

Using Farm-Level Data to Improve Marketing and Planning: An Illustration with Live Hogs

By Dwight R. Sanders, Gary A. Apgar, and Mark R. Manfredo

Abstract

Actual live hog sales data from the Swine Center at Southern Illinois University at Carbondale are used to examine marketing practices and develop a forecasting and budgeting tool. The data show that carcass-based hog sales receive a price premium of \$4.35 per live hundredweight. Likewise, hogs marketed at the optimal live weight, 244 pounds, receive a \$0.26 per hundredweight premium. The data are also used to develop a futures-based hedging and forecasting model. Price forecasts are used to generate revenue estimates to assist with business planning. The results demonstrate a number of ways producers and agribusinesses can use sales data to improve their marketing and business planning.

Introduction

The industrialization of agriculture has led to larger farm size, fewer number of farms, and a move toward contracting and other coordinating relationships between farmers and entities further up the supply chain (Wachenheim and Saxowsky; Boehlje and Lins). The evidence of this evolving agriculture is probably best illustrated by the massive structural changes in the U.S. pork industry over the past decade (Barkema, Drabenstott, and Novack). In 1992, the U.S. had 236,210 hog operations with less than 1,000 head, accounting for 53 percent of the total hog inventory. In 2002, that number had fallen by more than one-third to 62,693 producers, accounting for only 13 percent of the U.S. inventory (USDA). Although their numbers have declined, there are clearly still several small hog production units in the United States. In this age of industrialized agriculture, only those producers who use cutting edge business practices will survive. Therefore, the efficient use of information is critical. As stated by Wachenheim and Saxowsky, "Accurate, timely, and detailed information is important for good decision making, just as an appropriate soil type is important for crop growth" (p. 122).



Dwight R. Sanders is an Assistant Professor of Agribusiness Economics at Southern Illinois University at Carbondale. Current research interests include agribusiness risk management, price analysis, and forecasting. He received his Ph.D. in Agricultural Economics from the University of Illinois in 1995. Dr. Sanders can be reached at 618.453.1711 or DwightS@siu.edu.



Gary A. Apgar is an Associate Professor of Animal Science at Southern Illinois University at Carbondale, specializing in swine nutrition. He received his Ph.D. from Virginia Polytechnic Institute and State University in 1994. Dr. Apgar can be contacted at 618.453.1765 or at PigGuy@siu.edu.



Mark R. Manfredo is an Assistant Professor in the Morrison School of Agribusiness and Resource Management at Arizona State University. His research interests are agricultural finance, agricultural marketing, risk management, and agricultural price analysis. Dr. Manfredo received his Ph.D. in Agricultural Economics from the University of Illinois at Urbana-Champaign in 1999. Dr. Manfredo can be contacted at 480.727.1040 or manfredo@asu.edu.

The agricultural economics profession has long been a provider of information to the agricultural community. For example, both academic researchers, as well as extension economists, provide and disseminate information regarding general farm business management practices, marketing, and risk management. However, there is a growing concern in the agricultural economics profession about the disparity between academic research and its practical application by producers and agribusinesses. Brorsen and Irwin recognize this shortcoming and rightfully point out that if agricultural economics research is to become more relevant, the research must be used. Importantly, Brorsen and Irwin stress that there be an increased emphasis on primary data used to address real-world issues. Furthermore, the "marketing and risk analysis of agricultural firms," rates as a high research priority among both agricultural economists and agribusiness participants (Ahearn, et al., p. 339). Therefore, it is important that the profession take steps to bring more relevance to the research area.

Our goal with this research is to make a step toward greater relevancy by examining marketing and forecasting issues for a small hog producer in Southern Illinois. In doing this, we examine the case of the Southern Illinois University at Carbondale (SIUC) Swine Center, a facility that is similar in size to many small hog farms in the state of Illinois and throughout the U.S. Specifically, we demonstrate a number of ways that the SIUC Swine Center can use farm-level transaction data collected on actual hog sales to make more informed marketing decisions. Improved marketing should translate into higher revenues for the SIUC Swine Center, allowing the Center to enhance its sustainability, especially in the presence of tightened university budgets. The procedures used and the results of this study should be valuable to other hog producers. For small producers to remain competitive, the efficient management and use of both primary (on-farm) data, as well as information provided in the public domain, must be used, and used effectively.

The remainder of this paper is presented as follows. First, the characteristics of the SIUC Swine Center are presented and compared to that of other small-scale hog production units. Second, important marketing issues are put forth related to the sale of live hogs and forecasting revenues for budgeting and planning purposes. In addressing each of these questions, we

illustrate how primary data collected at the farm level, combined with knowledge generated by the agricultural economics community, can be used to guide decision making. Specifically, the methods and results presented can provide much needed information to firms concerning the use of internal sales information to analyze and improve marketing performance. The final section consists of a summary of this research, and discussion on how the SIUC Swine Center and similar production operations can better utilize internal information. The presented research can easily be generalized to other livestock producers; therefore, the results should be of interest to farmers, farm managers, extension educators, and academics alike.

The SIUC Swine Center

The SIUC Swine Center is located on the campus of Southern Illinois University at Carbondale (SIUC), and serves as a teaching and research laboratory for the College of Agricultural Sciences. The Swine Center provides students with hands-on experience in the husbandry, as well as the business functions, of farrow-to-finish swine production. Faculty and other researchers affiliated with the Center are engaged in a variety of research projects, mostly focusing on improved production practices such as swine nutrition.

Like many state-funded institutions, SIUC is often faced with a budget crisis where non-performing research and teaching programs may be at risk of consolidation or elimination. Along these lines, the Swine Center at SIUC must produce a targeted annual level of sales revenue to help support the laboratory. For instance, in fiscal year 2003, the Swine Center had a total revenue target of \$100,000 in sales, but only \$80,286 in actual sales, resulting in a revenue shortfall of \$19,714. The marketing and income challenges faced by the SIUC Swine Center are not markedly different from those faced by individual producers-especially small producers that are of similar type and scope to that of the SIUC Swine Center. That is, the goal is to maximize profits to keep the Center (farm) viable.

In fiscal year 2003 (FY2003), which began on July 1, 2002, the SIUC Swine Center produced a pig crop of 1,304 from an average month-end inventory of 88 sows, 26 replacement gilts, 5 boars, and 490 market hogs (see Table 1). Annual marketing

included 30 boars, 54 sows, and 1,174 slaughter barrows and gilts, resulting in annual sales revenue of \$80,286. The SIUC Swine Center markets hogs by trucking them to a pick-up station located 44 miles away in Washington County, Illinois. Sales are made on either a live weight basis or on a carcass-grade basis. Live weight sales are made to Wilson Livestock of Nashville, Illinois. All sales have an insurance fee of 0.30 percent and a pork check-off of 0.40 percent of gross receipts. Carcass-based sales, which must be at least 15 head marketed, include an additional handling fee of \$2.00 per head to compensate Wilson Livestock for collecting hogs from a number of producers into a uniform load and shipping them 185 miles to the Excel packing plant in Beardstown, Illinois.¹ In FY2003, 32 percent (by weight) of barrows and gilts were sold on a carcass-grade basis. The SIUC swine operation is small by most measures. Yet, in 2002 there were 3,400 producers in Illinois with an inventory of less than 999 head and 62,693 similar sized producers in the U.S. Operations of this size hold 18 percent of the hog and pig inventory in Illinois and 13 percent nationwide (USDA).

Given the size, characteristics, and budget problems facing that of the SIUC Swine Center (and similar sized hog production units), some important practical questions arise. Namely, can the Center take steps from a marketing perspective to increase revenues? For instance, are there premiums or discounts associated with the number of head marketed, market weights, or sale-type (e.g., live vs. carcass sales)? Can sales data be used to determine this? As well, can the Center use information provided by the lean hog futures market to make price forecasts so that the Center can improve their budgeting and planning? The following sections discuss and illustrate how information available to the SIUC Swine Center, combined with relatively simple techniques and results from the agricultural economics literature, can be used to improve their marketing practices and prepare business plans.

Using Sales Data to Determine Marketing Premiums

Previous research has documented that animal characteristics (e.g., color, weight, sex, and breed) as well as market factors (e.g., lot size, futures prices, and market location) can influence prices received for livestock (Turner, Dykes, and McKissick; Schroeder, Mintert, Brazle, and Gruenwald). Looking at a cross-section of producer sales to a packing plant, Lawrence

finds that slaughter hog quality characteristics, in particular percent lean and yield, contributed to price premiums while sort loss decreased premiums. The only marketing factor that significantly impacted premiums was the lot or load size, where larger loads were associated with higher prices. However, the load size premium began at a relatively small level (13 head). Not surprisingly, the results presented by Lawrence suggest that producers may increase revenues with large loads of high quality slaughter animals.

Here, we attempt to verify this result at the producer level by examining the premiums and discounts associated with SIUC Swine Center hog sales. Individual sales data for slaughter hogs from the SIUC Swine Center were collected from July of 2000 through September of 2003. Over this period, the Swine Center marketed 2,446 head in 125 separate transactions; averaging nearly 20 animals per sale (see Table 2).² For each sale, the number of head, average live weight, and price per hundredweight are recorded. The gross proceeds from carcass-based sales are used to calculate an equivalent live weight price for these transactions. As shown in Table 2, carcass-based sales accounted for 23 of the 125 transactions (18.4% of total transactions), but they are 24 percent of the pounds marketed due the higher number of head (25.1 versus 18.3) and average live weight (241.7 lbs vs. 236.1 lbs). The carcass sales also produced a higher average price (\$39.50/cwt) than the live weight sales (\$36.53/cwt). However, this could be due to other marketing-related factors such as weights, number of head, or the changes in the market price. In the following section, we account for these factors to isolate the elements of marketing that impact the sales price.

The number of head, average weight, and live weight price is collected for each sales transaction. More detailed data, such as carcass quality characteristics, were not available on a historical basis for this study. To control for market fluctuations, the USDA Peoria top barrow and gilt price is collected for the same date as the SIUC Swine Center marketing. The SIUC price "premium" is defined as the SIUC Swine Center's market price minus the Peoria price. The premium model is specified as follows:

$$(1) \quad \text{Premium}_t = \alpha_0 + \delta_1 \text{Carcass}_t + \delta_2 \text{Number}_t + \delta_3 \text{Weight}_t + \delta_4 \text{Weight}_t^2 + e_t$$

where, $Premium_t$ is the SIUC sales price minus the Peoria market price for transaction t ; $Carcass_t = 0$ if sold on a live weight basis, and $=1$ if a carcass sale; $Number_t$ is the number of head in the sale; and $Weight_t$ is the average live weight per head. Consistent with prior research (Lawrence), it is expected that *Carcass* will have a positive coefficient reflecting higher quality hogs sold on a carcass basis. Load size, which is measured using the variable *Number*, is also expected to be associated with higher premiums. Finally, animal weights enter the equation in a quadratic form to capture the discounts associated with hogs that are too heavy or too light.

The premium model specified in equation (1) is estimated using Ordinary Least Squares (OLS) with White's heteroskedastic consistent covariance estimator. The estimated parameters and model statistics are presented in Table 3. The model fits the data fairly well, with an adjusted R-squared of 0.74. More importantly, the results suggest a number of marketing and management steps that can be taken to increase sale prices relative to the market. For instance, hogs sold on a carcass basis bring an additional \$4.35 per hundredweight over live-weight sales. This premium may reflect that higher quality animals are selected for sale on a carcass basis. On the other hand, the difference may reflect a discount to compensate buyers for the risk associated with unknown quality and grades when purchasing live animals.³ Regardless, the results suggest that the SIUC Swine Center can increase revenues by making more carcass-based sales. However, there is an incremental marketing cost of \$2.00 per head or an average of \$0.85 per hundredweight to market hogs on a carcass-grade basis.⁴ Despite this, the net revenue increase, even after accounting for these higher costs, is \$3.50 per hundredweight. Over the sample period, if all hog sales had been on a carcass basis, net revenue would have increased by 7.1 percent.

Interestingly, unlike the findings of Lawrence, for SIUC Swine Center hog sales there is not a statistically significant premium for larger loads ($\delta_2 = 0$). The result likely stems from the sorting process at the pick-up station. Wilson Livestock collects relatively small loads of hogs into a single large shipment to the plant. Therefore, in practice, sales at the plant may not reflect much variation in load size. Alternatively, Wilson Livestock may absorb any load premium as compensation for the sorting process.

Notably in Table 3, there is a strong statistical link between marketing weights and the premium received. As anticipated, the premium is quadratic in weights, with the maximum premium occurring at a live weight of 244.1 pounds.⁵ The average marketing weight for the SIUC Swine Center is 237.1 pounds. From equation (1), marketing weights of 244.1 pounds will increase the price premium by \$0.26 per hundredweight, or roughly 0.70 percent, over the price received for 237.1 pound slaughter hogs. While statistically significant, this price premium is of debatable economic significance due to the difficulty in precisely hitting a particular weight. Nonetheless, the optimal weight estimate, 244.1 pounds, has a standard error of 1.37 pounds. So, the SIUC Swine Center may want to target market weights toward the 90 percent confidence interval of 241.4 to 246.8. This is a reasonable range of 5.4 pounds or 2.2 percent of the optimal weight estimate. It is important to note that SIUC Swine Center hogs experience a shrink of two to three percent in route to slaughter. With a two percent shrink, this implies a targeted on-farm loading weight of 246.6 to 251.7 pounds.

Collectively, the premium model in equation (1) suggests that there are opportunities from a marketing perspective to increase revenues. In particular, increasing average marketing weights by 7 pounds (live weight) per animal may add as much as \$0.26 to the average price. Obviously, consideration must be given to the incremental cost of gain to assure that increasing weights add to profitability. More significant than the market weights, however, is the marketing method. Namely, carcass-based sales add a net \$3.50 to the live weight price. Together, these two factors can increase SIUC Swine Center revenues by nearly eight percent with minimum incremental investment cost. However, the SIUC Swine Center currently has a capacity constraint—a limited amount of finishing space—that necessitates a rapid turnover or throughput of animals. Until this bottleneck is eliminated, it may be difficult to increase marketing weights. Regardless, there is no impediment to increasing carcass-based sales, and that strategy is currently being considered by the Center.

Given that the SIUC Swine Center is comparable to many small hog operations in the state of Illinois and elsewhere, these results are applicable to a number of farm managers. Namely, increased premiums may be achieved if hogs are sold on a

carcass basis and if sale weights are increased to more appropriately reach an optimum level. Of course, each hog operation has unique characteristics, and quality differentials may differ greatly among producers. Still, this application illustrates a procedure for glean marketing information from farm-level sales data.

Understanding the factors that influence the price received for hogs is only one way that firm level data (e.g., sales data) can be used in the decision making process. Publicly available information, such as exchange traded futures prices, can also help in the efficient marketing of hogs for small producers by serving as price forecasts in the budgeting process.

Futures-Based Forecasts for Planning and Budgeting

An important part of the business planning process is forecasting revenues. In a production operation, this includes forecasts for both prices and quantities. While many small farming operations tend to not trade futures contracts, futures markets do provide valuable information for on-farm decision making (Flaskerud and Shane). Here, we formulate a price forecast using the futures markets. A futures-based model is appropriate for a number of reasons. First, most evidence suggests that expert and econometric model forecasts do not perform better than the futures market (Irwin, Gerlow, and Liu). Thus, futures prices provide a very low-cost forecasting alternative for agribusinesses (Kastens, Jones, and Schroeder). This is particularly true for small farms that may not want, or cannot afford, to spend valuable working capital on expensive market outlook services. Second, in the event that a producer decides to implement a risk management program, the futures-based model provides the appropriate basis expectations.

Nearby futures prices are collected for each SIUC sales date to correspond with actual marketing prices. As shown in Figure 1, SIUC hog prices appear to have a stable relationship with nearby futures prices. Therefore, we follow the suggestion of Kastens, Jones, and Schroeder, and take a simple approach to making futures-based forecasts. For each month in the fiscal year, the average cash sales price and corresponding nearby futures price are compiled. Then, the monthly cash/futures basis ratio is calculated by dividing the cash by the nearby futures price. Because of the seasonality in hog basis levels (Diersen), it is important to calculate basis ratios for each

month. As shown in Table 4, the basis ratios range from 0.60 in December to 0.71 in June.

The monthly basis ratios serve as the connector between the futures price and the expected SIUC cash sales price. Once the basis ratios are established, the manager simply multiplies them times the observed nearby futures price for that month to arrive at a sales price forecast. For example, to make FY04 forecasts, we collected the appropriate prevailing nearby futures prices on June 30, 2003 (see Table 4). These prices are then multiplied times the basis ratios for each month to get an expected sales price. Finally, monthly average historical marketing quantities (hundredweights) from the SIUC Swine Center are multiplied times the expected price to arrive at a revenue forecast (last column of Table 4). Thus, the forecasted revenue from slaughter hogs for FY04 is \$75,062. Given that slaughter hogs comprise 80 percent of the Swine Center's revenues, making this adjustment results in total revenue forecast of \$93,828.

Clearly, this forecast will be far from perfect. But, it is still quite useful from a planning perspective. First, it is a low-cost and relatively accurate forecast (Kastens, Jones, and Schroeder). Second, it is easy to update. As with any forecasting model, as the forecast horizon gets longer accuracy declines. Therefore, it is important to update the forecasts. In this case, updating is as simple as re-entering current futures prices into a spreadsheet (Table 4). With this layout, the farm manager can easily track expected and actual prices and revenues. Moreover, the manager can easily update forecasts, which allows them to make necessary changes to budgets and financial plans. In following this process, the manager will be better able to use available public and on-farm information to stay competitive in this rapidly changing industry.

Summary, Discussion, and Extensions

The SIUC Swine Center faces the problem of generating sustainable revenue levels and forecasting that revenue as part of an overall budgeting process. These problems are parallel to those faced by other small livestock producers. In this study, we show how sales transaction data can be used to examine marketing practices and improve the budgeting process. The effort is directed toward using methodologies developed in the agricultural economics literature and applying them to real-world primary data. The methods yield applicable and

reasonable results that are valuable for budgeting and farm-level decision making. Given that the SIUC Swine Center is similar in size and scope to many small hog operations, the results of this study should prove useful to these businesses.

The price premium model presents two clear recommendations for the SIUC Swine Center. First, more hogs should be sold on a carcass-basis. On average, SIUC Swine Center live weight sales bring \$2.21 less than the reported Peoria top price. However, SIUC carcass-based sales garner a premium of \$4.35 over the live weight sales. Second, the marketing weights need to be increased toward the optimum weight. The model suggests that the current average SIUC marketing weight is about 7 pounds below the optimal weight of 244.1 pounds. Increasing the marketing weights could increase the average price by \$0.26 per hundredweight. While these particular results are specific to the SIUC Swine Center, the general methodologies, and overall results, are easily applicable to other swine operations.

In addition to the premium model, a price forecasting model is developed using futures prices and basis ratios. The model is illustrated for fiscal year 2004. These forecasts, along with historical average quantities, are used to produce revenue forecasts. This method provides one possible methodology for generating price and revenue forecasts for the SIUC Swine Center and similar hog production units. This type of forecasting methodology can also be applied to other livestock operations (e.g., cattle), as well as many other commodity-based marketing programs.

To the degree possible, the SIUC Swine Center is implementing these procedures. In particular, efforts are being made to increase carcass-based sales. Also, a more rigorous budgeting process may be undertaken in the next fiscal year to incorporate the information from this study. While the information provided here is very useful for managerial purposes, this work can still be improved and extended in a number of ways to provide even more information to the SIUC Swine Center and similar hog production operations. First, a more complete set of animal characteristics can be collected and utilized. Characteristics such as carcass traits should be recorded. This may provide additional information about steps that can be taken to increase marketable animal characteristics. Indeed,

obtaining these detailed animal characteristics may require the SIUC Swine Center to update its management information systems. It is critical that any livestock production unit attempt to be on the frontier in regards to record keeping (Libbin and Catlett). That is, it is not only important to keep accurate sales and financial data, but also information on animal characteristics and other production information. Only with this information can managers begin to define relationships between prices (premiums), animal characteristics, and marketing practices.

Finally, the revenue forecasts can be improved in a number of ways. The presented methodology simply used past quantities as a guide to future production. Production forecasts may be improved by using such information as beginning sow and market hog inventory. Accurate production forecasts are a crucial component of accurate revenue forecasts. In this study, we make the annual budget estimates at the start of the fiscal year. Certainly, forecast accuracy would be improved by updating the forecasts on (say) a quarterly basis. Research has shown that livestock futures provide more accurate forecasts at short horizons (Irwin, Gerlow, and Liu); therefore, updating the forecasts seems like a natural way to improve and hone budget estimates as the fiscal year progresses.

This research illustrates the usefulness and application of marketing concepts developed in the agricultural economics literature to actual producer data. The transaction data provides a unique opportunity to apply these concepts in a real-world setting. The results are encouraging on two fronts. First, the models suggest a number of ways that the SIUC Swine Center can improve revenues by altering marketing practices, and the futures-based model provides useful forecasts for formulating revenue budgets. These are applicable tools that the SIUC Swine Center and other producers can actually implement to improve their businesses. Second, this result shows that some of the marketing and risk management concepts developed in the agricultural economics literature can in fact be usefully implemented by agribusinesses. However, real-world data is never perfect and academic ideas are often abstract. Therefore, both practitioners and academics must be willing to bridge the gap between theory and practice.

Endnotes

- ¹ Although hogs from different producers are combined to get a full load, an individual producer's hogs are marked such that they can receive back the carcass traits for their animals. So, the price received reflects the producer's particular animals and not the average of the truckload.
- ² Note, the data in Table 1 were taken from monthly inventory sheets; whereas, the data in Table 2 were extracted from sales receipts, which represents the data set used in the remainder of the analysis. On occasion, there was a discrepancy between the data sets due to missing receipts, sales made to individuals, or sales of injured animals.
- ³ The Swine Center production manager indicated that hogs sold on a carcass basis reflect a fairly unbiased sample of the overall production quality. The choice of live or carcass-based sales is more of a function of the number of market-ready hogs and other logistical considerations as opposed to an implicit quality selection process.
- ⁴ Other than the \$2.00 per head marketing charge, there is no incremental direct cost to producing and selling the hogs on a carcass basis.
- ⁵ This maximum is calculated by setting the derivative of equation (1) with respect to Weight equal to zero, $256.756 + 2 * (-0.526) * \text{Weight} = 0$, and solving for Weight.

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Table 1. SIUC Swine Center, Inventory and Marketing, Fiscal Year 2003

	Average	Total	Total
Sows	88	54	—
Gilts	26	0	—
Boars	5	30	—
Slaughter Hogs	490	1174	—
Feeder Pigs	—	75	—
Pigs Born	—	—	1304
Death Loss	—	—	47

Table 2. SIUC Slaughter Hog Marketing Characteristics, July 2000-September 2003

	Live Sales	Carcass Sales	Total	% Carcass Sales
Transactions	102	23	125	18.4
Head	1868	578	2446	23.6
Head per Transaction	18.3	25.1	19.6	—
Avg. Live Weight	236.1	241.7	237.1	—
Pounds Sold (cwt.)	4386	1394	5780	24.1
Avg. Price, Live cwt.	\$36.53	\$39.50	\$37.08	—

Table 3. Premium Model, Equation (1) Parameter Estimates

Independent Variable	Dependent Variable: SIUC Price - Peoria Top
Constant, a	-314.364 (32.701) ^a
Carcass, d ₁	4.348 (0.551)
Number, (d ₂ × 10 ²)	0.23 (1.452)
Weight, (d ₃ × 10 ²)	256.756 (27.827)
Weight ² , (d ₄ × 10 ²)	-0.526 (0.059)
Adjusted R ²	0.74

^a Standard error in parentheses

Table 4. Futures-based Price and Revenue Forecasts

(A)	3-Year Averages			(E)	(F)	FY04 Forecasts			
	(B)	(C)	(D)			(G)	(H)	(I)	
Month	Sale Price	Nearby Futures	Basis Ratio	6/30/03 Futures Price	Contract	Price Forecast	Expected Marketings (cwt.)	Expected Revenue	
July	41.06	61.89	0.66	64.05	July	42.49	132.5	5,629	
Aug.	39.05	56.12	0.70	63.97	Aug.	44.51	178.4	7,940	
Sept.	33.94	51.84	0.65	57.05	Oct.	37.35	112.0	4,183	
Oct.	33.51	49.66	0.67	57.05	Oct.	38.49	190.6	7,337	
Nov.	30.88	49.34	0.63	54.80	Dec.	34.30	253.9	8,708	
Dec.	32.22	53.96	0.60	54.80	Dec.	32.72	64.9	2,123	
Jan.	34.20	54.38	0.63	57.80	Feb.	36.36	227.2	8,261	
Feb.	36.04	54.34	0.66	57.80	Feb.	38.33	80.9	3,100	
March	40.65	58.21	0.70	59.00	April	41.20	254.7	10,492	
April	38.08	57.64	0.66	59.00	April	38.98	135.4	5,276	
May	37.72	58.52	0.64	62.80	May	40.48	121.8	4,930	
June	44.43	62.20	0.71	61.00	June	43.57	162.5	7,082	
Total								\$	75,062

^a Sale Price (column B) represents the 3-year average SIUC Swine Center sales prices for the particular calendar month in column A. Column C is the 3-year average nearby futures price corresponding to the cash sale prices used to calculate the averages in column B. Column D is the basis ratio, which is calculated as Sale Price (column B) divided by Nearby Futures (column C). Column E is the current (6/30/03) nearby futures price corresponding to each calendar month in column A, and column F designates the futures contract expiration month corresponding to each price. Column G, Price Forecast, is calculated as the Basis Ratio (column D) multiplied by column E. Expected Marketings (column H) is the monthly average historical marketings from the SIUC Swine Center (cwt). Column I, (Expected Revenue) is calculated by multiplying Price Forecast (column G) by Expected Marketings (column H).

Figure 1. SIUC Swine Center Hog Prices and Nearby Future Prices, 2001-2003

