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YEAST IN GROWING-FINISHING SWINE RATIONS^{1,2}

R. W. Seerley

The culture used in the following experiment was stated by the company to be live cell yeast grown on cereals and dormantized at low temperatures so as not to kill or injure the live cells or destroy any of their natural values. The finished yeast culture was a dry stabilized meal that readily blended with other feed ingredients in a complete mixed ration. The yeast culture was added for possible digestive enzyme action and additional source of B vitamins. Enzymes may be helpful in the breakdown and utilization of complex carbohydrates, fat and protein. The purpose of this experiment was to evaluate the yeast as an additive to swine rations.

Experimental Procedure

Sixty purebred and crossbred pigs averaging 58 pounds were divided into 4 lots of 15 pigs each on the basis of litter, weight, sex and general appearance. Each lot had access to 2 acres of alfalfa pasture.

Pigs were fed the grower ration to an average of 110 pounds body weight and the finisher ration was fed from 110 pounds to an average weight of 205 pounds.

Experimental treatments were:

- Lot 1 - Basal ration
- Lot 2 - Basal ration / 1.5% yeast
- Lot 3 - Basal ration / 2.0% yeast
- Lot 4 - Basal ration / 2.0% yeast / 4% fat

The yeast and fat replaced corn in this ration on a pound for pound basis. The experimental rations are listed in table 1.

Results and Discussion

Table 2 summarizes the experiment. Average daily gains were similar for all treatments.

Average daily feed consumed was less in lots 3 and 4 (2.0% yeast and 2.0% yeast / 4% fat). The trend was that yeast and fat decreased daily feed intake.

Feed efficiency was improved with 2.0% yeast and 4% fat in the ration. The pigs fed the control ration required 6.1% and 10.4% more feed per pound of gain than pigs in lots 3 and 4, respectively. Since pigs fed 2.0% yeast culture gained as fast as pigs given the basal ration and required less feed per pound of gain, the nutrient utilization may have been improved by the yeast. Fat also improved the feed efficiency. Results with fat in the ration agreed with results in Mimeo No. 6.

¹ Yeast culture was supplied by Diamond V Mills, Inc., Cedar Rapids, Iowa.

² Certain ration ingredients were supplied by Merck and Co., Rahway, New Jersey, American Cyanamid Co., Princeton, New Jersey, Eli Lilly and Co., Greenfield, Indiana and Nopco Chemical Co., Newark, New Jersey.

TABLE 1. COMPOSITION OF GROWER RATIONS¹

Ingredient	Lot 1	Lot 2	Lot 3	Lot 4
	lbs.	lbs.	lbs.	lbs.
Yellow corn, gr.	803	788	783	743
Soybean meal (44%)	130	130	130	130
Tankage (60%)	50	50	50	50
Dicalcium phosphate	4	4	4	4
Limestone	5	5	5	5
Yeast culture	--	15	20	20
Yellow grease	--	--	--	40
Premix ²	f	f	f	f

¹ Crude protein content of the grower rations was approximately 16%. Finisher rations were approximately 13% crude protein.

² Premix included 5.0 lbs. T.M. salt, 0.5 lb. B vitamin mix (Merck 92), 0.25 lb. vitamin B₁₂ (Merck 20), 0.2 lb. vitamin A and D mix (Quadrex 10), 1.0 lb. Aurofac 10 and 0.75 lb. Hygromix 8.

Feed cost per 100 pounds gain was nearly the same for the control pigs and pigs fed 2.0% yeast. While feed efficiency was improved by yeast and fat in lot 4, the cost of yeast and fat increased the feed cost per unit of gain.

TABLE 2. SUMMARY, YEAST CULTURE EXPERIMENT, PASTURE, 1961

Lot No.	1	2	3	4
Treatment				
Yeast, %	0	1.5	2.0	2.0
Fat, %	0	0	0	4.0
No. pigs	15	15	15	15
Av. initial wt., lb.	57.3	58.4	57.8	57.8
Av. final wt., lb.	205.5	205.2	203.8	205.4
Days on experiment	84	84	84	84
Av. daily gain, lb.				
To 100 lb.	1.59	1.42	1.58	1.53
Entire experiment	1.76	1.75	1.74	1.76
Av. daily feed, lb.	6.13	6.04	5.68	5.50
Feed per lb. gain, lb.	3.47	3.45	3.27	3.13
Feed cost/cwt. gain, ¹ \$	8.85	9.21	8.86	9.23

¹ Ten cents per pound was charged for the yeast and 8 cents per pound for the yellow grease.