

Dehydrated Potatoes for Fattening Pigs

By
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The disposal of low grade potatoes is a problem of considerable importance to the potato industry. These potatoes are not suitable for market and any attempt to sell them as table stock is inadvisable. If they are discarded and allowed to accumulate outside warehouses or on fields they may be a hazard to potato growing because disease may spread from them to growing potatoes. Yet low grade potatoes represent an appreciable portion of the food value of the crop, and they cost the producer as much as first grade potatoes.

Possible Use as Livestock Feed

One possible method of disposal is to use them for livestock feed. They may be fed raw to cattle or sheep, but raw potatoes are not suitable for hogs. Cooked potatoes have been found satisfactory for hogs, when fed with grain. Potato silage from either raw or cooked potatoes, has given good results as cattle feed.

During the war, British investigators have found dried potatoes quite useful for hog feed. The potato dehydrating plants in North Dakota do not process potatoes for human use during the entire year; during slack seasons they might dehydrate low grade potatoes for livestock feed, if such practice proves to be feasible.

Comparison of Potatoes With Corn

Potatoes contain approximately 21 percent dry matter. Each bushel (56 pounds) of raw potatoes would yield slightly less than 12 pounds of dry matter. Number 2 corn contains approximately 85 percent dry matter, which is equivalent to 47.7 pounds of dry matter per bushel. Assuming that the dry matter from potatoes has the same feed value as that from corn, four bushels of potatoes would equal one bushel of corn for livestock feed. With corn at \$1.25 a bushel, potatoes would be worth thirty one cents a bushel

for feed. This value for potatoes would include all the costs of dehydration.

Experimental Work

In order to obtain information on the value of dehydrated potatoes for fattening pigs, feeding trials were conducted at this experiment station. The potatoes were from the 1943 crop and were dehydrated without removal of the skins.

Preliminary work indicated that dehydrated potatoes could not replace more than one half of the grain in the feed. Rations containing more than fifty percent dehydrated potatoes were not eaten in satisfactory amounts and caused excessive scouring. Therefore, the potato ration in the first trial contained equal parts by weight of corn and dehydrated potatoes. In the second trial, rations containing equal amounts of corn and potatoes and two parts of corn to one part dehydrated potatoes were compared to a straight corn ration. All rations used contained adequate amounts of protein supplement.

Only purebred pigs from the college herd were used. In the first trial pigs weighing approximately 132 pounds at the start were used, while the pigs in the second trial weighed approximately 94 pounds. The final weights were 230 and 172 pounds for the first and second trials respectively.

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The pigs in the first trial were hand fed twice daily by lots and the same amount of feed was given each lot. The pigs in the second trial were fed individually twice daily. Comparable pigs in each lot were offered the same amounts. Differences in total feed consumed were due to individual pigs' refusal of part of a day's ration occasionally. Each of the feed mixtures were eaten with the same apparent relish. All pigs were fed in the barn and confined on concrete floors.

The performance of the pigs on the two trials is given in Table I. Analysis of the data indicates no significant differences in the rate of gain or the pounds of feed required for 100 pounds of gain between lots in either of the two trials. The pigs on corn and supplement out-gained the pigs on the corn-potato and supplement ration in the first trial. On the second trial both lots receiving dehydrated potatoes out-gained the lot receiving only corn and supplement and made better use of their feed. However, these differences were not significant.

Since the performance of the pigs in the different lots of each trial was comparable, Table II is presented to show the comparative value of dehydrated potatoes when used to replace up to one half the corn in a ration for fattening pigs. This table presents the percentage composition of each ration used,

the amount of each feed ingredient consumed to produce one hundred pounds of gain and the cost of each 100 pounds gain based on actual feed costs at the time of each trial. The value of dehydrated potatoes is calculated by difference. In the first trial when dehydrated potatoes replaced one half the corn, they were worth \$0.02 per pound or 91.3 percent the value of corn. In the second trial they were worth \$0.019 and \$0.02 per pound when used to replace one half and one third of the corn respectively. This is a comparative value of 102 and 105 percent the value of corn.

Conclusions

The results of these feeding trials indicate that dehydrated potatoes may be used to replace up to one half the corn in a ration for fattening pigs if the rations are properly balanced as regards to protein. It should be remembered that dehydrated potatoes contain only two thirds the amount of protein in yellow corn.

When fed in balanced rations dehydrated potatoes have a value quite comparable to the common grains used for fattening pigs.

To be marketed in competition with cereal grains, the price of dehydrated potatoes must be no more than the price of grains. At present price levels, cull potatoes would be worth approximately 30 cents a bushel including costs of dehydration.

Table 1. DEHYDRATED POTATOES FOR FATTENING PIGS
SUMMARY OF RESULTS

Ration Used	FIRST TRIAL			SECOND TRIAL		
	Lot I Yellow Corn Plus Supplement	Lot II Yellow Corn ½ Potatoes Plus Supplement	Lot I Yellow Corn Plus Supplement	Lot II ½ Yellow Corn ½ Potatoes Plus Supplement	Lot III 2/3 Yellow Corn 1/3 Potatoes Plus Supplement	
Number of Pigs	10	10	10	10	10	
Initial Weight	Pounds 1331	Pounds 1323	Pounds 969.3	Pounds 916.4	Pounds 931.1	
Final Weight	2326	2281	1736.8	1717.1	1718.6	
Gain	995	958	767.5	800.7	787.5	
Consumed Pounds of Food	3488	3488.0	2774.6	2824.1	2752.8	
Average Daily Gain	1.79	1.73	.948	.989	.972	
Pounds feed for 100 pounds gain	350.6	364.1	361.5	352.7	349.6	

Table 2. COMPOSITION OF RATIONS, POUNDS OF INGREDIENTS CONSUMED PER 100 LBS. OF GAIN, COST OF GAINS, AND CALCULATED VALUE OF DRIED POTATOES IN THE RATION

	FIRST TRIAL						SECOND TRIAL								
	Lot 1 Yellow Corn Plus Supplement			Lot 2 ½ Yellow Corn ½ Potatoes Plus Supplement			Lot 1 Yellow Corn Plus Supplement			Lot 2 ½ Yellow Corn ½ Potatoes Plus Supplement			LOT 3 2/3 Yellow Corn 1/3 Potatoes Plus Supplement		
	Percent Compo- sition	Per 100 lbs. Gain		Percent Compo- sition	Per 100 lbs. Gain		Percent Compo- sition	Per 100 lbs. Gain		Percent Compo- sition	Per 100 lbs. Gain		Percent Compo- sition	Per 100 lbs. Gain	
Pounds Consumed		Cost	Pounds Consumed		Cost	Pounds Consumed		Cost	Pounds Consumed		Cost	Pounds Consumed		Cost	
Yellow Corn	87.5	306.6	\$6.75	43.75	159.25	\$3.50	85.00	307.3	\$5.82	40.00	141.0	\$2.87	53.3	186.3	\$3.53
Dehydrated Potatoes				43.75	159.25					40.00	141.0		26.6	93.1	
Meat and Bone meal	3.13	11.0	.41	3.13	21.40	.43	3.75	13.6	.43	5.00	17.6	.55	5.0	17.5	.55
Soybean oil meal.....	6.26	22.0	.66	6.26	22.80	.68									
Soybean							7.50	27.1	.84	10.00	35.3	1.09	10.0	35.0	1.09
Alfalfa Meal	3.13	11.0	.22	3.13	11.40	.23	3.75	13.6	.12	5.00	17.6	.16	5.0	17.5	.16
Total Cost other than potatoes			8.04			4.84			7.21			4.47			5.33
Total Value of Potatoes						3.20						2.74			1.88
Value of Potatoes per pound020						.019			.020
Percent Value of Corn for Potatoes in Ration						91.3						102			105.6

ACTUAL FEED COSTS

Yellow corn—\$1.25 bushel
Soybean oil meal—\$60.00 Ton
Meat and bone meal—\$75.00 Ton
Alfalfa meal—\$40.00 Ton

ACTUAL FEED COSTS

Yellow corn—\$1.06 bushel
Soybeans—\$62.00 Ton
Meat and bone meal—\$72.50 Ton
Alfalfa—\$18.00 Ton