

## Bilsland Memorial Swine Breeding Farm

### A.S. Leaflet R1939

T. J. Baas, Associate Professor, Animal Science  
J. R. Newton, Farm Manager, Bilsland Swine Farm

The Bilsland Memorial Swine Breeding Farm has a long history of significant contributions to swine research programs in the Animal Science Department at Iowa State University. Researchers in swine breeding and genetics, reproductive physiology, nutrient management, and meat science currently utilize animals housed at the farm. Additional animals are used in departmental teaching and extension activities.

The farm had its beginning in the mid 1950's when the Bilsland family gave approximately 240 acres of land to Iowa State University, with the stipulation that it be used for agricultural research. In 1959 and 1960, the first buildings to specifically house swine were built under the direction of the Department of Energy and ISU. There were 10 rows of buildings with two separate buildings per row. Each building had 16 pens with solid concrete floors and doors that opened for natural ventilation. Bedding was used for pig comfort. The Department of Energy conducted research with swine at the farm until 1970 and then turned the facilities over to the Animal Science Department.

The first swine from the Regional Swine Breeding herd near Napier were moved to the Bilsland location in early 1970 and remodeling of some of the rows of buildings took place in 1970-1972. Two rows of the buildings were converted to farrowing pens that housed sows and their litters. Three additional rows were converted into finishing units that consisted of pens that were 8 feet wide and ranged from 12 to 20 feet in length. Pens had solid concrete floors and flush gutters for waste removal. A partially slatted, modified open-front building was built as a replacement for a lactation building that was destroyed in a fire in 1986. This building has a shallow pit with a scraper for waste removal.

In 1990, the total land area at the farm location was increased with the purchase of an adjoining 80 acres, bringing the total to approximately 320 acres.

A major remodeling and construction project was completed in 1996. Five complete rows of the old buildings that were used for lactation pens and one-half of two additional rows that were used for finishing were removed and new buildings were built to replace them. The new farrowing-nursery complex consists of four farrowing rooms and six nursery rooms. Each farrowing

room has 12 crates with tri-bar flooring and a solid creep area for the piglets. Each nursery room has 12 pens with tri-bar flooring that can accommodate one litter each at weaning. This new unit allowed the farm to move to a weekly farrowing schedule and practice all-in/all-out production. A viewing room was built between the farrowing and nursery units that allow visitors to observe one of the farrowing and one of the nursery rooms. Two double-sided, curtain finishing buildings with two rooms each were also added. Each room has eight totally slatted pens that house 25 pigs per pen. Each building has a work room in the center that is used for weighing and scanning. Six FIRE electronic feeders that are used to measure individual feed intake have been installed in one of the rooms.

An office complex complete with showers, break room, conference room and manager's office was also added. This building made it possible to establish a shower-in/shower-out policy for all employees and visitors to the farm and maintain strict biosecurity at all times.

All breeding animals at the farm are housed in outside lots year round. Pens are 25 feet wide and 100 feet long and each pen has a 12' x 16' open front building for shelter. Large round bales of cornstalks, oat straw, wheat straw, or rye grass are used for bedding in the winter.

Current long-term breeding projects at the farm include the following: 1) Selection for intramuscular fat using real-time ultrasound in a population of purebred Durocs led by Dr. Tom Baas; 2) Selection for residual feed intake in purebred Yorkshires led by Dr. Jack Dekkers; 3) Meat quality study in a Berkshire-Yorkshire crossbred population led by Dr. Max Rothschild. In addition to these projects, small populations of the Meishan and Minzhu Chinese breeds are maintained at the farm.

Through the efforts of Dr. Jay Harmon, Ag Biosystems and Engineering, a mortality composting building was built at the Bilsland Farm in the spring on 2000. This structure is designed to handle all the mortality from the farm, saving the cost of rendering and also improving biosecurity at the farm. We are also researching and evaluating different co-composting materials. The Ag & Biosystems and Engineering Department also uses the farm for class tours and demonstrations of the liquid manure handling system. All liquid manure is injected into the soil for best utilization of nutrients and odor control.