



BEST MANAGEMENT PRACTICES

Chapter 44:  
Alternative Markets – Specialty  
Soybeans



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Every year new specialty markets become available to producers. However, prior to growing soybeans for these markets, we recommend that arrangements be developed. The purpose of this chapter is to provide an overview of alternative markets and to provide contact information. Keys for identifying new soybean markets are provided in Table 44.1.

**Table 44.1. Keys for alternative markets.**

1. The majority of South Dakota soybeans are categorized as "commodity beans" that are primarily used for edible oil and animal feed.
2. During the crushing process, about 80% of commodity soybeans become soymeal for animal feed and 20% become soy oil.
3. Currently, food-grade soybeans are one of the most desired specialty soybeans in the U.S.
  - a. Specialty soybeans require specific shapes, protein content, oil and sugar concentrations, and other characteristics that are required for human consumption.
  - b. Soybeans raised for tofu production often require higher protein (40% or higher) and lower oil concentration.
4. South Dakota soybean growers who are interested in exploring specialty soybean markets are encouraged to contact nearby processors or companies for contract opportunities.

## Soybean production and current markets

Starting in the late 1960s, the U.S. experienced widespread, rapid soybean production growth. Today, soybeans have become one of the most important commodity crops grown in the United States. Farmers in the Midwest often rotate the cultivation of corn and soybeans to reduce pest pressure and reduce N fertilizer requirements. Soybean production has been so substantial that the U.S. is currently the world leader of soybean production. The profit generated by exporting soybeans represents a substantial income source for U.S. producers and contributes to reducing our trade balance.

The key outlets in the international market for U.S.-produced soybean products (oilseeds, oilseed meal, and soil oil) are China, the European Union (EU), Japan, Mexico, and Taiwan (USDA ERS, 2012). Although China was the first country to export soybeans, at the beginning of the 20th century, it is now one of the largest importers of soybean (World Bank, 2002). This market has continued to grow (World Watch Institute, 2012).

The majority of soybeans grown in South Dakota are categorized as “commodity beans” and are primarily used for edible oil and animal feed. During the crushing process, about 80% of commodity soybeans become soymeal for animal feed and the remaining 20% become soy oil. Even though demand for soymeal in the U.S. domestic market and the international market is growing, U.S. soymeal producers face competition from substitutes such as cornmeal, sorghum, and fishmeal—both in market share and price. In addition, other soybean exporting countries (such as Brazil and Argentina) have gradually taken a market share from U.S. soybean producers. Adding to this pressure is the fact that the U.S. market share for soy oil has weakened in recent years. Approximately 97% of soy oil after the crushing process (from the previously mentioned 20%) is used for human food consumption.

While the world demand for vegetable oil (human consumption) has increased, the profits of U.S. soy oil production are hurt by competition from other vegetable oils (palm, canola, and sunflower) and animal-based oil such as fish oil. Finally, the market share and profit potential for non-human consumption soy oil usages (from the rest of 3% soy oil after the crushing process) are promising, but relatively small.

Besides facing current domestic and international market competition, soybean producers have to consider the impact of U.S. government farm policies on profitability. Under the pressure from agreements made by the World Trade Organization (WTO), the U.S. government and its trade partners have gradually retired farmers’ protections (i.e., subsidies, price support, barriers to entry, etc.). Consequentially, a number of soybean producers have explored the option of producing specialty soybeans.

## Food-grade soybeans

Soybeans have long been recognized as a rich source of nutrition for direct human consumption in Eastern and Southeast Asia. Compared to other food sources, soybeans contain a higher percentage of protein and a more complete range of essential amino acids. In China, soybean (originally domesticated around 4,000 B.C.) was the major food (staple) for more than 2000 years (Clay, 2004). Tofu (bean curd), a popular Eastern and Southern Asian food made by coagulating soy juice, was invented in China approximately 2,000 years ago. Tofu later entered the Japan and Korea around 700 A.D. (Tengnas and Nillson, 2002).

Currently food-grade soybeans are one of the most desired specialty soybeans in the U.S. The wide range of quality and varieties of food-grade soybeans offers soy producers opportunities to find potential niche markets. However, early efforts by the United States Department of Agriculture (USDA) in the 1960s to promote the cultivation of food-grade specialty soybeans failed to encourage more production (Lee and Herbek, 2004). On the contrary, the recent increasing demand for soybean-based food in the U.S. domestic and exporting markets has created market incentive to encourage specialty soybeans production.

The continuous improvements in breeding techniques also provide producers with numerous new varieties. In general, specialty soybeans require specific shapes, protein content, oil, sugar concentration, and other characteristics to satisfy the quality and nutrition requirements for human consumption.

Although the established varieties such as “Hawkeye”, “Kanrich”, and “Beeson” are good options, many private companies and public universities are constantly developing new varieties to improve soybean quality. For example, specialty soybean growers in Ohio have widely adopted varieties with high resistance to *Phytophthora* such as Beeson 801 and Vinton 811. Recently, Dr. Guo-Liang Jiang and others at South Dakota State University developed and released new high-protein soybean varieties such as SD-05 240, a new seed that contains 39-43% protein, 21% oil, and resistance to *Phytophthora* root rot.

As previously mentioned, food-grade soybeans have specific requirements for protein content, saturated fats, bean shape, sugar concentration, and size—unlike commodity soybeans where few requirements exist. For instance, soybeans raised for tofu production often require higher protein (40% or higher) and lower oil concentration. In addition, these soybean seeds usually have clear hila and a larger size (Chapter 45). Another example is soybeans used for Natto, a traditional Japanese food often served with rice (Fig. 44.1). These soybeans require a smaller size, clear hila, and higher levels of starch and sugar concentration for the sweet, sticky flavor.

Edamame soybeans, a variety of soybeans purchased and consumed by humans directly while they are still green, have large seeds, thin coats, clear hila, high sugar concentration, and (preferably) low/zero amounts of amino acids (Fig. 44.2). These specialty soybeans are usually sold on contract between producers and buyers, which provide price premiums and secure markets (Lee and Herbek, 2004). A specific contract example is GMO specialty soybeans commanding a \$0.50/bu price premium over commodity soybeans (Conley and Gasaka, 2008).



**Figure 44.1. The soybean cultivar Natto.** This cultivar is often served with rice. (Source: Japan Centre, <http://www.japancentre.com/>)



**Figure 44.2. The soybean cultivar Edamame.** This soybean is directly consumed by humans. (Source: Tofu for Two, [http://tofufortwo.net/wp-content/uploads/2008/02/frozen\\_edamame.jpg](http://tofufortwo.net/wp-content/uploads/2008/02/frozen_edamame.jpg))

### United States soy-based food markets

Since the 1980s, soy-based food markets have experienced remarkable growth. The early soybean food companies were mostly small, family-run businesses that sold tofu or soymilk on a store-to-store basis (Soyfoods Association of North America, 2012). One of the first soybean food companies was Vitasoy, a Hong-Kong soymilk company. Vitasoy entered the U.S. market in 1979 (Vitasoy USA, 2012). Over time they have expanded their market for soybean products. Most U.S. consumers who are interested in soy-based food are also familiar with tofu and other soy-based food sold by Vitasoy under other brand names such as Nasoya and Azumaya.

During the same time when Vitasoy USA entered the California market, a Minnesota company, Sunrich Food Group, started to explore the specialty soybean market in the Midwest (Soyfoods Association of North America, 2012). They also have expanded their market (Sunrich Nature, 2012). Today, Sunrich and SunOpta together provide a successful business model for specialty soybean producers, with Sunrich

focusing on food markets and SunOpta concentrating on “behind the scene” services, such as grain handling, processing, ingredient control, and helping local farmers select and contract the production of specialty soybeans, grains and oilseeds.

Since the mid-1990s, the Silk company has been introducing soymilk products to mainstream American families through larger supermarkets. Today, Silk® Soymilk is one of the most successful soymilk products. The Silk® Soymilk brand was originally owned by White Wave Co. and is now owned by Dean Foods. They have access to 94% of supermarkets nationwide (Soyfoods Association of North America, 2012).

The significant increase in demand for soy-based food from U.S. domestic consumers has encouraged companies to explore other food items such as vegetarian alternatives (for example, by Lightlife Food), vegetarian burgers (Boca Food, a subsidiary of Kraft), and soy flour (Cargill). Many companies have also started to work with soybean growers to improve soybean characteristics such as protein concentration and isolates. For example, Cargill Health & Food Technologies has developed new products providing soy protein isolates with isoflavones (e.g., Prolisse® soy protein isolate). Archer Daniels Midland Company has introduced its Specialty Ingredients Division to provide soy isolates, soy concentrates, soy flour, and soy grits (ADM, 2012).

### Soy foods sales and market contacts

An increasing health concern among U.S. consumers in recent years has contributed to the increased demand for soy-based food. Between 1996 and 2011, total U.S. soy-based food sales have increased from \$1 billion to \$5.2 billion. In 2010:

1. 37% of Americans consumed soy-based food or soy-based beverages, and
2. 31% of U.S. consumers would specifically seek out products containing soy-related ingredients (Soyfoods Association of North America, 2012).

Table 44.2 shows the total sales of selected soy-based foods from 2008 to 2011 (Soytech, Inc, 2012); however, not all categories shared the same levels of growth. Sales of energy bars have become the number one category of soy food sales. Meat alternatives also showed an increase in sales of \$55 million between 2008 and 2011, with frozen meat alternatives sales growing at a faster rate (2.6%) than other meat alternatives. On the other hand, sales of well-known products such as tofu and soymilk showed a relatively stable trend. According to the Soytech, Inc report (2012), non-dairy refrigerated soymilk products were still the dominant soymilk product, accounting for 70% of the market. Finally, Table 44.2 also indicates that sales of “all other products” over the past five years were approximately \$2,000 million.

**Table 44.2. The U.S. sales record of selected soy foods (in Millions).** (Source: Soytech, Inc., 2012)

Category	2008	2009	2010	2011
Tofu	\$258	\$252	\$247	\$255
Soymilk	\$1,156	\$1,081	\$1,043	\$1,033
Meat Alternatives	\$607	\$622	\$649	\$662
Energy Bars	\$792	\$808	\$952	\$1,092
Soy Cheese, Cultured Soy (Soy Yogurt) and Frozen Soy Desserts	\$221	\$203	\$186	\$174
All Other Products	\$2,094	\$2,053	\$2,039	\$1,956
Total Sales	\$5,128	\$5,020	\$5,116	\$5,172

### Opportunities for South Dakota producers

South Dakota Soybean growers who are interested in exploring specialty soybean markets are encouraged to contact nearby processors or companies (Table 44.3). Although most of the companies are not located in South Dakota, these companies have extended their business and programs to nearby states, including South Dakota.

Producers can also visit the Soy Food Association of North America website (<http://www.soyfoods.org/>) to find rich information pertaining to specialty soybeans marketing, nutrition, buyer information, and event notices. Finally, soybean producers who are interested in finding specialty soybeans programs can also visit the following websites to discover information on buyers and premium programs:

- ▷ Soybean Premiums <https://soybeanpremiums.org>
- ▷ Vistive <https://www.vistive.com>
- ▷ Pioneer <http://pioneer.com>
- ▷ Soyatech <http://www.soyatech.com/>

### Other specialty soybeans

In addition to food-grade soybeans, other marketing alternatives include biodiesel, ink solvent, lubricants, soy wax (i.e., candles), cleaners, pants/coatings, soy-based forms, and high-quality seeds. For example, low linolenic soybeans usually generate a \$0.50/bu to \$1.25/bu price premium. These types of beans contain less than 3% linolenic acid, while conventional soybean varieties contain about 7% (Pedersen, 2012). Mainstream national food companies such as KFC and Kellogg's have already adopted food oil made by low linolenic soybeans specifically for the linolenic acid and low saturated fat content.

South Dakota growers who plan to cultivate non-food specialty soybeans should be aware of the limited market outlets and delivery points. For example, although Cargill and a few other companies have established facilities in Iowa, Nebraska, and Oklahoma to produce biodiesel, the bio-energy production in South Dakota is dominated by corn-based ethanol production. The only biodiesel plant, Midwest Biodiesel Producers, is currently not in operation due to the lack of economic profits. The productions and profit margins of other soy-based, non-food products (for example, soy candles, cleaners, soy-based forms, etc.) are also trivial at this time.

Before growing soybeans for specialty markets, we recommend that soybean producers thoroughly research their contracting opportunities. It is important to choose the varieties designed for the growing environment similar to the natural resource inputs in South Dakota. Growers should also be aware of responsibility and premium rules when signing contracts with buyers.

**Table 44.3. Contact information for premium and specialty soybean markets.**

<b>Company Name</b>	<b>Mailing Address</b>	<b>Phone</b>	<b>Website/Email Address</b>
Ag Processing, Inc.	12700 West Dodge Road PO Box 2047 Omaha, NE 68103	402-498-2210	<a href="http://www.agp.com">http://www.agp.com</a>
CHS	5500 Cenex Drive Inver Grove Heights, MN 55077	651-355-6000	<a href="http://chsinc.com">http://chsinc.com</a>
Clarkson Grain Company	Box 80 320 East South Street Cerro Gordo, IL 61818	217-763-2861	<a href="http://clarksongrain.com">http://clarksongrain.com</a>
Crawford Grain International	29330 South Elevator Road Manhattan, IL 60442	815-478-4962	N/A
The De Long Co.	601 DeLco Drive PO Box 552 Clinton, WI 53525	608-676-2255	<a href="http://delongcompany.com">http://delongcompany.com</a>
Gavilon Group, LLC	300 Osage Street Creston, IA 50801	877-274-2676	<a href="http://www.gavilon.com">http://www.gavilon.com</a>
Grain Miller Specialty Products	10400 Viking Drive, Suite 301 Eden Prairie, MN 55344	952-983-1289	<a href="http://www.grainmillers.com">http://www.grainmillers.com</a>
Knewton Soy Products LLP	17303 State Highway 22 Good Thunder, MN 56037	507-278-4087	<a href="mailto:wk@adrsoy.com">wk@adrsoy.com</a>
Microsoy Corporation	300 E. Microsoy Drive Jefferson, IA 50129	515-386-2100	<a href="http://www.microsoyflakes.com">http://www.microsoyflakes.com</a>
Midwestern Soybeans International	PO Box 289 500 3rd Street Mason City, IA 50402	515-424-5669	N/A
North Country Seed LLC	501 Main Street PO Box 548, Ormsby, MN 56162	507-736-2004	<a href="http://www.northcountryseed.com">http://www.northcountryseed.com</a>
Northland Organic Food Corporation	925 Portland Ave. St. Paul, MN 55104	605-221-0855	<a href="http://www.northlandorganic.com">http://www.northlandorganic.com</a>
Pattison Brothers	PO Box 670 701 King Street Fayette, IA 52142	563-425-3361	N/A
Richland Organics	100 10th Street N. Breckenridge, MN 56520	218-643-1797	<a href="http://www.richlandorganics.com">http://www.richlandorganics.com</a>
The Scoular Company	2027 Dodge Street Omaha, NE 68102	402-342-3500	<a href="mailto:IPGrain@scoular.com">IPGrain@scoular.com</a>
South Dakota Soybean Processor	100 Caspian Ave. Volga, SD 57071	605-627-9240	<a href="http://www.sdsbp.com">www.sdsbp.com</a>
The Seed Company	504 Center Street Lynnville, IA 50153	641-527-2775	<a href="http://supremesoy.com">http://supremesoy.com</a>
Sinner Brothers & Bresnahan	PO Box 549 Casselton, ND 58102	701-347-4900	<a href="http://sb-b.com">http://sb-b.com</a>
SK Food International	4666 Amber Valley Parkway Fargo, ND 58104	701-356-4106	<a href="http://skfood.com">http://skfood.com</a>
Specialty Grains, Inc.	231 N. Sangamon Ave. Gibson City, IL 60936	217-784-4400	<a href="http://sgigrain.com">http://sgigrain.com</a>
Sun Opta Grains and Foods	26 East Sanilac Ave. Sandusky, MI 48471	507-451-4724	<a href="http://www.sunopta.com">http://www.sunopta.com</a>
The Scoular Company	250 Marquette Ave., Suite 1050 Minneapolis, MN 55415	612-335-8205	<a href="http://www.scoular.com/markets">http://www.scoular.com/markets</a>
Unity Seed Company	3510 154th Ave. SE PO Box 567 Casselton, ND 58017	701-347-5355	<a href="http://www.unityseed.com">http://www.unityseed.com</a>
World Food Processing	4301 World Food Ave. Oskaloose, IA 52577	641-672-9651	<a href="http://www.worldfoodp.com">http://www.worldfoodp.com</a>



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