

YORKSHIRE SOW PRODUCTIVITY PROGRAM

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A WITHIN HERD SELECTION TOOL

In the early days of the development of the Yorkshire breed in America, much attention was paid to litter size and litter weights. It was no more important then than it is today for purebred breeders and commercial men alike to make every effort to produce large litters of pigs from every sow he owns. Efficiency of production is probably more dependent on number of pigs weaned per sow than any other single factor.

Recent research has shown sow performance traits to be heritable at about the 20% level, which means that progress can be made in these areas through selection.

WHAT IS SOW PRODUCTIVITY?

One definition of sow productivity is the ability of a sow to farrow large litters of live pigs and to give sufficient amounts of milk to make them grow rapidly until they are weaned. In addition, the sow's ability to perform this task on a regular basis is a factor to be considered.

HOW CAN SOW PRODUCTIVITY BE MEASURED?

There are basically two areas where measurement can be taken

1. Prolificacy (Number of pigs produced)
2. Milking Ability (Measured by the weight of the pigs nursed by the sow)

PROLIFICACY

Prolificacy seems like a simple trait to measure. However, it is important that prolificacy be measured by counting the number of pigs born alive. Most swine producers will agree that number of pigs born alive is much more important economically than total number born. For example, if a sow farrowed 14 pigs but only eight were born alive, it would probably have been better if she had farrowed only eight since they probably would have been larger and stronger.

There is one other important reason to select for pigs born alive, instead of total pigs born. According to Ohio State University, the heritability of number farrowed alive is $(.22 \pm .11)$ while the heritability of total number farrowed is $(.18 \pm .10)$, on the other hand, the heritability of number born dead is higher than either $(.35 \pm .12)$. Therefore, if you select on the basis of total number born and a good portion of these were dead at birth, you would theoretically make more progress in pigs born dead than in any other of the traits.

MILKING ABILITY

Milking ability in swine is not a real easy trait to accurately measure. The only practical way is to measure the weight of the pigs that nurse the sow. By doing this, we are assuming that sows which give large amounts of milk will wean pigs that weigh more, thus giving us a good measure of her milking ability.

In order to accurately measure any trait, we must try to eliminate the environmental effects that would cause a difference in our measurement. There are several environmental factors that affect the amount of milk given by a sow. Some of these are as follows:

1. NUMBER OF PIGS NURSED - Ideally we would have each sow nurse the exact same number of pigs. Of course this is not possible, so we must first standardize the number of pigs nursing each sow as much as possible. This is accomplished by moving pigs from large litters over to sows nursing small litters. For example, if two sows farrow the same day and one has 12 and one has eight, you would move two pigs from the large litter over to the sow with the small litter to make both sows actually nurse ten pigs each. BE SURE TO EARNOTCH ALL PIGS BEFORE ANY TRANSFERS ARE MADE.

Standardization of litters is much easier where several sows are farrowing fairly close to each other. In smaller herds where there are only a few sows farrowing at the same time, it will be more difficult. The thing to remember is to try and even up the litters as much as possible and try to avoid any sow nursing less than six pigs or more than 12 pigs.

Another reason for the standardization of the litter size is to do away with the environmental effect on gilts that are raised in large litters. Researchers at North Carolina State University show evidence that selection of gilts born and raised in large litters (12 or larger) will not lead to increased litter size in the next generation because of the environmental effect by being raised in large litters.

2. NUMBER OF LITTERS A SOW HAS FARROWED (PARITY) - A gilt with her first litter will not perform the same as she will with her second and subsequent litters. Therefore, some adjustments must be made to report all females on a sow-equivalent basis.

3. SEASON OF THE YEAR - Season of farrowing has a great effect on sow performance. The conditions which exist in the farrowing house during different seasons can vary widely. For this reason, in the sow productivity program, sows are compared only with their "contemporary group" or those sows which farrow during the same season. A "season" may be a one week period, a month period, or longer. All data from the program is based on a ratio of those sows that farrowed during one period or "season". The producer must decide what to include in one "contemporary group". The Yorkshire Club suggests that records be sent in on a monthly basis. The important thing to remember is to group sows together that had an equal chance to perform.

WEIGHING THE PIGS

The most important measurement that is taken in the sow productivity program is the weight of the litter at 21 days of age. The age of 21 days (three weeks) has been selected because it should reflect milking ability more accurately than other times. Pigs are too young to have eaten much creep feed and are old enough to have responded to the milk of the sow.

We recommend that all litters be weighed at exactly 21 days, but that may not be possible. Breeders are allowed to weigh pigs from 14 to 28 days of age and then the weights are adjusted to a 21 day standard. Here are the adjustment factors used to standardize the date weighed. *Day Weighed x - .033357429 + 1.77 =*

Day Weighed	Multiplication Factor	Day Weighed	Multiplication Factor
14	1.29	22	.97
15	1.24	23	.94
16	1.19	24	.91
17	1.15	25	.88
18	1.11	26	.86
19	1.07	27	.84
20	1.03	28	.82

Probably the most important thing a breeder must do in order to successfully have a sow productivity program is to have a convenient method of weighing the litters of pigs. The total weight of the litter is taken so all of the pigs should be weighed together. There are no doubt many types of scales that could be devised to weigh the pigs and each breeder is responsible to develop his own system.
ACCURATE WEIGHTS ARE ESSENTIAL FOR THE PROGRAM.

DATA REQUIRED FROM PRODUCERS

Producers enrolled in the program are required to furnish data to the Yorkshire Association on forms furnished to them by the association. The data includes the following:

1. Sow name and registration number
2. Sire of sow name and registration number
3. Litter number
4. Sow family name
5. Parity of sow (number of litters she has farrowed)
6. Number of pigs born in litter
7. Number of live pigs in litter
8. Number of pigs nursing the sow after transfer
9. Number of pigs weighed at 21 days (14 - 28 days)
10. Total litter weight at 21 days (14 - 28 days)
11. Age of litter in days when weighed
12. Farrowing date

The data for each breeder will be processed on the association's IBM System 32 Computer as soon as possible after it is received. The data output of the Sow Productivity Program is as follows:

1. Sow Productivity Report ranking all the sows in that particular contemporary group from highest to lowest by breeding value. The specific information listed for each sow is as follows:
 - a. Sow name and registration number
 - b. Sire of sow and registration number
 - c. Litter number
 - d. Parity
 - e. Total pigs at birth
 - f. Live pigs at birth
 - g. Number at 21 days
 - h. Adjusted weight at 21 days
 - i. Breeding value
 - j. Farrowing interval

2. Summary averages for this farrowing group:
 - a. Number of litters included in this group
 - b. Average number born alive
 - c. Average number born total
 - d. Average number at 21 days
 - e. Average weight of litters at 21 days
 - f. Average farrowing interval
 - g. Litters per sow per year for this group

3. Sow ranking for entire herd.

This report puts the entire sow herd together and ranks them by breeding value from top to bottom. This report includes the last group of sows you submitted and also all the sows you have reported in the past.

- a. Sow name and registration number
- b. Number of records included for each sow
- c. Sire of sow name and registration number
- d. Last parity for each sow
- e. Breeding value for each sow in herd

4. Sow ranking by family

This report ranks all of the sow families in your herd according to breeding value.

- a. Sow family name
- b. Number of sows in family
- c. Average breeding value for each sow family

5. Sire of sow ranking.

This report ranks all of the sires of sows according to the performance of their daughters.

- a. Name and registration number of sire of sows
- b. Number of sows sired by each boar
- c. Average breeding value for all sows sired by each boar

COST OF PROGRAM

The initial cost of the Yorkshire Sow Productivity Program is as follows:

- Initial enrollment fee - \$25.00 per herd
- Cost per litter processed - \$1.00 per litter

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