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## **Impacts of FAVR Restriction Elimination on the Dry Bean Industry in the Upper Midwest**

by

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# Impacts of FAVR Elimination on the Upper Midwest Dry Bean Industry<sup>1</sup>

## Introduction

Planting restrictions for fruits and vegetables was a major issue in debates over the 2008 U.S. Farm Bill. Central to these debates has been the impact of eliminating fruit and vegetable restrictions on program acreage (and ultimately commodity pricing). Earlier versions of the U.S. farm bill (1990, 1996, and 2002 for example) have restricted which crops may be planted on acreage designated as “program acres”. Failure to comply with these restrictions resulted in, in the worst cases, loss of program benefits tied to the acreage and significant fines. A World Trade Organization challenge to the legality of the fruit and vegetable restrictions (FAVR) in previous farm bills has been argued successfully by Brazil (WTO, 2005 Paragraph 339-40).

The final version of the 2008 Farm Bill failed to reconcile the issue of restrictions on planting. The law authorized a pilot program to allow limited planting of fresh market and processing vegetables<sup>2</sup> on program acreage in seven Midwestern states. Previous research on the impacts of eliminating the FAVR suggests that some crops would be more likely to see production expansion than others (Thornsbury, Martinez, and Schweikhardt 2007; Johnson et al. 2006; Fumasi, Richardson, and Outlaw 2006). Dry edible beans are one crop identified as a likely candidate for expanded production with elimination of the FAVR because of the relatively low transaction cost of switching to dry beans from program crops like corn and soybeans (Thornsbury, Martinez, and Schweikhardt 2007). This research will give an overview of the dry bean industry in the U.S. and will document results from a series of interviews with key informants from the U.S. dry bean industry regarding FAVR. The purpose of the interviews was

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<sup>2</sup> Crops allowed under the pilot project include cucumber, green peas, lima beans, pumpkins, snap beans, sweet corn, and tomatoes for processing.

to gauge the impact of elimination of the FAVR on industry decision making and to address the question of how much, if any, expansion would take place in the dry bean industry.

## **The U.S. Dry Bean Industry**

### *Acreage and Production*

Dry beans are grown throughout the U.S. In 2007, dry beans were planted on 1.53 million acres. Over the past decade, acres planted to dry beans in the U.S. have ranged from a high of 2.02 millions acres in 1999 to a low of 1.35 million acres in 2004 (Figure 1). Since 1970, average acreage planted to dry beans in the U.S. was about 1.7 million acres.

When compared with acreage of the leading program crops planted in the U.S. the area planted to dry beans is quite small (Figure 2). Even relatively small percentage shifts of acreage from program crops to dry bean acreage could result in large amounts of new acreage and production for dry beans (Figure 3).

The top five dry bean producing states in the U.S. are North Dakota, Michigan, Nebraska, Minnesota, and Idaho, respectively. Taken together, these states planted 81 percent of all dry bean acreage in 2007 (Table 1). Plantings in the southern part of Manitoba in Canada have also expanded in recent years.

While average acreage of dry beans planted in the U.S. has not varied much over the past 30 years, where the acreage was planted has shifted towards the upper plains states (Table 2). Prior to 1988, Michigan consistently led the nation in acres planted to dry beans, and dry bean production. However, a crop disaster in 1988 led dry bean handlers and processors to encourage industry expansion outside of the state, and specifically into North Dakota. Since 1989, North Dakota has been the leading state in dry bean acreage and production. Another reason for the

expansion of dry bean plantings in these regions is that they have often been a relatively profitable crop compared with soybeans and fit well into crop rotations.

U.S. dry bean production is somewhat regionalized by variety, or class. Most of the leading dry bean states led the nation individually in production of a particular class (Table 3). Reasons for this regional specialization are related to growing conditions, marketing, and initial processing factors. For example, North Dakota leads the U.S. in production of pinto beans. Two factors contribute to the state's dominance in the pinto bean market. First, less humid growing conditions favor the production of high quality, well-colored pinto beans. Additionally, the infrastructure to handle pinto beans, including marketing expertise, was concentrated in North Dakota following the crop failure in Michigan.

#### *U.S. Dry Bean Exports*

The U.S. is generally a net exporter of dry beans. Top importers of U.S. dry beans are Mexico, Canada, United Kingdom, and Cuba. In 2007, dry bean export volumes were somewhat lower than in 2006, with declines in product shipped to the Dominican Republic, United Kingdom, Japan, and Mexico (USDA-ERS, 2007). Leading trading partners for U.S. dry beans, with volumes shipped, are presented in Table 4.

Pinto, Navy, Black, and Great Northern beans are consistently the leading classes for export, though other classes are important contributors in individual years. Over the past five years, Garbanzo, Baby Lima, Dark Red Kidney, and Small Red beans have had a growing share of U.S. exports. For the 2006/7 season, exports of Pinto, Navy, and Black beans were about 64 percent of total U.S. dry bean exports (Figure 4).

### *Structure of the Dry Bean Industry*

The U.S. dry bean industry, as noted earlier, is largely centered in the upper Midwest and West. North Dakota is the largest total producer of dry beans and dominates production in several classes. California, while not the largest producer, is the exclusive producer of some classes of dry beans such as baby lima and lima beans. While dry beans are classified as a specialty crop under U.S. farm policy, much of their production, handling, and processing more closely resembles that of storable commodities (i.e., corn, soybeans) compared to fresh fruits and vegetables. The following discussion will provide an overview of the supply chain for dry beans in the upper Midwest based on conversations with industry representatives in 2007 and 2008. It will also highlight some points salient to the discussion of how likely current dry bean farmers are to expand production of dry beans on program acreage should the FAVR planting restriction in U.S. farm policy eventually be eliminated.

The production cycle for dry beans in the U.S. is very similar to that for many other storable commodities in that dry beans are planted in the spring, mature over summer, and are harvested in the fall. They can be shipped by rail or barge and are sold dry or as processed products. Dry beans are unique from some storable commodities in that they require extra processing that utilizes special handling equipment and expertise. Beans are often sold in smaller consumer size products and are not traded on any exchange or open outcry market. If handled too roughly, dry beans quickly lose value from splitting and loss of quality. In addition, dry beans must be delivered to elevators (or bean plants) that specialize in handling dry beans.

## *Growers*

Growers indicated that overall, dry bean production practices do not vary greatly from those required for quality production of soybeans, though some regions are more productive for dry beans as compared to soybeans. In Michigan, they are planted at the same time as soybeans and thus, can serve as an alternative to corn should the planting season be shortened by too much rain. Dry beans do require closer monitoring and control of weeds; during the growing season bean fields must be kept very clean to limit staining that can occur during harvest from the presence of weeds that would lead to poorer quality, and less valuable, beans. We found that the regional aspect of bean production is even present at a state level, with some beans better suited for production in some areas of states. For example, longer season beans are better suited to the thumb region of Michigan where temperatures are moderated by Lake Huron. Similarly, bean production in western Canada is concentrated near Portage La Prairie, which is close to Lake Manitoba.

Specialized equipment for harvesting dry beans was once required, and is still used by some growers, which can act as a limitation to entry of new dry bean growers. However, more recently developed varieties of dry beans with upright growth habits have lessened the need for additional harvesting equipment. A special handling modification to a standard combine, called a bean elevator, used in place of a standard bean head, is one piece of equipment which could add value to dry beans for growers. While not absolutely necessary, this “bean elevator” allows for gentler off-loading of the beans for transport to an elevator or plant, thus improving quality.

The growers interviewed felt that elimination of the FAVR would have little impact on their planting decisions. Many of the active bean growers said that planting beans was something they had always done and would always do. Others told us that their planting decisions are

driven by the relative profitability of each crop they grow and the suitability of a crop for production in an area or even a particular field. The growers did note that many of the new upright bean varieties which had been introduced in recent years reduced barriers to dry bean production for new entrants.

Some of the growers interviewed for this study no longer raised dry beans. This group indicated they left the industry because they no longer had close-by seed dealers or elevators that would take delivery of their beans. They felt status of the FAVR would have no impact on reversing their decision and were dubious that FAVR elimination would entice other growers to enter dry bean production unless changes occurred in the corresponding local infrastructure (i.e. development of local elevators).

#### *Elevators or bean plants*

While bean handling facilities at this stage in the supply chain are very similar to grain handling facilities, the differences are important and possibly the most limiting factor to the expansion of dry bean planting. From the outside it is often difficult to distinguish elevators that handle dry beans versus other grains; however the mechanics of how beans are handled are quite different. The conveyors that move beans from dump pits to storage areas are slower than grain conveyors and the distance the more fragile beans drop to their ultimate destination are much less than distances for more durable grains and soybeans. Essentially, dry beans must be handled very gently when compared to traditional grain handling.

Dry bean elevators are often called dry bean plants because dry beans undergo an initial processing phase at these elevator facilities that involves sorting and cleaning with specialized and relatively expensive equipment. Many dry bean plants are also equipped to package dry

beans in consumer size 50 lb bags, bulk 1,000 or 2,000 lb bags, or railcars. Very few elevators bag beans in smaller (11lb or 1kg) bags with or without labels. Besides the challenges present in handling all dry beans, bean plants must also maintain separate storage areas for each class of beans they handle, which in some cases can be as many as thirteen.

Interview results suggest that retro-fitting an existing grain elevator to handle dry beans would be costly and difficult and that customers might be unwilling to buy from the facility because quality is such an important attribute of dry beans. Costs to construct a new dry bean plant were estimated at around \$4-6.00 per hundredweight of storage, or about \$15 million for a medium-sized bean plant.

Sales of dry beans from elevators can be pre-arranged or conducted through spot transactions with brokers or packagers. Operators indicated that many of the beans they buy from growers are purchased to fill existing contracts, but, depending on demand they might also buy beans to fill new orders or in anticipation of orders. According to the industry experts interviewed, about 40 percent of all dry beans grown in the U.S. in recent years were contracted, while the rest were sold on the open market at harvest time. Quality is a very important issue for elevator operators and all who were interviewed said they had to maintain quality to protect or expand market share. With recent dramatic increases in prices for corn and soybeans, one of the largest concerns for elevators has been securing enough dry beans to meet existing contracts.

Like growers, dry bean elevator owners and operators said they would expect little market reaction to elimination of the FAVR restriction and that, in fact, the more limiting factor to dry bean production is not production capacity, but marketing capacity in terms of processing and demand.



### *Dry Bean Brokers/Principle Companies*

Dry bean brokers and principle companies facilitate the trade and movement of dry beans in domestic and international markets. Brokers act as facilitators for sales between buyers and sellers without taking ownership of the goods during the transaction. Principle companies also coordinate sales between buyers and sellers, however they take ownership of the beans and responsibility for movement of the beans once they have been purchased. Principle companies have facilities for storage and in some cases processing.

The industry members we spoke to in this category were generally not in favor of elimination of the FAVR restriction. They thought with the restriction eliminated, but base acreage payments still in place, growers who had never grown dry beans would be enticed to enter the market with the unfair advantage of government support for dry beans grown on program acreage.

### *Dry Bean Processors*

As discussed above, a distinction is made here between initial dry bean processors (elevators) who clean and package beans versus further processors who transform and/or package bean products for final consumers. Packaging of dry edible beans into consumer sized packages is concentrated in states in the western U.S.; for example in Michigan, there are few bean processors who package dry beans in retail consumer sizes. Dry bean canning and dehydrating plants are spread throughout the U.S., though plants belonging to some of the largest producers of these two products are concentrated in Tennessee and Wisconsin.

Dry beans can be processed into many items for final consumption. A partial list of these items includes plain canned beans, seasoned canned beans (like baked or chili), beans canned

along with other ingredients, canned refried beans, dehydrated refried beans, and ground dry beans for flour. A mix of large and small dry bean processors were interviewed for this study. Regardless of firm size, processors echoed the sentiment that given current high commodity price conditions, elimination of the FAVR restriction would have little impact on dry bean growers. If prices for program crops returned to the low levels of previous years however, the processors thought that elimination of the FAVR restriction would negatively impact current producers since program crop growers would be more likely to switch to dry beans. The processors thought that the most likely areas to see expansion under this scenario would be regions where the handling and processing infrastructure already exist.

## **Conclusion**

This research has outlined the supply chain for the U.S. dry bean industry and highlighted the potential impacts of elimination of the FAVR restriction from U.S. farm policy as viewed from industry representatives in the Upper Midwest region. Interestingly, interview respondents – regardless of which supply chain sector they represented – tended to think of the issue in terms of impacts (and equity implications) for current growers. In addition, current high price markets for grains tended to swamp consideration of FAVR as an impact factor on current (or near future) dry bean markets.

Still, the dry bean industry provides an interesting case study since the barriers to transitioning into production, at least from a producer's perspective, are fairly low. More important, as revealed through this research and interviews with dry bean producers and others, is that while barriers to production are low, barriers to entry further along the supply chain are more significant. For example, the specialized equipment needed to handle and process beans at

elevators or bean plants is expensive and requires quite a large investment. Additionally, marketing beans can be risky because of the structure of pricing in the industry and the relatively high level of spot pricing (greater than 50 percent) from year to year.

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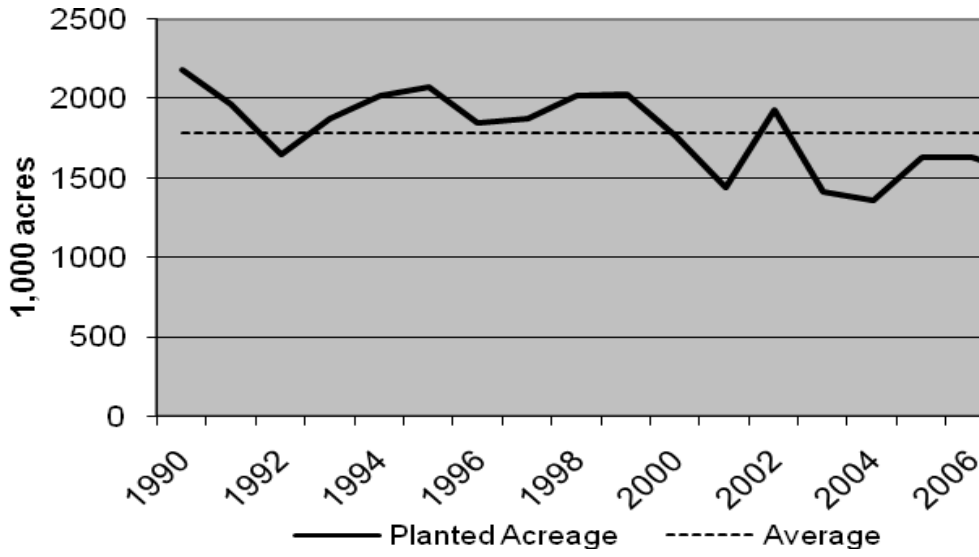
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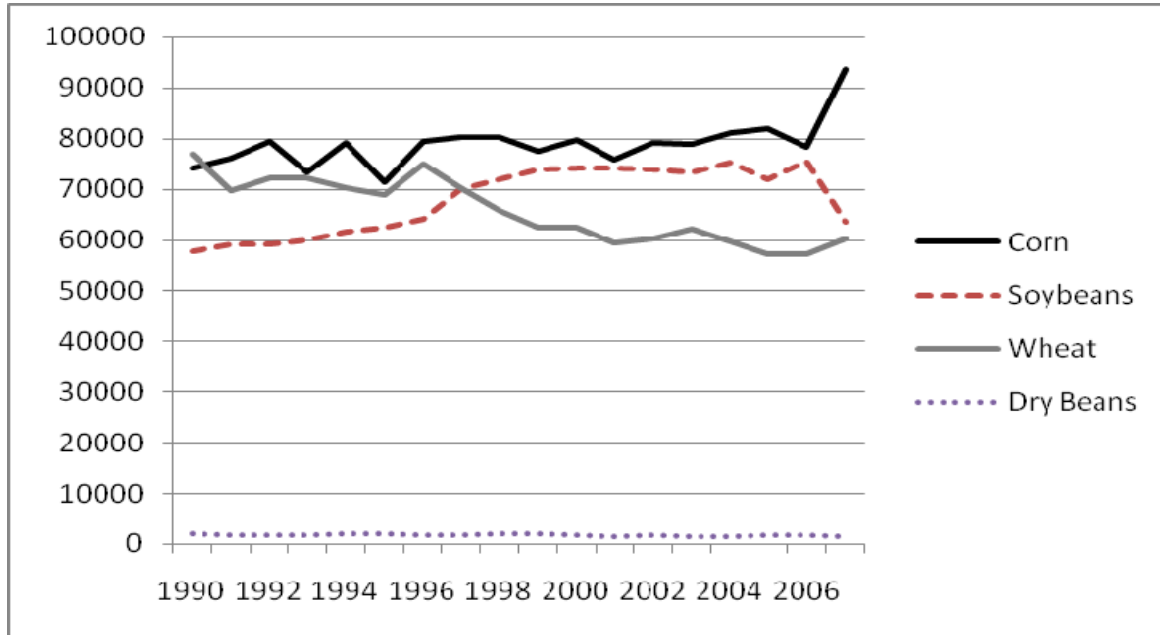
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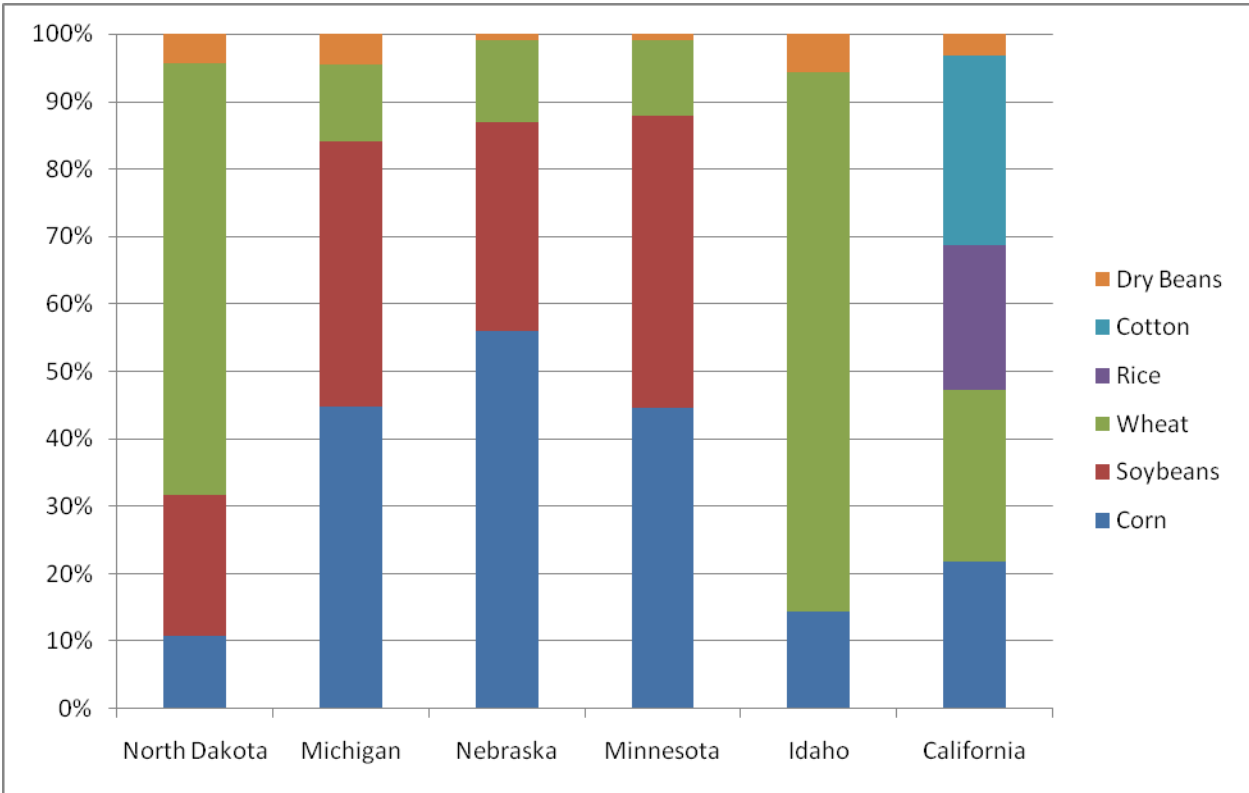


**Figure 1. Planted acreage of dry beans in the U.S., 1970-2007**

Source: USDA-NASS Annual Crop Production Reports, various issues



**Figure 2. Planted acreage of leading program crops and dry beans (1,000 acres), 1990- 2007**  
 Source: USDA-NASS Annual Crop Production Reports, various issues



**Figure 3. Average composition of acreage planted to selected program crops and dry beans in leading states, 2000-2007**

Source: USDA-NASS, 2007

**Table 1. Leading states for dry bean planting and share of U.S. total**

	<b>North Dakota</b>	<b>Michigan</b>	<b>Nebraska</b>	<b>Minnesota</b>	<b>Idaho</b>	<b>Share of U.S. (%)</b>	<b>Manitoba*</b>
	-----total planted (1,000 acres)-----						
2003	600	200	150	145	80	78	170
2004	560	190	120	115	80	79	235
2005	620	235	175	145	100	78	245
2006	670	225	140	145	105	79	315
2007	690	200	110	150	90	81	220

Source: USDA-NASS Annual Crop Production Reports, various issues

\*Data for Manitoba are for 1999-2003. More up to date data are not available



**Table 2. Average acres planted to dry beans**

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	<b>1970-1979</b>	<b>1980-1989</b>	<b>1990-1999</b>	<b>2000-2006</b>
<b>North Dakota</b>	100	319	579	602
<b>Michigan</b>	553	445	354	231
<b>Nebraska</b>	114.4	196	205	155
<b>Minnesota</b>	42	74	153	141
<b>Idaho</b>	129	150	119	90

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Source: USDA-NASS Annual Crop Production Reports, various issues

**Table 3. State shares of production by class and for all dry beans in 2007**

<b>Class</b>	<b>Leading state</b>	<b>% of total class production</b>	<b>% of U.S. Dry Bean production</b>
Pinto	North Dakota	65	29.98
Black	Michigan	56	6.07
Navy	North Dakota	42	6.35
Great Northern	Nebraska	84	3.91
Dark Red Kidney	Minnesota	72	1.88
Large Chickpeas	Washington	38	2.05
Small Red	Michigan	47	1.00
Blackeye Pea	California	54	1.06
Baby Lima	California	100	1.49
Pink	North Dakota	40	0.92
Large Lima	California	100	1.19
Light Red Kidney	Nebraska	30	0.96
Other	California	17	0.38
Cranberry	Michigan	71	0.35
Small Chickpeas	North Dakota	48	0.24
Small White	Idaho	100	0.04

Source: USDA-NASS Crop Production, December 2007

**Table 4. Top U.S. dry bean export destinations 2006/7 (including food aid)**

<b>Country</b>	<b>1,000 cwt</b>
Mexico	2161
Canada	693
United Kingdom	619
Cuba	349
Dominican Republic	330
Japan	321
Haiti	301
Spain	218
Angola	208
France	112

Source: USDA-ERS Vegetable and Melons Outlook, October 25, 2007

Figure 4. U.S. dry bean exports by class, 2006/7

