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Eleven-year Summary of KSU On-Farm Swine Testing Program

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Summary

Records of approximately 11,000 boars and 6,000 gilts enrolled in the KSU on-farm swine test program were summarized. Both boars and gilts reached 220 lbs 5 days sooner in 1980 than 1970. Of the traits evaluated, the largest improvement was a reduction in backfat thickness of 25% from 1970 to 1980. Loin-eye area increased from 1970 to 1975 but declined from 1975 to 1980.

Introduction

KSU Swine On-Farm Testing Program started in 1970 using a scanogram instrument which measures the amount of backfat and loin-eye area. The scanogram has a polaroid camera attached that is used to take pictures at two locations on the backs of the pigs. As an indication of growth, pigs are weighed to determine the number of days to 220 pounds. The program was initially established to be a self-sustaining program that would be financially independent.

Experimental Procedure

In the period from 1970 to 1980 approximately 35,000 pigs were tested, of which 90% were boars. To determine the effect of the on-farm testing program or genetic progress of boars and gilts, it was decided to summarize the data over the 11 year period to estimate the expected genetic progress. The results of the summary represent about 11,000 boars and 1,600 gilts. Therefore, the data represent about 35% of the total number of pigs that have been scanogrammed since 1970.

Results and Discussion

The results of the on-farm testing program on number of days to 220 lbs, the loin-eye area, and the backfat of boars (Table 1) and gilts (Table 2) are shown. In 1970 the 436 boars averaged 178 days to 220 pounds. From 1970 through 1974 a reduction in the number of days to 220 pounds was observed. In 1975 a slight increase in the number of days was observed which may be an artifact, since days to 220 can be the result of environmental factors as well as genetics. From 1976 to 1977 a reduction in the number of days to 220 lbs was observed. From 1977 to 1980 there was little change in the number of days to 220 pounds. Both boars and gilts reached 220 lbs approximately 5 days sooner in 1980 than in 1970. Seasonal variation can affect performance, such as the summer of 1980 when temperatures reached record highs, resulting in a reduction in performance.

An increase in the size of the loin-eye was observed from 1970 through 1976 for the boars. From 1977 to 1980 the loin-eye area of the boars tested remained about 5 inches. The loin-eye of the gilts had similar trend increasing from 1970 up to 1976 and from 1976 a decrease was observed in the loin-eye area. Perhaps the most significant improvement over the 11-year period was the reduction in the amount of backfat. From 1970 through 1978 backfat was reduced by .2 inch with the on-farm tested boars. With a renewed interest in lean value pricing a reduction of about 20% in backfat is of definite economic significance.

Regression analysis of the yearly averages for boars indicates a reduction to 220 pounds, by .68 days ($r^2 = .74$) per year. Also, a reduction of .02 inches per year backfat ($r^2 = .94$) was observed. For the 11-year summary, loin-eye area was decreased approximately .04 square inches per year ($r^2 = .56$).

According to the 1981 Kansas Crop and Livestock Reporting Service, the pig crop in Kansas was 1,770,000, which would include about 126,000 sows. A commonly quoted sow to boar ratio is 20 sows to each boar. Therefore, approximately 6,500 boars are needed in the state of Kansas. There have been as many as 3,200 boars scanned in one year. Approximately 25 to 30% of the boars needed in the state of Kansas have been in the On-Farm Testing Program. It is felt that this represents a significant amount of the boar market.

The importance of making genetic progress is of economic significance to both the state of Kansas and its swine producers. By reducing the number of days to 220 pounds by 5 days for both boars and gilts, considerable savings to swine producers will be evident. Assuming it costs 30¢ per day to maintain a pig, multiplying the daily cost by the number of days saved due to testing, a potential savings of \$1.50 per pig is possible. Using the previously quoted 1981 pig crop number of 1,770,000, the economic contribution to the state is a potential savings of more than 2.5 million dollars per year.

Performance testing can be a valuable tool for both the purebred and commercial swine producer. Selection and use of genetically superior individuals should begin with performance testing.

Performance testing, although not without its faults, is still perhaps the best tool for genetic improvement. Identifying genetically superior seedstock can improve performance and efficiency of production.

Table 1. Results of "On-Farm" Testing of Boars

Year	No.	Days to 220 lbs ^a	Loin-eye area, in.	Backfat inches
1970	436	178	5.09	.92
1971	389	178	5.28	.89
1972	471	174	5.39	.88
1973	827	173	5.40	.84
1974	789	171	5.47	.83
1975	871	174	5.40	.87
1976	1115	170	5.44	.84
1977	1112	169	5.15	.76
1978	1758	171	4.98	.70
1979	1683	170	4.92	.74
1980	<u>1386</u>	173	4.93	.73
Total	11107			

^aAdjusted to 220 lbs.

Table 2. Results of "On-Farm" Testing of Gilts

Year	No.	Days to 220 lbs ^a	Loin-eye area, in.	Backfat inches
1970	72	185	5.15	.99
1971	40	197	5.46	1.11
1972	46	177	5.39	1.12
1973	108	176	5.59	1.06
1974	138	176	5.54	.93
1975	142	178	5.51	.96
1976	164	172	5.52	.92
1977	214	175	5.22	.84
1978	290	183	5.11	.84
1979	215	181	5.05	.86
1980	<u>238</u>	179	4.86	.80
Total	1668			

^aAdjusted to 220 lbs.