iGrow Soybean

BEST MANAGEMENT PRACTICES

Chapter 43:
Soybean Marketing

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Effective soybean marketing begins with understanding the fundamentals of the world and local soybean market complex. Being familiar with demand-users and sources of supply from both a world and local level can better enable a producer to anticipate changes in futures and local cash market prices. The value of a commodity is based upon its value to the end-user at a specific time and place and of certain quality.

This chapter is broken down into a discussion on world and local soybean supply/demand and logistics, United States grading, South Dakota historical price indexes, various marketing strategies to provide background for developing a marketing plan, and concludes with discussing the steps of developing a marketing plan. Table 43.1. provides a list of successful tips for marketing soybeans.

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Table 43.1. Keys to successful soybean marketing.

1. Understand your local and international markets.
   a. Produce soybeans that meet these markets.
   b. Understand transport costs to these markets.
2. Calculate net returns that include dockage.
3. Sell your soybeans at an appropriate time.
   a. Selling soybeans that are non-insurance covered soybeans contains risk.
   b. It is very difficult to time markets.
4. Develop a market plan.
   a. Calculate insurance covered soybeans.
   b. Estimate your yield.
   c. Calculate your cost of production and cash flow needs.
   d. Estimate selling price expected ranges.
   e. Develop a selling plan based on production costs and expected selling prices.

Historical Supply & Demand (World, United States, and South Dakota)

Major world suppliers of soybeans include the United States, Brazil, and Argentina. In the United States, the top soybean producing states have included Iowa, Illinois, and Minnesota (2008-2012, NASS). From 2008-2011, South Dakota has ranked 8th in the top producing states in the United States, while in 2012 South Dakota production is expected to be ranked 10th. The major importer of world soybeans is China.

Historical supply

World soybean production averaged 8.8 billion bushels in 2007-2012 (WASDE). The average distribution in the share of soybean production in the world can be seen in Figure 43.1. The major soybean producers of the world are the United States, Brazil, and Argentina comprising 82% of the average soybean production supply over the last five years. They have also accounted for 89% of the world exports, while Paraguay, Canada, and Uruguay collectively comprise 10% of world exports in the last five years.

United States soybean production has averaged 3.1 billion bushels in the last five years (USDA-WASDE, 2012). South Dakota has contributed approximately 5% of the total U.S. production (NASS; WASDE). Figure 43.2 shows where the soybean production is concentrated in South Dakota. In the last five years, South Dakota has averaged 4.2 million acres of harvested soybeans compared to an average of 4.7 million acres of harvested corn. Over the last five years, South Dakota averaged a soybean yield of 36 bushels per acre, while the U.S. soybean yield averaged 41 bushels per acre.

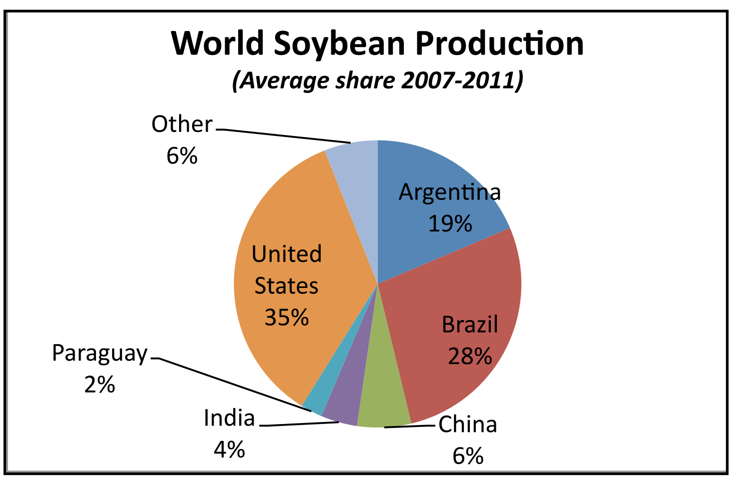

Figure 43.1. World soybean production (2007-2011).
(Data Source: USDA, FAS. Production, Supply and Distribution, http://www.fas.usda.gov/esrquery/esrq.aspx)

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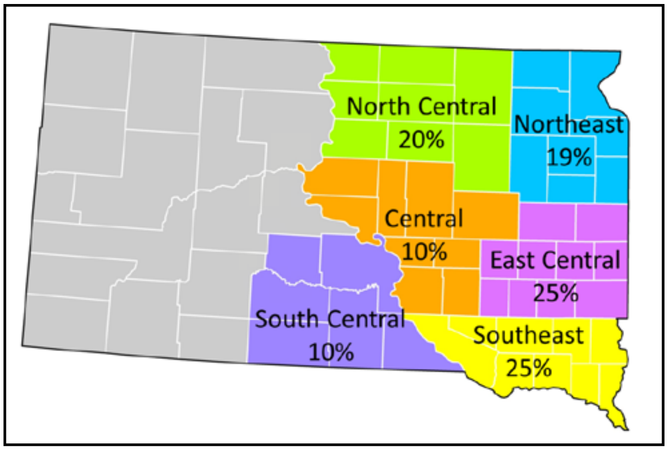

Figure 43.2. South Dakota regional soybean production (2007-2011). (Source: USDA-NASS)

Historical demand

In 2011-2012, China comprised 64% of the total world imports (USDA-WASDE, 2012). During this time, the EU-27 made up 12% of the world imports, followed by Mexico and Japan, comprising 3% and 4% respectively. Together China, EU-27, Japan, and Mexico comprised 83% of total world imports. U.S. soybeans are predominately exported (57%) to China (FAS, Export sales query). Collectively, Mexico, EU-27, Japan, Indonesia, Taiwan, and Egypt import 33% of U.S. soybeans (Fig. 43.3).

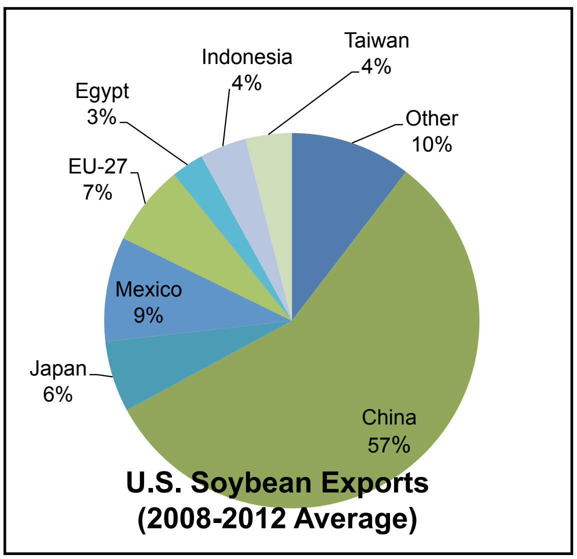

Figure 43.3. U.S. soybean exports (2008-2012).
(Data Source- USDA, FAS. Export Sales Query http://www.fas.usda.gov/esrquery/esrq.aspx)

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In 2006, according to Qasmi et al. (2010), 77% of South Dakota soybeans were handled by elevators (Fig. 43.4) and 88% of the elevator soybeans were sold to terminals and processors. Most of the soybeans sold to elevators are shipped out of the state, with 47% being shipped to the Pacific Northwest (Fig. 43.5). Foreign buyers, feed mills, Minneapolis markets, and others make up the remaining 12%.

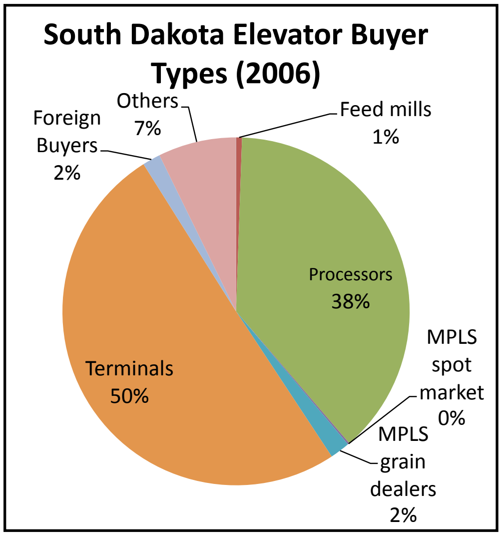

Figure 43.4. South Dakota soybean buyers (2006). (Source: Qasmi et al., 2010)

According to the survey results, the majority of soybeans handled by elevators are sold for export, with 47% going to the Pacific Northwest (PNW), while 35% are sold in the South Dakota area. South Dakota elevators sell 8% of their soybeans to the Minneapolis area.

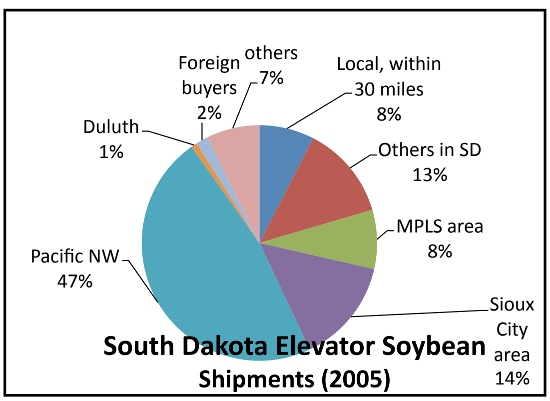

Figure 43.5. South Dakota elevator soybean shipments (2005). (Modified from Qasmi et al., 2010)

Soybean utilization

USDA World Agricultural Supply and Demand Estimate (USDA-WASDE, 2012) Reports over the past five years (2007-2011) estimated 54% of the U.S. total usage has been comprised of crushing soybeans, while exports comprised 43% of usage. Feed-to-total-usage averaged 4%. Comparing five-year averages to ten-year averages, crushing-to-total-usage decreased by 2% and feed to usage decreased by 1%, while exports increased by 4%.

Soybeans are primarily processed to produce crude soy oil and soybean meal. The soybean is comprised of about 18% oil and 35% protein. Soybean oil is used in foods and for industrial purposes, including biodiesel. Soybean meal is used in animal feeding of livestock, poultry, and dairy.

The structure of the soybean industry is shown in Figure 43.6. From 2007-2010, soybean oil domestic usage averaged 85% of production, while export usage averaged 15%. Biodiesel comprised 12% of total

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domestic usage (USDA-ERS, 2011a, 2011b, 2012a, 2012b). Soybean crude oil price at Decatur averaged 41 cents per pound from 2005-2010, a 37% increase from a ten year average. From 2006-2010, soybean meal domestic usage averaged 77% of production, while export usage averaged 23%. Soybean meal (48% protein) price at Decatur averaged 306 cents per ton from 2006-2010, a 23% increase from a ten-year average. Local soybean processors are provided in Table 43.2.

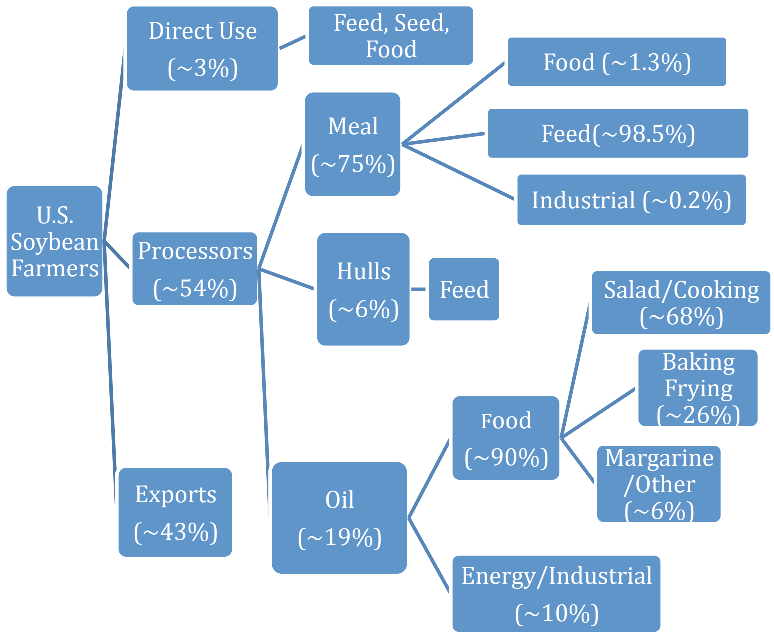

Figure 43.6. Structure of the U.S. soybean industry. (Source: USDA-WASDE, 2012; U.S. Census Bureau, 2010)

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Table 43.2. Regional soybean processors.

Process or Name	Location Mailing Address Phone	Website/Email Address
South Dakota		
South Dakota Soybean Processors	Volga, SD 100 Caspian Avenue Volga, SD 57071 (605) 627-9240	Website - http://www.sdsbp.com/ Soybean quotes - http://www.sdsbp.com/markets_beans.php Meal & Hull quotes - http://www.sdsbp.com/markets_meal.php Producer Protein Premium Program - http://www.sdsbp.com/markets_valuetrak.htm Soybean Discount Schedule - http://www.sdsbp.com/documents/DISCOUNT_SCHEDULE.pdf Email - postmaster@sdsbp.com
Minnesota		
Ag Processing Inc.	Dawson, MN (66 mi. from Watertown) 800 Diagonal Street Dawson, MN 56232 (320) 769-4386	Website - http://www.agp.com/ Soybean bids (select location) - http://agp.com/soybean/grainbids.asp Soybean Discount Schedule - http://www.agp.com/soybean/agpdiscountscheduleno1.pdf
Minnesota Soybean Processors	Brewster, MN (68 mi. from Sioux Falls) Box 100 Brewster, MN 56119 (888) 842-6677 or (507) 842-6677	Website - http://www.mnsoy.com/ Cash Bids - http://www.mnsoy.com/cash-bids Premium Program - http://www.mnsoy.com/quality-premium-program Discount Schedule - http://www.mnsoy.com/2010-discount-schedule Email - kim.collin@mnsoy.com
Iowa		
Ag Processing Inc.	Sergeant Bluff, IA (14 mi. from N. Sioux City) 2753 Port Neal Rd. Sergeant Bluff, IA 51054 (712) 943-4291	Website - http://www.agp.com/ Soybean bids (select location) - http://agp.com/soybean/grainbids.asp Soybean Discount Schedule - http://www.agp.com/soybean/agpdiscountscheduleno1.pdf
	Sheldon, IA (65 mi. from Sioux Falls) 804 2nd Sheldon, IA 51201 (712) 324-2531	
Cargill	Sioux City, IA 980 Clark Street Sioux City, IA 51101 (712) 279-1200 or 800-428-8527	Website - http://www.cargill.com/ Cash Bids (select location) - http://www.cargillag.com/marketing/localbidscenter.aspx
Nebraska		
Coleridge Grain	Coleridge, NE (53 mi. from N. Sioux City) 101 E Cedar Street Coleridge, NE 68727 (402) 283-4247	
Grain States Soya, Inc.	West Point, NE (68 mi. from N. Sioux City) 400 Johnson Road, PO Box 157 West Point, NE 68788 (402) 372-2429 or (800) 422-4697	Website - http://www.soybest.com/about/

Logistics and transportation costs
Besides local processing and by-product demand, export demand is a critical component in the soybean selling price. For South Dakota to be competitive in the world market the cost of importing soybeans must be competitively priced. Differences between South Dakota and Brazil are also related to different production timelines and shipping costs. Harvest in Brazil typically occurs in March while harvest in South Dakota occurs in October. South Dakota soybeans can be shipped from the state to an export terminal by truck, rail, and river.

The costs of shipping soybean from various locations in North Dakota, South Dakota, Iowa, and Minnesota to China are examined below (Fig. 43.7). The U.S. location will be compared with exporting soybeans from Mato Grosso though the Port Santos and from Goiás through the Port Paranaguá (Fig. 43.8).

In Figure 43.8, Mato Grosso is identified by a yellow circle around "MT" with the associated Port de Santos shown with a yellow dot. Goiás is shown by a red circle around "GO" with the associated Port de Paranaguá shown with a red dot. Comparing U.S. destinations, soybeans exported through the PNW have a higher transportation cost than soybeans exported through the Gulf.

Comparing U.S. to Brazil originated soybeans, Brazil's higher transportations costs are due to higher trucking costs to get soybeans to the port and an ocean freight costs to transport the soybeans to China (Fig. 43.7).

For these locations, the lowest cost soybeans for China would be the Goiás-South Brazil, followed respectively by Iowa (Gulf), North Dakota (PNW), Minnesota (Gulf), South Dakota (PNW), and Mato Grosso-Brazil North. On average, U.S. soybean producers receive approximately 14% more value at the farm gate than South American producers. U.S. producers whose soybeans are exported through the Gulf of Mexico receive about 2% more than producers whose soybeans are exported through the Pacific Northwest (PNW).

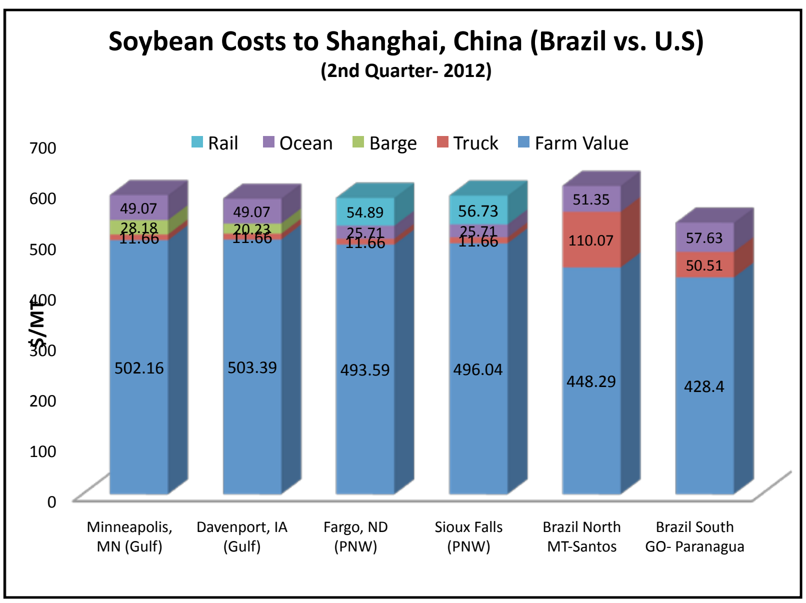

Figure 43.7. Soybean costs to Shanghai, China (Brazil vs. U.S.). (Data Source: USDA AMS)

The changes in U.S. and Brazil soybean costs to Shanghai, China, from 2011 to 2012 are shown in Figure 43.9. Many factors influence the overall cost of soybean transport to China. These factors include the farm value and collective transportation costs to the final destination. Transportation costs vary over time and are a function of fuel, labor, rail car and barge availability, and port fees. Transportation costs also change due to infrastructure investments.

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Figure 43.8. Brazil region and ports. (Department of Ports, Brazilian Government. Retrieved from http://www.portosdobrasil.gov.br/sistema-portuario-nacional, October 2, 2012)

Figure 43.9 shows the change in overall costs to China in green. The overall change in cost to China can be segregated into the changes in farm value (shown in blue) and transportation costs (shown in red). Transportation costs of U.S. soybeans exported through the Gulf have decreased 10%, mainly due to lower costs of using the river barge system. Transportation costs remain nearly unchanged for U.S. soybeans exported through the PNW. This is due to the decrease in ocean freight costs that has been nearly offset from an increase in rail and trucking costs. The lower transportation costs for Brazil from 2011 to 2012 are attributed to reduced trucking costs.

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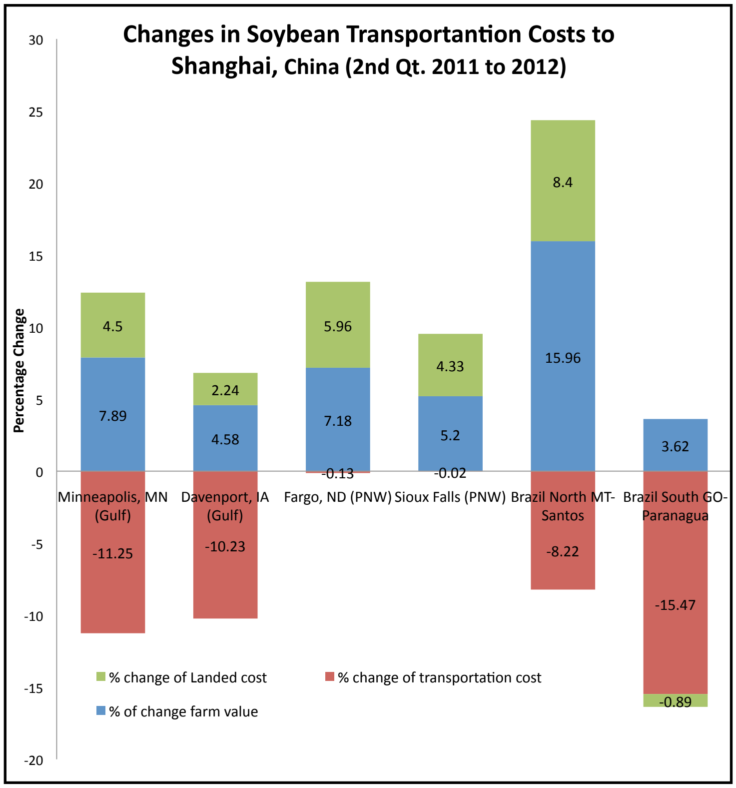

Figure 43.9. Changes in soybean transportation costs to China. (Source: USDA-AMS, 2012)

Delivery

The Grain Inspection, Packer & Stockyard Administration of the USDA develops the quality standards for soybean grades. These standards include minimum test weight and maximum percentage limits of damaged grains and maximum percentage limits of foreign matter. The USDA soybean grading standards can be seen in Table 43.3.

Quality standards include moisture, test weight, heat damage, total damage, and foreign material. By knowing the quality levels, producers can compare the processor and elevator discounts and premium schedules. First, the cash bids of the various outlets can be compared and the discounts/premiums can be calculated. It is important to understand that buyers have different discount schedules for different quality standards. For example, some buyers have higher discount rates for moisture levels while another buyer may have higher dockages for heat damage. If producers are producing higher protein and oil content soybeans, they should investigate if a premium schedule for quality is available.

Consider this: the highest cash bid minus any transportation/labor costs may not always provide the highest net price available. The example shown in Problem 43.1 shows how Buyer A has a cash bid of $15.00, while Buyer B has a cash bid of $14.80. This example assumes that transportation costs to both Buyer A and Buyer B would be equal. Without taking into account the buyers' discount schedule, Buyer A looks like the best option; however, further examination shows that based on quality discounts, Buyer B has the highest net price.

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Table 43.3. USDA Soybean Grading Standards. (Source: USDA-GIPSA, 2012)

	Grade U.S. Nos.			
Grading Factor	1	2	3	4
Minimum Pound Limits of:				
Test Weight (lbs/bu)	56	54	52	49
Maximum Percent Limits of:				
Damage kernels				
Heat (part of total)	0.2	0.5	1	3
Total	2	3	5	8
Foreign material	1	2	3	5
Splits	10	20	30	40
Soybeans of other colors[1]	1	2	5	10
Maximum Count Limits of:				
Other material				
Animal filth	9	9	9	9
Castor beans	1	1	1	1
Crotalaria seeds	2	2	2	2
Glass	0	0	0	0
Stones[2]	3	3	3	3
Unknown foreign substance	3	3	3	3
Total[3]	10	10	10	10

*U.S. Sample grade
Soybeans that:
(a) Do not meet the requirements for U.S. Nos. 1, 2, 3, or 4; or
(b) Have a musty, sour, or commercially objectionable foreign odor (except garlic odor); or
(c) Are heating or otherwise of distinctly low quality.
[1]Disregard for mixed soybeans.
[2]In additon to the maximum count limit, stones must exceed 0.1 percent of the sample weight.
[3]Includes any combination of animal filth, castor beans, crotalaria seeds, glass, stones, and unknown foreign substances. The weight of stones is not applicable for total other material.

Delivery contract specifications – Chicago Mercantile Exchange (CME)

On soybean futures, the CME provides specification in contract size and deliverable grade. The contract size is 5,000 bushels and the deliverable grade is #2 Yellow at contract price, #1 Yellow at 6 cent/bushel premium, and #3 Yellow at a 6-cent/bushel discount. The CME Globex (Electronic Platform) is open 5:00 p.m. through 2:00 p.m. from Sunday through Friday (Central Standard Time). Open outcry (trading floor) is open from 9:30 a.m. to 2:00 p.m. Monday through Friday. However, for major USDA crop reports, such as the WASDE, open outcry starts at 7:20 a.m. Currently, soybean daily price limits are at $0.70 per bushel, but can be expandable if the market closes at the limit bid or offer.

Historical and Forecasted Prices

South Dakota historical prices

Figure 43.10 provides monthly prices received by South Dakota producers from January 1997 through October 2012. Price peaks were seen in May 1997 ($8.13/bu), May 2004 ($9.61/bu), June 2008 ($12.90/bu), May/June 2011 ($12.90/bu), and August 2012 ($16.00/bu). Lows between these price peaks were observed in July 2000 ($3.95/bu), September 2006 ($4.95/bu), March 2009 ($8.90/bu), and December 2011 ($11.10/bu).

Table 43.4 shows that soybean prices have large seasonal variability. Seasonality is related to the production cycle of a commodity, which influences the supply and demand levels. Typically, it would be expected that prices would be lowest during the harvest months (September and October) when usable supplies become

Problem 43.1 Where should you sell your grain?

Producer Soybean Quality

Moisture: 13.1%
Test Weight: 54
Total Damage: 4.1%
Heat Damage: 1.6%
Splits: 22%
Foreign matter (corn): 5%
Other colors: 1%

Buyer A

Bid price	$15.00
Total Dockage	$0.87
Net Bid	$14.13

Buyer B

Bid price	$14.80
Total Dockage	$0.54
Net Bid	$14.26

abundant. Prices would be expected to increase as supplies are drawn down (November through January) and producer selling slows. Then prices would increase at a slower rate or level off during (February through June) as southern hemisphere harvest begins (e.g., Brazil and Argentina) and export demand shifts to the more available supplies in the southern hemisphere.

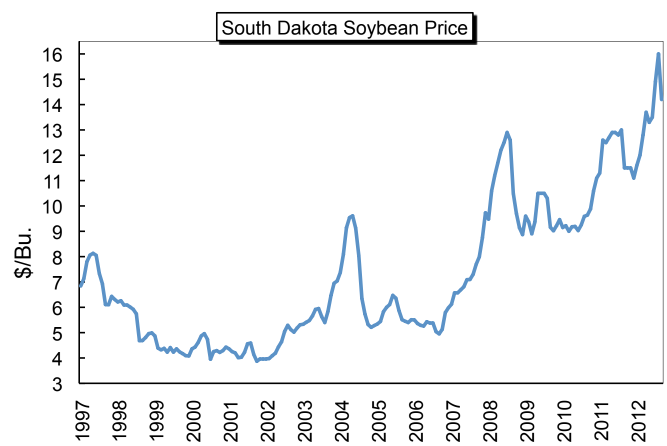

Figure 43.10. South Dakota soybean prices received by producers, 1997-2012. (Source: USDA- NASS-2012)

It is expected that prices would increase once again when inventories are at the lowest levels, before new crop supplies are realized (July and August). The last two columns of Table 43.4 show the 10-year and 5-year average seasonal prices. The ten-year average shows the lowest price in September and October and increases each month after until a decrease is shown from July to August. The five-year average shows the lowest prices in September and October and increases each month after.

Seasonal price indexes the movement of monthly prices around the average annual price. The average annual prices were given an index value of 100, while monthly indices where a percentage of the annual averages. Monthly index values were calculated for each year, and then averaged over a ten- and five-year period. Table 43.4 shows a ten-year (2002-2011) and five-year (2007-2011) seasonal index.

The ten-year and five-year price indices show a similar pattern for South Dakota from September through June, with October being the seasonal low and increasing through June. The five-year average index (2007-2011) deviates from the ten-year average (2002-2011), by increasing from June through August; while, the ten-year average index shows a decrease in prices. This deviation could be due to ending stocks in the

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Table 43.4. South Dakota seasonal average soybean prices, 2002-2011.
(Source: USDA-NASS, 2012)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Average 2002-2011	Average 2007-2011
Sep	5.12	5.83	573	5.51	4.95	7.70	10.50	9.16	9.64	11.50	7.56	9.70
Oct	5.02	6.47	5.32	5.45	5.13	7.99	9.71	9.02	9.88	11.50	7.55	9.62
Nov	5.18	6.95	5.21	5.40	5.79	8.74	9.14	9.22	10.60	11.50	7.77	9.84
Dec	5.31	7.04	5.28	5.51	5.98	9.73	8.87	9.46	11.10	11.10	7.94	10.05
Jan	5.33	7.37	5.34	5.50	6.12	9.48	9.60	9.15	11.30	11.60	8.08	10.23
Feb	5.41	8.08	5.44	5.36	6.57	10.60	9.37	9.22	12.60	12.00	8.47	10.76
Mar	5.48	9.14	5.83	5.29	6.57	11.20	8.90	9.00	12.50	12.80	8.67	10.88
Apr	5.66	9.54	6.00	5.26	6.69	11.70	9.37	9.18	12.70	13.70	8.98	11.33
May	5.92	9.61	6.11	5.43	6.81	12.20	10.50	9.19	12.90	13.30	9.20	11.62
Jun	5.95	9.12	6.47	5.38	7.09	12.50	10.50	9.03	12.90	13.50	9.24	11.69
Jul	5.63	8.04	6.36	5.38	7.10	12.90	10.50	9.25	12.80	14.90	9.29	12.07
Aug	5.40	6.35	5.87	5.04	7.30	12.60	10.30	9.59	13.00	16.00	9.15	12.30
Avg.	5.45	7.80	5.75	5.38	6.34	10.61	9.77	9.21	11.83	12.78	8.49	10.84
Low	5.02	5.83	5.21	5.04	4.95	7.70	8.87	9.00	9.64	11.10		
High	5.95	9.61	6.47	5.51	7.30	12.90	10.50	9.59	13.00	16.00		

five-year average being 28% less than the ten-year average, resulting in tighter supplies until the new crop supplies start to be realized. The five-year index shows that highs are generally observed in August, while the ten-year index shows the seasonal highs generally occur in July. Both indices show that seasonal lows generally occur in September.

Figure 43.11 shows the standard deviation around the ten-year average (2002-2011) seasonal index. The standard deviation shows the consistency in the seasonal pattern. The outer lines in Figure 43.12 show one standard deviation above (blue) and below (green) the seasonal index values. This range indicates where prices are expected in two out of three years. The greatest uncertainty in price in relationship to the ten-year average occurs in August, September, and October when total production is determined by weather and production information from USDA-WASDE and USDA-NASS. December, January and February is when there is historically less price uncertainty, since supply and demand fundamentals in the U.S. are fairly well known. Understanding the seasonal trends and price risk associated with certain months can be used to help develop a marketing plan.

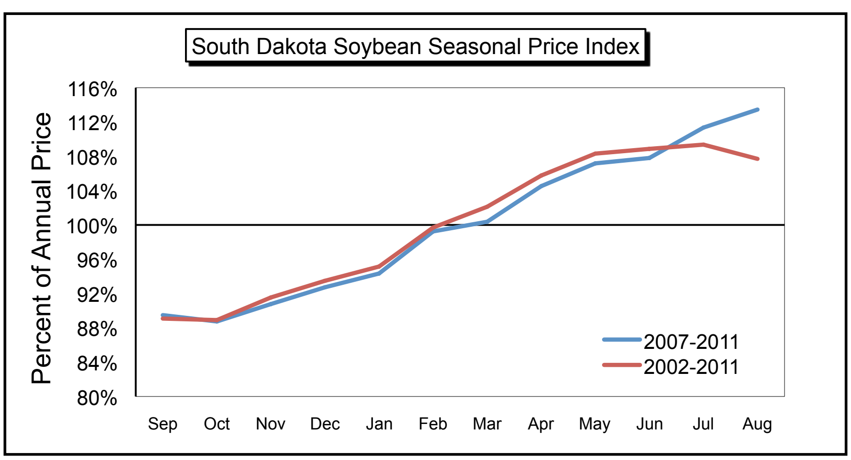

Figure 43.11. South Dakota average seasonal price indices. (Source: USDA-NASS, 2012)

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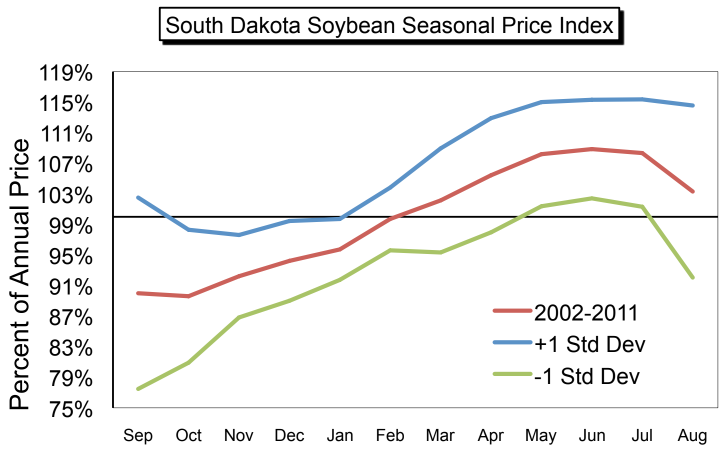

Figure 43.12. South Dakota seasonal price variability. (Source: USDA-NASS, 2012)

Forecasted prices

Prices are based on three values: demand, supply, and carry over. Estimated world supply and demand are provided monthly by the USDA-World Agricultural Outlook Board (WASDE). To see current and historical WASDE reports, visit the WASDE website at http://www.usda.gov/oce/commodity/wasde/.

Many firms try to project future prices, including marketing firms and university institutions. One example of a university institution that forecasts commodity prices is the Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri. In early March, FAPRI releases their baseline projections for the marketing year. The FAPRI U.S. Baseline Briefing Book includes a ten-year baseline projection for U.S. agricultural commodities. The baseline projection is developed by considering 500 alternative outcomes based on different assumptions about weather, oil, GDP growth, and other crucial factors that influence supply and demand and price for commodities. It is important to understand that actual market prices can vary from the projected average prices.

The USDA-Economic Research Service (ERS) also publishes agricultural prices projections through 2021. USDA-ERS developed its projections by making specific assumptions regarding the macroeconomic indicators, agricultural policy, weather, and international factors. This is a different procedure than FAPRI. USDA-ERS and FAPRI can produce very different price projections (Table 43.5). These price estimates are released at different times, with FAPRI being released in August, while ERS projections being released in February.

Table 43.5. FAPRI and USDA-ERS projected U.S. soybean prices 2012-2018.
(Data Source: FAPRI & USDA, ERS Projections)

	Marketing Year (September-August)					
	2012-2013	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
FAPRI	16.27	11.28	11.05	11.26	11.41	11.57
USDA-ERS	11.00	10.30	10.55	10.70	10.80	10.90

Developing a Marketing Plan

Step 1: Estimate the quantity of crop to be produced.

The grain marketing plan starts with the crop production plan. Estimate the acres and yield of soybeans to be produced. Consider purchasing crop insurance. The crop insurance reduces the financial risk of selling your crop ahead of harvest. You will want to take into account the level of coverage that you will have on your crop. Use the production plan and crop insurance plan to determine insurance covered bushels and uncovered bushels. Further information on insuring soybeans can be found in Chapter 46.

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Problem 43.2. Determine the amount of covered vs. uncovered soybeans for a revenue protection plan (RP).

- 1,000 acres of soybeans
- Expected yield: 50 bushels per acre
  - ▹ Based on estimated yields (Chapter 41)
  - ▹ Total projected production: 50,000 bushels
- Actual Production History (APH) = 40 bushels per acre
- APH bushels: 40,000 bushels
- Insurance coverage level 75% Revenue Protection (RP)

Crop insurance covered bushels
1,000 acres x 40 bushels per acre x 75% RP = 30,000 bushels

At a $10/bu selling price
30,000 bushels × $10/bushels = $300,000

If you harvest 20,000 bushels then,
$200,000 is provided by the market and $100,000 is provided by insurance

Coverage allows covered bushels may be more aggressively priced than uncovered soybeans.
Uncovered bushels:
50,000 – 30,000 = 20,000 bushels

Marketing these bushels prior to harvest contains risks because soybeans are not covered.

Step 2: Estimate cost of production and cash flow needs.
Develop a new crop budget for your soybean crop. Use total cost of production including overhead allocated to the soybean crop (Chapter 56). The cost of production estimate may be used to establish prices required to meet your target profit or return on investment goals.

The cash flow requirements are different than profit. The farm's cash flow needs may be greater or less than the total costs of production depending on the financial and ownership position of the farm. Establish prices needed to meet cash flow needs.

Step 3: Evaluate expected average price range.
Use FAPRI, USDA-WASDE, or a private marketing service to arrive at the price outlook for the marketing year. Futures contract price charts may be used to establish price ranges. Soybean futures prices can be seen at the Chicago Mercantile Exchange (CME) website. http://www.cmegroup.com/trading/agricultural/

When developing an expected price range, historical seasonal and basis patterns should be incorporated. South Dakota basis information can be found on the extension.sdstate.edu website. This information, updated weekly, provides basis information for regions of South Dakota that includes current basis levels, along with past year levels, and a five-year average. This information is updated weekly on https://extension.sdstate.edu/agriculture/agbusiness.

To monitor day-to-day basis changes in a local area, private websites, such as Agweb, list basis below the current futures prices on the front page of the website. You can obtain the past day's cash bids for a local area according to the zip code entered. Throughout the year as supply and demand fundamentals change, you should adjust their expected price objective. http://www.agweb.com/

The National Agricultural Statistics Service (NASS) of the USDA releases reports throughout the year that include: Acreage, Crop Production, Grain Stocks, and Crop Progress & Condition. The reports can be found at the NASS website. In addition, NASS has reports covering the livestock sector. Also, export figures can be monitored by accessing the Foreign Agricultural Service (FAS) of the USDA's website. http://www.nass.usda.gov/Publications/; http://www.fas.usda.gov/data.asp

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Step 4: Create a price protection and selling plan.
Using the cost of production (Chapter 56), the cash flow needs and price outlook can be estimated. In this planning use realistic objective measures (achievable with good likelihood) to write your selling plan (price, amount of production to be sold, time of execution (i.e., November, March, May) and determine return on investment goals. By setting price and target date objectives some of the emotion can be removed from the crop selling process. Once you have determined the necessary cash needs and return on investment goals, determine where your future marketing risk exists and how much risk you're willing to bear.

To determine the future marketing risk, make notes of your own and other forecasters' estimates for price projections (averages and ranges) from Step 3. Extrapolate what you believe the price risks will be in the future given current market prices, and determine how confident you are in your projections.

1. Do you believe futures price is likely to increase, decrease, or remain in the same range?
2. Do you believe basis will narrow, widen, or remain average to futures price?
3. Determine the amount of risk you're willing to bear to meet your return on investment goal. For example, does the current market price meet your return on investment goals (Y/N)? If not, how likely is it that prices will reach a level that would?
4. If the current price meets your goal, do you want to eliminate all risks or carry some upside risk in the event that prices do increase?
5. Once you have established your potential risk and what risk you're willing to bear, then you can choose the optimal pricing tool and marketing strategy.

There are numerous combinations that can be employed to manage risk. Identifying the optimal strategy or tool can help determine your risk. It is important to note that doing nothing is also a strategy, typically assuming higher risk. Lowering your risk is removing adverse movements in the value of the product that you have in inventory or that you are or will be producing in the future. Table 43.6 outlines possible market forecasts for futures and basis levels, willingness to bear risk (risk-taker vs. risk adverse), and possible marketing strategies and tools. Table 43.6 does not represent an exhaustive list, just an illustration that all possible market scenarios have a corresponding marketing strategy and tools given a producer's willingness to bear risk in managing return on investment.

Multiple marketing tools exist to remove risk. Examples include: cash sales, minimum price contracts, forward hedging, basis contracts, option strategies (puts and calls, straddles, strangles, delta spreading), hedge to arrive contracts (HTA), price later contracting, etc. A cash sale, or spot market contracting, is maintaining ownership in the product until a transfer is made at the prevailing market price of that specific day minus storage fees if the product was stored in commercial or rented facilities. Minimum price contracts are contracts that lock in a basis bid for a specific quantity, delivery period, and minimum price that can be achieved at that time. Minimum price contracting is essentially the same as locking in basis and buying a put option.

Hedge-to-arrive (HTA) contracts, or hedging, is selling a futures contract in a specific month of delivery for a specific quantity and price; basis is not determined until at delivery however. A forward contract is the same as an HTA, but you also lock in basis. Price later contracting is giving the rights to ownership of the grain to the buyer, but reserving the right to determine amount of payment or price at a later date. This allows commercial storage facilities to move the product and eliminate storage costs to the seller; however, the seller's rights would resemble more of a loan to the buyer. Depending on the financial soundness of the buyer to pay the loan, price later contracts may create added financial risk.

Put options are contracts that stipulate the owner of the option has the right to sell at a specific price (strike price) in a specific delivery period. Call options are contracts that stipulate the owner of the option has a right to buy at a specific price (strike price) in a specific delivery period. Owners of options (buy a call or buy a put) can choose if they want to exercise the option or allow it to expire at the specified date of

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expiration (Option expiration day). If the prevailing market futures price offers a more beneficial outcome for the owner of the option, then they can choose not to execute the option. If the option is more beneficial than the prevailing futures market price, then the option owner can execute the option or sell the option to someone who would use it.

As options approach the specified expiration date, they lose their extrinsic value and approach the intrinsic value (time-decay). Extrinsic value is the premium or added cost to having an option to execute or not, over the prevailing market price (intrinsic value). Near-the-money or in-the-money are options that would likely be exercised given prevailing current futures market prices (have value on expiration date). Out-of-the money options would not be exercised given current futures market prices (valueless if current prices remain the same on option expiration day). Most marketing contracts have some costs of implementing or marketing fees. Trading on your own account or through a broker will require additional money to maintain margin calls, etc.

Options can be used in a number of strategies to enhance returns on investment and remove risk. For example, producers can purchase a put option that gives them the right to sell at a specific strike price during a specific delivery period. Typically, out-of-the-money puts are purchased to reduce the risk of a decreasing futures market at a later period—meaning the current futures price exceeds the strike price of the deferred put option.

Depending on what strike price one elects, the prevailing futures market price of the day, how much volatility and uncertainty there is, and how far out the option contract is, the cost to purchase can vary. If the futures market price increases, then the put option loses value or becomes cheaper to purchase, particularly as the option reaches the date of expiration. However, if the futures market price decreases then the put options gains value. If the futures market is higher than the put option strike price on expiration date then it will retain the value of the difference between the strike price and the futures price.

More sophisticated options strategies can be utilized by producers to remove a position on a commodity in possession, but to enhance returns if the price of the commodity changes substantially, or doesn't change substantially. An example would be producers trying to capitalize on historical volatility in August through

Table 43.6. Market forecasts: futures, basis, willingness to bear risk, and marketing strategies.
(Source: L. Elliott, SDSU)

Market Forecast			
Future Price	**Basis Level**	**Willingness to Bear Risk**	**Marketing Tool/Marketing Strategy**
Increasing	Narrowing	High (Risk-Taker)	Store and wait for better Cash Prices
Increasing	Narrowing	Low (Risk Adverse)	Buy Put Options or Minimum Price Contracting
Increasing	Widening	High	Basis Contract or sell cash and buy a call
Increasing	Widening	Low	Basis Contract and buy puts
Neutral	Average	High	Store and wait for cash prices on high end of range, sell near the money calls (Covered Calls)
Neutral	Average	Low	Store and wait for cash prices on high end of range, sell out of the money calls
Decreasing	Narrowing	High	Store and sell near the money calls
Decreasing	Narrowing	Low	Store and buy puts or hedge to arrive (HTA)
Decreasing	Widening	High	Buy puts and do basis contract, minimum price contracting
Decreasing	Widening	Low	Hedge futures and basis, forward contracting, sell cash
Unknown but volatile	Narrowing	Low	Hedge futures, use Option Straddles and Strangles to gain a return on volatility, and store grain to capture improving cash basis
Unknown but stable	Narrowing	Low	Hedge futures, use Delta spreads to achieve a return on price stability, and store grain and capture improving cash basis

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October by hedging their production (selling futures) and buying a call and buying a put at equivalent strike prices (long straddle) to enhance returns on wide (volatile) movements in price when unknown supply information is determined and incorporated in the market price.

This type of strategy allows the producer to remove all risk to the change in the price of commodity, and limit risk to the costs of the options. But using this strategy the producer can still enhance returns on investment if the futures market increases or decreases substantially from the option strike prices. In this case, the producer has taken no position on the underlying commodity, but has taken a position on volatility of that commodity.

U.S. soybean producers – usage of marketing contracts

The percent of U.S. soybean producers that utilize some form of contracting that incorporate some of the previous discussed strategies was 34%, in 2008, according to the ERS publication by MacDonald and Korb. Contracting is defined as operations that reach agreements prior to harvest on outlet and pricing mechanism. The producers who used contracting in this context would on average contract 54% of their soybeans. However, this implies that 66% of operations did not use contracting (agreements prior to harvest).

The usage of different marketing strategies among producers who use contracts and those who do not are shown in Table 43.7. The marketing strategies of those who used contracting included using on-farm storage, farmer-owned cooperative, futures, and options strategies. About 29% of producers who use contracts use the futures exchange, while 14% use the options markets. 53% of the producers who did not use contracting (agreements prior to harvest) used the spot markets as their only marketing strategy and are not using options, future, or farmer-owned cooperatives.

Table 43.7. Use of alternative marketing strategies by U.S. soybean producers in 2008. (Source: USDA, Economic Research Service using data from USDA's Agricultural Resource Management Survey, 2008, version 1)

	Options	Futures	On-farm Storage	Farmer-owned Cooperative	Spot Markets Only
	Share of farms using strategy (percent)				
Contract	13.8	28.5	63.2	54.8	0
Noncontract	7.1	9.1	51.1	43.1	52.6

Note: "Spot markets only" is defined as farms that do not use marketing contracts, options, futures, or farmer-owned cooperatives.

Table 43.8 shows the soybean prices received and quantities marketed through contracting. In 2008, the average contract price received for soybeans was $10.85 per bushel, while USDA/NASS mean equaled $9.97. It needs to be noted that this data only includes information for one marketing year. In addition, the NASS data is monthly, while the ARMS data is annual. The two surveys cover different grades and qualities and respondent sample differences may exist. The average amount contracted (prior harvest) was 6,580 bushels.

Use caution when comparing NASS and contract prices for the reasons described previously. As described in the ERS publication by MacDonald and Korb, Figure 43.13 shows that:

> "contract prices remain above NASS prices when NASS prices are stable or falling, and they fall below them when NASS prices are rising. As NASS prices rose sharply in 2007, they also rose above contract prices; but contract prices received a premium in 2008 as NASS prices fell late in the year." (page 28)

This may suggest that higher prices may be achieved through using marketing contracts (prior harvest) when prices are expected to decrease over a period, while non-contracting may result in higher prices received when prices are expected to increase over time. However, using a non-contracting strategy also results in producers bearing more price risk.

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Table 43.8. Soybean prices and quantities in marketing contracts, 2008. (Source: USDA, ERS. Agricultural Contracting Update, Table 15)

Item	
Price received per unit ($/bu.)	
USDA/NASS mean, all sales	9.97
Contract mean	10.85
Contract 25th percentile	9.62
Contract 75th percentile	12.00
Quantity marketed through contract (Bushels)	
Median	3,000
Mean	6,580
25th percentile	1,200
75th percentile	7,000

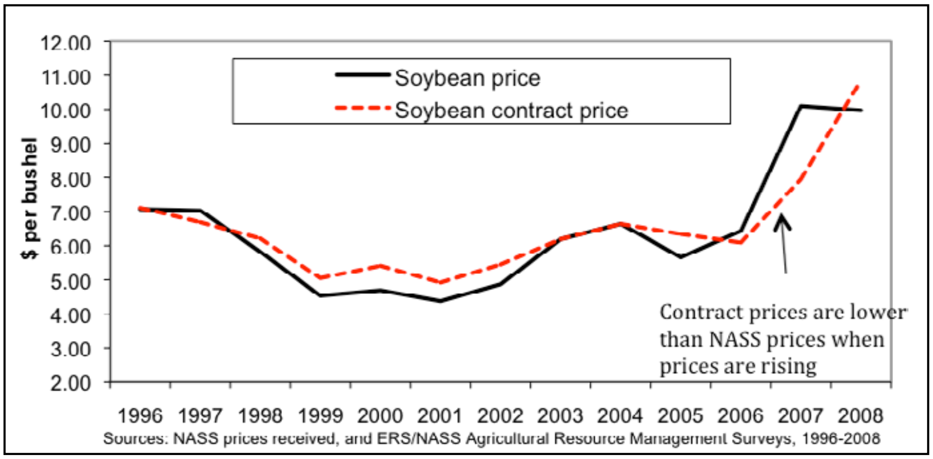

Figure 43.13. Soybean contract prices lag NASS prices. (Source: USDA, ERS. Agricultural Contracting Update, Figure 5, "Soybean contract prices lag NASS prices," p. 27)

Step 5: Monitor and evaluate the plan.

The marketing plan should be monitored and evaluated through the marketing year and adjusted appropriately in accordance to changes in production, cash flow needs, and price outlook.

Conclusion

Successful soybean marketing involves considerable labor and analytical input.

First, know supply and demand fundamentals in both the world and local soybean market complex. You should understand your own, local, state, and national competitive advantage in the soybean market complex as it relates to export demand and domestic consumption. Also, know how the value that can be achieved at the farm gate is dependent on logistical costs and capacity.

Second, know the historical tendencies of futures prices and basis during seasonal periods and how they deviate due to changes in supply and demand fundamentals. Once these factors are better understood, a marketing plan should be developed that assesses production, quality of production, cash flow needs, ability to store, interest rates, and required labor. You should combine your own understanding of supply and demand fundamentals with other forecasters, or market participants, to determine likely average prices and ranges in the marketing year.

Third, determine what risk you are willing to bear and what marketing tools best optimize their return on investment given their market forecast and willingness to bear risk.

Finally, marketing plans should constantly be updated and evaluated to determine if market forecasts were correct, or if there is more risk than you are willing to bear. The speed in assessing and altering a plan that was incorrect is as important as implementing the initial plan. It should be recognized producers appear to be able to reduce their risk and achieve higher returns by implementing a sounder marketing plan.

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