Table 28 (Continued).

		Test 1	Test 2	Test 3	Test Tot.
Feed per 100 lbs. gain:					
Hay: alfalfa-brome ..	1	630	370	238	431
alfalfa	2	573	313	234	368
alfalfa	3	603.4	267	180.3	351.3
	Av.	602	317	217	383
Grain: corn	1	623	706	691.3	684.4
sorghum	2	549	720	711	635
sorghum	3	603.4	763	789.3	744.3
	Av.	592	730	730	688
Av. dressing percent (includes cooler shrink)	1	58.3	58.8	60.0	58.0
	2	59.8	60.9	61.0	60.0
	3	59.5	62.0	59.6	59.8
	Av.	59.2	60.6	60.2	59.3

	Test 1				Test 2				Test 3				Test Tot.			
Carcass grades:																
Low prime	1			1												
Top choice							2	2	1	1	1	3				
Av. choice		2	2		2	2	2	6	1	3	2	6	1	2	2	5
Low choice		3	4	7	3	4	4	11	4	5	1	10	2	5	2	9
Top good	2	5	3	10	3	3	2	8	3	1	4	8	1	1	4	6
Av. good	4	1		5	2	1		3	1		2	3	3	2	2	7
Low good	2	1		3									3			3
Top com.	1			1												
Av. grade[1]		13.93				12.27				12.13				13.6		
Degree of marbling:																
Moderately abundant											1	1				
Slightly abundant	1			1							1	1				
Moderate						1	2	3	1			1				
Modest			2	2	3		4	7		6	1	7	1	4	2	7
Small amount	2	1	4	7	2	3	2	7	5	2		8	3	1	1	5
Slight amount	3	9	3	15	1	6	2	9	2	1	5	8	2	5	6	13
Traces	4			4	4			4	1		2	3	4		1	5
Av. degree marbling[2]		7.62				7.13				6.93				7.53		

1. Based on low prime 6, top choice 8, av. choice 10, low choice 12, top good 14, av. good 16, low good 18, and top commercial 20.

2. Based on moderately abundant 3, slightly abundant 4, moderate 5, modest 6, small amount 7, slight amount 8, and traces 9.

Effect of Previous Treatment upon Fattening Gains of Heifers—Summary.

PROJECT 222

D. Richardson, E. F. Smith, and R. F. Cox

The way that animals are fed and managed before going into the feed lot may influence the rate and efficiency of gain on a fattening ration. This is particularly true with pigs. This experiment was planned to obtain information on the response of heifers on a **fattening** ration after having received different kinds of roughage in their **wintering** rations. The different rations were supplemented to make them similar in protein, total digestible nutrients, vitamins, and minerals.

Experimental Procedure

In each of three wintering tests, 50 Hereford heifer calves were divided into five lots of 10 animals each. They were wintered on the

Table 29

The Influence of Different Roughages Fed in Wintering Rations upon Subsequent Gains on Fattening Rations.

Year	Test No.	Prairie hay Av. daily gain		Corn cobs Av. daily gain		Alfalfa hay Av. daily gain		Atlas silage (Sp. sup.) Av. daily gain		Atlas silage (Grain & prot.) Av. daily gain		Winter Av. by test	Fattening Av. by test
		Winter	Fattening	Winter	Fattening	Winter	Fattening	Winter	Fattening	Winter	Fattening		
1953	1	1.60	2.05	1.43	1.68	1.24	2.41	1.69	2.00	1.72	1.95	1.53	2.02
1954	2	1.27	2.03	1.25	2.12	1.52	2.18	1.73	2.05	1.65	1.92	1.48	2.06
1955	3	1.50	2.32	1.36	2.52	1.68	2.02	1.89	2.27	1.55	2.27	1.60	2.28
	Av.	1.46	2.13	1.35	2.11	1.48	2.20	1.77	2.11	1.64	2.05		

following rations: (1) prairie hay plus grain and protein concentrate; (2) corn cobs plus grain, protein concentrate, and vitamin A; (3) alfalfa hay plus grain; (4) atlas sorghum silage plus a special supplement; (5) atlas sorghum silage plus grain and protein concentrate. As already pointed out, these rations were supplemented in such a way as to make them similar in nutritive value.

At the end of the wintering period, two heifers from each of the above wintering rations were allotted to each of five lots for a fattening test. This gave five lots of 10 animals each. The animals were regrouped according to previous treatment at the end of the fattening period, in order to determine the rate of gain.

Results and Discussion

The results of this experiment are given in Table 29. There are variations in results obtained; however, it is apparent that none of the roughages in the wintering ration, or previous treatment, had a consistent effect upon the fattening results following the wintering period. It should be remembered that all of these roughages were supplemented to make them similar in calculated nutritive value.

The Value of Stilbestrol in Beef Cattle Rations—Wintering, Grazing, and Fattening Phases.

PROJECT 370

D. Richardson, F. H. Baker, E. F. Smith, and R. F. Cox

Stilbestrol, a synthetic compound which has a hormonelike effect when taken into the body, has been recognized as a growth-stimulating factor in beef cattle fattening rations. Most of the market cattle in Kansas are handled under the deferred system of feeding. Information was needed on the value of this growth-stimulating ingredient in the deferred cattle-feeding program.

This experiment was planned to obtain information on the value of stilbestrol (1) in the wintering ration of beef calves, (2) during grazing, (3) effect of removing stilbestrol from the animals while grazing, (4) when animals return to the feed lot after grazing, (5) effect of long-time continuous feeding, (6) effect upon digestibility of feed, (7) carcass grade, and (8) cooking quality of the meat. The results of the wintering phase are repeated in Table 30. For more complete details on this and the digestion studies, see the 42nd Annual Livestock Feeders' Day Report, Kansas Agricultural Experiment Station, Circular 320, pages 50-53, 1955.

Experimental Procedure

Thirty Hereford steer calves averaging about 450 pounds were divided as equally as possible into three lots of 10 animals each. Lot 1 served as the control throughout the test. Lot 2 received stilbestrol during the wintering and fattening phases (Phases 1 and 3 of the Kansas Deferred System) but not on grass. Lot 3 received stilbestrol throughout all three phases of the feeding operation. (Note—there were two control lots during the wintering phase but only one thereafter.) Stilbestrol was fed at the rate of 10 mg. per head daily throughout the test. Otherwise, feeding and management were the same for all animals except Lot 3, which received stilbestrol in ½ pound of soybean oil meal per head daily while on grass. Grain was self-fed during the fattening phase.

Ten Hereford heifers averaging about 335 pounds each were divided as equally as possible into two lots. Lot 1 served as the control and Lot 2 received stilbestrol. These calves were fed a wintering ration for 140 days and then put on a fattening ration. They did not go to pasture as did the steers.

At the time of marketing and slaughter, carcass data were obtained on individual animals. A wholesale rib cut from each animal was purchased for chemical and cooking studies.

Results

The information obtained is shown in Table 30 for the steers and Table 32 for the heifers. Results of the cooking tests of roasts from the steer and heifer carcasses are shown in Tables 31 and 33, respectively.

Observations

Wintering phase:

1. There was a tendency toward increased gains with stilbestrol in the wintering ration of calves; however, it is doubtful that this difference is great enough to offset the additional cost and be of economic advantage.
2. There were no significant differences in rate of feed consumption or efficiency of feed utilization.
3. Approximately one-half of the calves receiving stilbestrol developed high tailheads and depressed or weak loins. The heifers showed an enlargement of the vulva and developed more of a cow appearance. These differences varied with individual animals. There was a tendency for these effects to be less apparent as the animals grew older. In fact, they were noticeable in only a few animals at the time of slaughter.

Grazing phase:

1. The rate of gain on grass for all lots was less than might normally be expected; however, these calves had made excellent gains during the winter and therefore would not be expected to make large gains on grass.
2. The feeding of stilbestrol on grass did not produce an increased rate of gain.
3. A decrease in rate of gain on grass was obtained with animals that received stilbestrol in the wintering ration but did not receive stilbestrol on grass. This indicates that there is no beneficial carryover effect from feeding stilbestrol during the winter for animals that are going to pasture.

Fattening phase:

1. There was no apparent advantage to long-time, continuous feeding of stilbestrol (309 and 361 days). It is suggested that nature adjusts the body to the intake of stilbestrol when taken over a long period of time. Therefore, less beneficial effect is obtained when the animals are put on a fattening ration. Lot 2 steers that did not receive stilbestrol on grass but did in the feed lot showed a beneficial effect in rate and economy of gain from stilbestrol.
2. Stilbestrol had no apparent effect upon quantity of feed consumed. (Grain and hay were fed free choice during the fattening phase.)
3. There were only small differences in shrink to market and in cooler shrink; however, there was a tendency for higher dressing percentage with the control animals.
4. There was a tendency for animals fed stilbestrol to grade slightly lower. This was caused primarily by less marbling. This effect seemed to be greatest with animals having received stilbestrol continuously over a long period of time.
5. Stilbestrol fed animals showed slightly less rib-eye area, slight increase in fat thickness over 12th rib, slightly less firmness (often accompanied by greater release of fluid at cut), slight differences in total moisture in rib-eye and fat but a tendency toward a greater quantity of press fluid from the rib-eye.
6. Cooking tests with rib roasts from each animal did not reveal any outstanding differences. The palatability scores tended to be higher for roasts from animals fed stilbestrol. The press fluid was also greater from the cooked rib-eye of roasts from animals fed stilbestrol.