

Table 27.—A Comparison of Roughages and Supplements for Wintering Heifer Calves.  
December 22, 1952, to April 9, 1953—108 days.

1. Lot number	1	2	3	4	5	17	18
2. Number heifers per lot	8	8	8	10	10	10	10
3. Treatment	Non-wilted alfalfa silage	Wilted alfalfa silage	Alfalfa hay	Atlas sorgo silage, 2 lbs. 1 lb. soybean pellets	Atlas sorgo silage, 3 lbs. special supplement	Prairie hay plus 4.9 lbs. corn and soybean pellets	Corn cobs plus 4.9 lbs. corn and soybean pellets
4. Initial weight per heifer	420	420	420	424	419	419	419
5. Final weight per heifer	434	433	550	610	602	592	573
6. Gain per heifer	14	13	134	186	183	173	154
7. Daily gain per heifer	.10	.12	1.24	1.72	1.69	1.60	1.43
8. Daily ration per heifer:							
Soybean oilmeal or pellets				1.00		1.25	1.90
Ground shelled corn				2.00		3.65	3.00
Special supplement					3.00		
Non-wilted alfalfa silage	35.04						
Wilted alfalfa silage		26.53					
Alfalfa hay			14.71				
Atlas sorgo silage				30.37	30.65		
Prairie hay							
Corn cobs						9.80	
Mineral (bonemeal and salt)	.11	.08	.06	.11	.10	.13	.07
Salt	.16	.11	.05	.04	.06	.02	.04
9. Feed per cwt. gain:							
Soybean oilmeal or pellets				58.06		77.51	133.12
Ground shelled corn				116.13		228.32	210.39
Special supplement					177.04		
Atlas sorgo silage				1763.44	1808.74	611.84	
Prairie hay							
Corn cobs							590.13
Mineral (bonemeal and salt)				6.08	6.17	8.09	5.19
Salt				2.37	3.77	1.33	2.80
10. Feed cost per 100 lbs. gain <sup>1</sup>				\$15.20	\$16.63	\$18.25	\$19.68
1. Feed prices may be found on the last page of this publication.							

3. The addition of 50,000 units of vitamin A per head daily apparently increased the rate of gain and feed efficiency.
4. The addition of 1 pound of dehydrated alfalfa pellets apparently greatly increased the rate of gain and feed efficiency.

Table 28.—Supplementing Wheat Straw in the Wintering Ration of Beef Calves, January 6, 1953-April 13, 1953.

Lot number	1	2	3
Number animals	4	4	4
Number days on feed	97	97	97
Daily ration—pounds:*			
Wheat straw	3.8	3.9	4.3
Ground milo grain	2	2	2
Soybean oilmeal pellets	2	2	1.5
Dehydrated alfalfa pellets			1.0
Vitamin A		50,000 units	
Average initial weight	441	447	443
Average final weight	499	514	526
Average gain	58	67	83
Average daily gain	.59	.69	.86
Feed per 100 pounds gain:			
Wheat straw	639	568	501
Ground milo grain	336	292	234
Soybean oilmeal pellets	336	292	175
Dehydrated alfalfa pellets			117
Vitamin A supplement		1.6	
Cost per 100 lbs. gain	\$29.20	\$27.34	\$22.31

\* Mineral mixture of equal parts steamed bonemeal and salt kept in a box before calves.

### Project 147: The Effect of Feeding Alfalfa Straw Sprayed with a Curing Agent to Heifer Calves,<sup>1</sup> 1952-53

E. F. Smith, D. Richardson, L. M. Roderick, and R. F. Cox

According to Circular 290<sup>2</sup> from the Kansas Agricultural Experiment Station, "chemically curing the alfalfa seed crop is a practical and economical method of harvesting. Four years of research at this station and actual farm experiences have shown that there is a heavy loss of seed from the old method of harvesting by mowing, windrowing, and combining."

The objective of this test was to determine if the straw remaining after the seed was removed is poisonous to livestock because of the presence of the curing agent (Di-Nitro-Ortho-Secondary Butyl Phenol), one of the di-nitro phenols.

1. This project is being partially supported by a grant from the Dow Chemical Company, Midland, Michigan. The material used was Dow General Weed Killer.
2. Grandfield, C. O., and W. W. Franklin, 1952. Alfalfa Seed Production in Kansas. Kansas Agr. Expt. Sta. Cir. 290.

### Experimental Procedure

Ten good quality Hereford heifer calves were divided into two lots of five calves each for use in this test. They were the lightest heifers of 80 head purchased from the Brite Ranch at Marfa, Texas. They were fed prairie hay and 1 pound of soybean pellets per head daily until started on test December 22, 1952.

The alfalfa straw used in the test was obtained in the vicinity of the College. The sprayed straw came from Dr. N. D. Harwood and was produced on a farm a few miles west of Manhattan, Kansas. It was stemmy but had a good green color. The non-sprayed straw was obtained from Mr. Floyd Cederberg's farm a few miles south of Manhattan, Kansas. It was not as stemmy or as green in color as the Harwood straw. It appeared to have more leaves. The two straws were not comparable in some respects but it was not possible to find more suitable straw, sprayed and non-sprayed. Other data, such as effect of the chemical on the alimentary tract, various organs, tissue, and the extent of its presence in the animal body, will be collected when the animals are slaughtered.

### Observations

The curing agent apparently has no detrimental effect on the gaining ability or efficiency of feed utilization. This is not conclusive and should be given further study with more animals.

Table 29.—The Effect of Feeding Alfalfa Straw Sprayed with a General Curing Chemical to Heifer Calves.  
December 22, 1952, to April 9, 1953—108 days.

1. Lot number .....	20	21
2. Number of heifers per lot .....	5	5
3. Treatment .....	Alfalfa straw	Alfalfa straw sprayed with curing agent
4. Initial weight per heifer .....	338	336
5. Final weight per heifer .....	457	472
6. Gain per heifer .....	119	136
7. Daily gain per heifer .....	1.10	1.26
8. Daily ration per heifer:		
Soybean oilmeal pellets .....	1.22	1.22
Ground shelled corn .....	2.27	2.27
Alfalfa straw .....	8.14	7.61
Mineral (bonemeal and salt) .....	.19	.19
Salt .....	.06	.08
9. Feed per cwt. gain:		
Soybean oilmeal pellets .....	111.09	97.21
Ground shelled corn .....	205.80	180.07
Alfalfa straw .....	739.13	604.70
Mineral (bonemeal and salt) .....	17.48	15.29
Salt .....	5.38	6.61

### Project 222: Fundamental Nutrition Studies of Sorghum Roughages and Grain

#### A Comparison of Rolled, Coarsely Ground and Finely Ground Milo Grain for Fattening Yearling Steers, 1952.

E. F. Smith and D. B. Parrish

Good to choice quality Hereford steers were used in this test. They were purchased in the fall of 1951 and used in winter feeding tests. For the test reported here, they were lotted as equally as possible in regard to previous treatment.

All lots were treated the same in this test except for the method of grain preparation. The grain was self-fed. The cottonseed oilmeal was fed in a separate bunk. Prairie hay was fed in quantities that would be readily cleaned up by each lot.

The rolled milo was dry rolled and appeared satisfactory upon emergence from the roller; however, after sacking and when it was finally fed to the cattle, it was broken into small particles and somewhat powdered. The coarsely ground or cracked milo was the product of a burr mill. A hammer mill was used to prepare the finely ground milo, which was ground to a coarse, mealy mixture.

### Observations

1. The steers in Lot 3 fed rolled milo grain gained an average of .20 pound less per head daily than the lots fed the cracked and finely ground milo. They also consumed slightly less grain; this has been true in two other tests.

2. Steers fed finely ground milo were slightly more efficient in feed utilization with the lowest feed cost per 100 pounds of gain of the three lots.

3. The most reasonable explanation for the increased selling price of Lot 1 over Lots 2 and 3 was the unsettled condition of the market. However, Lot 1 did dress .6 percent higher than Lots 2 and 3. The carcass grades were about the same.

Table 30.—Comparison of Rolled, Coarsely Ground, and Finely Ground Milo Grain for Fattening Steers.

July 22 to December 6, 1952—137 days.

1. Lot number .....	1	2	3
2. Management .....	Finely ground milo	Coarsely ground milo	Roll milo
3. Number steers/lot .....	10	8 <sup>1</sup>	9
4. Initial weight/steer .....	607	620	613
5. Final weight/steer .....	934	941	909
6. Gain/steer .....	327	321	296
7. Daily gain/steer .....	2.38	2.34	2.16
8. Daily ration/steer:			
Milo grain .....	16.32	16.84	15.46
Cottonseed oilmeal .....	2.00	2.00	2.00
Prairie hay .....	4.18	5.20	5.98
Ground limestone .....	.10	.11	.11
Salt .....	.02	.01	.03
9. Feed required for 100 lbs. gain:			
Milo grain .....	683.79	718.93	715.72
Cottonseed oilmeal .....	83.79	85.36	92.56
Prairie hay .....	175.50	222.05	277.13