ESTABLISHING PRICE AND PROFIT AT EHMKE SEED

by

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ABSTRACT

The wheat industry has experienced significant changes in recent years due to extreme market volatility in commodity markets. The challenge for farmers, seed dealers, and seed companies, therefore, is to determine value and price amid a rapidly fluxuating market environment. Locally, seed dealers must price seed wheat at a level that is both fair to the farmer with consideration to their local cash market, and yet profitable to the seed company. Ehmke Seed in Lane County, Kansas, is one such seed dealer struggling with determining price in an ever-changing market environment.

This study analyzes pricing models based on historical seed prices and the local cash grain market. Twenty-five years of seed wheat prices at Ehmke Seed were compared to local cash wheat and grain sorghum prices at the Garden City Cooperative Elevator in Garden City, Kansas, with a margin analysis conducted on the models with respect to Ehmke Seed's cost of production. This study also provides a statistical analysis of the competing price models to compare their reliability. A more dependable method of pricing will help Ehmke Seed come to a better understanding of alternative marketing options for wheat, and serve as a basis to help understand how future wheat varieties, such as transgenic wheat, may potentially be priced in the future.

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CHAPTER I INTRODUCTION

1.1 Problem Statement

The client for this thesis is Ehmke Seed in Lane County, Kansas. My family owns the seed company as part of our farm, 34 Star Farms. Ehmke Seed needs a clearer and more efficient method of pricing seed for customers.

The first issue of the thesis is to determine what price Ehmke Seed should charge for a bushel of seed wheat, based on historical pricing behaviors over the past 25 years with Ehmke Seed and local cash grain prices.

The second issue is to determine whether the prices resulting from the models described above are profitable for 34 Star Farms via a margin analysis of cost of production for a bushel of wheat and per acre.

Historically, seed prices have been determined by talking with other competing seed dealers in the High Plains about what they plan to charge for seed in the sales season forthcoming. However, those prices are based on other seed dealers' local market and cost of production. A price model made specifically for Ehmke Seed would take into account our own local cash market and cost of production, while a breakeven analysis would provide a clearer picture of profitability based on the models' prices. This thesis may also serve as a stepping-stone for establishing pricing models for other crops also grown for seed at Ehmke Seed, such as rye and triticale.

1.2 Thesis Objectives

The objective of this thesis was to establish a pricing mechanism for Ehmke Seed in order to reduce the stress in determining what to charge customers for seed. A margin analysis was also conducted in order to determine if the pricing mechanism would be profitable and to what degree.

To address the objectives of this thesis, price information on seed was gathered at Ehmke Seed going back 25 years, and was compared to the average local cash grain market in Garden City, Kansas, during the first week of August when seed sales begin. Cash wheat and grain sorghum prices were used in the model since the price of both crops ultimately influences customers' planting decisions and seed wheat needs. Current wheat and grain sorghum cash prices were used to estimate a seed price.

A margin analysis was conducted for the 2010-2011 crop year using the framework provided by KSU farm management crop production budgets. The price information for seed was collected from Ehmke Seed, and the cash grain prices for Garden City, Kansas were collected from the local cooperative elevator. Cost of production information was acquired from our farm CPA. Since the thesis will be concluded in May before harvest, future costs such as custom harvest rates and seed cleaning services were estimated in the breakeven analysis based on historical rates paid by the farm. Wheat yield scenarios were based on historical farm yields.

CHAPTER II LITERATURE REVIEW

Kansas is the number one wheat producing state in the U.S. with wheat being the most popular crop to grow among Kansas farmers. In 2009, Kansas farmers planted 9.3 million acres to wheat. Corn acres, meanwhile, totaled 4.1 million acres, while 3.7 million acres were planted to soybeans, and 2.7 million acres were planted to grain sorghum (Kansas Agricultural Statistics Service 2009). As a result, there is ample scholarly material supporting the production and marketing of wheat in Kansas. However, the amount of literature concerning the seed wheat industry needed to support the production of commodity wheat is not significant. There are a number of related articles surrounding the topic of the seed industry as a whole, but only a handful of studies have been conducted that relate directly to pricing of seed, with even less information for hard winter wheat seed in Kansas.

This study starts with basic marketing assumptions and builds upon literature supporting the three key aspects that define the relationship of buyers and sellers and the structure of a market: cost, price, and value (Koch 2007). According to Koch (2007), a price below a producer's cost means no profit margin for the producer and that no more units of the product will be produced. A price higher than the valuation of a potential buyer means there will be no transaction, and no value will be created for the buyer or the seller. Creating more value for customers and capturing a share of that value creates a better outcome for both the buyer and the seller (Koch 2007). Price, therefore, is a function of cost and value. That necessitates efficiency of seed wheat production, and value for the farmer in buying certified seed.

2.1 Wheat Production in Kansas

Wheat has long been produced in western Kansas in a wheat-fallow rotation that fallows the ground from July harvest to wheat seeding in September or October of the following year. Many farmers, though, have switched to a more intensive wheat-summer crop-fallow cropping system during the last decade (Dumler, O'Brien, et al., Wheat Cost-Return Budget in Western Kansas 2009). The wheat-summer crop-fallow cropping system will typically include corn, grain sorghum, oil or confectionary sunflowers, cane hay, or soybeans as the summer crop (Dumler, O'Brien, et al., Wheat Cost-Return Budget in Western Kansas 2009). The primary summer crops are grain sorghum and corn (Schlegel, Dumler and Thompson 2002).

There are four phases in the wheat-summer crop-fallow system. Phase 1 is the period of winter wheat production lasting nine months from September 15 of Year 1 to July 1 of Year 2. Phase 2 is the period of winter wheat stubble covering 10 to 11 months from July 1 of Year 2 to May or June of Year 3. Phase 3 is the summer-crop production period lasting approximately 4 to 5 months from May or June of Year 3 to October of Year 3. Phase 4 is the time of summer crop stubble lasting approximately 11 months from October of Year 3 to September 15 of Year 4 (Dumler, O'Brien, et al., Wheat Cost-Return Budget in Western Kansas 2009).

2.2 Efficiency of Producing Wheat

Good management always seems to be rewarded. When dealing with small margins and in times of great uncertainty, good management is even more important when it comes to profitability on Kansas wheat farms. Therefore, producers should look closely at their cost structure and make sure that they are operating efficiently (Gasper 2009).

Langemeier (2009) adds that in addition to being technically efficient, high net-return wheat farms in Kansas have more wheat acres, more crop acres, higher yields, a higher price received per bushel, and significantly lower total costs. Gross income per acre for high net return farmers was 14 percent higher than that for low net return producers, on average over a five-year period from 2004 to 2008.

More importantly, total cost per acre was 28 percent lower for high net return Kansas wheat farmers with fertilizer, machinery, and labor being the three largest cost-per-acre items (Langemeier 2009). Net return to management for the top one-third of Kansas farmers was $34.37 per acre. In contrast, the low net return group lost $47.68 per acre. These net returns translate into a difference in net return per management between the two groups of $82.05 per acre.

High cost-efficiency of operations ultimately translates into a lower breakeven price per bushel for the farm enterprise. Langemeier (2009) indicates that the average cost per bushel from 2004 to 2008 was $4.81. While the bottom one-third of the group had a cost of production of $5.95 per bushel, the most efficient one-third had a breakeven of only $3.88 – a difference of more than $2.00 per bushel (Langemeier 2009).

2.3 Certified Seed Wheat

Quality seed is essential for establishing a productive stand of wheat (Paulsen 1997). Because poor quality seed can be expensive in terms of poor stand establishment resulting in yield losses and future problems with weeds and diseases, certified seed is the grower's best assurance of purchasing excellent quality seed (Shroyer, Kok and Thompson 1997). All certified seed has been cleaned and is labeled according to seed law indicating variety, percent germination and date tested, percent pure seed, and percent inert material. As seed is a very low-cost item in relation to total production cost, high quality seed usually does not cost as much in the long run as bargain seed or low-priced seed (Shroyer, Kok and Thompson 1997).

Certified seed wheat also decreases management costs for the farmer later in the season. Weeds can be inadvertently introduced into clean fields with contaminated wheat seed, but certified seed cannot contain any prohibited noxious weed seed and must have the percentage of other weed seed contaminants listed on the label (Whitney 1997). By cleaning seed for wheat planting, or by purchasing certified wheat that has been inspected and cleaned, a farmer has more control over weed contamination (Whitney 1997). Disease prevention is another attribute offered with certified seed. Kansas certified seed has been inspected for common bunt, loose smut, and Karnal bunt. Using certified seed, therefore, reduces the risk of introducing a seedborne disease into the field (Bowden 1997). Certified wheat seed has additional value when considering the current and potential future trends of production agriculture with identity-preserved systems that are increasingly being used by food and agribusiness firms (Boland, Dhuyvetter and Howe 2001).

2.4 Finding Price between Cost and Value

The primary objective of a seed company is to sell quality seed at a cost that creates value for the farmer while maximizing profit margin for the seed enterprise. This necessitates the greatest efficiency possible. By being a low-cost wheat producing enterprise, the seed business is able to pass savings onto farmers, making the purchase of seed wheat beneficial to wheat farms. Other seed use options for wheat farms include saving and cleaning their own wheat leftover from the previous harvest.

Boland, Dhuyvetter, and Howe (2001) found the average certified seed price for winter wheat in 10 wheat-producing states from 1992 to 1999 was 1.81 times greater than the farmer-saved seed price. An increase in yield of two bushels had a positive return when the price of July cash wheat was $2.50 per bushel or higher. When yield increased by only 1 bushel per acre, the price of cash wheat needed to be $3.50 per bushel or higher in order for certified seed to increase returns relative to farmer-saved seed. It is important to note that the July cash price of hard red winter wheat in Kansas has been above $3.50 per bushel each of the last five years and above $2.50 per bushel in each of the last 10 years (Dhuyvetter 2010).

CHAPTER III METHODS

The theoretical model and method for this study are divided into two parts: margin analysis for seed wheat and the pricing model for seed wheat based on two linear regression models according to historical price relationships of seed and cash grain prices.

3.1 Pricing Models for Seed Wheat

The two pricing models for seed wheat used in this thesis are as follows:

(3.1) $\quad Seed\ Price = \beta_0 + \beta_1 Wheat + \varepsilon$

(3.2) $\quad Seed\ Price = \beta_0 + \beta_1 Wheat + \beta_2 Sorghum + \varepsilon$

The first model is based on the relationship of seed wheat prices strictly with cash wheat prices, which will be compared to a model based on the relationship of seed wheat to both cash wheat and grain sorghum. Cash wheat and grain sorghum prices are used in the second model since the price of each crop ultimately influences our customers' planting decisions and seed wheat needs. Corn prices were not included as the grain sorghum and corn markets trade in nearly perfect unison as they are both hedged via a corn futures contract at the local cooperative elevator. Soybean prices were also excluded from the regression as soybeans are a crop rarely grown in the region. Twenty-five years of prices of seed were collected from Ehmke Seed, while the cash prices for wheat and grain sorghum for the corresponding years were obtained from the Garden City Cooperative Elevator in Garden City, Kansas, for the first week of August of each year due to August typically being when seed prices are set at Ehmke Seed. Historical cash grain prices in Dighton, Kansas, which is the closest cash market to Ehmke Seed, were unavailable. The coefficients on wheat price in the models above were expected to be positive while the coefficient on grain sorghum price in the second model was expected to be negative.

Current cash prices were incorporated into the price models to provide the most up-to-date view of marketing possibilities and profitability. August 2011 cash prices will be implemented later in the year as they become available.

3.2 Margin Analysis for Seed Wheat

Figuring the breakeven cost of production of wheat serves to calculate profit margin for the farm according to the price established in the above pricing models. While other crops such as grain sorghum, rye, and triticale are grown on the farm; wheat will be the focus of this study. Breakeven prices are established by using the format provided by the KSU farm management guide for non-irrigated wheat in western Kansas (Dumler, O'Brien, et al., Wheat Cost-Return Budget in Western Kansas December 2009). However, cost of production information for the 2010-11 marketing year was also acquired from our farm CPA and is included in the breakout of costs, resulting in some variation from that presented in the farm management guide.

CHAPTER IV DATA

Table 4.1 details the history of cash wheat, cash grain sorghum, and seed wheat prices. The difference between seed wheat and cash wheat prices for each year is listed in the final column. Seed prices were acquired from Ehmke Seed and were based on the most popular variety sold that year as that variety typically will constitute the majority of the seed wheat sales. This past year, TAM 112 comprised more than half of all wheat sales at Ehmke Seed. Cash wheat and grain sorghum prices on the first seven business days of August of each year were obtained from Garden City Cooperative Elevator in Garden City, Kansas.

Table 4.2 itemizes production costs at Ehmke Seed on a per-acre basis, including seed, fertilizer, herbicide, insecticide and fungicide. Production costs were acquired from the farm's CPA.

Table 4.3 details machinery and land resource costs on a per-acre basis at Ehmke Seed in a wheat-sorghum-fallow rotation. Costs are based on estimates according the farm's CPA, except for tillage custom rate cost, which is from Kansas State University.

Table 4.1: Cash Wheat, Cash Grain Sorghum and Seed Prices

Year	Cash Wheat	Cash Grain Sorghum	Seed Wheat	Seed Wheat – Cash Wheat	Ratio of Seed v. Cash Wheat
1986	$2.08	$1.63	$3.50	$1.42	**168%**
1987	$2.04	$1.45	$3.65	$1.61	**179%**
1988	$3.19	$2.60	$4.00	$0.81	**125%**
1989	$3.61	$2.03	$8.00	$4.39	**222%**
1990	$2.29	$2.33	$5.00	$2.71	**218%**
1991	$2.51	$2.18	$5.75	$3.24	**229%**
1992	$2.61	$2.11	$5.25	$2.64	**201%**
1993	$2.68	$2.08	$6.00	$3.32	**224%**
1994	$3.00	$2.02	$6.00	$3.00	**200%**
1995	$4.19	$2.57	$7.00	$2.81	**167%**
1996	$4.51	$3.64	$9.00	$4.49	**200%**
1997	$3.22	$2.31	$6.00	$2.78	**186%**
1998	$2.28	$1.69	$5.25	$2.97	**230%**
1999	$2.30	$1.67	$5.00	$2.70	**217%**
2000	$2.30	$1.41	$8.00	$5.70	**348%**
2001	$2.59	$1.87	$8.00	$5.41	**309%**
2002	$3.55	$2.15	$6.25	$2.70	**176%**
2003	$3.13	$1.86	$5.75	$2.62	**184%**
2004	$3.03	$1.87	$10.00	$6.97	**330%**
2005	$2.96	$1.70	$8.00	$5.04	**270%**
2006	$4.38	$2.02	$11.00	$6.62	**251%**
2007	$5.80	$2.87	$12.00	$6.20	**207%**
2008	$7.36	$4.37	$15.00	$7.64	**204%**
2009	$4.75	$2.58	$12.00	$7.25	**253%**
2010	$5.76	$3.23	$9.00	$3.24	**156%**
Average	**$3.44**	**$2.25**	**$7.38**	**$3.93**	**214%**

Table 4.2: Production Inputs – Wheat-Summer Crop-Fallow

Item	Yield (30 BPA)	Yield (40 BPA)	Cost
Seed, lbs	60/acre	60/acre	**$0.16/lb**
Fertilizer:			
N (anhydrous)	60/acre	60/acre	**$0.30/lb**
N	0	0	**$0.39/lb**
P	20	20	**$0.44/lb**
K	0	0	**$0.59/lb**
Lime	0	0	**$0.01/lb**
Herbicide:			
RT3	$10/acre	$10/acre	**$0.20/oz**
+2,4-D, Ally, Banvel	$4/acre	$4/acre	**$3.10/pt**
Insecticide/Fungicide	**$4/acre**	**$4/acre**	

Table 4.3: Machinery and Land Resources – Wheat-Summer Crop-Fallow

Item	Yield (30 BPA)	Yield (40 BPA)	Custom Rate
Tillage/Planting/Chemical Applications			
Sweep	2	2	**$6.76/a**
Drill	1	1	**$9.69/a**
Anhydrous application	1	1	**$1/a**
Fertilizer application (Phos)	1	1	**$5.00/a**
Herbicide application (B/A/2-4-d)	1	1	**$2/a**
Herbicide application (RT3)	2	2	**$4.38/a**
Fungicide application	1	1	**$4.00/a**
Harvest			
Base charge	1	1	**$20/a**
Extra charge for yield exceeding 20 BPA	10	20	**$0.20/bu**
Hauling	30	40	**$0.20**
Non-machinery labor	0.59	0.63	**$13.00/hr**
Land charge/rent	$48.00	$60.00	
Interest on capital	**0**	**0**	**7.5%**

CHAPTER V RESULTS

5.1 Price Model Results

The signs for each of the variables under both pricing models, P_1 and P_2, were as expected. Cash wheat was positively correlated with seed wheat while grain sorghum was negatively correlated (see table 5.1 and 5.2). For P_1, cash wheat had a t-statistic of 7.2435, which is well above the 5% level of significance of 1.711 with 24 degrees of freedom (N - K = 25 - 1 = 24, with N representing the number of observations and K representing the number of variables in the model). For P_2, which had two variables, cash wheat's t-statistic of 5.5475 was also well above its 5% level of significance at 1.714 with 23 degrees of freedom (N - K = 25 - 2 = 23), while grain sorghum's t-statistic of -1.9465 was slightly above the critical t-value. Levels of significance were based on 1-sided tests. The correlation coefficient between the two independent variables, wheat and grain sorghum, was 0.8636.

The P value for the cash wheat variable in both models was low at 0.0000, indicating a high level of confidence in its influence in the price of seed wheat. The cash grain sorghum variable in P_2, though, had a P value of 0.0645, which indicated a relatively low level of confidence in this variable.

Using current cash wheat price of $7.16 in Garden City, Kansas, as of March 11, 2011, the disparity between the resulting prices of $14.02 for P_1 and $10.84 for P_2 is large at $3.18, raising concern over the reliability for one or both of the models. When compared to the 25-year relationship of seed wheat and cash grain prices, P_1 follows closer to the trend than does P_2. Over that period, seed wheat was on average 214% of the price of cash wheat. At current cash wheat price, P_1 was 195% of the price of cash wheat while P_2 was only 151%. P_1, therefore, follows more closely to the historical relationship between seed and cash prices. It is also more in line with the 181% ratio calculated by Boland, Dhuyvetter and Howe (2001).

Table 5.1: Price Model Results – Cash Wheat

Regression Statistics:	R^2	Adjusted R^2	Standard Error	Observations
	0.6952	0.6820	1.6310	25

Variable	**Coefficients**	**Standard Error**	**t Stat**	**P-Value**
Intercept	1.1982	0.9131	1.3122	0.2024
Cash Wheat	1.7934	0.2476	7.2435	0.000002257

Table 5.2: Price Model Results – Cash Wheat and Cash Sorghum

Regression Statistics:	R^2	Adjusted R^2	Standard Error	Observations
	0.7400	0.7164	1.5403	25

Variable	**Coefficients**	**Standard Error**	**t Stat**	**P-Value**
Intercept	2.4651	1.0804	2.2817	0.0325
Cash Wheat	2.5731	0.4638	5.5475	0.000014147
Cash Sorghum	-1.7572	0.9027	-1.9465	0.0645

Because P_1 follows closer to the historical relationship of seed and cash prices than P_2, and because the sorghum variable in P_2 was insignificant at the 5 percent level, P_1 seems to be the more reliable pricing model for seed wheat at Ehmke Seed.

5.2 Cost-Return Analysis

Table 5.3 details the cost-return breakout using the cost of production framework outlined in Tables 4.2 and 4.3. The columns for P_1 and P_2 correspond to the prices derived from the first and second pricing models, respectively, while the third column compares profitability of wheat marketed at prevailing cash prices. Due to poor crop conditions that have prevailed for most of the 2010-11 growing season so far, conservative yields of 30 and 40 bushels per acre were used to compute returns. Since the thesis will be concluded in May before harvest, future costs such as custom harvest rates and seed cleaning services were based on historical rates paid by the farm.

Except for custom machinery estimates and land cost estimates provided by Kansas State University, all costs included in production inputs were provided by the farm's CPA.

The most profitable scenario is the P_1 price of $14.02/bushel and a 40-bushel yield, bringing a net profit of $322 per acre. Under the P_1 price scenario with a 30-bushel yield, profit drops to $217 per acre. If the wheat was sold in the cash market at $7.16/bushel rather than at a premium price in the seed market, profitability at a 40-bushel yield falls significantly to $76 – a fraction of what is achieved under the P_1 or P_2 scenarios despite having the advantage of lower production costs.

Table 5.3: Cost-Return Projection – Wheat (W-S-F Rotation) – Western Kansas

Price per bushel	**P_1 - $14.02**		**P_2 - $10.84**		**Cash Wheat $7.16**	
Yield per acre	30	40	30	40	30	**40**
Net government payment	$12.00	$12.00	$12.00	$12.00	$12.00	**$12.00**
Indemnity payment	0	0	0	0	0	**0**
Miscellaneous income	0	0	0	0	0	**0**
Returns/acre	$432.60	$560.08	$337.20	$445.60	$226.80	**$286.40**
COSTS PER ACRE						
Seed	$9.60	$9.60	$9.60	$9.60	$9.60	**$9.60**
Herbicide	$14.00	$14.00	$14.00	$14.00	$14.00	**$14.00**
Insecticide	0	0	0	0	0	**0**
Fungicide	$4	$4	$4	$4	$4	**$4**
Fertilizer	$31.00	$31.00	$31.00	$31.00	$31.00	**$31.00**
Crop Consulting	0	0	0	0	0	**0**
Crop Insurance	$10	$10	$10	$10	$10	**$10**
Miscellaneous	$5.50	$5.50	$5.50	$5.50	$5.50	**$5.50**
Machinery	$69.97	$73.97	$69.97	$73.97	$69.97	**$73.97**
Seed Cleaning	$18.75	$25.00	$18.75	$25.00	0	**0**
Non-machinery labor	$5.00	$5.00	$5.00	$5.00	$2.00	**$2.00**
Land Charge/Rent	$48.00	$60.00	$48.00	$60.00	$48.00	**$60.00**
SUB TOTAL	$215.82	$238.07	$215.82	$238.07	$194.07	**$210.07**
Interest On ½ Nonland Costs	$0	$0	$0	$0	$0	**$0**
TOTAL COSTS	$215.82	$238.07	$215.82	$238.07	$194.07	**$210.07**
RETURNS OVER COSTS	$216.78	$322.01	$121.38	$207.53	$32.73	**$76.33**
TOTAL COSTS/BUSHEL	$7.19	$5.95	$7.19	$5.95	$6.47	**$5.25**
RETURN TO ANNUAL COSTS	**100.44%**	**135.26%**	**56.24%**	**87.17%**	**16.87%**	**36.34%**

In comparing cost of production, the breakeven for cash wheat at 40 bushels/acre is the lowest-cost scenario at $5.25/bushel due to lower management costs associated with seed cleaning and labor. The seed wheat breakeven at $5.95/bushel at the 40 bushels/acre level, meanwhile, is 13% higher than cash wheat. Still, despite the higher cost that comes with managing seed wheat production when compared to cash wheat, seed wheat clearly is the most profitable market for Ehmke Seed when it comes to marketing wheat.

5.3 Seed Wheat Profitability

Considering the high profitability of seed wheat, 34 Star Farms seeks to sell as many bushels it can through Ehmke Seed. Approximately 80% of all wheat bushels grown on the farm are sold as seed wheat while the remaining bushels are sold as commodity wheat at the local elevator. This is markedly different from the early days of 34 Star Farms when the majority of all bushels were sold in the cash market.

Barriers to entry also allow Ehmke Seed to capture a significantly greater value when selling wheat as seed. The amount of labor involved to maintain purity of variety is extensive. Because the Kansas Crop Improvement Agency enforces purity of seed with field inspections and germination tests, all facilities and machinery on the farm, including grain bins, augers, grain-hauling trucks and combines, must be regularly cleaned and maintained. Each field is also rouged by hand to remove unwanted plants. Wheat that is stored over time must also be watched and tested to maintain required germination rates. Because of the labor and management costs associated with certified seed, competition in the industry is limited. That allows Ehmke Seed and other existing seed companies to capture more value in the market. Current existing certified seed wheat dealers in Kansas total 165 (Kansas Crop Improvement Association 2010).

While most of the value farmers seek in certified seed is tied to higher yield and lower risk of contamination with weeds, insects and plant diseases, customers at Ehmke Seed also find value in service. At other seed companies, service typically is non-personal where the customer arrives at the warehouse and an employee who is paid an hourly wage completes the sale and sends them on their way with little personal interaction. At Ehmke Seed, it is common for our customers to spend a few hours conversing. This time spent with the customer is highly valuable as it is an opportunity to exchange information and build a more personal and trusting relationship. The strong relationships we have established have resulted in brand loyalty and referrals. As one new customer said, “My neighbor must own stock in your company the way he talks about you.”

CHAPTER VI CONCLUSIONS

The analysis in this thesis leads to the conclusion that both pricing scenarios P_1 and P_2 are more profitable than cash wheat despite higher management costs associated with seed wheat, and that P_1 is the most profitable of all three scenarios. The P_1 model examined the relationship between seed wheat price and cash wheat price. The P_2 model examined the relationship between seed wheat price and cash wheat and grain sorghum prices. Based on its statistical features and its close relationship to historical price patterns, the P_1 model was chosen to be the preferred model. Using current cash wheat price of $7.16/bushel in the P_1 pricing model, Ehmke Seed should charge $14.02/bushel for seed wheat. At the current cost structure, that gives Ehmke Seed a profit margin of $6.05/bushel at the 40-bushel yield level, and $4.81/bushel if yields are 30 bushels/acre.

This study also serves as a starting point for further marketing analysis at Ehmke Seed. Quantifying yield advantage of certain varieties of wheat, and calculating the cost efficiencies regarding time or input savings the farmer realizes by planting certified seed instead of bin-run seed would bring a more precise estimate of value to the farmer, and therefore increase the reliability of price. Other studies may include price analysis for triticale and rye seed, and pricing models for individual wheat varieties. It will also serve as a foundation for understanding alternative marketing opportunities that may evolve in the future with niche markets. The challenges forthcoming in the wheat industry will require a clearer understanding of markets and seed pricing. Amid the extreme market volatility that prevails today and with transgenic wheat to be commercialized within 10 years, the value and pricing of seed wheat is sure to become an even greater issue for the industry and for Ehmke Seed.

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