6:30 p.m.—Kansas State Union

Banquet for parents and visiting stockmen and ladies, Block and Bridle Club

Honoring—William Ljungdahl, Menlo
Earl Brookover, Garden City
The late O. W. (Cap) Lynam, Burdette

FOR THE LADIES

Friday, May 1, 1959

6:30 p.m.—Dinner, Gillett Hotel

Kansas Cow Belles and all visiting ladies (Make reservations with Mrs. C. W. McCampbell, 1127 Thurston, Manhattan)

Saturday, May 2, 1959

9:30 a.m.—Animal Industries Building (Room 103)
Coffee, by Animal Husbandry wives

10:30 a.m.—Auditorium (Room 107), Animal Industries Building

Program sponsored jointly by School of Home Economics and Department of Animal Husbandry

Presiding—Mrs. Ray E. Frisbie, McDonald, President, Kansas Cow Belles

Demonstration—"Hawaiian Foods," Janice Dahl and Janet Madsen, Students in Home Economics

12:00 n. —Lunch, Arena

6:30 p.m.—Block and Bridle Banquet

Some recent additions to the animal husbandry department are illustrated on the front cover.

The new purebred beef cattle barn was completed and has been in use since September, 1957. It has one wing 32 feet by 120 feet, and another 32 feet by 50 feet. It has movable partitions which can be arranged to form pens of various sizes and numbers. Feed storage is provided overhead. Two rooms, to accommodate four boys, are provided.

The grain elevator and feed processing plant is only partially completed. Eventually it will store 30,000 bushels of grain, and will be equipped for various means of processing, blending, and mixing.

The swine performance testing station was completed in the fall of 1958 and a group of pigs has already gone through the test, and the tested boars sold. Construction of this station was financed by the Kansas Swine Improvement Association. Personnel for the operation of the station are furnished by the Department of Animal Husbandry.

Beef Cattle

The Effect of Implanting Beef Heifers on a Fattening Ration with Hormones or Hormonelike Substances. Projects 536 and 537.

D. Richardson, E. F. Smith, B. A. Koch, and F. W. Boren

The increase in rate of gain from feeding stilbestrol to heifers is not so good as that obtained with steers. Implanting heifers with levels of stilbestrol recommended for steers results in undesirable side effects such as udder and teat development, high tailheads, and prolapse of the vagina in many instances. This is the second test designed to study the effect of low-level stilbestrol implanting (12 mgs.) and Synovex heifer implants (SH-7 contains 100 mgs. testosterone and 20 mgs. estradiol benzoate) on heifers being fattened for slaughter. Sixty heifers, six lots of 10 animals each, in Projects 536 and 537 were used in this test. Three animals from each lot were randomly selected to receive either the stilbestrol or Synovex implant, thus giving 18 animals per treatment. The remaining 4 animals per lot, total of 24, served as controls.

Results and Observations

Results of this test are shown in Table 1. Both implants produced an increase in rate of gain; however, greater gains were obtained with Synovex. Average daily gains in a previous test were 1.76, 2.03, and 1.89 pounds, respectively, for control, 12 mgs. stilbestrol implant, and Synovex-heifer implants. When both tests are considered, there was no difference in rate of gain between the two types of implant. The average increase in rate of gain was about 0.2 pound daily for both implants. There were practically no differences in carcasses based upon conformation, grade, quality, and value per hundred pounds.

Table 1

Results of implanting stilbestrol and Synovex Heifer (SH-7) in beef heifers on fattening rations.

March 21, 1958, to August 2, 1958—134 days.

Treatment	Control	12 mgs. stilbestrol implant	Synovex Heifer-7 implant[7]
No. heifers per treatment	24	18	18
Av. initial wt., lbs.	569.4	582.2	584.7
Av. final wt., lbs.	804.4	829.4	855.8
Av. daily gain per heifer, lbs.	1.75	1.84	2.02
Av. carcass conformation grade[1]	12.6	13.0	12.8
Av. carcass grade:[1]			
Before ribbing	11.4	11.2	11.0
After ribbing	11.8	11.8	11.3
Av. fat thick. at 12th rib, vis. est.[2]	3.7	3.7	3.8
Av. uniformity of fat dist.[3]	4.0	3.8	3.9
Av. degree of marbling[4]	7.3	7.1	7.6
Av. size ribeye, vis. est.[5]	4.7	4.3	4.3
Av. size ribeye, sq. in.	9.5	9.8	10.5
Av. degree of firmness[6]	4.1	4.4	4.6
Av. carcass value per cwt., Ch 41¢ and G 38¢	$38.40	38.51	38.69

1. Based on top choice 15, av. choice 14, low choice 13, top good 12, av. good 11, low good 10.
2. Based on thick 2, moderate 3, modest 4, slightly thin 5.
3. Based on uniform 2, moderate 3, modest 4, slightly uneven 5.
4. Based on slightly abundant 4, moderate 5, modest 6, small amount 7, slight amount 8.
5. Based on large 2, moderately large 3, modestly large 4, slightly small 5.
6. Based on firm 2, moderately firm 3, modestly firm 4, slightly firm 5.
7. 100 mgs. testosterone and 20 mgs. estradial benzoate.

Self-Feeding a Mixture of Molasses, Urea, Water, and Phosphoric Acid to Beef Heifers. Project 536.

D. Richardson, E. F. Smith, B. A. Koch, F. W. Boren, and R. F. Cox

This is the second test to study the value of self-feeding a mixture of blackstrap molasses, urea, water, and phosphoric acid as the protein supplement in a wintering and fattening ration of beef cattle.

Experimental Procedure

Thirty Hereford heifer calves from the same herd were divided as equally as possible on the basis of weight and conformation into three lots of 10 animals each. During the wintering phase, animals in all lots received all of the sorghum silage they would clean up each day. The remainder of the daily ration was as follows:

Lot 7. Free-choice mixture, 77 percent blackstrap molasses, 3 percent phosphoric acid, 10 percent urea, and 10 percent water.

Lot 8. Free-choice mixture, 77 percent blackstrap molasses, 3 percent phosphoric acid, 10 percent urea, and 10 percent water plus 0.5 pound soybean meal and 1.5 pounds of sorghum grain.

Lot 9. Control, 1 pound soybean oil meal and 2 pounds of sorghum grain.

At the end of the wintering phase, sorghum grain was fed in all lots. It was gradually increased until the animals were self-fed grain. Silage was used as the roughage for the first 25 days and then replaced by prairie hay fed free choice. Protein supplements continued on the same basis as in the wintering phase.

Salt and a mixture of equal parts of salt, steamed bonemeal, and limestone were self-fed free choice to all lots. Water was supplied by electrically-heated automatic fountains.

Results and Observations

Results of this test are shown in Table 2. The animals started eating the liquid supplements as soon as they were placed before them. No toxic effects were ever observed. It is believed that the phosphoric acid aids in preventing toxicity as well as supplying an excellent source of phosphorus. Lot 7 animals did not gain as well during the wintering phase as those in lots 8 and 9 that received a natural protein supplement. However, a half pound of natural protein supplement with the liquid supplement produced gains as good as all natural protein. Thus, it is evident again that all nonprotein-nitrogen is not so efficient in a wintering ration (high roughage) as when some natural protein is supplied.

During the fattening phase, animals in lot 7 gained faster than those in lots 8 and 9. This shows that animals that didn't gain as much during the winter and were thinner gain faster when put on a fattening ration. Also, nonprotein-nitrogen (urea) is more efficient in a fattening ration than in a wintering ration. The over-all (wintering and fattening) average daily gain for all three lots was the same. There were no significant differences in shrink to market, dressing percentage, or carcass quality. Liquid protein supplements, as used in this test, can be used very satisfactorily in beef cattle rations. Liquid protein supplements are of no more value, if as much, than natural protein supplements. Therefore, the comparative cost of a supplement and the purpose for which it is to be used should determine the one to be purchased.

Table 2

Results of self-feeding a mixture of molasses, urea, water, and phosphoric acid to beef heifer calves.

Wintering phase—December 12, 1957, to March 21, 1958—100 days.			
Lot number	7	8	9
Number calves per lot	10	10	10
Av. initial wt., lbs.	441.5	441.5	441.0
Av. final wt., lbs.	560.0	590	585
Av. daily gain per calf, lbs.	1.18	1.48	1.44
Av. daily ration, lbs.:			
Sorghum silage	27.6	25.9	25.9
Sorghum grain		1.5	2.0
Soybean oil meal		0.5	1.0
Molasses mixture[1]	2.15	2.39	
Salt	.07	.04	.09
Mineral mixture[2]	.09	.11	.12
Lbs. feed per cwt. gain:			
Sorghum silage	2333	1747	1799
Sorghum grain		101	138.9
Soybean oil meal		33.7	69.4
Molasses mixture[1]	181.4	160.7	
Salt	5.6	2.4	6.1
Mineral mixture	7.8	5.7	8.7
Cost per cwt. gain[3]	$ 15.71	15.88	11.71
Fattening phase—March 21, 1958, to August 2, 1958—134 days.			
Lot number	7	8	9
Number heifers per lot	10	10	10
Av. initial wt., lbs.	560.0	590.0	585.0
Av. final wt., lbs.	831.5	835.0	834.5
Av. total gain, lbs.	271.5	245.0	249.5
Av. daily gain per heifer, lbs.	2.03	1.83	1.86
Av. daily ration, lbs.:			
Sorghum silage[4]	21.5	24.1	21.5
Prairie hay[5]	4.6	4.7	4.5
Sorghum grain	16.5	16.5	15.8
Soybean oil meal		0.5	1.0
Molasses mixture[1]	1.7	1.3	
Mineral mixture[2]	.04	.05	.06
Salt	.05	.04	.06
Pounds feed per 100 lbs. gain:			
Sorghum silage	198	246	215
Prairie hay	184	211	197
Sorghum grain	814	904	848
Soybean oil meal		27	54
Molasses mixture	82	70	
Mineral mixture	2.2	2.6	3.0
Salt	2.6	2.4	3.0
Feed cost per 100 lbs. gain[3]	$ 21.62	24.26	21.09
Summary—Wintering and fattening—December 12, 1957, to August 2, 1958—234 days.			
Lot number	7	8	9
Av. total gain, lbs.	390.0	393.5	393.5
Av. daily gain, lbs.	1.67	1.68	1.68
Av. feed cost per 100 lbs. gain	$ 19.84	21.10	17.66
Net per animal	−2.95	−3.26	6.38

1. Mixture contained 77% blackstrap molasses, 3% phosphoric acid, 10% urea, and 10% water.

2. Equal parts of limestone, steamed bonemeal, and salt.

3. Based on silage $7 per ton, prairie hay $14 per ton, grain $2 per cwt., soybean oil meal $70 per ton, molasses mixture $80 per ton, mineral mixture $50 per ton, and salt $20 per ton.

4. Sorghum silage fed only first 25 days.

5. Prairie hay fed last 109 days.

Table 2 (Continued)

% shrink to market	4.5	3.6	4.1
Av. dress. % based on final feedlot wt. (including 2% cooler shrink)	56.6	57.6	56.4
Av. dress. % based on market wt.	59.2	59.7	58.8
Av. carcass grade before ribbing[6]	11.2	11.2	11.1
Av. carcass grade after ribbing[6]	11.3	11.9	11.2
Av. fat thickness at 12th rib, vis. est.[7]	3.9	3.6	3.7
Av. uniformity of fat distribution[8]	4.1	3.8	3.8
Av. degree of marbling[9]	7.4	7.3	7.6
Av. size ribeye, vis. est.[10]	4.5	4.3	4.6
Av. size ribeye, sq. in.	10.2	9.8	9.8
Av. degree of firmness[11]	4.6	4.2	4.6
Av. initial cost per animal @ 24¢/lb.	105.96	105.96	105.84
Av. total feed cost	$ 77.24	83.02	69.48
Av. total cost animal and feed	$183.20	188.98	175.32
Av. carcass value (Ch 41¢ and G 38¢)	180.25	185.72	181.70

6. Based on top choice 15, av. choice 14, low choice 13, top good 12, av. good 11, low good 10.

7. Based on thick 2, moderate 3, modest 4, slightly thin 5.

8. Based on uniform 2, moderate 3, modest 4, slightly uneven 5.

9. Based on slightly abundant 4, moderate 5, modest 6, small amount 7, slight amount 8.

10. Based on large 2, moderately large 3, modestly large 4, slightly small 5.

11. Based on firm 2, moderately firm 3, modestly firm 4, slightly firm 5.

Fundamental Studies of Sorghum Roughages and Grains. I. A Study of the Value of Feeding the Grain Sorghum Plant as Silage and as Dehydrated Pellets. II. A Study of the Value of Pelleting Sorghum Grain. Project 222.

D. Richardson, E. F. Smith, F. W. Boren, B. A. Koch, R. F. Cox, and O. J. Keltz

Combine-type sorghum grain is widely grown in Kansas and normally only the grain is harvested. In many instances, moisture conditions are such at harvest time that grain cannot be stored without artificially drying. Sometimes there is danger of loss to immature grain because of an early freeze. One part of this test was to study the feasibility of harvesting the entire grain sorghum plant as silage or as dehydrated pellets. Previous tests have indicated greater utilization of finely ground pelleted sorghum grain than cracked sorghum grain. The second part of the test was further work in comparing the two methods of preparation. This report is on the wintering phase of the feedlot test.

Experimental Procedure

Forty Hereford steer calves from the same herd were divided as equally as possible on the basis of weight and conformation into four lots of 10 animals each. Grain sorghum from the same field, estimated to yield 45 bushels per acre, was used to make the grain sorghum silage and dehydrated grain sorghum pellets. It produced approximately 6 tons of silage or 2½ tons of dehydrated pellets per acre. Grain from another source was used for cracking and pelleting. The daily ration for all animals consisted of 4 pounds alfalfa hay and 0.5 pound soybean oil meal plus the following:

Lot 1. Average of 7.65 pounds dehydrated grain sorghum pellets.

Lot 2. Average of 20.55 pounds grain sorghum silage.

Lot 3. Average of 14.1 pounds Atlas sorghum silage and 4 pounds cracked sorghum grain.

Lot 4. Average of 12.65 pounds Atlas sorghum silage and 4 pounds finely ground pelleted sorghum grain.

An attempt was made to keep the dry matter intake the same in lots 1 and 2. Salt and a mineral mixture of 2 parts steamed bonemeal and

1 part salt were fed free choice. Water was supplied in automatic electrically-heated water fountains.

Results and Observations

Results of the wintering phase of this test are shown in Table 3. Rate of gain was the same in lots 1 and 2. The gains were economical in lot 2; however, the cost of dehydrating and pelleting considerably increased the cost of gain in lot 1. The silage and pellets were palatable and no digestive disturbances or other trouble were experienced during the test. Animals in lot 4, receiving the finely ground pelleted grain, gained slightly faster and utilized their feed more efficiently than those that received the cracked grain (lot 3). The difference was great enough to more than offset the additional cost of pelleting. The fattening phase of this test is now in progress. All the hay has been removed from lots 1 and 2 and grain increased in lots 3 and 4.

Table 3

Comparative results with (1) dehydrated grain sorghum pellets and grain sorghum silage, and (2) cracked sorghum grain and finely ground pelleted sorghum grain in beef steer wintering rations.

Wintering phase—December 2, 1958, to March 11, 1959—100 days.

Lot number	1	2	3	4
Number calves per lot	10	10	10	10
Av. initial wt., lbs.	415.5	416	418	424
Av. final wt., lbs.	550.5	552	568.5	586.5
Av. daily gain per calf, lbs.	1.35	1.36	1.51	1.63
Av. daily ration, lbs.:				
Alfalfa hay	4	4	4	4
Grain sorghum silage		20.55		
Atlas sorghum silage			14.1	12.65
Dehydrated grain sorghum pellets	7.65			
Cracked sorghum grain			4	
Pelleted sorghum grain				4
Soybean oil meal	.5	.5	.5	.5
Salt	.035	.018	.052	.016
Bonemeal-salt mixture	.085	.061	.061	.039
Feed per cwt. gain, lbs.:				
Alfalfa hay	296.3	294.1	264.9	245.3
Grain sorghum silage		1511		
Atlas sorghum silage			933.8	776.1
Dehydrated grain sorghum pellets	566.7			
Cracked sorghum grain			264.9	
Pelleted sorghum grain				245.3
Soybean oil meal	37	36.8	33.1	30.7
Salt	2.6	1.3	3.4	1.0
Bonemeal-salt mixture	6.3	4.5	4.0	2.4
Feed cost per cwt. gain[1]	$17.59	10.86	10.89	10.16

1. Based on ingredient prices given on inside of back cover.

The Value of Implanting Beef Steer Calves on a Fattening Ration with Stilbestrol and Synovex Pellets. Project 222.

D. Richardson, E. F. Smith, B. A. Koch, and F. W. Boren

Stilbestrol and Synovex implants are used with beef cattle to stimulate increased gains. This test was planned to study level of stilbestrol implant and the effect of stilbestrol and Synovex implants on rate of gain and carcass quality. Animals within each lot in Project 222 were randomly allotted to the various treatments of this test. Treatments were control