

# FEEDING YEA

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**R**ANCHERS and farmers have been quick to enter into the business of winter feeding because it offered increased income from cattle and provided a market for surplus roughage and feed grains.

Because there is a constant demand for information on experimental feeding, we shall review some of the work of recent years in feeding yearling steers at the Dickinson experiment station.

Each winter since 1951 the station has fed from two to four lots of yearling steers for slaughter, using rations built around the feeds normally produced in this area. Changes in rations and feeding methods have been made each year as new information became available.

The first two feeding trials, begun Nov. 1, 1951 and 1952, respectively, compared a high roughage ration with a high grain ration. In both trials steers fed 47 pounds corn silage, 6 pounds crested wheatgrass hay, 5 pounds ground barley and oats and 1½ pounds soybean oilmeal gained slightly more than steers fed 12 to 15 pounds crested wheatgrass hay and 11 to 12 pounds of ground barley and oats. Some difficulty was experienced in keeping animals on feed when a high level of grain was fed. All feeding trials since have utilized a maximum of corn silage with varying supplements.

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# RLING STEERS

The third winter feeding trial began Oct. 15, 1953. An earlier start was made to take advantage of mild fall weather for good feed lot gains, whereas gains on the range usually were low in the fall. The best gaining lot in this trial was fed 53 pounds of corn silage, 5 pounds of grain after 30 days, 2.2 pounds of soybean oilmeal, and a small amount of steamed bonemeal and trace mineral salt. At first, the soybean oilmeal was fed at 3 pounds per day, but this tended to produce scouring, so the amount was reduced to 2 pounds after 30 days.

A second lot returned slightly more profit than the first on a ration of 54 pounds of corn silage, 2 pounds of soybean oilmeal, 2½ pounds of alfalfa hay, bonemeal and trace mineral salt. The third lot was fed 57 pounds of corn silage and 3.5 pounds of Purdue Supplement A. This lot made less gain and returned less profit above feed costs than either of the other lots.

On Oct. 15, 1954, the fourth winter feeding trial with yearling steers was started. The three rations of the preceding year were repeated with minor

changes, and a fourth lot of 10 steers was added. The new ration consisted of a full feed of corn silage, 2½ pounds of alfalfa hay, 2 pounds of soybean oilmeal for 60 days, then reduced to 1½ pounds, and 1 pound of ground barley and oats was added.

Although average daily gains were higher in the lot which received 4 pounds of ground grain for the final 93 days, the new lot produced the cheapest gains and second highest rate of gain. The lot fed silage, alfalfa hay, soybean meal and minerals without grain ranked third in rate and economy of gain. The Purdue A supplemented lot made the poorest showing in economy of gain and in carcass grade.

The starting date for the fifth winter feeding trial was set back to Sept. 28 to take advantage of more fall weather in the feed lot. As in 1954 there were 40 yearling steers in 4 lots for the 1955 feeding period.

The three objectives of the experiment were: (1) To learn whether alfalfa hay replaced part of the soybean oilmeal as a protein supplement. (2) To

try the new growth stimulant, diethylstilbestrol, in the feed. (3) To compare ground barley with the mixture of ground barley and oats used in earlier trials.

Lower gains than usual during the winter, coupled with lower than usual cattle prices in March, 1956, made this an experiment of no profit, financially. It was found that:

(1) Increasing the alfalfa hay

allowance from  $2\frac{1}{2}$  to 5 pounds while reducing the soybean oil-meal allowance about .7 pound did not pay. Gains were slightly lower and grade was lower for the steers receiving the greater amount of alfalfa.

(2) Ten milligrams of stilbestrol added to the ration produced about  $\frac{1}{5}$  pound more gain per day and netted about \$10.00 more per head above the control lot.

Lot 1—  
Beginning of feeding  
trial. October, 1956.



Lot 1—  
At sale time, March,  
1957.

(3) The all-barley grain ration produced steers of better finish and higher dressing percentage than a mixture of 2 parts barley and 1 part oats.

The sixth winter feeding trial was begun Sept. 28, 1956, with 30 steers. It was decided to compare all barley with the mixture of barley and oats a second year. Stilbestrol in the ration was made a permanent part.

One new practice was incor-

porated into this trial with only the records of previous years as a check. The grain allowance was increased to 8 pounds per head for three months in 1 lot and for only the last month in the other 2 lots. A higher grain allowance was fed to produce a higher degree of finish and a more trim-middled animal at market time.

Table I shows that all steers made excellent gains in this

Lot 2—  
At beginning of trial,  
October, 1956.



Lot 2—  
At sale time, March,  
1957.

# WINTER FEEDING *a roughage*

trial. The highest daily gain, 2.31 pounds, was made on a ration of 60.8 pounds corn silage, 2 pounds soybean meal for 63 days, then 1½ pounds thereafter, 2½ pounds alfalfa hay, 4 pounds of ground barley during the third and fourth months, then 8 pounds during the final month, 10 mg. of stilbestrol orally and

steamed bonemeal and trace mineral salt mixed in the ration at .2 pound and .07 pound.

The 10 steers on this ration gained faster, made cheaper gains, sold higher and dressed out higher than any other lot.

Statistical analysis of these data showed no significant difference in the performance of

TABLE I.—Steer Feeding—1956-1957 Winter.

	Lot 1	Lot 2	Lot 3
Number of steers . . . . .	10	10	10
Average initial wt. (lbs.) . . . . .	699	700	699
Average final wt. . . . .	1069	1039	1055
Gain per steer . . . . .	370	339	356
Daily gain per steer . . . . .	2.31	2.12	2.22
Days on feed . . . . .	160	160	160
DAILY FEED CONSUMPTION PER STEER			
Corn silage . . . . .	60.8	61.3	53.8
Soybean oilmeal . . . . .	1.7*	1.7*	1.7*
Alfalfa hay . . . . .	2.5	2.5	2.5
Barley and/or Oats first 63 days . . . . .	0.0	0.0	0.0
Barley and/or Oats next 69 days . . . . .	4.0	4.0**	8.0
Barley and/or Oats last 28 days . . . . .	8.0	8.0**	8.0
Steamed bonemeal . . . . .	.2	.2	.2
Trace mineral salt . . . . .	.07	.07	.07
Stilbestrol (in soymeal) . . . . .	10 mg.	10 mg.	10 mg.
FEED CONSUMED PER 100 LBS. GAIN			
Corn silage . . . . .	2635	2890	2422
Soybean oilmeal . . . . .	73.5	80.0	76.4
Alfalfa hay . . . . .	108.3	117.8	112.5
Grain . . . . .	135.3	147.3	218.3
Steamed bonemeal . . . . .	8.7	9.4	9.0
Trace mineral salt . . . . .	3.0	3.3	3.2
Feed cost per 100 lbs. gain . . . . .	\$ 16.65	\$ 18.20	\$ 18.00
Initial cost per hundredweight . . . . .	18.25	18.25	18.25
Feed cost per steer . . . . .	61.53	61.80	64.00
Total cost per steer . . . . .	\$189.10	\$189.55	\$191.57
Selling price per hundredweight . . . . .	\$ 18.75	\$ 18.45	\$ 18.70
Value per head . . . . .	\$200.44	\$191.70	\$197.28
Net return above feed per head . . . . .	\$ 11.34	\$ 2.15	\$ 5.71

\*Soybean oilmeal was fed at the rate of 2 lbs. per head per day for 63 days, and then at 1½ lbs. per day thereafter. \*\*Barley and oats mixed 2:1 by wt.

Feed Prices: Silage \$7.20 ton; alfalfa hay \$18.00 ton; barley 96¢ per bu; oats 64¢ bu; soybean oilmeal \$75.00 ton; steamed bonemeal \$100.00 ton; trace mineral salt \$54.00 ton.

# ready market for surplus and feed grains

the three lots of steers. However, the difference between lots 1 and 2 approached significance at 5 per cent; that is a difference in gain as great as that between lots 1 and 2 could have been due to chance in 5 cases per 100 trials. We have no explanation for the fact that the lot 3 steers which received the higher (8 pounds) feed of barley for three months failed to keep up with lot 1 in gains.

The slight difference in gains between lots 1 and 3 was prob-

ably due to chance. The ration just listed was again superior to the same ration in which barley and oats were mixed. This verifies the observation of the preceding year, that all-barley is a better supplement than barley and oats mixed under conditions of these experiments.

A committee of three packer buyers graded each animal in the three lots at sale time, and gave their estimate of the lot dressing percentage. Final carcass data are not available.

TABLE II.—Grades and dressing percentage at market time.

	Lot 1	Lot 2	Lot 3
Choice.....	3	0	2
Good.....	7	8	7
Standard.....	0	1	1
Commercial.....	0	1	0
Dressing %.....	57	56.5	57

