

SELF-FEEDING COMPLETE MIXED RATIONS TO CALVES FROM WEANING TO SLAUGHTER

This trial, started in 1969, studies the economic feasibility of self-feeding calves from weaning to market on rations made up of barley, crested brome hay, wheat straw and alfalfa hay. This mixed type of ration can easily be prepared on location since the development of the portable grinder-mixer feed mills. The straight sided, two ton capacity feeders used in this trial were designed for self-feeding high roughage-grain mixtures. The grain was ground through a 3/16 inch screen and the hay through a one inch screen, and mixed together before it was put into the feeder.

The following rations, by weight, were fed in 1970-71.

Ration A^{1/} - 50% barley, 46% crested wheatgrass, 4% alfalfa.

Ration B^{1/} - 50% barley, 25% oat straw, 21% crested wheatgrass, 4% alfalfa.

Ration C^{1/} - 50% barley, 46% crested wheatgrass, 4% alfalfa. (Barley increased 10% every 56 days to 70% total, crested wheatgrass hay reduced 10% for each increase in barley).

Ration D^{1/} - 50% barley, 25% wheat straw, 21% crested wheatgrass, 4% alfalfa. (Barley increased 10% every 56 days, to 70% total, crested wheatgrass hay and oat straw each reduced 5% for each increase in barley).

^{1/}Each animal received approximately 0.2 pound per day of a mineral mixture made up of 3 parts di calcium phosphate and 1 part trace mineral salt.

In 1968-69 only Rations A and B were fed, with wheat straw being used in place of oat straw in Ration B.

In 1969-70, Rations A, B, C, and D were fed, only wheat straw was fed in place of oat straw in Rations B and D. Also, barley was increased to 80% in Rations C and D.

Tables 1, 2, and 3 summarize data from these trials.

Table 1. Data from Self-Feeding Trial with Complete Mixed Rations for 1971

Data on:	Ration A	Ration C	Ration B	Ration D
Number of steers per lot	8	7	7	7
Initial weight / lot	4050	3585	3635	3495
Average / head	506.3	512.1	519.3	499.3
Final weight / lot	8300	7370	7405	7320
Average / head	1037.5	1052.9	1057.9	1045.7
Gain per lot	4250	3785	3770	3825
Average / head	531.2	540.7	538.6	546.4
Days on trial	259	259	259	259
Average daily gain / head	2.05	2.09	2.08	2.11
Pounds feed / cwt gain	88.9	87.6	93.4	87.9
Feed cost / cwt gain	\$13.38	\$14.10	\$13.10	\$13.56
Feed cost per head	\$71.07	\$76.27	\$70.54	\$74.11
Feed cost per lot	\$568.57	\$533.90	\$493.81	\$518.75
Hot carcass weight / per lot	4798	4278	4329	4318
Average / head	599.8	611.1	609.7	616.9
Dressing percent	57.81	58.05	58.46	58.99
Average grade	9.5	9.7	10.14	8.43
Average carcass value	\$287.81	\$300.37	\$304.25	\$299.04
Return per head over feed	\$216.74	\$224.10	\$233.71	\$224.93

Table 2. Two Years Data on Changing Complete Mixed Rations – C and D

Data on:	Ration C			Ration D		
	barley + tame hay barley increased			barley, tame hay + straw barley increased		
	1969-70	1970-71	2-Yr. Avg.	1969-70	1970-71	2-Yr. Avg.
No. head per lot	8	7	15	8	7	15
Avg. initial weight	433.8	512.1	477.95	444.4	499.3	471.85
Avg. final weight	1187.5	1052.9	1120.20	1111.3	1045.7	1078.50
Avg. gain / head	743.7	540.7	642.20	666.9	546.4	606.65
Avg. days fed	314	259	286	314	259	286
Avg. daily gain / head	2.37	2.09	2.23	2.12	2.11	2.12
Feed cost / cwt gain	\$12.94	\$14.10	\$13.52	\$13.33	\$13.56	\$13.44
Avg. carcass wt.	724.6	611.1	667.8	664.5	616.9	640.7
Avg. carcass value	\$323.92	\$300.37	\$312.14	\$298.38	\$299.04	\$298.71
Avg. dressing percent	61.00	58.05	59.52	59.80	58.99	59.40
Ration / head / day-						
Alfalfa (lbs.)	0.7	0.9	0.80	0.7	0.9	0.80
Crested-brome (lbs.)	4.9	6.0	5.45	2.0	2.5	2.25
Wheat straw (lbs.)	----	----	----	2.7	3.4	3.05
Barley (lbs.)	12.7	11.4	12.05	12.2	11.7	11.95
Minerals (lb.)	<u>0.2</u>	<u>0.2</u>	<u>0.20</u>	<u>0.2</u>	<u>0.2</u>	<u>0.20</u>
Total (lbs.)	18.5	18.5	18.50	17.8	18.7	18.25

Table 3. Three Year Summary of Gains and Feed Costs

	Ration A			
	barley + tame hay			
Data on:	1968-69	1969-70	1970-71	3-Yr. Avg.
Number of head per lot	8	8	8	24
Average initial weight / head	355.0	443.8	506.3	435.0
Average final weight / head	1033.8	1155.6	1037.5	1075.6
Average gain per head	678.8	711.9	531.2	640.6
Average days fed	330	314	259	301
Average daily gain / head	2.06	2.27	2.05	2.13
Feed cost per-hundredweight gain	\$13.26	\$12.93	\$13.38	\$13.19
Average carcass weight / head	1/	685.4	599.8	642.6 ^{2/}
Average carcass value		\$310.02	\$287.81	\$298.92 ^{2/}
Average dressing percent		59.3	57.8	58.6 ^{2/}
Ration / head / day				
Alfalfa (lbs.)	0.68	0.78	0.91	0.79
Crested-brome (lbs.)	8.38	9.00	8.20	8.53
Wheat straw (lbs.)	----	----	----	----
Barley (lbs.)	9.06	9.78	9.12	9.32
Minerals (lb.)	<u>0.20</u>	<u>0.20</u>	<u>0.20</u>	<u>0.20</u>
Total (lbs.)	18.32	19.76	18.43	18.84
Ration B				
barley, hay + straw				
Number of head per lot	8	8	7	23
Average initial weight / head	355.6	443.1	519.3	439.3
Average final weight / head	1038.1	1119.4	1057.9	1071.8
Average gain per head	682.5	676.3	538.6	632.5
Average days fed	358	314	259	301
Average daily gain / head	1.91	2.15	2.08	2.05
Feed cost per-hundredweight gain	\$13.68	\$12.47	\$13.10	\$13.08
Average carcass weight / head	1/	646.8	609.7	628.2 ^{2/}
Average carcass value		\$283.60	\$304.25	\$293.92 ^{2/}
Average dressing percent		57.9	58.5	58.2 ^{2/}
Ration / head / day				
Alfalfa (lbs.)	0.70	0.77	0.97	0.81
Crested-brome (lbs.)	3.96	4.03	3.88	3.96
Wheat straw (lbs.)	4.62	4.80	4.86	4.76
Barley (lbs.)	9.29	9.60	9.71	9.53
Minerals (lb.)	<u>0.20</u>	<u>0.20</u>	<u>0.20</u>	<u>0.20</u>
Total (lbs.)	18.77	19.40	19.62	19.26

1/ No data available.

2/ 2-Yr. averages.

Summary

Self-feeding complete mixed rations has been a very satisfactory method of taking calves from weaning to slaughter. Gains have averaged two pounds per head per day or better in all lots. This gain has been achieved for less than \$14 per hundred pounds gain. Average carcass value has approached \$300 per head, with a slight advantage in favor of the mixed barley-hay Ration A.

Increasing the amount of barley in the ration has increased carcass weights and carcass value, however this has also increased the cost of gain.

Depending on feeds available, any of the rations mentioned are capable of producing efficient and economical gains. However, grinding high roughage mixed rations requires a good well-built machine to stand the strains of hay grinding.

Wet weather makes the hay damp and tough and more difficult to grind. This can create a problem when using rations containing a high percentage of hay.