

Table 21 (Continued).

Phase 2—Grazing, April to August—109.3 days.			
Initial wt. per steer, lbs. ....	551	584	572
Final wt. per steer, lbs. ....	757	788	779
Gain per steer, lbs. ....	206	204	207
Daily gain per steer, lbs. ....	1.88	1.87	1.89
Feed cost per steer <sup>2</sup> .....	\$16.00	\$16.00	\$16.00
Summary of Phases 1 and 2—235 days.			
Initial wt. per steer, lbs. ....	505	508	507
Final wt. per steer, lbs. ....	757	788	779
Gain per steer, lbs. ....	252	280	272
Daily gain per steer, lbs. ....	1.07	1.19	1.16
Feed cost per steer .....	\$25.25	\$30.63	\$29.19
Feed cost per 100 lbs. gain <sup>2</sup> .....	\$10.02	\$10.94	\$11.00

1. Hay was fed only when snow covered the grass.

2. The feed prices used are those inside the back cover; \$1 per steer was charged for salt and mineral.

### Self-Feeding Urea Molasses and the Feeding of Aureomycin to Steer Calves Wintered on Bluestem Pasture, 1956-57 (Project 253-1).

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

In this study a self-fed, urea-molasses mixture is being compared to molasses self-fed plus 1.3 pounds of soybean meal in an effort to determine if a urea-molasses mixture self-fed on dry grass will serve as an adequate source of protein and energy.

Another phase of the experiment is to determine if aureomycin will improve the performance of calves wintered outside exposed to the hazards of winter weather.

#### Experimental Procedure

The steer calves used in the study originated in the vicinity of Santa Rosa and Melrose, N.M. They were allotted to their treatments on the basis of weight. The calves in lots 12 and 12A were wintered together in a 190-acre bluestem pasture and separated each morning to be fed. The calves in lot 7 were in a 60-acre pasture, as were those in lot 15.

Lot 12 should be compared with lot 12A, which received aureomycin in the form of Aurofac 2A. The Aurofac 2A was mixed with the soybean meal so as to furnish 45 mgs. of aureomycin per calf daily.

Lot 7 should be compared with lot 15. The molasses in lots 7 and 15 was self-fed with no attempt to regulate consumption. The urea-molasses mixture fed to lot 15 contained 77 percent molasses, 3 percent phosphoric acid, and a 20 percent urea solution which was one half urea and one half water. The molasses fed to lot 7 contained 3 percent phosphoric acid.

#### Observations

Aureomycin added to the ration of lot 12A increased the gain slightly as compared with lot 12.

Molasses fed to lot 7 was more palatable than the urea molasses fed to lot 15. The soybean meal and extra molasses consumed by lot 7 increased the gain of that lot by 87 pounds per head over lot 15 self-fed a urea-molasses mixture.

The protein or protein equivalent consumed in the supplemental feed by the two lots was about the same for each lot.

Apparently some additional source of protein other than that found in dry bluestem pasture and urea is necessary for calves.

Table 22

### Self-Feeding Urea Molasses and the Feeding of Aureomycin to Steer Calves Wintered on Bluestem Pasture. Compare Lot 12 with 12A and Lot 7 with 15.

December 11, 1956, to March 30, 1957—109 days.

Lot number .....	12	12A	7	15
Treatment .....	No aureomycin	Aureomycin	Molasses and soybean meal	Urea molasses
Number steers per lot .....	10	10	10	10
Initial wt. per steer, lbs. ....	433	432	435	435
Final wt. per steer, lbs. ....	514	526	534	447
Gain per steer, lbs. ....	81	94	99	12
Daily gain per steer, lbs. ....	.74	.86	.91	.11
Daily ration per steer, lbs.:				
Soybean meal .....	1.0	1.0	1.3	
Ground milo grain .....	4.6	4.6		
Aureomycin, mgs. ....		45 mgs.		
Molasses, self-fed .....			4.0	
10% urea molasses, self-fed .....				2.6
Dry bluestem pasture ....	Free choice	Free choice	Free choice	Free choice
Salt .....	Free choice	Free choice	Free choice	Free choice
Feed cost per steer* .....	\$19.35	\$20.03	\$22.05	\$14.93

\* Feed prices for 1956-57 are inside back cover of this circular. \$1 per steer was charged for salt; \$0.50 per pound for Aurofac 2A; and \$85 per ton for the urea-molasses mixture.

### Level of Winter Protein Supplementation for Steer Calves Both Wintered and Summer Grazed on Bluestem Pasture, 1955-56 (Project 253).

E. F. Smith, B. A. Koch, R. F. Cox, and G. L. Walker

This is the third trial of this experiment. In addition to this year's test, a three-year summary is included in this circular. The test is designed to study the level of protein supplementation most desirable for wintering steer calves on dry bluestem pasture that are to be sold off summer grass as stocker or feeder yearlings. Results of this test are measured primarily by the combined winter and summer performance of the steers.

#### Experimental Procedure

Thirty good-quality Hereford steer calves purchased from the Williams Ranches near Lovington, N.M., were used in the test. They were the heaviest steer calves of 256 purchased. They were divided on the basis of weight into three lots of 10 calves each and grazed together on a 190-acre bluestem pasture during the winter. Each morning they were gathered and divided into three feeding pens to receive their supplements. The treatment assigned to each lot was as follows:

Lot 12A—1 pound of soybean pellets per head daily.

Lot 12B—2 pounds of soybean pellets per head daily.

Lot 12C—1 pound of soybean pellets and 1 pound of corn per head daily.

All of the steers were grazed together during the summer on bluestem pasture.

Six of the steers in each lot were implanted at the start of the test with 36 mgs. of stilbestrol. The results of this treatment are included in another report found in this publication.

#### Observations

On the basis of gain, apparently 1 pound of soybean pellets does not furnish sufficient protein for steer calves wintered on dry bluestem pasture. The steers in lot 12B gained slightly more in the winter and 29 pounds more year-long when fed 2 pounds of soybean pellets as compared

with lot 12A where only 1 pound of soybean pellets was fed. However, the cost of producing the gain was about the same in both lots.

The steers in lot 12C fed 1 pound of soybean pellets and 1 pound of corn per head daily gained about the same amount as those fed only 1 pound of soybean pellets. Since no increase in gain was obtained with the corn, cost of producing a 100-pound gain with corn was increased slightly.

**Table 23**

**Level of Protein Supplementation for Steer Calves Both Winter and Summer Grazed on Bluestem Pasture.**

Phase 1—Wintering, January 4, 1956, to April 7, 1956—93 days.

Lot number	12A	12B	12C
Number of steers	10	10	10
Initial wt. per steer, lbs.	581	590	585
Final wt. per steer, lbs.	604	647	620
Gain per steer, lbs.	23	57	35
Daily gain per steer, lb.	.25	.61	.37
Daily ration per steer, lbs.:			
Soybean pellets	1	2	1
Ground corn			1
Prairie and alfalfa hay <sup>1</sup>	1	1	1
Dry bluestem pasture		Free choice all lots	
Salt		Free choice all lots	
Feed cost per steer <sup>2</sup>	\$6.26	\$9.52	\$8.96

Phase 2—Grazing, April 7, 1956, to August 7, 1956—123 days.

Initial wt. per steer, lbs.	604	647	620
Final wt. per steer, lbs.	803	841	807
Gain per steer, lbs.	199	194	187
Daily gain per steer, lbs.	1.62	1.58	1.52
Feed cost per steer <sup>2</sup>	\$17.00	\$17.00	\$17.00

Summary of Phases 1 and 2—January 4, 1956, to August 7, 1956—216 days.

Initial wt. per steer, lbs.	581	590	585
Final wt. per steer, lbs.	803	841	807
Gain per steer, lbs.	222	251	222
Daily gain per steer, lbs.	1.03	1.16	1.03
Feed cost per 100 lbs. gain <sup>2</sup>	\$10.47	\$10.56	\$11.69
Feed cost per steer <sup>2</sup>	\$23.26	\$26.52	\$25.96
Av. feeder grade August 4 <sup>3</sup>	High good	High good	High good
Av. condition score August 4 <sup>4</sup>	3.5	3.4	3.1

1. Fed only when snow covered the grass.

2. Feed prices may be found inside back cover; a charge of \$1 per head was made for salt.

3. Animals were scored individually by a committee of three animal husbandmen.

4. Condition scores ranged from 1 to 6, the higher number indicating more condition.

**Supplements for Yearling Steers on Bluestem Pastures During the Latter Part of the Grazing Season, 1956, and a Three-Year Summary, 1953-55-56 (Project 253-1).**

E. F. Smith, R. F. Cox, B. A. Koch, and G. L. Walker

The nutritive value of bluestem pasture usually declines rapidly after midsummer. This is the third trial in this experiment in an attempt to find a method to economically increase the rate of gain after midsummer with small quantities of concentrate feed.

**Experimental Procedure**

Twenty-seven head of good-quality yearling Hereford steers were used in this test. They had been grazed together on bluestem pasture pre-

vious to the test. The steers were divided into three lots of nine steers each in a manner to equalize any differences due to previous winter treatments. They were grazed on bluestem pasture and received the following treatment from August 7, 1956, to October 2, 1956:

Lot 1—No supplement.

Lot 2—2 pounds of soybean pellets per head daily.

Lot 3—2 pounds of ground corn per head daily.

Six of the steers in each lot were implanted with 36 mgs. stilbestrol implants the previous fall. Results of this phase of the test are reported elsewhere in this circular.

**Observations**

1. The gain was increased by feeding either soybean pellets or corn. By feeding 114 pounds of soybean pellets per steer, the gain was increased 31 pounds. At present costs, this would probably be profitable, especially if it would improve the appearance of the steers.

Only 12 pounds of gain was produced from 114 pounds of corn. This small gain increase would not pay for the corn at present prices, unless it raised the feeder grade or enabled the producer to sell the steers at a higher price. The results of this test indicate protein and not energy feeds are needed for late summer feeding on grass where only small quantities of feed are to be fed.

2. It rained 5.07 inches in July and 3.61 inches in August. September was dry with a total of only .12 inch for the month.

**Three-Year Summary, 1953-55-56**

For the three-year summary (Table 25), 141 pounds of soybean pellets produced 28 pounds of additional gain. At present prices the additional gain would more than pay for the soybean pellets. This was true for each year except 1953. Most of the increase in gain each year came during September except in 1953.

Gain increases were also made in October. However, the feeding trial was discontinued in mid-October or earlier each year.

The feeding of ground shelled corn to lot 3 also increased the gain, 141 pounds of corn for 15 pounds of gain. Under present prices this small gain would not justify feeding corn.

Apparently in some years there is a need for additional protein for yearling steers during late summer, especially September and October. It is possible that smaller quantities than 2 pounds per head daily would suffice when protein is needed.

**Table 24**

**Effect of Feeding Supplements During the Latter Part of the Grazing Season to Yearling Steers on Bluestem Pasture.**

August 7, 1956, to October 2, 1956—57 days.

Lot number	1	2	3
Number of steers per lot	9	9	9
Management	No supplement	2 lbs. soybean pellets	2 lbs. corn
Initial wt. per steer, lbs.	817	818	818
Final wt. per steer, lbs.	902	933	914
Gain per steer, lbs.	85	115	96
Daily gain per steer, lbs.	1.52	2.05	1.71
Gain in lbs. contributed to feeding soybean pellets or ground corn	0	31	12
Total soybean pellets or corn fed per steer, lbs.:			
Soybean pellets	0	114	
Ground corn	0		114
Gain per steer by periods:			
August 7 to September 1	56	54	56
September 1 to October 2	29	61	40
Total gain August 7 to October 2	85	115	96