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Efficient utilization of barley alone or barley and oats combined has been the object of a number of feeding trials with swine at the North Central Substation, Eureka. An unreplicated trial during the growing-finishing period for 1968 spring pigs indicated essentially no difference among rations using properly supplemented barley alone or in three different combinations with oats as the grain. Because of those unexpected results a replicated trial using the same treatments for 1969 spring pigs was conducted.

Experimental Procedure

Sixty-four crossbred SPF gilts (which were the heaviest 70% at weaning based on adjusted 35-day weaning weights) were used. All gilts were by the same sire and were allotted to two replicates of 4 treatments according to weight and litter. One replicate included the older and heavier half of the gilts, while the other replicate included the younger and lighter gilts. This made the two replicates differ in initial weights but reduced the within lot variability in weight at the start. Starting date was the same for all gilts. Each group was grown out in a grass-alfalfa pasture lot approximately one-half acre in size. Each lot had a shade-shelter, self-feeder and watering fountain. Both grower and finisher rations were self-fed, the change to finisher rations being made when the lot average weight was approximately 130 lb. Gilts were removed from treatment lots and live backfat probes were made when weights of at least 190 lb. were attained at any regular weigh period.

The composition of the rations is shown in table 1. Ration treatments using adequately supplemented barley or barley and oats rations are shown below.

Treatment	Grain Composition
1	All barley - control
2	Barley 2 parts - oats 1 part
3	Equal parts barley and oats
4	Barley 1 part - oats 2 parts

Table 1. Composition of Rations

Treatments	1		2		3		4	
Lot Numbers	1 and 5		2 and 6		3 and 7		4 and 8	
	Grow	Finish	Grow	Finish	Grow	Finish	Grow	Finish
	Ration Ingredients							
Barley	823	908	548	606	412	454	275	302
Oats	--	--	275	302	411	454	548	606

	Supplement for All Rations	
	Grower	Finisher
Soybean oil meal (44%)	150	70
Dicalcium phosphate	15	11
Ground limestone	5	4
Trace mineralized salt (high zinc)	5	5
Vitamin-antibiotic premix	2.5	2.5

	Analysis of Rations									
	Barley Samples									
	Grower	Finisher								
Protein	10.95	12.21	16.17	13.94	16.78	14.87	15.92	15.28	16.20	14.53
Calcium	0.04	0.21	0.66	0.37	0.63	0.48	0.73	0.53	0.68	0.52
Phosphorus	0.37	0.35	0.61	0.46	0.61	0.48	0.70	0.52	0.63	0.53

Results and Discussion

Differences in performance (see table 2) either among treatments or between lots on the same treatment were small. Gilts in lots 1 through 4 (heavier starting weights) gained somewhat more rapidly and efficiently than gilts in lots 5 through 8 (lighter starting weights). Response to the treatments, however, was not the same within the two groupings of lots according to starting weight.

The data suggest that the all-barley ration and the ration of one-third barley and two-thirds oats tended to produce greater gains and feed efficiency. The ration containing equal parts of barley and oats tended to be least desirable. When data for the two lots on the same treatment are combined, the ration of one-third barley and two-thirds oats appears most desirable. Comparing this with the results for the ration of equal parts barley and oats seems contradictory. The data do not suggest a reason for this contradiction.

In a previous trial using the same ration combinations, gilts fed two parts barley and one part oats gained most rapidly while gilts fed equal parts barley and oats gained least rapidly but were most efficient in feed use.

Because of the small differences produced by these treatments, and also because of the variable results when comparing these data with data from a previous trial, it is concluded that any of the rations used will support rapid and efficient gains for growing-finishing gilts.

Table 2. Performance Summary for Gilts Fed Barley or Combinations of Oats and Barley Growing Rations

Treatment	1		2		3		4	
	Control All Barley		2 Barley 1 Oats		1 Barley 1 Oats		1 Barley 2 Oats	
	Lot 1	Lot 5	Lot 2	Lot 6	Lot 3	Lot 7	Lot 4	Lot 8
Number of gilts	8	8	8	8	7[a]	8	8	8
Av. init. wt., lb.	59	46	62	48	58	47	60	46
Av. final wt., lb.	204	204	205	202	203	197	210	202
Av. final age, days	144	145	143	144	144	146	142	147
Av. daily gain, lb.	1.80	1.72	1.84	1.71	1.78	1.65	1.88	1.72
Feed per lb. of gain, lb.	3.00	3.21	3.16	3.21	3.13	3.29	2.92	3.24
Feed cost per lb. of gain, cents	7.24	7.81	7.64	7.70	7.54	8.06	7.03	7.90
			Data Summarized by Treatments					
Av. daily gain, lb.	1.76		1.77		1.70		1.79	
Feed per lb. of gain, lb.	3.11		3.19		3.22		3.08	
Feed cost per lb. of gain, cents[b]	7.53		7.67		7.82		7.47	
Av. backfat probe[c]	0.76	0.84	0.75	0.80	0.83	0.80	0.83	0.87

[a] One gilt died after 68 days on trial. Gain and feed usage removed.

[b] Costs were calculated using the following values per hundred weight of ingredients: Barley and oats, $2.00; dicalcium phosphate, $7.10; ground limestone, $1.30; trace mineralized high-zinc salt, $2.65; vitamin-antibiotic premix, $18.00.

[c] Average of three live probes measured: above the elbow, over the last rib, halfway between last rib and base of the tail.