 15.66 |
| 10 | 50.00 | 45.00 | 35.00 | 30.50 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Canadian French Green Lentils Deciles Since 2007

(CDN cents per pound delivered plant Saskatchewan)

| Decile | No 1 | No 2 | Extra 3 | No 3 |
|--------|-------|-------|---------|-------|
| 0 | 12.00 | 11.50 | 5.00 | 2.50 |
| 1 | 13.50 | 13.00 | 7.50 | 6.00 |
| 2 | 21.00 | 19.00 | 9.00 | 8.75 |
| 3 | 22.75 | 20.00 | 11.00 | 9.00 |
| 4 | 24.00 | 22.00 | 13.00 | 9.50 |
| 5 | 25.00 | 23.75 | 15.00 | 11.75 |
| 6 | 26.75 | 25.00 | 15.75 | 13.00 |
| 7 | 28.75 | 26.75 | 17.50 | 14.25 |
| 8 | 36.00 | 28.00 | 19.00 | 15.50 |
| 9 | 40.75 | 40.75 | 21.00 | 18.00 |
| 10 | 50.00 | 45.00 | 28.00 | 23.00 |

Canada # 1 French Green Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

Canada # 1 French Green Average Price

(CDN cents per pound delivered plant Sask)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 22.70 | 15.75 | 13.12 | 10.00 | 14.80 | 26.30 | 23.75 | 21.88 | 32.50 |
| Sep | 22.94 | 23.50 | 12.10 | 11.50 | 16.12 | 28.50 | 20.94 | 25.88 | 41.95 |
| Oct | 19.70 | 25.00 | 8.62 | 11.50 | 16.50 | 26.60 | 21.55 | 32.30 | 45.12 |
| Nov | 20.00 | 23.00 | 9.00 | 11.40 | 18.30 | 24.75 | 26.56 | 38.75 | 43.88 |
| Dec | 20.00 | 23.40 | 8.80 | 11.50 | 19.50 | 24.00 | 28.35 | 38.75 | 40.75 |
| Jan | 20.00 | 23.25 | 8.38 | 13.00 | 20.10 | 23.55 | 29.56 | 38.75 | 40.75 |
| Feb | 20.00 | 24.00 | 8.00 | 13.00 | 24.50 | 22.44 | 30.06 | 38.75 | 44.62 |
| Mar | 20.00 | 21.60 | 8.00 | 12.80 | 25.00 | 22.00 | 27.50 | 37.56 | 42.20 |
| Apr | 20.00 | 20.00 | 8.00 | 13.50 | 25.00 | 22.00 | 24.60 | 27.65 | 36.00 |
| May | 20.00 | 20.00 | 8.00 | 13.50 | 25.00 | 22.00 | 21.94 | 24.25 | 36.00 |
| Jun | 19.25 | 20.00 | 8.40 | 13.50 | 26.00 | 28.56 | 23.12 | 24.25 | 29.00 |
| Jul | 17.40 | 19.60 | 9.00 | 13.50 | 26.75 | 27.70 | 22.75 | 25.25 | 26.50 |

United States Lentils

Lentils have been grown in the United States since the early 1900s. Despite that long history, lentils are rarely eaten by U.S. consumers, with the result the industry relies on export markets to move each year's crop. During the 1960s, the United States grew an average 3% of the world's lentils and accounted for 10% of the world trade in lentils. That grew to 4% and 16% respectively during the 1970s. The most important year of that decade was 1973. Processors in the United States sold Canadian farmers enough Chilean-type, medium green lentil planting seed for them to officially harvest five metric tons from 17 acres. From that modest beginning, Canada became the world's most important export producer of both green and red lentils. By contrast, the U.S. share of world production and export markets has remained relatively stable.

The best way to see the trend in production and trade is to smooth out the annual variations by averaging available data over longer periods of time. It turns out that the U.S. share of world production has changed little over the decades, averaging 3% per year in the 1960s, 1980s and 1990s. Its share rose slightly in the 1970s to 4% and to 5% between 2000 and 2010. The fact the U.S. lentil industry is export-based is clear from the fact its average annual share of world trade has averaged 11% since the 1960s, ranging from a high of 16% during the 1970s to a low of 9% in the 1990s.

After 1973, the next most important year for the U.S. lentil industry was 2002. That year, lentils, peas and chickpeas were included in the U.S. Farm Bill. In simple terms, this put those pulses on an equal footing with grains and oilseeds by making them eligible for loans and loan deficiency payments (LDP). How these programs work is explained in chapter one.

Including lentils, peas and chickpeas in the U.S. Farm Bill appears to have had an impact on acreage. Partly influenced by the rapid growth of lentil area in Saskatchewan, farmers in North Dakota and Montana started planting some lentils in the 1990s. By the year 2000, a fifth of all lentils planted in the United States were located in Montana and North Dakota. That had expanded to a third by the time pulses were included in the U.S. Farm Bill. By 2004, farmers in those two states were growing as many lentils as farmers in the Pacific Northwest. By 2012, almost 80% of the U.S. lentil crop was grown in Montana and North Dakota.

Initially, the loan rate for lentils was sometimes higher than the market, with the result farmers in the United States were able to apply for LDPs. Between the 2002-03 and 2006-07 marketing years, farmers in the United States obtained LDPs totalling \$16,118,524.90 on 580.3 million pounds or 263,232 metric tons of lentils. Since that time, the loan rate has been below the prevailing market value for lentils and LDPs have not been available. As a result, farmers have been taking advantage of the loan provisions of the farm bill in order to generate cash when they do not want to sell the actual lentils. Even so, participation was greater prior to 2007 than since. Between the 2002-03 and 2006-07 marketing years, farmers placed an average 14% of the crop under loan. Since the start of the 2007-06 marketing year, the average dropped to just 3%.

There is no doubt, having lentils in the U.S. Farm Bill influenced farmers between

2002 and 2006. Land in lentils in the United States almost doubled from 221,000 acres in 2002 to 429,000 acres in 2006. Markets were not demanding an increase in the size of the U.S. crop, but the loan rates set a floor price for lentils which was above prevailing market values for much of the period. Farmers clearly thought the minimum price guarantee was high enough to expand lentil production. Market conditions changed dramatically in 2007 with the introduction of biofuel mandates in the United States. Lentil markets were slow to respond, contributing to a drop in seeded area in 2007 and 2008. Once lentil markets realized that farmers would not grow them unless they were income competitive with other crops, prices improved enough for lentil seedings to rebound in the United States, with farmers planting a record 658,000 acres in 2010.

United States Lentil Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 413,000 | 658,000 | 428,000 | 463,000 | 414,600 |
| Yield (lbs/acre) | 1,411 | 1,316 | 1,106 | 1,135 | 1,169 |
| Production | 264,311 | 392,679 | 214,642 | 238,320 | 227,116 |
| Carry In | 1,000 | 5,000 | 54,000 | 41,000 | 31,600 |
| Supply | 274,919 | 410,495 | 277,008 | 288,278 | 267,394 |
| | | | | | |
| Exports | 212,984 | 214,000 | 171,523 | 185,000 | 171,272 |
| Seed | 21,375 | 13,893 | 15,018 | 13,779 | 14,501 |
| Other Domestic | 35,561 | 128,603 | 49,467 | 53,499 | 52,221 |
| Total Usage | 269,919 | 356,496 | 236,007 | 252,278 | 237,994 |
| Ending Stocks | 5,000 | 54,000 | 41,000 | 36,000 | 29,400 |
| Stocks/Use | 1.9% | 15.1% | 17.4% | 14.3% | 12.5% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from the United States Department of Agriculture. All forecasts are by STAT Publishing.

United States Lentil Deciles Since 1987

(US cents per pound delivered plant)

| Decile | Regular Green (WA/ID/OR) | Medium Green (MT/ND) | Pardina (Brown) (WA/ID/OR) | Red Lentil (WA/ID/OR) |
|--------|-----------------------------|-------------------------|-------------------------------|--------------------------|
| 0 | 9.25 | 6.00 | 9.00 | 9.00 |
| 1 | 11.00 | 10.00 | 9.50 | 10.00 |
| 2 | 12.00 | 12.50 | 12.00 | 10.50 |
| 3 | 13.50 | 14.00 | 13.00 | 11.50 |
| 4 | 14.75 | 16.00 | 15.00 | 14.00 |
| 5 | 15.50 | 18.00 | 20.00 | 15.50 |
| 6 | 17.00 | 23.00 | 23.50 | 22.00 |
| 7 | 19.00 | 28.00 | 30.00 | 29.00 |
| 8 | 26.00 | 30.00 | 31.00 | 30.00 |
| 9 | 31.00 | 32.00 | 33.00 | 32.00 |
| 10 | 39.00 | 34.00 | 38.00 | 37.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

United States Lentil Deciles Since 2007

(US cents per pound delivered plant)

| Decile | Regular Green (WA/ID/OR) | Medium Green (MT/ND) | Pardina (Brown) (WA/ID/OR) | Red Lentil (WA/ID/OR) |
|--------|-----------------------------|-------------------------|-------------------------------|--------------------------|
| 0 | 14.50 | 10.00 | 20.00 | 14.50 |
| 1 | 15.50 | 14.50 | 20.00 | 15.50 |
| 2 | 26.00 | 21.00 | 26.00 | 25.00 |
| 3 | 28.00 | 23.00 | 29.00 | 28.00 |
| 4 | 30.00 | 26.00 | 30.00 | 29.00 |
| 5 | 30.00 | 28.00 | 30.00 | 30.00 |
| 6 | 30.00 | 29.00 | 31.00 | 30.00 |
| 7 | 32.00 | 30.00 | 32.00 | 31.00 |
| 8 | 35.00 | 32.00 | 33.00 | 32.00 |
| 9 | 35.00 | 33.00 | 35.00 | 34.00 |
| 10 | 39.00 | 34.00 | 38.00 | 37.00 |

U.S. Lentils Movement From Farms
(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Lentils Monthly Movement
(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 7% | 7% | 8% | 6% | 5% | 9% | 8% | 15% | 7% |
| Sep | 11% | 10% | 12% | 7% | 4% | 9% | 14% | 17% | 17% |
| Oct | 9% | 8% | 17% | 7% | 6% | 12% | 17% | 13% | 11% |
| Nov | 14% | 7% | 12% | 12% | 8% | 18% | 15% | 9% | 6% |
| Dec | 9% | 7% | 7% | 10% | 7% | 14% | 9% | 8% | 8% |
| Jan | 7% | 9% | 5% | 11% | 9% | 6% | 9% | 8% | 8% |
| Feb | 9% | 7% | 4% | 7% | 7% | 5% | 8% | 7% | 10% |
| Mar | 2% | 6% | 7% | 6% | 8% | 5% | 6% | 6% | 9% |
| Apr | 12% | 12% | 5% | 7% | 15% | 6% | 5% | 5% | 8% |
| May | 10% | 10% | 10% | 6% | 11% | 6% | 4% | 4% | 8% |
| Jun | 4% | 9% | 7% | 11% | 9% | 5% | 3% | 4% | 6% |
| Jul | 6% | 9% | 6% | 12% | 11% | 6% | 3% | 4% | 1% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

U.S. Regular Lentils Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Regular Lentils Grower Average Price

(US cents per pound delivered plant WA/ID/OR)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 14.80 | 13.38 | 11.50 | 12.62 | 17.90 | 35.00 | 26.25 | 25.50 | 35.75 |
| Sep | 15.12 | 14.12 | 11.50 | 13.40 | 20.88 | 36.00 | 24.75 | 23.50 | 35.60 |
| Oct | 16.60 | 15.80 | 11.50 | 14.38 | 24.25 | 38.00 | 23.60 | 29.00 | 35.00 |
| Nov | 17.75 | 16.25 | 11.12 | 14.50 | 28.20 | 32.75 | 24.50 | 32.00 | 34.00 |
| Dec | 17.00 | 15.60 | 10.50 | 14.50 | 30.00 | 28.50 | 27.20 | 32.00 | 31.80 |
| Jan | 17.20 | 14.88 | 10.56 | 14.62 | 30.00 | 28.60 | 28.50 | 32.00 | 30.25 |
| Feb | 19.25 | 14.38 | 10.62 | 14.94 | 30.25 | 29.75 | 30.00 | 33.75 | 30.00 |
| Mar | 21.00 | 13.70 | 10.50 | 15.00 | 33.25 | 30.00 | 30.00 | 36.00 | 30.00 |
| Apr | 22.00 | 12.62 | 10.88 | 15.38 | 35.00 | 31.50 | 30.00 | 36.00 | 29.50 |
| May | 20.75 | 12.50 | 11.00 | 15.50 | 34.20 | 32.60 | 29.50 | 35.50 | 29.00 |
| Jun | 16.25 | 11.88 | 11.00 | 15.50 | 34.00 | 33.00 | 28.00 | 35.00 | 29.80 |
| Jul | 14.60 | 11.50 | 11.12 | 15.50 | 34.25 | 33.00 | 28.00 | 35.00 | 28.75 |

Market Timing

Lentil growers in the United States plant the same range of classes as in Canada, but medium green lentils remain the most important type, followed by small green, large green, and other classes. As is the case with Canada, roughly half of all the lentils that will be exported in any given marketing year are normally shipped between harvest and the end of December. Demand is strongest for U.S. lentils in September, October and November. December is a slow month because of the Christmas and New Year's holidays. While shipments typically pick up again in January and February, movement is normally slow from March through the end of July.

The various classes of lentils perform somewhat differently in the United States. The market for U.S. regular or medium green lentils in the Pacific Northwest has a more pronounced tendency to be firmer between February and June than medium green lentils grown in North Dakota and Montana.

Growers in the United States have more marketing tools available than their counterparts in Canada or Australia because of the fact that lentils are included in the U.S. Farm Bill. If growers need cash and do not like the market value, they can place their lentils under loan. They would repay the loan when they sell the lentils. This does not guarantee them a certain price for the lentils. It is simply a tool which lets them decide when to sell, as opposed to being forced to sell to meet financial obligations. This gives growers a stronger bargaining position in the market.

Lentil markets in the United States do not always follow the world market. Though the industry is export-based, the biggest customer is sometimes the government. The United States is one of the few countries in the world which prefers to buy from its own farmers when meeting its food aid commitments. Some countries prefer to buy from developing nations, believing that in this way the benefits of food aid are magnified among the world's poor.

Between the 2000-01 and 2011-12 marketing years in the United States, food aid shipments accounted for an average 41% of each season's total exports. At times when food aid demand is greatest, lentil markets in the United States can easily move to a premium to the world market. While companies can only sell U.S. origin lentils to the U.S. government, the actual lentils shipped can come from any origin. However, the seller must always be able to demonstrate that they bought enough U.S. origin lentils to be able to cover their sales to the government. Because this is really an accounting issue, it is possible for processors in the United States to source lentils from Canadian farmers when they are filling sales to the U.S. government. Over the short term it expands the marketing options for Canadian growers, but over the medium term it guarantees there is a buyer who literally needs to buy from U.S. growers.

Australian Lentils

Lentil have a short history in Australia. The first official estimates were in 1988, with the government reporting 20 metric tons of lentils were exported from the country's 1,000 metric ton harvest. Both red and green lentil seed were brought into the country, but Australia is better known as a red lentil exporter.

Between 2001 and 2010, lentil production in Australia accounted for 3% of the world crop, compared to Canada's 26% share of world production and the United States' 9% share. Even so, Australian exports finished the decade with an average market share of 10%, equalling the U.S. share of world trade in lentils, but falling far short of Canada's average annual market share of 48% for the decade.

Australia starts planting lentils in May and wraps up seeding in September, with the harvest taking place in October and November. Obviously, the marketing cycle for Australian lentils is different than that of Canadian and U.S. lentils. However, for consistency in the way data is being displayed in this book, the tables showing grower deliveries start in August and end in July. This makes it easier to compare the table from one country to another.

Not surprisingly, Australian lentil exports are strongest in the November through April period, with an average 67% of all lentils which will be exported during the marketing year moving during those six months. Exports from Australia are also affected by Ramadan, which is Islam's most important religious observance. The timing of Ramadan is based on the lunar calendar and it starts roughly every 355 days. For example, in the year 2013, Ramadan will begin on July 9. The following year, it starts on June 28, and then on June 18 in the year 2015. Pulse imports by Islamic countries typically increase in the two or three months prior to the start of Ramadan. The benefit is greatest when Ramadan starts in the first half of the calendar year. During the second half of the calendar year, Turkish and North American exporters tend to benefit more.

Because the Australian lentil harvest occurs in October and November it has significant implications for farmers in Canada and the United States. It means that competition for the attention of red lentil importers, especially on the Indian subcontinent, will be keenest from November through March. It is worth noting that in the marketing years between 2006-07 and 2010-11, the most important market for Australian lentils was Sri Lanka at an average 43,219 metric tons per year. It was followed by Bangladesh at 20,831 metric tons; Pakistan at 12,017; and India at 10,788 metric tons. On average, those four countries buy 76% of all lentils exported by Australia. By contrast, those four countries bought an average 26% of all lentils exported from Canada over the same period and 22% of lentils shipped from the United States. In tonnage terms, the United States exports an average of 35,000 metric tons per year to the Indian subcontinent, while Canada ships an average 303,000 metric tons and Australia 113,572 metric tons.

Australia has two key competitive advantages when selling to the Indian subcontinent: Ocean freight rates are lower, and the country is closer. Australia has another advantage stemming from the way the industry developed. Though lentil production was initially centered around seed cleaning plants, as is the case in North America, as

areas became more dispersed, farmers started delivering to the bulk handling system. This resulted in an increasing share of the harvest being sold as “farmer’s dressed” instead of “machine dressed”.

Machine dressed lentils are cleaned before shipment to the end user. Farmer’s dressed lentils are not cleaned. There are strict delivery standards for farmer’s dressed lentils, peas, chickpeas and other pulses; with stiff penalties applied if the deliveries contain too much foreign material or dockage. That has resulted in Australian farmers harvesting crops with lower foreign material content than is normally the case in North America. Quite literally, Australian exporters can accept deliveries straight from the combine, ship the lentils to port, and load them on a ship bound for Sri Lanka or Bangladesh. Canadian and U.S. exporters have tried to compete directly with Australia, by offering “farmer’s dressed” lentils and other pulses. Unfortunately, there have been problems at unload because North American pulses tend to contain higher percentages of foreign material than Australian. Higher average foreign material was the least of the problems faced by Canadian exporters when they decided to compete head-to-head with Australia and ramp up sales of “farmer’s dressed” lentils.

The big push was in 2010 and 2011. Bulk conventional lentil exports jumped from nothing in 2007-08 to 200,661 metric tons in 2010-11 and 187,085 metric tons during the 2011-12 marketing year. That coincided with the worst harvest in Canadian history. Normally, 70% of the lentil crop grades No 1 and No 2 Canada. In 2010, only 21% of the green lentils and 46% of the red lentils fell into those two grade categories, with many buyers arguing that most of the product that was officially called a No 2 Canada was no better than a No 3 grade lentil. After 2011, line elevator companies in Canada continued to accept deliveries of lentils and other pulses directly from farmers and ship that product directly to port. But, export terminals started to clean the product before it is loaded to ships in an effort to get more control over quality and to neutralize any debate over their involvement with lentils.

It should be obvious that it is important to follow crop prospects in Australia. If production is up, Australia will increase the level of competition for available demand on the Indian subcontinent for at least the first quarter of each calendar year. This can affect grower bids in western Canada and the United States because of the need to be price competitive to steal demand away from Australia, and because having another supplier shipping product means that North American exporters will ship less than would otherwise be the case during those months.

Australia Lentil Deciles
 (A\$ per metric ton delivered port)

| Decile | 1999 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 390.00 | 0 | 390.00 |
| 1 | 440.00 | 1 | 450.00 |
| 2 | 455.00 | 2 | 500.00 |
| 3 | 480.00 | 3 | 600.00 |
| 4 | 500.00 | 4 | 680.00 |
| 5 | 530.00 | 5 | 710.00 |
| 6 | 570.00 | 6 | 761.00 |
| 7 | 615.00 | 7 | 835.00 |
| 8 | 720.00 | 8 | 950.00 |
| 9 | 930.00 | 9 | 1,050.00 |
| 10 | 1,200.00 | 10 | 1,200.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Australia Lentil Supply and Demand
 (hectares, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|--------------|-----------|---------|---------|---------|---------|
| Area (ha) | 104,000 | 165,500 | 172,800 | 164,400 | 140,810 |
| Yield (kg) | 1,279 | 1,850 | 1,667 | 1,147 | 1,294 |
| Production | 133,000 | 306,210 | 288,000 | 188,500 | 193,422 |
| Carry-in | 44,000 | 11,000 | 54,600 | 8,000 | 33,520 |
| Supply | 177,800 | 318,010 | 343,500 | 197,300 | 227,742 |
| | | | | | |
| Export Trade | 152,027 | 247,909 | 319,900 | 170,200 | 187,688 |
| Inferred Use | 166,801 | 263,409 | 335,500 | 185,300 | 201,822 |
| Ending Stock | 11,000 | 54,600 | 8,000 | 12,000 | 25,920 |
| Stock-to-Use | 6.6% | 20.7% | 2.4% | 6.5% | 12.8% |

In the above table, area is in hectares; yield is in kilograms; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are by STAT based on data from Pulse Australia, Australian Bureau of Agricultural and Resource Economics and Sciences, and Australian Bureau of Statistics.

Australia Lentils Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

Australia Lentils Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 4% | 10% | 5% | 4% | 5% | 4% | 0% | 3% | 9% |
| Sep | 6% | 9% | 2% | 9% | 1% | 2% | 0% | 3% | 10% |
| Oct | 5% | 3% | 2% | 9% | 3% | 2% | 2% | 1% | 9% |
| Nov | 10% | 12% | 14% | 4% | 9% | 18% | 15% | 6% | 5% |
| Dec | 12% | 15% | 14% | 1% | 9% | 25% | 18% | 11% | 5% |
| Jan | 14% | 13% | 9% | 2% | 9% | 16% | 14% | 12% | 6% |
| Feb | 11% | 5% | 5% | 5% | 11% | 9% | 14% | 12% | 8% |
| Mar | 7% | 4% | 11% | 7% | 13% | 9% | 9% | 10% | 9% |
| Apr | 13% | 9% | 14% | 9% | 15% | 7% | 11% | 7% | 12% |
| May | 8% | 8% | 7% | 24% | 10% | 5% | 7% | 6% | 12% |
| Jun | 4% | 6% | 10% | 16% | 10% | 2% | 5% | 9% | 10% |
| Jul | 5% | 7% | 5% | 10% | 6% | 0% | 4% | 18% | 2% |

Beans

Dry edible beans are among the earliest pulses cultivated by humans, with different types developing in different parts of the world. The types of beans most commonly grown in North America have their origins in South and Central America. Large seeded varieties were developed in Peru about 8,000 years ago, while smaller seeded varieties emerged in Mexico around 7,000 years ago. By the time the first Europeans arrived in North America, edible beans were a staple food throughout the Americas, where they were grown with squash and corn.

There are three main groups of dry edible beans. Farmers in the Americas mainly grow *Phaseolus vulgaris* L., which includes kidney, navy, pinto, cranberry, alubia and black beans. *Vicia faba*, which includes broadbeans and fababeans, were traditionally grown alongside chickpeas and lentils in the Mediterranean, Africa and Asia. The genus, *Vigna*, includes varieties such as mung, azuki, urad, and cowpeas. These are mainly grown and consumed in Asia and Africa.

Being the most diverse category of pulses, dry edible bean trade is not as concentrated as is the case with field peas, lentils or chickpeas. Myanmar is the world's largest exporter of dry edible beans, with a 35% market share. It mainly exports beans from the *Vigna* genus. India, the world's largest importer of dry edible beans, is Myanmar's main market. Though India buys all classes of beans, it mainly consumes *Vigna* type.

China is the world's second largest exporter in the world, with a 25% market share. China grows all types of beans. Roughly 68% of its exports are kidney beans or *Phaseolus* type, compared to around 28% *Vigna* and 3% broadbeans.

The United States, Canada and Argentina round out the list of the world's top five exporters, all of whom ship beans belonging to the *Phaseolus vulgaris* L. group. With

the exception of India and Japan, all countries on the top 10 list of importers buy mainly *Phaseolus vulgaris* beans. Interestingly, the United States is the world’s second largest importer of dry edible beans, with Canada and China beings its main suppliers.

World’s Top 10 Edible Bean Traders

(5-year average trading volume in metric tons)

| Exporters | Quantity | Importers | Quantity |
|----------------|-----------|----------------|----------|
| Myanmar | 1,257,307 | India | 647,579 |
| China | 899,714 | United States | 157,460 |
| United States | 383,998 | Brazil | 133,421 |
| Canada | 288,258 | United Kingdom | 131,468 |
| Argentina | 270,647 | Mexico | 122,154 |
| Ethiopia | 63,432 | Japan | 116,841 |
| United Kingdom | 57,268 | Italy | 105,079 |
| Egypt | 48,203 | Venezuela | 90,052 |
| Kyrgyzstan | 46,710 | Cuba | 89,400 |
| Nicaragua | 45,866 | South Africa | 81,480 |

Source: United Nations Food and Agriculture Organization (FAO). This table shows the average annual trading volume for the period between 2006 and 2010.

Demand Elasticity

Demand for dry edible beans is more price elastic than is the case for lentils. However, demand elasticity is not uniform across all three categories of beans. This is because India is not only the world’s largest importer of dry edible beans, it is also the world’s largest consumer. Pulse demand in India rises and falls with world market prices for two reasons. Firstly, the country rarely grows enough pulses to meet its minimum needs. Secondly, a large segment of the population is chronically undernourished and they tend to buy more food when it becomes affordable. Low prices can result in an increase in demand as overall food consumption among the poor increases. This has more impact on Vigna type beans than the other two categories.

Farmers in Canada and the United States typically grow beans belonging to the *Phaseolus vulgaris* L. group. Countries with more European influence tend to consume more of this category than the other types of beans. Consumers in Europe and the Americas do not react as strongly to changes in the world value of beans and other pulses. This is partly because demand is more for packaged and further processed product than for bulk beans, with the result that retail prices are not as strongly influenced by changes in ingredient costs as is the case for raw ingredients sold in bulk. When prices rise to levels intended to ration supply, trade in this category of beans declines. But when prices drop below their recent averages, consumption does not expand.

World Dry Edible Bean Supply and Demand

(hectares, metric tons)

| | 2009-10 | 2010-11 | 2011-12 | 2012-13 | Average |
|-----------------|------------|------------|------------|------------|------------|
| Area (ha) | 25,635,000 | 29,921,000 | 26,109,000 | 27,443,000 | 27,157,800 |
| Yield (kg) | 807 | 776 | 749 | 754 | 776 |
| Production | 20,691,000 | 23,230,000 | 19,549,000 | 20,685,000 | 21,080,000 |
| Carry-in | 709,000 | 799,000 | 1,142,000 | 958,000 | 894,400 |
| Supply | 21,400,000 | 24,029,000 | 20,691,000 | 21,643,000 | 21,974,400 |
| | | | | | |
| Export Trade | 4,257,000 | 3,352,000 | 3,474,000 | 3,510,000 | 3,590,600 |
| Inferred Use | 20,601,000 | 22,887,000 | 19,733,000 | 20,950,000 | 21,114,200 |
| Ending Stock | 799,000 | 1,142,000 | 958,000 | 693,000 | 860,200 |
| Stock-to-Use | 3.9% | 5.0% | 4.9% | 3.3% | 4.1% |
| Per Capita (kg) | 3.040 | 3.340 | 2.848 | 2.991 | 3.083 |

In the above table, area is in hectares; yield and per capita consumption are in kilograms; and all other numbers are in metric tons. The average is for 2007-08 to 2011-12. Estimates are based on data from many sources, including: the FAO, Statistics Canada, the USDA and private traders.

North American Bean Market

North American dry edible bean markets are structured differently than lentil or field pea markets, with a large part of the crop consumed domestically. In the United States, over two-thirds of each year's bean crop is normally consumed on domestic markets. Roughly 45% of Canada's crop is consumed domestically. In both cases, these are significantly higher percentages than are seen for lentils and dry field peas. Diverse tastes, shapes, sizes, and colors have resulted in beans being used in a wide range of soups, stews, salads and other dishes.

Historic availability has also played a major role in the adoption of dry edible beans in North American cuisine. Since 1921, farmers in the United States have consistently planted well over one million acres of dry edible beans each year, with the result that beans have always been included in that country's dietary recommendations. To bring this into perspective, it was not until 2005 that farmers in the United States planted more than one million acres of peas and lentils. But, as of 2012, American farmers had always planted more beans than the other two pulses. Edible bean popularity peaked during the Great Depression and World War II, averaging over two million acres per year between 1930 and 1944. Land in dry edible beans averaged around 1.5 million acres per year for much of the 1950s, 1960s and 1970s. Acreage trended upward through the 1980s and 1990s, with area averaging almost 1.95 million acres through the

1990s. Seeded area has trended lower since 1999, averaging just over 1.54 million acres for the ten years spanning 2003 through 2012.

Having a viable domestic market has changed the demand pattern for dry edible beans. Domestic canners and packagers do not store large quantities of product on their premises. Instead, they call forward product on purchases made earlier in the year. This transfers storage risks to their suppliers, who are obliged to ship the correct quantity and quality of beans regardless of local supply and quality concerns. It is not unusual for domestic buyers to buy product for delivery several months, and sometimes two or three years, into the future. Most processors like to back up such sales with production contracts with farmers. This is important to some packagers and canners because they need to be able to trace purchases back through the supply chain.

Identity preserved (IP) beans have been a selling point for several years for companies such as Canada's Thompsons Limited. The company says it "combine(s) our strengths beginning with grower relationships in procuring specialty crops with IP traceability, quality processing, packaging, and freight logistics" to meet the needs of buyers in food industry. Companies take IP traceability and meeting buyer's needs seriously. For example, studies on the response of navy bean varieties to mechanical damage during harvesting by C.L. Gillard (Ridgetown College - University of Guelph, Ridgetown, Ontario, Canada) and S.J. Park (Agriculture and Agri-Food Canada Greenhouse and Processing Crops Research Centre, Harrow, Ontario, Canada) found IP traceability "impacted the varieties selected by the dry bean industry for identity preserved contract production, and it led to the removal of at least one variety from the list of varieties recommended to growers."

In an article for the *Journal of Agrobiotechnology Management and Economics*, Stuart Smyth and Peter W.B. Phillips, both of the University of Saskatchewan, explained, "Identify preserved production and marketing systems (IPPM) are initiated by private firms in the grain and oilseed industry to extract premiums from a marketplace that has expressed a willingness to pay for an identifiable and marketable product trait or feature. An IPPM system is a 'closed loop' channel that facilitates the production and delivery of an assured quality by allowing identification of a commodity from the germ-plasm or breeding stock to the processed product on a retail shelf (Buckwell, Brookes, & Bradley, 1999; Lin, 2002). These IPPM systems are predominantly voluntary, private firm based initiatives that range between systems that are loosely structured (e.g., malting barley) with high tolerance levels and those with rigid structures (e.g., nonGM European markets) with minimal tolerance levels. Firms operating in minimal tolerance systems achieve this by developing and adhering to strict protocols that specify production standards, provide for sampling, and ensure appropriate documentation to audit the flow of product."

Smyth and Phillips add, "Many key players in the agrifood sector are involved in IPPM systems today. Cargill has an IPPM system in place to export the Intermountain canola variety to Japan. This canola variety gives off virtually no odor when used to fry food. General Mills operates an IPPM system for a variety of white wheat possessing a trait for 'flake curling' when processed into breakfast cereal. DowAgro Sciences uses an IPPM system to export the Nexera canola variety to Japan, where it is sold into the specialty gift oil market."

U.S. Average Dry Bean Bid Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Dry Bean Bid Index Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

Such systems create unique opportunities for farmers because of the need to develop a strong relationship with the local buyer and the need to understand the needs of their buyers. Even outside production contract systems, farmers can apply these concepts to marketing dry edible beans. By keeping up a conversation with local buyers, farmers get a better idea where their quality fits into the market and when demand is likely to develop for the quality on their farms. In markets where prices tend not to move for lengthy periods of time, such knowledge is critical to selling when demand peaks and to be able to obtain quality and timing premiums.

North American Demand Patterns

In a 2003 presentation to the U.S. Dry Bean Convention in Branson, Missouri, Gary Lucier, then with the United States Department of Agriculture's Economic Research Service (USDA ERS), reported that per capita dry bean use was 70% above the national average in the Western United States. By contrast, dry edible bean consumption was 11% above the national average in the southern region and 46% below the national average in the Northeast and U.S. Midwest. Moreover, per capita bean consumption has been trending downward. It averaged 7.5 pounds per person between 2000 and 2007, but only 6.5 pounds between 2007 and 2011.

The USDA study discovered that teenagers represented 11% of the U.S. population, but they ate 12% of all dry beans. Lucier said, "Teenagers enjoy fast food, and are important consumers of refried beans, with boys and girls both consuming about twice as much as their proportion of the population. Teens also consume black beans and navy beans."

Bean consumption was lowest among children under 12 and adults over 60. About 16% of the U.S. population was over 60 at the time of the study and they only ate 12% of all dry beans. "Older adults favor blackeye beans (25%), lima beans (21%) and navy beans (20%), but largely avoid products containing refried beans (1%). Children under the age of 12 represent 18% of the population; yet consume just 9% of all dry beans. Refried pintos and limas appear to be the most favored bean of this group as they consume nearly 12% of the national total for each.

"According to survey data, men consume 61% of all dry beans. In 2002, that amounted to 9.1 pounds per capita. Men between the ages of 20 and 59 consume 41% of all dry beans while accounting for 27% of the population, with their per capita dry bean consumption estimated at 11.3 pounds. With the exception of garbanzo beans, adult males were leading consumers of every major bean class. Their largest market proportion was for black beans, with adult males consuming 46%," Lucier said in his presentation to the 2003 convention.

The USDA found that people of Mexican descent consumed the most beans per capita, eating more than four times as many beans as the average American at an estimated 31.2 pounds per capita. "Consumers of Puerto Rican descent consumed 21.5 pounds per person in 2002, followed by other Hispanics at 14.7 pounds. In contrast, U.S. non-Hispanic whites, who make up more than 70% of the population, only consumed 5.5 pounds per capita," Lucier reported.

Low-income Americans eat more beans than the middle class and wealthy, the

U.S. Average Dry Bean Bid Average Price

(US cents per pound bulk delivered plant)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 18.02 | 20.27 | 20.86 | 20.23 | 26.40 | 37.68 | 31.85 | 27.11 | 40.33 |
| Sep | 17.70 | 23.40 | 19.16 | 20.34 | 27.63 | 39.13 | 30.61 | 24.22 | 43.68 |
| Oct | 17.38 | 27.17 | 18.04 | 21.09 | 30.16 | 36.04 | 30.16 | 24.27 | 46.13 |
| Nov | 17.57 | 28.98 | 18.24 | 22.03 | 29.65 | 32.35 | 33.23 | 24.73 | 46.58 |
| Dec | 17.68 | 28.56 | 18.24 | 22.71 | 29.53 | 30.52 | 32.63 | 25.04 | 46.48 |
| Jan | 17.89 | 28.34 | 18.13 | 23.58 | 30.37 | 30.78 | 31.97 | 26.84 | 47.27 |
| Feb | 17.99 | 28.16 | 18.51 | 24.88 | 32.58 | 31.25 | 31.97 | 29.98 | 48.49 |
| Mar | 18.52 | 27.05 | 18.71 | 25.71 | 34.28 | 31.10 | 31.18 | 31.16 | 47.82 |
| Apr | 19.54 | 25.63 | 19.23 | 26.38 | 34.38 | 29.77 | 30.68 | 31.85 | 47.42 |
| May | 20.09 | 24.62 | 19.23 | 26.13 | 35.56 | 29.59 | 29.93 | 32.70 | 47.34 |
| Jun | 20.10 | 24.30 | 19.24 | 26.08 | 36.02 | 30.15 | 29.86 | 32.71 | 46.29 |
| Jul | 20.20 | 23.13 | 19.38 | 26.18 | 36.50 | 31.56 | 28.17 | 35.49 | 46.20 |

U.S. Dry Bean Grower Bid Index Average Price

(spot market 1990 = 1000 points)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 603.60 | 679.25 | 699.00 | 678.00 | 884.60 | 1263.00 | 1067.00 | 908.50 | 1351.25 |
| Sep | 593.50 | 784.00 | 642.00 | 681.80 | 925.75 | 1311.25 | 1025.50 | 812.00 | 1464.20 |
| Oct | 582.60 | 910.60 | 604.50 | 706.25 | 1010.75 | 1207.60 | 1011.00 | 813.20 | 1546.00 |
| Nov | 588.50 | 971.25 | 611.50 | 738.40 | 993.80 | 1084.00 | 1113.50 | 828.50 | 1560.75 |
| Dec | 592.25 | 957.20 | 611.20 | 761.50 | 989.50 | 1022.75 | 1093.40 | 839.00 | 1557.80 |
| Jan | 599.60 | 949.50 | 607.25 | 790.50 | 1017.60 | 1031.60 | 1071.50 | 899.75 | 1584.00 |
| Feb | 602.75 | 943.75 | 620.00 | 833.75 | 1091.75 | 1047.50 | 1071.25 | 1004.75 | 1625.00 |
| Mar | 620.25 | 906.60 | 626.60 | 861.60 | 1149.00 | 1042.25 | 1044.50 | 1044.00 | 1602.60 |
| Apr | 655.00 | 858.75 | 644.50 | 883.75 | 1152.25 | 997.50 | 1028.20 | 1067.20 | 1589.00 |
| May | 673.25 | 825.25 | 644.75 | 876.00 | 1191.60 | 991.40 | 1002.75 | 1095.50 | 1586.25 |
| Jun | 673.25 | 814.50 | 645.00 | 874.00 | 1206.50 | 1010.25 | 1000.50 | 1096.00 | 1551.00 |
| Jul | 677.20 | 774.80 | 649.50 | 877.25 | 1223.00 | 1057.40 | 943.80 | 1189.40 | 1548.00 |

USDA study discovered. Households with income less than 130% of the poverty level represented 19% of the U.S. population in 2002 and consumed 27% of all dry beans. “I think it is important to note that income is not the only factor in the dry bean consumption equation. Dry beans are a culturally important food, especially for consumers of Hispanic descent. Together with African Americans, Hispanics account for a disproportionate share of the poverty population in the United States today,” Lucier stressed.

Colored Bean Nutritional Information

(per 100 grams dry)

| | Pinto Beans | | Black Turtle Beans | |
|---------------|-------------|-------------------------|--------------------|-------------------------|
| | Amount | Per Cent of Daily Value | Amount | Per Cent of Daily Value |
| Fat | 1.0 g | 2% | 1.6 g | 3% |
| Carbohydrates | 71.2 g | 24% | 67.8 g | 23% |
| Total Fiber | 21.8 g | 87% | 23.6 g | 94% |
| Sucrose | 4.4 g | | 3.93 g | |
| Protein | 23.7 g | | 26.2 g | |
| Calcium | 123 mg | 12% | 189 mg | 19% |
| Iron | 10.7 mg | 59% | 9.7 mg | 54% |
| Potassium | 1843 mg | 53% | 1796 mg | 51% |
| Vitamin C | 0.09 mg | 0% | 0.10 mg | 0% |
| Thiamin | 0.69 mg | 46% | 0.45 mg | 30% |
| Riboflavin | 0.12 mg | 7% | 0.11 mg | 7% |
| Niacin | 1.12 mg | 6% | 1.26 mg | 6% |
| Vitamin B6 | 0.18 mg | 9% | 0.31 mg | 16% |
| Folate | 91.3 mcg | 23% | 60.3 mcg | 15% |

References: 1) Wang and Daun, 2006. Food Chemistry 95: 493-502; 2) USDA Nutrient File; 3) Wang, 2004. The Chemical Composition and Nutritive Value of Canadian Pulses. www.pulsecanada.com; 4) Wang, 2005. Quality of Western Canadian pulse crops-2005. Canadian Grain Commission. www.grainscanada.gc.ca; 5) Canada Grain Commission, 2008. Data not published.

White Bean Nutritional Information

(per 100 grams dry)

| | Navy Beans | | Great Northern Bean | |
|---------------|------------|-------------------------|---------------------|-------------------------|
| | Amount | Per Cent of Daily Value | Amount | Per Cent of Daily Value |
| Fat | 1.5 g | 2% | 1.3 g | 2% |
| Carbohydrates | 69.1 g | 23% | 68.1 g | 23% |
| Total Fiber | 23.3 g | 93% | 22.0 g | 88% |
| Sucrose | 3.2 g | | 5.14 g | |
| Protein | 25.1 g | | 26.6 g | |
| Calcium | 155 mg | 16% | 193 mg | 19% |
| Iron | 7.6 mg | 42% | 8.3 mg | 46% |
| Potassium | 1705 mg | 49% | 1733 mg | 50% |
| Vitamin C | 3.85 mg | 6% | 0.10 mg | 0% |
| Thiamin | 0.58 mg | 39% | 0.48 mg | 32% |
| Riboflavin | 0.16 mg | 9% | 0.12 mg | 7% |
| Niacin | 1.31 mg | 7% | 0.88 mg | 4.4% |
| Vitamin B6 | 0.21 mg | 11% | 0.25 mg | 13% |
| Folate | 108 mcg | 27% | 93 mcg | 23% |

References: 1) Wang and Daun, 2006. Food Chemistry 95: 493-502; 2) USDA Nutrient File; 3) Wang, 2004. The Chemical Composition and Nutritive Value of Canadian Pulses. www.pulsecanada.com; 4) Wang, 2005. Quality of Western Canadian pulse crops-2005. Canadian Grain Commission. www.grainscanada.gc.ca; 5) Canada Grain Commission, 2008. Data not published.

Pinto Beans

Pinto beans are the most important class of bean grown in the United States. For the five years spanning 2008 through 2012, pinto beans accounted for 41% of total U.S. bean area or an average 656,489 acres. North Dakota is the most important producing region in the United States, with an average of 56% of the crop planted in that state each year, compared to 13% in Nebraska and 6% in both Colorado and Idaho. In Canada, 20% of the crop was pinto beans or an average 59,400 acres per year. It should be noted that the number for Canada is actually higher, but is not reported. Not only is a large part of each year's colored bean crop moved into the "other" category because of the small number of farmers involved, but Statistics Canada does not estimate area in Saskatchewan, where pinto beans that do not darken as they age have been grown under production contract.

There is not a lot of month-to-month variation in the quantity of pinto beans which need to be bought from farmers each month to cover export needs. In both Canada and the United States, deliveries range between 8% and 10% of the annual export requirement from September through May. In the United States, they typically peak at 10% in November and December; while in Canada they peak at 10% in January and February.

Grower bids for pinto beans tend to spend two years with prices strongest between January and July, followed by two years with prices making their season highs between harvest and the January.

United States Pinto Bean Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 690,300 | 842,700 | 386,700 | 730,800 | 649,796 |
| Yield (lbs/acre) | 1,581 | 1,639 | 1,519 | 1,846 | 1,610 |
| Production | 495,056 | 626,599 | 266,443 | 611,948 | 477,520 |
| Carry In | 10,000 | 25,000 | 170,000 | 4,000 | 53,000 |
| Supply | 505,056 | 651,599 | 436,443 | 615,948 | 530,520 |
| | | | | | |
| Exports | 99,169 | 82,190 | 163,025 | 150,000 | 119,882 |
| Domestic | 380,887 | 399,409 | 269,418 | 401,948 | 346,883 |
| Total Usage | 480,055 | 481,599 | 432,443 | 551,948 | 485,162 |
| Ending Stocks | 25,000 | 170,000 | 4,000 | 64,000 | 46,800 |
| Stocks/Use | 5% | 35% | 1% | 12% | 10% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from the United States Department of Agriculture. All forecasts are by STAT Publishing.

U.S. Pinto Beans Grower

(US \$ cwt delivered plant MN/ND)

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 10.00 | 0 | 18.00 |
| 1 | 13.00 | 1 | 23.00 |
| 2 | 14.00 | 2 | 23.00 |
| 3 | 15.00 | 3 | 24.00 |
| 4 | 17.00 | 4 | 26.00 |
| 5 | 19.00 | 5 | 27.00 |
| 6 | 23.00 | 6 | 28.00 |
| 7 | 25.00 | 7 | 30.00 |
| 8 | 30.00 | 8 | 37.00 |
| 9 | 34.00 | 9 | 48.00 |
| 10 | 48.00 | 10 | 48.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Pinto Beans Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Pinto Beans Grower Average Price

(US cents per pound delivered plant MN/ND)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 15.00 | 18.25 | 18.50 | 17.00 | 23.00 | 33.40 | 30.00 | 21.75 | 39.25 |
| Sep | 14.75 | 23.25 | 15.60 | 17.60 | 23.50 | 35.50 | 27.50 | 18.50 | 42.00 |
| Oct | 14.00 | 29.00 | 14.00 | 19.00 | 26.00 | 28.80 | 25.60 | 18.80 | 44.50 |
| Nov | 14.00 | 33.00 | 14.00 | 19.40 | 24.40 | 27.00 | 32.00 | 19.00 | 43.25 |
| Dec | 14.50 | 32.40 | 14.00 | 20.00 | 24.00 | 26.00 | 30.40 | 19.00 | 43.00 |
| Jan | 15.00 | 32.00 | 13.50 | 21.00 | 25.40 | 26.60 | 28.25 | 21.25 | 45.25 |
| Feb | 15.25 | 31.50 | 14.00 | 23.00 | 28.50 | 27.00 | 27.00 | 25.50 | 48.00 |
| Mar | 16.12 | 29.10 | 14.20 | 23.80 | 30.00 | 26.75 | 25.25 | 25.50 | 48.00 |
| Apr | 17.20 | 26.12 | 14.00 | 23.50 | 29.75 | 25.00 | 24.60 | 26.60 | 48.00 |
| May | 18.25 | 24.00 | 14.00 | 23.00 | 30.00 | 25.00 | 24.00 | 28.00 | 48.00 |
| Jun | 18.25 | 24.00 | 14.00 | 23.00 | 30.00 | 27.00 | 24.00 | 28.00 | 48.00 |
| Jul | 18.00 | 22.80 | 14.50 | 23.00 | 31.00 | 29.20 | 23.40 | 33.20 | 48.00 |

U.S. Pinto Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Pinto Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 7% | 12% | 8% | 20% | 14% | 4% | 6% | 5% | 4% |
| Sep | 13% | 8% | 5% | 10% | 9% | 9% | 10% | 8% | 3% |
| Oct | 5% | 4% | 6% | 10% | 8% | 10% | 15% | 8% | 3% |
| Nov | 8% | 11% | 9% | 8% | 8% | 16% | 8% | 9% | 7% |
| Dec | 12% | 15% | 6% | 6% | 8% | 13% | 7% | 16% | 7% |
| Jan | 15% | 7% | 11% | 5% | 7% | 6% | 7% | 15% | 10% |
| Feb | 17% | 5% | 11% | 3% | 6% | 4% | 8% | 9% | 16% |
| Mar | 4% | 5% | 9% | 6% | 6% | 7% | 13% | 6% | 14% |
| Apr | 5% | 4% | 10% | 8% | 6% | 8% | 9% | 7% | 15% |
| May | 5% | 6% | 9% | 7% | 7% | 8% | 6% | 7% | 13% |
| Jun | 5% | 12% | 9% | 6% | 10% | 9% | 5% | 5% | 6% |
| Jul | 4% | 10% | 8% | 10% | 10% | 6% | 5% | 5% | 1% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

Canada Pinto Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | |
| Sep | | | | | |
| Oct | | | | | |
| Nov | | | | | |
| Dec | | | | | |
| Jan | | | | | |
| Feb | | | | | |
| Mar | | | | | |
| Apr | | | | | |
| May | | | | | |
| Jun | | | | | |
| Jul | | | | | |

Canada Pinto Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | 3% | 12% | 3% | 9% | 4% |
| Sep | 7% | 10% | 7% | 12% | 4% |
| Oct | 7% | 11% | 9% | 12% | 3% |
| Nov | 8% | 9% | 6% | 11% | 9% |
| Dec | 8% | 6% | 4% | 10% | 11% |
| Jan | 7% | 7% | 10% | 10% | 17% |
| Feb | 7% | 9% | 16% | 8% | 8% |
| Mar | 9% | 9% | 14% | 8% | 6% |
| Apr | 12% | 11% | 13% | 6% | 7% |
| May | 12% | 8% | 9% | 4% | 12% |
| Jun | 13% | 5% | 5% | 7% | 15% |
| Jul | 8% | 3% | 5% | 4% | 4% |

Navy Beans

Navy peas are the most important class of dry edible bean grown in Canada and the second most important class grown in the United States. For the five years spanning 2008 through 2012, navy or pea beans accounted for 15% of total U.S. bean area or an average 238,440 acres. North Dakota is the most important producing region in the United States, with an average of 42% of the crop planted in that state each year, compared to 27% in Michigan and 25% in Minnesota. In Canada, 37% of the crop was navy or pea beans or an average 107,047 acres per year.

Farmers in the two countries experience very different demand patterns. A larger percentage of the U.S. crop is shipped to export and domestic buyers in the weeks following harvest than is the case in Canada. Looking at exports alone, half the U.S. navy bean crop is marketed in the August through December period, compared to 40% of the Canadian crop. Domestic sales should follow a similar pattern because people normally eat more pulses in the winter than during the summer. Interestingly, purchases from farmers in support of export movement typically peak in September and October in the United States. The rest of the year, demand for product from farmers for use by exporters normally ranges between 7% and 8% of the annual total.

Average monthly deliveries by Canadian farmers in support of export movement ranges between 7% and 8% of the annual total from August through January. Movement is stronger in the February through June period, averaging between 9% and 10% of the annual total in each of those five months.

Grower bids for navy beans have a strong tendency to peak after January, reflecting tightening stocks. Interestingly, Canadian sales performance tends to more closely match price performance, with movement from farms normally stronger after January.

United States Navy Bean Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 194,900 | 279,500 | 204,400 | 261,900 | 230,260 |
| Yield (lbs/acre) | 1,710 | 1,705 | 1,589 | 1,844 | 1,709 |
| Production | 151,139 | 216,184 | 147,328 | 219,087 | 178,899 |
| Carry In | 40,000 | 10,000 | 30,000 | 3,000 | 30,400 |
| Supply | 191,138 | 226,184 | 177,328 | 222,087 | 209,298 |
| | | | | | |
| Exports | 69,911 | 87,810 | 100,127 | 94,000 | 81,232 |
| Domestic | 111,227 | 108,375 | 74,202 | 108,087 | 105,970 |
| Total Usage | 181,138 | 196,185 | 174,328 | 202,087 | 186,699 |
| Ending Stocks | 10,000 | 30,000 | 3,000 | 20,000 | 22,600 |
| Stocks/Use | 6% | 15% | 2% | 10% | 12% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from the United States Department of Agriculture. All forecasts are by STAT Publishing.

U.S. Pea Beans Grower

(US \$ cwt delivered plant MI)

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 10.00 | 0 | 18.50 |
| 1 | 13.00 | 1 | 23.50 |
| 2 | 15.00 | 2 | 25.00 |
| 3 | 17.00 | 3 | 27.00 |
| 4 | 18.50 | 4 | 31.00 |
| 5 | 20.00 | 5 | 32.00 |
| 6 | 23.00 | 6 | 34.00 |
| 7 | 25.50 | 7 | 35.00 |
| 8 | 29.00 | 8 | 40.00 |
| 9 | 34.00 | 9 | 45.00 |
| 10 | 49.00 | 10 | 49.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Pea Beans Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Pea Beans Grower Average Price

(US cents per pound delivered plant MI)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 16.00 | 20.50 | 20.00 | 20.00 | 24.20 | 39.00 | 26.75 | 28.75 | 40.50 |
| Sep | 16.00 | 22.75 | 19.80 | 19.10 | 26.25 | 40.25 | 26.75 | 25.00 | 46.80 |
| Oct | 16.80 | 26.70 | 18.50 | 18.25 | 31.00 | 36.00 | 30.40 | 25.80 | 49.00 |
| Nov | 18.00 | 27.00 | 19.00 | 17.80 | 31.00 | 26.00 | 31.00 | 27.00 | 49.00 |
| Dec | 18.00 | 26.20 | 19.00 | 18.50 | 31.00 | 23.00 | 31.60 | 27.00 | 49.00 |
| Jan | 18.00 | 26.00 | 19.00 | 19.62 | 31.00 | 23.40 | 32.75 | 29.50 | 49.00 |
| Feb | 18.00 | 26.00 | 19.00 | 20.75 | 32.00 | 25.00 | 35.00 | 32.25 | 48.50 |
| Mar | 18.25 | 26.00 | 19.40 | 21.70 | 34.50 | 25.00 | 35.00 | 34.00 | 46.40 |
| Apr | 20.00 | 26.00 | 20.00 | 23.25 | 34.00 | 24.00 | 34.20 | 34.00 | 45.00 |
| May | 20.00 | 25.75 | 20.00 | 23.50 | 37.80 | 24.60 | 33.00 | 34.00 | 45.00 |
| Jun | 20.25 | 24.75 | 20.00 | 23.50 | 39.00 | 27.25 | 33.00 | 34.00 | 42.00 |
| Jul | 21.00 | 22.00 | 20.00 | 23.50 | 39.00 | 27.80 | 29.40 | 34.60 | 42.00 |

U.S. Pea (navy) Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Pea (navy) Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 16% | 10% | 15% | 15% | 6% | 12% | 13% | 10% | 7% |
| Sep | 8% | 10% | 16% | 18% | 10% | 17% | 14% | 12% | 16% |
| Oct | 7% | 10% | 11% | 10% | 9% | 10% | 11% | 9% | 12% |
| Nov | 3% | 12% | 9% | 8% | 6% | 9% | 7% | 9% | 10% |
| Dec | 24% | 9% | 9% | 5% | 5% | 7% | 7% | 10% | 8% |
| Jan | 12% | 6% | 6% | 3% | 4% | 5% | 7% | 6% | 8% |
| Feb | 4% | 6% | 5% | 7% | 8% | 6% | 7% | 5% | 8% |
| Mar | 1% | 5% | 6% | 7% | 9% | 6% | 5% | 6% | 8% |
| Apr | 5% | 10% | 8% | 9% | 10% | 7% | 8% | 7% | 8% |
| May | 4% | 8% | 8% | 6% | 17% | 5% | 6% | 5% | 7% |
| Jun | 9% | 6% | 4% | 5% | 10% | 7% | 7% | 10% | 7% |
| Jul | 8% | 6% | 4% | 8% | 6% | 8% | 8% | 10% | 2% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

Canada Navy Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | |
| Sep | | | | | |
| Oct | | | | | |
| Nov | | | | | |
| Dec | | | | | |
| Jan | | | | | |
| Feb | | | | | |
| Mar | | | | | |
| Apr | | | | | |
| May | | | | | |
| Jun | | | | | |
| Jul | | | | | |

Canada Navy Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | 9% | 5% | 8% | 9% | 8% |
| Sep | 7% | 6% | 9% | 11% | 8% |
| Oct | 8% | 8% | 7% | 10% | 7% |
| Nov | 8% | 8% | 7% | 7% | 5% |
| Dec | 11% | 8% | 6% | 7% | 8% |
| Jan | 8% | 8% | 7% | 8% | 10% |
| Feb | 10% | 7% | 10% | 10% | 11% |
| Mar | 9% | 6% | 10% | 8% | 10% |
| Apr | 7% | 11% | 10% | 7% | 11% |
| May | 9% | 10% | 11% | 8% | 10% |
| Jun | 8% | 12% | 8% | 8% | 9% |
| Jul | 7% | 11% | 7% | 8% | 2% |

Black Beans

Black beans are the third most important class of bean grown in the United States. For the five years spanning 2008 through 2012, black beans accounted for 13% of total U.S. bean area or an average 208,800 acres. Michigan is the most important producing region in the United States, with an average of 51% of the crop planted in that state each year, compared to 29% in North Dakota and 10% in Minnesota. In Canada, 3% of the crop was black beans or an average 9,600 acres per year. The number for Canada is higher. A large part of each year's colored bean crop is moved into the "other" category because of the small number of farmers involved.

There is not a lot of month-to-month variation in the quantity of black beans which need to be bought from farmers each month to cover export needs. Deliveries from U.S. farmers range between 8% and 9% of the annual export requirement throughout the year. The only exceptions are December, when processors typically ship 11% of the annual export volume and July, when they ship 7%. Export data for black beans is not available for Canada.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January seven out of the nine years. This reflects the fact that production is not large and tends to be fairly well balanced with markets needs. Selling black beans without production contracts is not always easy because of the limited number of companies involved with the commodity and their tendency to form long term relationships with growers.

United States Black Bean Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 187,400 | 284,000 | 183,900 | 216,800 | 200,580 |
| Yield (lbs/acre) | 1,606 | 1,641 | 1,641 | 1,716 | 1,637 |
| Production | 136,533 | 211,422 | 136,896 | 168,783 | 148,916 |
| Carry In | 1,000 | 1,000 | 43,000 | 50,000 | 14,000 |
| Supply | 137,532 | 212,421 | 179,896 | 218,783 | 162,916 |
| | | | | | |
| Exports | 120,544 | 115,069 | 66,837 | 90,300 | 95,305 |
| Domestic | 15,989 | 54,352 | 63,059 | 63,483 | 57,660 |
| Total Usage | 136,532 | 169,421 | 129,896 | 153,783 | 140,916 |
| Ending Stocks | 1,000 | 43,000 | 50,000 | 65,000 | 22,000 |
| Stocks/Use | 1% | 25% | 38% | 42% | 16% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from the United States Department of Agriculture. All forecasts are by STAT Publishing.

U.S. Black Beans Grower

(US \$ cwt delivered plant MI/WI)

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 11.00 | 0 | 20.00 |
| 1 | 14.00 | 1 | 27.00 |
| 2 | 16.25 | 2 | 30.00 |
| 3 | 19.00 | 3 | 32.00 |
| 4 | 21.00 | 4 | 33.00 |
| 5 | 22.00 | 5 | 35.00 |
| 6 | 26.00 | 6 | 36.00 |
| 7 | 30.00 | 7 | 38.00 |
| 8 | 33.50 | 8 | 40.00 |
| 9 | 37.00 | 9 | 44.00 |
| 10 | 55.00 | 10 | 49.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Black Beans Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Black Beans Grower Average Price

(US cents per pound delivered plant MI/WI)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 18.00 | 20.00 | 19.75 | 21.00 | 27.00 | 40.00 | 33.00 | 30.00 | 37.50 |
| Sep | 17.88 | 21.75 | 19.00 | 20.60 | 26.38 | 42.00 | 32.75 | 21.75 | 45.10 |
| Oct | 18.30 | 20.00 | 19.00 | 19.50 | 28.50 | 40.00 | 34.00 | 21.80 | 49.00 |
| Nov | 18.50 | 19.75 | 20.00 | 21.20 | 30.20 | 35.00 | 35.00 | 25.00 | 49.00 |
| Dec | 18.50 | 20.00 | 19.80 | 22.00 | 31.00 | 33.00 | 36.20 | 30.00 | 49.00 |
| Jan | 18.50 | 19.50 | 21.50 | 22.00 | 31.00 | 32.60 | 37.25 | 30.25 | 47.75 |
| Feb | 18.50 | 21.25 | 22.00 | 22.75 | 32.12 | 33.00 | 39.50 | 32.00 | 45.25 |
| Mar | 19.38 | 21.00 | 22.00 | 23.60 | 34.12 | 33.00 | 39.38 | 35.50 | 44.20 |
| Apr | 22.00 | 20.25 | 22.00 | 26.50 | 36.12 | 30.00 | 39.50 | 36.00 | 42.00 |
| May | 22.75 | 19.75 | 22.00 | 27.00 | 37.50 | 33.00 | 39.88 | 35.25 | 42.00 |
| Jun | 20.25 | 19.00 | 22.00 | 27.00 | 38.00 | 33.00 | 40.12 | 35.00 | 42.40 |
| Jul | 20.00 | 19.00 | 22.00 | 27.00 | 38.50 | 33.00 | 33.20 | 35.60 | 38.75 |

U.S. Black Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Black Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 35% | 19% | 15% | 12% | 12% | 7% | 5% | 8% | 8% |
| Sep | 22% | 12% | 9% | 8% | 6% | 4% | 10% | 10% | 11% |
| Oct | 6% | 4% | 3% | 7% | 2% | 5% | 8% | 13% | 13% |
| Nov | 2% | 2% | 5% | 3% | 3% | 5% | 8% | 10% | 17% |
| Dec | 2% | 1% | 7% | 7% | 10% | 6% | 12% | 6% | 19% |
| Jan | 1% | 1% | 7% | 7% | 8% | 10% | 10% | 6% | 7% |
| Feb | 1% | 7% | 11% | 6% | 8% | 8% | 11% | 12% | 4% |
| Mar | 0% | 13% | 14% | 10% | 14% | 6% | 10% | 10% | 4% |
| Apr | 12% | 15% | 8% | 13% | 9% | 10% | 6% | 7% | 6% |
| May | 7% | 6% | 4% | 5% | 9% | 15% | 7% | 6% | 6% |
| Jun | 5% | 8% | 9% | 10% | 9% | 12% | 7% | 6% | 5% |
| Jul | 9% | 13% | 8% | 12% | 11% | 10% | 4% | 7% | 1% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

Great Northern Beans

Great northern beans are the most important of the minor classes of beans grown in the United States. For the five years spanning 2008 through 2012, they accounted for 4% of total U.S. bean area or an average 62,240 acres. Nebraska is the most important producing region in the United States, with an average of 86% of the crop planted in that state each year, compared to 5% in both North Dakota and in Idaho, and 4% in Wyoming. In Canada, 4% of the crop was great northern beans or an average 13,000 acres per year. The number for Canada may be higher because some acreage may be included in the “other” category. Production in Canada is centered in Alberta, which has earned a reputation for shipping good quality product.

The movement of great northern beans shows strong seasonal trends, with purchases from farmers to meet export commitments tending to peak in the February through April period. On average 38% of all great northern beans exported are called forward during that three month period. Deliveries are also stronger in the fall shipping period, averaging between 8% and 9% of each year’s total export movement. Movement is weakest in the May through September period, with shipments each month ranging between 4% and 7% of the annual total. Export data for great northern beans is not available for Canada.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January five out of the nine years. This reflects the fact that production is not large and tends to be fairly well balanced with markets needs. Selling great northern beans without production contracts is not always easy because of the limited number of companies involved with the commodity and their tendency to form long term relationships with growers.

United States Great Northern Bean Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 53,900 | 78,500 | 61,800 | 55,400 | 65,960 |
| Yield (lbs/acre) | 1,853 | 1,787 | 1,935 | 2,222 | 1,934 |
| Production | 45,314 | 63,640 | 54,250 | 55,838 | 57,897 |
| Carry In | 58,000 | 21,000 | 29,000 | 19,000 | 44,200 |
| Supply | 103,314 | 84,640 | 83,251 | 74,837 | 102,097 |
| | | | | | |
| Exports | 24,636 | 13,058 | 20,486 | 19,400 | 22,657 |
| Domestic | 57,678 | 42,582 | 43,765 | 37,438 | 35,427 |
| Total Usage | 82,314 | 55,640 | 64,251 | 56,838 | 67,297 |
| Ending Stocks | 21,000 | 29,000 | 19,000 | 18,000 | 34,800 |
| Stocks/Use | 26% | 52% | 30% | 32% | 52% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from the United States Department of Agriculture. All forecasts are by STAT Publishing.

U.S. Great Northern Beans Grower

(US \$ cwt delivered plant CO/NE)

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 12.25 | 0 | 20.00 |
| 1 | 15.00 | 1 | 25.00 |
| 2 | 16.00 | 2 | 28.00 |
| 3 | 17.00 | 3 | 30.00 |
| 4 | 18.00 | 4 | 32.00 |
| 5 | 20.00 | 5 | 32.50 |
| 6 | 23.00 | 6 | 35.00 |
| 7 | 26.00 | 7 | 40.00 |
| 8 | 30.00 | 8 | 42.00 |
| 9 | 35.00 | 9 | 42.00 |
| 10 | 45.00 | 10 | 45.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Great Northern Beans Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Great Northern Beans Grower Average Price

(US cents per pound delivered plant CO/NE)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 20.40 | 15.00 | 16.50 | 18.00 | 28.40 | 40.40 | 32.00 | 28.00 | 40.00 |
| Sep | 17.75 | 15.75 | 16.20 | 18.00 | 31.62 | 42.00 | 32.00 | 26.50 | 41.20 |
| Oct | 16.00 | 17.30 | 16.00 | 18.00 | 32.00 | 42.00 | 30.00 | 25.00 | 42.00 |
| Nov | 15.75 | 17.50 | 16.00 | 19.60 | 32.00 | 41.00 | 30.00 | 25.00 | 42.00 |
| Dec | 15.00 | 17.50 | 16.00 | 20.00 | 32.00 | 38.50 | 30.00 | 25.00 | 42.00 |
| Jan | 15.00 | 17.50 | 16.00 | 21.25 | 32.00 | 37.00 | 30.00 | 26.00 | 42.12 |
| Feb | 15.00 | 17.50 | 16.00 | 22.25 | 33.00 | 34.00 | 30.00 | 30.00 | 42.12 |
| Mar | 15.00 | 17.50 | 16.00 | 24.40 | 35.75 | 34.00 | 30.00 | 34.25 | 42.00 |
| Apr | 15.00 | 16.50 | 18.00 | 26.00 | 38.00 | 34.00 | 30.00 | 35.00 | 42.00 |
| May | 15.00 | 16.50 | 18.00 | 26.00 | 39.20 | 34.60 | 30.00 | 35.00 | 42.25 |
| Jun | 15.50 | 16.50 | 18.00 | 26.40 | 40.00 | 26.00 | 30.00 | 35.00 | 42.60 |
| Jul | 15.00 | 16.50 | 18.00 | 28.00 | 40.00 | 30.40 | 28.00 | 36.00 | 42.00 |

U.S. Great Northern Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Great Northern Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 34% | 7% | 5% | 6% | 3% | 6% | 3% | 5% | 4% |
| Sep | 16% | 10% | 10% | 9% | 5% | 8% | 5% | 8% | 4% |
| Oct | 6% | 17% | 10% | 15% | 6% | 11% | 10% | 11% | 9% |
| Nov | 5% | 13% | 12% | 12% | 6% | 9% | 10% | 12% | 5% |
| Dec | 7% | 14% | 16% | 9% | 7% | 10% | 8% | 8% | 5% |
| Jan | 8% | 10% | 12% | 13% | 13% | 10% | 4% | 8% | 10% |
| Feb | 5% | 9% | 7% | 10% | 15% | 13% | 8% | 10% | 12% |
| Mar | 1% | 5% | 7% | 9% | 22% | 9% | 15% | 16% | 8% |
| Apr | 2% | 5% | 7% | 7% | 12% | 8% | 19% | 8% | 12% |
| May | 5% | 4% | 6% | 4% | 5% | 6% | 9% | 4% | 9% |
| Jun | 4% | 3% | 5% | 4% | 4% | 4% | 6% | 5% | 18% |
| Jul | 5% | 4% | 5% | 3% | 3% | 6% | 3% | 5% | 5% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

Dark Red Kidney Beans

Dark red kidney beans are a minor class of beans grown in the United States. For the five years spanning 2008 through 2012, the class accounted for 3% of total U.S. bean area or an average 48,960 acres. Minnesota is the most important producing region in the United States, with an average of 71% of the crop planted in that state each year, compared to 13% in Wisconsin, and 4% in both New York and Idaho. In Canada, 1% of the crop was dark red kidney beans or an average 4,200 acres per year. The number for Canada may be higher because some area may be included in the “other” category.

The movement of dark red kidney beans shows strong seasonal trends, with purchases from farmers to meet export commitments tending to peak in the February through April period. On average 31% of all product exported, is called forward during that three month period. Deliveries are also stronger during harvest, with growers covering 19% of all export movement occurring in September and October. Movement is weakest in the June through August period, with shipments each month ranging between 4% and 7% of the annual total. Export data for this class is not available for Canada.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January five out of the nine years. This reflects the fact that production is not large and markets more frequently need to find price levels which ration demand across all buyers. Selling these beans without production contracts is not always easy because of the limited number of companies involved with the commodity and their tendency to form long term relationships with growers. Bean quality is a major issue for growers, who need to know whether their beans are suitable for the canning or packaging trade. Cannerys want beans without cracks in the seed coats. These are not always visible and the percentage of cracks can only be determined after testing. This is not an issue for the packaging market, but it is important that the beans all cook in the same time period.

United States Dark Red Kidney Bean Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 50,500 | 48,500 | 48,800 | 46,200 | 47,760 |
| Yield (lbs/acre) | 1,683 | 1,718 | 1,619 | 1,920 | 1,724 |
| Production | 38,556 | 37,785 | 35,834 | 40,234 | 37,449 |
| Carry In | 10,000 | 8,000 | 5,000 | 500 | 6,400 |
| Supply | 48,556 | 45,785 | 40,835 | 40,734 | 43,849 |
| | | | | | |
| Exports | 14,189 | 13,843 | 17,823 | 13,300 | 14,294 |
| Domestic | 26,366 | 26,941 | 22,511 | 23,934 | 24,095 |
| Total Usage | 40,556 | 40,785 | 40,334 | 37,234 | 38,949 |
| Ending Stocks | 8,000 | 5,000 | 500 | 3,500 | 4,900 |
| Stocks/Use | 20% | 12% | 1% | 9% | 13% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from the United States Department of Agriculture. All forecasts are by STAT Publishing.

U.S. Dark Red Kidney Beans Grower

(US \$ cwt delivered plant MN/WI))

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 17.00 | 0 | 24.00 |
| 1 | 20.00 | 1 | 30.00 |
| 2 | 22.00 | 2 | 33.00 |
| 3 | 23.50 | 3 | 35.00 |
| 4 | 26.00 | 4 | 37.00 |
| 5 | 28.00 | 5 | 40.00 |
| 6 | 30.00 | 6 | 40.00 |
| 7 | 33.50 | 7 | 45.00 |
| 8 | 38.00 | 8 | 48.00 |
| 9 | 43.00 | 9 | 55.00 |
| 10 | 55.00 | 10 | 55.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Dark Red Kidney Beans Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Dark Red Kidney Beans Grower Average Price

(US cents per pound delivered plant MN/WI)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 23.00 | 24.75 | 26.75 | 21.00 | 31.40 | 40.00 | 40.00 | 32.00 | 48.00 |
| Sep | 22.50 | 26.75 | 22.80 | 22.70 | 35.88 | 40.00 | 39.00 | 32.25 | 50.80 |
| Oct | 22.00 | 29.80 | 22.50 | 23.88 | 37.25 | 44.00 | 35.20 | 33.00 | 55.00 |
| Nov | 21.00 | 29.00 | 21.75 | 24.00 | 37.00 | 45.00 | 34.75 | 33.75 | 55.00 |
| Dec | 21.75 | 29.60 | 21.00 | 24.00 | 37.00 | 45.00 | 34.00 | 34.00 | 55.00 |
| Jan | 22.20 | 30.00 | 21.00 | 25.00 | 37.40 | 45.00 | 34.00 | 38.50 | 55.00 |
| Feb | 23.00 | 27.75 | 21.00 | 26.00 | 39.50 | 47.25 | 34.62 | 41.00 | 55.00 |
| Mar | 23.25 | 26.20 | 21.00 | 26.00 | 40.00 | 48.00 | 35.00 | 43.50 | 55.00 |
| Apr | 23.40 | 25.00 | 21.00 | 29.00 | 40.00 | 44.75 | 34.20 | 44.40 | 55.00 |
| May | 25.00 | 25.00 | 21.00 | 30.00 | 40.00 | 40.40 | 32.75 | 45.00 | 55.00 |
| Jun | 24.50 | 25.00 | 21.00 | 30.00 | 40.00 | 38.00 | 33.00 | 45.00 | 55.00 |
| Jul | 25.00 | 25.00 | 21.00 | 30.00 | 40.00 | 38.00 | 32.00 | 46.80 | 55.00 |

U.S. Dark Red Kidney Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Dark Red Kidney Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 12% | 11% | 3% | 4% | 19% | 2% | 3% | 7% | 2% |
| Sep | 9% | 12% | 5% | 12% | 18% | 8% | 6% | 13% | 4% |
| Oct | 13% | 15% | 7% | 8% | 8% | 10% | 8% | 9% | 8% |
| Nov | 17% | 10% | 12% | 10% | 3% | 8% | 11% | 9% | 10% |
| Dec | 8% | 6% | 11% | 10% | 4% | 4% | 10% | 15% | 9% |
| Jan | 8% | 5% | 20% | 6% | 4% | 10% | 8% | 10% | 10% |
| Feb | 7% | 4% | 13% | 5% | 8% | 13% | 12% | 7% | 8% |
| Mar | 1% | 6% | 9% | 5% | 13% | 13% | 10% | 7% | 8% |
| Apr | 3% | 5% | 6% | 11% | 8% | 13% | 7% | 8% | 17% |
| May | 4% | 8% | 7% | 8% | 8% | 7% | 10% | 5% | 11% |
| Jun | 11% | 10% | 5% | 11% | 4% | 8% | 7% | 6% | 9% |
| Jul | 7% | 7% | 3% | 10% | 2% | 5% | 8% | 4% | 2% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

Light Red Kidney Beans

Light red kidney beans are a minor class of beans grown in the United States. For the five years spanning 2008 through 2012, the class accounted for 3% of total U.S. bean area or an average 48,620 acres. Minnesota is the most important producing region in the United States, with an average of 30% of the crop planted in that state each year, compared to 24% in Nebraska, 15% in Michigan, and 13% in Colorado. Production in Canada is included in the “other” category.

The movement of light red kidney beans shows strong seasonal trends, with purchases from farmers to meet export commitments tending to peak in the August through October period. On average 32% of all product exported, is called forward from farmers during that three month period. Export movement is relatively steady through the remainder of the marketing year, averaging between 6% and 9% of the annual total per month. Export data for this class is not available for Canada.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January four out of the nine years. This reflects the fact that production is not large and markets more frequently need to find price levels which ration demand across all buyers.

United States Light Red Kidney Bean Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 56,300 | 53,100 | 37,200 | 40,200 | 50,060 |
| Yield (lbs/acre) | 1,718 | 1,819 | 1,726 | 1,960 | 1,759 |
| Production | 43,863 | 43,817 | 29,121 | 35,743 | 40,016 |
| Carry In | 5,000 | 5,000 | 6,000 | 500 | 4,000 |
| Supply | 48,863 | 48,817 | 35,121 | 36,244 | 44,016 |
| | | | | | |
| Exports | 7,998 | 7,182 | 9,673 | 5,300 | 9,145 |
| Domestic | 35,865 | 35,635 | 24,947 | 28,944 | 29,000 |
| Total Usage | 43,863 | 42,817 | 34,621 | 34,244 | 40,516 |
| Ending Stocks | 5,000 | 6,000 | 500 | 2,000 | 3,500 |
| Stocks/Use | 11% | 14% | 1% | 6% | 9% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from the United States Department of Agriculture. All forecasts are by STAT Publishing.

U.S. Light Red Kidney Beans Grower

(US \$ cwt delivered plant CO)

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 15.00 | 0 | 26.00 |
| 1 | 20.00 | 1 | 31.00 |
| 2 | 21.00 | 2 | 32.00 |
| 3 | 23.00 | 3 | 35.00 |
| 4 | 24.00 | 4 | 38.00 |
| 5 | 26.00 | 5 | 40.00 |
| 6 | 28.00 | 6 | 45.00 |
| 7 | 32.00 | 7 | 48.00 |
| 8 | 35.50 | 8 | 50.00 |
| 9 | 47.00 | 9 | 55.00 |
| 10 | 57.50 | 10 | 57.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Light Red Kidney Beans Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Light Red Kidney Beans Grower Average Price

(US cents per pound delivered plant CO)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 24.00 | 22.25 | 27.00 | 20.00 | 33.20 | 48.00 | 40.00 | 32.00 | 47.75 |
| Sep | 22.50 | 25.75 | 23.00 | 23.00 | 40.25 | 51.50 | 38.50 | 31.25 | 50.00 |
| Oct | 21.80 | 28.00 | 21.50 | 25.25 | 42.00 | 55.00 | 35.00 | 31.00 | 52.50 |
| Nov | 21.00 | 28.00 | 20.50 | 25.60 | 42.00 | 52.50 | 35.00 | 31.00 | 52.00 |
| Dec | 21.00 | 28.00 | 20.40 | 27.00 | 43.50 | 50.00 | 35.00 | 31.00 | 50.00 |
| Jan | 21.00 | 28.00 | 20.00 | 27.50 | 45.00 | 50.00 | 35.00 | 31.75 | 50.75 |
| Feb | 21.00 | 28.00 | 20.00 | 28.00 | 45.00 | 48.50 | 35.00 | 35.25 | 54.50 |
| Mar | 21.00 | 28.00 | 20.00 | 27.60 | 45.00 | 48.00 | 35.00 | 37.25 | 57.00 |
| Apr | 21.00 | 28.00 | 20.00 | 30.50 | 46.50 | 44.75 | 34.20 | 38.00 | 57.00 |
| May | 21.50 | 28.00 | 20.00 | 32.00 | 48.00 | 40.40 | 32.75 | 38.00 | 57.00 |
| Jun | 22.00 | 28.00 | 20.00 | 32.00 | 48.00 | 38.00 | 33.00 | 38.00 | 57.00 |
| Jul | 22.00 | 28.00 | 20.00 | 32.00 | 48.00 | 38.00 | 32.00 | 40.20 | 57.00 |

U.S. Light Red Kidney Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Light Red Kidney Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 18% | 7% | 5% | 6% | 2% | 17% | 14% | 6% | 11% |
| Sep | 11% | 7% | 6% | 6% | 4% | 18% | 14% | 8% | 9% |
| Oct | 10% | 9% | 8% | 5% | 11% | 12% | 8% | 9% | 13% |
| Nov | 10% | 9% | 14% | 18% | 10% | 6% | 8% | 8% | 10% |
| Dec | 8% | 9% | 10% | 16% | 7% | 6% | 7% | 6% | 7% |
| Jan | 10% | 9% | 6% | 13% | 11% | 4% | 7% | 9% | 8% |
| Feb | 8% | 6% | 6% | 8% | 9% | 4% | 8% | 13% | 9% |
| Mar | 2% | 15% | 13% | 9% | 13% | 6% | 9% | 9% | 9% |
| Apr | 8% | 11% | 11% | 6% | 13% | 9% | 6% | 8% | 7% |
| May | 6% | 5% | 7% | 5% | 7% | 4% | 5% | 9% | 7% |
| Jun | 4% | 6% | 8% | 3% | 5% | 8% | 5% | 8% | 8% |
| Jul | 5% | 7% | 6% | 3% | 7% | 7% | 7% | 7% | 2% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

Lima Beans

Lima beans are a minor class of beans grown in the United States. There are two types of lima beans grown: large and baby. For the five years spanning 2008 through 2012, the class accounted for a combined total of 2% of total U.S. bean area or an average 13,640 acres of large lima beans and 12,920 acres of baby lima beans. California is the most important producing region in the United States, with virtually the entire U.S. crop grown there. There is no record of lima beans being grown in Canada.

Baby lima bean export movement follows strong seasonal trends, with 49% of all product exported called forward from farmers between October and January. Movement during the remainder of the marketing year is relatively steady, averaging between 6% and 7% of the annual total each month. Japan buys nearly all baby lima beans exported from the United States. Myanmar is the main competitor for the Japanese market, supplying butter beans.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January five out of the nine years.

Large lima bean export movement does not have as strong a seasonal tendency as baby limas. Shipments tend to peak at two different periods during the marketing year. The first is October and November, when an average 23% of beans leave the country. The second is March and April when another 21% leaves the country.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January five out of the nine years.

U.S. Baby Lima Beans Grower

(US \$ cwt delivered plant CA)

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 19.00 | 0 | 32.00 |
| 1 | 24.00 | 1 | 38.00 |
| 2 | 28.00 | 2 | 40.00 |
| 3 | 30.50 | 3 | 40.00 |
| 4 | 32.00 | 4 | 42.00 |
| 5 | 35.00 | 5 | 45.00 |
| 6 | 37.50 | 6 | 46.00 |
| 7 | 40.00 | 7 | 48.00 |
| 8 | 42.00 | 8 | 50.00 |
| 9 | 46.50 | 9 | 53.00 |
| 10 | 61.00 | 10 | 61.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Large Lima Beans Grower

(US \$ cwt delivered plant CA)

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 23.50 | 0 | 47.00 |
| 1 | 33.50 | 1 | 55.00 |
| 2 | 40.00 | 2 | 55.00 |
| 3 | 41.00 | 3 | 58.00 |
| 4 | 41.50 | 4 | 60.00 |
| 5 | 42.50 | 5 | 64.00 |
| 6 | 45.00 | 6 | 66.00 |
| 7 | 50.00 | 7 | 67.00 |
| 8 | 58.00 | 8 | 68.00 |
| 9 | 65.00 | 9 | 70.00 |
| 10 | 70.00 | 10 | 70.00 |

U.S. Baby Lima Beans Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Baby Lima Beans Grower Average Price

(US cents per pound delivered plant CA)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 30.00 | 36.75 | 40.00 | 37.00 | 46.80 | 42.00 | 50.00 | 35.00 | 45.00 |
| Sep | 30.00 | 39.50 | 36.20 | 37.00 | 41.00 | 45.25 | 47.00 | 35.75 | 45.00 |
| Oct | 30.00 | 40.60 | 34.25 | 37.00 | 40.00 | 56.20 | 45.00 | 37.60 | 48.50 |
| Nov | 30.00 | 39.00 | 35.00 | 44.40 | 40.00 | 53.25 | 43.25 | 38.00 | 51.00 |
| Dec | 30.00 | 39.00 | 35.00 | 44.50 | 40.00 | 49.00 | 40.00 | 38.00 | 54.20 |
| Jan | 30.00 | 39.25 | 35.00 | 45.00 | 40.00 | 50.20 | 40.00 | 38.00 | 53.00 |
| Feb | 30.00 | 40.00 | 35.00 | 45.00 | 41.50 | 55.00 | 39.00 | 38.50 | 53.00 |
| Mar | 30.00 | 40.00 | 35.00 | 45.00 | 42.00 | 54.50 | 39.75 | 40.00 | 52.20 |
| Apr | 30.00 | 40.00 | 36.00 | 46.50 | 42.00 | 54.00 | 38.00 | 40.00 | 53.00 |
| May | 30.50 | 40.00 | 36.00 | 48.00 | 42.00 | 49.00 | 35.00 | 41.00 | 53.25 |
| Jun | 31.00 | 40.00 | 37.80 | 47.20 | 42.00 | 48.00 | 34.50 | 42.00 | 49.80 |
| Jul | 34.20 | 40.00 | 38.25 | 47.00 | 42.00 | 49.60 | 35.10 | 45.00 | 49.00 |

U.S. Large Lima Beans Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

U.S. Large Lima Beans Grower Average Price

(US cents per pound delivered plant CA)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 41.20 | 42.00 | 42.25 | 48.00 | 62.40 | 66.00 | 70.00 | 68.00 | 55.00 |
| Sep | 40.88 | 42.00 | 43.00 | 44.20 | 61.00 | 65.75 | 67.75 | 68.00 | 56.00 |
| Oct | 41.00 | 42.00 | 43.25 | 43.00 | 60.00 | 68.00 | 68.00 | 64.40 | 57.00 |
| Nov | 41.00 | 42.00 | 44.00 | 57.00 | 60.40 | 69.00 | 69.25 | 58.00 | 58.00 |
| Dec | 41.00 | 42.00 | 44.60 | 62.00 | 60.00 | 65.00 | 69.80 | 58.00 | 56.20 |
| Jan | 41.00 | 42.00 | 45.00 | 62.50 | 60.00 | 68.00 | 69.75 | 58.00 | 55.75 |
| Feb | 41.00 | 42.00 | 45.00 | 63.25 | 61.50 | 70.00 | 69.00 | 55.75 | 55.50 |
| Mar | 41.00 | 42.00 | 45.20 | 64.80 | 62.50 | 70.00 | 69.00 | 55.00 | 55.00 |
| Apr | 41.00 | 42.00 | 46.00 | 65.25 | 63.00 | 70.00 | 68.10 | 55.00 | 55.00 |
| May | 41.00 | 42.00 | 46.75 | 65.00 | 63.00 | 68.80 | 67.50 | 55.00 | 51.00 |
| Jun | 41.00 | 42.00 | 47.60 | 65.80 | 65.25 | 68.00 | 66.50 | 55.00 | 47.00 |
| Jul | 41.00 | 42.00 | 48.50 | 65.00 | 66.00 | 69.20 | 68.00 | 55.00 | 55.00 |

U.S. Baby Lima Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Baby Lima Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 7% | 9% | 3% | 6% | 4% | 6% | 3% | 5% | 8% |
| Sep | 10% | 7% | 9% | 8% | 6% | 6% | 5% | 10% | 10% |
| Oct | 15% | 16% | 12% | 17% | 13% | 15% | 10% | 12% | 13% |
| Nov | 10% | 14% | 11% | 14% | 12% | 20% | 14% | 10% | 7% |
| Dec | 9% | 10% | 7% | 14% | 10% | 15% | 7% | 10% | 11% |
| Jan | 8% | 18% | 7% | 8% | 13% | 13% | 8% | 13% | 12% |
| Feb | 9% | 9% | 9% | 11% | 5% | 6% | 8% | 9% | 9% |
| Mar | 2% | 4% | 8% | 5% | 5% | 5% | 5% | 8% | 9% |
| Apr | 3% | 2% | 11% | 4% | 5% | 7% | 4% | 8% | 5% |
| May | 8% | 4% | 10% | 6% | 10% | 4% | 8% | 8% | 7% |
| Jun | 8% | 3% | 6% | 3% | 9% | 2% | 14% | 3% | 6% |
| Jul | 10% | 3% | 9% | 3% | 8% | 2% | 16% | 5% | 1% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

U.S. Large Lima Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

U.S. Large Lima Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 12% | 6% | 3% | 2% | 3% | 0% | 4% | 9% | 2% |
| Sep | 7% | 12% | 4% | 6% | 17% | 9% | 4% | 7% | 4% |
| Oct | 3% | 13% | 16% | 12% | 31% | 5% | 7% | 7% | 6% |
| Nov | 9% | 13% | 20% | 13% | 15% | 23% | 7% | 10% | 7% |
| Dec | 13% | 17% | 17% | 21% | 4% | 13% | 5% | 8% | 10% |
| Jan | 12% | 14% | 12% | 16% | 10% | 12% | 6% | 10% | 9% |
| Feb | 11% | 10% | 6% | 8% | 7% | 6% | 9% | 5% | 16% |
| Mar | 3% | 7% | 5% | 6% | 3% | 5% | 17% | 10% | 20% |
| Apr | 3% | 3% | 8% | 2% | 3% | 6% | 14% | 13% | 16% |
| May | 9% | 2% | 4% | 6% | 4% | 9% | 9% | 7% | 7% |
| Jun | 7% | 2% | 3% | 4% | 2% | 6% | 8% | 7% | 4% |
| Jul | 12% | 2% | 3% | 4% | 2% | 7% | 12% | 8% | 1% |

Cranberry Beans

Cranberry beans are a minor class of beans grown in the United States. For the five years spanning 2008 through 2012, the class accounted for less than 1% of total U.S. bean area or an average 5,600 acres. Michigan is the most important producing region in the United States, with an average of 74% of the crop planted in that state each year, compared to 16% in California, and 10% in Idaho. In Canada, 5% of the crop was cranberry beans or an average 14,200 acres per year. The number for Canada may be higher because some area may be included in the “other” category.

The movement of cranberry beans shows strong seasonal trends, with purchases from farmers to meet export commitments tending to peak in the September through November period. On average, 41% of all product exported is called forward from farmers during that three month period. Movement remains relatively strong from January to March, with deliveries into export markets each month averaging between 7% and 10% of the annual total. During the remainder of the marketing year, deliveries are normally low, reflecting tightening stocks, averaging between 3% and 5% of the annual total each month. Export data for this class is not available for Canada.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January eight out of the nine years. This reflects the fact that farmers know that production is limited, forcing markets to work harder than might otherwise be the case to convince them to sell unsold inventory.

U.S. Cranberry Beans Grower

(US \$ cwt delivered plant MI/NY)

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 17.00 | 0 | 27.00 |
| 1 | 20.00 | 1 | 30.00 |
| 2 | 22.00 | 2 | 32.00 |
| 3 | 23.50 | 3 | 34.00 |
| 4 | 25.00 | 4 | 35.00 |
| 5 | 28.00 | 5 | 38.00 |
| 6 | 30.00 | 6 | 38.00 |
| 7 | 33.00 | 7 | 48.00 |
| 8 | 37.00 | 8 | 50.00 |
| 9 | 42.00 | 9 | 60.00 |
| 10 | 60.00 | 10 | 60.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Cranberry Beans Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Cranberry Beans Grower Average Price

(US cents per pound delivered plant MI/NY)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 17.40 | 22.00 | 23.00 | 22.50 | 34.00 | 60.00 | 30.00 | 31.25 | 37.50 |
| Sep | 21.62 | 23.75 | 20.80 | 22.40 | 35.75 | 58.75 | 30.00 | 28.25 | 44.60 |
| Oct | 23.00 | 25.00 | 21.00 | 24.00 | 43.75 | 55.00 | 31.00 | 27.20 | 49.25 |
| Nov | 22.50 | 25.00 | 24.25 | 34.20 | 48.00 | 47.50 | 35.00 | 29.00 | 50.00 |
| Dec | 21.00 | 25.00 | 25.00 | 34.00 | 48.00 | 38.50 | 36.20 | 31.00 | 50.00 |
| Jan | 21.00 | 25.00 | 25.25 | 34.00 | 54.60 | 37.40 | 37.25 | 31.50 | 50.00 |
| Feb | 21.00 | 25.00 | 26.00 | 34.00 | 60.00 | 33.50 | 38.00 | 33.25 | 50.00 |
| Mar | 21.25 | 25.00 | 26.00 | 34.00 | 60.00 | 31.00 | 38.00 | 35.50 | 50.00 |
| Apr | 22.00 | 25.00 | 25.25 | 34.00 | 60.00 | 30.00 | 38.00 | 36.00 | 50.00 |
| May | 22.00 | 25.00 | 25.00 | 34.00 | 60.00 | 30.00 | 38.00 | 36.00 | 49.00 |
| Jun | 22.00 | 24.50 | 25.00 | 34.00 | 60.00 | 30.00 | 38.00 | 36.00 | 43.20 |
| Jul | 22.00 | 23.60 | 24.25 | 34.00 | 60.00 | 30.00 | 33.20 | 36.00 | 41.00 |

U.S. Cranberry Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | |
| Sep | | | | | |
| Oct | | | | | |
| Nov | | | | | |
| Dec | | | | | |
| Jan | | | | | |
| Feb | | | | | |
| Mar | | | | | |
| Apr | | | | | |
| May | | | | | |
| Jun | | | | | |
| Jul | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Cranberry Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | 15% | 9% | 1% | 6% | 10% |
| Sep | 6% | 31% | 2% | 9% | 6% |
| Oct | 12% | 13% | 24% | 19% | 20% |
| Nov | 10% | 9% | 10% | 12% | 20% |
| Dec | 9% | 3% | 6% | 7% | 13% |
| Jan | 8% | 1% | 19% | 9% | 11% |
| Feb | 5% | 8% | 18% | 6% | 8% |
| Mar | 8% | 6% | 8% | 5% | 8% |
| Apr | 5% | 4% | 5% | 9% | 3% |
| May | 4% | 7% | 4% | 8% | 1% |
| Jun | 11% | 6% | 3% | 6% | 1% |
| Jul | 6% | 2% | 3% | 4% | 0% |

The above table shows monthly movement as a percentage of the entire marketing year’s export movement.

Pink Beans

Pink beans are a minor class of beans grown in the United States. For the five years spanning 2008 through 2012, the class accounted for 2% of total U.S. bean area or an average 28,340 acres. Idaho and North Dakota are the most important producing regions in the United States, with each state accounting for an average of 34% of the crop planted each year, compared to 21% in Minnesota, and 11% in Washington. Production in Canada is included in the “other” category.

The movement of pink beans does not show strong seasonal trends. Shipments tend to peak at two different periods during the marketing year. The first is December and January, when an average 26% of beans leave the country. The second is April and May when another 33% leaves the country. Export data for this class is not available for Canada.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January four out of the nine years. This reflects the fact that production is not large and demand is not as predictable as is the case for some other classes of beans. In markets such as this, growers need to take advantage of opportunities unless they are willing to risk holding product for a significant period of time.

United States Pink Bean Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 27,600 | 33,000 | 21,100 | 29,400 | 28,600 |
| Yield (lbs/acre) | 1,801 | 1,776 | 1,934 | 2,075 | 1,800 |
| Production | 22,544 | 26,581 | 18,507 | 27,669 | 23,800 |
| Carry In | 500 | 1,000 | 3,000 | 1,000 | 2,000 |
| Supply | 23,044 | 27,580 | 21,506 | 28,670 | 25,800 |
| | | | | | |
| Exports | 2,065 | 540 | 1,569 | 2,000 | 1,800 |
| Domestic | 19,979 | 24,041 | 18,937 | 24,070 | 22,900 |
| Total Usage | 22,044 | 24,581 | 20,506 | 26,070 | 24,700 |
| Ending Stocks | 1,000 | 3,000 | 1,000 | 2,600 | 1,100 |
| Stocks/Use | 5% | 12% | 5% | 10% | 4% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from the United States Department of Agriculture. All forecasts are by STAT Publishing.

U.S. Pink Beans Grower

(US \$ cwt delivered plant WA/ID/OR)

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 13.00 | 0 | 22.00 |
| 1 | 16.50 | 1 | 23.00 |
| 2 | 19.00 | 2 | 27.00 |
| 3 | 19.50 | 3 | 30.00 |
| 4 | 20.00 | 4 | 31.00 |
| 5 | 22.00 | 5 | 32.00 |
| 6 | 23.00 | 6 | 32.00 |
| 7 | 25.00 | 7 | 37.00 |
| 8 | 30.00 | 8 | 40.00 |
| 9 | 32.00 | 9 | 45.00 |
| 10 | 48.00 | 10 | 48.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Pink Beans Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Pink Beans Grower Average Price

(US cents per pound delivered plant WA/ID/OR)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 20.00 | 21.00 | 23.00 | 19.00 | 23.60 | 32.00 | 34.50 | 30.00 | 38.75 |
| Sep | 21.00 | 21.75 | 22.00 | 20.60 | 26.12 | 32.00 | 33.50 | 29.50 | 42.40 |
| Oct | 21.00 | 23.00 | 21.25 | 22.50 | 26.50 | 38.00 | 32.00 | 27.00 | 45.00 |
| Nov | 21.00 | 23.00 | 20.50 | 22.00 | 27.00 | 38.00 | 32.00 | 25.00 | 45.00 |
| Dec | 21.00 | 23.00 | 20.20 | 22.00 | 27.00 | 37.75 | 32.00 | 25.00 | 45.00 |
| Jan | 20.60 | 23.00 | 20.00 | 22.00 | 27.00 | 38.20 | 31.50 | 25.25 | 45.00 |
| Feb | 20.00 | 23.00 | 20.00 | 22.00 | 30.00 | 39.50 | 31.50 | 28.00 | 45.75 |
| Mar | 20.75 | 23.00 | 20.00 | 22.10 | 31.50 | 39.00 | 31.25 | 30.00 | 46.40 |
| Apr | 21.00 | 23.00 | 20.00 | 22.88 | 32.00 | 39.00 | 31.00 | 30.00 | 48.00 |
| May | 21.00 | 22.75 | 20.00 | 23.00 | 32.00 | 35.00 | 30.25 | 32.00 | 48.00 |
| Jun | 21.00 | 22.00 | 20.00 | 23.00 | 32.00 | 35.00 | 30.00 | 32.00 | 48.00 |
| Jul | 21.00 | 22.00 | 20.00 | 23.00 | 32.00 | 35.00 | 30.00 | 34.20 | 48.00 |

U.S. Pink Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Pink Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 2% | 10% | 5% | 33% | 35% | 3% | 3% | 1% | 3% |
| Sep | 3% | 15% | 5% | 11% | 15% | 3% | 7% | 3% | 3% |
| Oct | 2% | 6% | 16% | 1% | 1% | 1% | 10% | 2% | 1% |
| Nov | 14% | 3% | 6% | 4% | 0% | 2% | 5% | 3% | 15% |
| Dec | 30% | 12% | 9% | 5% | 19% | 6% | 4% | 25% | 16% |
| Jan | 10% | 4% | 5% | 9% | 7% | 16% | 7% | 9% | 20% |
| Feb | 5% | 2% | 6% | 5% | 5% | 5% | 5% | 6% | 10% |
| Mar | 2% | 4% | 4% | 22% | 10% | 1% | 4% | 5% | 6% |
| Apr | 8% | 1% | 9% | 10% | 5% | 23% | 24% | 22% | 11% |
| May | 9% | 0% | 13% | 1% | 1% | 31% | 22% | 12% | 13% |
| Jun | 2% | 0% | 13% | 0% | 0% | 8% | 9% | 9% | 3% |
| Jul | 14% | 43% | 9% | 1% | 0% | 2% | 2% | 3% | 0% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

Small Red Beans

Small red beans are a minor class of beans grown in the United States. For the five years spanning 2008 through 2012, the class accounted for 2% of total U.S. bean area or an average 35,160 acres. Michigan is the most important producing region in the United States, accounting for average of 47% of the crop planted each year, compared to 31% in Idaho, 12% in Washington, and 6% in North Dakota. Production in Canada is included in the “other” category.

The movement of small red beans shows a moderate seasonal trend in the United States. Shipments tend to be greatest in the October through January period, with an average 40% of beans leave the country. Canada shows the same tendency, with 51% of all small red beans exported normally shipping during the October through January period.

From the 2003-04 through 2011-12 marketing years, grower bids in the United States set their season highs after January four out of the nine years.

United States Small Red Bean Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 35,100 | 22,900 | 35,500 | 40,000 | 33,300 |
| Yield (lbs/acre) | 2,003 | 2,087 | 2,076 | 2,093 | 2,000 |
| Production | 31,888 | 21,682 | 33,430 | 37,966 | 29,700 |
| Carry In | 8,600 | 6,400 | 0 | 1,500 | 3,900 |
| Imports | 6,497 | 3,741 | 4,525 | 7,800 | 6,100 |
| Supply | 46,985 | 31,823 | 37,955 | 47,267 | 39,700 |
| | | | | | |
| Exports | 2,177 | 1,720 | 420 | 1,467 | 1,200 |
| Domestic | 38,409 | 30,103 | 36,035 | 36,800 | 34,900 |
| Total Usage | 40,586 | 31,823 | 36,455 | 38,267 | 36,100 |
| Ending Stocks | 6,400 | 0 | 1,500 | 9,000 | 3,600 |
| Stocks/Use | 16% | 0% | 4% | 24% | 10% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from the United States Department of Agriculture. All forecasts are by STAT Publishing.

U.S. Small Red Beans Grower

(US \$ cwt delivered plant WA/ID/OR)

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 14.00 | 0 | 23.00 |
| 1 | 18.50 | 1 | 25.00 |
| 2 | 20.00 | 2 | 29.00 |
| 3 | 21.00 | 3 | 30.00 |
| 4 | 22.00 | 4 | 32.00 |
| 5 | 23.00 | 5 | 33.00 |
| 6 | 24.00 | 6 | 40.00 |
| 7 | 27.00 | 7 | 42.00 |
| 8 | 30.00 | 8 | 43.00 |
| 9 | 40.00 | 9 | 46.00 |
| 10 | 48.00 | 10 | 48.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Small Red Beans Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Small Red Beans Grower Average Price

(US cents per pound delivered plant WA/ID/OR)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 20.00 | 21.00 | 23.00 | 19.00 | 25.60 | 42.00 | 27.00 | 30.00 | 40.00 |
| Sep | 22.00 | 21.75 | 21.40 | 20.60 | 26.62 | 42.75 | 31.00 | 29.50 | 42.60 |
| Oct | 21.60 | 23.00 | 20.25 | 22.25 | 28.50 | 45.00 | 32.00 | 26.80 | 45.25 |
| Nov | 21.75 | 23.00 | 20.50 | 21.80 | 30.00 | 43.00 | 32.00 | 28.00 | 46.00 |
| Dec | 21.00 | 23.00 | 20.20 | 23.00 | 30.00 | 42.75 | 32.00 | 30.00 | 46.00 |
| Jan | 21.00 | 23.00 | 20.00 | 23.00 | 34.60 | 43.00 | 32.00 | 30.00 | 46.00 |
| Feb | 21.00 | 23.00 | 20.00 | 23.00 | 39.25 | 40.75 | 30.00 | 30.00 | 46.00 |
| Mar | 21.00 | 23.00 | 20.00 | 23.00 | 40.50 | 40.00 | 30.75 | 31.50 | 46.00 |
| Apr | 21.00 | 23.00 | 20.00 | 24.50 | 42.00 | 38.25 | 30.60 | 34.40 | 47.00 |
| May | 21.00 | 22.75 | 20.00 | 25.00 | 42.00 | 33.40 | 30.00 | 40.00 | 45.75 |
| Jun | 21.00 | 22.00 | 20.00 | 25.00 | 42.00 | 33.00 | 30.00 | 40.00 | 45.00 |
| Jul | 21.00 | 22.00 | 20.00 | 25.00 | 42.00 | 27.80 | 30.00 | 40.00 | 45.50 |

U.S. Small Red Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Small Red Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 6% | 6% | 9% | 5% | 7% | 6% | 7% | 8% | 6% |
| Sep | 8% | 6% | 6% | 8% | 7% | 9% | 8% | 11% | 6% |
| Oct | 9% | 5% | 4% | 6% | 10% | 12% | 8% | 8% | 17% |
| Nov | 10% | 6% | 6% | 4% | 7% | 9% | 8% | 4% | 10% |
| Dec | 5% | 10% | 21% | 3% | 11% | 8% | 17% | 12% | 9% |
| Jan | 21% | 9% | 12% | 8% | 12% | 6% | 9% | 14% | 8% |
| Feb | 18% | 6% | 8% | 6% | 7% | 7% | 7% | 12% | 13% |
| Mar | 4% | 4% | 9% | 9% | 9% | 9% | 6% | 9% | 9% |
| Apr | 5% | 12% | 7% | 15% | 10% | 8% | 12% | 8% | 9% |
| May | 3% | 18% | 5% | 14% | 7% | 9% | 8% | 5% | 4% |
| Jun | 3% | 9% | 8% | 15% | 6% | 9% | 5% | 6% | 6% |
| Jul | 5% | 10% | 6% | 7% | 6% | 7% | 4% | 4% | 2% |

The above table shows monthly movement as a percentage of the entire market-year's export movement.

Canada Small Red Bean Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

Canada Small Red Bean Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 7% | 3% | 11% | 4% | 9% | 8% | 2% | 2% | 2% |
| Sep | 6% | 6% | 4% | 4% | 15% | 11% | 5% | 9% | 2% |
| Oct | 8% | 10% | 10% | 7% | 12% | 13% | 19% | 9% | 11% |
| Nov | 18% | 11% | 14% | 21% | 18% | 13% | 17% | 15% | 13% |
| Dec | 14% | 6% | 10% | 23% | 11% | 10% | 17% | 14% | 12% |
| Jan | 9% | 3% | 12% | 8% | 6% | 8% | 10% | 13% | 11% |
| Feb | 6% | 4% | 13% | 5% | 4% | 7% | 10% | 6% | 13% |
| Mar | 16% | 6% | 7% | 10% | 7% | 9% | 5% | 11% | 10% |
| Apr | 7% | 6% | 5% | 7% | 5% | 8% | 3% | 7% | 11% |
| May | 1% | 4% | 6% | 7% | 3% | 5% | 4% | 4% | 9% |
| Jun | 4% | 10% | 5% | 3% | 4% | 4% | 3% | 6% | 6% |
| Jul | 5% | 32% | 3% | 2% | 6% | 3% | 5% | 5% | 1% |

Blackeye Cowpeas

Blackeye cowpeas are a minor class of beans grown in the United States. For the five years spanning 2008 through 2012, they accounted for 2% of total U.S. bean area or an average 35,381 acres. California is the most important producing region in the United States, with an average of 49% of the crop planted in that state each year, compared to 43% in Texas and 8% in Arizona. There is no reported production in Canada.

Most years, the United States does not grow enough blackeye cowpeas to meet its domestic needs. As a result, it is usually a net importer of blackeye cowpeas, importing more product than it exports. Peru is its most important supplier.

United States Blackeye Cowpea Supply and Demand
 (acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 48,300 | 34,800 | 24,600 | 37,400 | 33,900 |
| Yield (lbs/acre) | 1,596 | 1,681 | 1,370 | 1,575 | 1,500 |
| Production | 34,972 | 26,535 | 15,286 | 26,717 | 23,400 |
| Carry In | 0 | 500 | 500 | 3,000 | 400 |
| Imports | 135 | 2,229 | 19,530 | 6,800 | 6,000 |
| Supply | 35,107 | 29,264 | 35,316 | 36,517 | 29,800 |
| | | | | | |
| Exports | 2,177 | 1,720 | 420 | 1,508 | 1,200 |
| Domestic | 32,431 | 27,045 | 31,896 | 33,009 | 27,800 |
| Total Usage | 34,608 | 28,765 | 32,316 | 34,517 | 29,000 |
| Ending Stocks | 500 | 500 | 3,000 | 2,000 | 800 |
| Stocks/Use | 1% | 2% | 9% | 6% | 3% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from the United States Department of Agriculture. All forecasts are by STAT Publishing.

U.S. Blackeye Beans Grower
(US \$ cwt delivered plant CA)

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 19.50 | 0 | 37.00 |
| 1 | 24.50 | 1 | 37.00 |
| 2 | 26.50 | 2 | 39.00 |
| 3 | 29.00 | 3 | 39.00 |
| 4 | 30.00 | 4 | 40.00 |
| 5 | 31.00 | 5 | 40.00 |
| 6 | 34.00 | 6 | 41.00 |
| 7 | 39.00 | 7 | 46.00 |
| 8 | 40.00 | 8 | 48.00 |
| 9 | 46.00 | 9 | 58.00 |
| 10 | 65.00 | 10 | 65.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Blackeye Beans Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Blackeye Beans Grower Average Price

(US cents per pound delivered plant CA)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 33.60 | 28.00 | 32.00 | 41.00 | 37.00 | 39.00 | 46.50 | 37.00 | 40.00 |
| Sep | 31.25 | 28.00 | 32.80 | 40.00 | 39.00 | 39.00 | 43.25 | 37.00 | 40.00 |
| Oct | 30.00 | 28.10 | 34.00 | 46.00 | 39.00 | 43.80 | 40.80 | 38.00 | 57.00 |
| Nov | 28.75 | 28.62 | 34.25 | 48.20 | 39.00 | 44.50 | 41.50 | 40.00 | 65.00 |
| Dec | 28.00 | 29.00 | 38.00 | 48.00 | 39.00 | 41.50 | 40.40 | 40.00 | 65.00 |
| Jan | 28.00 | 29.25 | 40.00 | 48.00 | 39.00 | 43.40 | 40.00 | 40.25 | 65.00 |
| Feb | 28.00 | 29.00 | 40.00 | 47.50 | 39.00 | 45.00 | 40.00 | 40.00 | 62.75 |
| Mar | 28.00 | 29.00 | 40.20 | 47.60 | 39.00 | 46.50 | 38.25 | 40.00 | 59.00 |
| Apr | 28.00 | 30.00 | 48.50 | 46.00 | 37.50 | 47.00 | 40.80 | 40.00 | 58.00 |
| May | 28.00 | 31.00 | 48.00 | 40.00 | 37.00 | 47.00 | 39.50 | 40.00 | 57.25 |
| Jun | 28.00 | 31.00 | 46.00 | 37.60 | 38.25 | 47.00 | 38.00 | 40.00 | 55.00 |
| Jul | 28.10 | 31.60 | 43.50 | 37.00 | 39.00 | 47.00 | 37.00 | 40.00 | 55.00 |

U.S. Cowpea Movement From Farms

(the darker the color the more commercial demand)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Cowpea Monthly Movement

(sales as a percent of the marketing year total)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 6% | 2% | 5% | 5% | 3% | 2% | 1% | 8% | 0% |
| Sep | 13% | 7% | 6% | 12% | 7% | 41% | 0% | 15% | 0% |
| Oct | 7% | 5% | 23% | 15% | 7% | 16% | 8% | 14% | 0% |
| Nov | 29% | 8% | 17% | 10% | 29% | 2% | 10% | 16% | 0% |
| Dec | 17% | 9% | 17% | 12% | 18% | 1% | 6% | 5% | 1% |
| Jan | 8% | 13% | 6% | 6% | 5% | 0% | 4% | 11% | 12% |
| Feb | 9% | 12% | 6% | 6% | 8% | 2% | 2% | 7% | 21% |
| Mar | 3% | 10% | 6% | 4% | 7% | 1% | 13% | 4% | 12% |
| Apr | 2% | 15% | 5% | 4% | 6% | 23% | 17% | 15% | 14% |
| May | 1% | 10% | 4% | 6% | 2% | 10% | 22% | 5% | 18% |
| Jun | 2% | 4% | 3% | 15% | 2% | 1% | 13% | 1% | 17% |
| Jul | 3% | 6% | 3% | 6% | 5% | 2% | 4% | 1% | 4% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

Chickpeas

People have been cultivating chickpeas for at least 7,500 years. Current evidence suggests production was first established in Turkey and Syria. From there, it fanned out across parts of Europe and on to the Indian subcontinent. Some researchers in India believe that chickpeas were originally domesticated there along with pigeon peas, mung beans, and other pulses which are still consumed in the region.

There are two main types of chickpeas grown today. Most of the world's production is of the small, dark brown, desi-type. Though the large, light colored kabuli-type only accounts for about 15% of world production, it accounts for 40% of the world export trade.

Chickpea production experienced a second geographic expansion in the 20th century, with farmers in the northern United States, Canada and Australia adopting the crop. Even so, Turkey and India held onto their status as two of the world's most important producing and exporting countries.

Turkey is the third largest chickpea producer in the world and fourth largest exporter. Turkey grows mainly kabuli type chickpeas, for which it is the world's largest producer and second largest exporter. India, is the world's largest producer, importer and consumer of desi-type chickpeas. But, because the only pulse that can be exported from India are kabuli-type chickpeas, India emerged as the world's largest kabuli chickpea exporter and second largest exporter of chickpeas.

Despite their prominence, two other countries are also focal points for the world chickpea trade. Mexico sets the tone for kabuli chickpea markets because it is seen as producing the best quality and largest kabuli type chickpeas in the world. Other origins and smaller chickpeas are normally sold at a discount to 11mm and 12mm kabuli

chickpeas shipped from Mexico. As the world's largest export producer of desi chickpeas, Australia sets the competitive tone for that market, though events on the Indian subcontinent define both demand prospects and the upward price potential.

Consumption and Elasticity of Demand

About 89% of the chickpeas grown in the world are consumed where they are produced. Pulse Canada notes that kabuli chickpeas are used in ready-to-eat meals, soups, salads, and vegetarian products. They can also be used in gluten-free applications; roasted to produce a crunchy nut-like snack; or added to meat dishes to reduce fat and saturated fat content. Desi chickpeas are normally sold as splits and resemble yellow split peas. Pulse Canada notes they are traditionally ground into flour and used in various ethnic dishes such as Indian snack mix, onion bhajji or vegetable pakoras (similar to fritters), French socca (chickpea crepe), Italian farinata (thin, crisp, pizza-like pancake). Chickpeas are also ground into flour and can be used to make a full range of baked products, including pasta, breads, crackers and cookies, extruded and puffed snack foods and batters and coatings.

Global consumption of chickpeas is trending upward, but this is mainly because of economic growth in India and higher average prices for field crops. While India has registered excellent economic growth between the year 2000 and 2012, with average annual incomes growing, incomes remain far below North American and European standards. Over half India's population is directly employed by agriculture and these are among the country's poorest citizens. A large percentage of those individuals are chronically undernourished.

Ironically, the best thing that happened to that segment of India's population are the biofuel policies in the United States and Europe. Prior to 2006, field crop markets were trapped in a downward price trend. One of the basic facts of commodity markets is that as production moves past demand, whether because of new technology or government policies, prices fall. Cheap food policies are a boon to the urban poor, but a curse to rural poor. Since 2006, average prices paid for most field crops have risen substantially in all parts of the world. This resulted in an immediate economic benefit to the half of India's population directly employed by agriculture. The first place they have tended to spend more money is on food. If incomes continue to grow, they will eventually buy more diverse and expensive foods. This is the paradox of Indian pulse demand. When production rises, imports may also rise because half the people have more money. When production falls, imports may also fall because half the people have less money to spend on food.

Pulses directly benefitted from the improvement in rural incomes. During the five years between 1996 and 2000, India had an annual shortage of 2.84 million metric tons of pulses. This is the difference between the country's recommended minimum per capita pulse consumption level and the actual quantity of pulses available. Available supplies include local crops and imports. That shortfall narrowed to 2.78 million metric tons in the next five year period. However, in the five years spanning 2006 through 2010, the average annual shortfall in the available supply of pulses shrank to just 972,000 metric tons per year. That reflected both an increase in average annual

imports and production.

Between 1996 and 2000, India produced an average of 12.95 million metric tons of all pulse crops each year. That rose to 13.19 million metric tons during the next five year period and 15.27 million metric tons between 2006 and 2010. Output is expected to keep rising, with India expected to grow an average of 17.3 million metric tons of pulses between 2011 and 2015. If the forecasts prove correct, total pulse production will have grown a third in 20 years.

Imports averaged 1.22 million metric tons between 2006 and 2010. They more than doubled to an average 2.53 million metric tons between 2001 and 2006, and jumped to 3.86 million metric tons between 2006 and 2010. Through 2015, average annual pulse production in India is expected to be the highest in the country's history, while imports could still average close to four million metric tons per year. If those forecasts prove correct, total pulse imports will have soared 163% in 20 years.

The most important pulse grown and consumed in India are desi chickpeas. This reflects the regional preference throughout the Indian subcontinent. Other than 7mm or smaller kabuli chickpeas, Indian consumers rarely eat that class. Instead, kabuli chickpeas are preferred in Europe, the Middle East and the Americas. The net result is that demand for desi type chickpeas is still income elastic, while kabuli chickpea consumption is not as prone to increase when prices decline or when the incomes of its customers rise.

World's Top 10 Chickpea Traders

(5-year average trading volume in metric tons)

| Exporters | Quantity | Importers | Quantity |
|---------------|----------|----------------|----------|
| Australia | 333,891 | India | 173,148 |
| India | 132,298 | Pakistan | 132,951 |
| Mexico | 119,996 | Bangladesh | 109,625 |
| Turkey | 81,524 | Arab Emir. | 60,617 |
| Canada | 74,862 | Spain | 55,585 |
| Ethiopia | 53,796 | Algeria | 53,833 |
| Myanmar | 52,677 | United Kingdom | 31,244 |
| United States | 28,270 | Saudi Arabia | 27,600 |
| Russia | 23,668 | Jordan | 26,964 |
| Arab Emir. | 20,966 | Iran | 25,987 |

Source: Food and Agriculture Organization, United Nations

Whole Chickpea Nutritional Information
(per 100 grams dry)

| | Kabuli | | Desi | |
|---------------|---------|-------------------------|---------|-------------------------|
| | Amount | Per Cent of Daily Value | Amount | Per Cent of Daily Value |
| Fat | 5.9 g | 9% | 5.4 g | 8% |
| Carbohydrates | 66.5 g | 22% | 68.4 g | 22% |
| Total Fiber | 18.8 g | 75% | 27.8 g | 111% |
| Sucrose | 3.84 g | | 2.03 g | |
| Protein | 22.7 g | | 23.0 g | |
| Calcium | 107 mg | 11% | 162 mg | 16% |
| Iron | 5.5 mg | 31% | 5.9 mg | 33% |
| Potassium | 1127 mg | 32% | 1216 mg | 35% |
| Vitamin C | 1.34 mg | 2% | 1.65 mg | 2% |
| Thiamin | 0.49 mg | 33% | 0.29 mg | 19% |
| Riboflavin | 0.26 mg | 15% | 0.21 mg | 12% |
| Niacin | 1.22 mg | 6% | 1.72 mg | 9% |
| Vitamin B6 | 0.38 mg | 19% | 0.30 mg | 15% |
| Folate | 299 mcg | 75% | 206 mcg | 52% |

References: 1) Wang, 2005. Quality of Western Canadian pulse crops-2005. Canadian Grain Commission. www.grainscanada.gc.ca; 2) Wang, 2004. The Chemical Composition and Nutritive Value of Canadian Pulses. www.pulsecanada.com; Daily Values obtained from the U.S. FDA.; Carbohydrates determined by difference, Fiber calculated by Carbohydrate – (Starch + Oligosaccharides + Sucrose).

World Desi Chickpea Supply and Demand

(hectares, metric tons)

| | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | Average |
|-----------------|------------|------------|------------|------------|------------|
| Area (ha) | 26,824,000 | 27,800,000 | 26,174,000 | 26,531,000 | 26,606,600 |
| Yield (kg) | 293 | 304 | 293 | 300 | 295 |
| Production | 7,866,000 | 8,464,000 | 7,662,000 | 7,956,000 | 7,857,400 |
| Carry-in | 337,000 | 259,000 | 206,000 | 39,000 | 246,000 |
| Supply | 8,203,000 | 8,723,000 | 7,868,000 | 7,995,000 | 8,103,400 |
| | | | | | |
| Export Trade | 1,456,000 | 1,344,000 | 1,312,000 | 1,232,000 | 1,265,400 |
| Inferred Use | 7,944,000 | 8,517,000 | 7,829,000 | 7,810,000 | 7,898,200 |
| Ending Stock | 259,000 | 206,000 | 39,000 | 185,000 | 205,200 |
| Stock-to-Use | 3.3% | 2.4% | 0.5% | 2.4% | 2.6% |
| Per Capita (kg) | 1.172 | 1.243 | 1.130 | 1.115 | 1.153 |

In the above table, area is in hectares; yield and per capita consumption are in kilograms; and all other numbers are in metric tons. Estimates are based on data from many sources, including: the FAO, Pulse Australia, Statistics Canada and private traders.

World Kabuli Chickpea Supply and Demand

(hectares, metric tons)

| | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | Average |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| Area (ha) | 1,744,000 | 1,808,000 | 1,702,000 | 1,725,000 | 1,730,000 |
| Yield (kg) | 838 | 931 | 737 | 937 | 839 |
| Production | 1,462,000 | 1,684,000 | 1,254,000 | 1,616,000 | 1,455,000 |
| Carry-in | 78,000 | 91,000 | 171,000 | 27,000 | 90,400 |
| Supply | 1,540,000 | 1,775,000 | 1,425,000 | 1,643,000 | 1,545,400 |
| | | | | | |
| Export Trade | 343,000 | 520,000 | 469,000 | 518,000 | 437,400 |
| Inferred Use | 1,449,000 | 1,604,000 | 1,398,000 | 1,557,000 | 1,454,800 |
| Ending Stock | 91,000 | 171,000 | 27,000 | 86,000 | 90,600 |
| Stock-to-Use | 6.3% | 10.7% | 1.9% | 5.5% | 6.1% |
| Per Capita (kg) | 0.214 | 0.234 | 0.202 | 0.222 | 0.212 |

In the above table, area is in hectares; yield and per capita consumption are in kilograms; and all other numbers are in metric tons. Estimates are based on data from many sources, including: the FAO, Statistics Canada, the USDA, and private traders.

Australian Chickpeas

The mix of pulse crops grown in Australia continues to change over time, strongly influenced by evolving market opportunities on the Indian subcontinent and Middle East. Those changes are driven by the changing income levels, changes in the mix of crops grown, and competition from Canada, the United States, and eastern Europe. Another factor playing into the rising popularity of chickpeas among Australia's farmers is the development of varieties which are increasingly resistant to ascochyta blight.

Land in chickpeas advanced from an average 233,000 hectares in the five years ending in 2000 to an average 355,000 hectares a decade later. By the year 2015, chickpea area could average 460,000 hectares per year, helped by forecasts of continued strong pulse import demand by the Indian subcontinent and varieties deemed ascochyta resistant. Land in all pulses has been trending down in Australia, mainly because of declining interest in growing lupins for the livestock feed industry. As a result, chickpeas now occupy a quarter of all pulse area in Australia, compared to 11% in the five years between 1996 and 2000. Desi are the most widely grown type of chickpea in Australia. Prior to 2000, that class had a 99% market share in Australia. It has slipped to around 90% as farmers become more experienced with, and interested in growing, kabuli chickpeas. By the year 2015, the split of desi to kabuli chickpeas in Australia could roughly mirror the production split in the world, with desi-type accounting for 85% of seeded area and kabuli 15%.

Between 2006 and 2010, desi-type chickpeas accounted for an average 91% of all chickpeas grown in Australia. In the five years ending in 2015, the desi share of production is expected to average 87%, though the period should end with a lower share of the total crop. Not surprisingly, the marketing focus is on the Indian subcontinent. On average, 84% of the chickpeas exported from Australia are destined for Bangladesh, India, Pakistan and Sri Lanka. On average, 39% of all Australia's chickpea exports go to India, compared to 30% to Bangladesh and 15% to Pakistan.

Exporting such a large portion of the crop to the Indian subcontinent has a major impact on when desi chickpea demand and prices peak. The key event is the outlook for and ultimate size of rabi or winter season crops grown on the Indian subcontinent. India and Pakistan plant chickpeas in October and November. The bulk of India's crop is harvested in February and March, compared to March and April in Pakistan.

Australia's desi chickpea crop is harvested in November and December. Since it takes place at a time when available supplies of desi chickpeas from farmers on the Indian subcontinent are limited, Australia tends to experience good demand during harvest. This is clearly reflected in the heat map for monthly movement from Australia. More often than not, November and December are strong months for movement from Australian farms. On average, a quarter of all desi chickpeas move to port during those two months.

Demand during the balance of the marketing year depends on the status of rabi or winter season pulse crops on the Indian subcontinent. That is when desi chickpeas are grown. It is also when the largest percentage of pulses are grown. The main rabi sea-

son pulse producing states in India (in descending order) are: Madhya Pradesh, Uttar Pradesh, Andhra Pradesh, Maharashtra and Rajasthan. They account for over 80% of the rabi season pulse production.

Since rabi season pulses tend not to be irrigated, the annual monsoon season sets up the crop. The monsoon season starts at the end of May and finishes at the end of October. Even when the monsoon is average or good, precipitation can be uneven across the country. What markets what to know is whether precipitation levels in the key rabi season pulse producing states are above or below normal. If rainfall accumulations are below normal, farmers might reduce pulse area. If rainfall is at or above normal, farmers will stick with their intentions or potentially increase pulse area. It is important to recall that farmers in India do not take as many chances with planting seed as they might in North America or Europe. Every seed that does not germinate constitutes a more meaningful loss of revenue potential than is the case in wealthier nations. As is the case elsewhere in the world, the crops India's farmers want to plant is strongly influenced by prices in the period before they finalize seeding decisions.

Farmers outside India can easily get an idea of what is happening in the region.

Firstly, India publishes estimates of the size of its crops. While the gross numbers may be disputed, the direction of change is rarely disputed.

Secondly, there are ongoing reports available about the status of the monsoon, as well as maps showing the weather outlook as well as three-month snapshots of precipitation and moisture across India (www.statpub.com/weather.html). Maps showing precipitation as a percentage of normal are among the most helpful ways to look at data from unfamiliar regions.

Thirdly, India's import demand is clearly expressed in the eagerness of exporters to ship yellow peas or desi chickpeas to the region. Since India's importers do not bring product into the country if they can buy more cheaply from local farmers, it is easy to gauge whether India's farmers are seeing good prices for pulses relative to oilseeds and grains. If returns from pulses are not competitive with other crops in Canada, Australia or the United States it is hard to imagine they would be competitive on the Indian subcontinent. Similarly, if returns from pulses are high enough to make you want to increase area, the same may well hold true in India. Even so, massive acreage shifts rarely occur because pulses are as fundamental to the diets of farmers on the Indian subcontinent as they are to their customers' diets.

Australia Chickpea Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|--------------|-----------|-----------|---------|-----------|---------|
| Area (acres) | 914,023 | 1,350,402 | 700,034 | 1,392,656 | 898,604 |
| Yield (kg) | 1,385 | 845 | 1,713 | 1,324 | 1,280 |
| Production | 512,450 | 461,710 | 485,300 | 746,000 | 444,062 |
| Carry-in | 232,000 | 197,000 | 160,900 | 0 | 215,980 |
| Supply | 744,450 | 658,710 | 646,200 | 746,000 | 660,042 |
| | | | | | |
| Export Trade | 502,788 | 474,357 | 599,000 | 562,500 | 452,421 |
| Domestic | 44,662 | 23,453 | 47,200 | 38,500 | 34,441 |
| Total Use | 547,450 | 497,810 | 646,200 | 601,000 | 486,862 |
| Ending Stock | 197,000 | 160,900 | 0 | 145,000 | 173,180 |
| Stock-to-Use | 36.0 % | 32.3 % | 0.0 % | 24.1 % | 35.6 % |

In the above table, area is in acres; yield is in kilograms; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are by STAT based on data from Pulse Australia, Australian Bureau of Agricultural and Resource Economics and Sciences, and Australian Bureau of Statistics.

Australia Desi Chickpea Deciles

(A\$ per metric ton delivered port)

| Decile | 1993 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 230.00 | 0 | 360.00 |
| 1 | 300.00 | 1 | 436.00 |
| 2 | 330.00 | 2 | 500.00 |
| 3 | 355.00 | 3 | 500.00 |
| 4 | 385.00 | 4 | 509.00 |
| 5 | 415.00 | 5 | 525.00 |
| 6 | 460.00 | 6 | 550.00 |
| 7 | 500.00 | 7 | 580.00 |
| 8 | 525.00 | 8 | 590.00 |
| 9 | 580.00 | 9 | 666.00 |
| 10 | 690.00 | 10 | 690.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Australia Desi Chickpea Average Price

(Australian dollars per metric ton delivered port)

| | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

Australia Desi Chickpea Average Price

(Australian dollars per metric ton delivered port)

| | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Aug | 335 | 342 | 314 | 335 | 598 | 568 | 515 | 500 | 502 |
| Sep | 368 | 345 | 308 | 488 | 585 | 545 | 500 | 463 | 521 |
| Oct | 356 | 346 | 304 | 650 | 570 | 575 | 500 | 429 | 545 |
| Nov | 329 | 302 | 298 | 665 | 650 | 546 | 500 | 436 | 478 |
| Dec | 294 | 300 | 286 | 638 | 675 | 530 | 500 | 509 | 430 |
| Jan | 281 | 300 | 285 | 585 | 685 | 524 | 500 | 493 | 445 |
| Feb | 293 | 300 | 281 | 575 | 680 | 525 | 500 | 498 | 476 |
| Mar | 301 | 300 | 280 | 582 | 650 | 525 | 500 | 444 | 550 |
| Apr | 309 | 300 | 288 | 585 | 643 | 525 | 500 | 391 | 585 |
| May | 310 | 300 | 290 | 585 | 604 | 525 | 500 | 368 | 658 |
| Jun | 310 | 300 | 290 | 584 | 598 | 525 | 500 | 388 | 673 |
| Jul | 349 | 310 | 290 | 580 | 558 | 525 | 500 | 440 | 678 |

Australia Chickpea Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

Australia Chickpea Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 11% | 14% | 13% | 1% | 1% | 0% | 0% | 7% | 8% |
| Sep | 11% | 6% | 5% | 9% | 2% | 1% | 0% | 5% | 6% |
| Oct | 17% | 7% | 9% | 26% | 16% | 7% | 13% | 4% | 7% |
| Nov | 10% | 9% | 18% | 29% | 20% | 17% | 17% | 14% | 14% |
| Dec | 3% | 8% | 12% | 14% | 12% | 11% | 15% | 11% | 8% |
| Jan | 3% | 8% | 7% | 6% | 7% | 11% | 8% | 7% | 5% |
| Feb | 4% | 6% | 5% | 2% | 7% | 11% | 6% | 9% | 7% |
| Mar | 5% | 5% | 5% | 1% | 16% | 8% | 5% | 7% | 11% |
| Apr | 6% | 7% | 5% | 2% | 8% | 12% | 10% | 6% | 14% |
| May | 7% | 6% | 10% | 4% | 4% | 14% | 12% | 10% | 11% |
| Jun | 8% | 9% | 7% | 3% | 5% | 7% | 9% | 9% | 7% |
| Jul | 16% | 16% | 3% | 2% | 2% | 1% | 6% | 11% | 2% |

The above table shows monthly movement as a percentage of the entire market-year's export movement.

Canadian Chickpeas

Only 15% of the world chickpea crop is kabuli type, but they account for 40% of the world export trade and because of their higher average prices, well over half the dollar value of chickpeas exported each year. Mexico sets the overall tone for kabuli chickpea markets because it is considered to produce the best quality and largest kabuli type chickpeas. Other origins and smaller chickpeas are normally sold at a discount to the 11mm and 12mm kabuli chickpeas shipped from Mexico. Because of its size, India can strongly influence kabuli chickpea trading levels. This was as an exporter in 2009, with Indian exporters relentlessly undercutting Mexico and other origins. Then in 2012, India became a major importer of kabuli chickpeas because of disappointing domestic and regional rabi season pulse crops. India's crop was smaller than expected, while Pakistan suffered a crop failure.

Canada, the United States, Australia and Argentina are more likely to be a negative rather than positive influence on world chickpea markets. Their combined production is significant, but individually, a crop failure still has little or no impact on prices. On the other hand, when those countries come to market, competition for available demand increases and that can weaken prices as they try harder to sell product.

In terms of price, the key market-setting events are now India's harvest in February and March, followed by Mexico's harvest in April and May. India sets the tone for the economy side of the market, while Mexico sets the tone for the premium end. However, because of its size India can set the base price for kabuli chickpeas, with all other origins needing to price themselves accordingly. Mexican exporters pay attention to prices for India's kabuli chickpeas. If they ask too much of a premium, they could lose customers for whom price is somewhat more important than quality.

Since other origins set the tone for prices, it is important for farmers in other countries to take advantage of the lulls. Reviewing the price performance of kabuli chickpeas in Canada, it turns out that prices are more often above the seasonal average in the October through December period. In the five years between the 2007-08 and 2011-12 marketing year, prices performed best in the September through November period, most frequently setting their season highs in October. During the same five year period, prices were lowest in the April through June period.

There is no evidence that price is strongly influencing Canadian movement. In the five years spanning 2007-08 through 2011-12, average movement was strongest in March and April. This changed in the 2011-12 marketing year, with farmers taking advantage of strong prices in October and November to deliver 30% of all chickpeas exported that season.

For Canadian chickpea growers, it is hard to think about timing sales to catch the best prices of the marketing year. Since prices and the tempo of demand are set by other countries, basing marketing decisions on local or national supply and demand conditions can be a mistake. Even so, local prices give an indication of the competitiveness of chickpeas relative to other crops.

The more attractive kabuli chickpeas look to growers in Canada during the fall

shipping period, the more attractive they probably look to growers in India, Mexico and Turkey. The implication is that both prices and demand stand a good chance of declining during the first half of the following year. More often than not, Canadian chickpea growers have been told to take advantage of opportunities to sell chickpeas between harvest and the end of November. Market performance between 2003 and 2012 bear that out.

Canada Kabuli Chickpea Supply and Demand
(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 80,000 | 150,000 | 77,500 | 171,000 | 146,700 |
| Yield (lbs/acre) | 1,546 | 1,395 | 1,630 | 1,735 | 1,486 |
| Production | 56,100 | 94,900 | 57,300 | 134,600 | 94,600 |
| Carry In | 41,900 | 15,900 | 18,300 | 5,100 | 17,020 |
| Imports | 5,000 | 8,900 | 6,000 | 7,000 | 7,060 |
| Supply | 103,000 | 119,700 | 81,600 | 146,700 | 118,680 |
| | | | | | |
| Exports | 46,000 | 65,300 | 25,300 | 57,000 | 47,720 |
| Seed | 12,100 | 6,300 | 13,800 | 10,100 | 10,400 |
| Other Domestic | 29,000 | 29,800 | 37,400 | 41,600 | 36,160 |
| Total Usage | 87,100 | 101,400 | 76,500 | 108,700 | 94,280 |
| Ending Stocks | 15,900 | 18,300 | 5,100 | 38,000 | 24,400 |
| Stocks/Use | 18% | 18% | 7% | 35% | 26% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from Statistics Canada. All forecasts are by STAT Publishing.

Canadian Kabuli Chickpeas Deciles Since 1997

(CDN cents per pound delivered plant Saskatchewan)

| Decile | 7mm | 8mm | 9mm | 10mm |
|--------|-------|-------|-------|-------|
| 0 | 12.00 | 20.00 | 25.00 | 27.94 |
| 1 | 14.00 | 22.00 | 26.00 | 29.60 |
| 2 | 14.00 | 22.68 | 28.00 | 31.50 |
| 3 | 15.50 | 25.00 | 30.00 | 33.50 |
| 4 | 17.00 | 26.00 | 31.00 | 35.00 |
| 5 | 18.00 | 27.00 | 34.00 | 36.00 |
| 6 | 20.00 | 30.00 | 35.00 | 38.00 |
| 7 | 22.50 | 31.00 | 36.00 | 40.00 |
| 8 | 25.00 | 32.50 | 38.00 | 42.00 |
| 9 | 26.60 | 34.00 | 40.00 | 44.68 |
| 10 | 45.00 | 53.00 | 55.00 | 57.50 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Canadian Kabuli Chickpeas Deciles Since 2007

(CDN cents per pound delivered plant Saskatchewan)

| Decile | 7mm | 8mm | 9mm | 10mm |
|--------|-------|-------|-------|-------|
| 0 | 15.00 | 22.00 | 25.00 | 28.00 |
| 1 | 17.00 | 25.00 | 29.50 | 32.50 |
| 2 | 20.00 | 25.50 | 30.00 | 33.00 |
| 3 | 22.00 | 26.00 | 31.00 | 34.00 |
| 4 | 22.50 | 29.00 | 34.00 | 36.00 |
| 5 | 23.50 | 30.00 | 34.50 | 36.50 |
| 6 | 25.00 | 31.00 | 35.00 | 37.50 |
| 7 | 25.50 | 32.50 | 35.50 | 39.00 |
| 8 | 27.00 | 33.50 | 36.00 | 40.00 |
| 9 | 29.00 | 44.50 | 46.50 | 44.00 |
| 10 | 45.00 | 53.00 | 55.00 | 57.50 |

Canada Chickpea Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

Canada Chickpea Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 10% | 13% | 10% | 4% | 5% | 5% | 12% | 12% | 11% |
| Sep | 8% | 10% | 7% | 12% | 8% | 5% | 6% | 7% | 10% |
| Oct | 8% | 8% | 12% | 15% | 9% | 3% | 6% | 7% | 17% |
| Nov | 6% | 7% | 17% | 13% | 8% | 3% | 7% | 8% | 13% |
| Dec | 5% | 5% | 13% | 12% | 7% | 5% | 5% | 11% | 10% |
| Jan | 6% | 5% | 12% | 10% | 7% | 5% | 5% | 10% | 8% |
| Feb | 7% | 6% | 9% | 8% | 10% | 6% | 8% | 11% | 6% |
| Mar | 8% | 9% | 7% | 7% | 15% | 9% | 7% | 11% | 4% |
| Apr | 10% | 11% | 5% | 5% | 14% | 13% | 9% | 7% | 5% |
| May | 12% | 11% | 4% | 3% | 8% | 12% | 9% | 5% | 6% |
| Jun | 10% | 5% | 3% | 5% | 6% | 15% | 11% | 5% | 8% |
| Jul | 8% | 10% | 2% | 4% | 5% | 19% | 14% | 5% | 2% |

The above table shows monthly movement as a percentage of the entire market-year's export movement.

7mm Canadian Kabuli Chick Pea Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

7mm Canadian Kabuli Chick Pea Average Price

(CDN cents per pound delivered plant Sask)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 13.00 | 13.00 | 18.00 | 14.00 | 17.60 | 25.60 | 23.00 | 22.62 | 30.50 |
| Sep | 13.00 | 13.00 | 15.60 | 14.20 | 22.25 | 26.75 | 23.00 | 25.50 | 33.10 |
| Oct | 13.00 | 13.20 | 15.00 | 17.00 | 25.00 | 25.00 | 23.00 | 25.50 | 42.75 |
| Nov | 13.00 | 13.50 | 15.00 | 17.00 | 24.20 | 22.50 | 22.88 | 25.50 | 40.00 |
| Dec | 13.00 | 14.00 | 15.00 | 16.25 | 24.25 | 20.00 | 22.50 | 25.50 | 36.80 |
| Jan | 13.00 | 14.00 | 15.00 | 16.75 | 23.40 | 19.80 | 22.62 | 25.50 | 34.00 |
| Feb | 13.00 | 13.75 | 15.00 | 17.00 | 23.00 | 20.25 | 22.50 | 25.50 | 28.00 |
| Mar | 13.00 | 14.00 | 15.00 | 17.00 | 24.75 | 19.00 | 22.50 | 28.00 | 24.50 |
| Apr | 13.00 | 14.00 | 14.00 | 17.00 | 27.75 | 19.00 | 22.30 | 27.10 | 23.50 |
| May | 13.00 | 14.00 | 14.00 | 16.75 | 27.80 | 20.60 | 20.00 | 26.25 | 23.50 |
| Jun | 13.00 | 14.00 | 14.00 | 16.00 | 28.50 | 20.00 | 20.00 | 25.00 | 23.50 |
| Jul | 13.00 | 15.60 | 14.00 | 16.00 | 25.75 | 21.20 | 20.00 | 27.00 | 23.50 |

8mm Canadian Kabuli Chick Pea Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

8mm Canadian Kabuli Chick Pea Average Price

(CDN cents per pound delivered plant Sask)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 20.60 | 22.50 | 25.00 | 24.75 | 25.00 | 29.40 | 26.00 | 27.25 | 44.50 |
| Sep | 21.00 | 24.00 | 25.20 | 27.70 | 27.75 | 32.00 | 26.00 | 29.50 | 47.80 |
| Oct | 21.30 | 24.60 | 27.00 | 32.00 | 29.25 | 31.00 | 26.40 | 32.90 | 51.75 |
| Nov | 20.25 | 25.75 | 29.50 | 32.00 | 29.20 | 28.00 | 25.88 | 33.50 | 49.50 |
| Dec | 20.00 | 27.00 | 30.00 | 32.00 | 29.00 | 25.00 | 25.50 | 33.50 | 47.80 |
| Jan | 20.10 | 27.00 | 30.00 | 30.00 | 28.60 | 24.80 | 25.62 | 33.50 | 47.00 |
| Feb | 21.25 | 27.00 | 30.00 | 30.00 | 28.50 | 25.25 | 25.50 | 33.00 | 47.00 |
| Mar | 21.38 | 27.40 | 30.00 | 30.00 | 30.00 | 24.00 | 25.50 | 35.00 | 41.20 |
| Apr | 21.40 | 28.00 | 28.00 | 30.00 | 31.00 | 24.00 | 25.50 | 34.00 | 32.50 |
| May | 22.00 | 28.00 | 27.00 | 30.00 | 32.20 | 24.80 | 23.00 | 33.50 | 32.50 |
| Jun | 22.00 | 29.50 | 27.00 | 30.00 | 33.50 | 25.25 | 22.75 | 32.00 | 32.50 |
| Jul | 22.00 | 28.60 | 27.00 | 25.00 | 30.50 | 26.00 | 22.00 | 34.40 | 32.50 |

9mm Canadian Kabuli Chick Pea Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

9mm Canadian Kabuli Chick Pea Average Price

(CDN cents per pound delivered plant Sask)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 26.40 | 30.00 | 35.00 | 30.50 | 32.00 | 35.60 | 30.00 | 30.62 | 46.50 |
| Sep | 26.00 | 30.75 | 35.60 | 32.10 | 33.25 | 37.50 | 30.00 | 31.50 | 51.30 |
| Oct | 26.70 | 34.20 | 37.25 | 36.00 | 34.00 | 35.40 | 30.00 | 34.90 | 54.75 |
| Nov | 26.25 | 35.75 | 39.50 | 38.00 | 35.00 | 32.50 | 29.88 | 35.50 | 53.00 |
| Dec | 26.00 | 37.40 | 40.00 | 36.75 | 34.00 | 30.00 | 29.50 | 35.50 | 49.20 |
| Jan | 25.30 | 38.00 | 40.00 | 35.25 | 33.60 | 29.80 | 29.62 | 35.50 | 47.00 |
| Feb | 26.38 | 38.00 | 40.00 | 35.00 | 33.50 | 30.25 | 29.50 | 35.00 | 47.00 |
| Mar | 26.50 | 38.80 | 38.40 | 35.00 | 34.75 | 29.00 | 29.50 | 38.00 | 42.40 |
| Apr | 29.20 | 40.00 | 34.50 | 35.00 | 36.25 | 29.00 | 29.10 | 34.80 | 35.50 |
| May | 30.00 | 40.00 | 34.00 | 35.00 | 37.20 | 29.40 | 25.00 | 34.00 | 35.50 |
| Jun | 30.00 | 40.00 | 32.80 | 35.00 | 39.00 | 30.00 | 26.32 | 34.00 | 35.50 |
| Jul | 30.00 | 39.00 | 32.00 | 32.00 | 39.50 | 30.00 | 30.16 | 36.40 | 35.50 |

USA Chickpeas

Most chickpeas grown in the United States are kabuli type. There is limited production of desi and small caliber kabuli type chickpea varieties. Production started in California. It initially expanded to Washington and Idaho. In the mid-1990s, growers in Montana and North Dakota started growing chickpeas, partly influenced by rising interest in Saskatchewan and southern Alberta. Limited quantities are also grown in Nebraska and South Dakota.

Chickpeas are one of three categories of pulses covered by the U.S. Farm Bill. The other two are lentils and peas. This makes them eligible for loan deficiency payments (LDP) and loans. Between 2002 and 2012, the USDA distributed \$429,519.82 in loan deficiency payments covering 10,753 metric tons of chickpeas. These were paid out during the 2003, 2004 and 2005-06 marketing year. From that time until 2012, farmers only put chickpeas under loan, which is a useful tool if they need cash but do not want to sell.

As is the case with Canada, export-based movement in the United States tends to be strongest in the September through November period. Between the 2007-08 and 2011-12 marketing years, September and October were the busiest months for export-based movement, with 24% of all chickpeas that will shipped during the marketing year, moving in those months. Over the 10-year period ending with the 2011-12 marketing year, 33% of all chickpeas destined for export were shipped by processors during those months. Movement throughout the balance of the marketing year tends to be fairly steady, with 7% to 8% of the annual total moving each month.

Export movement is augmented by a strong domestic market for chickpeas. Imports of mainly large caliber kabuli chickpeas from Mexico account for an average 41% of the U.S. domestic market. The 59% balance is covered by local production. Though most food packagers and canners do not carry inventories of raw ingredients, movement into domestic markets can have peaks and valleys depending on the needs of the retail food pipeline in the United States and the availability of competing supplies from Mexico. The food industry largely works on the basis of “just in time” delivery of food ingredients.

Many companies involved with the food industry require that their suppliers be HACCP certified. A growing number of pulse processors in the United States and Canada have done this. But, some industry participants believe the bar will continue to rise and the time will come when farmers also need to become certified and fully document their farming practices. Growers who are early adopters could find that this gives them an advantage in trying to sell product to the domestic market. Generic product does not fetch premiums, but product which closely matches the needs of the food packager or manufacturer may be able to gain preference and eliminate potential competitors. Depending on the target market, growers need to extend their thinking beyond the simple timing of sales to targeting the right market with the right quality of product in an effort to get maximum value from what they grow.

United States Kabuli Chickpea Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|----------------|-----------|---------|---------|---------|---------|
| Area (acres) | 96,100 | 146,000 | 135,800 | 204,200 | 160,955 |
| Yield (pounds) | 1,503 | 1,328 | 1,205 | 1,078 | 1,596 |
| Production | 65,499 | 87,952 | 74,254 | 99,882 | 94,934 |
| Carry-in | 10,000 | 8,000 | 1,000 | 500 | 7,700 |
| Supply | 96,628 | 115,363 | 93,868 | 125,887 | 129,549 |
| | | | | | |
| Export Trade | 28,268 | 49,925 | 73,606 | 63,500 | 58,839 |
| Domestic | 60,360 | 64,438 | 19,762 | 59,387 | 65,037 |
| Total Use | 88,628 | 114,363 | 93,368 | 122,887 | 123,876 |
| Ending Stock | 8,000 | 1,000 | 500 | 3,000 | 5,672 |
| Stock-to-Use | 9% | 1% | 1% | 2% | 5% |

In the above table, area is in acres; yield is in pounds; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are by STAT based on data from USDA.

U.S. Chickpea Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Chickpea Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 9% | 16% | 7% | 9% | 6% | 4% | 10% | 9% | 5% |
| Sep | 8% | 11% | 11% | 15% | 11% | 10% | 11% | 14% | 13% |
| Oct | 8% | 4% | 17% | 15% | 12% | 8% | 10% | 15% | 14% |
| Nov | 9% | 6% | 18% | 10% | 7% | 4% | 9% | 12% | 11% |
| Dec | 8% | 7% | 12% | 9% | 8% | 3% | 7% | 8% | 8% |
| Jan | 12% | 7% | 12% | 6% | 12% | 7% | 7% | 7% | 7% |
| Feb | 12% | 10% | 9% | 5% | 11% | 6% | 9% | 7% | 6% |
| Mar | 3% | 10% | 4% | 8% | 11% | 6% | 7% | 8% | 9% |
| Apr | 10% | 9% | 3% | 6% | 6% | 8% | 6% | 6% | 7% |
| May | 7% | 8% | 3% | 6% | 6% | 12% | 8% | 5% | 8% |
| Jun | 7% | 4% | 2% | 7% | 5% | 11% | 6% | 4% | 9% |
| Jul | 6% | 8% | 3% | 6% | 4% | 21% | 9% | 5% | 2% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

Peas

Canada is the world's largest producer and exporter of dry field peas. In the first decade of the 21st century, Canada exported more peas than any other country every year except 2002, when France was the biggest shipper. That was also the only year in that decade that France grew more peas than Canada. Over the five years spanning 2006 through 2010, Canada exported an average of 2.37 million metric tons per year, for a 61% share of the global market. Production in Canada averaged 3.05 million MT, accounting for 30% of world pea production.

As of 2012, two countries to watch on the top 10 list of exporters are Russia and Argentina. Production in both countries is rising because of government policy. In Argentina, there is an export tax on grains and oilseeds, but not on pulses. The largest pulse producers in Argentina have become vertically integrated over the years, transforming themselves into growers and exporters. To escape increasing government influence over grains and oilseeds, they are growing more pulses.

A similar story is playing out in Russia. Periodic export bans on wheat and other field crops has increased interest in peas, lentils, and chickpeas because the government does not interfere with their ability to market pulses. Between 2000 and 2005, Russia was the world's third largest field pea producer, behind France. Between 2005 and 2012, Russia was the second largest field pea producer in the world, and France the third largest. Russia is not expected to overtake Canada, but as its production rises, so will competition for business to the Indian subcontinent. However, as of 2012, phytosanitary concerns are blocking Russia from the Chinese market.

Production in France is also strongly influenced by government policy. When the French government subsidizes the production of protein crops for the livestock feed

World’s Top 10 Dry Pea Traders

(5-year average trading volume in metric tons)

| Exporters | Quantity | Importers | Quantity |
|---------------|-----------|---------------|-----------|
| Canada | 2,369,103 | India | 1,466,567 |
| United States | 486,842 | China | 364,258 |
| France | 316,663 | Bangladesh | 294,622 |
| Australia | 161,599 | Spain | 187,744 |
| Ukraine | 156,343 | Belgium | 164,792 |
| Russia | 112,231 | Italy | 104,230 |
| Tanzania | 49,220 | Pakistan | 99,365 |
| Argentina | 46,990 | Netherlands | 84,749 |
| Belgium | 37,490 | Arab Emirates | 51,840 |
| Germany | 30,695 | Germany | 49,498 |

Source: United Nations Food and Agriculture Organization (FAO). This table shows the average annual trading volume for the period between 2006 and 2010.

industry, pea production rises, with most being fed to livestock. Without the subsidies, many farmers keep peas in their rotations because of the yield benefit they get when cereal crops are grown after peas. However, when they show a preference for grains and oilseeds, pulse production declines. In the 1990s, when peas were actively supported, farmers in France planted an average of 665,000 hectares or 1.64 million acres of peas per year. In the five years between 2006 and 2010, they planted an average of 165,540 hectares or 416,000 acres of peas per year. For the five years ending in 2015 average annual pea area is expected to slip to just over 157,000 hectares or about 388,000 acres per year.

India is the world’s most important field pea customer. Between 2006 and 2010, India bought 39% of all peas exported or an average of 1.47 million metric tons per year. It buys mostly yellow or white peas. Though peas can replace other pulses, yellow peas are mainly bought as a substitute for desi chickpeas. India also buys substantial quantities of green peas. The biggest volume is bleached green peas. Depending on the discount, India will readily accept peas with up to 25% bleach. Without India, green peas with high levels of bleach are more likely to end up being sold into livestock feed markets. Not surprisingly, India is Canada’s most important customer, taking almost half all the peas exported from Canada. The same is true for Australia, with India the destination for 59% of all pea shipments, compared to being the destination for 16% of pea exports from the United States and 24% of exports from France.

China is the second largest buyer of peas in the world. The first peas came from Australia in 1994. They were ground to produce starch to manufacture vermicelli noodles. The following year, China imported peas from Canada for that use. Between 2006 and 2010, China imported an average of 364,000 metric tons of peas per year, consuming 10% of all peas exported in the world. If China grows as quickly as expected, imports will average over one million metric tons per year between 2016 and 2020. The

World Pea Supply and Demand

(hectares, metric tons)

| | 2009-10 | 2010-11 | 2011-12 | 2012-13 | Average |
|-----------------|------------|------------|-----------|------------|------------|
| Area (ha) | 6,270,000 | 6,300,000 | 5,540,000 | 6,290,000 | 6,090,000 |
| Yield (kg) | 1,676 | 1,640 | 1,621 | 1,528 | 1,616 |
| Production | 10,510,000 | 10,330,000 | 8,980,000 | 9,610,000 | 9,840,000 |
| Carry-in | 650,000 | 1,160,000 | 890,000 | 420,000 | 700,000 |
| Supply | 11,160,000 | 11,490,000 | 9,870,000 | 10,030,000 | 10,550,000 |
| | | | | | |
| Export Trade | 4,260,000 | 4,750,000 | 3,230,000 | 3,510,000 | 3,850,000 |
| Inferred Use | 10,000,000 | 10,600,000 | 9,450,000 | 9,580,000 | 9,840,000 |
| Ending Stock | 1,160,000 | 890,000 | 420,000 | 450,000 | 710,000 |
| Stock-to-Use | 11.6% | 8.4% | 4.4% | 4.7% | 7% |
| Per Capita (kg) | 1.476 | 1.547 | 1.364 | 1.368 | 1.455 |

In the above table, area is in hectares; yield and per capita consumption are in kilograms; and all other numbers are in metric tons. The average is for 2007-08 to 2011-12. Estimates are based on data from many sources, including: the FAO, Statistics Canada, the USDA, Pulse Australia, and private traders.

versatility of peas makes this possible. China uses green and marrowfat peas to make snacks, such as savory, fried pea snacks. Maple and small yellow peas are fed to pigeons, which are being raised for their meat. Peas are also used to make traditional desserts and confections. Some peas are also ground to make a sweet white bean paste substitute, which is used in pastries. Such diversification is important because vermicelli manufacturers can just as easily replace the starch from peas with another source. Pea starch also needs to be priced competitively with starch from potato, corn, cassava and other crops. Manufacturers have demonstrated a clear willingness to switch from one starch to another based on profitability.

Among the remaining top 10 importers of field peas in the world, Spain, Belgium, Italy, Netherlands and Germany mainly buy peas for use as livestock feed. Between 2006 and 2010, they accounted for 16% of the world trade in peas, with a large part of their needs covered by France. Compound feed manufacturers in those countries use least cost formulas to figure out the mix of ingredients they need to buy at any one time. This means that peas need to be competitively priced with other ingredients to attract demand. Peas can figure into livestock feed rations on both the energy and protein side of the equation. This is made clear in the Third Edition 2003 Feed Industry Guide by Dave Hickling, Ph.D. and published by Pulse Canada. The publication notes that there are no differences in the nutrient content of green and yellow peas, but there may be small differences between some pea varieties—mainly due to differences in the size of the pea and the thickness of the hull.

“Peas are valued for both their protein and energy content and as such are regarded as a multi-purpose feed ingredient,” Dr. Hickling writes. “Feed pea protein averages

23 percent (as is) and is highly digestible with an excellent amino acid balance. It has especially high levels of lysine, which is good for meat production. As with most crops, environment can affect protein content. Hot, dry growing conditions tend to increase protein content. The standard deviation for protein is fairly high (2.2 percent, Fannesbeck et al., 1984) for individual field samples, but in commercially blended samples for export shipment it is quite low. . . . Peas have high levels of the important essential amino acids. Peas have especially high levels of lysine and peas are a more concentrated lysine source than soybean meal. Peas, like most pulse crops, have relatively low levels of methionine and cystine. Using peas in combination with canola meal, especially in hog diets, allows the high levels of methionine and cystine in canola meal to complement the lower levels in peas, and the high levels of lysine in peas to complement the lower lysine levels in canola meal. The amino acids in peas are highly digestible by swine and poultry. The digestibility of the amino acids is similar or higher than in grain, and only slightly lower than in soybean meal. In ruminants the protein is highly rumen degradable.”

Whole Pea Nutritional Information
(per 100 grams dry)

| | Yellow Pea | | Green Pea | |
|-----------------|------------|-------------------------|-----------|-------------------------|
| | Amount | Per Cent of Daily Value | Amount | Per Cent of Daily Value |
| Fat | 1.2 g | 2% | 1.4 g | 2% |
| Carbohydrates | 64.4 g | 22% | 64.8 g | 22% |
| Total Fiber | 14.7 g | 59% | 16.3 g | 65% |
| Insoluble Fiber | 13.1 g | | 14.6 g | |
| Soluble Fiber | 1.57 g | | 1.71 g | |
| Sucrose | 2.6 g | | 3.0 g | |
| Protein | 23.3 g | | 23.3 g | |
| Calcium | 81 mg | 8% | 74.4 mg | 7% |
| Iron | 6 mg | 33% | 5.9 mg | 33% |
| Potassium | 1230 mg | 35% | 1080 mg | 31% |
| Vitamin C | 0.55 mg | 1% | 0.55 mg | 1% |
| Thiamin | 0.51 mg | 34% | 0.51 mg | 34% |
| Riboflavin | 0.18 mg | 11% | 0.18 mg | 11% |
| Niacin | 1.55 mg | 8% | 1.55 mg | 8% |
| Vitamin B6 | 0.05 mg | 3% | 0.05 mg | 3% |
| Folate | 33.8 mcg | 9% | 35.5 mcg | 9% |

References: 1) Wang and Daun, 2006. Food Chemistry 95: 493-502; 2) USDA Nutrient File; 3) Wang, 2004. The Chemical Composition and Nutritive Value of Canadian Pulses. www.pulsecanada.com; 4) Wang, 2005. Quality of Western Canadian pulse crops-2005. Canadian Grain Commission. www.grainscanada.gc.ca; 5) Canada Grain Commission, 2008. Data not published.

Demand is Very Price Elastic

It should be clear from the quick overview of the world's top 10 pea importers that peas are exceptionally versatile. Peas are to the pulse sector as corn is to grain. This gives peas several advantages, not the least of which is that when a product works as effectively in livestock feed markets as it does in milling, demand becomes highly price elastic. This means that low prices help create demand by opening up new markets.

Unlike other pulses, livestock feed remains a constant threat to human consumption buyers. They cannot pay the same or less than the livestock feed markets and expect to easily buy peas. Selling to human consumption markets is riskier than selling to compound feed manufacturers or local livestock producers. Human consumption buyers worry about staining, bleaching, cracked or loose seed coats, splits, chips, and so forth. Feed consumption buyers do not. This means that human consumption buyers need to pay a premium over feed markets.

The versatility of peas in human foods means that whenever peas become inexpensive, individuals in different parts of the food industry try to see if peas can fit into their processes. Over the years this has greatly expanded the markets for peas. Whole, split, ground or fractionated peas are used in a wide range of food products, including: noodles, roasted snacks, soups, nutrition bars, baked goods, meal replacement beverages, baby food formulations, and vegetarian applications. Pulse Canada is working closely with food manufacturers to help develop new uses for pea fiber, starch, protein, as well as looking at the effect of various milling processes on pea flour quality and uses.

Helping peas expand throughout the food chain is the fact that they are consistently one of the cheapest pulses available. Between the 1988-89 and 2011-12 marketing years, the average annual price of Canadian and U.S. origin whole green and yellow peas was always below that of North American origin lentils, dry edible beans and chickpeas.

The fact that demand for peas is so price elastic makes it clear that the world can consume more peas than is currently the case. The implication is that each time production moves beyond known demand and prices collapse, new uses for peas are found and the global market grows larger.

Canada Field Pea Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

Canada Field Pea Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 8% | 7% | 10% | 15% | 13% | 12% | 7% | 13% | 18% |
| Sep | 10% | 11% | 14% | 15% | 15% | 10% | 7% | 12% | 16% |
| Oct | 10% | 13% | 13% | 10% | 17% | 4% | 10% | 7% | 10% |
| Nov | 15% | 9% | 9% | 9% | 10% | 7% | 7% | 8% | 11% |
| Dec | 6% | 4% | 6% | 7% | 8% | 8% | 9% | 8% | 6% |
| Jan | 10% | 4% | 7% | 5% | 10% | 6% | 6% | 10% | 4% |
| Feb | 8% | 5% | 7% | 4% | 7% | 11% | 8% | 7% | 8% |
| Mar | 10% | 7% | 6% | 10% | 7% | 11% | 6% | 11% | 8% |
| Apr | 9% | 10% | 11% | 10% | 6% | 10% | 11% | 8% | 6% |
| May | 8% | 10% | 6% | 5% | 3% | 11% | 8% | 6% | 7% |
| Jun | 4% | 9% | 5% | 3% | 2% | 6% | 11% | 5% | 5% |
| Jul | 4% | 11% | 6% | 7% | 3% | 4% | 11% | 5% | 1% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

Canadian Peas

Peas have a long history in Canada. The first year that Statistics Canada estimated seeded area and production was 1908. In that year, Canada planted 412,900 acres of peas, with only 1,600 sown in Manitoba, Saskatchewan and Alberta. Interest in peas declined through 1916. Area briefly recovered in 1918 and 1919 as farmers sought to cover domestic livestock feed needs. Once the first World War ended, farmers became less interested in growing field peas, and by 1931 Canadian farmers were planting less than 100,000 acres per year. Other than a brief increase during World War II, farmers showed no interest in expanding area until the 1980s when it had once again consistently risen above 100,000 acres. By the 1980s, production had completely shifted from eastern to western Canada. Area passed the one million acre mark for the first time in 1983; two million in 1987; and three million in the year 2000. As of 2012, the record high seeded area for fields peas in Canada remains the 3.985 million sown in 2008.

The first decade of the 21st century marked Canada's emergence as the most important producer and exporter of peas in the world. Since the year 2000, Canada has exported more peas than any other country, every year except 2002, when France was the biggest shipper. That is also the only year since 2000 that France grew more peas than Canada. Over the five years spanning 2006 through 2010, Canada exported an average of 2.37 million metric tons per year, for a 61% share of the global market. Production in Canada averaged 3.05 million metric tons, accounting for 30% of world pea production.

On average, 85% of the peas grown in Canada are yellow, versus 14% green, and 1% other varieties, such as maple and marrowfat peas. Interestingly, grower bids for yellow peas are typically lower than those for green, maple, or marrowfat peas.

For the 10 years spanning the 2002-03 through 2011-12 marketing years, bids for Number 2 Canada whole green peas averaged 83 cents per bushel, or 1.39 cents per pound, more than the average grower bid for Number 2 Canada whole yellow peas. Over the same period, bids for maple peas, a dimpled brown pea used by the birdseed industry, averaged \$1.50 per bushel or 2.51 cents per pound more than bids for yellow peas. The biggest premium was for marrowfat peas. This large, dimpled, greenish pea is used by the snack food industry in Asia. Grower bids in Canada averaged \$2.57 per bushel or 4.29 cents per pound more than for yellow peas over the 10-year period. However, during the 2006-07 marketing year, grower bids for yellow peas were higher than for any other class of pea. They were also higher than maple peas during the 2005-06 marketing year; and higher than marrowfat pea bids during the 2007-08 marketing year.

Green, maple and marrowfat peas typically receive a premium over yellow because farmers face more price risk over quality than is the case for yellow peas. For instance, off-color maple peas may not be accepted by the birdseed industry, with the result they need to be priced competitively with yellow peas into the Indian subcontinent or dumped into livestock feed markets. The target market for marrowfat peas needs a large caliber pea, which is uniform in size and color characteristics. The next tier of buyers are price

conscious and are willing to accept a dimpled green pea such as the Espace variety as a substitute for marrowfats. Most whole green pea buyers want a product which is uniform in color and size, but the requirements for the various markets are not always the same. Brazil, for instance, wants a very small green pea, which they process and sell in cans. Bleach is a problem for most green pea buyers and green peas are susceptible to bleaching. In recent years, exporters have expanded demand for product with up to 25% bleach, but each season a fraction of the crop may still need to be sold as livestock feed.

Canada's emergence as the world's largest producer and exporter of peas brought about a significant change in the way peas are handled. Throughout the 1980s and early 1990s, the pea business was the domain of small trading companies and processing plants. However, at a certain moment, Canada was growing many more peas than local processors could handle, creating an opportunity for line elevator companies. Since the late 1990s, Canada's bulk grain handling system has become the most important avenue for pea movement, handling an average 75% of the crop each year. As production rises, so too does the quantity moving through the bulk handling system. This structural change in the way peas are handled has helped Canada compete for and build demand on the Indian subcontinent. It has also helped expand business to China, whose milling industry is also interested in buying boat-load quantities of peas.

China first used peas to manufacture vermicelli noodles in 1994, importing product from Australia. The following year, it imported peas from Canada for that use. During the 1995-96 marketing year, Canada shipped 14,733 metric tons of peas to China. Prior to that, Canadian exports had never exceeded 300 metric tons. By 2011, Canadian shipments had jumped to 696,635 metric tons; compared to 28,529 metric tons from the United States; and 5,320 metric tons from other origins. Most of the yellow peas bought by China are used to make flour for the production of noodles. By contrast green peas and marrowfat peas are used to make snacks, such as savory, fried pea snacks, while maple and small yellow peas are fed to pigeons, which are being raised for their meat. Peas are also used to make traditional desserts and confections.

By 2012, China had become Canada's second most important market for peas. During the 2011-12 marketing year, China accounted for 31% of all pea exports, while the Indian subcontinent accounted for 51%. During the five marketing years spanning 2007-08 through 2011-12, 62% of Canadian field pea exports went to the Indian subcontinent and 18% to China. Neither country is expected to grow significant quantities of peas in the future because farmers can make more money from other crops.

The increased importance of China to the Canadian market could change the demand pattern for peas. The products made from peas do not experience as much seasonal fluctuation in demand as is the case for the Indian subcontinent. Instead, buyers are more strongly influenced by market trends. Just as farmers do not like selling into a rising market, food manufacturers do not like buying in a falling market. Both groups tend to wait for prices to stabilize and show signs of moving the other direction before doing business. Knowing this is helpful because it suggests periods of low prices will stimulate demand, which in turn creates opportunities to sell peas at above the prevailing average price.

Canada Yellow Pea Supply and Demand

(acres, metric tons)

| | 2009-10 | 2010-11 | 2011-12 | 2012-13 | Average |
|----------------|-----------|-----------|-----------|-----------|-----------|
| Area (acres) | 3,130,000 | 2,990,000 | 2,081,726 | 2,900,000 | 2,804,345 |
| Yield (pounds) | 1,961 | 1,849 | 2,317 | 1,881 | 1,957 |
| Production | 2,784,100 | 2,508,000 | 2,187,800 | 2,474,300 | 2,461,780 |
| Carry In | 429,900 | 816,700 | 508,100 | 271,400 | 428,540 |
| Imports | 16,300 | 16,800 | 12,100 | 11,700 | 13,860 |
| Supply | 3,230,300 | 3,341,500 | 2,708,000 | 2,757,400 | 2,904,180 |
| | | | | | |
| Exports | 1,778,070 | 2,517,159 | 1,840,163 | 2,069,100 | 1,985,488 |
| Seed | 210,000 | 146,000 | 204,000 | 200,000 | 200,000 |
| Other Domestic | 425,530 | 170,241 | 392,437 | 231,300 | 307,712 |
| Total Usage | 2,413,600 | 2,833,400 | 2,436,600 | 2,500,400 | 2,493,200 |
| Ending Stocks | 816,700 | 508,100 | 271,400 | 257,000 | 410,980 |
| Stocks/Use | 34% | 18% | 11% | 10% | 16% |

In the above table, area is in acres; yield is in pounds per acre; and all other numbers are in metric tons. The average is for 2007-08 to 2011-12. Forecasts are based on historical data from Statistics Canada.

Canada Green Pea Supply and Demand

(acres, metric tons)

| | 2009-10 | 2010-11 | 2011-12 | 2012-13 | Average |
|----------------|---------|---------|---------|---------|---------|
| Area (acres) | 560,000 | 575,000 | 320,000 | 400,000 | 495,000 |
| Yield (pounds) | 2,119 | 1,764 | 1,899 | 1,805 | 1,884 |
| Production | 538,200 | 460,200 | 275,700 | 327,500 | 423,420 |
| Carry In | 13,100 | 85,100 | 18,900 | 2,200 | 33,140 |
| Imports | 29,800 | 26,000 | 18,300 | 19,100 | 22,740 |
| Supply | 581,100 | 571,300 | 312,900 | 348,800 | 479,300 |
| | | | | | |
| Exports | 379,700 | 453,800 | 239,100 | 249,800 | 350,015 |
| Seed | 40,000 | 22,000 | 28,000 | 38,000 | 32,800 |
| Other Domestic | 76,300 | 76,600 | 43,600 | 31,000 | 60,325 |
| Total Usage | 496,000 | 552,400 | 310,700 | 318,800 | 443,140 |
| Ending Stocks | 85,100 | 18,900 | 2,200 | 30,000 | 36,160 |
| Stocks/Use | 17% | 3% | 1% | 9% | 8% |

In the above table, area is in acres; yield is in pounds per acre; and all other numbers are in metric tons. The average is for 2007-08 to 2011-12. Forecasts are based on historical data from Statistics Canada.

Canada Other Pea Supply and Demand

(acres, metric tons)

| | 2009-10 | 2010-11 | 2011-12 | 2012-13 | Average |
|----------------|---------|---------|---------|---------|---------|
| Area (acres) | 70,000 | 60,000 | 35,000 | 40,000 | 59,000 |
| Yield (pounds) | 1,798 | 1,837 | 2,425 | 1,538 | 1,836 |
| Production | 57,100 | 50,000 | 38,500 | 27,900 | 47,620 |
| Carry In | 2,000 | 8,200 | 8,000 | 1,400 | 4,720 |
| Supply | 59,112 | 58,214 | 46,548 | 29,300 | 52,358 |
| | | | | | |
| Exports | 38,500 | 44,200 | 19,596 | 16,100 | 33,299 |
| Seed | 5,000 | 3,000 | 3,000 | 3,000 | 3,635 |
| Other Domestic | 7,412 | 3,014 | 22,552 | 7,200 | 9,563 |
| Total Usage | 50,912 | 50,214 | 45,148 | 26,300 | 46,498 |
| Ending Stocks | 8,200 | 8,000 | 1,400 | 3,000 | 5,860 |
| Stocks/Use | 16% | 16% | 3% | 11% | 13% |

In the above table, area is in acres; yield is in pounds per acre; and all other numbers are in metric tons. The average is for 2007-08 to 2011-12. Forecasts are based on historical data from Statistics Canada. ‘Other’ includes maple, austrian winter, marrowfat and other varieties.

Canadian Feed Peas Grower

(CDN \$ bus loaded plant/rail Sask)

| Decile | 1987 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 2.50 | 0 | 2.75 |
| 1 | 3.00 | 1 | 3.48 |
| 2 | 3.50 | 2 | 3.75 |
| 3 | 3.82 | 3 | 4.00 |
| 4 | 4.15 | 4 | 4.00 |
| 5 | 4.35 | 5 | 4.50 |
| 6 | 4.60 | 6 | 5.00 |
| 7 | 4.75 | 7 | 5.50 |
| 8 | 5.00 | 8 | 5.70 |
| 9 | 5.75 | 9 | 5.98 |
| 10 | 9.00 | 10 | 9.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Canadian Green Peas Grower

(CDN \$ bus delivered plant Sask)

| Decile | 1987 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 3.25 | 0 | 4.25 |
| 1 | 4.15 | 1 | 6.00 |
| 2 | 4.50 | 2 | 6.50 |
| 3 | 5.00 | 3 | 7.50 |
| 4 | 5.30 | 4 | 7.75 |
| 5 | 5.65 | 5 | 8.00 |
| 6 | 6.00 | 6 | 8.60 |
| 7 | 6.75 | 7 | 9.25 |
| 8 | 7.75 | 8 | 10.50 |
| 9 | 9.00 | 9 | 11.75 |
| 10 | 17.00 | 10 | 17.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Canadian Yellow Peas Grower

(CDN \$ bus delivered plant Sask)

| Decile | 1987 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 3.25 | 0 | 4.25 |
| 1 | 4.00 | 1 | 5.15 |
| 2 | 4.47 | 2 | 5.69 |
| 3 | 4.90 | 3 | 6.00 |
| 4 | 5.00 | 4 | 6.50 |
| 5 | 5.25 | 5 | 7.00 |
| 6 | 5.73 | 6 | 7.75 |
| 7 | 6.00 | 7 | 8.50 |
| 8 | 6.50 | 8 | 8.85 |
| 9 | 7.50 | 9 | 9.25 |
| 10 | 11.75 | 10 | 11.75 |

Canadian Maple Peas Grower

(CDN \$ bus delivered plant Sask)

| Decile | 1991 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 2.80 | 0 | 4.25 |
| 1 | 3.75 | 1 | 6.00 |
| 2 | 4.25 | 2 | 6.75 |
| 3 | 5.00 | 3 | 7.50 |
| 4 | 5.40 | 4 | 7.75 |
| 5 | 6.00 | 5 | 8.01 |
| 6 | 7.50 | 6 | 8.50 |
| 7 | 8.25 | 7 | 9.00 |
| 8 | 9.00 | 8 | 9.00 |
| 9 | 11.00 | 9 | 10.25 |
| 10 | 17.00 | 10 | 11.25 |

Marrowfat Peas

(CDN \$ bus delivered plant Sask)

| Decile | 1999 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 3.50 | 0 | 5.00 |
| 1 | 5.00 | 1 | 6.50 |
| 2 | 5.25 | 2 | 8.75 |
| 3 | 6.50 | 3 | 9.50 |
| 4 | 7.00 | 4 | 9.50 |
| 5 | 8.00 | 5 | 9.75 |
| 6 | 8.75 | 6 | 9.75 |
| 7 | 9.50 | 7 | 9.75 |
| 8 | 9.75 | 8 | 10.25 |
| 9 | 12.00 | 9 | 12.25 |
| 10 | 13.50 | 10 | 12.25 |

Canadian Yellow Peas Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

Canadian Yellow Peas Grower Average Price

(CDN \$ bus delivered plant Sask)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 4.51 | 4.17 | 3.56 | 3.42 | 6.60 | 8.29 | 6.23 | 5.12 | 8.55 |
| Sep | 4.76 | 4.22 | 3.42 | 3.87 | 6.66 | 6.75 | 4.76 | 5.40 | 9.08 |
| Oct | 4.91 | 3.85 | 3.50 | 4.69 | 6.97 | 6.40 | 4.86 | 5.83 | 9.06 |
| Nov | 5.00 | 3.75 | 3.50 | 4.85 | 7.53 | 6.19 | 5.64 | 6.38 | 9.00 |
| Dec | 5.00 | 3.75 | 3.30 | 5.08 | 8.90 | 5.29 | 5.69 | 6.60 | 8.57 |
| Jan | 5.00 | 3.75 | 3.34 | 5.30 | 9.37 | 5.55 | 5.74 | 7.04 | 8.50 |
| Feb | 5.16 | 3.70 | 3.35 | 5.70 | 11.00 | 6.00 | 5.13 | 8.05 | 8.61 |
| Mar | 5.31 | 3.70 | 3.39 | 6.74 | 11.43 | 6.22 | 5.07 | 7.88 | 8.86 |
| Apr | 5.75 | 3.76 | 3.81 | 7.17 | 10.44 | 6.25 | 4.64 | 7.75 | 8.93 |
| May | 5.83 | 3.75 | 4.00 | 7.25 | 10.55 | 6.11 | 4.64 | 7.50 | 8.95 |
| Jun | 5.44 | 3.94 | 3.97 | 7.00 | 10.68 | 5.68 | 4.57 | 7.91 | 8.18 |
| Jul | 4.91 | 4.00 | 3.85 | 6.75 | 10.06 | 6.00 | 5.49 | 8.85 | 8.26 |

Canada Yellow Pea Movement From Farms

(the darker the color the more commercial demand)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | |
| Sep | | | | | |
| Oct | | | | | |
| Nov | | | | | |
| Dec | | | | | |
| Jan | | | | | |
| Feb | | | | | |
| Mar | | | | | |
| Apr | | | | | |
| May | | | | | |
| Jun | | | | | |
| Jul | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

Canada Yellow Pea Monthly Movement

(sales as a percent of the marketing year total)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | 14% | 13% | 6% | 14% | 19% |
| Sep | 15% | 10% | 6% | 12% | 17% |
| Oct | 20% | 4% | 11% | 7% | 10% |
| Nov | 11% | 7% | 7% | 7% | 11% |
| Dec | 9% | 9% | 9% | 7% | 5% |
| Jan | 11% | 7% | 5% | 10% | 4% |
| Feb | 7% | 11% | 8% | 7% | 7% |
| Mar | 6% | 12% | 6% | 11% | 8% |
| Apr | 3% | 10% | 12% | 9% | 6% |
| May | 1% | 9% | 8% | 6% | 7% |
| Jun | 1% | 5% | 10% | 5% | 5% |
| Jul | 2% | 4% | 12% | 5% | 1% |

The above table shows monthly movement as a percentage of the entire marketing year’s export movement.

Canadian Green Peas Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

Canadian Green Peas Grower Average Price

(CDN \$ bus delivered plant Sask)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 5.45 | 4.56 | 3.50 | 3.45 | 6.10 | 9.75 | 7.75 | 5.10 | 8.50 |
| Sep | 6.10 | 5.56 | 3.75 | 3.90 | 6.81 | 8.44 | 7.75 | 5.88 | 8.90 |
| Oct | 6.00 | 4.85 | 3.69 | 4.44 | 8.12 | 7.95 | 7.40 | 6.75 | 9.31 |
| Nov | 5.72 | 4.50 | 3.50 | 4.63 | 9.20 | 7.62 | 7.56 | 7.62 | 9.00 |
| Dec | 5.50 | 4.50 | 3.50 | 4.90 | 9.44 | 6.69 | 8.00 | 7.60 | 9.00 |
| Jan | 5.56 | 4.50 | 3.50 | 5.20 | 9.90 | 7.30 | 7.75 | 7.50 | 9.12 |
| Feb | 5.75 | 4.46 | 3.35 | 5.61 | 11.25 | 8.25 | 7.12 | 7.88 | 9.25 |
| Mar | 5.75 | 4.31 | 3.48 | 6.45 | 11.38 | 8.00 | 7.69 | 6.88 | 10.00 |
| Apr | 6.15 | 4.31 | 3.75 | 6.75 | 11.00 | 8.31 | 4.75 | 6.50 | 11.12 |
| May | 6.42 | 4.33 | 3.75 | 6.65 | 10.40 | 8.65 | 5.00 | 7.00 | 11.88 |
| Jun | 5.83 | 4.36 | 3.75 | 6.65 | 10.69 | 8.56 | 4.82 | 7.75 | 12.00 |
| Jul | 5.45 | 3.95 | 3.51 | 6.00 | 10.75 | 7.85 | 5.23 | 8.60 | 11.75 |

Canada Green Pea Movement From Farms

(the darker the color the more commercial demand)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | |
| Sep | | | | | |
| Oct | | | | | |
| Nov | | | | | |
| Dec | | | | | |
| Jan | | | | | |
| Feb | | | | | |
| Mar | | | | | |
| Apr | | | | | |
| May | | | | | |
| Jun | | | | | |
| Jul | | | | | |

Canada Green Pea Monthly Movement

(sales as a percent of the marketing year total)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | 9% | 11% | 14% | 8% | 14% |
| Sep | 8% | 7% | 8% | 12% | 12% |
| Oct | 9% | 5% | 6% | 8% | 10% |
| Nov | 9% | 5% | 6% | 10% | 11% |
| Dec | 8% | 4% | 6% | 7% | 8% |
| Jan | 8% | 5% | 8% | 8% | 7% |
| Feb | 9% | 12% | 8% | 6% | 8% |
| Mar | 11% | 10% | 7% | 13% | 9% |
| Apr | 11% | 10% | 9% | 7% | 9% |
| May | 8% | 16% | 7% | 6% | 6% |
| Jun | 6% | 9% | 13% | 7% | 5% |
| Jul | 6% | 5% | 8% | 7% | 1% |

Canadian Feed Peas Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

Canadian Feed peas Grower Average Price

(CDN \$ bus loaded plant/rail Sask)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 3.85 | 4.25 | 2.54 | 2.75 | 3.80 | 5.20 | 4.00 | 2.75 | 5.98 |
| Sep | 4.06 | 4.25 | 2.50 | 2.75 | 4.50 | 4.81 | 3.50 | 3.00 | 5.92 |
| Oct | 4.00 | 3.25 | 2.50 | 3.00 | 5.19 | 4.35 | 3.50 | 3.63 | 5.70 |
| Nov | 4.19 | 2.88 | 2.50 | 3.20 | 4.85 | 4.00 | 3.50 | 4.48 | 5.70 |
| Dec | 4.25 | 2.50 | 2.50 | 3.50 | 4.50 | 4.00 | 3.60 | 4.75 | 5.62 |
| Jan | 4.40 | 2.50 | 2.50 | 3.75 | 4.50 | 4.00 | 3.75 | 4.75 | 5.50 |
| Feb | 4.50 | 2.50 | 2.50 | 3.75 | 4.50 | 4.00 | 3.56 | 5.96 | 5.50 |
| Mar | 4.56 | 2.80 | 2.50 | 3.90 | 5.00 | 4.00 | 3.12 | 5.84 | 5.50 |
| Apr | 4.75 | 2.94 | 2.56 | 3.75 | 5.00 | 4.00 | 2.85 | 5.92 | 5.50 |
| May | 4.75 | 3.00 | 2.75 | 4.00 | 5.00 | 4.00 | 2.75 | 5.98 | 5.50 |
| Jun | 4.50 | 3.25 | 2.95 | 4.00 | 5.00 | 4.00 | 2.75 | 5.98 | 5.30 |
| Jul | 4.30 | 3.10 | 3.00 | 3.75 | 5.38 | 4.00 | 2.75 | 5.98 | 5.00 |

Canadian Maple Peas Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

Canadian Maple Peas Grower Average Price

(CDN \$ bus delivered plant Sask)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 9.80 | 4.00 | 3.75 | 3.75 | 6.15 | 10.00 | 7.38 | 7.75 | 8.00 |
| Sep | 8.50 | 4.94 | 3.54 | 4.00 | 6.69 | 9.00 | 6.94 | 8.38 | 8.50 |
| Oct | 8.35 | 4.05 | 3.20 | 4.00 | 7.88 | 7.50 | 6.80 | 8.55 | 9.38 |
| Nov | 7.00 | 4.00 | 3.40 | 4.15 | 8.25 | 7.50 | 7.50 | 9.00 | 9.44 |
| Dec | 6.50 | 4.00 | 3.30 | 4.25 | 8.25 | 6.69 | 8.25 | 9.00 | 8.75 |
| Jan | 6.60 | 3.75 | 3.15 | 4.88 | 8.90 | 7.70 | 8.63 | 9.00 | 8.31 |
| Feb | 6.75 | 3.75 | 3.00 | 5.50 | 10.50 | 8.50 | 8.12 | 9.06 | 9.19 |
| Mar | 6.38 | 3.75 | 2.96 | 4.90 | 11.00 | 8.50 | 7.69 | 8.25 | 9.00 |
| Apr | 6.00 | 3.75 | 3.00 | 5.19 | 11.00 | 6.75 | 7.75 | 7.05 | 8.75 |
| May | 6.00 | 4.00 | 3.00 | 5.00 | 11.00 | 7.20 | 7.75 | 6.88 | 8.50 |
| Jun | 6.00 | 3.75 | 3.00 | 5.00 | 10.88 | 7.25 | 7.75 | 8.31 | 8.50 |
| Jul | 5.60 | 3.75 | 3.12 | 5.00 | 10.44 | 7.75 | 7.65 | 9.00 | 8.75 |

Marrowfat Peas Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

Marrowfat Peas Average Price

(CDN \$ bus delivered plant Sask)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 8.10 | 7.69 | 5.75 | 3.95 | 7.00 | 11.20 | 10.00 | 8.75 | 9.81 |
| Sep | 7.50 | 7.00 | 7.50 | 4.60 | 7.50 | 12.00 | 9.75 | 8.75 | 9.50 |
| Oct | 11.10 | 7.30 | 7.25 | 4.78 | 7.50 | 12.25 | 9.75 | 9.20 | 9.56 |
| Nov | 7.50 | 8.50 | 5.88 | 5.00 | 8.50 | 12.25 | 9.75 | 9.69 | 9.75 |
| Dec | 7.50 | 8.20 | 5.30 | 5.00 | 8.50 | 12.19 | 9.75 | 9.75 | 9.75 |
| Jan | 7.50 | 7.88 | 5.00 | 5.00 | 9.10 | 12.25 | 9.75 | 9.75 | 9.69 |
| Feb | 7.25 | 8.00 | 4.62 | 5.00 | 9.38 | 12.25 | 9.75 | 9.75 | 9.50 |
| Mar | 7.00 | 8.00 | 3.75 | 5.10 | 9.50 | 12.25 | 9.75 | 9.75 | 9.50 |
| Apr | 7.00 | 8.00 | 3.75 | 5.25 | 9.50 | 12.25 | 9.50 | 9.80 | 9.50 |
| May | 7.00 | 8.00 | 3.75 | 5.25 | 10.25 | 12.25 | 8.75 | 10.00 | 9.50 |
| Jun | 7.00 | 8.00 | 3.75 | 5.25 | 10.25 | 11.69 | 8.75 | 10.00 | 9.50 |
| Jul | 9.60 | 8.00 | 3.65 | 5.31 | 10.81 | 10.00 | 8.75 | 10.00 | 9.50 |

USA Peas

Some of the first records of dry field pea production in the United States date back to New York State prior to 1880, where farmers grew “Alaska” green peas mainly for the canning industry. Peas were introduced to the U.S. Pacific Northwest around 1900. In a 1984 article, F.J. Muehlbauer of the United States Department of Agriculture (USDA) agricultural research service at Washington State University in Pullman, said, “Commercial production began during the 1920s and it seems probable that the substantial increase in area sown was due to the introduction of the Alaska type cultivars that are typically rapid emerging, early flowering, and early maturing.”

For most of the 20th century, the Palouse region of the United States was the primary source of dry field peas in North America. The localized nature of the industry resulted in a situation where quality was emphasized over quantity, with the result that U.S. whole and split green peas set the standard for human consumption quality in the world. Many processors segregated peas on a quality basis, putting the best product in branded bags. The best brands consistently fetched premiums in all markets, including price conscious ones such as India.

United States Field Pea Supply and Demand
 (acres, metric tons)

| Year | 2009-10 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|---------|---------|---------|---------|---------|
| Acreage | 863,300 | 756,000 | 362,000 | 654,000 | 742,260 |
| Yield (lbs) | 2,013 | 1,881 | 1,554 | 1,751 | 1,743 |
| Production | 788,261 | 645,060 | 255,148 | 519,505 | 593,278 |
| Carry-in | 40,000 | 74,000 | 189,000 | 1,000 | 69,400 |
| Stocks | 828,260 | 719,060 | 444,148 | 520,505 | 662,677 |
| Usage - Exports | | | | | |
| Green Peas | 152,535 | 112,661 | 107,305 | 60,000 | 143,628 |
| Yellow Peas | 197,863 | 90,450 | 66,525 | 110,000 | 144,904 |
| Other Peas | 128,514 | 89,425 | 55,005 | 97,000 | 81,972 |
| Split Peas | 113,562 | 88,713 | 81,908 | 83,000 | 69,992 |
| Total Exports | 592,474 | 381,249 | 310,743 | 350,000 | 440,497 |
| Domestic | 161,787 | 148,811 | 132,405 | 137,505 | 158,181 |
| Total Usage | 754,261 | 530,060 | 443,148 | 487,505 | 598,678 |
| Ending Stocks | 74,000 | 189,000 | 1,000 | 33,000 | 64,000 |
| Stocks/Use Ratio | 10% | 36% | 0% | 7% | 11% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from the United States Department of Agriculture. All forecasts are by STAT Publishing.

The world changed for the U.S. industry in 1985. There has never been a year since that Canada did not grow more peas than the United States. However, Canadians grow mainly yellow peas, which were better adapted to its cooler climate. Increased competition for yellow pea market share saw growers and processors in the United States focus more on green peas. Plant breeding efforts in Canada eventually made it possible for growers in that country to consistently produce commercial quantities of green peas, increasing competition for ordinary human consumption quality markets.

In 2002, the world changed a second time for the U.S. pea industry. Peas, along with lentils and chickpeas, were included in the U.S. Farm Bill, making them eligible for loans and loan deficiency payments (LDP). How these programs work is explained in chapter one.

Putting peas on an equal footing with field crops such as wheat and barley had a major impact on the amount of peas grown in Montana and North Dakota. That saw seeded area climb from an average 218,000 acres during the last half of the 1990s to an annual average of 855,000 acres between 2006 and 2010. Seeded area collapsed in 2011 because wet soil conditions made it impossible for farmers in North Dakota to finish planting their crops. Area recovered in 2012, but intense competition for land use from grains and oilseeds kept pea acreage at below average levels.

Demand for U.S. origin peas follows a similar pattern to that for Canadian origin. Movement is keenest after harvest, with half of all peas that will be exported leaving farms and origin shipping points by the end of December. On the other hand, there are significant differences in destinations. The Indian subcontinent is not as important to the U.S. pea industry as it is to the Canadian and Australian. On average, 37% of all U.S. whole and split pea exports go to the Indian subcontinent, compared to 73% for Australia and 62% for Canada. The United States government is probably the single largest buyer of U.S. origin whole and split peas, accounting for an average 27% of all export activity. Africa is the most important aid recipient, which is reflected in the fact it is the destination for an average 21% of all U.S. pea exports.

Canadian peas cannot be shipped against food aid tenders, but U.S. processors can cover all other domestic and export commitment with peas bought from Canadian farmers. This helps keep prices paid to farmers in the two countries more closely aligned. Even so, surges in demand for peas for shipment as food aid create good opportunities for U.S. growers to move product, especially qualities which processors do not want to ship in their branded bags. Unfortunately, the USDA does not follow a pattern when it buys peas, which means that it is important to strike when the iron is hot.

U.S. Green Peas Grower

(US\$ cwt delivered plant ND)

| Decile | 2002 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 5.00 | 0 | 6.67 |
| 1 | 5.32 | 1 | 8.75 |
| 2 | 6.67 | 2 | 10.25 |
| 3 | 7.50 | 3 | 11.00 |
| 4 | 8.75 | 4 | 12.50 |
| 5 | 10.00 | 5 | 14.00 |
| 6 | 11.50 | 6 | 15.00 |
| 7 | 13.33 | 7 | 16.67 |
| 8 | 15.83 | 8 | 17.50 |
| 9 | 17.75 | 9 | 18.33 |
| 10 | 25.00 | 10 | 25.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Yellow Pea

(US \$ cwt delivered PNW)

| Decile | 2000 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 4.75 | 0 | 7.00 |
| 1 | 5.50 | 1 | 9.00 |
| 2 | 6.25 | 2 | 9.50 |
| 3 | 7.00 | 3 | 10.00 |
| 4 | 7.75 | 4 | 11.00 |
| 5 | 9.00 | 5 | 11.00 |
| 6 | 9.50 | 6 | 12.00 |
| 7 | 10.00 | 7 | 14.00 |
| 8 | 12.00 | 8 | 15.00 |
| 9 | 15.00 | 9 | 16.00 |
| 10 | 18.00 | 10 | 18.00 |

U.S. Green Peas Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Green Peas Grower Average Price

(UScents per pound delivered plant ND)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 6.88 | 6.00 | 5.14 | 5.33 | 10.20 | 17.75 | 9.96 | 8.14 | 15.00 |
| Sep | 6.69 | 7.33 | 5.03 | 6.13 | 11.31 | 18.25 | 8.44 | 8.55 | 15.33 |
| Oct | 7.30 | 6.80 | 5.00 | 6.50 | 12.41 | 17.20 | 8.83 | 9.67 | 16.67 |
| Nov | 7.50 | 6.67 | 5.00 | 6.84 | 14.67 | 15.00 | 10.46 | 11.67 | 16.67 |
| Dec | 7.50 | 6.67 | 5.00 | 7.38 | 17.25 | 13.00 | 11.00 | 11.80 | 16.67 |
| Jan | 7.90 | 6.46 | 5.00 | 7.62 | 17.45 | 13.00 | 11.46 | 12.21 | 16.05 |
| Feb | 8.21 | 6.12 | 5.00 | 8.38 | 18.33 | 14.40 | 10.10 | 13.32 | 15.73 |
| Mar | 9.62 | 5.55 | 5.00 | 9.80 | 20.83 | 14.54 | 10.11 | 12.78 | 16.00 |
| Apr | 10.00 | 5.41 | 5.00 | 10.25 | 19.16 | 13.50 | 9.00 | 12.50 | 17.19 |
| May | 10.25 | 5.41 | 5.08 | 10.25 | 18.03 | 14.00 | 8.75 | 13.12 | 17.70 |
| Jun | 8.29 | 5.41 | 5.30 | 10.25 | 17.75 | 14.00 | 7.85 | 13.33 | 16.75 |
| Jul | 6.67 | 5.26 | 5.30 | 10.25 | 17.75 | 12.60 | 8.00 | 15.16 | 16.67 |

U.S. Green Pea Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Green Pea Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 6% | 5% | 8% | 7% | 11% | 9% | 10% | 13% | 9% |
| Sep | 14% | 6% | 7% | 14% | 14% | 17% | 10% | 11% | 8% |
| Oct | 9% | 7% | 4% | 10% | 13% | 9% | 10% | 10% | 6% |
| Nov | 9% | 8% | 5% | 7% | 7% | 9% | 9% | 9% | 5% |
| Dec | 6% | 9% | 6% | 7% | 6% | 8% | 7% | 7% | 6% |
| Jan | 10% | 7% | 8% | 10% | 4% | 7% | 7% | 7% | 8% |
| Feb | 6% | 5% | 7% | 9% | 5% | 4% | 7% | 9% | 10% |
| Mar | 1% | 5% | 12% | 8% | 7% | 7% | 7% | 8% | 12% |
| Apr | 10% | 11% | 6% | 7% | 7% | 7% | 10% | 6% | 11% |
| May | 11% | 15% | 13% | 7% | 8% | 8% | 7% | 5% | 11% |
| Jun | 10% | 11% | 9% | 7% | 8% | 7% | 7% | 5% | 11% |
| Jul | 8% | 11% | 15% | 8% | 8% | 9% | 11% | 8% | 3% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

U.S. Yellow Pea Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

U.S. Yellow Pea Average Price

(US cents per pound delivered PNW)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 7.60 | 6.25 | 5.38 | 5.50 | 10.00 | 17.45 | 10.00 | 8.75 | 14.00 |
| Sep | 6.69 | 6.00 | 4.80 | 5.80 | 10.75 | 14.12 | 9.00 | 8.00 | 14.30 |
| Oct | 7.00 | 6.40 | 4.75 | 6.12 | 11.62 | 12.80 | 9.00 | 8.80 | 14.50 |
| Nov | 7.62 | 6.75 | 4.75 | 6.80 | 13.10 | 12.00 | 8.50 | 9.25 | 14.50 |
| Dec | 8.00 | 6.70 | 4.75 | 7.00 | 13.75 | 11.50 | 9.40 | 9.50 | 14.70 |
| Jan | 8.15 | 6.38 | 4.75 | 7.19 | 14.00 | 11.00 | 9.62 | 10.00 | 15.00 |
| Feb | 9.12 | 6.44 | 5.00 | 7.81 | 15.50 | 11.00 | 10.00 | 10.50 | 15.00 |
| Mar | 9.12 | 6.15 | 5.00 | 9.20 | 17.38 | 11.00 | 10.00 | 11.00 | 15.00 |
| Apr | 9.50 | 5.62 | 5.00 | 9.00 | 18.00 | 11.00 | 9.60 | 11.80 | 15.00 |
| May | 9.75 | 5.75 | 5.25 | 9.12 | 18.00 | 11.00 | 9.50 | 12.00 | 16.38 |
| Jun | 8.25 | 5.75 | 5.50 | 9.50 | 18.00 | 11.00 | 9.50 | 12.00 | 15.60 |
| Jul | 7.30 | 5.45 | 5.55 | 9.62 | 18.00 | 11.00 | 9.50 | 12.80 | 16.00 |

U.S. Yellow Pea Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

U.S. Yellow Pea Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 1% | 3% | 5% | 7% | 8% | 7% | 15% | 14% | 16% |
| Sep | 3% | 4% | 8% | 8% | 10% | 13% | 13% | 15% | 14% |
| Oct | 2% | 2% | 7% | 15% | 10% | 9% | 8% | 10% | 10% |
| Nov | 8% | 7% | 6% | 12% | 7% | 11% | 10% | 9% | 9% |
| Dec | 11% | 9% | 9% | 8% | 11% | 12% | 6% | 8% | 5% |
| Jan | 11% | 8% | 8% | 9% | 8% | 6% | 7% | 7% | 4% |
| Feb | 25% | 18% | 19% | 7% | 8% | 6% | 7% | 6% | 5% |
| Mar | 7% | 11% | 10% | 4% | 11% | 8% | 7% | 5% | 7% |
| Apr | 6% | 12% | 6% | 8% | 6% | 7% | 6% | 6% | 7% |
| May | 15% | 8% | 5% | 7% | 5% | 5% | 3% | 6% | 5% |
| Jun | 8% | 11% | 7% | 7% | 7% | 6% | 4% | 6% | 14% |
| Jul | 3% | 8% | 8% | 7% | 9% | 10% | 13% | 8% | 4% |

Austrian Winter Pea Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

Austrian Winter Pea Average Price

(US cents per pound delivered)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 10.60 | 9.12 | 8.00 | 6.50 | 8.60 | 24.00 | 16.00 | 17.50 | 18.00 |
| Sep | 11.00 | 9.50 | 8.00 | 7.40 | 11.25 | 23.75 | 17.50 | 18.00 | 18.80 |
| Oct | 11.00 | 10.00 | 8.00 | 8.00 | 14.12 | 25.00 | 16.00 | 18.00 | 21.00 |
| Nov | 11.00 | 10.00 | 8.00 | 8.00 | 15.30 | 25.00 | 18.00 | 18.00 | 21.00 |
| Dec | 11.00 | 10.00 | 8.00 | 8.00 | 16.00 | 25.00 | 18.00 | 18.00 | 19.80 |
| Jan | 11.00 | 10.00 | 8.00 | 8.00 | 18.40 | 25.00 | 18.00 | 18.00 | 18.50 |
| Feb | 11.00 | 9.75 | 7.38 | 8.00 | 21.00 | 21.75 | 18.00 | 18.00 | 20.38 |
| Mar | 11.00 | 8.40 | 6.75 | 8.00 | 24.00 | 19.00 | 18.00 | 18.00 | 18.90 |
| Apr | 11.00 | 8.00 | 6.56 | 8.38 | 24.00 | 19.00 | 18.00 | 18.00 | 18.00 |
| May | 11.00 | 8.00 | 6.50 | 8.50 | 24.00 | 19.00 | 18.00 | 18.00 | 18.00 |
| Jun | 10.25 | 8.00 | 6.50 | 8.50 | 24.00 | 19.00 | 18.00 | 18.00 | 18.00 |
| Jul | 10.00 | 8.00 | 6.50 | 8.50 | 24.00 | 19.00 | 17.40 | 18.00 | 18.00 |

U.S. Austrian Winter Pea Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

U.S. Austrian Winter Pea Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 7% | 19% | 3% | 15% | 10% | 30% | 5% | 14% | 31% |
| Sep | 23% | 12% | 12% | 6% | 16% | 21% | 22% | 13% | 19% |
| Oct | 29% | 4% | 6% | 7% | 9% | 10% | 28% | 6% | 8% |
| Nov | 25% | 6% | 9% | 10% | 9% | 2% | 16% | 2% | 3% |
| Dec | 6% | 2% | 10% | 5% | 6% | 17% | 3% | 5% | 9% |
| Jan | 3% | 3% | 9% | 24% | 14% | 13% | 5% | 6% | 5% |
| Feb | 4% | 1% | 2% | 9% | 8% | 2% | 9% | 6% | 16% |
| Mar | 1% | 17% | 4% | 9% | 8% | 0% | 2% | 1% | 5% |
| Apr | 0% | 6% | 16% | 3% | 13% | 0% | 1% | 7% | 4% |
| May | 0% | 6% | 12% | 5% | 4% | 0% | 0% | 7% | 1% |
| Jun | 0% | 5% | 13% | 5% | 2% | 3% | 7% | 12% | 0% |
| Jul | 0% | 21% | 3% | 3% | 1% | 1% | 2% | 21% | 0% |

Austrian Winter Pea
(US \$ cwt delivered)

| Decile | 2001 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 6.50 | 0 | 8.00 |
| 1 | 8.00 | 1 | 8.50 |
| 2 | 8.50 | 2 | 16.00 |
| 3 | 10.00 | 3 | 18.00 |
| 4 | 11.00 | 4 | 18.00 |
| 5 | 11.00 | 5 | 18.00 |
| 6 | 17.00 | 6 | 18.00 |
| 7 | 18.00 | 7 | 19.00 |
| 8 | 18.00 | 8 | 21.00 |
| 9 | 21.00 | 9 | 24.00 |
| 10 | 25.00 | 10 | 25.00 |

Australian Peas

Field peas have been grown in Australia for more than a century. Today, there are four main types grown. Most farmers plant Dun peas, which are dimpled, greenish-brown colored varieties with yellow cotyledons. They fit well in the livestock feed markets and have been accepted by human consumption markets on the Indian subcontinent and Middle East. Farmers also grow relatively small quantities of blue or green peas, white or yellow peas, and maple peas. Blue and white peas are mostly sold to human consumption buyers, while maple peas are fed to birds or livestock.

Between 2001 and 2010, field pea production in Australia accounted for 3% of the world crop, compared to Canada's 30% share of world production. Even so, Australia is the fourth largest field pea exporter in the world, with a 4% market share. By comparison, Canada had a 61% market share, while the United States had 12% and France 7%.

Australia starts planting peas in May and wraps up seeding by the end of July, with the harvest spanning the period between October and the January. Australia's marketing year is better thought of as starting in October and ending in September. But, for consistency in the way data is being displayed in this book, the tables showing grower deliveries start in August and end in July. This makes it easier to compare the table for one country with another.

The Indian subcontinent is the most important market for Australian field pea exporters. On average, 73% of all Australian pea exports go to Bangladesh, India, Pakistan and Sri Lanka. The proportion of peas shipped to the region ranged from a low of 60% in the 2007-08 and 2008-09 marketing years to a high of 88% in 2010-11. Australia has two key competitive advantages when selling to the Indian subcontinent. Ocean freight rates are lower and the country is closer, allowing for shorter transit times.

Most pea shipments are farmer's dressed quality, which allows a higher percentage of foreign material than machine dressed or mechanically cleaned peas. This has influenced the development of the Canadian and U.S. pea industries, with both countries now moving a large part of their crops through bulk handling facilities instead of local cleaning plants. This reduces the cost of handling peas, with the savings shared by importers and farmers.

Demand for Australian peas is strongly influenced by the size of local pulse crops on the Indian subcontinent and competition for available demand. As a result, there is not as strong a pattern for disappearance as there is in Canada. On average, it takes six months from the start of the Australian harvest for farmers to be able to ship half the peas they grew. More interestingly, there is a strong tendency for export shipments to spike between April and June. This coincides with the period when harvest selling pressure eases for rabi or winter season crops grown in India and Pakistan. It also coincides with the seasonal tightening of northern hemisphere supplies.

These patterns have an impact on farmers in Canada and the United States. Harvest selling pressure peaks in Australia between November and January, intensifying competition for available demand on the Indian subcontinent. This is part of the reason grower bids for peas often suffer a seasonal decline in Canada in December and Janu-

ary. The second spike in demand for Australian field peas can affect the outlook for the coming marketing year for growers in Canada. Strong prices and good movement create an incentive for Australian farmers to plant more peas, which affects the price expectations of buyers on the Indian subcontinent.

It is important to note that Australia is trying to end its reliance on the Indian subcontinent and compete directly with Canada in China and elsewhere. Australian plant breeders released a new variety of yellow pea in 2012. Named PBA Pearl, this semi-leafless, semi-dwarf, erect growing variety is the first broadly adapted white-seeded field pea variety available in Australia. It will target the same markets as Canadian yellow peas, including yellow split dhal, pulse flour, roasted snack food and noodles. The pea was initially released in New South Wales, but it can be safely grown in all the major field pea production regions in New South Wales, Victoria and South Australia.

Such developments are an important reminder that agriculture is one of the few sectors where supply and demand fundamentals are constantly changing because there is no effective limit to how much or how little farmers can grow, or how much people want to eat a specific food item. Supply is renewed throughout the year as production shifts back and forth between the southern and northern hemispheres. Demand is constantly shifting in response to changes in the amount of money people have available to spend on food and how keen they are to change what they eat. Competition is constantly changing as plant breeders adapt plant varieties to new climate and soil zones. Australia's efforts to jump into the yellow pea business is a reflection of that, just as much as Canada's adoption of red lentils and kabuli chickpeas.

Australia Field Pea Supply and Demand

(hectares, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|----------------------|-----------|---------|---------|---------|---------|
| Acreage | 285,100 | 295,850 | 243,500 | 282,700 | 277,290 |
| Yield (kg/ha) | 1,231 | 1,446 | 1,248 | 1,191 | 1,204 |
| Production | 351,000 | 427,940 | 303,890 | 336,680 | 334,322 |
| Carry In | 67,000 | 89,000 | 27,000 | 28,000 | 53,280 |
| Stocks | 418,000 | 516,940 | 330,890 | 364,680 | 387,602 |
| Disappearance | | | | | |
| Export | 154,300 | 292,816 | 166,300 | 190,200 | 178,677 |
| Domestic | 174,700 | 197,124 | 136,590 | 153,480 | 162,525 |
| Total Usage | 329,000 | 489,940 | 302,890 | 343,680 | 341,202 |
| Ending Stocks | 89,000 | 27,000 | 28,000 | 21,000 | 46,400 |
| Stocks/Use | 27% | 6% | 9% | 6% | 14% |

In the above table, area is in hectares; yield is in kilograms; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are by STAT based on data from Pulse Australia, Australian Bureau of Agricultural and Resource Economics and Sciences, and Australian Bureau of Statistics.

Australia Whole Pea Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

Australia Whole Pea Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 2% | 19% | 7% | 5% | 5% | 2% | 0% | 2% | 13% |
| Sep | 3% | 9% | 2% | 26% | 4% | 3% | 0% | 2% | 5% |
| Oct | 8% | 4% | 2% | 11% | 16% | 11% | 4% | 9% | 2% |
| Nov | 10% | 3% | 6% | 5% | 13% | 16% | 5% | 10% | 5% |
| Dec | 14% | 8% | 3% | 2% | 10% | 9% | 7% | 4% | 4% |
| Jan | 6% | 18% | 2% | 8% | 11% | 17% | 12% | 12% | 8% |
| Feb | 18% | 6% | 2% | 9% | 11% | 11% | 8% | 13% | 4% |
| Mar | 7% | 2% | 4% | 3% | 9% | 8% | 7% | 5% | 4% |
| Apr | 18% | 7% | 16% | 14% | 9% | 4% | 8% | 15% | 12% |
| May | 8% | 3% | 11% | 8% | 7% | 9% | 20% | 6% | 20% |
| Jun | 4% | 2% | 32% | 6% | 4% | 8% | 21% | 13% | 19% |
| Jul | 2% | 19% | 13% | 3% | 2% | 2% | 8% | 8% | 5% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

Mustard

Ignoring mustard/rapeseed blends which are grown on the Indian subcontinent, world mustard seed production averages just under 529,000 metric tons per year. Most of this production is destined for the condiment and spice trade. By contrast, the mustard/rapeseed blends grown in India, Bangladesh and Pakistan are crushed to produce vegetable oil and meal. The blend includes about 30% mustard seed. Mustard oil contains allyl isothiocyanate (AITC), which is the organosulfur compound responsible for the hot and spicy smell and taste of mustard, horseradish, and wasabi. Mustard is part of the Brassica family, which includes canola and rapeseed.

Canada is the world's largest producer of pure mustard seed, accounting for an average 28% of the world crop. It is followed by Nepal, which grows 26% of the world mustard seed crop, compared to 13% by Myanmar, 9% by the Ukraine, 7% by Russia, 4% by the Czech Republic, and 3% each in China and the United States. Among this group, production in Canada, the United States and by European countries is mainly for the condiment and spice trade. A large part of the output from Asian countries such as Nepal, Myanmar and China is more likely used to produce mustard cooking oil.

Canada is also the world's most important exporter of mustard seed, with a 57% market share. It is followed by the Ukraine, with an 11% share of the world export market, while Germany, the Czech Republic and Russia, each have a 6% share of the market. On the import side, the United States is the most important destination for mustard seed, accounting for an average 24% of import activity each year. Germany is the second largest importer, with a 17% share, followed by Bangladesh at 12%, France at 9%, and the Netherlands and Nepal at 6% each. Among the top 10 importers, Bangladesh crushes mustard seed for the oil for cooking. This is also probably true of Nepal. The

World’s Top 10 Mustard Seed Traders

(5-year average trading volume in metric tons)

| Exporters | Quantity | Importers | Quantity |
|----------------|----------|----------------|----------|
| Canada | 141,660 | United States | 64,812 |
| Ukraine | 26,977 | Germany | 45,973 |
| Germany | 15,224 | Bangladesh | 31,685 |
| Czech Republic | 14,412 | France | 23,796 |
| Russia | 13,949 | Netherlands | 16,366 |
| Netherlands | 11,075 | Nepal | 14,904 |
| Belgium | 7,067 | Poland | 10,043 |
| Hungary | 3,279 | Belgium | 9,093 |
| India | 2,598 | Japan | 5,933 |
| Romania | 2,552 | United Kingdom | 3,648 |

Source: United Nations Food and Agriculture Organization (FAO). This table shows the average annual trading volume for the period between 2006 and 2010.

remaining eight of the top 10 importers mainly use mustard seed in condiments and spices.

Mustard has been used as a spice for over 5,000 years, with references appearing in ancient texts in Sumerian and Sanskrit around 3000 BC, in Egyptian texts around 2000 BC and Chinese texts around 1000 BC. Its use as a condiment is thought to have started with the Romans. Production of Dijon mustard in France started around the 10th century. In recognition of the long tradition of making mustard, Dijon was granted an Appellation d’origine contrôlée in 1937. The first use of mustard as a hot dog condiment was reported at the St. Louis World’s Fair in 1904 when R.T. French Company introduced its mild prepared mustard, which is colored a bright yellow by using turmeric.

The Saskatchewan Mustard Development Commission believes the first mustard seed grown in Canada was 40 hectares in Alberta. At that time, California and Montana were the main producing areas in North America. Statistics Canada started reporting mustard seed area in Canada in 1951. There were 40,850 acres sown in Alberta and 1,300 in Manitoba, with production totalling 7,977 metric tons. Production officially expanded to Saskatchewan in 1960, when 15,600 acres were planted, compared to 115,000 in Alberta and 450 in Manitoba. Alberta remained Canada’s primary mustard seed producer until 1968, by which time Saskatchewan was consistently the most important growing area for the crop in Canada. Statistics Canada stopped estimating mustard seed production in Manitoba in 2005, because area had fallen to levels which were too small to estimate. Between 2008 and 2012, Saskatchewan accounted for 77% of Canada’s mustard seed area.

The United States still grows mustard seed, but production falls far short of its annual needs. In the five years spanning 2008 through 2012, farmers in the United States planted an average 51,160 acres per year, with production averaging 16,153 metric tons. Canada supplies virtually all the mustard seed imported by the United States, with cross

border shipments averaging 64,535 metric tons per year. Less than 3% of the available supply of mustard seed is exported by the United States each year.

While Canada is the dominant supplier of condiment mustard seed in the world, it is a minor crop in Canada. It accounts for roughly 6% of all specialty crop area in Canada or an average of 425,000 acres per year. Yields are significantly lower than those of other specialty crops, with the result it accounts for just 3% of total specialty crop production in Canada, or about 160,000 metric tons per year.

Most of the mustard seed that Canada produces is exported, with shipments averaging 57% of each year's available supply. There is not a lot of month-to-month variation in the quantity of mustard seed which needs to be bought from farmers to cover export needs. Average deliveries range between 8% and 9% of the annual export requirement nearly every month of the year. The only exceptions are April, when shipments tend to jump to 10% of the annual total, July when they dip to 6% and August, when an average of just 7% of all the mustard that will be shipped moves from farms. The decline in July and August simply reflects the transition from one crop year to the next. The consistency in export movement is a reflection of the fact virtually all the mustard from Canada is now destined for the condiment and spice trade. As much as possible, that sector has moved to just in time delivery of ingredients, resulting in a steady flow of product into processing facilities throughout the year.

Canada grows three types of mustard. On average, 57% of the total area is yellow or white mustard, 22% is brown, 16% is oriental mustard, and 8% is unspecified. The unspecified area is only made up of all the brown and oriental mustard grown in Alberta. Similar break downs are not available for the United States or other producing regions in the world.

Canada Mustard Seed Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 525,000 | 470,000 | 327,958 | 335,000 | 450,592 |
| Yield (lbs/acre) | 875 | 854 | 874 | 780 | 791 |
| Production | 208,300 | 182,000 | 130,000 | 118,600 | 161,240 |
| Carry In | 42,000 | 82,000 | 116,000 | 83,000 | 71,600 |
| Supply | 250,300 | 264,000 | 246,000 | 201,600 | 232,840 |
| | | | | | |
| Exports | 127,959 | 123,651 | 115,186 | 124,900 | 133,187 |
| All Domestic | 40,341 | 24,349 | 47,814 | 31,700 | 29,653 |
| Total Usage | 168,300 | 148,000 | 163,000 | 156,600 | 162,840 |
| Ending Stocks | 82,000 | 116,000 | 83,000 | 45,000 | 70,000 |
| Stocks/Use | 49% | 78% | 51% | 29% | 43% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from Statistics Canada. All forecasts are by STAT Publishing.

Canada Mustard Seed Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Mustard Seed Movement From Farms

(the darker the color the more commercial demand)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | |
| Sep | | | | | |
| Oct | | | | | |
| Nov | | | | | |
| Dec | | | | | |
| Jan | | | | | |
| Feb | | | | | |
| Mar | | | | | |
| Apr | | | | | |
| May | | | | | |
| Jun | | | | | |
| Jul | | | | | |

Canada Mustard Seed Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 5% | 6% | 6% | 6% | 7% | 6% | 5% | 6% | 11% |
| Sep | 6% | 5% | 5% | 6% | 9% | 13% | 10% | 6% | 9% |
| Oct | 15% | 8% | 11% | 9% | 11% | 13% | 7% | 7% | 8% |
| Nov | 9% | 9% | 8% | 8% | 8% | 9% | 6% | 8% | 8% |
| Dec | 6% | 8% | 7% | 8% | 7% | 6% | 7% | 6% | 8% |
| Jan | 6% | 8% | 8% | 8% | 8% | 6% | 8% | 8% | 8% |
| Feb | 6% | 9% | 11% | 8% | 9% | 8% | 8% | 9% | 9% |
| Mar | 10% | 11% | 11% | 10% | 9% | 8% | 8% | 9% | 9% |
| Apr | 11% | 11% | 9% | 10% | 11% | 10% | 12% | 10% | 9% |
| May | 10% | 10% | 9% | 9% | 9% | 8% | 9% | 9% | 12% |
| Jun | 8% | 8% | 8% | 9% | 6% | 6% | 11% | 11% | 8% |
| Jul | 7% | 7% | 7% | 9% | 5% | 6% | 9% | 10% | 2% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

U.S. Mustard Seed Monthly Movement

(sales as a percent of the marketing year total)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | 11% | 4% | 8% | 12% | 10% |
| Sep | 8% | 7% | 3% | 6% | 8% |
| Oct | 7% | 8% | 7% | 5% | 6% |
| Nov | 11% | 9% | 7% | 6% | 10% |
| Dec | 9% | 11% | 3% | 6% | 10% |
| Jan | 12% | 12% | 6% | 2% | 15% |
| Feb | 7% | 13% | 7% | 21% | 12% |
| Mar | 5% | 11% | 10% | 16% | 7% |
| Apr | 7% | 9% | 22% | 10% | 9% |
| May | 10% | 6% | 12% | 5% | 6% |
| Jun | 5% | 5% | 5% | 5% | 6% |
| Jul | 7% | 4% | 10% | 6% | 2% |

Yellow Mustard

The primary market for yellow mustard is the North American domestic condiment industry with the United States consuming the biggest percentage of the crop. This is a relationship business, with food manufacturers reluctant to switch suppliers. As a result, it is more important for growers to also have a relationship with a mustard processor. Processors tend to give preference to their contract growers over farmers growing the crop on speculation.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January four out of the nine years. Interestingly, four out of nine times grower bids made their season highs in August, the first month of the marketing year. Overall, there is a high degree of volatility in prices throughout the marketing year.

On average, the highest prices paid to yellow mustard seed growers during the year are 66% above the lowest prices paid. The degree of change within a single marketing year ranges between a low of 7% and a high of 153%. This happens when there is considerable year to year volatility in production and a low level of speculative or non-contract production. The implication is that during periods of excess supply, bids for non-contract mustard will tend to move little during the marketing year. However, as supplies tighten, bids for non-contract mustard can rise quickly as competition for available supplies becomes more intense. They fall more quickly as the supply problems are relieved. The implication is that after markets experienced a year in which grower bids have risen steeply, it is a mistake to consciously carry product over into the following crop year unless it is clear there will be another production shortfall.

Canadian Yellow Mustard Seed Grower

(CDN \$ cwt delivered plant Sask)

| Decile | 1987 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 8.00 | 0 | 15.75 |
| 1 | 10.50 | 1 | 22.75 |
| 2 | 12.50 | 2 | 23.75 |
| 3 | 14.30 | 3 | 25.75 |
| 4 | 15.50 | 4 | 32.75 |
| 5 | 17.50 | 5 | 35.75 |
| 6 | 20.00 | 6 | 36.75 |
| 7 | 24.25 | 7 | 38.00 |
| 8 | 35.00 | 8 | 43.75 |
| 9 | 40.75 | 9 | 50.75 |
| 10 | 70.50 | 10 | 65.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Canadian Yellow Mustard Seed Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

Canadian Yellow Mustard Seed Grower Average Price

(CDN cents per pound delivered plant Sask)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 20.90 | 15.12 | 13.50 | 13.50 | 25.60 | 50.70 | 36.44 | 23.50 | 36.00 |
| Sep | 20.50 | 15.38 | 13.50 | 14.00 | 32.00 | 50.50 | 34.31 | 23.25 | 35.35 |
| Oct | 19.90 | 14.60 | 13.50 | 15.38 | 46.62 | 49.55 | 23.15 | 23.75 | 35.75 |
| Nov | 18.88 | 14.50 | 13.50 | 17.30 | 49.85 | 42.50 | 20.75 | 23.88 | 35.75 |
| Dec | 16.88 | 13.90 | 12.70 | 20.50 | 50.00 | 43.25 | 25.45 | 23.75 | 37.15 |
| Jan | 16.70 | 14.25 | 12.50 | 22.00 | 51.20 | 42.55 | 26.25 | 24.75 | 37.25 |
| Feb | 17.00 | 13.75 | 12.50 | 20.50 | 53.25 | 38.75 | 26.00 | 30.75 | 35.75 |
| Mar | 17.38 | 14.00 | 12.50 | 22.50 | 54.00 | 37.26 | 23.50 | 31.25 | 35.75 |
| Apr | 18.50 | 14.38 | 12.50 | 22.62 | 54.50 | 38.75 | 22.75 | 32.75 | 36.25 |
| May | 18.50 | 14.38 | 12.50 | 22.50 | 62.80 | 38.75 | 22.75 | 33.75 | 37.25 |
| Jun | 18.12 | 14.00 | 12.50 | 24.50 | 64.88 | 38.56 | 22.75 | 35.50 | 37.75 |
| Jul | 16.70 | 13.50 | 12.50 | 24.50 | 54.25 | 38.00 | 22.75 | 36.55 | 36.75 |

Brown Mustard

Europe is the main market for brown mustard seed. While relationships between exporters and importers are important, European importers source mustard from a variety of origins. The implication is that buyers will seriously consider offers from new suppliers. This creates more opportunities for growers because it is easier for companies to enter the market than is the case for yellow mustard seed.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January four out of the nine years. Five out of nine times grower bids made their season highs in August. As with yellow mustard, there is a fairly high amount of price volatility throughout the marketing year.

On average, the highest prices paid to brown mustard seed growers during the year are 61% above the lowest prices paid. The degree of change within a single marketing year ranges between a low of 7% and a high of 99% or almost double the low. While yellow mustard tends to be grown under crop production contracts, a higher percentage of the brown mustard seed crop is grown without contracts.

Canadian Brown Mustard Seed Grower
(CDN \$ cwt delivered plant Sask)

| Decile | 1987 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 7.50 | 0 | 15.75 |
| 1 | 10.00 | 1 | 17.75 |
| 2 | 12.00 | 2 | 20.25 |
| 3 | 12.50 | 3 | 20.75 |
| 4 | 13.50 | 4 | 27.75 |
| 5 | 16.00 | 5 | 28.75 |
| 6 | 17.75 | 6 | 30.75 |
| 7 | 19.50 | 7 | 31.75 |
| 8 | 25.50 | 8 | 32.75 |
| 9 | 31.50 | 9 | 40.50 |
| 10 | 45.75 | 10 | 45.75 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Canadian Brown Mustard Seed Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

Canadian Brown Mustard Seed Grower Average Price

(CDN cents per pound delivered plant Sask)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 21.00 | 15.75 | 13.50 | 13.00 | 22.00 | 45.70 | 27.06 | 18.50 | 30.75 |
| Sep | 20.62 | 15.00 | 13.50 | 13.70 | 25.50 | 45.50 | 24.75 | 18.25 | 32.15 |
| Oct | 19.00 | 14.60 | 13.50 | 15.00 | 30.12 | 34.80 | 18.75 | 18.75 | 31.75 |
| Nov | 18.00 | 14.38 | 13.50 | 16.70 | 32.00 | 33.25 | 18.25 | 20.38 | 31.75 |
| Dec | 16.88 | 13.70 | 12.70 | 17.50 | 35.50 | 31.50 | 21.85 | 20.75 | 32.75 |
| Jan | 16.80 | 13.50 | 12.50 | 17.50 | 38.50 | 30.25 | 21.25 | 22.75 | 32.50 |
| Feb | 17.50 | 14.25 | 12.50 | 17.75 | 43.00 | 29.12 | 19.12 | 29.75 | 32.50 |
| Mar | 17.50 | 14.50 | 12.50 | 18.50 | 42.50 | 28.25 | 16.62 | 29.75 | 31.55 |
| Apr | 17.50 | 14.50 | 12.50 | 19.00 | 41.00 | 28.75 | 17.35 | 27.95 | 31.25 |
| May | 17.50 | 14.50 | 12.50 | 20.50 | 42.55 | 28.75 | 17.75 | 28.75 | 32.00 |
| Jun | 17.62 | 14.50 | 12.50 | 20.50 | 42.75 | 28.50 | 17.81 | 30.75 | 32.75 |
| Jul | 17.10 | 14.10 | 12.50 | 20.50 | 43.69 | 27.75 | 17.75 | 31.55 | 31.75 |

Oriental Mustard

Japan is one of the most important markets for oriental mustard seed. Relationships between buyers and sellers are stronger than is the case in Europe, but they are not as strong as is the case on the North American domestic market. This creates limited opportunities for new suppliers to enter the market, even during periods of ample supply. However, when supplies are tighter, importers sometimes actively seek new suppliers. From time to time, oilseed shipments of oriental mustard to the Indian subcontinent are a factor. This normally happens when oriental mustard prices are similar to those for canola and there is excess production. However, as of 2012, the last time oilseed buyers on the Indian subcontinent bought significant quantities of oriental mustard seed was between 2005 and 2008, when Bangladesh imported around 6,000 metric tons per year.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January four out of the nine years. As with yellow mustard, four out of nine times grower bids made their season highs in August, the first month of the marketing year. Again, there is a fairly high amount of price volatility throughout the year.

On average, the highest prices paid to oriental mustard seed growers during the year are 72% above the lowest prices paid. The degree of change within a single marketing year ranges between a low of 15% and a high of 167% or over one and a half times the low. As with the brown mustard seed crop, a higher percentage of the oriental mustard seed crop is grown without production contracts.

Normally, when oriental mustard seed markets rise through the end of the marketing year, they set highs for the next season at the beginning of the following year. The implication is that seed grown previously should be sold before the end of the marketing year and seed grown for the coming season should be sold early. This is one of two price patterns which become clear when looking at the heat map for oriental mustard price movement. The other is that markets tend to set their highs early two times in a row. The third year, markets tend to set their highs after January.

Canadian Oriental Mustard Seed Grower

(CDN \$ cwt delivered plant Sask)

| Decile | 1987 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 7.50 | 0 | 13.00 |
| 1 | 10.00 | 1 | 16.50 |
| 2 | 11.00 | 2 | 18.50 |
| 3 | 12.50 | 3 | 21.25 |
| 4 | 13.50 | 4 | 25.00 |
| 5 | 14.51 | 5 | 26.75 |
| 6 | 16.50 | 6 | 27.75 |
| 7 | 18.14 | 7 | 28.75 |
| 8 | 20.50 | 8 | 37.75 |
| 9 | 26.75 | 9 | 41.00 |
| 10 | 45.75 | 10 | 45.75 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Canadian Oriental Mustard Seed Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

Canadian Oriental Mustard Seed Grower Average Price

(CDN cents per pound delivered plant Sask)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 18.20 | 14.75 | 13.50 | 11.00 | 16.20 | 42.60 | 33.50 | 20.75 | 28.25 |
| Sep | 18.75 | 15.25 | 13.50 | 11.10 | 18.50 | 42.50 | 25.44 | 20.75 | 26.95 |
| Oct | 18.70 | 15.10 | 13.50 | 11.50 | 23.38 | 40.40 | 19.00 | 20.75 | 27.75 |
| Nov | 18.69 | 14.50 | 13.50 | 11.10 | 25.00 | 36.31 | 20.75 | 22.12 | 27.75 |
| Dec | 18.69 | 14.10 | 12.70 | 13.62 | 25.00 | 38.00 | 24.25 | 21.15 | 26.95 |
| Jan | 19.50 | 14.25 | 12.50 | 14.50 | 24.90 | 39.95 | 21.75 | 23.00 | 27.50 |
| Feb | 20.50 | 13.50 | 12.50 | 13.88 | 29.00 | 38.75 | 18.25 | 27.75 | 24.00 |
| Mar | 20.50 | 13.80 | 12.50 | 16.00 | 30.50 | 41.00 | 15.25 | 28.75 | 25.55 |
| Apr | 20.50 | 13.88 | 12.50 | 16.12 | 32.50 | 41.00 | 17.25 | 28.75 | 26.25 |
| May | 20.50 | 13.50 | 12.50 | 16.50 | 39.40 | 41.00 | 18.38 | 28.75 | 27.00 |
| Jun | 20.50 | 13.50 | 10.60 | 16.50 | 43.25 | 40.19 | 19.31 | 28.25 | 27.75 |
| Jul | 18.02 | 13.30 | 10.50 | 16.50 | 34.50 | 37.75 | 17.25 | 28.55 | 26.75 |

Birdseed

Birdseed packagers use nearly every type of grain, pulse, nut, fruit, and oilseed grown in the world. Not only are they targeting the nutritional needs of wild birds and each species of pet bird, they look for ingredients which make the mixes look good to humans. All surveys of pet owners find that the majority view their pets, including birds, as important members of their family.

Pigeons are fed pea varieties such as maple and the small yellow peas. Oil-type, confectionary sunflower seed and sunflower meats are used extensively in household wild birdfood mixes. Everything from canaryseed grown in Saskatchewan, to white proso millet from the U.S. midwest, milo, sorghum, and safflower from California finds its way into birdseed mixes around the world.

The Cornell University Laboratory of Ornithology conducted food preference tests among common feeder birds. They found that all birds except orioles, tanagers, pigeons and doves liked sunflower seed. Black or oil-type sunflower seed is a good choice during the fall and winter because of the high oil content of the seed. The hulls are also easier for the birds to crack. Confectionary or striped sunflower seeds are harder for birds to crack and the seeds have a much lower oil or energy content.

Birds that like safflower include chickadees, titmice, nuthatches, finches, cardinals, and grosbeaks. Corn is liked by sparrows, blackbirds, jays, pigeons and doves. Millet is a favorite food of finches, sparrows, blackbirds, pigeons, doves, indigo and buntings. Jays, pigeons and doves like milo. Nyjer or nigerseed is liked by finches, pigeons and doves. Suet is preferred by chickadees, titmice, nuthatches, jays, woodpeckers, orioles and tanagers.

For two of the crops contained in this section, birdseed accounts for a minor pro-

portion of total use. Most of the millet grown in the world is for human consumption, while most of the sunflower seed grown in the world is for use by the crushing industry. A significant share of the world sunflower crop is confectionary types, but those are also mainly consumed by people.

Birdseed mixers do not pursue the same kind of least cost formulations as the live-stock industry. The real customer for the seed are the people who own pets and the people who feed wild birds. They have strong ideas about what should be included in mixes. While there can be some movement in the percentage of ingredients used, there is a strong preference to avoid significant changes unless there are fundamental shortages of product. This has the advantage of creating consistent demand for these products. On the other hand, the market is prone to disruption when the economy is in turmoil. Some people stop keeping pets when they lose confidence, which can result in some decline in the size of the market.

Sunflower

Most black, oil-type sunflower seed traded in the world is for use by oilseed crushers. Nearly all the trade in striped, confectionary sunflower seed and sunflower meats is for the confectionary trade. A small portion of the crop is used by the birdfood industry.

Over 33 million metric tons of sunflower seed is grown in the world each year. Russia is the biggest producer, accounting for 21% of the world harvest. It is followed by Ukraine, which grows 20% of the world millet crop, Argentina at 10%, China at 5%, and France at 5%. The United States, Bulgaria, Hungary, and Romania each account for an average 4% of the world's sunflower harvest.

Between 2008 and 2012, sunflower seed accounted for 2% of all land in specialty crops in Canada, but only 1% of the harvest. During the same five-year period in the United States, sunflower area averaged 1.271 million acres per year, with 84% being oil-type sunflower and 16% confectionary or striped sunflower.

Prices for black or oil-type sunflower seed bear a strong relationship to canola, because they compete for a similar segment of the vegetable oil trade. Those markets, in turn, follow roughly the same price pattern as soybean oil. This gives growers of oil-type sunflower the ability to forecast prospective returns for sunflower seed up to two or three years in the future. Confectionary sunflower seed markets are subject to their internal supply and demand fundamentals and prices can diverge significantly from those for oil-type sunflower.

Canada exports a larger share of its sunflower seed crop than the United States. On average, Canada exports 45% of its available supply of sunflower seed each year. Subtracting the amount of sunflower Canada imports from the United States and ignoring ending stocks, reveals that Canada exports about 68% of the seed it produces each year.

The United States exports three categories of sunflower seed: oil-type, confectionary, and dehulled confectionary sunflower seed. Exports of oil-type sunflower are minor, averaging just 1% of the crop or 21,338 metric tons per year. By contrast, around 39% of the confectionary sunflower seed crop is exported, including an average 71,390 metric tons of whole seeds and 33,539 metric tons of meats.

Oil-type sunflower seed exports are busiest in the months following the harvest, with 51% of the total quantity exported moving from the country from October through the end of January. Confectionary sunflower movement is steady, with 8% or 9% of the annual total moving each month. The only exceptions are March, when movements tend to rise slightly to 10% of the average annual total, and July, when it slips to 7%.

Canadian exports follow the same pattern as U.S. oil-type, with movement heaviest in the October through January period, when an average 42% of the crop moves. Shipments slow through to July and start to improve with initial harvest activity in September.

Sunflower growers face a unique risk with the crop because it can lose a significant amount of moisture while in storage. The causes weight loss in storage, above and beyond handling losses. This makes it important to take advantage of marketing opportunities and to be disciplined about selling to minimize the quantity carried over from

one marketing year to the next.

World’s Top 10 Sunflower Seed Traders

(5-year average trading volume in metric tons)

| Exporters | Quantity | Importers | Quantity |
|---------------|----------|-------------|----------|
| Bulgaria | 585,488 | Turkey | 508,288 |
| Hungary | 544,455 | Netherlands | 468,076 |
| Romania | 522,397 | Spain | 364,065 |
| France | 391,798 | Germany | 345,128 |
| Ukraine | 346,952 | Italy | 254,361 |
| United States | 160,143 | France | 161,079 |
| China | 125,557 | Pakistan | 128,920 |
| Russia | 105,375 | Romania | 106,683 |
| Slovakia | 95,202 | Austria | 89,306 |
| Moldova | 83,443 | Portugal | 82,442 |

Source: United Nations Food and Agriculture Organization (FAO). This table shows the average annual trading volume for the period between 2006 and 2010.

Canada Sunflower Seed Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 160,000 | 135,000 | 35,000 | 100,000 | 137,600 |
| Yield (lbs/acre) | 1,404 | 1,104 | 1,247 | 1,916 | 1,318 |
| Production | 101,900 | 67,600 | 19,800 | 86,900 | 83,740 |
| Imports | 18,300 | 26,000 | 4,600 | 20,100 | 16,060 |
| Carry In | 19,000 | 42,000 | 36,000 | 6,000 | 25,600 |
| Supply | 139,200 | 135,600 | 60,400 | 113,000 | 125,400 |
| | | | | | |
| Exports | 43,954 | 42,929 | 33,343 | 51,000 | 56,999 |
| All Domestic | 53,246 | 56,671 | 21,058 | 41,999 | 44,500 |
| Total Usage | 97,200 | 99,600 | 54,401 | 92,999 | 102,200 |
| Ending Stocks | 42,000 | 36,000 | 6,000 | 20,000 | 23,200 |
| Stocks/Use | 43.2 % | 36.1 % | 11.0 % | 21.5 % | 22.7 % |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from Statistics Canada. All forecasts are by STAT Publishing.

U.S. Large Confection Sunflower Seed

(US \$ cwt delivered Kansas)

| Decile | 1993 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 10.00 | 0 | 16.00 |
| 1 | 14.00 | 1 | 25.00 |
| 2 | 15.00 | 2 | 26.00 |
| 3 | 16.00 | 3 | 26.00 |
| 4 | 17.00 | 4 | 27.00 |
| 5 | 17.00 | 5 | 28.00 |
| 6 | 19.00 | 6 | 30.00 |
| 7 | 21.00 | 7 | 35.00 |
| 8 | 27.00 | 8 | 37.00 |
| 9 | 32.00 | 9 | 40.00 |
| 10 | 40.00 | 10 | 40.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Small Confection Sunflower Seed

(US \$ cwt delivered Kansas)

| Decile | 1993 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 5.00 | 0 | 10.00 |
| 1 | 7.00 | 1 | 15.00 |
| 2 | 8.00 | 2 | 15.00 |
| 3 | 10.00 | 3 | 15.00 |
| 4 | 11.00 | 4 | 17.00 |
| 5 | 11.50 | 5 | 19.00 |
| 6 | 12.00 | 6 | 20.00 |
| 7 | 15.00 | 7 | 23.00 |
| 8 | 17.00 | 8 | 25.00 |
| 9 | 21.00 | 9 | 27.00 |
| 10 | 28.00 | 10 | 28.00 |

U.S. Oil Sunflower Seed

(US \$ cwt delivered Kansas)

| Decile | 1993 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 5.70 | 0 | 12.30 |
| 1 | 7.55 | 1 | 14.20 |
| 2 | 9.50 | 2 | 15.10 |
| 3 | 10.50 | 3 | 15.85 |
| 4 | 11.10 | 4 | 16.95 |
| 5 | 11.70 | 5 | 19.50 |
| 6 | 12.65 | 6 | 23.35 |
| 7 | 14.15 | 7 | 26.45 |
| 8 | 16.40 | 8 | 28.65 |
| 9 | 25.60 | 9 | 30.90 |
| 10 | 33.30 | 10 | 33.30 |

North Dakota Oil Sunflower Seed

(US \$ cwt delivered Fargo, North Dakota)

| Decile | 1993 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 5.30 | 0 | 11.60 |
| 1 | 7.63 | 1 | 13.34 |
| 2 | 9.60 | 2 | 13.89 |
| 3 | 10.30 | 3 | 15.30 |
| 4 | 10.95 | 4 | 17.66 |
| 5 | 11.88 | 5 | 20.10 |
| 6 | 12.75 | 6 | 23.34 |
| 7 | 13.50 | 7 | 25.97 |
| 8 | 15.80 | 8 | 27.85 |
| 9 | 25.60 | 9 | 29.81 |
| 10 | 37.25 | 10 | 37.25 |

U.S. Large Confection Sunflower Seed Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Large Confection Sunflower Seed Average Price

(US cents per pound delivered Kansas)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 17.00 | 17.00 | 20.50 | 16.00 | 24.00 | 27.00 | 26.00 | 26.00 | 40.00 |
| Sep | 17.00 | 18.00 | 18.80 | 15.00 | 26.25 | 33.50 | 26.00 | 25.00 | 40.00 |
| Oct | 16.80 | 19.00 | 16.50 | 15.75 | 27.00 | 35.00 | 26.00 | 27.20 | 39.00 |
| Nov | 16.00 | 19.00 | 15.00 | 16.00 | 27.00 | 33.50 | 26.00 | 30.00 | 39.00 |
| Dec | 16.00 | 19.00 | 15.40 | 16.00 | 30.00 | 29.50 | 26.00 | 30.00 | 39.00 |
| Jan | 16.20 | 19.50 | 15.00 | 16.00 | 30.00 | 27.20 | 28.00 | 34.00 | 38.75 |
| Feb | 16.75 | 21.00 | 15.00 | 22.00 | 30.00 | 26.00 | 30.00 | 39.00 | 38.00 |
| Mar | 17.00 | 20.60 | 15.00 | 25.00 | 30.00 | 26.00 | 29.00 | 40.00 | 37.10 |
| Apr | 17.00 | 19.00 | 17.00 | 25.00 | 30.00 | 26.00 | 28.00 | 40.00 | 37.00 |
| May | 17.00 | 19.00 | 17.00 | 25.00 | 28.20 | 26.00 | 28.00 | 40.00 | 36.00 |
| Jun | 17.00 | 19.38 | 15.80 | 24.20 | 27.00 | 26.00 | 28.00 | 40.00 | 36.00 |
| Jul | 17.00 | 20.60 | 15.00 | 24.00 | 27.00 | 26.00 | 28.00 | 40.00 | 36.00 |

U.S. Small Confection Sunflower Seed Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

U.S. Small Confection Sunflower Seed Average Price

(US cents per pound delivered Kansas)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 7.60 | 10.00 | 13.00 | 10.00 | 17.00 | 19.00 | 15.00 | 14.00 | 28.00 |
| Sep | 10.00 | 11.50 | 13.00 | 10.00 | 18.50 | 23.50 | 15.00 | 13.00 | 28.00 |
| Oct | 10.00 | 13.00 | 11.50 | 10.00 | 19.00 | 22.80 | 15.00 | 14.40 | 27.00 |
| Nov | 10.00 | 13.00 | 9.25 | 10.00 | 19.00 | 21.50 | 15.00 | 16.00 | 27.00 |
| Dec | 10.00 | 13.00 | 8.00 | 10.00 | 19.25 | 15.50 | 15.00 | 16.00 | 27.00 |
| Jan | 10.00 | 13.00 | 8.00 | 10.00 | 20.00 | 15.00 | 15.50 | 19.25 | 26.75 |
| Feb | 10.00 | 13.00 | 8.00 | 16.00 | 20.00 | 15.00 | 16.00 | 24.50 | 26.00 |
| Mar | 10.00 | 13.00 | 8.00 | 17.00 | 20.00 | 15.00 | 15.50 | 25.00 | 25.10 |
| Apr | 10.00 | 13.00 | 8.00 | 17.00 | 20.00 | 15.00 | 15.00 | 28.00 | 25.00 |
| May | 10.00 | 13.00 | 8.00 | 17.00 | 19.40 | 15.00 | 15.00 | 28.00 | 25.00 |
| Jun | 10.00 | 13.00 | 8.00 | 17.00 | 19.00 | 15.00 | 15.00 | 28.00 | 25.00 |
| Jul | 10.00 | 13.00 | 8.00 | 17.00 | 19.00 | 15.00 | 15.00 | 28.00 | 25.00 |

U.S. Oil Sunflower Seed Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

U.S. Oil Sunflower Seed Average Price

(US cents per pound delivered Kansas)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 8.86 | 10.74 | 11.10 | 12.25 | 18.05 | 23.70 | 15.20 | 15.82 | 31.41 |
| Sep | 10.07 | 10.88 | 11.50 | 12.40 | 18.59 | 22.52 | 13.18 | 17.20 | 32.06 |
| Oct | 11.13 | 11.39 | 10.25 | 12.88 | 19.00 | 18.20 | 12.82 | 19.59 | 27.99 |
| Nov | 11.61 | 12.81 | 8.54 | 13.34 | 19.51 | 15.59 | 13.68 | 20.57 | 28.75 |
| Dec | 11.91 | 13.27 | 7.80 | 14.16 | 20.21 | 13.93 | 13.79 | 22.08 | 28.38 |
| Jan | 11.89 | 12.56 | 7.76 | 15.35 | 22.21 | 14.39 | 14.25 | 26.75 | 27.04 |
| Feb | 12.76 | 11.19 | 7.75 | 16.25 | 29.85 | 13.90 | 14.57 | 29.68 | 25.48 |
| Mar | 12.91 | 11.52 | 8.16 | 16.70 | 28.74 | 13.44 | 15.16 | 30.65 | 26.07 |
| Apr | 12.91 | 11.10 | 10.00 | 16.82 | 28.93 | 14.60 | 15.37 | 31.51 | 26.82 |
| May | 11.91 | 11.05 | 9.88 | 17.35 | 29.55 | 15.61 | 15.35 | 31.93 | 25.99 |
| Jun | 11.54 | 11.10 | 10.25 | 17.03 | 29.86 | 16.46 | 14.99 | 32.25 | 24.96 |
| Jul | 11.43 | 11.10 | 11.75 | 17.18 | 28.59 | 15.12 | 15.28 | 31.99 | 24.84 |

Canada Sunflower Seed Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

Canada Sunflower Seed Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 4% | 11% | 2% | 4% | 6% | 4% | 5% | 7% | 10% |
| Sep | 11% | 8% | 6% | 5% | 10% | 8% | 6% | 6% | 10% |
| Oct | 11% | 11% | 13% | 6% | 13% | 11% | 14% | 8% | 9% |
| Nov | 10% | 13% | 13% | 6% | 11% | 14% | 12% | 10% | 9% |
| Dec | 9% | 11% | 11% | 8% | 10% | 10% | 10% | 7% | 11% |
| Jan | 11% | 10% | 9% | 10% | 11% | 10% | 8% | 11% | 9% |
| Feb | 12% | 11% | 9% | 11% | 9% | 9% | 9% | 12% | 6% |
| Mar | 9% | 8% | 9% | 11% | 8% | 10% | 8% | 10% | 6% |
| Apr | 6% | 4% | 7% | 9% | 6% | 7% | 8% | 8% | 8% |
| May | 6% | 5% | 7% | 9% | 6% | 7% | 7% | 7% | 10% |
| Jun | 6% | 5% | 6% | 11% | 6% | 6% | 6% | 6% | 9% |
| Jul | 5% | 4% | 8% | 10% | 5% | 4% | 7% | 7% | 2% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

U.S. Confection Sunflower Seed Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

U.S. Confection Sunflower Seed Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 7% | 9% | 4% | 7% | 8% | 9% | 8% | 6% | 11% |
| Sep | 9% | 8% | 5% | 8% | 8% | 8% | 8% | 6% | 9% |
| Oct | 9% | 9% | 6% | 8% | 9% | 9% | 8% | 9% | 8% |
| Nov | 9% | 10% | 8% | 9% | 8% | 7% | 8% | 10% | 8% |
| Dec | 10% | 11% | 8% | 9% | 8% | 7% | 9% | 10% | 10% |
| Jan | 10% | 10% | 7% | 8% | 7% | 7% | 8% | 10% | 10% |
| Feb | 10% | 10% | 9% | 8% | 6% | 9% | 10% | 10% | 11% |
| Mar | 2% | 9% | 10% | 9% | 9% | 10% | 10% | 9% | 10% |
| Apr | 8% | 8% | 12% | 9% | 10% | 9% | 9% | 8% | 8% |
| May | 9% | 7% | 12% | 8% | 10% | 10% | 9% | 7% | 7% |
| Jun | 9% | 5% | 9% | 8% | 9% | 8% | 7% | 8% | 6% |
| Jul | 8% | 6% | 10% | 8% | 9% | 8% | 7% | 8% | 2% |

U.S. Oil-type Sunflower Seed Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

U.S. Oil-type Sunflower Seed Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 7% | 4% | 6% | 4% | 4% | 5% | 5% | 5% | 4% |
| Sep | 10% | 5% | 11% | 4% | 7% | 12% | 12% | 9% | 7% |
| Oct | 9% | 11% | 15% | 4% | 11% | 14% | 14% | 14% | 17% |
| Nov | 10% | 14% | 10% | 5% | 14% | 10% | 15% | 14% | 16% |
| Dec | 13% | 12% | 14% | 16% | 15% | 10% | 13% | 11% | 11% |
| Jan | 8% | 10% | 11% | 21% | 15% | 11% | 10% | 7% | 10% |
| Feb | 7% | 12% | 9% | 17% | 10% | 9% | 7% | 9% | 10% |
| Mar | 2% | 9% | 7% | 9% | 7% | 8% | 6% | 6% | 7% |
| Apr | 3% | 7% | 5% | 8% | 6% | 5% | 5% | 5% | 6% |
| May | 8% | 8% | 5% | 5% | 4% | 5% | 4% | 6% | 6% |
| Jun | 13% | 5% | 3% | 3% | 4% | 6% | 3% | 7% | 6% |
| Jul | 10% | 3% | 5% | 5% | 4% | 5% | 4% | 5% | 2% |

Canaryseed

Canada is the world's most important producer and exporter of canaryseed. It completely dominates world trade in the commodity, with an 83% market share. Not all countries in the list of top 10 exporters grow canaryseed. Belgium, Egypt and Netherlands resell product they have bought from Canada, Argentina, Hungary and other exporters. In fact, Belgium is the third largest importer of canaryseed in the world. Mexico has been the number one importer of canaryseed in the world. That may not change, but the volume of canaryseed it imports could be lower on average through to at least 2015 because of tough phytosanitary rules that began in 2010.

Canaryseed is used almost exclusively as a birdseed ingredient. Limited quantities are used by health food manufacturers. The seed is dehulled and ground to produce powder or meal. It is sold as is or mixed with ingredients such as cinnamon and anise seed powder. The Canaryseed Development Commission of Saskatchewan would like to expand upon this niche as well as other human food applications, such as replacing roasted sesame seed with roasted canaryseed. To that end, the Commission is encouraging Dr. Pierre Hucl of the University of Saskatchewan's Crop Development Centre in Saskatoon to improve yields of hairless varieties and develop yellow-seeded varieties which might be more readily accepted for human food applications.

Canaryseed is a small acreage crop in Canada. It accounts for roughly 5% of all specialty crop area in Canada or an average of 350,000 acres per year. Yields are not as good as those of other specialty crops, with the result canaryseed accounts for about 3% of total specialty crop production in Canada, or about 160,000 metric tons per year. Virtually all the canaryseed grown in Canada is located in Saskatchewan. The crop is still grown in Manitoba and Alberta, but area has shrunk to the point where Statistics Canada no longer tries to estimate seeded area and production for those provinces.

On average, 34% of Canada's canaryseed is the hairless or glabrous varieties and 64% regular varieties. Companies which process canaryseed do not enjoy handling regular canaryseed varieties because the tiny hairs on the seed break off and irritate workers. Growers like regular varieties because they outyield glabrous types and markets are generally unwilling to pay a premium for hairless canaryseed. During the five years spanning 2008 through 2012, hairless canaryseed yields averaged 936 pounds per acre and regular canaryseed averaged 1,043 pounds per acre for an 11% yield advantage. During the past five years, canaryseed grower bids in Saskatchewan averaged 23.2 cents per pounds. The implication is that unless markets are willing to pay a 2.6 cent per pound premium for hairless canaryseed, there is no incentive to grow the crop.

There is not a lot of month-to-month variation in the quantity of canaryseed which needs to be bought from farmers to cover export needs. Deliveries range between 7% and 9% of the annual export requirement in the August through February period. They typically increase in the March through May period, when an average 32% of all the canaryseed that is exported each season is bought from farmers.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January four out of the nine years. Interestingly, four out of nine times grower

bids made their season highs in August, the first month of the marketing year. Overall, there is a fair degree of volatility in prices throughout the marketing year. On average, the highest prices paid to canaryseed growers during the year are 53% above the lowest prices paid. The degree of change within a single marketing year ranges between a low of 15% and a high of 80%. When markets become volatile, prices move more quickly and by larger amounts. This emphasizes the need to approach selling with discipline. If prices are moving in an 80% range, it is easier to miss pricing targets than when they are moving within a 10% trading range between the high and low values for the six-month to one-year period. How are pricing targets missed? By believing that if canaryseed is worth 20 or 25 or 30 cents a pound today, imagine what it will be worth tomorrow.

World’s Top 10 Canaryseed Traders
(5-year average trading volume in metric tons)

| Exporters | Quantity | Importers | Quantity |
|---------------|----------|---------------|----------|
| Canada | 177,093 | Mexico | 44,501 |
| Belgium | 13,945 | Brazil | 29,748 |
| Argentina | 6,701 | Belgium | 27,067 |
| Hungary | 3,882 | Spain | 13,346 |
| United States | 3,299 | United States | 12,920 |
| Egypt | 1,883 | Colombia | 10,898 |
| Netherlands | 1,294 | Italy | 7,369 |
| India | 1,258 | Venezuela | 5,315 |
| Bulgaria | 1,067 | Peru | 5,041 |
| Ukraine | 560 | Portugal | 4,559 |

Source: United Nations Food and Agriculture Organization (FAO). This table shows the average annual trading volume for the period between 2006 and 2010.

Canada Canaryseed Supply and Demand

(acres, metric tons)

| | 2009-2010 | 2010-11 | 2011-12 | 2012-13 | Average |
|------------------|-----------|---------|---------|---------|---------|
| Area (acres) | 370,000 | 395,000 | 275,000 | 300,000 | 378,000 |
| Yield (lbs/acre) | 1,176 | 857 | 1,031 | 918 | 985 |
| Production | 197,400 | 153,500 | 128,600 | 124,900 | 167,400 |
| Carry In | 77,000 | 69,000 | 30,000 | 17,000 | 72,200 |
| Supply | 274,400 | 222,500 | 158,600 | 141,900 | 239,600 |
| | | | | | |
| Exports | 181,302 | 178,884 | 126,385 | 108,100 | 168,693 |
| Seed | 24,098 | 13,616 | 15,214 | 13,800 | 19,307 |
| Other Domestic | 205,400 | 192,500 | 141,599 | 121,900 | 188,000 |
| Total Usage | 69,000 | 30,000 | 17,000 | 20,000 | 51,600 |
| Ending Stocks | 34% | 16% | 12% | 16% | 27% |
| Stocks/Use | 7% | 43% | 30% | 43% | 17% |

In the above table, area is in acres; yield is pounds per acre; and all other numbers are in metric tons. The average is for the five year period between 2007-08 through 2011-12. Estimates are based on data from Statistics Canada. All forecasts are by STAT Publishing.

Canadian Canaryseed Grower

(CDN \$ cwt delivered plant Sask)

| Decile | 1987 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 5.50 | 0 | 13.50 |
| 1 | 9.00 | 1 | 17.00 |
| 2 | 10.25 | 2 | 17.50 |
| 3 | 11.34 | 3 | 19.00 |
| 4 | 12.10 | 4 | 20.00 |
| 5 | 15.00 | 5 | 23.00 |
| 6 | 17.25 | 6 | 24.50 |
| 7 | 20.00 | 7 | 26.75 |
| 8 | 24.50 | 8 | 27.25 |
| 9 | 29.00 | 9 | 29.25 |
| 10 | 42.00 | 10 | 33.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

Canadian Canaryseed Price Performance

(the darker the color the higher the price)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

Canadian Canaryseed Grower Average Price

(CDN cents per pound delivered plant Sask)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 21.80 | 10.56 | 9.75 | 10.50 | 17.20 | 28.10 | 20.69 | 18.69 | 27.88 |
| Sep | 17.50 | 14.44 | 9.05 | 10.85 | 19.00 | 25.02 | 18.75 | 20.75 | 26.85 |
| Oct | 18.10 | 11.65 | 8.75 | 13.75 | 21.12 | 22.20 | 17.60 | 23.50 | 27.19 |
| Nov | 17.31 | 12.00 | 8.50 | 16.60 | 22.50 | 19.62 | 20.12 | 24.06 | 27.06 |
| Dec | 16.00 | 11.15 | 8.35 | 17.62 | 22.75 | 17.75 | 19.50 | 24.50 | 27.25 |
| Jan | 16.00 | 11.25 | 8.62 | 17.44 | 23.50 | 17.30 | 18.88 | 28.44 | 27.12 |
| Feb | 16.56 | 10.04 | 9.00 | 17.25 | 29.00 | 18.88 | 18.06 | 29.25 | 26.56 |
| Mar | 16.44 | 10.00 | 8.25 | 17.50 | 31.00 | 17.88 | 17.00 | 28.00 | 26.25 |
| Apr | 16.30 | 10.06 | 9.19 | 17.62 | 30.00 | 18.12 | 15.40 | 26.85 | 27.25 |
| May | 16.50 | 10.56 | 9.75 | 17.50 | 30.20 | 18.45 | 13.88 | 26.50 | 27.44 |
| Jun | 15.12 | 10.69 | 9.95 | 17.50 | 30.12 | 20.06 | 15.81 | 26.75 | 26.75 |
| Jul | 12.15 | 9.90 | 10.00 | 16.50 | 29.81 | 19.95 | 18.95 | 27.60 | 24.19 |

Canada Canaryseed Movement From Farms

(the darker the color the more commercial demand)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

Canada Canaryseed Monthly Movement

(sales as a percent of the marketing year total)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 6% | 5% | 6% | 8% | 7% | 8% | 5% | 7% | 9% |
| Sep | 10% | 6% | 6% | 9% | 8% | 8% | 11% | 10% | 7% |
| Oct | 14% | 9% | 9% | 11% | 12% | 7% | 7% | 6% | 7% |
| Nov | 10% | 11% | 11% | 8% | 7% | 8% | 5% | 5% | 15% |
| Dec | 7% | 8% | 8% | 6% | 6% | 6% | 6% | 6% | 9% |
| Jan | 7% | 9% | 8% | 6% | 6% | 7% | 8% | 7% | 7% |
| Feb | 9% | 9% | 9% | 6% | 7% | 8% | 10% | 10% | 11% |
| Mar | 8% | 9% | 11% | 6% | 12% | 8% | 12% | 14% | 8% |
| Apr | 10% | 11% | 8% | 10% | 10% | 8% | 13% | 12% | 10% |
| May | 7% | 8% | 7% | 10% | 10% | 13% | 11% | 9% | 8% |
| Jun | 6% | 7% | 9% | 10% | 7% | 10% | 6% | 8% | 7% |
| Jul | 5% | 7% | 8% | 10% | 7% | 9% | 5% | 6% | 2% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

U.S. Canary Seed Movement From Farms

(the darker the color the more commercial demand)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | |
| Sep | | | | | |
| Oct | | | | | |
| Nov | | | | | |
| Dec | | | | | |
| Jan | | | | | |
| Feb | | | | | |
| Mar | | | | | |
| Apr | | | | | |
| May | | | | | |
| Jun | | | | | |
| Jul | | | | | |

U.S. Canary Seed Monthly Movement

(sales as a percent of the marketing year total)

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|
| Aug | 8% | 4% | 10% | 4% | 24% |
| Sep | 4% | 10% | 7% | 1% | 16% |
| Oct | 3% | 5% | 8% | 0% | 3% |
| Nov | 4% | 8% | 11% | 3% | 0% |
| Dec | 8% | 5% | 11% | 2% | 6% |
| Jan | 22% | 8% | 12% | 12% | 8% |
| Feb | 11% | 7% | 16% | 26% | 14% |
| Mar | 12% | 9% | 11% | 18% | 4% |
| Apr | 15% | 11% | 7% | 13% | 20% |
| May | 5% | 12% | 4% | 15% | 7% |
| Jun | 2% | 6% | 3% | 5% | 0% |
| Jul | 4% | 14% | 1% | 1% | 0% |

Millet

Most millet production in the world is for people. A small fraction of the crop is used in birdseed mixes. That use includes the seeds as well as the sprays or stems with the seed heads left intact.

Over 31 million metric tons of millet seed is grown in the world each year. India is the biggest producer, accounting for 37% of the world harvest. It is followed by Nigeria, which grows 18% of the world millet crop, Niger at 10%, China at 4%, Mali at 4%, Burkina-Faso at 3%, Uganda at 3%, and Russia, which grows an average 2% of the world crop. The United States, which is probably the largest producer of millet for the birdseed sector, accounts for just 1% of world production. Canadian production is insignificant.

While birdseed markets consume a small quantity of the millet consumed each year, that market accounts for a disproportionate share of the international trade. A significant portion of the imports by Belgium, Germany, Netherlands and the United Kingdom are used by birdseed packagers. Even so, the data suggests the majority of millet seed exported is destined for human consumption.

There can be significant year to year changes in millet seed production in the United States. This reflects the fact that it is the last crop planted on many farms, and only planted if farmers could not finish planting more economically important crops.

There is not a lot of month-to-month variation in the quantity of millet which needs to be bought from farmers each month to cover export needs. Deliveries range between 7% and 9% of the annual export requirement in the September through December period. They typically increase in the January through April period, when an average 41% of all the millet that is exported each season is bought from farmers.

From the 2003-04 through 2011-12 marketing years, grower bids set their season highs after January five out of the nine years. Only twice were the season highs established before December. The 2012-13 marketing year was also a season in which prices reached their highest point between January and the start of the next marketing year. It is also a season which saw millet establish new record high price levels. By February of 2013, grower bids had reached 41 cents pound for white proso millet delivered to elevators in the U.S. midwest. Before the start of the 2012-13 marketing year, the previous record high was 23 cents per pounds reached in April of 1994. It is rare for farmers to be paid more than 10 cents per pound for millet. In the quarter century since 1988, the season average grower bid for millet was below 10 cents per pound 19 out of 25 times.

Millet prices also experience a high degree of price volatility within individual marketing years. Over the long term, the highest grower bid has been on average, 53% above the lowest within each marketing year. The degree of change within a single marketing year ranges between a low of 20% and a high of 108%. Interestingly, markets have been more volatile since the 2007-08 marketing year than they were before. This reflects more volatility in seeded area and the fact farmers have not been under as much pressure to sell millet. They are covering their cash flow needs from the sale of corn, soybeans, wheat and other crops. This makes it easier for them to take a more disciplined approach to selling millet, in hopes of taking advantage of the strong seasonal

tendency for prices to peak between December and the end of the marketing year.

World’s Top 10 Millet Seed Traders
(5-year average trading volume in metric tons)

| Exporters | Quantity | Importers | Quantity |
|---------------|----------|-------------------|----------|
| India | 139,481 | Sudan | 29,750 |
| United States | 38,309 | Belgium | 28,073 |
| Ukraine | 32,037 | Germany | 20,491 |
| France | 23,932 | Yemen | 19,641 |
| China | 18,757 | Philippines | 18,558 |
| Russia | 15,053 | Arab Emirates | 17,947 |
| Thailand | 7,944 | Netherlands | 17,662 |
| Austria | 7,504 | Kenya | 15,902 |
| Netherlands | 6,854 | Republic of Korea | 15,864 |
| Australia | 6,721 | United Kingdom | 14,991 |

Source: United Nations Food and Agriculture Organization (FAO). This table shows the average annual trading volume for the period between 2006 and 2010.

U.S. Millet Grower
(US \$ cwt delivered plant ND/SD)

| Decile | 1989 to present | Decile | 2007 to present |
|--------|-----------------|--------|-----------------|
| 0 | 2.75 | 0 | 4.75 |
| 1 | 3.75 | 1 | 5.50 |
| 2 | 4.25 | 2 | 6.25 |
| 3 | 5.00 | 3 | 6.93 |
| 4 | 5.50 | 4 | 8.75 |
| 5 | 6.25 | 5 | 9.50 |
| 6 | 6.75 | 6 | 11.10 |
| 7 | 7.65 | 7 | 11.75 |
| 8 | 9.50 | 8 | 12.00 |
| 9 | 12.00 | 9 | 18.10 |
| 10 | 41.00 | 10 | 41.00 |

Deciles show the percentage of time prices were at or below a certain level. If current prices are between the decile 5 and 6 level, they were lower 50% of the time. Decile 10 is the record high price for the period and decile zero is the record low price.

U.S. Millet Price Performance

(the darker the color the higher the price)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The table above shows how markets performed during each marketing year. The more intense or darker the color, the higher prices were during the month. The table below shows the monthly average price for each year. Similarly, shading helps you see which months during the marketing year had higher prices and which months had lower average prices.

U.S. Millet Grower Average Price

(US cents per pound delivered plant ND/SD)

| | 2003- 2004 | 2004- 2005 | 2005- 2006 | 2006- 2007 | 2007- 2008 | 2008- 2009 | 2009- 2010 | 2010- 2011 | 2011- 2012 |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Aug | 5.92 | 5.25 | 6.56 | 7.12 | 9.15 | 10.65 | 5.50 | 6.38 | 12.12 |
| Sep | 6.21 | 5.12 | 6.35 | 7.00 | 8.12 | 8.88 | 5.45 | 6.69 | 12.30 |
| Oct | 5.57 | 5.15 | 6.19 | 8.19 | 8.88 | 6.25 | 5.43 | 7.50 | 11.44 |
| Nov | 5.81 | 6.31 | 5.81 | 8.65 | 9.00 | 6.00 | 6.25 | 8.75 | 11.50 |
| Dec | 6.00 | 6.80 | 5.50 | 8.62 | 9.00 | 5.12 | 6.95 | 8.95 | 11.75 |
| Jan | 6.00 | 6.44 | 5.62 | 8.56 | 9.40 | 5.30 | 6.88 | 10.00 | 11.69 |
| Feb | 6.44 | 6.12 | 5.69 | 8.88 | 11.38 | 5.50 | 6.50 | 11.62 | 11.75 |
| Mar | 6.75 | 5.05 | 5.50 | 9.50 | 12.50 | 5.50 | 6.56 | 11.75 | 11.75 |
| Apr | 6.95 | 4.88 | 5.50 | 9.50 | 12.38 | 5.50 | 6.65 | 11.25 | 11.94 |
| May | 6.88 | 5.69 | 5.56 | 9.25 | 11.75 | 5.50 | 6.50 | 11.50 | 13.38 |
| Jun | 6.62 | 5.94 | 6.30 | 9.70 | 11.88 | 5.50 | 6.44 | 11.75 | 15.05 |
| Jul | 5.60 | 5.75 | 6.62 | 10.06 | 11.75 | 5.50 | 6.25 | 12.20 | 19.00 |

U.S. Millet Movement From Farms

(the darker the color the more commercial demand)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | | | | | | | | | |
| Sep | | | | | | | | | |
| Oct | | | | | | | | | |
| Nov | | | | | | | | | |
| Dec | | | | | | | | | |
| Jan | | | | | | | | | |
| Feb | | | | | | | | | |
| Mar | | | | | | | | | |
| Apr | | | | | | | | | |
| May | | | | | | | | | |
| Jun | | | | | | | | | |
| Jul | | | | | | | | | |

The above table shows how export demand changes from month to month during each marketing year. The darker the color, the bigger the percentage of product shipped in an individual month. This shows you the intensity of demand within each marketing year. By putting the years side by side, it is possible to see if there are months when demand tends to be strong and when it tends to be weak. This helps with the timing of sales.

U.S. Millet Monthly Movement

(sales as a percent of the marketing year total)

| | 2003-2004 | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aug | 2% | 3% | 8% | 5% | 4% | 4% | 6% | 5% | 7% |
| Sep | 4% | 5% | 21% | 7% | 9% | 5% | 7% | 6% | 8% |
| Oct | 5% | 8% | 11% | 9% | 11% | 7% | 6% | 7% | 9% |
| Nov | 6% | 6% | 8% | 8% | 9% | 6% | 8% | 7% | 9% |
| Dec | 28% | 5% | 7% | 7% | 9% | 6% | 12% | 8% | 10% |
| Jan | 15% | 7% | 6% | 9% | 10% | 11% | 8% | 9% | 10% |
| Feb | 15% | 15% | 6% | 8% | 10% | 12% | 7% | 11% | 13% |
| Mar | 4% | 10% | 10% | 9% | 9% | 11% | 10% | 11% | 11% |
| Apr | 2% | 7% | 6% | 9% | 10% | 9% | 11% | 10% | 9% |
| May | 3% | 12% | 10% | 6% | 9% | 11% | 9% | 10% | 7% |
| Jun | 11% | 9% | 6% | 15% | 7% | 9% | 8% | 10% | 6% |
| Jul | 5% | 13% | 3% | 8% | 5% | 8% | 7% | 7% | 1% |

The above table shows monthly movement as a percentage of the entire marketing year's export movement.

“I’m a Pulse Producer and I’m Proud to Eat What I Grow!”

Every pea, lentil, dry bean or chickpea producer should proudly eat what they grow. That simple act is the secret to making sure the pulses shipped from your farm meet the needs of home-makers in Bogota and New Delhi; soup makers in New York City; five star restaurants in London; and canners in Spain. It is the secret to building a long term relationship between your farm and children all over the world who will grow up eating the food you produce and proudly eat.

Knowing whether you grow food or feed helps focus your marketing efforts. “The 20-Month Year” helps bring discipline to that effort. Movement heat maps help you understand the times when demand is most likely to peak. Price heat maps show you the rhythm that exists within and between marketing years. Deciles give a direct answer of just how good today’s prices are in relation to the history of the crop. Support and resistance calculations make it possible to figure out the current trading range for prices.

These are tools which help answer some of the questions farmers ask most often. When is demand hottest? Are today’s prices any good? Is waiting until next season riskier than selling now?