

WATER...

Can it Affect Swine Performance?

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During the past four years a number of pig feeding trials have been conducted at the Edgeley Branch Experiment Station in cooperation with the Animal Science Department.

There has been a noticeable difference in the performance of the pigs at the Edgeley Experiment Station as compared to the pigs at the Main Station at Fargo, the difference being in lower weight gain and more feed needed per pound of gain.

In 1965, six Hampshire sows and gilts were purchased with the idea that a herd of 10 Hampshire sows would be maintained at the Edgeley Station. During the two years, their performance has not been up to expectations. Rate of gain and feed efficiency has been unsatisfactory, litter size has been low, and breeding problems have been encountered.

Table 1. Average daily gain and feed efficiency.

	Edgeley		Fargo	
	Hampshire	Duroc	Hampshire	Duroc
No. of animals/lot	12	12	11	12
Av. initial weight	40.75	29.91	34.36	28.42
Av. final weight	175.0	157.7	203.2	206.8
Av. daily gain	1.15	.99	1.54	1.48
Av. lbs. feed/cwt.	416.9	403.9	285.2	316.7
Av. feed/day	4.81	4.02	4.38	4.69
Av. number days on feed	116.1	126.5	120.4	125.1

Table 2. Range in weight of hogs at each station.

	Edgeley		Fargo	
	Hampshire	Duroc	Hampshire	Duroc
No. of pigs left on trial	6	6	1	3
Range in weight (lbs.)	94-162	43-158	144	162-181

Table 3. Average combined data for hogs at each station.

	Edgeley	Fargo
Av. initial wt.	35.33	31.39
Av. final wt.	166.33	205.00
Av. daily gain	1.07	1.51
Av. feed/cwt.	410.4	300.9
Av. feed/day	4.41	4.53
Av. No. days on feed	121.3	122.7

Table 4. Water sample analysis data.

	Edgeley	Fargo
Calcium (ppm)	14.3	13.8
Magnesium (ppm)	55.5	84.0
Potassium (ppm)	155.0	59.0
Sodium (ppm)	8800.0	159.0

Johnson and Haugse are assistant professors, Jensen is instructor, and Dr. Dinusson is professor, Department of Animal Science. White is superintendent of the Edgeley Branch Station.

Feeding Trials

In an attempt to more accurately identify some of these problems, an experiment was undertaken to study location effects. Two lots of pigs were put on feed at each of the two stations. Hampshire pigs were taken from the Edgeley Station to Fargo and Duroc pigs were taken from the Fargo Station to Edgeley. Each lot contained as equal a number of pigs by sex as was possible. All pigs at both stations were fed a commercially pelleted barley finishing ration, purchased from one feed company.

The two lots of hogs at Fargo performed considerably better in regard to average daily gain and feed efficiency (Tables 1, 2).

Eat More, Gain Less

The Hampshires at Edgeley consumed 10 per cent more feed per day than the Hampshires at Fargo, but had a significantly lower average daily gain. The Durocs at Fargo consumed 16 per cent more feed than the Durocs at Edgeley and had a significantly higher daily rate of gain. The comparison of feed consumption at the two stations may be misleading as the calculations are not based on the same final weights, and are based on feed offered rather than consumed.

The average final weight for the Hampshires at Fargo was 203.2 pounds with the average number of days on feed being 120.4. The final weight of the Hampshires at Edgeley was 175.0 pounds with average days on feed being 116.1. One reason for the fewer days on feed and lighter weight of the Edgeley Hampshires could be that there was a greater variation in initial weight due to the limited number of pigs involved.

Table 3 shows the average combined data for the two lots at each station.

Water Analyzed

In an attempt to account for the extreme difference in the performance of the pigs at the two stations, a water sample from Edgeley was analyzed for calcium, magnesium, potassium, and sodium and compared with the water analysis at the Fargo station. Table 4 shows the analysis for the samples.

Previous studies at the Fargo station have indicated that high sodium chloride levels will affect the growth rate of pigs. It is possible that omitting the 0.5% level of salt from the ration would be beneficial.

Assuming that the water of the Edgeley Station and possibly the surrounding area is not ideally suited for maximum efficiency in swine production, the next step is to determine whether or not the water is the primary cause of the poor performance and if so, what can be done about it.