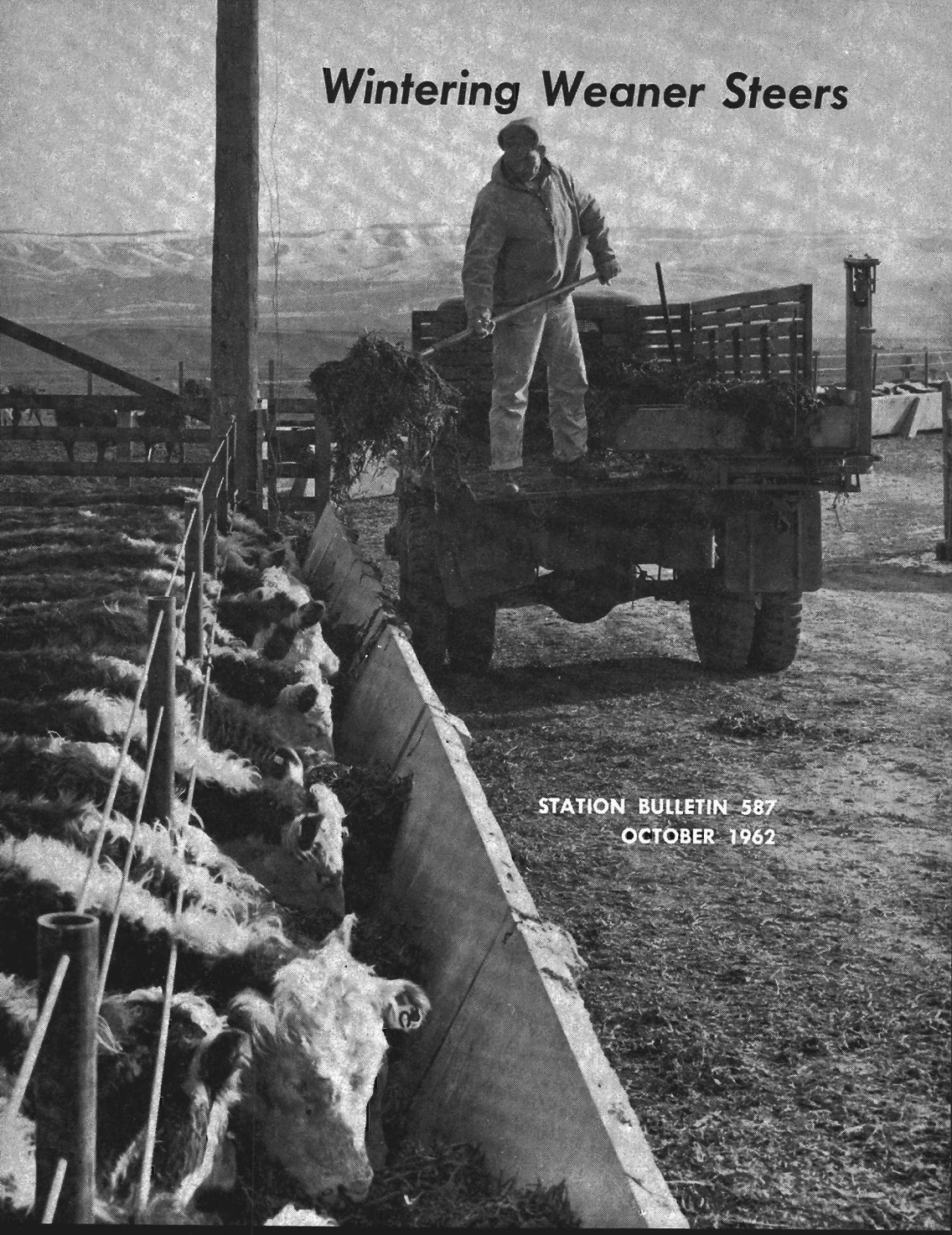
Wintering Weaner Steers



STATION BULLETIN 587
OCTOBER 1962

Agricultural Experiment Station
Oregon State University, Corvallis

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Wintering Weaner Steers

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Summary

Peavine silage is an economical and adequate roughage for wintering weaner calves that are fed barley at the level of approximately ½% of their body weight daily. Higher levels of grain feeding increase average daily gains.

Wheat straw can be effectively used in wintering rations in combinations with grain and/or legume roughages. Daily consumption of wheat straw is relatively low.

Wheat chaff is superior to wheat straw.

Alfalfa hay is a desirable wintering roughage. Average daily gains approached 1.75 pounds when alfalfa hay was full-fed with grain mix at ½% of body weight daily.

Raising protein level of the grain mix from 11% to 14% did not affect average daily gains when the grain mix was fed at ½% of body weight daily, but it did increase gains when the grain mix was fed at 1½% of body weight daily. Cull peas and soybean oil meal were equally effective when fed at the same protein level.

Implantation with either stilbestrol or synovex was generally effective in improving wintering gains on low, medium, and high energy wintering rations.

Feed additives consisting of a broad spectrum antibiotic, a tranquilizer, a chemobiotic, or a combination of these additives failed to improve early feedlot gains.

An injected tranquilizer failed to consistently reduce in-transit shrink from ranch to feedlot and did not improve early feedlot gains.

Free access to pelleted alfalfa produced higher average daily gains than free access to baled alfalfa hay. Calves consumed more pellets than hay.

Rolled and pelleted grain produced equal average daily wintering gains when fed in equal amounts.

Rations composed primarily of barley produced similar wintering gains to rations containing either 400 pounds or 800 pounds of wheat per ton in replacement for barley.

When calves of different initial weights were fed together on rations capable of producing at least a pound per day average gain,

larger calves usually gained more than small ones during wintering.

Low cost but nutritionally useful byproduct roughages, such as peavine silage and wheat chaff, with proper grain supplementation produced more economical wintering gains than higher cost roughages and grain.

Levels of daily gains desired during wintering depend in part on the program after wintering. Neither cost per pound of gain nor cost per head per day are adequate to evaluate economy of wintering rations without knowing the effect of wintering gains on performance under the subsequent program of management.

Introduction

Wintering experiments with weaner steers were conducted at Milton-Freewater each year from 1955 to 1959. These experiments were conducted to determine programs that would profitably use locally produced feedstuffs and byproducts in beef feeding operations. Cooperating producers and organizations provided cattle, feedyards, feed, numerous pieces of equipment, veterinary costs, and a per head feedlot fee in lieu of yardage. Fees were used as financial assistance for conducting the experiments. Objectives were mutually agreed upon by the cooperators and Oregon State University. OSU personnel designed and conducted the experiments.

These experiments have been cooperative between the Oregon Agricultural Experiment Station, the Oregon Extension Service, and beef cattle producers. Only during the first year were experiments designed solely as wintering studies; in all subsequent years, wintering experiments have been one phase of a fattening period of approximately 270 days.

In comparing the various rations, average daily gains, cost per pound of gain, and cost per head per day are reported. None of these alone adequately establish relative values of the different rations. High average daily gains usually result in decreased costs per pound of gain and increased total daily cost. In addition, high wintering gains above 1.5 pounds daily frequently lead to decreased summer gains on pasture. Thus, the desired wintering ration for weaner calves that return to range is one that maintains them in a healthy, vigorous, growing condition at a low daily cost. Cost per pound of gain during wintering is not important under these conditions. It may be more important, however, for calves that remain in the feedlot for finishing than is cost per head per day. For these reasons, all three criteria are reported for these experiments.

Experiments Conducted

Levels of grain mix feeding

The effect on average daily gains and costs per head per day of feeding different amounts of grain mix with full-fed peavine silage was investigated during three winters. Results are shown in Table 1.

Table 1. Effect of different daily intake of grain mix on wintering performance of weaner calves receiving a full feed of peavine silage

Year	No. animals	Grain mix/ day	Gain/ day[1]	No. days	Silage per day	Feed cost per lb. gain	Cost/head/ day[1]
		lbs.	*lbs.*		*lbs.*		
	18	2.6 (½%)[2]	.89	180	26	$0.183	$0.233
1956-57	18	5.3 (1%)	1.29	180	23	0.157	0.273
	18	7.3 (1½%)	1.63	180	22	0.159	0.329
	18	2.4 (½%)	1.05	92	27	0.123	0.199
1957-58	18	4.5 (1%)	1.37	92	26	0.127	0.244
	18	6.1 (1½%)	1.78	92	22	0.115	0.274
	54	2.5 (½%)	1.15	64	30	0.125	0.214
1958-59	18	5.0 (1%)	1.47	64	26	0.135	0.269
	36	7.0 (1½%)	1.77	64	25	0.141	0.319

[1] Cost per head per day includes feed and 7¢ head/day yardage. To obtain feed cost only, subtract 7¢ from each cost.

[2] Figures in brackets give percent of body weight fed.

Conclusions:

- An 11% crude protein content grain mix fed at the rate of approximately 2.5 pounds per head daily (½% of body weight) with full-fed peavine silage produced average daily wintering gains of approximately 1 pound per head under Milton-Freewater wintering conditions. Cost per head per day was favorable in comparison with higher grain content rations.
- Doubling the grain mix level to 1% of body weight increased gains to approximately 1⅓ pounds to 1¼ pounds daily and tripling the amount of grain mix to 1½% increased wintering gains to about 1⅔ pounds daily. Cost per head per day increased as amount of grain fed daily increased.
- Calves receiving higher grain mix levels gained at more uniform rates throughout the winter and appeared fatter at the end of the wintering period than calves fed lower amounts of grain mix.
- Cost per pound of gain showed no precise relationship to amount of grain mix fed. A different level of grain mix produced most economical and most expensive gains in each experiment.

Kinds of roughages

Alfalfa hay, wheat straw and chaff, peavine hay, and peavine silage are abundant roughages in the Milton-Freewater area. These have been evaluated as roughages for wintering weaner calves. Results are shown in Table 2.

Table 2. Effect of different roughages on average daily gains and costs of gains of weaner calves during wintering in each of three years

Year	No. animals	No. days	Grain mix/ day[1]	Gain/day	Feed cost/lb. gain	Cost/ head/ day[2]	Daily roughage intake
			lbs.	*lbs.*			
	10	112	0.5	–0.19	.....	$0.163	10 lbs. peavine silage + 5 lbs. wheat straw
	10	112	0.5	–0.01	.....	0.194	4 lbs. alfalfa hay + 6 lbs. wheat straw
1955-56	10	112	2.5	0.48	$0.304	0.216	6 lbs. peavine silage + 7 lbs. wheat straw
	10	112	2.5	0.53	0.304	0.231	2 lbs. alfalfa hay + 7 lbs. wheat straw
	10	112	2.5	0.15	0.927	0.209	8 lbs. wheat straw
	10	112	2.5	0.74	0.226	0.237	12 lbs. wheat chaff
	18	92	2.4	1.05	0.123	0.199	27 lbs. peavine silage
	18	92	2.5	1.47	0.114	0.237	17 lbs. peavine silage + 5.4 lbs. alfalfa hay
1957-58	18	92	2.5	1.66	0.106	0.246	11 lbs. alfalfa hay
	18	92	2.4	1.41	0.099	0.210	24 lbs. peavine silage + 2.0 lbs. alfalfa pellets
	54	73	2.5	1.15	0.125	0.214	30 lbs. peavine silage
1958-59	36	73	2.5	1.63	0.101	0.235	11 lbs. peavine hay
	72	73	2.6	1.87	0.109	0.273	12 lbs. alfalfa hay

[1] Grain mix contained 18% crude protein in 1955-56 and included 0.5 pounds of 30% protein-equivalent molasses-urea per animal per day. Crude protein content in 1957-58 and 1958-59 was 11%.

[2] Includes 7¢ per head per day yardage.

Conclusions:

- Five pounds of wheat straw, 0.5 pounds molasses-urea, and 10 pounds of peavine silage resulted in an average loss of 21 pounds per calf during the 112-day period. The calves remained strong.
- Six pounds of wheat straw, 0.5 pounds of molasses-urea, and 4 pounds of alfalfa hay daily maintained starting weights.
- Grain mix fed at ½% of body weight with full-fed alfalfa hay produced about 1.75 pounds of gain daily—approximately the same as three times that much grain mix fed with full-fed peavine silage (see Table 1). The low level of grain mix feeding with peavine silage gave wintering gains of about 1.1 pounds daily.

- Wheat straw can be used in combination with legume roughages and/or grain mix in wintering rations for weaner steers. Average daily gains are low but satisfactory. Strength and development appear to exist.
- Wheat chaff full-fed with 2.5 pounds per day of an 18% crude protein content grain mix produced about .75 pounds average daily gain. Chaff contained about 5 pounds of wheat per 100 pounds of chaff.
- Addition of alfalfa to peavine silage rations increased average daily wintering gains.
- Calves fed 2.5 pounds of grain mix daily with peavine silage free choice remained strong and vigorous and gained about 1 pound daily.
- Lowest cost per head per day resulted from feeding peavine silage as the major or total roughage.
- Cost per pound of gain was affected by both amount of grain mix and price of feedstuffs but in general tended to become more favorable with increased gain without increased grain mix levels.

GRAIN MIX in these experiments was hand fed to animals twice daily. The grain was pelleted except in experiments which tested effects of form in which grain was fed.

Levels of protein

Effect of crude protein content of the grain mix when fed with an 11% crude protein roughage (peavine silage) was investigated in a single year. One pen of animals was allotted to each protein concentrate source at each of two levels of grain mix feeding. Results are shown in Table 3.

Table 3. Influence of protein in grain mix on wintering performance of weaner steers receiving full feeding of peavine silage

No. animals	Protein	Protein source	Grain mix/ day	Gain/ day	Feed cost per lb. gain	Cost/ head/ day[1]	Roughage	
	%		*lbs.*	*lbs.*			*lbs.*	
18	11	None added	2.4	1.05	$0.123	$0.199	27	peavine silage
18	14	Soybean oil meal	2.4	1.10	0.127	0.210	27	peavine silage
18	14	Cull peas	2.4	1.10	0.121	0.203	28	peavine silage
17	11	None added	6.1	1.78	0.115	0.274	22	peavine silage
18	14	Soybean oil meal	6.3	1.95	0.118	0.300	23	peavine silage
18	14	Cull peas	6.3	1.96	0.109	0.284	22	peavine silage

[1] Cost per head per day includes feed and 7¢/head/day yardage. To obtain daily feed cost only, subtract 7¢ from cost/head/day.

As can be seen in Table 3, increased protein level of the grain mix resulted in no appreciable increased rate of gain at low levels of grain mix feeding, whereas at higher levels of grain mix feeding gains were increased by .17 pounds per day. Costs of gains were similar with soybean oil meal and cull peas as sources of added protein but were slightly favorable for use of cull peas at prices prevalent during the experiment. At equal protein levels, cull peas were as effective as soybean oil meal in improving gains. Difference in response to added protein at low and higher levels of grain mix feeding may be due to insufficient added protein intake to affect results at the low grain mix level or to inadequate energy intake at the low grain mix level to support increased growth. It appears that an 11% crude protein grain mix is adequate for wintering calves to gain at 1.0 to 1.25 pounds daily if the roughage also contains at least 11% crude protein. If higher levels of gain are desired, increased energy feeds rather than increased protein levels are usually more economical.

Hormone implants

During each of four years, hormone implant programs were superimposed upon ration treatments in such a manner that each ration treatment included an equal number of calves on each of the hormone implant treatments. Origin and weight of calves were equalized for

the lots as a whole and as nearly as possible within each hormone treatment group. This design made possible an evaluation of the effect of hormone implantation when calves were fed to gain at various rates. Results are shown in Table 4.

Table 4. Growth response to hormone implants by weaner steers fed to gain at different rates during wintering

Year	No. animals	Gain/day	No. days	Treatment
		lbs.		
		Low Gain		
1956-57	21	1.02	108	None
	27	1.22	108	30 mg. stilbestrol
1957-58	27	1.06	92	None
	27	1.10	92	30 mg. stilbestrol
	18	1.22	84	None
	18	1.44	84	15 mg. stilbestrol
	18	1.37	84	18 mg. stilbestrol
	18	1.35	84	18 mg. stilbestrol
	18	1.18	84	18 mg. stilbestrol
	18	1.39	84	18 mg. stilbestrol
		Medium Gain		
1956-57	18	1.37	108	None
	27	1.55	108	30 mg. stilbestrol
1957-58	35	1.43	92	None
	37	1.45	92	30 mg. stilbestrol
1958-59	72	1.42	64	None
	72	1.77	64	Synovex
	36	1.67	64	18 mg. stilbestrol
	36	1.57	64	15 mg. stilbestrol
1959-60	18	1.50	84	None
	18	1.64	84	15 mg. stilbestrol
	18	1.88	84	18 mg. stilbestrol
	18	1.80	84	18 mg. stilbestrol
	18	1.57	84	18 mg. stilbestrol
	18	1.83	84	18 mg. stilbestrol
		High Gain		
1957-58	35	1.80	92	None
	36	2.00	92	30 mg. stilbestrol

Conclusions:

- On the whole, implanted stilbestrol increased average daily wintering gains at low, medium, and high levels of feeding. The most pronounced exceptions were in 1957-58 at the low and medium gain levels. The 1959-60 data show one treatment at the low gain level and one at the medium gain level that were similar to nonimplanted animals, but at each of these gain levels four additional treatment groups exhibited a pronounced response to stilbestrol implantation.

- Synovex produced wintering gain stimulus at least equal to the best stilbestrol implantation level. Synovex costs more per animal than stilbestrol.
- For weaner steers, either 15 mg. or 18 mg. stilbestrol implantation appears to be satisfactory during wintering. Experiments at another location have indicated 18 mg. to be superior to 30 mg. during wintering.
- Although not shown in these data, continuation of these experiments indicated that implantation during wintering did not interfere with response to stilbestrol implantation during fattening.

Feed additives

Weaning, transporting, and mixing with animals from other herds place stresses on calves that can reasonably be expected to decrease early feedlot performance. Experiments have been conducted to determine the ability of various feed additives to offset such stresses and thereby increase early feedlot gains. In the 1958-59 experiments, all additives were included in the ration. In 1959-60, the antibiotic was added either to the ration or in the water as soluble Terramycin (TAFSP). Results of inclusion of these additives are shown in Table 5.

Table 5. Average daily gains of weaner steers receiving various feed additives during wintering

Year	No. animals	Additive	No. days	Average daily intake per head	Av. daily gain per head
					lbs.
	36	None	35		.69
	36	Dynafac	35	1.5 gm.	.52
1958-59	36	Tranquilizer (hydroxyzine)	35	2.5 mg.	.48
	36	Terramycin	35	50.0 mg.	.51
	36	Tranquilizer + Terramycin	35	2.5 mg., 50 mg.	.50
	36	Tranquilizer + Dynafac	35	2.5 mg., 1.5 gm.	.53
	36	None	50		1.56
1959-60	36	Terramycin in ration	50	200 mg. for 10 days	1.43
	36	Terramycin in H_2O	50	and then 40 mg. per day for all groups	1.51
	18	None	102	receiving antibiotic	1.72
	18	Terramycin in ration	102		1.83
1959-60	18	None	102		1.38
	18	Terramycin in ration	102		1.27
	18	None	102		1.21
	18	Terramycin in ration	102		1.20

Conclusions:

- Neither the chemobiotic (Dynafac), the tranquilizer (hydroxyzine), nor the broad spectrum antibiotic (Terramycin) as used in these experiments increased average daily gains of weaner steers during the early feedlot period.
- Most of the calves in these experiments came directly to the feedlot from the ranch. They may, therefore, have been subjected to less stress than is normal for calves that arrive at the feedlot less directly. It is especially characteristic of broad spectrum antibiotics that they have more favorable effects when animals are subjected to unfavorable management conditions.

Injected tranquilizer

In other experiments designed to combat stress arising from weaning, transporting, and mixing of calves, a tranquilizer (PVD-1 Pfizer) was injected at the ranch as calves were assembled for transporting to the feedlot. The tranquilizer was administered as the calves were separated from their dams, weighed, and ear-tagged. One group in each experiment was re-injected at the feedlot. Table 6 shows the design and results of these experiments.

Table 6. Effect of an injected tranquilizer (PVD-1) on in-transit shrink and early feedlot gains of weaner steers moved directly from ranch to feedlot

Experiment	No. animals	Mg./lb. body weight[1]	Distance hauled	Time between weighings	Av. weight loss	Average daily gain in feedlot[2]
			miles	*hours*	*lbs.*	*lbs.*
1	12	None	150	40	9	1.45
	12	0.015	150	40	2	1.49
	12	.03	150	40	11	1.48
	12	.015 (repeated)	150	40	1.5	1.51
2	12	None	75	60	9	1.00
	12	.015	75	60	22	1.06
	12	.03	75	60	18	1.10
	12	.015 (repeated)	75	60	8	.91

[1] The repeated injection was given at reweigh after arrival at the feedlot.
[2] Ranch weight used as initial weight. Feeding period was 100 days for Experiment 1 and 51 days for Experiment 2.

Conclusions:

- Injection of the tranquilizer before hauling did not consistently reduce in-transit shrink.
- There were no statistically significant differences in early feedlot gains as a result of injection of tranquilizer at the ranch or of a repeated injection at the feedlot for calves moved directly from ranch to feedlot.

Pelleted alfalfa

The physical form in which feeds are fed may affect rate and cost of gains. Pelleted alfalfa as roughage was compared to baled alfalfa hay in 1959-60 experiments. These roughages were full fed after animals had consumed allotted amounts of grain mix and peavine silage. Results are shown in Table 7.

Table 7. Wintering performance of weaner steers as influenced by full feeding of either pelleted or baled alfalfa

Average initial weight	No. animals	No. days	Grain mix per day	Gain per day	Feed cost per lb. gain	Cost/ head per day[1]	Roughage consumed daily
lbs.			*lbs.*	*lbs.*			
532	36	56	2.8	1.43	$0.156	$0.293	8.8 lbs. baled alfalfa hay + 10 lbs. peavine silage
532	36	56	2.8	2.04	0.187	0.452	12.3 3 lbs. pelleted alfalfa + 10 lbs. peavine silage
303	36	102	1.7	1.21	0.152	0.254	7.5 lbs. baled alfalfa hay + 4.3 lbs. peavine silage
304	36	102	1.9	1.78	0.206	0.436	10.7 lbs. pelleted alfalfa + 4.4 lbs. peavine silage

[1] Includes 7¢ head/day/yardage charge.

Conclusions:

- Average daily gains and average daily forage consumption were higher with free access to alfalfa pellets than with free access to baled alfalfa hay with both large and small weaner calves. These results suggest that only very low amounts of grain mix or no grain mix at all may be necessary with pelleted alfalfa to obtain desired wintering gains.
- Average daily cost per head was higher for pellet-fed than for baled hay-fed calves. The increased cost was due to greater consumption of pellets and the higher cost per ton for pellets.
- With grain fed at ½% of body weight daily, baled alfalfa hay produced wintering gains as high as are generally considered desirable if calves are to go back to pasture in the spring.
- Pelleting alfalfa increased cost per pound of gain even with more rapid gains. Pelleting cost for alfalfa was $12 per ton.

Rolled and pelleted barley

The standard grain mix with the barley portion rolled instead of ground has been compared with the same mix ground and pelleted. These results are shown in Table 8.

Table 8. Comparative performance of weaner steers during wintering on pelleted grain mix vs. grain mix containing rolled barley

No. animals	No. days	Grain mix per day	Gain per day	Feed cost per lb. gain	Cost/ head per day[1]	Roughage
		lbs.	*lbs.*			
36	56	2.8 Pelleted	2.04	$0.187	$0.452	12.3 lbs. pelleted alfalfa + 10 lbs. peavine silage
36	56	2.7 Rolled	2.06	0.185	0.452	12.4 lbs. pelleted alfalfa + 10 lbs. peavine silage

[1] Includes 7¢ head/day yardage charge.

Conclusion:

- When fed at approximately ½% of body weight daily, rolled and pelleted rations produced equal average daily gains and resulted in equal roughage intakes.

Wheat versus barley for wintering

Wheat replaced either 20% or 40% of barley in the grain mix in 1959-60 experiments. Effects on wintering gains and costs are shown in Table 9.

Table 9. Wintering performance of weaner steers fed pelleted grain mix containing wheat or barley

Grain source in grain mix	No. animals	No. days	Grain mix per day	Gain per day	Feed cost per lb. gain	Cost/ head per day[1]	Roughage
			lbs.	*lbs.*			
Barley	36	56	2.4	1.22	$0.198	$0.311	11.7 lbs. alfalfa hay
20% wheat	36	56	2.3	1.24	0.198	0.316	11.8 lbs. alfalfa hay
40% wheat	36	56	2.3	1.19	0.218	0.329	11.9 lbs. alfalfa hay

[1] Includes 7¢ head/day yardage charge.

Conclusions:

- Average daily gains were not affected by replacement of either 400 lbs. or 800 lbs. of barley per ton of mix with wheat.
- The slight increase in costs on the wheat rations reflect the comparative costs of wheat and barley.

Initial size

Weaning weights of calves in a herd usually vary from less than 400 pounds to around 600 pounds. Calves of this entire weight range were represented in most pens in these experiments. No studies were made, except as noted in Table 7, of the performance of groups of

small or large calves. It is possible, however, to compare growth rate of calves of different sizes when in the same group. Table 10 shows such comparison.

Table 10. Relation of size to wintering gains of weaner steers of different sizes fed in the same groups

No. animals[1]	Av. initial weight	Av. daily gain	Ration[2]
	lbs.	*lbs.*	
11	351-400	.82	½% of body weight daily as grain ration (2.5 lbs.) plus peavine silage full-fed (28 lbs.)
30	401-450	1.05	
40	451-500	1.10	
28	501-550	1.14	
14	551-600	1.30	
10	351-400	1.15	1% of body weight daily as grain ration (5.0 lbs.) plus peavine silage full-fed (24 lbs.)
7	401-450	1.58	
17	451-500	1.30	
12	501-550	1.48	
7	551-600	1.73	
13	351-400	1.67	1½% of body weight daily as grain ration (7.0 lbs.) plus peavine silage full-fed (23 lbs.)
25	401-450	1.75	
34	451-500	1.76	
21	501-550	1.87	
9	551-600	1.91	
6	351-400	1.62	½% of body weight daily as grain ration (2.6 lbs.) plus alfalfa hay full-fed (11.4 lbs.)
22	401-450	1.59	
32	451-500	1.95	
19	501-550	1.94	
11	551-600	1.91	

[1] Animals from each of the years 1955 through 1959 are represented in each weight group for each ration.

[2] Feed intake figures are averages for the entire group.

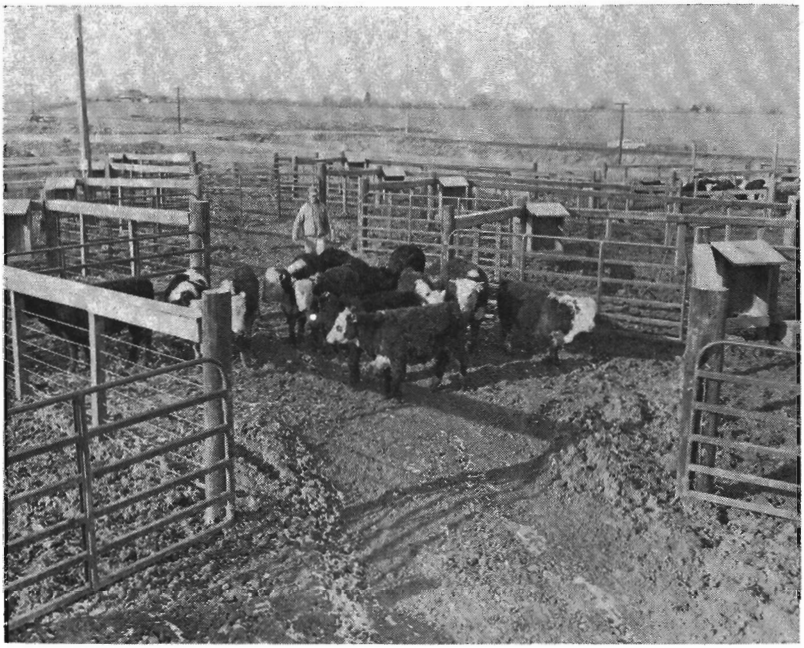
Conclusions:

- In general, average daily gains were progressively greater as initial weight increased.
- Differences in average daily gains may reflect effects of competition among calves of different sizes as well as differences in growth capacity.
- Feed intake was not measured by size groups. It is generally accepted that larger animals consume more total roughage. In roughage experiments conducted during 1955-56 (Table 2) in which some rations contained insufficient energy for desirable levels of winter gain, smaller calves lost less weight or gained more than larger ones.

Experimental Conditions

Animals and facilities

All calves were weaner steers owned by cooperating producers. Average initial weights were about 470 pounds except in one experiment in which animals of low weight were purposely used. Most calves were of good to choice feeder grade and were predominantly of Hereford breeding. Most of the experiments started in late November or early December.



EXPERIMENTAL lots were open pens. Experiments did not include studies of effects of type of shelter, type of pen surface, or effects of different temperatures of water.

All lots were open pens with no shelter, no hard surfaced footing, and with water warmed sufficiently to prevent freezing. Calves were allotted to pens in groups of 18 per lot in such manner as to equalize size, breed, and ownership. Calves were individually numbered and were individually weighed initially and at approximately 28-day intervals.

Ration compositions and analyses

Roughages were full fed. The grain mix was hand fed in specified amounts twice daily; it was pelleted unless stated otherwise. During the first three years the grain mix consisted of approximately 1,400 pounds of barley, 300 pounds of beet pulp, 200 pounds of wheat millfeed, and 100 pounds of molasses. Crude protein content was appproximately 11%. In the later years of the experiments, 100 pounds of salt was included per ton of ration for the first 35 days and 50 pounds per ton was included thereafter. Also, barley replaced wheat millfeed. Salt, bonemeal, and water were available separately at all times. Daily allotment of grain mix was a specified percentage of average weight. Levels of ½%, 1%, and 1½% were fed. Amount of daily grain mix per animal was increased gradually after each weighing period until the appropriate percentage for each lot was reached.

Peavine silage averaged about 11% crude protein content (dry matter basis) and about 30% dry matter. Peavine hay had a similar crude protein content and about 85% dry matter. Alfalfa hay averaged about 14% crude protein and about 88% dry matter. In figuring costs, peavine silage was charged at $5 per ton each year. Other feedstuffs were charged at going prices that varied from year to year.