

THE RELATIONSHIP BETWEEN PERFORMANCE AND SELLING PRICE FOR BOARS TESTED AT THE OKLAHOMA SWINE EVALUATION STATION

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Story in Brief

Sale prices and performance records from 1090 boars tested at the Oklahoma Swine Evaluation Station from 1971 through 1983 were used to evaluate the degree to which various measures of performance contributed to the selling price of the tested boars. Performance traits evaluated were average daily gain, age at 230 lb, pen feed efficiency, backfat thickness and loin eye area. On an individual basis the traits all had fairly low correlations with selling price. All measures of performance together accounted for more than half the variation in selling price only in Chester White boars. Average daily gain generally had the largest influence on selling price.

Introduction

Central test stations such as the Oklahoma Swine Evaluation Station have been in use for several years to promote the use of performance records, to evaluate potential herd boars from a variety of herds and to provide a source of boars with performance information for the commercial boar market. The Oklahoma Swine Evaluation Station has been testing boars since 1971. Most of the tested boars, if they met the performance requirements, were sold in an auction held following the end of the test. This information was used to evaluate the contribution of each of the measures of performance to the selling price to see if the buyers were willing to pay a premium for the boars with superior performance.

Materials and Methods

There have been 2263 boars from the Chester White, Duroc, Hampshire, Spot and Yorkshire breeds tested at the Oklahoma Swine Evaluation Station since 1971. Nearly all boars that met minimum performance standards (generally upper 80 percent of the boars in a test) have been offered for sale at an auction after the end of the test period. From the boars offered for sale 1090 have actually sold. Failure to sell may have been the result of poor performance, unsoundness, lack of demand or a decision on the part of the owner not to offer the boar for sale. Berkshire, Poland China and Landrace boars were also tested but were not included in these analyses due to insufficient numbers.

Prospective buyers have access to a sale catalog that provides information on ownership, breeding of the boar and performance information on average daily gain, age at 230 lb, pen feed efficiency, backfat thickness and loin eye area. In all cases a pen includes boars with the same sire. An index value which combined information on

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average daily gain, backfat thickness and pen feed efficiency was also included. The formula for this index has changed several times during the life of the station but the relative importance of the three traits in the index has not undergone large changes.

The relationship between selling price and each measure of performance was estimated by obtaining the correlation between the price and each trait after accounting for variation due to year, season, test group and breed. The contribution of each trait to the selling price was obtained by simultaneously calculating partial regressions of price on all measures of performance. These regression coefficients were obtained for each breed separately. Traits that did not contribute significantly to selling price were eliminated from the equation one at a time until only those traits with a significant contribution remained.

Results and Discussion

Correlations between selling price and each performance trait are shown in Table 1. All are relatively small with the measures of growth rate having the largest tendency to be associated with a high selling price. Despite their small values they are all significantly different than 0.

Table 1. Correlations between selling price and performance traits of boars at the Oklahoma Swine Evaluation Station.

	Performance traits				
	Average daily gain	Age at 230 lb	Pen feed efficiency	Backfat thickness	Loin eye area
Price	.265	-.221	-.191	-.136	.097

Table 2. Partial regressions of price on measures of performance of boars tested at the Oklahoma Swine Evaluation Station.

Breed	Average daily gain (\$/.1 lb per day)	Age at 230 lb (\$/day)	Pen feed efficiency (\$/.1 lb feed /lb gain)	Backfat thickness (\$/.1 in)	Loin eye area (\$/.1 sq in)
Chester					
White	176.05			-158.70	
Duroc	21.53	-3.27	-10.34	-62.11	
Hampshire	169.41	-8.67		-50.38	14.01
Spot	56.62				
Yorkshire	41.01	-3.22	-34.49		-8.60

The partial regressions of selling price on each trait are shown in Table 2. These values tell the average change in selling price per unit change in the performance trait while holding all other variables constant. They show that in all breeds average daily gain contributed

to selling price with a range of \$21.53 to \$176.05 paid for each .1 lb per day increase in gain. Despite the large correlation between average daily gain and age at 230 lb there was an additional significant partial regression of selling price on age at 230 lb in the Duroc, Hampshire and Yorkshire boars. Pen feed efficiency contributed significantly to selling price in Duroc and Yorkshire boars. Backfat thickness contributed significantly to selling price in Chester White, Duroc and Hampshire boars with a range of \$50.38 to \$158.70 more paid for each .1 in decrease in backfat thickness. Loin eye area had a significant contribution to selling price only in the Hampshire and Yorkshire boars. These values were the most unusual in that buyers paid \$14.01 more for each .1 sq in increase in loin eye area of Hampshire boars while they paid \$8.60 more for each .1 sq in decrease in loin eye area of Yorkshire boars.

The percentage contribution of all measures of performance together on selling price is shown in Table 3. The first value for each breed represents the percentage contribution of just the performance traits to selling price. The second value represents the percentage contribution of the performance traits plus the effect of the owner of the boar. The difference between the two values should indicate the relative importance of the name of the owner in determining the selling price of the boar. The performance traits alone accounted for 27 percent of the variation in selling price of Spot boars, 66 percent of the variation in selling price of Chester White boars and about 40 percent of the variation in selling price of the boars of the other three breeds. In all breeds other than the Chester White including the effect of the owner greatly increased the values shown. The remaining variation would be due to several factors. In some cases a premium is paid on certain boars which rank high in the test group because of a desire on the part of buyers to own the winners. The general appearance of the boar also plays a large role in how much buyers are willing to pay. This appearance may have little to do with performance so would not contribute to variation due to the performance traits.

Table 3. Percentage contribution on performance traits on the selling price of boars tested at the Oklahoma Swine Evaluation Station.

Breed	Performance alone	Performance plus owner name
Chester White	.66	.72
Duroc	.40	.72
Hampshire	.41	.69
Spot	.27	.61
Yorkshire	.40	.73

Performance does appear to have had an effect on the selling price of tested boars although not a large effect in most breeds. The owner of the boar had a large effect on the selling price. Test stations were established, in part, to educate swine producers on the use of performance records. Buyers are apparently paying at least some attention to the importance of good performance records and are also concerned with the reputation and the breeding program of the owners of the boars. These are both desirable results of the educational process involved in having test stations.