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Michael R. Langemeier

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THE COSTS AND RETURNS ASSOCIATED WITH CORN-, MILO-, AND WHEAT-BASED SWINE DIETS

Michael R. Langemeier¹

Summary

Feed costs per hundred weight for farrow-to-finish operations in Kansas were generally lower for a milo-based diet than for corn-based or wheat-based diets. Use of corn and wheat in the diet was economical for short periods of time only. Feed costs were found to be consistently higher and returns per head consistently lower when corn and wheat were fed over the entire farrowing to market period.

(Key Words: Grain, Economics, Marketing.)

Introduction

Feed costs represent a major portion of the total costs required to produce hogs. One of the largest components of feed costs is the cost of grain. Kansas is somewhat unique in that three different types of grain (milo, corn, and wheat) are commonly utilized in swine diets. For most of the state, milo-based diets predominate. The objective of this study was to determine the costs and returns in Kansas from 1981 to 1990 associated with corn, milo, and wheat-based swine diets for farrow-to-finish operations.

Procedures

Cash prices for market hogs, cull sows, corn, milo, soybean meal, vitamins, and minerals were obtained from various publications of the Kansas Agricultural Statistical Service for the period starting with the first quarter of 1981 and ending with the second quarter of 1990. Input costs for feed processing, labor, veterinarian costs, supplies, utilities, repairs, and interest on operating expenses were obtained from budgets developed by Extension Agricultural Economists at Kansas State University.

Whole farm feed conversion was assumed to be about 3.75 for the corn-based diet. This level of feed conversion was representative of current information obtained from record keeping systems in Nebraska and Iowa. Whole-farm feed conversion for milo- and wheat-based diets was assumed to be 5% higher than that of the corn-based diet. Wheat is usually considered to be a more valuable feed grain than corn because it contains a higher percent of protein and lysine. The savings or increased value associated with feeding wheat are derived from the reduced amount of soybean meal that is required in wheat diets and not from any increase in rate or efficiency of gain.

¹Assistant Professor, Department of Agricultural Economics, Kansas State University.

Returns per head were calculated by subtracting total costs (which included annual charges for investment in buildings, equipment, and breeding stock) from the gross returns obtained through market hog and cull sow sales. A charge for management and the risk associated with producing hogs were not included in cost calculations. Thus, the returns per head represent the returns to management and risk.

Results and Discussion

Table 1 presents the average, variation, and range of feed costs per hundred weight for milo-, corn-, and wheat-based swine diets for the 38 quarters from January 1981 to June 1990. Each diet was utilized over the entire feeding period (farrowing to market). The feed costs per hundred weight for the milo-based diet were about \$1 lower than feed costs for the corn-based diet and about \$3 lower than feed costs for the wheat-based diet. Feed costs for the milo based diet ranged from about 96 to 99% of the feed costs for the corn-based diet and about 89 to 99% of the feed costs for the wheat-based diet.

Information on returns per head for the three alternative diets are presented in Table 2. Returns per head for the milo-based diet are about \$2.25 higher than the returns per head for the corn-based diet and about \$7.00 higher than the returns per head for the wheat-based diet. Downside risk, measured as the percentage of quarters that returns per head was below the break-even value, was lower for the milo-based diet than the corn- and wheat-based diets.

These results show that generally feed costs are lower and returns per head are higher for a milo-based diet. This does not mean that corn or wheat cannot be economically used in swine diets. Feeding corn or wheat is economical for short periods of time. However, the results do imply that feeding corn or wheat over the entire farrowing to market period is seldom economical in Kansas. If the feed costs associated with feeding corn or wheat are lower than the feed costs associated with feeding milo at a particular time, this situation could be expected to change rapidly.

Table 1. Feed Costs per Hundred Weight for Alternative Farrow-to-Finish Diets for 1981-1990 Period

Variable	Feed costs for milo- based diet	Feed costs for corn- based diet	Feed costs for wheat- based diet
Mean	24.59	25.63	27.62
Standard deviation	3.70	3.88	2.93
Coefficient of variation	15.03	15.15	14.25
Minimum	17.63	18.28	20.67
Maximum	30.51	31.53	33.13
Percent of quarters below feed costs for milo	---	0.00	0.00
Percent of quarters below feed costs for corn	100.00	---	15.79

Table 2. Returns Per Head for Alternative Farrow-to-Finish Diets for the 1981-1990 Period

Variable	Returns per head for milo- based diet	Returns per head for corn- based diet	Returns per head for wheat- based diet
Mean	17.78	15.40	10.84
Standard deviation	18.15	18.40	18.44
Coefficient of variation	102.12	119.54	170.06
Minimum	-11.53	-12.78	-18.66
Maximum	54.56	53.37	51.26
Percentage of quarters below break-even value	15.79	18.42	23.68