

Results of . . .

1957-58

Milton-Freewater Beef Feeding Experiments

David C. England

Norton O. Taylor

Circular of Information 596

Agricultural Experiment Station

January 1959

~~**January 1957**~~

• Oregon State College

• Corvallis

Results of . . .

1957-58 Milton-Freewater Beef Feeding Experiments

David C. England and Norton O. Taylor*

Summary

Twelve lots of 18 weaner steer calves per lot, averaging 467 pounds initial weight and grading predominantly good and choice feeders, were used in these experiments. Each lot was composed of animals of comparable weight and similar feeder grade. Experiments started in November, 1957, and were concluded in July, 1958. Data were obtained on both wintering and fattening performance.

WINTERING PERFORMANCE

- ▶ Effect of grain level. An 11% crude protein content grain ration fed at the rate of 2.4 lbs., 4.5 lbs., and 6.1 lbs. per head per day produced average daily gains of 1.05 lbs., 1.37 lbs., and 1.78 lbs. respectively during a 92-day period when fed with free choice peavine silage. The daily grain intake corresponded to .5%, 1%, and 1.5% of average body weight of the animals. Crude protein content of the silage was 11%.
- ▶ Effect of protein level. No significant increase in average daily gain resulted from feeding a 14% crude protein grain ration, compared to the 11% crude protein grain ration.
- ▶ Effect of kind of roughage. Replacing part or all of the peavine silage with chopped alfalfa hay increased average daily gains and cost per head per day.
- ▶ Effect of stilbestrol implantation. Implantation of 30 mg. stilbestrol did not appreciably increase rate of gain except in the lots gaining as much as 1.75 lbs. per day. This finding contradicts previous results in which increased growth rates were obtained from stilbestrol implantation of animals whose average daily gains were only 1 lb.

FATTENING PERFORMANCE

- ▶ Effect of grain level. Feeding grain at the level of 1.5% of body weight daily throughout the 255-day feeding period produced faster average daily gains, higher slaughter grades, and greater net returns than did lower levels of grain feeding. Feeding grain on a sliding scale of .5% of body weight daily during the first 1/3 of the feeding period, 1% during the middle third, and 1.5% during the last third produced faster average daily gains and reduced feed cost per pound of gain, compared to the same amount of grain fed at a constant percentage (1%) throughout the 255-day feeding period. During the last third of the feeding period, sliding-scale fed animals gained more rapidly than animals at the same grain level (1.5% of body weight) which had been fed throughout the experiment at the higher level.

* Assistant Animal Husbandman and Umatilla County Extension Agent, respectively.

- ▶ Effect of protein level of concentrate when fed with 11% crude protein peavine silage. In only 1 of 6 lots in which the crude protein content of the concentrate ration was 14% were net returns greater than for lots fed an 11% crude protein concentrate. In 4 of 6 lots receiving a 14% crude protein concentrate ration, average daily gains were higher than for lots fed an 11% crude protein concentrate.
- ▶ Effect of kind of roughage. Replacing part or all of the peavine silage with chopped or pelleted alfalfa increased average daily gains during the first 92 days of the feeding period. During the last 75 days, peavine silage-fed lots gained more rapidly than lots in which part or all of the silage was replaced by chopped or pelleted alfalfa. Cost per pound of gain and net return per steer were adversely affected or remained unchanged by replacing part or all of the peavine silage with chopped or pelleted alfalfa. Carcass grades were not favorably changed by replacing peavine silage with chopped alfalfa hay. Yellow color was not present in the carcasses in sufficient intensity to be objectionable to buyers.
- ▶ Effect of hormone treatment. One, two, or three implants of stilbestrol at 90-day intervals increased total gains, compared to no hormone treatment. Two or three implants at 90-day intervals resulted in greater total gains than did a single implant. Initial dosages were 30 mg.; repeat dosages were 18 mg. Implantation of 450 mg. of testosterone did not affect response to stilbestrol implantation. Control animals had the highest percentage and animals implanted three times had the lowest percentage of choice carcasses.

Purposes of the Experiment

1. To determine rate and cost of gain during wintering and fattening, as influenced by:
 - a. Various levels of grain feeding.
 - b. Different levels of protein.
 - c. Different sources of protein.
 - d. Various hormone treatments.
 - e. Kind of roughage (peavine silage alone vs. peavine silage plus chopped alfalfa hay vs. chopped alfalfa hay alone).
2. To determine carcass grade, yield, and fat color as influenced by ration and hormone treatment.
3. To determine the lean-fat ratio and eating quality of beef carcasses as influenced by rations and hormone treatments.

Procedure

The 1957-58 experiments constitute the fourth year in which organized beef research has been carried out by the Oregon Agricultural Experiment Station and Extension Service in co-operation with Umatilla County beef producers. Cooperating individuals and organizations

provide the cattle, feed, facilities, numerous pieces of equipment, veterinary costs, and a per head feed lot fee in lieu of yardage for financial assistance to the experiment. Objectives of the experiment are mutually agreed upon by the cooperators and Oregon State College. Oregon State College personnel design and conduct the experiments and analyze and disseminate the results.

All animals were weaner steer calves received from eight cattle producers in multiples of 12 head. Cattle were allotted to each ration and hormone treatment according to size, breed, and ownership in such a manner that these variables were equally distributed for each experimental objective. Animals were weighed at approximately 28-day intervals. Average body weight for each lot at the last date of weighing was used as the basis for determining the amount of grain to be fed daily during the succeeding feeding period. Following each weighing, average daily grain allowance was increased over a period of several days until the appropriate percentage of body weight level was reached. Yardage for all lots was figured at 7 cents per head per day.

Composition of pelleted concentrate ration and feed costs were as follows:

<u>Regular</u>	<u>Average cost per ton</u>
(11% crude protein)	
300# beet pulp	
200# millrun ¹	
100# molasses	
1400# barley	\$48.05
Soybean mix	
(14% crude protein)	
150# soybean meal	
1250# barley	
300# beet pulp	
200# millrun ¹	
100# molasses	\$53.87
Cull pea mix	
(14% crude protein)	
600# cull peas	
800# barley	
300# beet pulp	
200# millrun ¹	
100# molasses	\$49.34
Peavine silage	\$ 5.00
Alfalfa pellets (16% crude protein)	\$33.00
Chopped alfalfa hay	\$20.00

¹Composed of varying proportions of wheat middlings and wheat bran.

Results

PERFORMANCE OF WEANER STEERS ON WINTERING RATIONS, NOVEMBER 12-FEBRUARY 12

- Effect of grain level. The grain ration for these lots was the regular concentrate with an average crude protein content of 11%. Peavine silage was fed free choice.

Table 1. Effect of Level of Grain Feeding on Wintering Performance of Weaner Steers During a 92-day Period

No. animals	Grain level	Av. daily gain	Av. daily feed (lb.)		Cost/head daily		Cost/lb. gain	
			Grain	Peavine silage	Feed only	Feed and yardage	Feed only	Feed and yardage
	Percent	Pounds						
18	.5	1.05	2.4	27.2	\$0.129	\$0.199	\$0.123	\$0.190
18	1.0	1.37	4.5	25.8	0.174	0.244	0.128	0.179
17	1.5	1.78	6.1	22.3	0.204	0.274	0.115	0.154

Discussion

- Grain fed at 0.5% of body weight daily in conjunction with free choice peavine silage produced gains of approximately one pound per animal daily.
- Doubling the grain level to 1% resulted in gains of approximately 1 1/3 pounds per animal per day.
- Tripling the grain level to 1.5% increased average daily gains to approximately 1 3/4 pounds.
- Cost per animal per day and cost per pound of gain reflect the amount of grain fed. Lowest cost per day and highest cost per pound of gain resulted from feeding the 0.5% level of grain. Conversely, highest cost per day and lowest cost per pound of gain resulted from feeding grain at the 1.5% level. This relationship is to be expected due to the relative proportions of daily nutritive intake on the two rations that is required for body maintenance.
- Effect of protein level of concentrate. The animals in the lots in Table 2 were fed grain at the level of 0.5% body weight daily. Soybean oil meal and cull pea meal supplement was included in the pelleted grain ration. Alfalfa pellets were fed in addition to the pelleted control grain mix. All had free access to peavine silage.

Table 2. Effect of Level and Source of Protein on Wintering Performance of Weaner Steers on a Low Grain Ration During a 92-day Period

No. animals	Protein level	Protein source	Av. daily feed		Av. daily gain	Cost/head daily		Cost/lb. gain	
			Grain	Peavine silage		Feed only	Feed and yardage	Feed only	Feed and yardage
	Percent		Pounds	Pounds	Pounds				
18	11	None added	2.4	27.2	1.05	\$0.129	\$0.199	\$0.123	\$0.190
18	14	Soybean meal	2.4	27.5	1.10	0.140	0.210	0.127	0.191
18	14	Cull peas	2.4	27.7	1.10	0.133	0.203	0.121	0.185
18	14	None added ¹	2.5	24.4	1.41	0.136	0.206	0.111	0.146
		Alfalfa pellets	2.0						

¹ Alfalfa pellets fed in addition to control grain ration.

Discussion

- ▶ No beneficial effects resulted from feeding either soybean oil meal or cull peas in sufficient amounts to increase the protein level of the grain ration from 11% to 14% crude protein (total grain ration was 2 1/2 pounds per day).
- ▶ The increased average daily gain resulting from feeding alfalfa pellets can be more reasonably attributed to increased energy intake and/or increased efficiency of rumen function than to increased protein content.
- ▶ Cost per animal per day was similar for all rations. Cost per pound gain was similar except for the much lower cost in the lot fed alfalfa pellets.

Table 3. Effect of Level and Source of Protein on Performance of Weaner Steers on a High Grain Ration During a 92-day Wintering Period

No. animals	Protein level	Protein source	Av. daily feed		Av. daily gain	Cost/head/day		Cost/lb. gain	
			Grain	Peavine silage		Feed only	Feed and yardage	Feed only	Feed and yardage
	Percent		Pounds	Pounds	Pounds				
17	11	None added	6.1	22.3	1.78	\$0.204	\$0.274	\$0.115	\$0.154
18	14	Soybean	6.3	22.9	1.95	0.230	0.300	0.118	0.154
18	14	Cull peas	6.3	21.9	1.96	0.214	0.284	0.109	0.145
18	14	None added ¹	5.7	12.8	1.88	0.229	0.299	0.124	0.159
		Alfalfa pellets	4.4						

¹ Alfalfa pellets fed in addition to control grain ration.

Discussion

- ▶ Grain was fed at 1.5% of body weight daily. Peavine silage was fed free choice after the remainder of the ration was eaten or refused.
- ▶ Each of the protein supplemented lots gained faster than the control lot, but these differences were not large enough to be statistically significant.
- ▶ Weaner steers receiving alfalfa pellets would not eat 1.5% of their body weight daily as grain plus 1.5% of alfalfa pellets.
- ▶ Kind of roughage. The four lots used to compare kinds of roughage were fed 0.5% of body weight daily of an 11% crude protein grain ration. Peavine silage was fed free choice where it was the only roughage, as was chopped alfalfa hay when it was the only roughage. Where both silage and hay were fed, they were fed on an approximately equal dry matter basis. Dry matter intake from alfalfa pellets was not intended to be equal to that from chopped alfalfa fed with peavine silage.

Table 4. Effect of Kind of Roughage on Wintering Gains of Weaner Steers Fed 92 Days on a Low Level of Grain Ration

No. animals	Average daily feed consumed.			Av. daily gain	Cost/head daily		Cost/lb. gain	
	Grain	Roughage			Feed only	Feed and yardage	Feed only	Feed and yardage
		Amount	Kind					
	<u>Pounds</u>	<u>Pounds</u>		<u>Pounds</u>				
18	2.4	27.2	Pea silage	1.05	\$0.129	\$0.199	\$0.123	\$0.190
18	2.5	17.3	Pea silage	1.47	0.167	0.237	0.114	0.161
		5.4	Ch. alfalfa					
18	2.5	10.6	Ch. alfalfa	1.66	0.176	0.246	0.106	0.148
18	2.4	24.5	Pea silage	1.41	0.142	0.212	0.111	0.150
		2.0	Alfalfa pellets					

Discussion

- ▶ The replacement of part or all of the peavine silage by chopped or pelleted alfalfa increased average daily gains.
- ▶ The differences in average daily gains do not appear to be due entirely to differences in dry matter intake.
- ▶ Cost per day was lowest and cost per pound gain was highest in the lot receiving only peavine silage as roughage.
- ▶ Effect of implanted stilbestrol. It was possible to determine the effect of 30 mg. implanted stilbestrol on growth rate of animals fed to gain approximately 1 pound, 1 1/2 pounds, or 1 3/4 pounds daily. Table 5 shows this comparison.

Table 5. Growth Response to 30 mg. Implanted Stilbestrol by Weaner Steers Fed to Gain at Various Rates During a 92-day Wintering Period

Group	No. animals	Av. daily gain	Adv. for implanted group Av. daily gain
		<u>Pounds</u>	<u>Pounds</u>
Control	27	1.06	
Implant	27	1.10	.04
Control	35	1.43	
Implant	37	1.45	.02
Control	35	1.80	
Implant	36	2.00	.20

Discussion

- These data do not indicate any benefit from implantation with 30 mg. of stilbestrol for wintering weaner steers gaining either approximately 1 pound or 1 1/2 pounds per day. Advantage is shown for implanting at a higher average daily gain.
- These findings are not in agreement with the majority of data collected by the Oregon Agricultural Experiment Station on response of weaner steers to stilbestrol implantation. For example, weaner steers in the 1956-57 Milton-Freewater beef feeding experiments responded to 30 mg. stilbestrol implants as follows:

<u>No. animals</u>	<u>Treatment</u>	<u>Av. daily gain</u> <u>Pounds</u>	<u>Advantage for implanted group</u>
27	Control	1.02	.20
21	Implanted	1.22	
27	Control	1.37	.18
18	Implanted	1.55	

- Other experiments conducted by the Oregon Agricultural Experiment Station indicate 15 or 18 mgs. are preferable to 30 mg. for weaner steers fed to gain approximately one pound daily.

FATTENING WEANER STEERS

Weaner steers were used in the experiments to study effects of varying daily and total amounts of grain, rations with different amounts and sources of protein, different kinds of roughage, and various hormone implants. The same animals used in the wintering experiments reported above were carried through on the experimental fattening program. The wintering period constituted one phase of the total fattening period. Feeding programs during the total 255-day period were not designed to produce uniform carcass grades, but rather to determine the effects of the various ration and hormone treatments on growth rate, economy of gain, and carcass grade.

- Effect of grain level. Table 6 shows the response to different amounts of grain and to the same amount of grain distributed differently throughout the 255-day feeding period.

Table 6. Effect of Amount of Grain and Distribution of Grain During Feeding Period on Feed Lot Performance of Weaner Steers Fed to Slaughter Weights

No. animals	Method of grain feeding	Av. daily feed intake		Av. daily gain	Cost/lb. gain		Carcass grade ¹	Net return per head
		Grain	Peavine silage		Feed only	Feed and yardage		
		<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>				
17	1% constant	6.1	27.4	1.62	\$0.142	\$0.186	0-14-3	\$30.90
17	1 1/2 "	9.6	23.1	2.12	0.138	0.171	9-8-0	55.43
16	1/2-1-1 1/2%	6.3	27.5	1.76	0.125	0.165	2-12-2	47.19
18	1-1 1/2%	8.1	23.3	1.88	0.136	0.173	1-17-0	42.38

¹Choice, good, standard respectively.

Discussion

- The highest level of grain feeding produced fastest average daily gains and highest net returns under price conditions for feed and cattle during this experiment.
 - The sliding scale method of feeding (1/2% for 90 days, 1% for 90 days, and 1 1/2% for 75 days) resulted in the most economical cost per pound gain. With narrow margins, this method could well be more profitable than maximum grain levels.
 - The sliding scale method utilized the same total amount of grain and roughage and produced more total gain than the lot fed at a constant level of 1%.
 - Feeding grain at 1% of body weight during the first half of the feeding period and at 1 1/2% during the last period resulted in performance between the constant 1% and constant 1 1/2%. Average daily gains and costs of gains were higher than for the sliding scale method and carcass grades and net returns were lower.
-
- Effect of protein level and source.

Table 7. Effect of Level and Source of Protein on Fattening Performance of Weaner Steers Fed Low Average Daily Grain Rations for 255 Days

No. animals	Protein level and source	Av. daily feed intake			Av. daily gain	Cost/lb. gain		Carcass grades ¹	Net return per head
		Grain	Peavine silage	Alfalfa pellets		Feed only	Feed and yardage		
	<u>Percent</u>	<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>				
16	11 None added	6.3	27.5		1.76	\$0.125	\$0.165	2-12-2	\$47.19
18	14 Soybean	6.4	26.6		1.77	0.139	0.179	5-10-3	39.47
18	14 Cull peas	6.3	26.5		1.76	0.128	0.168	0-14-4	38.72
18	14 Alfalfa pellets	6.6	17.6	5.0	2.03	0.143	0.177	6-12-0	47.52

¹Choice, good, standard respectively.

Discussion

- ▶ Grain was fed at the level of 1 1/2% of body weight daily for 90 days, 1% for 90 days, and 1 1/2% for the remaining 75 days.
- ▶ Added protein from soybean oil meal or cull peas in sufficient amount to raise the crude protein content of the grain ration from 11% to 14% did not increase average daily gains and decreased net returns, compared to a grain ration of 11% crude protein when fed with free choice peavine silage of 11% crude protein content.
- ▶ Use of alfalfa pellets to provide a level of protein equivalent to that supplied by soybean oil meal or cull pea meal resulted in increased average daily gains over the control ration and brought net returns equal to the control lot. Increased average daily gains are assumed to be due to increased energy intake and/or effect of alfalfa upon rumen function rather than due to the added protein of the alfalfa pellets.

Table 8. Effect of Level and Source of Protein on Fattening Performance of Weaner Steers Fed 1 1/2% of Body Weight as Daily Grain Ration for 255 Days

No. animals	Protein level and source	Av. daily feed intake			Av. daily gain	Cost/lb. gain		Carcass grades ¹	Net return per head
		Grain	Peavine silage	Alfalfa pellets		Feed only	Feed and yardage		
	Percent	Pounds	Pounds	Pounds	Pounds				
17	11 None added	9.6	23.1		2.12	\$0.138	\$0.171	9-8-0	\$55.43
18	14 Soybean	10.1	23.6		2.20	0.152	0.183	12-6-0	55.39
18	14 Cull peas	9.9	24.1		2.24	0.137	0.168	3-15-0	60.81
17	14 Alfalfa pellets	9.8	8.1	7.3	2.20	0.161	0.193	12-5-0	51.25

¹Choice, good, standard respectively.

Discussion

- ▶ Grain was fed at the level of 1 1/2% of body weight daily throughout the experiment.
- ▶ Average daily gains were slightly but not significantly increased by increasing the protein content of the grain ration.
- ▶ Animals receiving alfalfa pellets would not consume 1 1/2% of body weight as grain plus 1 1/2% of alfalfa pellets, but would consume peavine silage after refusing additional alfalfa pellets.
- ▶ It appears that cull peas or alfalfa pellets can be utilized as effectively as soybean oil meal for protein sources when fattening weaner steers.
- ▶ High level feeding of alfalfa pellets markedly reduced the amount of other roughage consumed.

► Effect of kind of roughage.

Table 9. Effect of Kind of Roughage on Performance of Weaner Steers Fed 255 Days on Low Average Daily Grain Rations

No. animals	Av. daily intake			Av. daily gain	Cost/lb. gain		Carcass grade ¹	Net return per head
	Grain	Peavine silage	Alfalfa		Feed only	Feed and yardage		
	Pounds	Pounds	Pounds	Pounds				
16	6.3	27.5		1.76	\$0.125	\$0.165	2-12-2	\$47.19
18	6.6	17.6	5.0 pellets	2.03	0.143	0.177	6-12-0	47.52
18	6.7	15.7	6.1 chopped hay	2.01	0.133	0.167	1-14-3	41.58
18	6.6		12.0 chopped hay	1.98	0.144	0.180	0-11-6	24.50

¹Choice, good, and standard respectively.

Discussion

- Grain was fed on a sliding scale of 1/2-1-1 1/2% of body weight for 90, 90, and 75 days respectively.
- Replacing part or all of the peavine silage with chopped or pelleted alfalfa increased average daily gains. This increase was most evident during the first 90 days when grain feeding was at a low level and gradually disappeared during the second 90-day period. During the last 75 days, the silage-fed lot gained faster than the lots in which silage was replaced by alfalfa hay or pellets.
- With the prices that existed during this experiment, cost per pound gain and net return per steer were either adversely affected or remained unchanged by replacing part or all of the peavine silage with chopped alfalfa hay or pellets.
- Carcass grades were not favorably changed by replacing peavine silage with alfalfa hay.
- Effect of hormone implantation. Within each lot, 3 steers were assigned to each of the 6 hormone treatments used. These treatments were designed to answer the following questions:
 1. Will weaner steers show increased growth rates to repeated stilbestrol implants at 90-day intervals?
 2. If repeated responses occur, are the responses the same as the response to the initial implantation?
 3. Will alternate implantation with stilbestrol and testosterone provide more total growth stimulus than repeated implantation of stilbestrol?
 4. If animals are implanted during one period, will they gain as well as unimplanted animals in a subsequent period if not reimplanted?

Treatments were as follows:

Treatment 1: No hormone implant.

Treatment 2: 30 mg. stilbestrol at beginning of experiment followed by reimplants of 18 mg. at 90 and 180 days.

Treatment 3: 30 mg. stilbestrol at beginning of experiment followed by 450 mg. of testosterone at 90 days and 18 mg. stilbestrol at 180 days.

Treatment 4: No hormone at beginning of experiment followed by 450 mg. of testosterone at 80 days and 30 mg. stilbestrol at 180 days.

Treatment 5: 30 mg. stilbestrol at beginning of experiment followed by no hormone at 90 days and reimplanted with 18 mg. stilbestrol at 180 days.

Treatment 6: No hormone at beginning of experiment followed by 30 mg. stilbestrol at 90 days and 18 mg. stilbestrol at 180 days.

Table 10. Growth and Carcass Grade of Weaner Steers on Fattening Rations Implanted with Various Dosages and Combinations of Stilbestrol and Testosterone

Treatment ¹	Average daily gain				Average over control Pounds	Carcass grades ²
	0-92 days	93-181 days	182-255 days	Total		
	Pounds	Pounds	Pounds	Pounds		
0-0-0	1.42	1.82	2.10	1.75		11-17-5
30-18-18	1.60	2.11	2.49	2.06	79	4-30-5
30-450T-18	1.55	2.11	2.46	2.03	71	9-20-5
0-450T-30	1.49	1.94	2.49	1.94	48	11-20-5
30-0-18	1.54	2.01	2.59	2.02	69	8-24-4
0-30-18	1.47	2.19	2.61	2.05	76	8-24-4

¹The numbers refer to mg. of stilbestrol implanted at the beginning of each period. Numbers followed by T designate mg. of testosterone implanted.

²Numbers refer to carcass gradings of choice, good, and standard respectively.

Discussion

- ▶ One, two, or three implants of stilbestrol increased growth rate by an average of at least 0.2 pounds per animal per day over controls for the 255-day period.
- ▶ Two implants of stilbestrol given 90 days apart or 180 days apart produced approximately the same growth rate during the entire period as did three implants given at 90-day intervals.
- ▶ Implanted testosterone used alternately with stilbestrol was not superior to stilbestrol alone.

- ▶ Animals implanted initially but not reimplanted at 90 days retained and increased their superiority of average daily gain over control animals during the period from 90 to 180 days after implantation.
- ▶ The results indicate that reimplanted stilbestrol will maintain growth rates at levels as high as would have been reached had animals been implanted for the first time during the same stage of fattening.
- ▶ Carcass grade data suggest a slightly adverse effect of reimplanted stilbestrol on carcass grade.

Acknowledgements

Many persons and organizations contributed to the effective conduct of the 1957-58 beef feeding experiments. Cattle were supplied by Leonard Lorenzen and Son and Cunha Bros. , Pendleton; Key Brothers, Coe-Harris Cattle Company, Dry Creek Cattle Company, and F. W. George of Milton-Freewater; Weston Cattle Company, Weston; and Tremayne Rea, Walla Walla, Washington. Equipment, facilities and/or other support were supplied by the Umatilla County Court, Umatilla County Cattlemen's Association, Umatilla Canning Company, Dry Creek Cattle Company, Poultry Shippers, Inc. , McLoughlin FFA Chapter (Milton-Freewater), Key Bros. , and the city of Milton-Freewater. Periodic grading of the cattle was done by Ben Kilgore of Federated Livestock Company, Bill Johns of Johns, Smith and Beamer, and Jack Kellog of Swift and Company.