

# How important is the boar in determining litter size?

**UNIVERSITY PARK** — Many swine producers question whether the boar has any influence on litter size under normal conditions.

But according to Matt Parsons, Extension swine specialist at Penn State, the boar may be more important in determining litter size than has been commonly accepted.

It takes only 10 to 20 sperm to fertilize the available eggs at each breeding — one sperm per egg — yet a normal boar will produce ejaculate that may contain 20 to 50 billion sperm under normal conditions. Parsons explains that "normal" conditions means that the boar is producing an adequate number of viable sperm with good motility and few abnormalities.

Most producers recognize that heat stress caused by high surrounding temperatures or fever seriously affect sperm production and conception for two to nine weeks following the heat stress. In addition, most producers realize that too frequent use of a boar may result in a disproportionate amount of immature sperm that are incapable of fertilization, Parsons adds.

However, even under optimum conditions, research indicates that the boar's influence on litter size varies from boar to boar. For example, recent results from several research studies have suggested that there is a difference in the number of live pigs farrowed and raised that are sired by different boars of equal age, used at the same rate and maintained in the same environment.

According to Parsons, two German researchers analyzed data from 1223 litters on the same farm. The results of the study

suggest that the boar has a highly significant influence on litter size at both birth and weaning. The researchers reported differences as large as 1.83 pigs per litter for normal boars. One boar that had chromosome damaged sired litters with 3.3 fewer pigs than normal

boars. Many producers breed sows to two different boars each heat period is an effort to maximize conception rate. Parsons agrees that the practice is valid, but he recommends that producers check their boars' reproductive sound-

ness by mating each boar with several sows and gilts for both services. If the results of those matings — called specific matings — are good, then the boar could be accepted as sound and used in the breeding program.

As more and more producers

turn to computerized record-keeping, evaluating each boar in the herd via specific mating should become easier, adds Parsons. Because of the boar's influence on litter size, such evaluation may well be worth the effort, he says.

## USDA joins electrical power study

**WASHINGTON, D.C.** — A new study involving the U.S. Department of Agriculture will seek to determine whether it is practical to store compressed air underground to generate extra power when the demand for electricity peaks.

To finance the feasibility study, USDA's Rural Electrification Administration today announced approval of a \$4.2 million loan guarantee commitment to the Soyland Power Cooperative, Inc., Decatur, Ill.

The cooperative will conduct the study.

This will be the first project of its kind conducted by an REA-financed system, said Harold V. Hunter, REA administrator.

If the system works, Hunter said, air will be compressed and stored in underground caverns during "off-peak" hours when the demand for electric power is low. Then, during periods of peak load — when the demand is highest — the stored compressed air will be heated and expanded through a combustion turbine generator to meet the surging demand for electricity.

Hunter said the project is consistent with REA's commitment to

national goals of energy independence through encouraging the development of all forms of energy sources supplemental to the more conventional forms.

"This particular project also is a "first" in the proposed financing arrangement," Hunter said.

"Soyland plans to obtain the funds from a lender other than the Federal Financing Bank. We feel this is a significant step in helping the Administration achieve its economic objective. REA is continuing to foster greater self-reliance and independence on the part of its borrowers.

"Increased use of financing from the private sector can reduce borrower dependence upon government-supported financing," he said.

The study is scheduled for completion by June 1984. It could lead to construction of a 220-

megawatt compressed air storage facility to provide peak power to Soyland's 15 distribution cooperatives which serve about 95,000 farmers and other rural people in central Illinois.

REA has provided low-cost loans since 1935 and loan guarantees since 1974 to finance construction and operation of electric and telephone facilities for rural regions of the United States.

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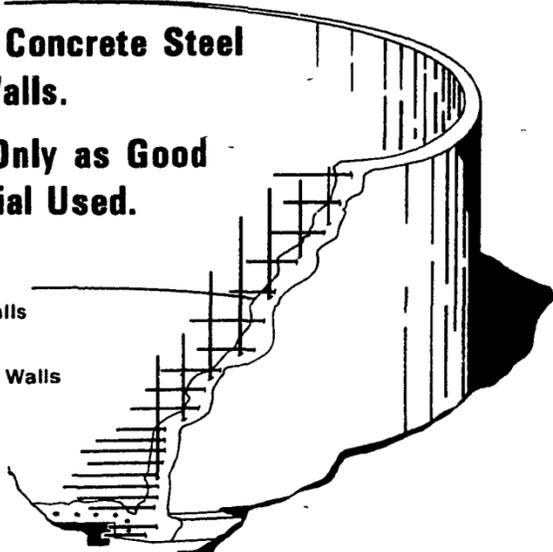
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