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Marketing Practices of Indiana Soybean Producers

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Marketing Practices of Indiana Soybean Producers

Abstract

Soybean marketing decisions play a critical role in maximizing farm income. The objective of the project described here was to identify market related educational needs and to provide benchmark information for producers. The assessment was conducted through a detailed direct-mail survey. The results of the survey demonstrate differences in market access among grower operation sizes and regions, and differences in forward pricing among grower operation sizes. Farmers with large operations generally have access to more markets and are more likely to manage price risk.

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Introduction

Over the last decade, agricultural policy has become more market oriented, exposing soybean producers to greater commodity price and income variability. Concurrently, South America has dramatically increased soybean production, greatly intensifying international competition. Between the competition from South American and rising input prices, soybean profit margins have narrowed, generating producer interest in value-added markets. Today, more than ever, producers' access to markets and use of forward pricing tools may have a major impact on their income.

A Guide for Extension Educators

There are several objectives for the survey of the marketing practices used by soybean producers reported here. While the survey was conducted in Indiana, these results will extend to all soybean producers. The objective of the project is to aid Extension and research faculty in developing Extension programs and educational materials that meet current and future clientele needs.

One existing need is to provide information that producers can use to benchmark their marketing practices; the most common questions in educational programs on marketing are "How common is forward pricing? Who is doing it?" Another existing need is to understand the types of markets available to Indiana soybean producers as well as how far producers are willing to haul their soybeans. Furthermore, this survey will provide a benchmark with which to measure the market impact of soy diesel; since this survey was conducted there have been several announcements of biodiesel facilities to be constructed in Indiana.

Methodology

A seven-page direct mail survey was sent to a sample of 5,000 Indiana soybean growers in August of 2005. Purdue University consulted with the Indiana Agricultural Statistics Service (IASS) to develop and distribute the survey to soybean growers representing various farm sizes and geographic regions within Indiana. IASS generated the mailing list, distributed the surveys, conducted follow-up phone calls to non-respondents, and entered all of the data into a database.

Once the information was entered into the database, all of the personal information about respondents was deleted. The database was then transferred to Purdue University for statistical analysis. The statistical inferences given in this report were developed using chi-square tests ($p \leq 0.05$). Statistical analysis was conducted using SAS (SAS Institute Inc. Cary, NC.).

A total of 1330 growers completed the survey. The response rate of 27% was similar to the response rates reported by others (Bourgeois, Morrison, & Kelner, 1997; Czapar, Currey, & Wax, 1997). For presentation purposes the survey was broken into three sections: crop management, pest management, and crop marketing. Responses to each question were characterized by farm size and crop reporting district.

In this article, we focus on grain marketing differences found across farm size and region. The farm size responses are grouped into the following total cropland categories: 0-99 acres, 100-249 acres, 250-499 acres, 500-999 acres, and 1,000+ acres, with 206, 320, 263, 262, and 259 respondents, respectively (1,310 total). The crop reporting districts were grouped into three regions: north, central, and south, with 507, 470, and 353 respondents, respectively (1,330 total). We chose to examine these three regions because of their differences in climate and types of soybean buyers.

Results

Available Markets

Specialty soybean market access is an important issue for producers. Specialty soybean buyers and seed companies offer producers an opportunity to deliver value-added soybeans that receive a premium. Producers can also receive higher prices when there is competition between multiple buyers. We examine the types of markets normally available to producers with respect to farm size and to region (Tables 1 and 2).

Table 1.
Types of Markets Available to Soybean Producers Based on Farm Size

Farm Size (acres)	Local Elevator	Crushing Plant	Elevator >30 Miles Away	Specialty Soybean	Seed Company	Other	Mean No. of Markets
	Percent of Respondents						
1-99	88.7	12.9	15.6	3.2	8.6	3.2	1.32
100-249	84.6	17.3	17.3	1.9	9.3	3.5	1.34
250-499	88.6	22.8	20.5	3.9	14.6	2.8	1.53
500-999	88.8	37.2	29.5	8.5	12.8	3.1	1.8
1000+	86.4	51.9	35.3	9.7	24.8	1.2	2.09
Average	87.1	28.8	24.0	5.4	13.9	2.7	

Table 2.
Types of Markets Available to Soybean Producers Based on Region

Region	Local Elevator	Crushing Plant	Elevator >30 Miles Away	Specialty Soybean	Seed Company	Other	Mean No. of Markets
Percent of Respondents							
North	94.3	23.7	18.5	3.9	13.4	1.4	1.53
Central	86.3	38.8	23.2	7.2	18.7	1.7	1.76
South	80.1	22.6	33.1	5.1	8.1	6.0	1.55

The local elevator is the dominant market for soybeans in Indiana. Regardless of farm size, the majority of producers (87.1%) in Indiana consider a local elevator as a market. Northern Indiana producers are more likely to say they deliver to a local elevator than producers in central and southern Indiana.

Overall, larger producers are significantly more likely to say that they have access to crushing plants, an elevator more than 30 miles away, seed companies, and specialty soybean markets. As will be discussed in the next section, this partly reflects a willingness on the part of larger growers to haul their soybeans further. Larger farmers may also be better informed about their markets and may be more willing to provide the additional effort to produce under contract for seed and specialty markets.

Clearly, there are regional differences in Indiana soybean markets. Producers in central Indiana are significantly more likely to say they have access to a crushing plant, which reflects the presence of several large soybean crushing plants in central Indiana. Producers in southern Indiana are significantly more likely to deliver to an elevator more than 30 miles away, which could reflect either the pull of the terminal markets along the Ohio River or the larger distances between buyers in the region. Producers in central and northern Indiana are significantly more likely to say they deliver to a seed company, probably a reflection of the several major seed companies located in the region. One implication of these findings is that the marketing decisions reported by producers in different regions are based on the types of available markets, which vary between the regions. Soybean producers in other states will make marketing decisions based on the available markets.

Producers with an available specialty market were asked to detail their alternatives. The dominant specialty soybean market is for non-GMO soybeans (60%), followed by STS soybeans (12%), tofu or food-grade soybeans (12%), and finally low linolenic soybeans (5%). Given that the low linolenic soybean market is relatively new, 5% of the specialty soybean production is significant. While there are regional differences in specialty soybean markets, with central and southern Indiana having more farmers delivering to specialty markets than northern Indiana, these differences were not statistically significant.

Very few producers (2.7%) deliver to "other" markets. When asked to identify the "other" market, most producers say that they delivered to a river terminal (52%) or directly to a livestock operation (18%). While farm size is not a factor in delivering to "other" markets, producers in southern Indiana are significantly more likely to deliver to an "other" market, which is logical given that the majority of these "other" markets are on the Ohio River in southern Indiana.

Distance to Market and Method of Hauling

Producers' distance to market is an indicator of the number of buyers in an area (i.e., shorter distances indicate more buyers). Producers who are willing to haul their soybeans further will have access to more markets. Finally, distance to market also has implications for the cost of delivering soybeans.

Overall, larger farmers are significantly more likely to haul their soybeans a longer distance which increases market access (Table 3). Over 60% of the smallest farms (1-99 acres) haul their soybeans less than 10 miles, compared to around 50% for medium farms (100-999 acres) and only 37% for the largest farms (1,000+ acres).

Table 3.
Distance to Market (One-Way) Based on Farm Size

Farm Size (acres)	Distance One-Way to Market (miles)				
	0 to 5	6 to 10	11 to 25	26 to 50	More Than 50
Percent of Respondents-					
1-99	28.0	36.3	25.0	8.3	2.4
100-249	19.2	29.6	30.8	13.9	6.5
250-499	18.4	30.0	36.7	12.1	2.9
500-999	21.8	26.2	30.7	15.6	5.8

1000+	10.9	26.5	31.3	24.4	7.0
Total	19.1	29.2	31.0	15.6	5.1

There are significant regional differences in the distance producers haul their soybeans to market, which is reflected in the average hauling charge (Table 4). Producers in northern Indiana tend to haul their soybeans the shortest distance and have the lowest average hauling charges for hired trucks, followed by central Indiana, while producers in southern Indiana haul their soybeans the longest distances and have the highest average hauling charges. Only 38% of producers in northern Indiana haul more than 10 miles, compared to 52% in central Indiana, and 74% in southern Indiana.

Table 4.
Distance to Market (One-Way) Based on Region and Average Commercial Hauling Charges

Region	Distance One-Way to Market (miles)					Average Commercial Hauling Charge(\$/bushel)
	0 to 5	6 to 10	11 to 25	26 to 50	More Than 50	
Percent of Respondents						
North	25.1	37.3	23.0	8.8	5.8	0.116
Central	18.3	29.6	34.6	14.3	3.2	0.128
South	10.5	15.4	38.4	28.6	7.1	0.140

Larger farmers are significantly more likely to transport soybeans with their own truck than smaller farmers (Table 5). Smaller farmers are significantly more likely to not own a truck, but instead hire someone else to haul their soybeans. For instance, 40% of farms that are 1-99 acres hire someone else to do their hauling, compared to 9% of farms over 1,000 acres.

Table 5.
Method of Soybean Transport to Market Based on Farm Size

Farm Size (acres)	Own Truck	Hire Truck	Both
Percent of Respondents			
1-99	58.5	40.2	1.2
100-249	62.5	32.0	5.5
250-499	63.1	26.1	10.8
500-999	70.2	19.6	10.2
1000+	83.5	8.7	7.8
Overall	68.0	24.6	7.4

Farmers who have longer distances to market appear to be more likely to hire someone else to haul their soybeans (Table 6). Of those who haul more than 10 miles, only 45% do it all themselves compared, to 69% of those who hire someone else to do the hauling and 64% of those who both do their own hauling and hire someone else to do it.

Table 6.
Method of Soybean Transport to Market Based on Distance to Market

Distance (miles)	Own Truck	Hire Truck	Both
Percent of Respondents			
0 to 5	21.6	11.6	15.0
6 to 10	33.8	19.0	21.3
11 to 25	30.6	33.2	33.8
26 to 50	11.1	24.6	26.3
more than 50	2.9	11.6	3.8

Some previous research suggests that producers can enhance their returns by pricing a portion of their crop production prior to harvest (Wisner, Blue, & Baldwin; Hagedorn, Irwin, Good, & Colino). As a consequence, many of the Extension efforts in the marketing area have focused on educating producers about a) the benefits of forward pricing, and b) how to use a variety of contracts to forward price. Producers were asked which pricing tools they used to price soybeans prior to July 15, 2004 and prior to July 15, 2005 (Tables 7-9).

Table 7.
Number of Forward Pricing Tools Used in 2004 Based on Farm Size

Farm Size (acres)	No. of Forward Pricing Tools			
	None	1	2	3
	Percent of Respondents			
1-99	89.9	10.1	0.0	0.0
100-249	82.7	16.9	0.4	0.0
250-499	71.5	26.1	1.9	0.5
500-999	60.4	34.2	3.6	1.8
1000+	43.0	46.5	7.8	2.6
Overall	68.9	27.1	3.0	1.0

Table 8.
Number of Forward Pricing Tools Used in 2005 Based on Farm Size<

Farm Size (acres)	No. of Forward Pricing Tools			
	None	1	2	3 or More
	Percent of Respondents			
1-99	89.3	10.1	0.0	0.6
100-249	79.6	19.6	0.8	0.0
250-499	73.4	24.2	1.9	0.5
500-999	56.9	36.4	5.3	1.3
1000+	41.3	47.8	8.7	2.2
Overall	67.3	28.1	3.6	0.9

Table 9.
Percent of Producers Who Used Each Pricing Tool When Forward Pricing

Pricing Tool	2004	2005
Cash forward contract	89.2 ^a	88.1
Minimum price contract	3.5	5.3
Average price contract	7.8	8.9
Futures hedge	8.1	8.0
Options contract	4.7	5.0
Complex	2.6	1.9

^a Producers can report more than one pricing tool, so the columns do not add to 100%.

In both 2004 and 2005, larger farmers were significantly more likely to forward price and to use more than one forward pricing tool compared to smaller farmers. For instance, 10% of producers with less than 100 acres used forward pricing tools in 2004 compared with 57% of producers with more than 1000 acres. There are several explanations for why larger producers are more likely to forward price. First, larger producers have more bushels to price and most pricing tools require a minimum of 1,000 bushels or more. Futures contracts require that the producer price in units of 5,000 bushels. For example, a 100-acre producer with a 50:50 corn soybean rotation and an average yield of 50 bushels of soybeans would only expect to produce 2,500 bushels of soybeans, an amount too small for using futures hedges. Second, many pricing tools are very demanding of a producer's time and effort. The larger the operation, the more producers can spread this cost in time and effort over many units. Third, and more importantly, larger producers tend to earn a larger share of their household income from farming than smaller producers. With such stakes, managing price risk by forward pricing is much more important to larger producers.

The most commonly used pricing tool is the cash forward contract, with almost 90% of the farmers who forward price using these contracts. The next most popular contracts, used by about 8% of the producers who forward price, are futures hedges and average price contracts. Average price contracts, also referred to as New Generation Contracts, were introduced about 6 years ago and are now used at about the rate of futures contracts indicating growing acceptance. About 5% of producers who forward price use options contracts, 4 to 5% use minimum price contracts, and only about 2 to 3 % use more complex pricing tools which involve more than one position on the same grain.

Conclusions

The results of the survey reported here suggest that farm size and location determine producers' access to markets both in terms of type of market and distance to market. Producers' forward marketing practices vary depending on farm size. Large producers are more willing to haul soybeans longer distances, which increases their access to markets, and they are more likely to use forward pricing tools. Overall, producers and especially small producers show some preference for using the local elevator to market soybeans.

Purdue Extension programming currently offers marketing programs on price risk management for both commodity and specialty soybeans. In order to better meet the marketing needs of Indiana soybean producers, Extension programming should take into account producers' current market environment.

The survey showed that despite major efforts to teach farmers about futures and options, they are used by only a small fraction of farmers. One explanation is that farmers may be limited in using these pricing tools because of the minimum size of the contract rather than their understanding of the use of these contracts. As a consequence, educational programs should place more emphasis on how to make the best use of the cash pricing tools offered by local elevators. Local elevators often have multiple cash pricing tools including spot, forward contracts, hedge to arrive, basis contracts and minimum and maximum price contracts and these contracts link producers to the futures and options markets.

Extension programming could also encourage smaller producers to look more broadly for markets. For example, if a small producer does not have enough grain to fill a semi, he could pool his grain with other small producers and go greater distances to market.

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