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Comparison of Pork Carcass Evaluation Procedures

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Carcass data were obtained from 28 barrows from the Kansas Swine Testing Station and 31 from the Kansas State Barrow Contest in 1969.

All were slaughtered and standard measurements taken. Each carcass was cut to wholesale cuts by the conventional K.S.U. lab method.

Cut-out data were used to calculate ham-loin index, four lean-cut percentages (live and carcass weight), percent ham plus loin of live and carcass weight, and dollar value of five wholesale cuts per hundred weight of carcass.

The price of each cut at bi-monthly intervals from January 1969 to November 1969 (Table 21) was used to compute dollar values. The six monthly prices were averaged. Dollar value was unavailable on twelve carcasses.

Table 21. Monthly and Average Cwt. Prices of Wholesale Cuts Used

<u>1969</u>	<u>Loins</u>	<u>Hams</u>	<u>Butts</u>	<u>Picnics</u>	<u>Bellies</u>
Jan. 9	\$48.50	\$43.00	\$37.00	\$31.00	\$29.75
Mar. 13	43.50	46.00	34.50	27.50	34.75
May 15	59.00	44.00	42.50	31.50	37.25
July 10	62.50	46.50	44.50	36.00	37.75
Sept. 11	58.00	49.50	51.50	32.00	41.00
Nov. 6	59.25	57.50	42.75	29.50	38.50
Average	<u>\$53.46</u>	<u>\$47.75</u>	<u>\$42.93</u>	<u>\$31.25</u>	<u>\$36.50</u>

Results and Discussion

Barrow carcasses were classified as certified if they met required 1969 standards of at least 4.0 square inches of loin eye area, at least 29 inches long, not more than 1.5 inches backfat, and reached 200 lbs. in at least 170. Forty-two met those requirements; seventeen failed to.

All were ranked according to ham-loin index (highest first) and by percent ham plus loin of live and carcass weight; percent four lean cuts to live and carcass weight; and dollar value of five wholesale cuts per hundred pounds of carcass (Table 22 and 23).

The highest ranking ham loin index for certified animals was 120.0; for noncertified, 135.3. The top noncertified carcass was well muscled but it was too short (28.7 inches). Second place noncertified carcass index was 92.9, compared with 116.2 for the second placed certified carcass. Averages for certified carcasses were higher for all factors studied.

High indexing carcasses generally ranked high in other categories. The top certified carcass was first in percent lean cuts of live and carcass weight and third in dollar value and percent ham plus loin of carcass.

Most difficult wholesale cut to standardize is the loin because five cutting errors are possible: carcass split, scribe length, anterior and posterior cutting locations, and external fat trim.

Points where the ham is separated from the carcass and foot are easy to establish, but standardizing fat trim is difficult. Shoulder cuts also involve cutting errors. Some errors cancel each other when cut weights are combined as with four lean cuts. Errors also tend to cancel each other in calculating value of the five primal cuts.

The ham-loin index may be the most repeatable measurement. It is derived from loin eye area (a fairly repeatable value) and ham's percentage of adjusted live weight.

The ham-loin index would work best under most packing plant conditions because only one cut would be weighed. Loin eye area is obtained for all ranking methods, to determine if minimum requirements are met. The criticism against using loin-eye in the index is that loin-eye size does not correlate closely with percentage loin of live weight nor with loin value.

The four lean cut percentages seem to emphasize development of shoulder cuts equally with ham and loin.

Ham-plus-loin percentages could vary most because loin percentage is a major component.

Value of the five primal cuts depends on prices used. Wholesale-cut prices fluctuate widely (Table 21), so an average price seems to be the fairest way to estimate relative carcass value. Some carcass shows use all cuts, but that calls for too much extra work with too little time at most carcass contests.

Generally, carcasses that placed high under one system also placed high under other systems except rank. The disparity between

live and carcass ranking for either percent ham plus loin or percent lean cuts results from variations in dressing percent. Wide variations in fill should have been avoided as all animals were taken off feed 18 hours before slaughter. Therefore, animals that placed higher, for example, in percent lean cuts on a live basis than on a carcass basis had a high carcass-to-viscera ratio.

All methods involve possible errors in cutting and trimming even when one person cuts all carcasses. Standardizing procedures are even more difficult in a commercial packing plant.

Carcass indexes, percentages, or values should not be considered as absolutes; all may contain errors.

Table 22. Ranking of Certified Barrow Carcasses by Indicated Evaluation Methods

Carcass No.	Ham-loin Index	% Ham + Loin				% 4 Lean Cuts				Dollar value of 5 primal cuts per cwt. carcass*		
		Live	Carcass	Live	Carcass	Live	Carcass	Live	Carcass			
121	120.0	1	30.5	4	41.3	8	49.2	1	67.0	1	33.01	9
031	116.2	2	30.9	3	41.6	5	45.3	3	60.8	7	33.30	6
017	115.6	3	30.0	7	43.7	1	44.0	6	64.0	2	34.33	1
015	112.0	4	31.5	1	42.5	3	45.3	3	61.2	5	33.72	3
001	109.7	5	30.4	5	42.9	2	44.5	5	62.6	4	33.97	2
018	108.0	6	28.9	17	40.5	13	45.4	2	63.6	3	32.79	14
008	107.7	7	28.8	18	40.4	14	42.1	15	59.1	12	32.59	16
132	104.2	8	28.0	22	37.8	33	38.5	35	59.9	32	31.93	19
016	104.0	9	29.9	8	41.5	6	43.4	8	60.5	8	33.31	5
123	102.0	10	29.7	9	40.1	17	42.8	12	57.0	22	32.53	17
030	101.5	11	29.2	13	40.2	16	41.6	17	57.2	20	32.61	15
035	99.6	12	29.0	14	40.8	11	41.9	16	59.3	10	32.96	10
209	99.0	13	26.6	35	38.3	28	37.9	38	54.7	34	-----	--
106	98.3	14	29.5	11	41.8	4	41.0	20	57.9	16	33.38	4
029	98.2	15	29.4	12	40.9	10	43.3	9	60.2	9	32.94	11
108	97.8	16	27.4	26	38.9	22	39.9	26	56.6	24	-----	--
107	97.4	17	27.0	30	40.0	18	38.6	34	57.1	21	32.42	19
135	97.3	18	27.2	28	39.0	21	40.0	24	56.9	23	-----	--
002	97.0	19	29.6	10	38.8	24	41.5	18	54.3	36	31.85	21
040	96.5	20	28.3	21	38.5	26	42.3	14	57.4	18	31.67	23
033	95.0	21	28.6	19	40.0	19	41.1	19	57.6	17	32.48	18
023	94.7	22	28.0	23	38.3	29	42.4	13	58.0	14	31.61	25
126	93.5	23	27.5	25	38.1	30	39.0	32	54.0	38	31.46	26
139	93.2	24	31.3	2	39.8	20	43.2	10	58.0	15	31.63	24

Carcass No.	Ham-loin Index	% Ham + Loin				% 4 Lean Cuts				Dollar value of 5 primal cuts per cwt. carcass*		
		Live	Carcass	Live	Carcass	Live	Carcass	Live	Carcass			
133	92.4	25	25.1	41	33.8	42	37.5	40	50.7	42	29.24	34
039	92.3	26	26.8	32	37.6	34	39.8	27	55.9	27	31.22	28
140	92.1	27	29.0	15	40.3	15	36.7	42	51.0	41	32.82	13
134	92.0	28	30.1	6	41.2	9	43.5	7	59.2	11	33.05	8
105	91.6	29	25.9	38	38.0	31	39.0	33	57.3	19	31.40	27
120	90.7	30	25.5	39	36.1	39	37.0	41	52.0	40	30.52	32
122	90.6	31	27.6	24	38.0	32	40.5	21	55.8	28	31.36	28
014	88.1	32	28.5	20	41.4	7	40.4	22	58.9	13	33.21	7
124	87.2	33	26.7	34	37.0	37	39.7	29	55.0	31	-----	--
103	86.8	34	26.8	33	37.2	36	40.0	25	55.4	29	31.08	31
127	86.7	35	26.3	36	37.5	35	38.4	36	54.8	33	31.30	29
038	85.8	36	26.9	31	36.6	38	39.8	28	54.2	37	-----	--
142	84.4	37	26.1	37	38.6	25	38.0	37	54.6	35	31.81	23
143	83.2	38	28.9	16	40.7	12	43.1	11	61.0	6	32.84	12
101	83.0	39	27.3	27	38.4	27	40.1	23	56.2	25	-----	--
112	81.8	40	27.1	29	38.9	23	39.2	30	56.2	25	-----	--
036	78.1	41	25.4	40	36.0	40	39.1	31	55.3	30	30.41	22
102	76.3	42	25.0	42	39.9	41	37.8	39	52.6	39	-----	--

* Not available for 8 carcasses.

Table 23. Ranking of Noncertified Barrow Carcass by Various Evaluation Methods

Carcass No.	Ham-loin Index	% ham + loin				% 4 lean cuts				Dollar value of 5 primal cuts per cwt. carcass*		
		Live	Carcass	Live	Carcass	Live	Carcass	Live	Carcass			
012	135.3	1	32.6	1	43.5	1	45.3	1	60.4	1	34.09	1
024	92.9	2	28.9	2	42.9	2	40.2	3	59.6	2	33.95	2
136	92.6	3	27.4	4	37.0	10	39.6	4	55.7	8	-----	--
004	85.8	4	26.8	5	39.1	5	38.4	9	56.1	5	31.94	4
141	81.2	5	28.8	3	41.5	3	40.5	2	58.3	3	-----	--
013	80.4	6	26.7	6	39.4	4	38.3	6	56.3	4	32.12	3
006	78.6	7	25.1	14	36.7	11	37.3	15	54.6	9	30.73	9
011	78.5	8	26.3	8	37.6	6	39.1	6	55.8	7	31.29	5
110	78.0	9	26.0	9	37.1	9	39.2	5	56.0	6	30.93	7

Carcass No.	Ham- loin Index	% Ham + Loin				% 4 Lean Cuts				Dollar value of 5 primal cuts per cwt. carcass*		
			<u>Live</u>		<u>Carcass</u>	<u>Live</u>		<u>Carcass</u>				
104	76.3	10	24.5	17	34.2	16	36.6	17	51.2	15	29.49	12
125	75.2	11	26.0	10	36.5	13	38.5	8	54.0	13	-----	--
028	74.4	12	24.9	16	33.9	17	37.4	14	50.9	16	29.32	13
037	72.9	13	26.5	7	37.4	7	38.6	7	54.3	11	31.13	6
111	72.5	14	25.9	11	36.6	12	38.0	11	54.4	10	30.78	8
025	72.1	15	25.2	13	35.6	14	37.9	12	53.5	14	30.22	10
137	66.0	16	25.6	12	37.3	8	37.6	13	54.3	12	-----	--
035	59.6	17	25.0	15	34.4	15	36.9	16	50.8	17	29.73	11

* Not available on 4 carcasses.