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Swine: Guidelines for Commercial Producers

Allan Schnickel

with complete herd testing through the accumulation of additional information on relatives and larger contemporary groups.

SWINE-EBV is the only genetic evaluation program which calculates EBVs for crossbred animals and utilizes their performance data to evaluate their purebred parents. Because SWINE-EBV utilizes both purebred and crossbred performance data, it is the optimal program for seedstock firms producing crossbred boars or gilts.

Once the actual performance information is submitted, the SWINE-EBV computer programs adjust the data for known nongenetic effects (e.g., sex, age, parity, weight), calculates contemporary-group averages and identifies data from relatives. Then, each individual's performance data is combined with data from relatives to calculate the EBVs and indexes. The resulting reports give a complete summary of the performance of each animal, its EBVs, and index values.

Importance of Commercial Producer Support

The Swine Estimated Breeding Value Program gives a more thorough and accurate evaluation of seedstock swine herds. Selection of superior individuals based on SWINE-EBV analyses can accelerate the genetic improvement so important to efficient pork production. SWINE-EBV allows seedstock producers to provide you with superior, predictable seedstock.

Commercial producer interest and support will ultimately determine the success of SWINE-EBV. It is important for you to demonstrate support. Before purchasing boars or gilts, identify seedstock producers who are using SWINE-EBV. Then ask these producers to provide the SWINE-EBV reports for their available seedstock. When you have obtained the reports, select individuals based on the SWINE-EBV analyses to improve your herd.

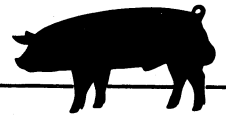
Commercial producers who produce their own replacement gilts, either F_1 gilts in specific crossbreeding systems or rotational-cross females in rotaterminal crossbreeding systems, should consider using SWINE-EBV to identify their top females. Mating the highest-indexing sows to superior maternal sires will further improve litter size and weaning weight.

Related Publications

For more information on swine selection programs and EBV's, contact your Purdue Cooperative Extension office or write the Publications Mailing Room, 301 South Second Street, Lafayette, IN 47905-1092 for the following publications:

AS-435 The Purdue Swine Improvement Program

AS-439 Economics of Swine Selection Programs that Improve Efficiency of Commercial Swine Production



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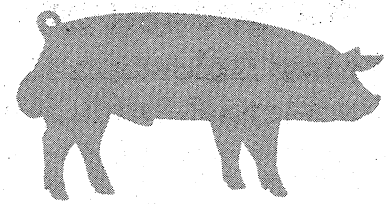
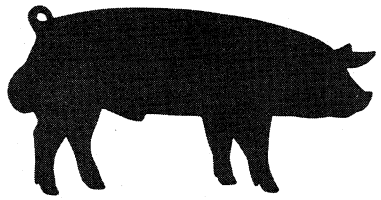
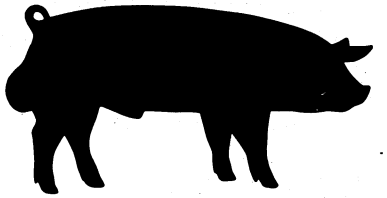


—SWINE-EBV—

An Evaluation System for Seedstock

Swine: Guidelines for Commercial Producers





Purdue University
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in cooperation with the

Agricultural Research Service
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U.S. Department of Agriculture

SWINE-EBV
An Evaluation System for Seedstock

Swine: Guidelines for Commercial Producers

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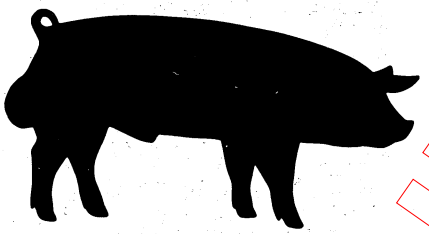
The pork industry continues to undergo dramatic changes. Profit margins are so small that only the most *efficient* commercial producers are likely to survive.

For you, efficiency means being able to produce quality pork at the lowest possible cost. In the past, such efficiency could be gained through improvements in housing, health, and nutrition. Most pork producers already have made cost-effective changes in these areas. So, from here on, your "efficiency edge" is tied primarily to your animals' genetic potential for improved feed conversion, increased sow productivity, more rapid growth rate, and greater market value based on new carcass-value pricing programs. This is why commercial producers, like yourself, are making greater efforts to identify consistently superior seedstock to result in improved production efficiency by lowering their break-even cost of production.

To meet this growing demand for superior seedstock, many swine breeders are participating in an evaluation program that leads to more rapid genetic improvement. SWINE-EBV (Swine Estimated Breeding Value Program), is a comprehensive genetic evaluation program which allows cooperators to develop consistently superior seedstock, thereby giving you, their customer, a distinct advantage over other pork producers.



What SWINE-EBV Is and Does

SWINE-EBV is a series of computer programs that analyzes performance data collected from participating seedstock herds. Comprised of computer-efficient calculations developed at Purdue University, SWINE-EBV is the first genetic evaluation program to analyze both reproduction and postweaning traits. The SWINE-EBV program outline has been made available to interested computer program development firms. These microcomputer specialists have developed SWINE-EBV microcomputer programs for data input, management, analysis, and output of results.

Utilization of on-farm microcomputers allows rapid data verification and analysis. In most cases, performance data from one herd can be analyzed in less than twenty minutes. SWINE-EBV analyzes both reproduction and postweaning traits, then it combines the genetic evaluations for these traits into three alternative indexes: maternal, general, and terminal sire. SWINE-EBV also identifies the top sires within each breed through comprehensive sire evaluation procedures.

What SWINE-EBV Provides the Seedstock Producer and You

SWINE-EBV provides the most precise estimate of the genetic merit of an animal. Called estimated breeding values (EBVs), these genetic estimates for litter size, 21-day litter weight, growth rate and backfat thickness, are based upon available individual, sibling, ancestral, and progeny information.

SWINE-EBV provides more accurate genetic evaluations than past performance testing programs. Selection of the highest-ranking individuals based on SWINE-EBV analyses allows for a more rapid, consistent genetic progress for economically important traits than previous testing programs.

This genetic progress greatly improves commercial pork production efficiency. If only one-half the potential genetic progress is realized, seedstock selection based on SWINE-EBV will improve the profit-potential of a medium-sized (1,000 hogs per year) farrow-to-finish production unit by $37,500 after 10 years and $92,500 after 15 years.

SWINE-EBV provides the criteria for selecting seedstock animals that will best improve the efficiency of commercial swine herds. SWINE-EBV generates indexes which correctly rank animals relative to their intended use in commercial crossbreeding systems. The indexes weigh the traits relative to their economic importance and take into consideration genetic relationships among the traits. Feed efficiency is included in the economic objective and affects the indexes because of its genetic relationships with growth rate and backfat thickness.

SWINE-EBV provides valuable information by documenting genetic value. Because the indexes are stated in economic terms (dollar value per index point), they can be used to identify the most valuable animals in terms of their influence on pork production efficiency.

Performance Data Collection, Analysis, and Output

To participate in SWINE-EBV, a seedstock producer collects basic performance information and inputs it to his on-farm microcomputer for analysis. Only four measurements are required: (1) days to 230 pounds; (2) backfat thickness obtained on boars, gilts, or barrows; (3) litter size; and (4) 21-day litter weight for all purebred or crossbred sows with either purebred or crossbred litters.

Complete herd testing is very important. Each individual will be more accurately evaluated