1. Is there an association of the demographic information (ex. age and gender), grain storage duration, grain storage capacity and location of grain storage on the adoption of stored grain monitoring technologies among grain elevators and farmers?

* Model: Adoption ~ age + gender + race + education + duration + capacity + location
* Variable Names: TechAdoptYesNo ~ Age + Gender + Race + Education + StoragePeriod + StorageCapacity + (Onfarm + GrainElevtorCE + GrainElevtorT + GrainFeedMill + GrainFood + GrainDoNot)

1. Do grain elevators and farmers’ experiences with managing stored grain influence their adoption of stored grain monitoring technologies?

* Model = Adoption ~ rows = [45,112]

1. How do grain elevators and farmers’ perceptions of stored grain monitoring technologies influence their adoption of stored grain monitoring technologies?

* Model = Adoption ~ rows = [112, 185]

1. What types of features and capability of stored grain monitoring technologies are commonly used by grain elevators and farmers? *Frequency table*
2. What are the factors mostly influencing the adoption of stored grain monitoring technologies among grain elevators and farmers? Anova table (*stepwise logistic regression*)
3. Are there unique challenges to the adoption of stored grain monitoring technologies among grain elevators and farmers? *Do frequency analysis (2 tables) (yes adopt and no for adopt) sacrifice made to adopt, and for those who decline/reject*

**SOLUTIONS**

**Interpretation 1.**

**Table 1.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Case Processing Summary** | | | |
| Unweighted Casesa | | N | Percent |
| Selected Cases | Included in Analysis | 25 | 100.0 |
| Missing Cases | 0 | .0 |
| Total | 25 | 100.0 |
| Unselected Cases | | 0 | .0 |
| Total | | 25 | 100.0 |
| a. If weight is in effect, see classification table for the total number of cases. | | | |

Table 1 shows that a total of 25 respondents were used for this analysis.

**Table 2.**

|  |  |
| --- | --- |
| **Dependent Variable Encoding** | |
| Original Value | Internal Value |
| Yes | 0 |
| No | 1 |

Table 2 shows the coding of the dependent variable. The dependent variable refers to the adoption of stored grain monitoring technologies among grain farmers and elevators. The adoption is based on those who adopt (Yes) coded as 0 or do not adopt (no) coded as 1.

**BLOCK 0 (Table 3-5) (***Not needed. There are no predictors, hence this is just a baseline that can be used to compare to the actual model***)**

**Table 3.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Classification Tablea,b** | | | | | |
|  | Observed | | Predicted | | |
|  | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? | | Percentage Correct |
|  | Yes | No |
| Step 0 | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? | Yes | 16 | 0 | 100.0 |
| No | 9 | 0 | .0 |
| Overall Percentage | |  |  | 64.0 |
| a. Constant is included in the model. | | | | | |
| b. The cut value is .500 | | | | | |

**Table 4.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables in the Equation** | | | | | | | |
|  | | B | S.E. | Wald | df | Sig. | Exp(B) |
| Step 0 | Constant | -.575 | .417 | 1.907 | 1 | .167 | .563 |

**Table 5.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables not in the Equation** | | | | | |
|  | | | Score | df | Sig. |
| Step 0 | Variables | What is your gender? - Selected Choice | .259 | 1 | .611 |
| What is your current age in years? | .566 | 1 | .452 |
| What is your highest educational level? - Selected Choice | 2.004 | 1 | .157 |
| What is the average storage period (in months) for grains at your facility? | .405 | 1 | .524 |
| On average, what is the total grain storage capacity in your facility? | 1.122 | 1 | .289 |
| Overall Statistics | | 5.399 | 5 | .369 |

**BLOCK 1: Method = Enter**

**Table 6. (To test the model fit - a type)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Omnibus Tests of Model Coefficients** | | | | |
|  | | Chi-square | df | Sig. |
| Step 1 | Step | 6.336 | 5 | .275 |
| Block | 6.336 | 5 | .275 |
| Model | 6.336 | 5 | .275 |

Table 6 shows the Omnibus tests of model coefficients to test the model fit. The model is not significant (p>0.05) hence there is no significant improvement in the fit as compared to the null model. This indicates that the model lacks a good fit.

**Table 7.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Model Summary** | | | |
| Step | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
| 1 | 26.335a | .224 | .307 |
| a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001. | | | |

Table 7 shows the model summary. Nagelkerke R-square (Pseudo) value indicate that about 30.7% change in the dependent variable (adoption – yes or no) can be accounted to the independent (predictor) variables.

**Table 8. (To test the model fit – another type)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Hosmer and Lemeshow Test** | | | |
| Step | Chi-square | df | Sig. |
| 1 | 5.061 | 6 | .536 |

Table 8 shows the Hosmer and Lemeshow test for the model fit. The model adequately fits the data (p > 0.05). This indicates that there is no difference between the observed and predicted model.

**Table 9.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Contingency Table for Hosmer and Lemeshow Test** | | | | | | |
|  | | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? = Yes | | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? = No | | Total |
| Observed | Expected | Observed | Expected |
| Step 1 | 1 | 3 | 2.899 | 0 | .101 | 3 |
| 2 | 3 | 2.686 | 0 | .314 | 3 |
| 3 | 3 | 2.360 | 0 | .640 | 3 |
| 4 | 1 | 2.146 | 2 | .854 | 3 |
| 5 | 2 | 1.857 | 1 | 1.143 | 3 |
| 6 | 1 | 1.719 | 2 | 1.281 | 3 |
| 7 | 2 | 1.200 | 1 | 1.800 | 3 |
| 8 | 1 | 1.133 | 3 | 2.867 | 4 |

Table 9 shows the contingency table for Hosmer and Lemeshow test for the model fit. The model adequately fits the data. The results show that is no difference between the observed and predicted model. (OR majority of the values for the observed and predicted are very similar)

**Table 10.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Classification Tablea** | | | | | |
|  | Observed | | Predicted | | |
|  | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? | | Percentage Correct |
|  | Yes | No |
| Step 1 | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? | Yes | 13 | 3 | 81.3 |
| No | 5 | 4 | 44.4 |
| Overall Percentage | |  |  | 68.0 |
| a. The cut value is .500 | | | | | |

Table 10 shows the classification table which shows how well the model is able to predict the correct category once the predictors are added into the study.

The result show that the percentage accuracy in classification (PAC) of the model can accurately classify 68.0% of cases overall. Furthermore, the rate of correct classification to predict whether a respondent (grain farmer and elevator) adopts stored grain monitoring technologies in their facility is 68.0%.

The specificity (also called true negative rate) for this model is 81.3%. This indicates that grain farmers and elevators who are correctly predicted by the model to select that they adopt stored grain monitoring technologies in their facility is 81.3%.

The sensitivity (also called true negative rate) for the model is 44.4%. This indicates that grain farmers and elevators who are correctly predicted by the model to select no adoption of stored grain monitoring technologies in their facility is 44.4%.

This indicates that the model performs better in predicting correctly those who adopt stored grain monitoring technologies in their facility.

**Table 11.**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables in the Equation** | | | | | | | | | |
|  | | B | S.E. | Wald | df | Sig. | Exp(B) | 95% C.I.for EXP(B) | |
| Lower | Upper |
| Step 1a | What is your gender? - Selected Choice | -.004 | 1.020 | .000 | 1 | .997 | .996 | .135 | 7.357 |
| What is your current age in years? | -1.099 | .784 | 1.965 | 1 | .161 | .333 | .072 | 1.549 |
| What is your highest educational level? - Selected Choice | -.555 | .351 | 2.494 | 1 | .114 | .574 | .288 | 1.143 |
| What is the average storage period (in months) for grains at your facility? | -.649 | .709 | .837 | 1 | .360 | .523 | .130 | 2.099 |
| On average, what is the total grain storage capacity in your facility? | .667 | .548 | 1.481 | 1 | .224 | 1.948 | .666 | 5.700 |
| Constant | 4.425 | 3.160 | 1.961 | 1 | .161 | 83.553 |  |  |
| a. Variable(s) entered on step 1: What is your gender? - Selected Choice, What is your current age in years?, What is your highest educational level? - Selected Choice, What is the average storage period (in months) for grains at your facility?, On average, what is the total grain storage capacity in your facility?. | | | | | | | | | |

Table 11 shows the variables in the equation for the model. Results were presented

as a point estimate of the odds ratio along with 95% confidence intervals.

The odds of grain farmers and elevators adopting stored grain monitoring technologies based on their gender is 0.996 times lesser than those not adopting with a 95% conference interval (CI) of 0.135 to 7.357. As the gender predictor increases, the odds of adopting store grain monitoring technologies decreases.

The odds of grain farmers and elevators adopting stored grain monitoring technologies based on their age in years are 0.333 times lesser than those not adopting with a 95% CI of 0.072 to 1.549. Adoption of stored grain monitoring technologies by grain farmers and elevators is not likely to occur.

Furthermore, the odds of grain farmers and elevators adopting stored grain monitoring technologies based on the average total grain storage capacity in their facility is 1.948 times higher than those not adopting with a 95% CI of 0.666 to 5.700. Adoption of stored grain monitoring technologies by grain farmers and elevators is likely to occur.

All the predictors in the models are not significant and the corresponding odds ratio are not significant.

**Summary**

A logistic regression was performed to ascertain the effects of age, educational level, average storage period (in months) for grains at your facility, and average total grain storage capacity on the likelihood on the adoption of stored grain monitoring technologies among grain farmers and elevators. The logistic regression model was not statistically significant, X2(5) = 6.336, p>0.05.

The model explained 30.7% (Nagelkerke R2) of the variance in the adoption of stored grain monitoring technologies and correctly classified 64.0% of cases. Based on the on the average total grain storage capacity in facilities, grain farmers and elevators are 1.948 times more likely to adopting stored grain monitoring technologies. Increasing age, educational level, and average storage period were associated with a decreased likelihood of the adoption of stored grain monitoring technologies by grain farmers and elevators.

Question 1

Interpretation 2

**(Selecting gender, age and education as categorical variables in the binary analysis process)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Case Processing Summary** | | | |
| Unweighted Casesa | | N | Percent |
| Selected Cases | Included in Analysis | 25 | 100.0 |
| Missing Cases | 0 | .0 |
| Total | 25 | 100.0 |
| Unselected Cases | | 0 | .0 |
| Total | | 25 | 100.0 |
| a. If weight is in effect, see classification table for the total number of cases. | | | |

|  |  |
| --- | --- |
| **Dependent Variable Encoding** | |
| Original Value | Internal Value |
| Yes | 0 |
| No | 1 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Categorical Variables Codings** | | | | | | | |
|  | | Frequency | Parameter coding | | | | |
| (1) | (2) | (3) | (4) | (5) |
| What is your highest educational level? - Selected Choice | High School | 1 | .000 | .000 | .000 | .000 | .000 |
| Professional Certification | 7 | 1.000 | .000 | .000 | .000 | .000 |
| 2-Year College/Tech Degree | 4 | .000 | 1.000 | .000 | .000 | .000 |
| Bachelor’s Degree | 5 | .000 | .000 | 1.000 | .000 | .000 |
| Master’s Degree | 2 | .000 | .000 | .000 | 1.000 | .000 |
| Doctoral Degree | 6 | .000 | .000 | .000 | .000 | 1.000 |
| What is your current age in years? | 18–24 | 2 | .000 | .000 | .000 |  |  |
| 25–34 | 12 | 1.000 | .000 | .000 |  |  |
| 35–44 | 4 | .000 | 1.000 | .000 |  |  |
| 45–54 | 7 | .000 | .000 | 1.000 |  |  |
| What is your gender? - Selected Choice | Male | 14 | .000 | .000 |  |  |  |
| Female | 10 | 1.000 | .000 |  |  |  |
| 5 | 1 | .000 | 1.000 |  |  |  |

**Block 0: Beginning Block**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Classification Tablea,b** | | | | | |
|  | Observed | | Predicted | | |
|  | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? | | Percentage Correct |
|  | Yes | No |
| Step 0 | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? | Yes | 16 | 0 | 100.0 |
| No | 9 | 0 | .0 |
| Overall Percentage | |  |  | 64.0 |
| a. Constant is included in the model. | | | | | |
| b. The cut value is .500 | | | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables in the Equation** | | | | | | | |
|  | | B | S.E. | Wald | df | Sig. | Exp(B) |
| Step 0 | Constant | -.575 | .417 | 1.907 | 1 | .167 | .563 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables not in the Equation** | | | | | |
|  | | | Score | df | Sig. |
| Step 0 | Variables | What is your gender? - Selected Choice | .632 | 2 | .729 |
| What is your gender? - Selected Choice(1) | .116 | 1 | .734 |
| What is your gender? - Selected Choice(2) | .586 | 1 | .444 |
| What is your current age in years? | 6.140 | 3 | .105 |
| What is your current age in years?(1) | 4.996 | 1 | .025 |
| What is your current age in years?(2) | 2.679 | 1 | .102 |
| What is your current age in years?(3) | .233 | 1 | .629 |
| What is your highest educational level? - Selected Choice | 3.960 | 5 | .555 |
| What is your highest educational level? - Selected Choice(1) | .198 | 1 | .656 |
| What is your highest educational level? - Selected Choice(2) | .405 | 1 | .524 |
| What is your highest educational level? - Selected Choice(3) | .694 | 1 | .405 |
| What is your highest educational level? - Selected Choice(4) | .185 | 1 | .667 |
| What is your highest educational level? - Selected Choice(5) | 1.281 | 1 | .258 |
| On average, what is the total grain storage capacity in your facility? | 1.122 | 1 | .289 |
| What is the average storage period (in months) for grains at your facility? | .405 | 1 | .524 |
| Overall Statistics | | 16.917 | 12 | .153 |

**Block 1: Method = Enter**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Omnibus Tests of Model Coefficients** | | | | |
|  | | Chi-square | df | Sig. |
| Step 1 | Step | 25.813 | 12 | .011 |
| Block | 25.813 | 12 | .011 |
| Model | 25.813 | 12 | .011 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Model Summary** | | | |
| Step | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
| 1 | 6.858a | .644 | .883 |
| a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found. | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Hosmer and Lemeshow Test** | | | |
| Step | Chi-square | df | Sig. |
| 1 | .656 | 6 | .995 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Contingency Table for Hosmer and Lemeshow Test** | | | | | | |
|  | | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? = Yes | | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? = No | | Total |
| Observed | Expected | Observed | Expected |
| Step 1 | 1 | 3 | 3.000 | 0 | .000 | 3 |
| 2 | 3 | 3.000 | 0 | .000 | 3 |
| 3 | 3 | 3.000 | 0 | .000 | 3 |
| 4 | 3 | 3.000 | 0 | .000 | 3 |
| 5 | 3 | 2.591 | 0 | .409 | 3 |
| 6 | 1 | 1.409 | 3 | 2.591 | 4 |
| 7 | 0 | .000 | 3 | 3.000 | 3 |
| 8 | 0 | .000 | 3 | 3.000 | 3 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Classification Tablea** | | | | | |
|  | Observed | | Predicted | | |
|  | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? | | Percentage Correct |
|  | Yes | No |
| Step 1 | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? | Yes | 15 | 1 | 93.8 |
| No | 1 | 8 | 88.9 |
| Overall Percentage | |  |  | 92.0 |
| a. The cut value is .500 | | | | | |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables in the Equation** | | | | | | | | | |
|  | | B | S.E. | Wald | df | Sig. | Exp(B) | 95% C.I.for EXP(B) | |
| Lower | Upper |
| Step 1a | What is your gender? - Selected Choice |  |  | .000 | 2 | 1.000 |  |  |  |
| What is your gender? - Selected Choice(1) | -2.390 | 16674.250 | .000 | 1 | 1.000 | .092 | .000 | . |
| What is your gender? - Selected Choice(2) | 78.384 | 53721.882 | .000 | 1 | .999 | 11004582197109998000000000000000000.000 | .000 | . |
| What is your current age in years? |  |  | .000 | 3 | 1.000 |  |  |  |
| What is your current age in years?(1) | 43.478 | 39612.153 | .000 | 1 | .999 | 7623303883912949800.000 | .000 | . |
| What is your current age in years?(2) | -34.020 | 45006.798 | .000 | 1 | .999 | .000 | .000 | . |
| What is your current age in years?(3) | -16.881 | 40948.524 | .000 | 1 | 1.000 | .000 | .000 | . |
| What is your highest educational level? - Selected Choice |  |  | .000 | 5 | 1.000 |  |  |  |
| What is your highest educational level? - Selected Choice(1) | 39.015 | 49666.559 | .000 | 1 | .999 | 87919677379094960.000 | .000 | . |
| What is your highest educational level? - Selected Choice(2) | 20.768 | 62984.890 | .000 | 1 | 1.000 | 1045258273.061 | .000 | . |
| What is your highest educational level? - Selected Choice(3) | .209 | 49218.124 | .000 | 1 | 1.000 | 1.232 | .000 | . |
| What is your highest educational level? - Selected Choice(4) | 19.560 | 45802.640 | .000 | 1 | 1.000 | 312509516.371 | .000 | . |
| What is your highest educational level? - Selected Choice(5) | -23.287 | 40192.978 | .000 | 1 | 1.000 | .000 | .000 | . |
| On average, what is the total grain storage capacity in your facility? | 1.227 | 1.489 | .679 | 1 | .410 | 3.412 | .184 | 63.171 |
| What is the average storage period (in months) for grains at your facility? | -20.004 | 9836.338 | .000 | 1 | .998 | .000 | .000 | . |
| Constant | -3.498 | 54662.420 | .000 | 1 | 1.000 | .030 |  |  |
| a. Variable(s) entered on step 1: What is your gender? - Selected Choice, What is your current age in years?, What is your highest educational level? - Selected Choice, On average, what is the total grain storage capacity in your facility?, What is the average storage period (in months) for grains at your facility?. | | | | | | | | | |

Question 2

1. Do grain elevators and farmers’ experiences with managing stored grain influence their adoption of stored grain monitoring technologies?

* Model = Adoption ~ rows = [45,112]

**Solution**

|  |
| --- |
| **Warnings** |
| The dependent variable has less than two non-missing values. For logistic regression, the dependent value must assume exactly two values on the cases being processed. |
| Execution of this command stops. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Case Processing Summary** | | | |
| Unweighted Casesa | | N | Percent |
| Selected Cases | Included in Analysis | 12 | 48.0 |
| Missing Cases | 13 | 52.0 |
| Total | 25 | 100.0 |
| Unselected Cases | | 0 | .0 |
| Total | | 25 | 100.0 |
| a. If weight is in effect, see classification table for the total number of cases. | | | |

Replaced missing cases with “6”

|  |  |  |  |
| --- | --- | --- | --- |
| **Case Processing Summary** | | | |
| Unweighted Casesa | | N | Percent |
| Selected Cases | Included in Analysis | 25 | 100.0 |
| Missing Cases | 0 | .0 |
| Total | 25 | 100.0 |
| Unselected Cases | | 0 | .0 |
| Total | | 25 | 100.0 |
| a. If weight is in effect, see classification table for the total number of cases. | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Categorical Variables Codings** | | | | | | | |
|  | | Frequency | Parameter coding | | | | |
| (1) | (2) | (3) | (4) | (5) |
| For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies | Strongly Disagree | 2 | .000 | .000 | .000 | .000 | .000 |
| Disagree | 4 | 1.000 | .000 | .000 | .000 | .000 |
| Neither Agree nor Disagree | 2 | .000 | 1.000 | .000 | .000 | .000 |
| Agree | 2 | .000 | .000 | 1.000 | .000 | .000 |
| Strongly Agree | 2 | .000 | .000 | .000 | 1.000 | .000 |
| Blank missing | 13 | .000 | .000 | .000 | .000 | 1.000 |

**Block 0: Beginning Block**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Classification Tablea,b** | | | | | |
|  | Observed | | Predicted | | |
|  | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? | | Percentage Correct |
|  | Yes | No |
| Step 0 | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? | Yes | 16 | 0 | 100.0 |
| No | 9 | 0 | .0 |
| Overall Percentage | |  |  | 64.0 |
| a. Constant is included in the model. | | | | | |
| b. The cut value is .500 | | | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables in the Equation** | | | | | | | |
|  | | B | S.E. | Wald | df | Sig. | Exp(B) |
| Step 0 | Constant | -.575 | .417 | 1.907 | 1 | .167 | .563 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables not in the Equation** | | | | | |
|  | | | Score | df | Sig. |
| Step 0 | Variables | For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies | 12.981 | 5 | .024 |
| For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies(1) | 2.679 | 1 | .102 |
| For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies(2) | 1.223 | 1 | .269 |
| For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies(3) | 1.223 | 1 | .269 |
| For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies(4) | 1.223 | 1 | .269 |
| For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies(5) | 12.981 | 1 | <.001 |
| Overall Statistics | | 12.981 | 5 | .024 |

**Block 1: Method = Enter**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Omnibus Tests of Model Coefficients** | | | | |
|  | | Chi-square | df | Sig. |
| Step 1 | Step | 16.623 | 5 | .005 |
| Block | 16.623 | 5 | .005 |
| Model | 16.623 | 5 | .005 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Model Summary** | | | |
| Step | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
| 1 | 16.048a | .486 | .666 |
| a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found. | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Hosmer and Lemeshow Test** | | | |
| Step | Chi-square | df | Sig. |
| 1 | .000 | 1 | 1.000 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Contingency Table for Hosmer and Lemeshow Test** | | | | | | |
|  | | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? = Yes | | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? = No | | Total |
| Observed | Expected | Observed | Expected |
| Step 1 | 1 | 2 | 2.000 | 0 | .000 | 2 |
| 2 | 10 | 10.000 | 0 | .000 | 10 |
| 3 | 4 | 4.000 | 9 | 9.000 | 13 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Classification Tablea** | | | | | |
|  | Observed | | Predicted | | |
|  | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? | | Percentage Correct |
|  | Yes | No |
| Step 1 | Are any stored grain monitoring technologies (ex. Temperature sensors/cables, CO2 sensors, etc) adopted at your facility? | Yes | 12 | 4 | 75.0 |
| No | 0 | 9 | 100.0 |
| Overall Percentage | |  |  | 84.0 |
| a. The cut value is .500 | | | | | |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables in the Equation** | | | | | | | | | |
|  | | B | S.E. | Wald | df | Sig. | Exp(B) | 95% C.I.for EXP(B) | |
| Lower | Upper |
| Step 1a | For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies |  |  | .000 | 5 | 1.000 |  |  |  |
| For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies(1) | .000 | 34808.143 | .000 | 1 | 1.000 | 1.000 | .000 | . |
| For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies(2) | .000 | 40192.979 | .000 | 1 | 1.000 | 1.000 | .000 | . |
| For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies(3) | .000 | 40192.979 | .000 | 1 | 1.000 | 1.000 | .000 | . |
| For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies(4) | .000 | 40192.979 | .000 | 1 | 1.000 | 1.000 | .000 | . |
| For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies(5) | 22.014 | 28420.734 | .000 | 1 | .999 | 3634819283.561 | .000 | . |
| Constant | -21.203 | 28420.734 | .000 | 1 | .999 | .000 |  |  |
| a. Variable(s) entered on step 1: For those who use stored grain monitoring technologies - My experiences with managing stored grain have contributed to my decision to adopt stored grain monitoring technologies. | | | | | | | | | |