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## **KSU LEAN VALUE MARKETING PROGRAM<sup>1</sup>**

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### **Summary**

The KSU Lean Value Marketing Program was developed to assist producers in understanding the quality of their market hogs by marketing on a wholesale cut basis. The program also allowed analysis of the current marketing practices of the producer in relation to sort loss. Producers lost an average of \$1.08 (0 to \$4.95) per head from sort loss by not marketing pigs in the proper weight range. Wholesale cuts for the 34 farms indicated that percent loins, hams, and spare-ribs represented the greatest portion of carcass value, whereas percent pork fat and bellies most accurately predicted the farms with low value carcasses. Backfat measurements and wholesale cut marketing indicated a large variation in genetic quality of pigs on swine farms in Kansas. The KSU Lean Value Program provides producers with important insights concerning their marketing practices and the genetic quality of pigs that they are currently producing.

(Key Words: Marketing, G-F.)

### **Introduction**

Consumer demand for lean, trimmed pork has increased during the last 10 years. Packers are realizing the extra value of lean hogs that eliminate the need for excess fat

trimming. At the same time, the swine producer understands that producing hogs with excess fat is inefficient and expensive.

These facts have led to changes in terminology of performance and profitability. New terminology includes lean gain, sort loss, carcass lean, carcass merit added value, sort discount, and merit yield.

Producers must also ask the question: "Do I have the genetic base to compete in a lean value system in the future?" To assist in answering this question, the KSU Lean Value Marketing program was developed. The objective of this program was to help Kansas producers understand the quality of the pigs on their farms when marketed on a wholesale cut basis. Carcass data for this program were supplied by Reeves Packing Company, Ada, Oklahoma.

### **Procedures**

To obtain market weight gilts for this survey, four major areas of swine production in the state of Kansas were targeted: 1) Washington County, 2) Nemaha County, 3) Douglas County, and 4) Butler County. After scheduling a slaughter date approximately 3 weeks in advance with Reeves Packing Company, a letter inviting producers to participate in the KSU Lean Value Market-

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ing program was sent to approximately 35 producers in each of the four areas mentioned above.

The following criteria were used as guidelines for selecting producers: 1) they had to be able to consign 25 gilts on a first come, first served basis; 2) they had to know the genetic background of the gilts; and 3) they had to be able to pay a prorated share of the freight from the farm to Reeves Packing Company in Ada, Oklahoma. Producers were asked to supply gilts weighing between 230 and 250 lb, although the acceptable live weight range at Reeves Packing was 220 to 260 lb.

Prior to loading the gilts on the trucks, each producer group was tagged with a different color ear tag. Upon arriving at Reeves Packing Company, the gilts were grouped by tag color, weighed, and penned. All gilts arrived between 2:30 am and 5:30 am on the day of slaughter.

Reeves Packing Company is a small, one line operation with a capacity of from 250 to 300 hogs per day. The slaughter line starts at about 8:00 am and is done by approximately 2:30 pm, with a 1 hour shutdown at noon.

After being scalded and split, carcasses were weighed individually as they left the kill floor headed for the cooler. Once the carcasses were in the cooler, KSU personnel measured backfat at the first rib, tenth rib, last rib, and the last lumbar vertebrae. Backfat measurements were taken at the midline on hot carcasses. Thus, they are slightly higher than would be measured on cold carcasses or off the midline. For the first two truck loads, a random sample of carcass lengths were taken. With additional help available, all carcass lengths were recorded for the last two truckloads. In addition, a partial herd health check was available for the last three truckloads of gilts.

The carcasses were spray-chilled overnight and cut into wholesale cuts the following morning. All individual wholesale carcass cuts of a producer were weighed and recorded as total weight to calculate the percent of the carcass.

The different wholesale cuts that were weighed included: hams, loins, butts, picnics, spareribs, bellies, trim 80%, trim 50%, jowls, pork fat, neckbones, feet, scrap/bones and cooler shrink/cutting loss. Trim 80% includes all trim that can be tested by the USDA to be 72% chemically lean. Trim 50% includes all trim that can be tested by the USDA to be 42% chemically lean. Pork fat is fat with no lean included. Cooler shrink/cutting loss is the carcass weight, minus total lb weighed during cutout. Loins were the only closely trimmed wholesale cut. The weight of the other main cuts (ham, butts, picnics, spareribs, and bellies) included fat and lean. The plant manager, Rick Fahle, weighed all of the wholesale cuts for the test groups involved in this study.

The carcass value is based on the weekly USDA Blue Sheet for individual prices of the various cuts. Because the gilts were marketed in June, July, and September of 1992, June 1992 prices were used to standardize all loads to compare over time. Grade was calculated as the premium for the actual value of the wholesale cuts above a plant standard. The plant standard was calculated as the average of the value of a grade 1 and 2 market hogs. The sort loss discount is the value lost because not all carcass weights were in the standard carcass weight range of 160 to 189 lb. As an example, if all carcasses weighed between 160 and 189 lb, the sort loss discount would be zero. The yield was compared against the plant standard for Reeves Packing Company. The difference between the standard (73%) and actual dressing percent determined the yield premium.

## Results and Discussion

**Sort Loss.** Sort loss is the penalty for carcasses that are outside of the optimum carcass weight range when selling hogs on a carcass merit program. Each packing company has its own specific carcass weight range. The amount of the loss is based solely on the weight of the carcass. Yield, live weight, grade, backfat, or lean meat percentage has no bearing on the amount deducted for sort loss. This is based entirely on carcass weight.

The ideal carcass weight range at Reeves Packing was 160 to 180 lb. This translates to approximately 215 to 255 lb on a live weight basis. As explained above, all producers were asked to submit gilts weighing 230 to 250 lb. Sort loss for the farms in this program ranged from \$0.00 to \$4.95 per head. Figure 1 shows that five of the 34 groups had no sort loss deducted, whereas one group had a deduction of \$4.95 per head. The average sort loss deduction for all groups was \$1.08.

The sort loss discount is much greater for lightweight carcasses as compared to overweight carcasses. It is much better to sell hogs that are too heavy than too light. The reason is that it takes just as much labor and time to dress a lightweight pig as it does a heavier pig. In other words, the plant is more efficient with heavy hogs than it is with lightweight hogs.

How can one minimize the sort loss discount? As a producer, you need to know what your market hogs weigh and what the ideal carcass weight is for your packing company. By weighing your pigs individually, sort loss can be greatly reduced. As an example, if you run a 100 sow operation and sell 1,800 market hogs per year and have an average sort loss deduction of \$1.08 per head, \$1,944 in potential income is lost. For the producer with the \$4.95 per head sort loss deduction, the potential income loss on 1800 head is \$8,910. An average of 1 hour

of extra labor per week to weigh pigs and reduce sort loss to zero would result in a return of \$171.34 per hour (\$4.95 deduction per head). At an average of \$1.08 deduction per head, the return per hour is \$37.38.

Sort loss has an enormous impact on the profitability from carcass merit buying programs. In order to receive the least sort loss deductions, hogs must be weighed individually.

**Yield.** Yield is a term used to explain the pounds of carcass left after the slaughtering process compared to live weight delivered to the packer. Yield is simply hot carcass weight divided by live weight. Another term for yield is dressing percent. The largest components of the difference in yields of hogs from different producers are gut fill and trim loss.

The yields in this study ranged from a low of 73.86% to a high of 76.29%. The average yield was 74.97%. Generally, leaner pigs have slightly lower yields than pigs carrying extra fat. This inverse relationship between yield and percent lean results in producers with fatter pigs receiving a yield premium. Many packer buying programs include a yield premium or discount. The optimal situation would be to buy pigs on a carcass weight basis. This would eliminate the premium or discount for gut fill. However, producers don't understand carcass prices as well as live prices. Thus, packers use yield premiums and discounts to back-calculate a carcass price to the live basis.

**Grade.** Grade premium is the extra value a producer receives for a superior lean hog as compared to a carcass with average leanness (plant standard). The premium is determined by subtracting the carcass merit base value from the actual carcass value. Reeves Packing determines carcass premium by weighing wholesale cuts and comparing the actual dollar value of these cuts to a standard USDA value. All carcasses in this

survey were standardized to a 240 lb pig with a yield of 75 %.

Figure 3 shows the range of grade values on a per head basis. The average grade value per head is \$3.39. This added value is the reward for a producer raising a superior product. As an example, the 34 producers in this program represent approximately 135,000 hogs marketed per year. The \$3.39 per head grade premium results in a total income of \$459,000 for these producers.

**Backfat and Wholesale Cuts.** The actual backfat and carcass values for the 34 farms are shown in Table 1. Genotypes listed in the table are simply for information and do not imply an endorsement or ranking of genetics. The program was not designed to compare genotypes. Herds in the program were ranked by carcass value only, with no regard given to average daily gain, feed efficiency, sow productivity, or disease status.

Backfat measured at the tenth rib varied from .92 to 1.43 in. in the gilts in this study. As evidenced by the comparison between carcass value and backfat, that was not the only factor influencing carcass value. For example, farms 1, 5, and 9 had the same tenth rib backfat of .92 in. However, they ranked 1, 5, and 9 in actual carcass value. Therefore, carcass programs based entirely on backfat measurement do not accurately reward lean, heavy muscled pigs.

Standard deviation (SD) for the backfat for each farm indicates the variation in backfat measurements within the group of gilts from a particular farm. A lower SD indicates a more uniform load of gilts. For each producer, 95 % of their gilts will have backfat measurements within two SD of the mean.

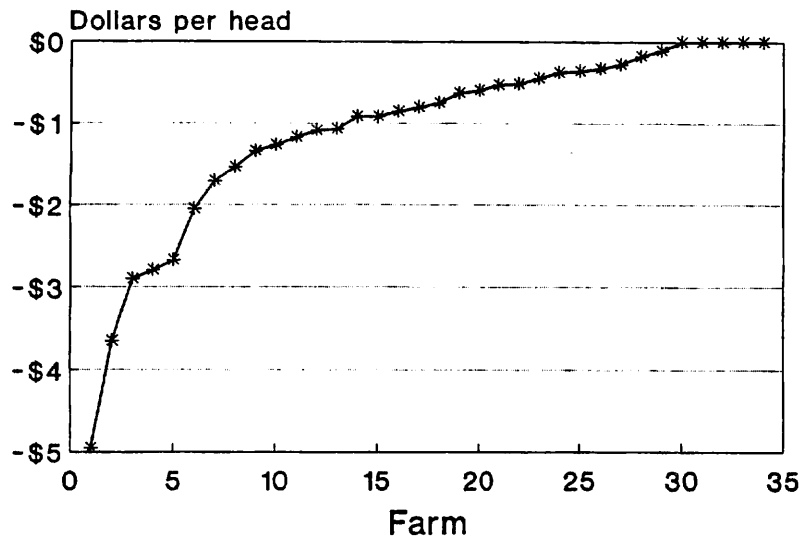
For example, farm 20 had a standard deviation of .08, indicating that 95 % of the gilts from this farm should have tenth rib backfat measurements between .93 and 1.25 in. ( $1.08 \pm (2 \times .08)$ ). Conversely, the backfat range for farm 21 would be .67 to 1.75 in. ( $1.21 \pm (2 \times .27)$ ). Smaller standard deviations are desirable, because they indicate a more uniform group of gilts. Uniformity is very important in determining marketing strategies.

The carcass values for the 34 farms indicates a difference of \$6.16 between the farms with the highest and lowest carcass values. For a producer with 100 sows that markets 2,000 market hogs per year, this represents a difference in income of \$12,320.

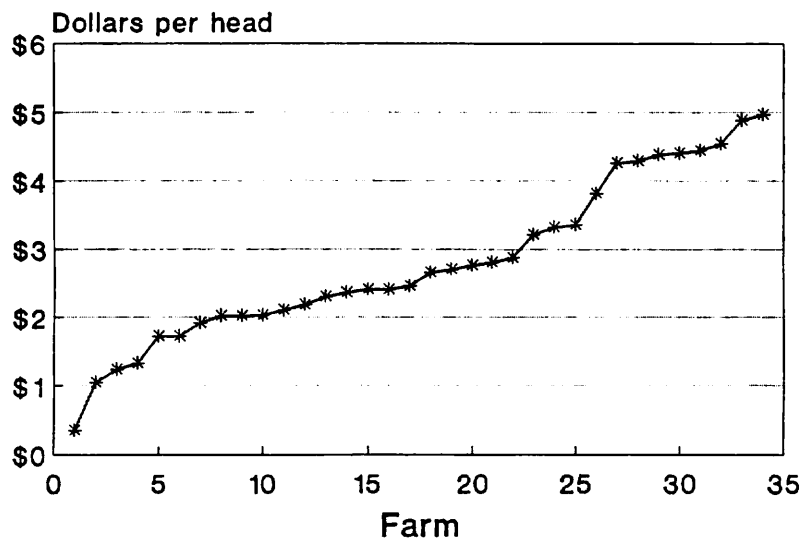
The ranges in the percents and dollar values of the wholesale cuts are shown in Table 2 and 3, respectively. Also depicted are the values for the farms with the highest and lowest carcass values. Hams and loins represent slightly more than 40 % of the carcass weight. However, because they are the high priced cuts, they represent greater than 60 % of the value of the carcass. Conversely, bellies represent approximately 14 % of carcass weight, but only 7 % of the carcass value.

The rankings of the best and worst loads demonstrate that the hams, loins, and spare-ribs are the most important cuts in determining improved carcass value on a wholesale cut basis. Decreased carcass value is represented by high levels of pork fat and bellies.

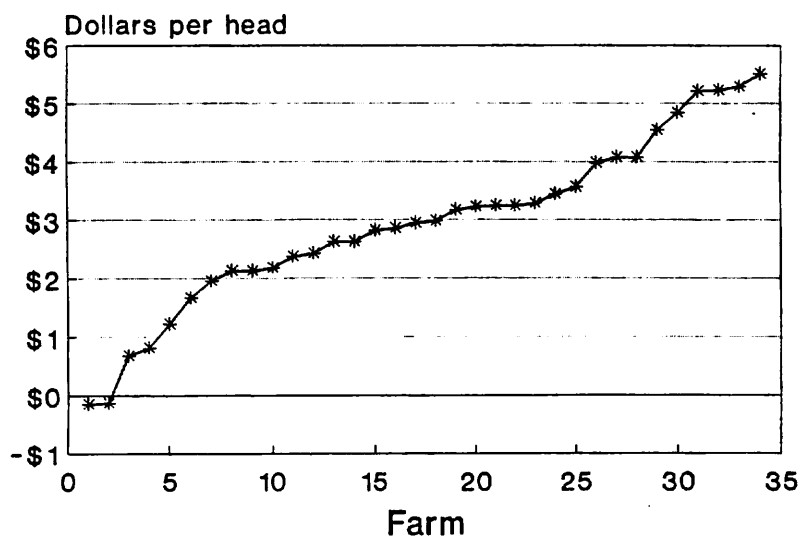
Marketing pigs on a wholesale cut basis provided the producers in this program with insight concerning their marketing practices and the genetic quality of the pigs that they are currently producing.



**Figure 1. Sort Loss for Kansas Farms**



**Figure 2. Yield Advantage for Kansas Farms**



**Figure 3. Grade Advantage for Kansas Farms**

**Table 1. Individual Farm Results from KSU Lean Value Marketing Program**

Farm	Carcass Value, \$ <sup>a</sup>	10th Rib Backfat, in	SD <sup>b</sup>	Average Backfat, in. <sup>c</sup>	Ham Value, \$	Loin Value, \$	Herd Genetics <sup>d</sup>
1	128.51	.92	.14	1.12	27.98	54.37	PIC
2	128.15	.98	.22	1.12	29.20	52.16	PIC
3	128.15	1.09	.20	1.25	28.30	53.31	TERM
4	128.02	1.05	.12	1.29	27.97	54.60	TERM
5	127.86	.92	.17	1.13	28.72	53.48	PIC
6	127.80	.96	.13	1.18	27.93	54.52	TERM
7	126.80	1.03	.15	1.24	26.81	54.00	TERM
8	126.78	1.09	.18	1.28	28.07	53.73	TERM
9	126.64	.92	.18	1.15	28.44	52.56	PIC
10	126.61	1.18	.17	1.31	27.12	53.83	DK
11	126.43	1.08	.15	1.24	27.35	53.78	ROTA
12	126.34	1.23	.17	1.37	27.05	54.25	TERM
13	126.29	1.17	.17	1.36	27.63	53.26	PIC
14	126.27	1.04	.20	1.20	28.90	51.82	TERM
15	126.13	1.10	.13	1.29	27.70	52.21	LIESKE
16	126.06	1.12	.13	1.31	27.56	53.23	FH
17	125.77	1.08	.13	1.22	27.96	52.69	TERM
18	125.76	1.18	.17	1.33	27.77	51.87	DK
19	125.69	1.01	.15	1.21	28.34	51.32	ROTA
20	125.69	1.09	.08	1.32	27.18	52.61	TERM
21	125.48	1.21	.27	1.38	27.51	51.20	ROTA
22	125.33	1.18	.11	1.48	27.35	52.01	TERM
23	125.33	1.18	.18	1.36	28.36	50.95	TERM
24	125.26	1.04	.17	1.29	27.46	52.56	LIESKE
25	125.07	1.18	.10	1.32	27.35	52.64	TERM
26	125.07	1.23	.16	1.44	27.38	51.44	FH
27	124.69	1.15	.16	1.33	27.16	50.85	FH
28	124.53	1.08	.11	1.34	27.76	50.75	FH
29	124.26	1.18	.19	1.42	27.17	51.49	ROTA
30	124.10	1.12	.17	1.28	28.21	49.78	TERM
31	123.68	1.14	.20	1.33	27.87	49.90	ROTA
32	122.39	1.27	.15	1.47	27.03	50.28	FH
33	122.46	1.21	.14	1.39	27.85	48.74	ROTA
34	122.35	1.43	.17	1.53	26.55	50.50	ROTA
Averages:	125.79	1.10	.16	1.30	27.74	52.26	

<sup>a</sup>Carcass value is standardized to a 240 lb hog with a 75% yield. Wholesale cut values were determined by multiplying cut weights by the USDA Blue Sheet standard value for each cut for June 22, 1992.

<sup>b</sup>The standard deviation shows the amount of variance in 10th rib backfat within a producer group.

<sup>c</sup>Average of measurements at first rib, last rib and last lumbar vertebrae. Measurements were taken at the midline on hot carcasses.

<sup>d</sup>Genotype is listed as the sire of the gilts. Groups with sires originating from more than one source are listed as terminal (TERM) or rotational (ROTA) breeding systems. Breeding stock companies listed are Dekalb (DK), Farmers Hybrid (FH), Lieske (LIESKE), or Pig Improvement Company (PIC).

**Table 2. Range of Wholesale Cuts from Gilts on Kansas Swine Farms**

Wholesale Cut, %	Range			Best Load <sup>a</sup>	Worst Load
	Highest	Average	Lowest		
Ham	23.34	22.17	21.22	22.37 (10) <sup>b</sup>	21.22 (34)
Loin	21.98	21.04	19.62	21.89 (3)	20.33 (30)
Butt	7.81	7.34	6.79	7.49 (8)	7.43 (12)
Picnic	9.05	8.55	7.89	8.53 (20)	8.60 (16)
4 Primal cuts	62.18	59.10	55.52	60.28 (8)	57.58 (29)
Spareribs	4.86	4.47	3.90	4.73 (2)	3.90 (34)
Bellies	15.04	13.84	12.86	13.24 (29)	15.04 (1)
Trim 80% <sup>c</sup>	2.42	1.63	0.96	1.52 (25)	1.00 (32)
Trim 50% <sup>d</sup>	4.83	4.32	3.56	4.27 (18)	4.83 (1)
Jowls	2.27	1.90	1.24	2.07 (13)	2.01 (15)
Pork fat	8.81	7.43	6.27	6.95 (28)	8.81 (1)
Neckbones	1.61	1.46	1.34	1.49 (14)	1.42 (24)
Feet	1.61	1.27	0.97	1.32 (10)	1.08 (31)
Scrap/bones	4.74	4.22	3.76	4.01 (25)	4.07 (22)

<sup>a</sup>Loads were ranked by grade premium per hundred weight.

<sup>b</sup>Rank of the best and worst load for each wholesale cut is listed in parenthesis.

<sup>c</sup>All trim that can be tested by the USDA to be 72% chemically lean.

<sup>d</sup>All trim that can be tested by the USDA to be 42% chemically lean.

**Table 3. Range of the Value of Wholesale Cuts from Gilts on Kansas Farms<sup>a</sup>**

Wholesale Cut Value, \$	Range			Best Load <sup>b</sup>	Worst Load
	Highest	Average	Lowest		
Ham	29.20	27.74	26.55	27.98 (10) <sup>c</sup>	26.55 (34)
Loin	54.60	52.26	48.74	54.37 (3)	50.50 (30)
Butt	14.90	14.01	12.96	14.29 (8)	14.18 (12)
Picnic	6.52	6.16	5.68	6.14 (20)	6.19 (16)
4 Primal cuts	103.18	100.16	95.95	102.79 (3)	97.41 (32)
Spareribs	11.37	10.46	9.13	11.07 (2)	9.13 (34)
Bellies	9.20	8.47	7.87	8.10 (29)	9.20 (1)
Trim 80% <sup>d</sup>	2.49	1.68	.99	1.57 (25)	1.03 (32)
Trim 50% <sup>e</sup>	2.17	1.94	1.60	1.92 (18)	2.17 (1)
Jowls	1.02	.86	.56	.93 (13)	.90 (15)
Pork fat	2.02	1.70	1.44	1.60 (28)	2.02 (1)
Neckbones	.32	.29	.27	.30 (5)	.28 (23)
Feet	.29	.23	.17	.24 (6)	.19 (31)

<sup>a</sup>Gilts were standardized to a common carcass weight of 180 lb (240 lb pig × 75% dressing percent).

<sup>b</sup>Loads were ranked by grade premium per hundredweight.

<sup>c</sup>Rank of the best and worst load of each wholesale cut is listed in parenthesis.

<sup>d</sup>All trim that can be tested by the USDA to be 72% chemically lean.

<sup>e</sup>All trim that can be tested by the USDA to be 42% chemically lean.