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Producer Perceptions of Risk and Time

Kendra M. Hedge, Purdue University, khedge@purdue.edu

Elizabeth A. Yeager, Purdue University, eayeager@purdue.edu

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Abstract

Agribusinesses rely on producers choosing their products and services for the success of their business. Agribusinesses can use information regarding how producers rate the importance of certain areas of risk and what takes most of the producers' time to offer specific services to different segments of producers to better meet their needs. An ordered logit model and a multinomial logit model are used to determine factors significant to producers' use of time and importance of various areas of risk. The results provide insights to agribusinesses that can help them identify producer segments.

Keywords: *risk, time management, multinomial logit, ordered logit*

Agriculture companies across the United States and across the world are daily trying to win the business of farm managers. As Alexander, Wilson, and Foley wrote, “Developing effective marketing strategies, and anticipating the needs of current and future customers is one of the most significant challenges faced by agribusiness firms” (2005). Understanding how farm risk affects decision making will continue to be an important research focal point for these agricultural companies who rely solely on the business of farmers to succeed. A couple of producer perceptions that can be used to separate segments of producers are the importance of risk and time allocation perceptions. Both of these can greatly impact who producers choose as a retailer, so it is important for companies to separate producers into segments and offer services that complement their needs. Peter Barry wrote about the importance of risk in agriculture saying, “Risk management in agriculture has commanded substantial resources from farmers, agricultural lenders, agribusinesses, and the public sector” (Barry 1984). As we can see from this statement, risk in agriculture and how producers manage it can have large impacts not only on their farms but on the whole industry.

A survey completed in 1996 by USDA asked farmers about their level of concern regarding factors affecting their farming operations (Harwood et al. 1996). This survey was probability based so the results were able to be extended across the entire U.S. farm sector. In the survey, some of the concerns included were “uncertainty in commodity prices,” “ability to adopt new technology,” and “lawsuits.” Producers valued each concern from “not concerned” to “very concerned.” The results from this survey showed that different types of producers had different risk focuses. The 2013 Large Commercial Producer survey which will be used in this analysis utilized similar risk questions and procedures to those found in the USDA survey.

The USDA is forecasting that farm income will be down 26.6% this year from 2013's forecast. They are also estimating declines in crop cash receipts and values of crop inventories (U.S. Department of Agriculture, 2014). Different segments of producers will have to use different strategies to efficiently manage their time and the risks they face under these tighter economic conditions. It is important for retailers to recognize these different groups because under tighter economic circumstances producers will look to work with retailers who offer specific services that meet their needs.

Agricultural retail businesses in the past have recognized the advantages of segmenting producers and offering specific services to them, especially in buyer segments. Now with retailers facing tighter economic circumstances, segmenting producers based on how they view the importance of various areas of risk and the time they spend on different management areas of the farm look to be important factors. Retailers can use this information to determine which specific services should be offered to the different segments. Ordered logit modeling and multinomial logit modeling will be used to predict producers' responses to what management activities take the majority of their time and the importance of different areas of risk. The next sections explain the data that we have and the methods that will be used.

Data

More than 1,600 respondents from across the U.S. completed the 2013 Large Commercial Producer survey in one of three collection methods, mail, telephone, or email, during the early months of 2013. There were seven commodity groups that the survey focused on which included: corn and soybeans; wheat, barley and other small grains; cotton; fruit, nuts and vegetables; dairy; hogs; and cattle. For each commodity, the states that accounted for 75 percent of total U.S. production were identified and producers were surveyed in these states. Each

question was measured separately and then cross analyzed based on the demographics of producers. The demographics used included age, education, gross farm sales, size of operation, and type of operation. Tables 1 and 2 show the average farm sizes for each of the different commodity groups. The average acres of corn was 660 and the average of cotton is 854. The average head of dairy cows was 519 and the average number of finished pigs is 10,686. Table 3 shows the percentage of respondents that fit into each category. 67.86% of respondents produced crops. 44.56% of the respondents were in the age category of 55-69 and 84.81% of respondents were the primary farm decision makers.

Table 1. Crop Producer Average Farm Size (Acres Planted)

	Mean	Standard Deviation
Corn	660.09	955.82
Soybeans	591.01	751.56
Wheat, Barley, Other Small Grains	775.26	1,423.01
Cotton	854.29	1,468.83
Potatoes	511.74	1,060.52
Tomatoes	201.70	488.80
Other Fruits and Vegetables	499.21	1,570.17

Table 2. Livestock Producer Average Farm Size (Number of Animals)

	Mean	Standard Deviation
Cows Milked	519.28	1,026.60
Finished Pigs	10,686.21	21,216.13
Feeder Pigs	39,186.00	97,406.11
Finished Cattle	719.10	2,684.98
Feeder Cattle	579.53	5,246.91
Custom Cattle	1,074.51	4,666.53
Custom Heifers	371.71	1,678.37

Table 3. Respondent Demographics

	Percentage of Respondents
Producer Type	
Crop	67.86%
Livestock	32.14%
Takes Most of Their Time	
Managing Land, Equipment, and Facilities	44.39%
Managing Production	29.57%
Marketing/Prices	6.96%
Controlling Costs	9.15%
Managing People	7.69%
Other	2.24%
Dominant Strategy (Success Factor)	
Managing Land, Equipment, and Facilities	10.33%
Managing Production	20.13%
Marketing/Prices	6.29%
Controlling Costs	24.34%
Managing People	5.60%
Multiple Success Factors	33.32%
Hired Out Services	
Respondents that Hired out any services	79.78%
Gender	
Male	81.24%
Female	18.76%
Age	
18-39	4.89%
40-54	24.68%
55-69	44.56%
70+	25.88%
Role on Farm	
Primary farm decision maker	84.81%
Spouse of primary farm decision maker	10.53%
Other family employee	3.36%
other non-family employee	1.30%
Gross Farm Sales	
less than \$100,000	16.92%
\$100,000 - \$499,999	33.25%
\$500,000 - \$999,999	18.26%
\$1,000,000 - \$2,499,999	18.46%
\$2,500,000 - \$4,999,999	7.69%
\$5,000,000 and over	5.41%

Methods

Importance of risk and time spent managing parts of a farm business are the main interests in this study. Areas of risk were measured on a scale from 1 to 9 where 1 is “not at all important” and 9 is “very important.” The areas of risk were: fluctuations in the prices of things you buy for your farm; fluctuations in prices you receive for your production; fluctuations in yields; being too concentrated in one area of production; regulatory compliance; not having adequate land or physical resources; not having adequate skills, knowledge, or human resources; society’s view of something happening on your farm; and competition. Producers were also asked to choose only one activity from the five categories that took most of their time in 2012 or they could specify “other.” The categories for the time question were: managing land, equipment, and facilities; managing production; marketing/prices; controlling costs; managing people; and other. Both of these factors, importance of risk and management activity that takes most of your time, impact farmers’ decision making and the companies they choose to do business with.

Willock and colleagues used a 5 point Likert scale to evaluate farmers’ attitudes in a 1999 survey of farmers (Willock et al. 1999). The Likert scales were used to measure farm attitude, objectives, and behaviors. Edwards-Jones (2006) created a survey that asked farmers to indicate their level of agreement with statements on a five point scale ranging from “strongly disagree” to “strongly agree.” The information from the questions was also broken down by the structure of the farm business. These two surveys use similar approaches to the questions asked in our survey and provide support for the chosen survey methods.

Ordered logit regression and multinomial logit regression analysis were used to estimate producer responses to the questions of interest and determine which factors were most likely to

influence the responses. The decisions to use these methods were based on previous research in other areas of agriculture that had similar goals.

Ordered logit regression was chosen to analyze the question addressing the importance of various areas of risk. In a 2007 study, Torbett, Roberts, Larson, and English, used ordered logit regression to analyze a producer survey question determining producers' perceptions on the importance of precision farming that was on a Likert scale. Using this procedure they were able to determine which factors were most important to producers to increase P and K efficiency.

In a 2011 study focused on producers' risk perceptions, an ordered logit model was utilized. This research had used an 11-point Likert scale to measure farmer's risk attitude. An ordered logit model was used to explain the association between the attitude on the Likert scale and the explanatory variables (Uematsu and Mishra 2011).

The ordered logit model is specified as:

$$w_{ij} = 1 \text{ if } y_i \leq j, 0 \text{ otherwise, } j = 1, 2, \dots, J - 1$$

$$\text{Prob}(w_{ij} = 1 | x_i) = F(x_i' \beta - \mu_j)$$

where β represents a common slope vector, μ is an error term, x_i represents any individual's own set of characteristics, i represents the individual and j represents the alternative chosen (Greene 2012).

In a 2005 study, Alexander, Wilson, and Foley, used a multinomial logit model to predict market segments based on observable characteristics. The regression used characteristics that salespeople could easily determine about their customers or through simple questions. The model used assumed that producers have behavior that maximizes their utility. The model was significant at the 1% level and predicted the shares of the segments consistently with the actual shares.

D'Antoni, Mishra, and Joo used information from the 2009 Southern Precision Farming Survey and a multinomial logit model to determine how perceptions impact farmers adopting autosteer GPS guidance system. A multinomial logit model was used to determine the probability of farmers adopting autosteer based on several demographic characteristics including age, education, and farm size. The farmers that adopted autosteer were classified into three groups. It was found that several factors do increase the probability that a cotton farmer will adopt autosteer.

Multinomial logit models are appropriate when data are individual specific, like the data obtained in the 2013 Large Commercial Producer survey (Greene 2012). The dependent variables are categorical, with more than two categories, which is why multinomial logit is chosen to estimate.

The model equations determine the probabilities for the $J + 1$ choices for a respondent with the characteristic w_i . In the equation, i represents the individual and j represents the alternative chosen

$$Prob(Y_i = j|w_i) = \frac{e^{w_i \alpha_j}}{\sum_{j=0}^4 e^{w_i \alpha_j}}, \text{ for } j = 0, 1, \dots, 4$$

(Greene 2012).

Table 4 shows all the variables that were included in the models and defines how they were placed in the model. For the commodities, the number of acres or number of head of animals were included. The hired out services variable was a dummy variable, so if they did hire out services they received a 1 and if not a zero. For the dominant strategy, producers identified their most important success factor(s) by choosing the most important factor when paired against another factor. Each factor was paired against each other factor, for a total of ten pairs. If the

Table 4. Variables Defined

Variable	Input in Model
Corn and Soybeans	Acres
Wheat	Acres
Cotton	Acres
Fruits and Vegetables	Acres
Dairy Cows	Number of Head
Beef Cattle	Number of Head
Hogs	Humber of Head
Hired out Services	
Yes	1
No	0
Dominant Strategy	
Managing Land, Equipment, and Facilities	0
Managing Production	1
Marketing/Prices	2
Controlling Costs	3
Managing People	4
Multiple Success Factors	5
Role on Farm	
Primary farm decision maker	0
Spouse of primary farm decision maker	1
Other family employee	2
other non-family employee	3
Age	Years
Gross Farm Sales	Dollars
Gender	
Female	1
Male	0

producer chose a factor four times, this was their dominant strategy. If they had not chosen a factor four times, but had chosen one factor three times, then the factor chosen three times was the dominant strategy. If producers did not have a factor chosen four times and did not have one factor chosen three times, they had multiple dominant strategies. Each strategy was given a number 0-5. Similarly the respondents identified their role on the farm which was assigned a

number 0-3. Age was in years and gross farm sales was in dollars. If the respondent was female, they received a 1 and if not a zero.

It is expected that from our results we will be able to identify characteristics of producers that affect their time allocations and how they rate the importance of different areas of risks using information that retailers would be able to gather easily. This will allow retailers to better offer programs and services to specific groups of producers, which will allow them to be more profitable.

Results

The ordered logit model results are shown and discussed below. The survey question used to determine how producers rated areas of risk asked producers to rate risk on a scale from 1 to 9, where 1 means “not at all important” and 9 means “very important,” for nine categories. The nine categories included: fluctuations in the prices of things you buy for your farm, fluctuations in prices you receive for your production, fluctuations in yields, being too concentrated in one area of production, regulatory compliance, not having adequate land or physical resources, not having adequate skills, knowledge, or human resources, society’s view of something happening on your farm, and competition.

Table 5 shows the results from the ordered logit regression for producers rating the importance of the risk “fluctuations in the prices of things you buy for your farm” on a scale from 1 to 9, where 1 means “not at all important” and 9 means “very important.” The primary results indicated that the identified dominant strategy, or the most important success factor, and gender were significant. The marginal effects showed dominant strategy and female as significant for all levels of importance, except 8, where dominant strategy was not significant. The largest values for the marginal effects were observed for 9, “very important.” At this level

of importance, respondents who were female were 12.78% more likely to choose 9 than males. Females were 4.62% less likely to choose 7 compared to males and 2.55% less likely to choose 6.

Table 6 shows the results from the ordered logit regression for producers rating the risk of “fluctuations in the prices you receive for your production” on a scale from 1 to 9, where 1 means “not at all important” and 9 means “very important.” The primary results indicated that the gender and age were significant. The marginal effects showed female and age as significant for all levels of importance, except when 2 is chosen. The largest values for the marginal effects were observed for 9, “very important.” At this level of importance, respondents who were female were 10.01% more likely to choose 9 than males. Females were 4.48% less likely to choose 8 compared to males and 2.58% less likely to choose 7. For every year older, producers were 0.22% more likely to choose 9. Hired out services was also significant for importance levels 1 and 7. Producers were 0.18% more likely to choose 1 if they hired out services and 0.81% more likely to choose the level of importance as 7.

Table 7 shows the results from the ordered logit regression for producers rating the risk of “fluctuations in yields” on a scale from 1 to 9. The primary results showed that fruits, nuts, and vegetables, dairy cows, gender, and age were significant. The marginal effects indicated that fruits, nuts, and vegetables and dairy cows were significant for all levels of importance, except 2. As the acres of fruits, nuts, and vegetables increased by 1,000 acres, producers were 3.89% more likely to choose 9, “very important.” As the number of dairy cows increased by 1,000 head, producers were 6.60% more likely to choose 9. The marginal effects showed female and age as significant for all levels of importance. The largest values for the marginal effects were for importance level 9. Respondents who were female were 11.70% more likely to choose 9 than

males. Females were 4.03% less likely to choose 7 compared to males and 2.27% less likely to choose 6. For every year older, producers were 0.24% more likely to choose 9.

Table 8 shows the results from the ordered logit regression for producers rating the risk of “being too concentrated in one area of production” on a scale from 1 to 9. The primary results showed the variable for the role on the farm was significant. The marginal effects indicated that role on the farm was significant except for the slightly important choice, 6. As people other than the primary operator answered the question, it was more likely that 7, 8, or 9 would be chosen.

Table 9 shows the results from the ordered logit regression for producers rating the risk of “regulatory compliance” on a scale from 1 to 9. The primary results indicated that dairy cows, dominant strategy, female, age, and gross farm sales were significant. The marginal effects showed that dairy cows and dominant strategy were significant in all the levels of importance, except 7. As the number of dairy cows increased by 1,000 head, producers were 5.36% more likely to choose 9, “very important.” The variable for female was significant at several levels of importance. Females were 1.15% more likely to choose 8 than males. The marginal effects showed age and gross farm sales as significant at all levels of importance, except 7. The largest values for the marginal effects were at importance level 9. For every year older, producers were 0.18% more likely to choose 9. For every \$100,000 increase in gross farm sales, producers were 0.20% more likely to choose 9.

Table 10 shows the results from the ordered logit regression for producers rating the risk of “not having adequate land or physical resources” on a scale from 1 to 9. The primary results showed that hired out services and age were significant. The marginal effects indicated that producers who hired out services were 4.01% more likely to choose 9, “very important.” They

Table 5. Importance of Fluctuations in the prices of things you buy for you farm

	Primary Results	Marginal Effects								
		1	2	3	4	5	6	7	8	9
Corn and Soybeans (1,000 acres)	-0.0103 (0.0362)	0.0001 (0.0004)	0.0001 (0.0002)	0.0001 (0.0003)	0.0002 (0.0007)	0.0006 (0.0021)	0.0005 (0.0019)	0.0009 (0.0030)	0.0000 (0.0001)	-0.0024 (0.0085)
Wheat (1,000 acres)	0.0516 (0.0511)	-0.0005 (0.0005)	-0.0003 (0.0003)	-0.0005 (0.0005)	-0.0009 (0.0009)	-0.0030 (0.0030)	-0.0027 (0.0027)	-0.0043 (0.0043)	0.0001 (0.0003)	0.0121 (0.0120)
Cotton (1,000 acres)	0.0124 (0.1261)	-0.0001 (0.0013)	-0.0001 (0.0007)	-0.0001 (0.0011)	-0.0002 (0.0023)	-0.0007 (0.0074)	-0.0006 (0.0066)	-0.0010 (0.0105)	0.0000 (0.0003)	0.0029 (0.0295)
Fruits and Vegetables (1,000 acres)	0.0785 (0.0744)	-0.0008 (0.0008)	-0.0004 (0.0004)	-0.0007 (0.0007)	-0.0014 (0.0014)	-0.0046 (0.0044)	-0.0041 (0.0039)	-0.0065 (0.0062)	0.0002 (0.0004)	0.0184 (0.0174)
Dairy Cows (1,000 head)	0.1347 (0.1091)	-0.0014 (0.0011)	-0.0007 (0.0006)	-0.0012 (0.0010)	-0.0024 (0.0020)	-0.0079 (0.0064)	-0.0070 (0.0057)	-0.0112 (0.0091)	0.0003 (0.0007)	0.0315 (0.0255)
Beef Cattle (1,000 head)	0.0184 (0.0207)	-0.0002 (0.0002)	-0.0001 (0.0001)	-0.0002 (0.0002)	-0.0003 (0.0004)	-0.0011 (0.0012)	-0.0010 (0.0011)	-0.0015 (0.0017)	0.0000 (0.0001)	0.0043 (0.0049)
Hogs (1,000 head)	0.0024 (0.0031)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0001)	-0.0001 (0.0002)	-0.0001 (0.0002)	-0.0002 (0.0003)	0.0000 (0.0000)	0.0006 (0.0007)
Hired Out Services	0.0548 (0.1117)	-0.0006 (0.0012)	-0.0003 (0.0006)	-0.0005 (0.0010)	-0.0010 .	-0.0033 (0.0067)	-0.0029 (0.0059)	-0.0045 (0.0091)	0.0002 (0.0007)	0.0128 (0.0259)
Dominant Strategy	0.0760*** (0.0238)	-0.0008*** (0.0003)	-0.0004** (0.0002)	-0.0007*** (0.0003)	-0.0014*** (0.0005)	-0.0045*** (0.0014)	-0.0039*** (0.0013)	-0.0063*** (0.0020)	0.0002 (0.0004)	0.0178*** (0.0056)
Female	0.5288*** (0.1308)	-0.0045*** (0.0014)	-0.0025*** (0.0009)	-0.0040*** (0.0012)	-0.0082*** (0.0022)	-0.0275*** (0.0063)	-0.0255*** (0.0061)	-0.0462*** (0.0119)	-0.0094* (0.0054)	0.1278*** (0.0322)
Age (Years)	0.0039 (0.0035)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	-0.0001 (0.0001)	-0.0002 (0.0002)	-0.0002 (0.0002)	-0.0003 (0.0003)	0.0000 (0.0)	0.0009 (0.0008)
Role on Farm	0.0075 (0.0880)	-0.0001 (0.0009)	0.0000 (0.0005)	-0.0001 (0.0008)	-0.0001 (0.0016)	-0.0004 (0.0052)	-0.0004 (0.0046)	-0.0006 (0.0073)	0.0000 (0.0002)	0.0018 (0.0206)
Gross Farm Sales (\$100,000s)	-0.0027 (0.0031)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0001)	0.0002 (0.0002)	0.0001 (0.0002)	0.0002 (0.0003)	0.0000 (0.0000)	-0.0006 (0.0007)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 6. Importance of Fluctuations in prices you receive for your production

Outcome	Primary Results	Marginal Effects								
		1	2	3	4	5	6	7	8	9
Corn and Soybeans (1,000 acres)	-0.0376 (.0352)	0.0005 (0.0005)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0011 (0.0011)	0.0010 (0.0010)	0.0024 (0.0023)	0.0038 (0.0035)	-0.0091 (0.0085)
Wheat (1,000 acres)	0.0230 (.0545)	-0.0003 (0.0007)	0.0000 (0.0001)	-0.0001 (0.0002)	-0.0001 (0.0002)	-0.0007 (0.0016)	-0.0006 (0.0015)	-0.0015 (0.0035)	-0.0023 (0.0054)	0.0056 (0.0132)
Cotton (1,000 acres)	-0.0295 (.1209)	0.0004 (0.0016)	0.0001 (0.0002)	0.0001 (0.0004)	0.0001 (0.0004)	0.0009 (0.0036)	0.0008 (0.0032)	0.0019 (0.0078)	0.0029 (0.0121)	-0.0071 (0.0293)
Fruits and Vegetables (1,000 acres)	0.1677 (.1128)	-0.0022 (0.0015)	-0.0003 (0.0003)	-0.0006 (0.0005)	-0.0005 (0.0004)	-0.0050 (0.0034)	-0.0045 (0.0031)	-0.0109 (0.0073)	-0.0167 (0.0113)	0.0407 (0.0273)
Dairy Cows (1,000 head)	0.0934 (.1241)	-0.0012 (0.0017)	-0.0002 (0.0003)	-0.0003 (0.0005)	-0.0003 (0.0004)	-0.0028 (0.0037)	-0.0025 (0.0033)	-0.0061 (0.0081)	-0.0093 (0.0124)	0.0227 (0.0301)
Beef Cattle (1,000 head)	0.0137 (.023)	-0.0002 (0.0003)	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)	-0.0004 (0.0007)	-0.0004 (0.0006)	-0.0009 (0.0015)	-0.0014 (0.0023)	0.0033 (0.0056)
Hogs (1,000 head)	-0.0014 (.0029)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0001)	0.0000 (0.0001)	0.0001 (0.0002)	0.0001 (0.0003)	-0.0003 (0.0007)
Hired Out Services	0.1608 (.1197)	0.0018*** (-1.240)	-0.0003 (0.0003)	-0.0006 (0.0005)	-0.0005 (0.0004)	-0.0050 (0.0039)	-0.0045 (0.0035)	0.0081*** (-1.310)	-0.0156 (0.0112)	0.0393 (0.0295)
Dominant Strategy	0.0412 (.0258)	-0.0005 (0.0004)	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0012 (0.0008)	-0.0011 (0.0007)	-0.0027 (0.0017)	-0.0041 (0.0026)	0.0100 (0.0063)
Female	0.4266*** (.1441)	-0.0049*** (0.0017)	-0.0007* (0.0004)	-0.0013** (0.0006)	-0.0011** (0.0006)	-0.0112*** (0.0036)	-0.0103*** (0.0034)	-0.0258*** (0.0082)	-0.0448*** (0.0158)	0.1001*** (0.0324)
Age (Years)	0.0091** (.0038)	-0.0001** (0.0001)	0.0000 (0.0000)	0.0000* (0.0000)	0.0000* (0.0000)	-0.0003** (0.0001)	-0.0002** (0.0001)	-0.0006** (0.0003)	-0.0009** (0.0004)	0.0022** (0.0009)
Role on Farm	-0.0689 (.0951)	0.0009 (0.0013)	0.0001 (0.0002)	0.0002 (0.0003)	0.0002 (0.0003)	0.0020 (0.0028)	0.0018 (0.0026)	0.0045 (0.0062)	0.0069 (0.0095)	-0.0167 (0.0231)
Gross Farm Sales (\$100,000s)	0.0044 (.0035)	-0.0001 (0.0001)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0003 (0.0002)	-0.0004 (0.0004)	0.0011 (0.0009)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 7. Importance of Fluctuations in Yields

Outcome	Primary Results	Marginal Effects								
		1	2	3	4	5	6	7	8	9
Corn and Soybeans (1,000 acres)	0.0181 (0.0347)	-0.0002 (0.0004)	-0.0001 (0.0001)	-0.0001 (0.0003)	-0.0002 (0.0004)	-0.0009 (0.0018)	-0.0009 (0.0018)	-0.0015 (0.0029)	-0.0004 (0.0008)	0.0044 (0.0085)
Wheat (1,000 acres)	0.0133 (0.0509)	-0.0002 (0.0006)	0.0000 (0.0002)	-0.0001 (0.0004)	-0.0001 (0.0005)	-0.0007 (0.0026)	-0.0007 (0.0027)	-0.0011 (0.0043)	-0.0003 (0.0012)	0.0033 (0.0125)
Cotton (1,000 acres)	0.0703 (0.1253)	-0.0009 (0.0016)	-0.0002 (0.0005)	-0.0006 (0.0010)	-0.0007 (0.0013)	-0.0036 (0.0064)	-0.0037 (0.0065)	-0.0059 (0.0106)	-0.0016 (0.0029)	0.0173 (0.0308)
Fruits and Vegetables (1,000 acres)	0.1586* (0.0857)	-0.0020* (0.0012)	-0.0006 (0.0004)	-0.0012* (0.0007)	-0.0017* (0.0010)	-0.0081* (0.0044)	-0.0083* (0.0045)	-0.0134* (0.0073)	-0.0037* (0.0022)	0.0389* (0.0211)
Dairy Cows (1,000 head)	0.2687* (0.1414)	-0.0034* (0.0019)	-0.0009 (0.0006)	-0.0021* (0.0012)	-0.0029* (0.0016)	-0.0137* (0.0073)	-0.0140* (0.0074)	-0.0227* (0.0120)	-0.0062* (0.0036)	0.0660* (0.0347)
Beef Cattle (1,000 head)	0.0184 (0.0218)	-0.0002 (0.0003)	-0.0001 (0.0001)	-0.0001 (0.0002)	-0.0002 (0.0002)	-0.0009 (0.0011)	-0.0010 (0.0011)	-0.0016 (0.0019)	-0.0004 (0.0005)	0.0045 (0.0054)
Hogs (1,000 head)	-0.0001 (0.0028)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0001)	0.0000 (0.0002)	0.0000 (0.0002)	0.0000 (0.0001)	0.0000 (0.0007)
Hired Out Services	-0.1475 (0.1141)	0.0018 (0.0014)	0.0005 (0.0004)	0.0011 (0.0009)	0.0015 (0.0012)	0.0073 (0.0055)	0.0075 (0.0057)	0.0126 (0.0098)	0.0041 (0.0038)	-0.0364 (0.0283)
Dominant Strategy	-0.0015 (0.0243)	0.0000 (0.0003)	0.0000 (0.0001)	0.0000 (0.0002)	0.0000 (0.0003)	0.0001 (0.0012)	0.0001 (0.0013)	0.0001 (0.0021)	0.0000 (0.0006)	-0.0004 (0.0060)
Female	0.4717*** (0.1349)	-0.0052*** (0.0016)	-0.0014** (0.0006)	-0.0032*** (0.0011)	-0.0044*** (0.0014)	-0.0214*** (0.0057)	-0.0227*** (0.0062)	-0.0403*** (0.0116)	-0.0184** (0.0076)	0.1170*** (0.0335)
Age (Years)	0.0097*** (0.0035)	-0.0001** (0.0001)	0.0000* (0.0000)	-0.0001** (0.0000)	-0.0001** (0.0000)	-0.0005*** (0.0002)	-0.0005*** (0.0002)	-0.0008*** (0.0003)	-0.0002** (0.0001)	0.0024*** (0.0009)
Role on Farm	0.0489 (0.0903)	-0.0006 (0.0012)	-0.0002 (0.0003)	-0.0004 (0.0007)	-0.0005 (0.0010)	-0.0025 (0.0046)	-0.0025 (0.0047)	-0.0041 (0.0076)	-0.0011 (0.0021)	0.0120 (0.0222)
Gross Farm Sales (\$100,000s)	-0.0015 (0.0032)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0001 (0.0002)	0.0001 (0.0002)	0.0001 (0.0003)	0.0000 (0.0001)	-0.0004 (0.0008)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 8. Importance of Being too Concentrated in one area of production

Outcome	Primary Results	Marginal Effects								
		1	2	3	4	5	6	7	8	9
Corn and Soybeans (1,000 acres)	-0.0269 (0.0336)	0.0012 (0.0015)	0.0009 (0.0011)	0.0012 (0.0015)	0.0012 (0.0015)	0.0020 (0.0025)	0.0000 (0.0001)	-0.0016 (0.0020)	-0.0021 (0.0026)	-0.0029 (0.0036)
Wheat (1,000 acres)	0.0302 (0.0472)	-0.0014 (0.0022)	-0.0010 (0.0016)	-0.0013 (0.0021)	-0.0014 (0.0021)	-0.0023 (0.0036)	0.0000 (0.0001)	0.0018 (0.0029)	0.0023 (0.0037)	0.0032 (0.0051)
Cotton (1,000 acres)	-0.0080 (0.1270)	0.0004 (0.0058)	0.0003 (0.0043)	0.0004 (0.0057)	0.0004 (0.0057)	0.0006 (0.0096)	0.0000 (0.0002)	-0.0005 (0.0077)	-0.0006 (0.0099)	-0.0009 (0.0137)
Fruits and Vegetables (1,000 acres)	0.0362 (0.0525)	-0.0017 (0.0024)	-0.0012 (0.0018)	-0.0016 (0.0023)	-0.0016 (0.0024)	-0.0027 (0.0040)	-0.0001 (0.0001)	0.0022 (0.0032)	0.0028 (0.0041)	0.0039 (0.0056)
Dairy Cows (1,000 head)	0.0256 (0.0979)	-0.0012 (0.0045)	-0.0009 (0.0033)	-0.0011 (0.0044)	-0.0011 (0.0044)	-0.0019 (0.0074)	0.0000 (0.0002)	0.0015 (0.0059)	0.0020 (0.0076)	0.0028 (0.0105)
Beef Cattle (1,000 head)	-0.0084 (0.0169)	0.0004 (0.0008)	0.0003 (0.0006)	0.0004 (0.0008)	0.0004 (0.0008)	0.0006 (0.0013)	0.0000 (0.0000)	-0.0005 (0.0010)	-0.0006 (0.0013)	-0.0009 (0.0018)
Hogs (1,000 head)	0.0042 (0.0028)	-0.0002 (0.0001)	-0.0001 (0.0001)	-0.0002 (0.0001)	-0.0002 (0.0001)	-0.0003 (0.0002)	0.0000 (0.0000)	0.0003 (0.0002)	0.0003 (0.0002)	0.0005 (0.0003)
Hired Out Services	0.0955 (0.1097)	-0.0045 (0.0053)	-0.0033 (0.0039)	-0.0043 (0.0050)	-0.0043 (0.0050)	-0.0070 (0.0079)	0.0001 (0.0004)	0.0059 (0.007)	0.0074 (0.0084)	0.0100 (0.0113)
Dominant Strategy	0.0252 (0.0232)	-0.0012 (0.0011)	-0.0008 (0.0008)	-0.0011 (0.0010)	-0.0011 (0.0010)	-0.0019 (0.0018)	0.0000 (0.0001)	0.0015 (0.0014)	0.0020 (0.0018)	0.0027 (0.0025)
Female	-0.0317 (0.1306)	0.0015 (0.0061)	0.0011 (0.0044)	0.0014 (0.0059)	0.0014 (0.0059)	0.0024 (0.0097)	0.0000 (0.0001)	-0.0019 (0.0081)	-0.0025 (0.0101)	-0.0034 (0.0138)
Age (Years)	-0.0015 (0.0034)	0.0001 (0.0002)	0.0000 (0.0001)	0.0001 (0.0002)	0.0001 (0.0002)	0.0001 (0.0003)	0.0000 (0.0000)	-0.0001 (0.0002)	-0.0001 (0.0003)	-0.0002 (0.0004)
Role on Farm	0.2618*** (0.0912)	-0.0120*** (0.0043)	-0.0088*** (0.0032)	-0.0116*** (0.0042)	-0.0117*** (0.0042)	-0.0198*** (0.0070)	-0.00037 (0.0008)	0.0158*** (0.0057)	0.0203*** (0.0072)	0.0281*** (0.0099)
Gross Farm Sales (\$100,000s)	-0.0025 (0.0031)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0002 (0.0002)	0.0000 (0.0000)	-0.0002 (0.0002)	-0.0002 (0.0002)	-0.0003 (0.0003)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

were 1.70% more likely to choose 8 and 1.69% less likely to choose 1. Age was significant for all levels of importance, except 7. For every year older, producers were 0.27% less likely to choose 9 and 0.10% more likely to choose 1.

Table 11 shows the results from the ordered logit regression for producers rating the risk of “not having adequate skills, knowledge, or human resources” on a scale from 1 to 9. The primary results indicated that hired out services, dominant strategy, and female were significant. The marginal effects showed that hired out services, dominant strategy, and females were significant at all levels of importance, except 6. Producers that hired out services were 2.57% more likely to choose 9 and 1.47% less likely to choose 1. Females were 3.73% more likely to choose 9 than males and 1.68% less likely to choose 1.

Table 12 shows the results from the ordered logit regression for producers rating the risk of “society’s view of something happening on your farm” on a scale from 1 to 9. The primary results indicated that fruits, nuts, and vegetables, dairy cows, hired out services, dominant strategy, and gross farm sales were significant. The marginal effects showed that fruits, nuts, and vegetables and dairy cows were significant at all levels of importance except 6. As the acres of fruits, nuts, and vegetables increased by 1,000 acres, producers were 1.74% less likely to choose 9. As the number of dairy cows increased by 1,000 head, producers were 3.64% more likely to choose 9 and 2.39% less likely to choose 1. The marginal effects for hired out services, dominant strategy, and gross farm sales were significant for all levels importance, except 6. The largest values for the marginal effects were in outcome 9. Producers that hired out services were 3.58% more likely to choose 9 and 2.63% less likely to choose 1. As gross farm sales increase by \$100,000, producers were 0.10% more likely to choose 9.

Table 9. Importance of Regulatory Compliance

Outcome	Primary Results	Marginal Effects								
		1	2	3	4	5	6	7	8	9
Corn and Soybeans (1,000 acres)	-0.0153 (0.0332)	0.0005 (0.0011)	0.0003 (0.0007)	0.0006 (0.0013)	0.0006 (0.0013)	0.0013 (0.0027)	0.0005 (0.0010)	0.0000 (0.0001)	-0.0009 (0.0019)	-0.0029 (0.0063)
Wheat (1,000 acres)	-0.0053 (0.0476)	0.0002 (0.0015)	0.0001 (0.0010)	0.0002 (0.0019)	0.0002 (0.0019)	0.0004 (0.0039)	0.0002 (0.0015)	0.0000 (0.0000)	-0.0003 (0.0027)	-0.0010 (0.0090)
Cotton (1,000 acres)	-0.0675 (0.1133)	0.0022 (0.0037)	0.0013 (0.0023)	0.0026 (0.0045)	0.0027 (0.0045)	0.0055 (0.0093)	0.0021 (0.0035)	0.0000 (0.0002)	-0.0038 (0.0063)	-0.0127 (0.0214)
Fruits and Vegetables (1,000 acres)	-0.0020 (0.0571)	0.0001 (0.0018)	0.0000 (0.0011)	0.0001 (0.0022)	0.0001 (0.0023)	0.0002 (0.0047)	0.0001 (0.0017)	0.0000 (0.0000)	-0.0001 (0.0032)	-0.0004 (0.0108)
Dairy Cows (1,000 head)	0.2842** (0.1119)	-0.0091** (0.0037)	-0.0057** (0.0024)	-0.0112** (0.0045)	-0.0113** (0.0046)	-0.0233** (0.0093)	-0.0087** (0.0035)	-0.0002 (0.0010)	0.0159** (0.0064)	0.0536** (0.0211)
Beef Cattle (1,000 head)	-0.0080 (0.0139)	0.0003 (0.0005)	0.0002 (0.0003)	0.0003 (0.0006)	0.0003 (0.0006)	0.0007 (0.0011)	0.0002 (0.0004)	0.0000 (0.0000)	-0.0004 (0.0008)	-0.0015 (0.0026)
Hogs (1,000 head)	0.0016 (0.0028)	-0.0001 (0.0001)	0.0000 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0002)	0.0000 (0.0001)	0.0000 (0.0000)	0.0001 (0.0002)	0.0003 (0.0005)
Hired Out Services	-0.0657 (0.1095)	0.0021 (0.0034)	0.0013 (0.0021)	0.0025 (0.0042)	0.0026 (0.0043)	0.0054 (0.0090)	0.0021 (0.0035)	0.0001 (0.0005)	-0.0036 (0.0059)	-0.0125 (0.0211)
Dominant Strategy	0.0553** (0.0234)	-0.0018** (0.0008)	-0.0011** (0.0005)	-0.0022** (0.0009)	-0.0022** (0.0010)	-0.0045** (0.0019)	-0.0017** (0.0007)	0.0000 (0.0002)	0.0031** (0.0013)	0.0104** (0.0044)
Female	0.2261* (0.1293)	-0.0068* (0.0037)	-0.0042* (0.0024)	-0.0084* (0.0046)	-0.0087* (0.0049)	-0.018566 (0.0107)	-0.0076 (0.0048)	-0.0015 (0.0018)	0.0115* (0.0060)	0.0442 (0.0262)
Age (Years)	0.0093*** (0.0034)	-0.0003*** (0.0001)	-0.0002*** (0.0001)	-0.0004*** (0.0001)	-0.0004*** (0.0001)	-0.0008*** (0.0003)	-0.0003*** (0.0001)	0.0000 (0.0000)	0.0005*** (0.0002)	0.0018*** (0.0006)
Role on Farm	0.0764 (0.0888)	-0.0025 (0.0029)	-0.0015 (0.0018)	-0.0030 (0.0035)	-0.0030 (0.0036)	-0.0063 (0.0073)	-0.0023 (0.0027)	-0.0001 (0.0003)	0.0043 (0.0050)	0.0144 (0.0167)
Gross Farm Sales (\$100,000s)	0.0104*** (0.0031)	-0.0003*** (0.0001)	-0.0002*** (0.0001)	-0.0004*** (0.0001)	-0.0004*** (0.0001)	-0.0009*** (0.0003)	-0.0003*** (0.0001)	0.0000 (0.0000)	0.0006*** (0.0002)	0.0020*** (0.0006)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 10. Importance of Not having adequate land or physical resources

Outcome	Primary Results	Marginal Effects								
		1	2	3	4	5	6	7	8	9
Corn and Soybeans (1,000 acres)	0.0434 (0.0335)	-0.0028 (0.0022)	-0.0013 (0.0010)	-0.0016 (0.0013)	-0.0013 (0.0011)	-0.0027 (0.0021)	-0.0008 (0.0007)	0.0003 (0.0003)	0.0029 (0.0023)	0.0075 (0.0058)
Wheat (1,000 acres)	0.0338 (0.0528)	-0.0022 (0.0034)	-0.0010 (0.0016)	-0.0013 (0.0020)	-0.0010 (0.0016)	-0.0021 (0.0033)	-0.0007 (0.0010)	0.0002 (0.0004)	0.0023 (0.0035)	0.0058 (0.0091)
Cotton (1,000 acres)	-0.0535 (0.1125)	0.0035 (0.0073)	0.0016 (0.0034)	0.0020 (0.0043)	0.0017 (0.0035)	0.0033 (0.0070)	0.0010 (0.0022)	-0.0003 (0.0007)	-0.0036 (0.0075)	-0.0092 (0.0194)
Fruits and Vegetables (1,000 acres)	-0.0784 (0.0660)	0.0051 (0.0043)	0.0024 (0.0020)	0.0030 (0.0025)	0.0024 (0.0021)	0.0049 (0.0041)	0.0015 (0.0013)	-0.0005 (0.0005)	-0.0052 (0.0044)	-0.0135 (0.0114)
Dairy Cows (1,000 head)	-0.0611 (0.1352)	0.0040 (0.0088)	0.0018 (0.0041)	0.0023 (0.0051)	0.0019 (0.0042)	0.0038 (0.0084)	0.0012 (0.0026)	-0.0004 (0.0009)	-0.0041 (0.0091)	-0.0105 (0.0233)
Beef Cattle (1,000 head)	0.0655 (0.0354)	-0.0043 (0.0023)	-0.0020 (0.0011)	-0.0025 (0.0014)	-0.0020 (0.0011)	-0.0041 (0.0022)	-0.0013 (0.0007)	0.0004 (0.0003)	0.0044 (0.0024)	0.0113 (0.0061)
Hogs (1,000 head)	-0.0030 (0.0028)	0.0002 (0.0002)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0002 (0.0002)	0.0001 (0.0001)	0.0000 (0.0000)	-0.0002 (0.0002)	-0.0005 (0.0005)
Hired Out Services	0.2433** (0.1106)	-0.0169** (0.0083)	-0.0077** (0.0038)	-0.0095** (0.0045)	-0.0076** (0.0036)	-0.0145** (0.0064)	-0.0040** (0.0016)	0.0031 (0.0023)	0.0170** (0.0081)	0.0401** (0.0174)
Dominant Strategy	0.0333 (0.0235)	-0.0022 (0.0015)	-0.0010 (0.0007)	-0.0013 (0.0009)	-0.0010 (0.0007)	-0.0021 (0.0015)	-0.0006 (0.0005)	0.0002 (0.0002)	0.0022 (0.0016)	0.0057 (0.0041)
Female	0.0911 (0.1351)	-0.0058 (0.0083)	-0.0027 (0.0039)	-0.0034 (0.0050)	-0.0028 (0.0042)	-0.0057 (0.0086)	-0.0019 (0.0029)	0.0003 (0.0004)	0.0060 (0.0086)	0.0159 (0.0241)
Age (Years)	-0.0157*** (0.0035)	0.0010*** (0.0002)	0.0005*** (0.0001)	0.0006*** (0.0001)	0.0005*** (0.0001)	0.0010*** (0.0002)	0.0003*** (0.0001)	-0.0001 (0.0001)	-0.0011*** (0.0002)	-0.0027*** (0.0006)
Role on Farm	0.1060 (0.0913)	-0.0069 (0.0059)	-0.0032 (0.0028)	-0.0040 (0.0035)	-0.0033 (0.0029)	-0.0066 (0.0057)	-0.0021 (0.0018)	0.0007 (0.0007)	0.0071 (0.0061)	0.0182 (0.0157)
Gross Farm Sales (\$100,000s)	-0.0004 (0.0031)	0.0000 (0.0002)	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0002)	0.0000 (0.0001)	0.0000 (0.0000)	0.0000 (0.0002)	-0.0001 (0.0005)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 11. Importance of Not having adequate skills, knowledge, or human resources

Outcome	Primary Results	Marginal Effects								
		1	2	3	4	5	6	7	8	9
Corn and Soybeans (1,000 acres)	-0.0492 (0.0322)	0.0033 (0.0022)	0.0022 (0.0015)	0.0029 (0.0019)	0.0017 (0.0011)	0.0021 (0.0014)	-0.0001 (0.0002)	-0.0023 (0.0015)	-0.0034 (0.0022)	-0.0063 (0.0042)
Wheat (1,000 acres)	0.0419 (0.0495)	-0.0028 (0.0033)	-0.0019 (0.0023)	-0.0025 (0.0029)	-0.0015 (0.0017)	-0.0018 (0.0021)	0.0001 (0.0002)	0.0020 (0.0024)	0.0029 (0.0034)	0.0054 (0.0064)
Cotton (1,000 acres)	0.0087 (0.1080)	-0.0006 (0.0072)	-0.0004 (0.0049)	-0.0005 (0.0064)	-0.0003 (0.0038)	-0.0004 (0.0045)	0.0000 (0.0003)	0.0004 (0.0051)	0.0006 (0.0074)	0.0011 (0.0139)
Fruits and Vegetables (1,000 acres)	0.0059 (0.0612)	-0.0004 (0.0041)	-0.0003 (0.0028)	-0.0003 (0.0036)	-0.0002 (0.0021)	-0.0002 (0.0026)	0.0000 (0.0002)	0.0003 (0.0029)	0.0004 (0.0042)	0.0008 (0.0079)
Dairy Cows (1,000 head)	0.0953 (0.1132)	-0.0064 (0.0076)	-0.0043 (0.0052)	-0.0056 (0.0067)	-0.0033 (0.0040)	-0.0040 (0.0048)	0.0003 (0.0004)	0.0045 (0.0054)	0.0066 (0.0078)	0.0123 (0.0146)
Beef Cattle (1,000 head)	0.0116 (0.0133)	-0.0008 (0.0009)	-0.0005 (0.0006)	-0.0007 (0.0008)	-0.0004 (0.0005)	-0.0005 (0.0006)	0.0000 (0.0001)	0.0005 (0.0006)	0.0008 (0.0009)	0.0015 (0.0017)
Hogs (1,000 head)	-0.0026 (0.0029)	0.0002 (0.0002)	0.0001 (0.0001)	0.0002 (0.0002)	0.0001 (0.0001)	0.0001 (0.0001)	0.0000 (0.0000)	-0.0001 (0.0001)	-0.0002 (0.0002)	-0.0003 (0.0004)
Hired Out Services	0.2088* (0.1079)	-0.0147* (0.0081)	-0.0099* (0.0054)	-0.0125* (0.0066)	-0.0071** (0.0036)	-0.0078** (0.0036)	0.0014 (0.0012)	0.0106* (0.0059)	0.0143* (0.0074)	0.0257** (0.0127)
Dominant Strategy	0.0450* (0.0232)	-0.0030* (0.0016)	-0.0020* (0.0011)	-0.0027* (0.0014)	-0.0016* (0.0008)	-0.0019* (0.0010)	0.0001 (0.0001)	0.0021* (0.0011)	0.0031* (0.0016)	0.0058* (0.0030)
Female	0.2717** (0.1275)	-0.0168** (0.0074)	-0.0117** (0.0053)	-0.0157** (0.0072)	-0.0096** (0.0046)	-0.0129* (0.0068)	-0.0006 (0.0012)	0.0113** (0.0047)	0.0186** (0.0087)	0.0373** (0.0186)
Age (Years)	0.0018 (0.0034)	-0.0001 (0.0002)	-0.0001 (0.0002)	-0.0001 (0.0002)	-0.0001 (0.0001)	-0.0001 (0.0001)	0.0000 (0.0000)	0.0001 (0.0002)	0.0001 (0.0002)	0.0002 (0.0004)
Role on Farm	0.1033 (0.0874)	-0.0069 (0.0059)	-0.0047 (0.0040)	-0.0061 (0.0052)	-0.0036 (0.0031)	-0.0043 (0.0037)	0.0003 (0.0004)	0.0049 (0.0042)	0.0071 (0.0061)	0.0133 (0.0113)
Gross Farm Sales (\$100,000s)	-0.0009 (0.0031)	0.0001 (0.0002)	0.0000 (0.0001)	0.0001 (0.0002)	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0000)	0.0000 (0.0001)	-0.0001 (0.0002)	-0.0001 (0.0004)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 13 shows the results from the ordered logit regression for producers rating the risk of “competition” on a scale from 1 to 9. The primary results indicated that corn and soybeans, hired out services, age, and gross farm sales were significant. The marginal effects showed that corn and soybeans and gross farm sales were significant in all the outcomes. As the number of corn and soybean acres increased by 1,000, producers are 1.12% more likely to choose 9, “very important.” For every \$100,000 increase in gross farm sales respondents were 0.10% more likely to choose 9. The variables for hired out service and age were significant for all importance levels, except 6. Respondents that hired out services were 2.98% more likely to choose 9 and 2.51% less likely to choose 1. For every year older, producers were 0.10% less likely to choose 9 and 0.07% more likely to choose 1.

The multinomial logit model results are shown and discussed below. The survey question used to determine how producers spend their time asked producers to choose from one of six categories. The six categories included: managing land, equipment and facilities; managing production; marketing/prices; controlling costs; managing people; and other.

Table 14 shows the results from the multinomial logit regression resulting in the selection of managing land, equipment, and facilities taking most of a producers’ time. The variable for hiring out services was significant in all three models. In the whole model, the acres of corn and soybeans and gross farm sales were significant towards choosing managing land, equipment, and facilities. The livestock model shows the variable dairy cows as significant at the 0.10 level. The constant in the whole model and in the livestock model was also significant.

Table 15 shows the marginal effects when managing land, equipment, and facilities was chosen. For the whole model, the marginal effects for corn and soybeans and wheat were significant and positive. This indicated that as the acres of these crops increased by 1,000 acres, producers were 2.16% and 3.05% more likely to select managing land, equipment, and facilities as taking most of their

Table 12. Importance of Society's view of something happening on your farm

Outcome	Primary Results	Marginal Effects								
		1	2	3	4	5	6	7	8	9
Corn and Soybeans (1,000 acres)	0.0014 (0.0335)	-0.0001 (0.0033)	-0.0001 (0.0014)	-0.0001 (0.0014)	0.0000 (0.0010)	-0.0001 (0.0012)	0.0000 (0.0000)	0.0000 (0.0009)	0.0001 (0.0024)	0.0002 (0.0050)
Wheat (1,000 acres)	0.0451 (0.0479)	-0.0044 (0.0047)	-0.0019 (0.0020)	-0.0019 (0.0021)	-0.0013 (0.0014)	-0.0016 (0.0017)	-0.0001 (0.0001)	0.0012 (0.0013)	0.0032 (0.0035)	0.0068 (0.0072)
Cotton (1,000 acres)	-0.0480 (0.1297)	0.0047 (0.0128)	0.0020 (0.0054)	0.0021 (0.0056)	0.0014 (0.0038)	0.0017 (0.0047)	0.0001 (0.0002)	-0.0013 (0.0035)	-0.0035 (0.0093)	-0.0072 (0.0195)
Fruits and Vegetables (1,000 acres)	-0.1155* (0.0616)	0.0114* (0.0061)	0.0048* (0.0026)	0.0049* (0.0027)	0.0033* (0.0018)	0.0042* (0.0023)	0.0002 (0.0002)	-0.0031* (0.0017)	-0.0083* (0.0045)	-0.0174 (0.0093)
Dairy Cows (1,000 head)	0.2421** (0.1145)	-0.0239** (0.0113)	-0.0101** (0.0048)	-0.0104** (0.0050)	-0.0070** (0.0034)	-0.0087** (0.0042)	-0.0003 (0.0004)	0.0065** (0.0032)	0.0174** (0.0083)	0.0364** (0.0173)
Beef Cattle (1,000 head)	-0.0032 (0.0129)	0.0003 (0.0013)	0.0001 (0.0005)	0.0001 (0.0006)	0.0001 (0.0004)	0.0001 (0.0005)	0.0000 (0.0000)	-0.0001 (0.0004)	-0.0002 (0.0009)	-0.0005 (0.0019)
Hogs (1,000 head)	-0.0031 (0.0028)	0.0003 (0.0003)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0000 (0.0000)	-0.0001 (0.0001)	-0.0002 (0.0002)	-0.0005 (0.0004)
Hired Out Services	0.2507** (0.1091)	-0.0263** (0.0122)	-0.0107** (0.0049)	-0.0107** (0.0047)	-0.0070** (0.0030)	-0.0078*** (0.0029)	0.0004 (0.0006)	0.0079** (0.0040)	0.0183** (0.0081)	0.0358** (0.0148)
Dominant Strategy	0.0725*** (0.0232)	-0.0071*** (0.0023)	-0.0030*** (0.0010)	-0.0031*** (0.0010)	-0.0021*** (0.0007)	-0.0026*** (0.0009)	-0.0001 (0.0001)	0.0020*** (0.0007)	0.0052*** (0.0017)	0.0109*** (0.0035)
Female	0.1404 (0.1288)	-0.0133 (0.0118)	-0.0057 (0.0052)	-0.0060 (0.0055)	-0.0041 (0.0039)	-0.0054 (0.0054)	-0.0004 (0.0007)	0.0034 (0.0027)	0.0099 (0.0090)	0.0217 (0.0206)
Age (Years)	0.0025 (0.0034)	-0.0002 (0.0003)	-0.0001 (0.0001)	-0.0001 (0.0002)	-0.0001 (0.0001)	-0.0001 (0.0001)	0.0000 (0.0000)	0.0001 (0.0001)	0.0002 (0.0003)	0.0004 (0.0005)
Role on Farm	-0.0222 (0.0887)	0.0022 (0.0088)	0.0009 (0.0037)	0.0009 (0.0038)	0.0006 (0.0026)	0.0008 (0.0032)	(0.0000) (0.0001)	-0.0006 (0.0024)	-0.0016 (0.0064)	-0.0033 (0.0134)
Gross Farm Sales (\$100,000s)	0.0066** (0.0031)	-0.0006** (0.0003)	-0.0003** (0.0001)	-0.0003** (0.0001)	-0.0002** (0.0001)	-0.0002** (0.0001)	0.0000 (0.0000)	0.0002** (0.0001)	0.0005** (0.0002)	0.0010** (0.0005)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 13. Importance of Competition

Outcome	Primary Results	Marginal Effects								
		1	2	3	4	5	6	7	8	9
Corn and Soybeans (1,000 acres)	0.0901** (0.0359)	-0.0084** (0.0034)	-0.0035** (0.0014)	-0.0040** (0.0016)	-0.0027** (0.0011)	-0.0039** (0.0016)	0.0005* (0.0003)	0.0042** (0.0017)	0.0066** (0.0027)	0.0112** (0.0045)
Wheat (1,000 acres)	0.0644 (0.0485)	-0.0060 (0.0045)	-0.0025 (0.0019)	-0.0029 (0.0022)	-0.0020 (0.0015)	-0.0028 (0.0021)	0.0004 (0.0003)	0.0030 (0.0023)	0.0047 (0.0035)	0.0080 (0.0060)
Cotton (1,000 acres)	-0.0198 (0.1076)	0.0018 (0.0100)	0.0008 (0.0041)	0.0009 (0.0048)	0.0006 (0.0033)	0.0008 (0.0046)	-0.0001 (0.0006)	-0.0009 (0.0050)	-0.0014 (0.0078)	-0.0025 (0.0134)
Fruits and Vegetables (1,000 acres)	-0.0335 (0.0565)	0.0031 (0.0053)	0.0013 (0.0022)	0.0015 (0.0025)	0.0010 (0.0017)	0.0014 (0.0024)	-0.0002 (0.0003)	-0.0016 (0.0026)	-0.0024 (0.0041)	-0.0042 (0.0070)
Dairy Cows (1,000 head)	0.0616 (0.1118)	-0.0057 (0.0104)	-0.0024 (0.0043)	-0.0027 (0.0050)	-0.0019 (0.0034)	-0.0026 (0.0048)	0.0004 (0.0007)	0.0028 (0.0052)	0.0045 (0.0082)	0.0077 (0.0139)
Beef Cattle (1,000 head)	0.0261 (0.0181)	-0.0024 (0.0017)	-0.0010 (0.0007)	-0.0012 (0.0008)	-0.0008 (0.0006)	-0.0011 (0.0008)	0.0001 (0.0001)	0.0012 (0.0008)	0.0019 (0.0013)	0.0032 (0.0023)
Hogs (1,000 head)	-0.0036 (0.0028)	0.0003 (0.0003)	0.0001 (0.0001)	0.0002 (0.0001)	0.0001 (0.0001)	0.0002 (0.0001)	0.0000 (0.0000)	-0.0002 (0.0001)	-0.0003 (0.0002)	-0.0005 (0.0004)
Hired Out Services	0.2532** (0.1089)	-0.0251** (0.0116)	-0.0100** (0.0046)	-0.0114** (0.0050)	-0.0075** (0.0032)	-0.0092*** (0.0034)	0.0025 (0.0016)	0.0059*** (2.1500)	0.0183** (0.0078)	0.0298** (0.0121)
Dominant Strategy	0.0363 (0.0233)	-0.0034 (0.0022)	-0.0014 (0.0009)	-0.0016 (0.0011)	-0.0011 (0.0007)	-0.0016 (0.0010)	0.0002 (0.0002)	0.0017 (0.0011)	0.0026 (0.0017)	0.0045 (0.0029)
Female	-0.0855 (0.1282)	0.0081 (0.0125)	0.0033 (0.0051)	0.0038 (0.0058)	0.0026 (0.0038)	0.0035 (0.0049)	-0.0006 (0.0011)	-0.0041 (0.0063)	-0.0062 (0.0093)	-0.0104 (0.0153)
Age (Years)	-0.0079** (0.0034)	0.0007** (0.0003)	0.0003** (0.0001)	0.0004** (0.0002)	0.0002** (0.0001)	0.0003** (0.0002)	0.0000 (0.0000)	-0.0004** (0.0002)	-0.0006** (0.0003)	-0.0010** (0.0004)
Role on Farm	0.0646 (0.0889)	-0.0060 (0.0083)	-0.0025 (0.0034)	-0.0029 (0.0040)	-0.0020 (0.0027)	-0.0028 (0.0038)	0.0004 (0.0005)	0.0030 (0.0041)	0.0047 (0.0065)	0.0080 (0.0111)
Gross Farm Sales (\$100,000s)	0.0083*** (0.0031)	-0.0008*** (0.0003)	-0.0003*** (0.0001)	-0.0004*** (0.0001)	-0.0003*** (0.0001)	-0.0004*** (0.0001)	0.0000* (0.0000)	0.0004*** (0.0002)	0.0006*** (0.0002)	0.0010*** (0.0004)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 14. Managing Land Equipment and Facilities Primary Results

	Whole Model	Crop Model	Livestock Model
Corn and Soybeans (1,000 acres)	0.6381** (0.3248)	0.5475 (0.3649)	
Wheat (1,000 acres)	0.0761 (0.2019)	0.0445 (0.2043)	
Cotton (1,000 acres)	0.0703 (0.5805)	0.1121 (0.5346)	
Fruits and Vegetables (1,000 acres)	0.0227 (0.2691)	-0.0153 (0.2757)	
Dairy Cows (1,000 head)	-0.4316 (0.2812)		-0.7517* (0.3884)
Beef Cattle (1,000 head)	0.2705 (0.5961)		0.2306 (0.5671)
Hogs (1,000 head)	-0.0008 (0.0108)		0.0008 (0.0133)
Hired out Services	1.1523*** (0.3497)	1.3452*** (0.4846)	1.0279* (0.5421)
Dominant Strategy	-0.1007 (0.0996)	-0.0159 (0.1368)	-0.2116 (0.1548)
Role on Farm	1.3972 (0.9321)	13.7853 (696.6707)	0.6733 (0.8808)
Age (Years)	0.0121 (0.0139)	0.0204 (0.0193)	-0.0011 (0.0221)
Gross Farm Sales (\$100,000s)	-0.0261** (0.0114)	-0.0266 (0.0165)	-0.0253 (0.0176)
Constant	1.7633* (0.9677)	1.0275 (1.3183)	2.876* (1.6027)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

time, respectively. The variable for dairy cows was significant and negative. As the number of dairy cows increased by 1,000 head, producers were 7.66% less likely to choose managing land, equipment, and facilities as taking most of their time. This was also significant in the livestock model. As the number of dairy cows increased by 1,000 head, producers were 14.15% less likely to choose this category. Hogs were significant and positive in the whole model and livestock model. Age was also positive and significant in the whole model and livestock model. Older producers were more likely to choose managing land, equipment, and facilities as taking most of their time. Gross farm sales was

significant in the whole model. As gross farm sales increased by \$100,000, producers were 0.38% less likely to choose this category.

Table 15. Managing Land Equipment and Facilities Marginal Effects

	Whole Model	Crop Model	Livestock Model
Corn and Soybeans (1,000 acres)	0.0216** (0.0108)	0.0132 (0.0470)	
Wheat (1,000 acres)	0.0305** (0.0154)	0.0240 (0.0163)	
Cotton (1,000 acres)	0.0726 (0.0613)	0.0683 (0.0644)	
Fruits and Vegetables (1,000 acres)	0.0167 (0.0260)	0.0248 (0.0315)	
Dairy Cows (1,000 head)	-0.0766* (0.0435)		-0.1415* (0.0741)
Beef Cattle (1,000 of head)	0.0350* (0.0196)		0.0041 (0.0401)
Hogs (1,000 of head)	0.0169** (0.0072)		0.0100*** (0.0028)
Hired out Services	0.0195 (0.0313)	0.0160 (0.1963)	0.0249 (0.0545)
Dominant Strategy	0.0026 (0.0070)	0.0037 (0.0089)	-0.0195 (0.0137)
Role on Farm	-0.0260 (0.0248)	0.0003 (0.6872)	-0.0800 (0.0814)
Age (Years)	0.0019* (0.0010)	0.0002 (0.0022)	0.0044* (0.0026)
Gross Farm Sales (\$100,000s)	-0.0038*** (0.0010)	-0.0026 (0.0020)	-0.0055 (0.0040)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 16 shows the results from the multinomial logit regression resulting in the selection of managing production taking most of a producers' time. The variable for hiring out services was significant in all three models. In the whole model, the acres of corn and soybeans were significant towards choosing managing production. In the whole model and livestock model, gross farm sales was a significant variable. Dominant strategy was also significant in the whole model. The constant in the whole model and in the livestock model was found to be significant.

Table 16. Managing Production Primary Results

	Whole Model	Crop Model	Livestock Model
Corn and Soybeans (1,000 acres)	0.5453* (0.3261)	0.4411 (0.3666)	
Wheat (1,000 acres)	-0.0702 (0.2094)	-0.0800 (0.2119)	
Cotton (1,000 acres)	-0.3821 (0.6726)	-0.3457 (0.6503)	
Fruits and Vegetables (1,000 acres)	-0.0914 (0.2949)	-0.1695 (0.3142)	
Dairy Cows (1,000 head)	-0.0564 (0.2429)		0.0254 (0.2842)
Beef Cattle (1,000 head)	0.2650 (0.5962)		0.2309 (0.5672)
Hogs (1,000 head)	-0.0074 (0.0131)		-0.0067 (0.0156)
Hired out Services	1.2704*** (0.3573)	1.4902*** (0.4960)	1.18901** (0.5528)
Dominant Strategy	-0.1742* (0.1005)	-0.1060 (0.1380)	-0.1791 (0.1566)
Role on Farm	1.5236 (0.9329)	13.8014 (696.6707)	1.0203 (0.8790)
Age (Years)	-0.0017 (0.0140)	0.0101 (0.0195)	-0.0195 (0.0223)
Gross Farm Sales (\$100,000s)	-0.0138 (0.0114)	-0.0156 (0.0166)	-0.0090 (0.0174)
Constant	2.2160** (0.9766)	1.3243 (1.3319)	3.1615** (1.6150)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 17 shows the marginal effects when managing production was chosen. For both the whole model and livestock model, the marginal effects for dairy cows were significant. In the whole model, as the number of dairy cows increased by 1,000 head, producers were 6.81% more likely to choose managing production as taking most of their time. In the livestock model, as the number of dairy cows increased by 1,000 head, producers were 16.78% more likely to choose managing production. Hogs were significant and positive in the whole model and livestock model. Hiring out services was significant in the whole model and crop model. In the crop model, producers who hired

out services were 10.25% more likely to choose managing production as taking most of their time.

The dominant strategy that producers chose was significant in the whole model and the crop model.

Age was also negative and significant in the whole model. Older producers were less likely to choose managing production as taking most of their time.

Table 17. Managing Production Marginal Effects

	Whole Model	Crop Model	Livestock Model
Corn and Soybeans (1,000 acres)	-0.0151 (0.0111)	-0.0235 (0.0353)	
Wheat (1,000 acres)	-0.0261 (0.0162)	-0.0224 (0.0166)	
Cotton (1,000 acres)	-0.0949 (0.0768)	-0.0942 (0.0812)	
Fruits and Vegetables (1,000 acres)	-0.0250 (0.0310)	-0.0307 (0.0360)	
Dairy Cows (1,000 head)	0.0681** (0.0318)		0.1678** (0.0709)
Beef Cattle (1,000 head)	0.0210 (0.0132)		0.0035 (0.0327)
Hogs (1,000 head)	0.0089* (0.0048)		0.0053** (0.0025)
Hired out Services	0.0474* (0.0285)	0.1025*** (0.4800)	0.0732 (0.0515)
Dominant Strategy	-0.0214*** (0.0064)	-0.0244*** (0.0084)	-0.0040 (0.0130)
Role on Farm	0.0228 (0.0220)	0.0049 (0.4113)	0.0613 (0.0570)
Age (Years)	-0.0031*** (0.0009)	-0.0029 (0.0020)	-0.0031 (0.0019)
Gross Farm Sales (\$100,000s)	0.0014 (0.0009)	0.0017 (0.0019)	0.0015 (0.0028)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 18 shows the results from the multinomial logit regression resulting in the selection of marketing/ prices taking most of a producers' time. The variables for corn and soybeans and hiring out services were significant in the whole model. Age was found to be significant in both the whole model

and the crop model. The livestock model shows the variable for gross farm sales was significant at the 0.05 level.

Table 18. Marketing/Prices Primary Results

	Whole Model	Crop Model	Livestock Model
Corn and Soybeans (1,000 acres)	0.7250** (0.3283)	0.6280 (0.3702)	
Wheat (1,000 acres)	0.0359 (0.2227)	-0.0466 (0.2289)	
Cotton (1,000 acres)	0.0722 (0.6290)	0.1369 (0.5929)	
Fruits and Vegetables (1,000 acres)	-0.0631 (0.3225)	-0.1536 (0.3431)	
Dairy Cows (1,000 head)	-0.1336 (0.3019)		0.0522 (0.3284)
Beef Cattle (1,000 head)	-0.7616 (0.8999)		-0.5878 (1.0438)
Hogs (1,000 head)	-0.0114 (0.0214)		-0.0168 (0.0354)
Hired out Services	1.1451*** (0.4082)	0.8606 (0.5286)	15.7933 (495.4705)
Dominant Strategy	-0.1153 (0.1094)	-0.0350 (0.1458)	-0.1974 (0.1947)
Role on Farm	1.3170 (0.9506)	13.7172 (696.6707)	-0.4044 (1.2728)
Age (Years)	0.0360** (0.0157)	0.0505** (0.0211)	0.0133 (0.0284)
Gross Farm Sales (\$100,000s)	-0.0087 (0.0128)	-0.0018 (0.0176)	-0.0738** (0.0361)
Constant	-1.6990 (1.1134)	-2.3752 (1.4611)	-14.3540 (495.4744)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 19 shows the marginal effects when marketing/prices was chosen. For the whole model, the marginal effect for corn and soybeans was significant and positive. This indicates that as the acres of these crops increased by 1,000 acres producers were 0.83% more likely to select marketing/prices taking most of their time. The variable for beef cattle was significant and negative. As the number of beef cattle increased by 1,000 head, producers were 6.09% less likely to choose marketing/prices as

taking most of their time. Age was positive and significant in the whole model and crop model. Older producers were more likely to choose marketing/prices as taking most of their time. In the crop model, respondents that hired out services were 2.99% more likely to choose marketing/prices. Gross farm sales was significant in the crop model. As gross farm sales increased by \$100,000, producers were 0.17% less likely to choose this category.

Table 19. Marketing/Prices Marginal Effects

	Whole Model	Crop Model	Livestock Model
Corn and Soybeans (1,000 acres)	0.0083** (0.0035)	0.0092 (0.0088)	
Wheat (1,000 acres)	0.0015 (0.0063)	-0.0036 (0.0091)	
Cotton (1,000 acres)	0.0096 (0.0169)	0.0140 (0.0233)	
Fruits and Vegetables (1,000 acres)	-0.0033 (0.0115)	-0.0075 (0.0172)	
Dairy Cows (1,000 head)	0.0089 (0.0128)		0.0005 (0.0534)
Beef Cattle (1,000 head)	-0.0609* (0.0356)		-0.0008 (0.0885)
Hogs (1,000 head)	0.0015 (0.0014)		0.0000 (0.0005)
Hired out Services	0.0021 (0.0139)	-0.0452 (0.0631)	0.0299** (0.0145)
Dominant Strategy	-0.0006 (0.0031)	-0.0010 (0.0046)	0.0000 (0.0032)
Role on Farm	-0.0085 (0.0123)	-0.0058 (0.1219)	-0.0012 (0.1375)
Age (Years)	0.0018*** (0.0005)	0.0026*** (0.0007)	0.0000 (0.0027)
Gross Farm Sales (\$100,000s)	0.0006 (0.0004)	0.0017* (0.0009)	-0.0001 (0.0066)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 20 shows the results from the multinomial logit regression resulting in the selection of controlling costs taking most of a producers' time. In the whole model, the acres of corn and soybeans

were significant towards choosing controlling costs. The variables for hiring out services and gross farm sales were significant in the whole and crop models. In the whole model, the variable for the role on the farm was also found to be significant.

Table 20. Controlling Costs Primary Results

	Whole Model	Crop Model	Livestock Model
Corn and Soybeans (1,000 acres)	0.5706* (0.3326)	0.4939 (0.3746)	
Wheat (1,000 acres)	0.1132 (0.2128)	0.0960 (0.2172)	
Cotton (1,000 acres)	-0.1002 (0.6558)	0.0031 (0.6022)	
Fruits and Vegetables (1,000 acres)	0.0098 (0.2891)	-0.0114 (0.2962)	
Dairy Cows (1,000 head)	-0.0903 (0.2654)		-0.0167 (0.3098)
Beef Cattle (1,000 head)	0.2291 (0.6032)		0.2051 (0.5704)
Hogs (1,000 head)	-0.5956 (0.4841)		-0.3879 (0.3943)
Hired out Services	0.7800** (0.3822)	1.0443** (0.5328)	0.7902 (0.5928)
Dominant Strategy	0.0446 (0.1080)	0.1588 (0.1478)	-0.0390 (0.1690)
Role on Farm	1.8675** (0.9370)	14.0970 (696.6707)	1.3486 (0.8857)
Age (Years)	0.0223 (0.0151)	0.0278 (0.0209)	0.0146 (0.0242)
Gross Farm Sales (\$100,000s)	-0.0404*** (0.0136)	-0.0658*** (0.0213)	-0.0135 (0.0194)
Constant	-0.5494 (1.0654)	-1.1433 (1.4533)	-0.0630 (1.7650)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 21 shows the marginal effects when controlling costs was chosen. For the whole model, the marginal effect for hogs was significant and negative. This indicated that as the number of hogs increased by 1,000 producers were 2.30% less likely to select controlling costs as taking most of their

time. The variable for hogs was also significant in the livestock model. Dominant strategy was significant in the whole model and the crop model. The variable for role on the farm was significant in the whole model. Age was also positive and significant in the whole model. Older producers were more likely to choose controlling costs as taking most of their time. Gross farm sales was significant in the whole model and crop model. As gross farm sales increased by \$100,000, producers were 0.12% and 0.33% less likely to choose this category, respectively.

Table 21. Controlling Costs Marginal Effects

	Whole Model	Crop Model	Livestock Model
Corn and Soybeans (1,000 acres)	-0.0012 (0.0042)	-0.0020 (0.0099)	
Wheat (1,000 acres)	0.0054 (0.0047)	0.0073 (0.0062)	
Cotton (1,000 acres)	-0.0011 (0.0169)	0.0022 (0.0212)	
Fruits and Vegetables (1,000 acres)	0.0012 (0.0066)	0.0040 (0.0091)	
Dairy Cows (1,000 head)	0.0098 (0.0091)		0.0191 (0.0210)
Beef Cattle (1,000 head)	0.0017 (0.0055)		-0.0007 (0.0052)
Hogs (1,000 head)	-0.0230* (0.0135)		-0.0167*** (0.0033)
Hired out Services	-0.0197 (0.0138)	-0.0215 (0.0454)	-0.0083 (0.0166)
Dominant Strategy	0.0081** (0.0039)	0.0133*** (0.0051)	0.0059 (0.0065)
Role on Farm	0.0223** (0.0106)	0.0228 (0.0985)	0.0226 (0.0230)
Age (Years)	0.0008* (0.0005)	0.0006 (0.0007)	0.0012 (0.0012)
Gross Farm Sales (\$100,000s)	-0.0012** (0.0006)	-0.0033*** (0.0009)	0.0000 (0.0006)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 22 shows the results from the multinomial logit regression resulting in the selection of managing people taking most of a producers' time. The variable for hiring out services was significant

in the whole model and crop model. In the whole model, the role on the farm and gross farm sales were significant towards choosing managing people. The constant in the livestock model was also significant.

Table 22. Managing People Primary Results

	Whole Model	Crop Model	Livestock Model
Corn and Soybeans (1,000 acres)	0.5202 (0.3342)	0.5957 (0.3728)	
Wheat (1,000 acres)	-0.1420 (0.2362)	-0.1060 (0.2407)	
Cotton (1,000 acres)	0.0981 (0.6465)	0.1612 (0.5965)	
Fruits and Vegetables (1,000 acres)	0.1329 (0.2679)	0.2732 (0.4200)	
Dairy Cows (1,000 head)	-0.4715 (0.4800)		-0.9282 (0.6622)
Beef Cattle (1,000 head)	0.2840 (0.5964)		0.2179 (0.5696)
Hogs (1,000 head)	-0.0062 (0.0188)		-0.0123 (0.0226)
Hired out Services	0.7852** (0.3954)	1.4114** (0.5859)	0.3265 (0.5903)
Dominant Strategy	0.0314 (0.1091)	0.1368 (0.1518)	-0.0527 (0.1675)
Role on Farm	1.5928* (0.9394)	13.8012 (696.6707)	1.0184 (0.8877)
Age (Years)	-0.0089 (0.0151)	0.0107 (0.0214)	-0.0346 (0.0235)
Gross Farm Sales (\$100,000s)	0.0202* (0.0119)	0.0260 (0.0175)	0.0189 (0.0178)
Constant	0.5792 (1.0571)	-1.7442 (1.4901)	3.0844* (1.6991)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 23 shows the marginal effects when managing people was chosen. For the whole model and the crop model, the marginal effect for fruits and vegetables was significant and positive. This indicated that as the acres of these crops increased by 1,000 acres, producers were 1.03% and .93% more likely to select managing people as taking most of their time, respectively. The variable for beef

cattle was significant and positive at the 0.1 level. Hired out services was significant in the livestock model. Producers who hired out services were 8.71% less likely to choose managing people as taking most of their time. Dominant strategy was significant for the whole model and the crop model. Age was significant in the whole model and livestock model. Older producers were less likely to choose managing people as taking most of their time. Gross farm sales was significant in all three models. As gross farm sales increased by \$100,000, producers were more likely to choose managing people.

Table 23. Managing People Marginal Effects

	Whole Model	Crop Model	Livestock Model
Corn and Soybeans (1,000 acres)	-0.0052 (0.0060)	0.0039 (0.0061)	
Wheat (1,000 acres)	-0.0110 (0.0089)	-0.0053 (0.0069)	
Cotton (1,000 acres)	0.0126 (0.0217)	0.0097 (0.0153)	
Fruits and Vegetables (1,000 acres)	0.0103* (0.0054)	0.0093* (0.0051)	
Dairy Cows (1,000 head)	-0.0141 (0.0279)		-0.0571 (0.0601)
Beef Cattle (1,000 head)	0.0061* (0.0033)		-0.0004 (0.0122)
Hogs (1,000 head)	0.0021 (0.0015)		0.0010 (0.0020)
Hired out Services	-0.0256 (0.0176)	0.0049 (0.0250)	-0.0871** (0.0422)
Dominant Strategy	0.0098*** (0.0034)	0.0083** (0.0040)	0.0134 (0.0085)
Role on Farm	0.0101 (0.0097)	0.0009 (0.0726)	0.0193 (0.0241)
Age (Years)	-0.0012*** (0.0005)	-0.0005 (0.0006)	-0.0027** (0.0011)
Gross Farm Sales (\$100,000s)	0.0027*** (0.0003)	0.0024*** (0.0008)	0.0037*** (0.0009)

Note: Single, double, and triple asterisks (*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Conclusion

Agribusinesses understanding how producers rate areas of risk and how producers spend most of their time are important to the success of the business. An ordered logit model and a multinomial logit model were used to identify variables that were significant to each model. There were only a limited number of significant variables for each model, which indicated that there may be some important variables that were not included in the model, due to the questions not being included in the survey. We found that female respondents rated risk factors as “very important” more frequently than male respondents. Age was found to be significant for many of the risk categories as were gross farm sales, dominant strategy, and hiring out services. Corn and soybean producers had a higher probability of rating the importance of competition towards the “very important” end of scale. Dairy cow producers were more concerned with society’s view of something happening on your farm and regulatory compliance than other producers. For the area that takes the most of a producers’ time, dairy producers are more likely to choose managing production than other producers. Hog producers were more likely to select managing land, equipment, and facilities. Hog producers were less likely to choose controlling costs and managing people was more likely to be chosen by fruits and vegetable producers.

Additional analysis will be completed to further examine the characteristics of producers who on average viewed multiple areas of risk as very important to their business or not important. Further work will also examine the relationship between time spent on certain areas of production and the most important activity or dominant strategy of the business is correlated to the ratings of importance of risk. These results will be useful for agricultural dealers and retailers as they deal with their customers under tightening margins and increased competition.

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