



Department of Agricultural Economics  
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## **21<sup>st</sup> Century Alliance: Vertical Integration and the Pinto Bean Industry**

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### **21<sup>st</sup> Century Alliance**

*Producers of the 21<sup>st</sup> Century Alliance in western Kansas had an opportunity to vertically integrate in the dry edible bean industry in the winter of 1998. Demand for dry edible beans, especially pinto beans, has been increasing in recent years. The major decision in this case was to determine whether to a) build new facilities, b) build a dual purpose grain elevator for beans and other crops, c) do not buy, or d) purchase an existing facility in Burlington, Colorado or Sharon Springs, Kansas.*

The 21<sup>st</sup> Century Alliance (TFCA) was organized in January 1997 as a grain processing and marketing cooperative. The TFCA was created with the goal of establishing a producer-owned business, allowing its members to create additional value for their products through further processing efforts. Proceeds generated through the sale of cooperative stock enabled acquisition, renovation, and operation of existing capital facilities. In addition, TFCA has analyzed building a new multiple-purpose site with sunflower, edible bean, wheat, and other commodity storage. The producer-members provide dry edible beans for the processing facilities and the cooperative establishes a market for the producers' products.

Purchase of TFCA stock is required to market through the cooperative, but membership is limited to qualified agricultural producers. To be qualified, a producer must be engaged in production of agricultural products, bear the risk of production, and reside within the area served by the cooperative. Furthermore, to become a voting member of the cooperative, each producer must complete an application for membership and pay a nonrefundable membership fee, agree to deliver a specified amount of product to the cooperative for five consecutive years, and comply with all other requirements stated in the Articles and Bylaws.

TFCA currently operates wheat and dairy marketing cooperatives and is analyzing the feasibility of a dry edible bean cooperative. The bean cooperative would use proceeds from member stock purchases to acquire processing facilities located in Sharon Springs, Kansas (260,000 cwt licensed capacity), or Burlington, Colorado (405,000 cwt licensed capacity). Purchase of stock would require the grower to deliver a specified type and amount of dry edible beans for a fair market price plus provide the opportunity for additional revenue as a result of TFCA marketing efforts.

### **Per Capita Consumption**

Per capita consumption of dry edible beans has increased from 4.8 pounds per person in 1984 to 7.1 pounds per person in 1995 (U.S. Department of Agriculture). The most popular dry edible bean in the United States is the pinto bean. The United States population consumes an average of 3.5 pounds of pinto beans per person annually. The light red kidney bean is third in per capita consumption with an average 0.6 pounds consumed per person. The rise in bean consumption over the last fifteen years is due largely to a change in the American diet. Consumers are demanding healthier products, and dry edible beans have certain quality and health characteristics that consumers are demanding (Milling and Baking News). For instance, dry edible beans contain relatively little or no fat and are low in cholesterol (American Dry Bean Board).

Supermarket sales of each bean type have increased over this period, particularly the other bean category that includes pinto beans. Total sales have increased more than \$60 million over this time period. Furthermore, sales are trending up and may continue to do so. Many of the forces driving the increase in per capita consumption have led to the increase in supermarket sales. This trend is expected to continue in the future.

### **Exports**

The top ten world dry bean exporting nations are the United States, China, the former Soviet States, Burma, Argentina, Thailand, Canada, Chile, the Netherlands, Tanzania, and Uganda (National Agricultural Statistics Service). The United States primarily exports pinto, navy, great northern, and light red kidney beans, which totaled \$287 million from 1992 to 1996. Total U.S. bean exports gradually increased each year from 1992 to 1996.

### **The Dry Edible Bean Value Chain**

Understanding the structure of the dry edible bean industry is crucial to formulating an effective marketing strategy. Value is created at several stages in the dry bean industry. The grower grows and harvests the raw product. The elevator is responsible for handling and storage of beans upon grower delivery, as well as bulk packaging. The processor purchases beans from the elevator and refines them into restaurant and shelf-ready products. The retailer is the outlet responsible for sales to the final customer. Typical retail outlets include grocery stores, ethnic specialty stores, and ethnic restaurants.

The value chain depicts risks involved at each stage of the system. The grower endures many of the risks in the dry edible bean industry. Dry bean growers are subject to a high degree of both weather and price risk. Prices are volatile in the dry bean industry, typically ranging from \$15 to \$30/ cwt, and weather is always difficult to predict.

The elevator bears price and supply risk in the dry bean industry. Because price is so volatile, there is no reliable basis for contracts and spot exchange becomes nearly mandatory. Although

elevators dealing in other agricultural commodities use futures markets to hedge against price risk, there is no futures contract for dry beans. The elevator operator is subject to supply risk because his or her inputs are dependent upon the dry bean grower. A reliable supply of dry beans is important because elevators own large amounts of fixed assets. Consequently, large processing volumes are needed to spread out fixed costs.

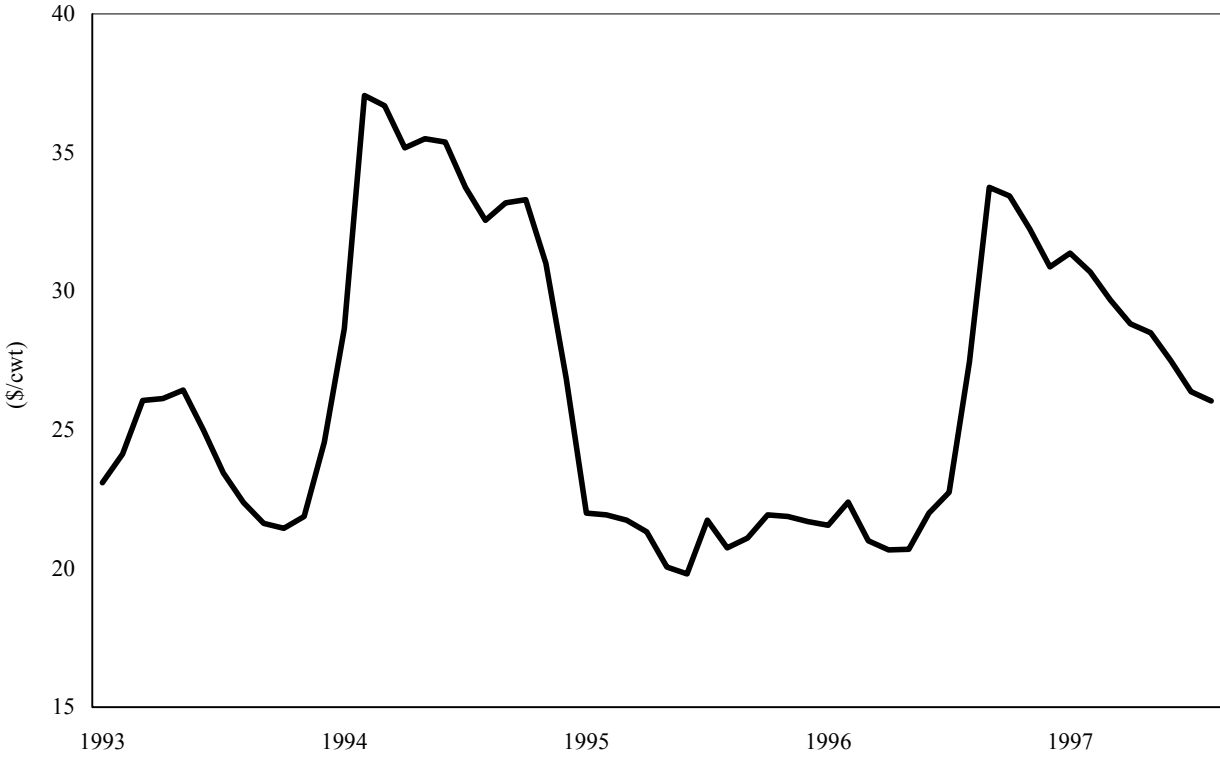
Risks at the processor level are confined to variable prices. However, the variability in prices is reduced as products move up the value chain toward the consumer. Due to the inelastic domestic demand for dry edible bean retail products, there is little response to changes in price.

## **Industry Issues**

### **Price Factors**

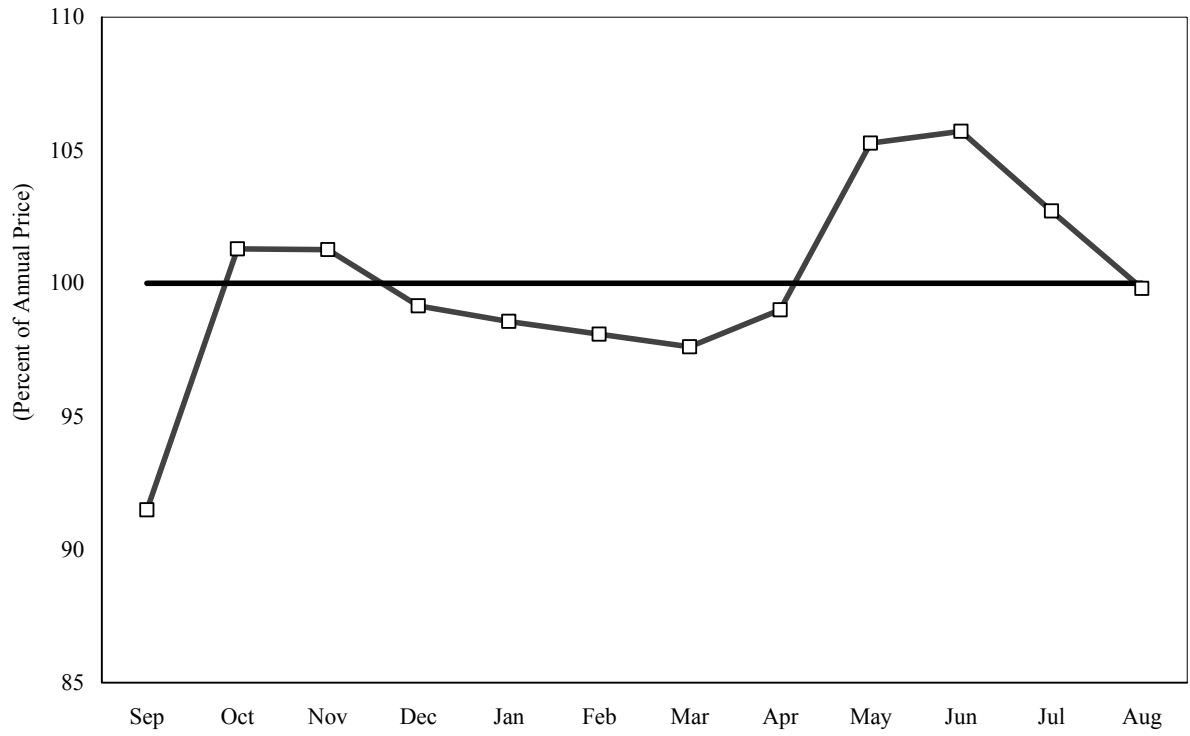
Figures 1-6 show price variability over years and seasonal patterns for growers, elevator dealers, and the elevator dealer-to-grower spread. Similar to grower prices, elevator dealer prices are susceptible to large price fluctuations. Price risk has historically been a problem driven by demand. Ample production existed but demand for pinto beans was inelastic. The potential to store the different types of beans appears to be a solution to avoiding price fluctuations. Most important to the long-term stability of TFCA is the grower-to-elevator dealer margin. Clearly, the largest margins occur during harvest when supply is large. During this period, elevator dealers are able to increase margins by bidding down grower prices due to the increase in supply and lack of storage facilities by growers. Beyond this point, substantial variability exists in elevator margins. From a profitability standpoint, merchandising beans in the first two months beyond harvest is appealing; however, this strategy may not be possible from a cash flow standpoint. Pursuing alternative uses of the facilities beyond the few months following harvest may be advantageous.

Figure 1. Northern Colorado Pinto Bean Grower Price (1993-1997)



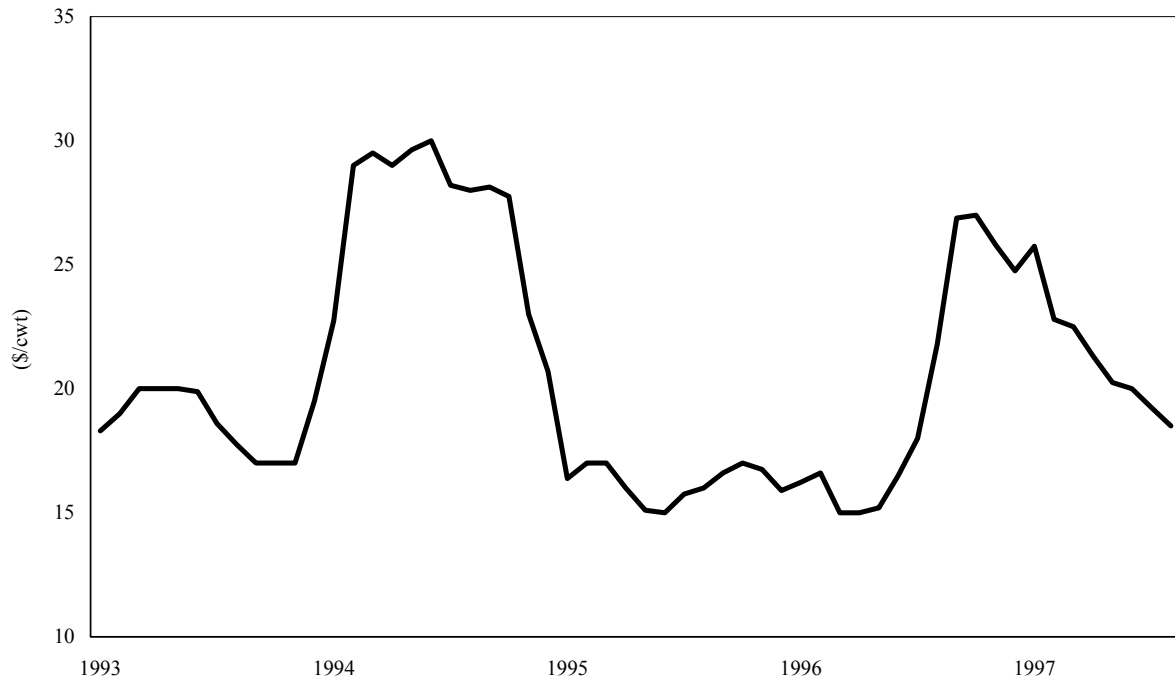
Source: Bean Market News, USDA

Figure 2. Northern Colorado Pinto Bean Grower Price Index, 1992/93-1995/96



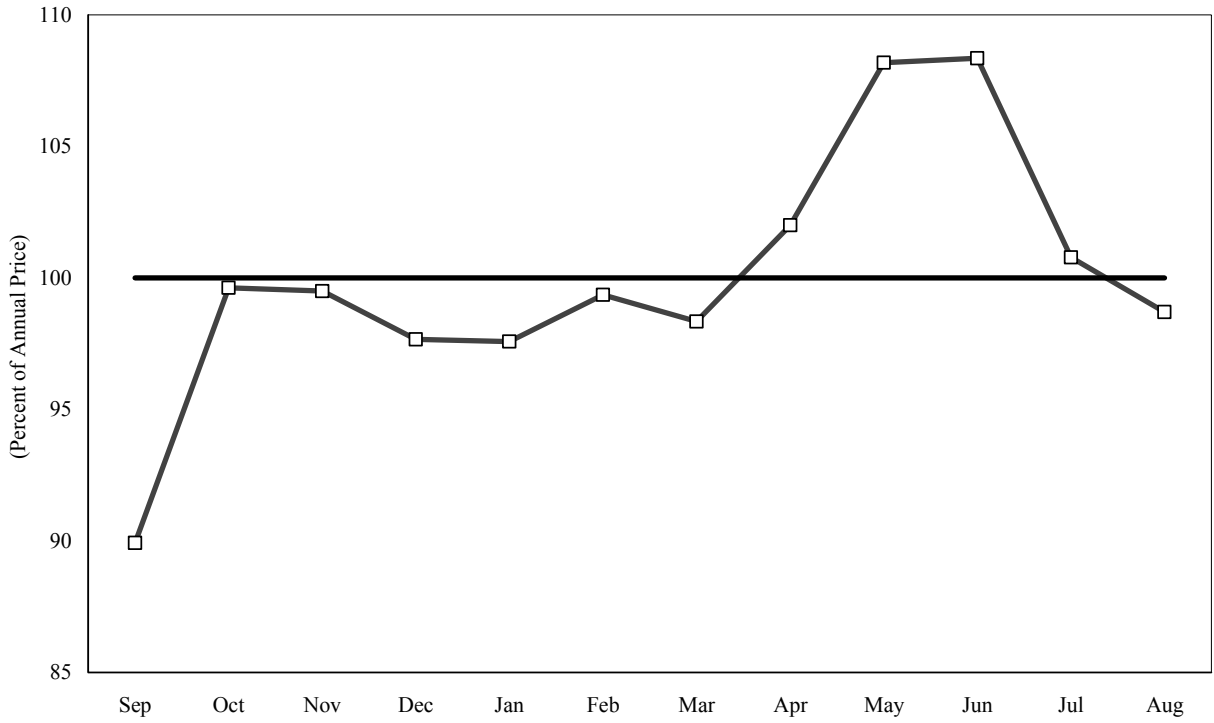
Source: Bean Market News, USDA

Figure 3. Northern Colorado Pinto Bean Deale Price (1993-1997)



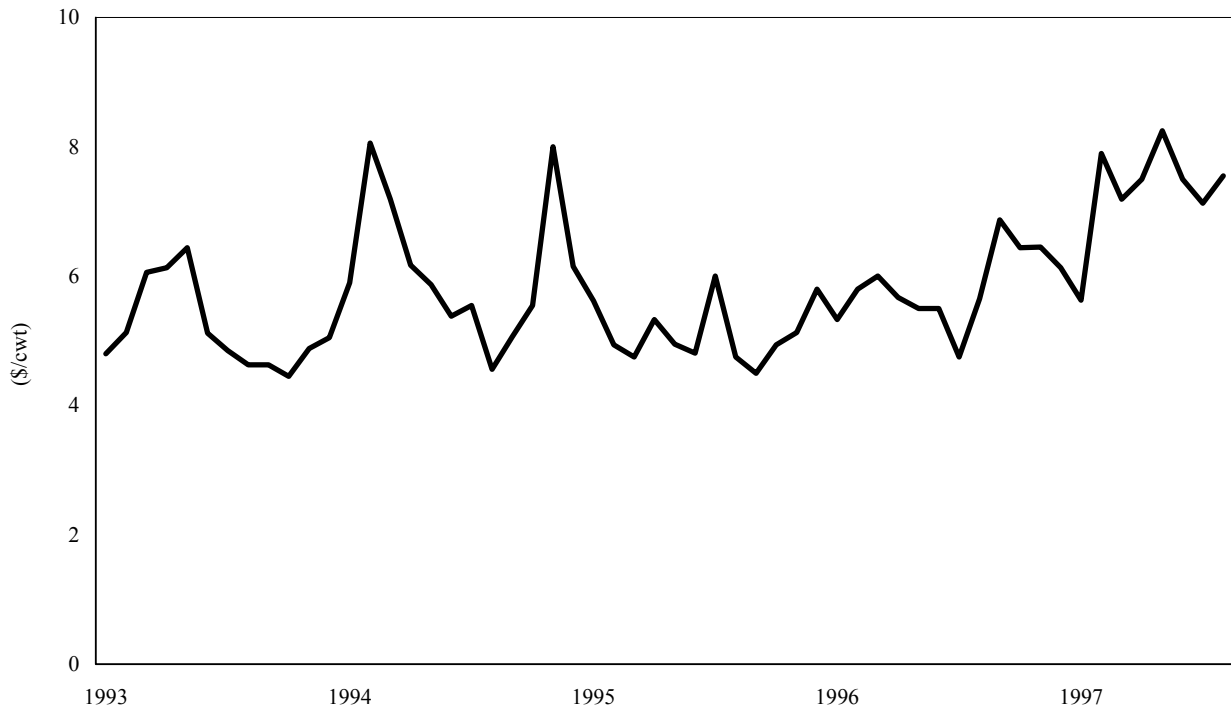
Source: Bean Market News, USDA

Figure 4. Northern Colorado Pinto Bean Dealer Price Index, 1992/93-1995/96



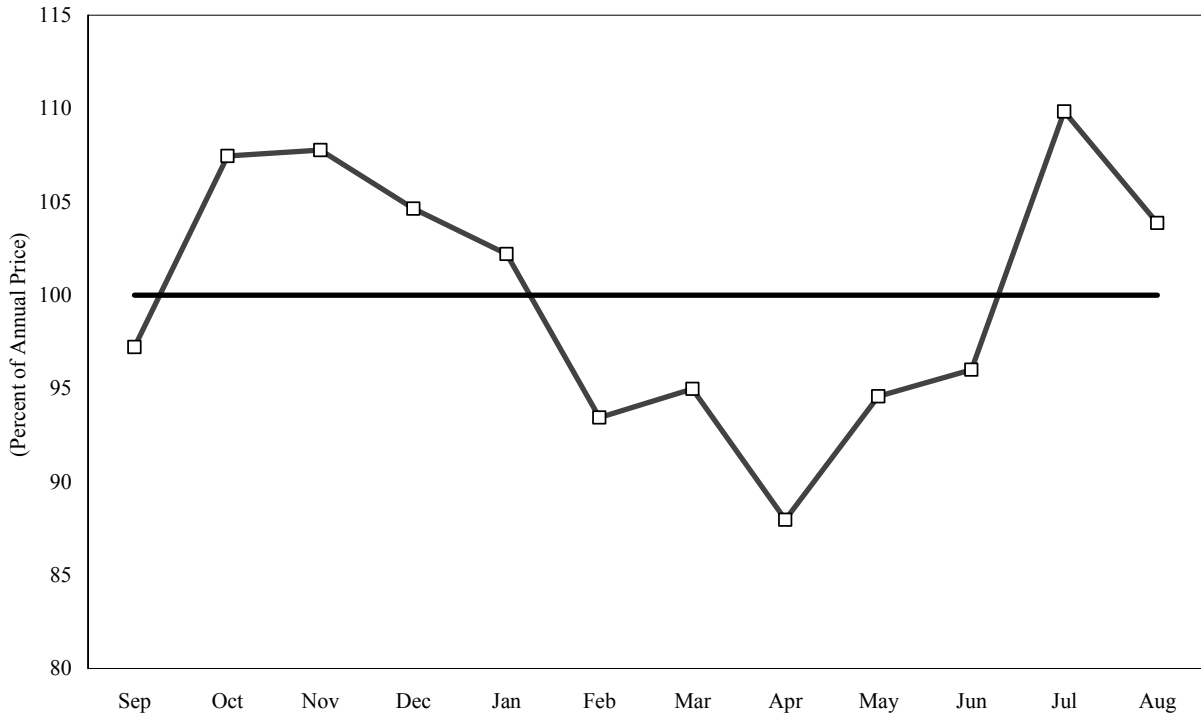
Source: Bean Market News, USDA

Figure 5. Northern Colorado Pinto Bean Dealer-Grower Spread (1993-1997)



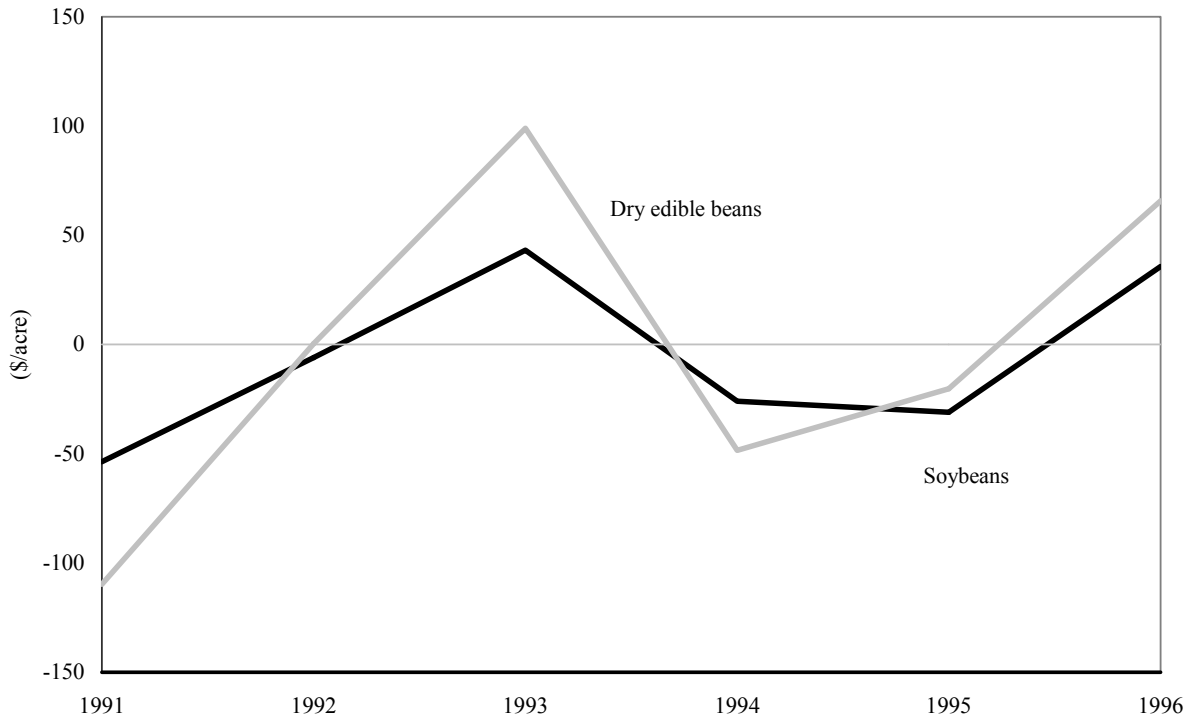
Source: Bean Market News, USDA

Figure 6. Northern Colorado Pinoto Bean Dealer-Grower Spread, 1992/93-1995/96



Source: Bean Market News, USDA

Figure 7. Net Returns to Management for Northwest Kansas Dry Edible Beans and Soybeans (1991-1996)



Source: Kansas Farm Management Association

**Table 1. Estimated Revenues and Costs for Facilities.**

Income from Edible Beans	Sharon Springs, Kansas	Burlington, Colorado
Production Volume (cwt.)	260,000	230,000
Processing Margin	\$3.25	\$3.25
Total Income	\$845,000	\$747,500
Less: Expenses		
Personnel and Administrative	248,656	230,935
General Operating	157,464	146,242
Repairs	33,136	30,775
Real Estate Taxes	7,072	6,568
Interest on Working Capital	91,192	84,693
Cash Reserves	20,744	19,265
Other	<u>115,236</u>	<u>107,023</u>
Total Expenses	\$673,500	\$625,500
Net Operating Income before Depreciation, Debt Service, and Income Taxes	\$171,500	\$122,000
Breakeven Volume (cwt)	207,231	192,462
Breakeven Margin	\$2.59	\$2.72
Profit Margin	\$0.66	\$0.53

**Production Factors**

Production is primarily located in northwest Kansas, northeast Colorado, and southwest Nebraska. Obtaining growers from Nebraska is not feasible because of the Nebraska regulatory fees for soliciting Nebraska producers. However, sufficient production is located in the area of northwest Kansas and northeast Colorado. The majority of competitors are located along Interstate 70 and northeast of Denver. Most elevators obtain their supply from a twenty-mile radius surrounding the location of their elevator. The Burlington, CO, location is adequate to serve the local area and some Kansas production. The location in Sharon Springs, KS, would offer a better location for growers in Kansas, but this location may not be suitable to serve Colorado production.

**Company Issues**

TFCA is still a young company and its marketing cooperatives are relatively unproven. The wheat cooperative has been in existence for a year and appears to be highly successful. While the rate of growth in the wheat market is relatively slow, TFCA has developed a niche market through its milling facilities in New Mexico. The dairy cooperative is still in the startup phases and initial projections indicate potential for success. Although the dairy industry has experienced some consolidation in recent years, there are enough participants that it is difficult to monopolize market share. A dry edible bean cooperative is a new possible business venture for TFCA. Because the dry bean industry has been volatile, any marketing instruments that better manage risk will be of great benefit.

Four types of dry edible beans were under consideration: Red Kidney, Great Northern, Navy, and Pinto. The Great Northern bean has experienced declining demand while holding a minimal share of the total dry bean market. The Navy bean is competitive for market share, but its growth

is nearly stagnant. The Red Kidney has experienced some growth in recent years, but still holds relatively little market share. The Pinto bean is the real winner in the dry bean market, holding the majority of market share while continually increasing its market demand. TFCA planned to focus on pinto beans.

### **Strengths**

Structuring the business as a cooperative allows the growers to own the business. TFCA's name is recognized in other agricultural industries, such as wheat and dairy. The reputation for quality and a financially sound cooperative will also apply in the edible bean industry. The processing facilities are located in a dry bean production area (Colorado State Board of Agriculture). There is adequate supply to operate the facilities at near-full capacity. Operating as a cooperative also provides incentive for growers to reliably deliver supply, knowing they own part of the cooperative. The dry edible bean processing industry has had an increase of capacity over the past several years. Production of beans must increase to compensate the increasing demand nationwide. As this transition occurs, TFCA will have the excess capacity to expand.

### **Weaknesses**

The two plants that TFCA is evaluating are quite different. The Burlington, CO, plant has good facilities and equipment but a low volume history (230,000 cwt /year). The Sharon Springs, KS, plant has poor facilities and equipment but has a high volume history (242,000cwt /year). The Sharon Springs plant also lacks upright storage, which is essential to preserve the identity of beans destined for specialty markets. The previous management of the Sharon Springs and Burlington plants were thought to be somewhat inefficient. As a result, growers in the area of each elevator developed a lack of confidence in the elevator. There is currently a lack of information in the United States concerning the end use of dry edible beans. The amount of utilization relative to current capacity of elevators in the United States is low. Room for expansion in this industry exists, but with ample capacity available, existing elevators may have a comparative advantage. The elevator serves as a middleman between the grower and the packer; thus, using a dealer to market dry edible beans would decrease operating margins.

### **Opportunities**

Agricultural commodities are becoming more product oriented. TFCA has an opportunity to market dry edible beans as a product rather than a commodity. Differentiating good-quality beans from poor-quality beans will enable TFCA to market superior products. Differing ethnic groups consume many types of dry beans. Packaging and marketing bean types, such as pinto beans, will present opportunities for ethnic populations that use beans in their diet.

Beans damaged during storage and processing create by-products such as splits. Splits can be bagged and sold to bean dip and refried bean manufacturers and to soup kitchens. Damaged beans can also be marketed to cattle farmers for feed use. The abundance of cattle finishing in southwest Kansas presents a prime market for these by-products. New trade agreements, government aid, and relief agencies make it easier to export agricultural products to foreign countries. GATT and NAFTA have opened up foreign markets that facilitate exportation of agricultural products. Government aid such as the "Food for Oil" agreement may also provide new opportunities. Relief agencies that provide humanitarian aid and relief present another alternative for export trade.

## **Threats**

ADM's recent acquisition of Moorman's gives ADM a 25% share of the dry edible bean market and would allow them to share in the leadership of this market with ConAgra (Smith). Much of Moorman's interest in the dry edible bean market was in Colorado. ADM has access to grocery store shelves through their marketing of many other products. Having an outlet for dry edible beans is crucial for long term success. Per capita U.S. consumption of dry edible beans has been increasing and may provide increased profits to growers, elevators, and processors. Entries into the market would push down profits and effectively decrease packer margins.

Soybean basis in northwest Kansas has historically been poor and producers have opted to plant dry edible beans in place of soybeans in their crop rotation. It has been suggested that the crushing of soybeans at ADM's Goodland plant has strengthened the basis by \$0.35 to \$0.40. An increase in soybean price would also make soybeans more profitable, resulting in fewer growers planting dry edible beans.

U.S. exports of processed dry edible beans are important to support domestic prices. Almost 25% of U.S. exports go to Iraq. Tensions in the Persian Gulf could hamper U.S. and Iraqi relief programs. Additionally, income levels are increasing in other bean-producing countries, and they may look to export beans and purchase higher dollar food items. Dry edible beans are susceptible to adverse weather patterns, diseases, and insects. Weather is important to planting and harvesting dates. Diseases and insects could affect production (Swartz et al., Jacks Bean Talk). Each of these could be detrimental to the overall crop in the region being studied.

## **The Decision**

Four alternative strategies were being considered by TFCA. Their current production and marketing strategies are unknown because TFCA is still researching the feasibility of forming the Bean Processing Cooperative. However, the current structure of the elevators being evaluated is known and is used to describe current strategies. Characteristics of the current business structure follow: (a) privately owned by a single individual or small group, (b) purchase beans in bulk from growers directly from field, (c) store beans in bulk either in flat or upright storage, (d) clean beans, (e) bag beans and warehouse (typically 100-pound bags), (f) sell directly to processor (domestically and internationally), and (g) focus primarily on pinto beans (95% of market).

## **Build New Facilities**

Some components of the current facilities are outdated and renovation would be required to operate with efficient facilities. New facilities would provide the newest industry technology and the ability to upgrade to new technology as it becomes available. Building new facilities would also provide the opportunity to select a competitive location that serves the member-growers and provides ready access to markets. Membership in the cooperative may also be strengthened knowing that the facilities are new and "top of the line." However, building new facilities is not likely to be feasible due to the enormous capital costs. This alternative is not favored by TFCA because of large capital costs which are approximately \$2.5 million with an annual net operating income before depreciation, debt service, and income taxes of \$125,000 per year.

## **Build a Dual Purpose Facility**

TFCA has many members of its wheat cooperative located in northwest Kansas. Because this geographic area has both wheat and dry bean production, it may be feasible to build an elevator for both wheat and bean storage. Operating a dual-purpose facility will allow the facility to

function efficiently year-round because of the differing peak times for the two crops. A dual facility will also have reduced average fixed and variable costs compared to an elevator devoted solely to one enterprise. A major disadvantage to building the dual-purpose facility is the capital investment required for the facility which is approximated at \$3.2 million with an annual net operating income before depreciation, debt service, and income taxes of \$195,000. Management will need to employ laborers at the facility that are multi-skilled and can handle both wheat and dry edible beans.

### **Do Not Buy**

It may be wise to stay out of the dry edible bean industry entirely. Substantial price variation in the bean industry creates a great deal of price risk for a dry bean elevator. However, knowing that U.S. per capita consumption is increasing, profit opportunities may be foregone.

### **Purchase Existing Facility in Burlington, Colorado, or Sharon Springs, Kansas**

TFCA has established its name as a successful cooperative in the wheat and dairy sectors. Name recognition should help the facility in Burlington to overcome the stigma of the previous business failure. Purchasing existing facilities will provide a large amount of licensed capacity at a relatively inexpensive price. A drawback to purchasing the existing facility is the outdated nature of some components. The ability to upgrade to new technology may also be limiting or very costly. This problem will be alleviated to some degree by the reduced amount of capital required to purchase the facility. The consultant has assumed 30% equity and 70% debt to capitalize the purchase with an 8% interest rate for ten years. The remaining life of the elevator after amortization is at least ten years. TFCA requires a minimum return on equity of 20 in all investments.

### **Endnotes**

Some elevators do offer contracts for beans. For example in May 1998, \$17/ cwt contracts were available for pinto beans at harvest (AgWeek).

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