# Outdoor Pig Production: A Pasture-farrowing Herd in Western Iowa

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## Summary and Implications

Seven years of production records of an outdoor farrowing herd in western Iowa are summarzied. The average size of the herd was 68 sows. The herd was a one-litter system, i.e., sows were farrowed once and sold. Replacement gilts were saved annually to farrow at 1 year of age. Average conception rate was 80% and the pre-wean mortality was 12%. Weaning occurred at 4—6 weeks. An average of 7.9 pigs/litter was weaned.

These results give approximate levels of performance for an outdoor farrowing herd by using the one litter system in western Iowa. Budgets using these values should generally be cost competitive.


## Introduction

In 1990 a pasture-farrowing project was started at the ISU Western Research and Demonstration Farm near Castana in Monona County, Iowa. The objectives of the project were to: (1) demonstrate a low-cost swine production system that could be easily adopted, and (2) have an ongoing outdoor farrowing herd to use as a framework for evaluating topics related to outdoor swine production. Outdoor farrowing and pasture farrowing are used interchangeably in this report.

Outdoor farrowing is a viable alternative system to conventional indoor farrowing by using crates. Granted, outdoor farrowing is seasonal in Iowa, but because the majority of pig production is year-round indoors, the seasonal marketing effects are minimal. Outdoor farrowing in Iowa results in generally fewer pigs weaned per litter and per sow per year and poorer feed efficiency than indoor farrowing. But outdoor farrowing systems have lower fixed costs resulting in lower costs of production, based on an analysis of 5 years of Iowa Swine Enterprise Records. Outdoor pig production has increased dramatically in the United Kingdom. Excellent swine production performance has been achieved by well-managed English herds. Outdoor pig production is expanding, particularly in nontraditional swine production areas such as Oklahoma and Colorado.

A case study of three outdoor swine producers showed outdoor farrowing to have a low-labor requirement per litter, although the work is seasonal. Outdoor swine production systems when properly managed are a good example of sustainable livestock systems. Farrowing outdoors is a competitive strategy for some Iowa producers.

## Results and Discussion

*Description*. The ISU Western Research Farm outdoor farrowing herd is a one-litter system with an annual farrowing in September. Sows are farrowed once and then sold. Replacement gilts are selected and farrowed the next year. A rotational crossbreeding system using Yorkshire, Hampshire, and Duroc boars is followed. The herd is closed except for the annual introduction of new boars. Breeding is accomplished using pen mating. Overall health of the herd has been excellent. A large proportion of the pigs farrowed are sold as feeder pigs. The remainder are kept as replacement gilts and market pigs.

The gilts were fed *ad libitum* until breeding and then were limit fed. During lactation, the lactating sows are fed *ad libitum*. Farrowing occurred in floorless huts on pasture with bedding. Weaning was at 4—6 weeks.

*Performance of pasture farrowing in Western Iowa*. Overall, the pasture-farrowing herd has performed well. The herd size and reproductive performance for 7 years (1990—1996) are shown in Table 1.

Performance was somewhat variable primarily because of variable weather. Predators have not been a problem. Conception rate was low in 2 of the 7 years. Piglet mortality averaged 12% but varied from 6% to almost 18%. A variety of hut types is used as part of one of the research projects. The different hut types had a wide range of crushing losses (7% to 21%). Thus, the crushing loss for the overall herd probably could have been reduced. Nevertheless, an outdoor pig producer should plan for an average of 7.5—8.5 pigs/litter weaned from gilts and a 75—85% conception rate. With the lower fixed costs of outdoor production, these production parameters should be cost competitive.

*Lessons learned*. After 7 years of an outdoor farrowing herd, several lessons have been learned. These include:

- Keep the farrowing interval and the age range of the piglets narrow.
- Use an adequate number of boars—about 1 boar/10—15 gilts when pen mating.
- Carefully consider the hut type used. Not all huts are equal.
- Electric fence works very well.
- There are built-in health advantages to a one-litter system. All-in/all-out occurs inherently in the system.
- Agressive parasite control is critical.

- Cold, rainy weather is easier to cope with than hot, humid weather.
- A standardized farrowing paddock layout makes it much easier and quicker to assemble.
- Commit a vehicle to outdoor farrowing exclusively for chores and keep all supplies in it.
- The nature of an outdoor production system makes it a mobile system. This mobility necessitates that the equipment be portable because sows and/or litters will be moved often. Therefore, have easy, effective, simple, and quick ways to move them.
- Good husbandry and stockmanship must be used. It is essential to have calm animals to handle.
- System mobility enhances herd health.

A list of projects that have used the outdoor farrowing herd follows:

- Piglet crushing losses in various outdoor huts.
- Hut temperature comparison.
- Alfalfa grazing by gestating swine.
- Rape grazing by gestating swine.
- Soybean grazing by gestating swine.
- Bedding comparisons.
- Crushing losses in various hut types.
- Segregated early weaning of pasture farrowed pigs.
- Effect of hut size on crushing losses.

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**Table 1. Herd size and production for pasture-farrowing herd in western Iowa.**

| | Gilt herd size (head) | Conception rate (%) | Gilts farrowed (head) | Total pigs born/ litter | Pigs born alive/ litter | Pigs weaned/ litter | Mortality birth to wean (%) | Total pigs weaned |
|---|---|---|---|---|---|---|---|---|
| 1990 | 30 | 66.6 | 20 | 9.6 | 8.8 | 8.0 | 9.1 | 160 |
| 1991 | 65 | 79.0 | 48 | 11.0 | 10.1 | 8.3 | 17.8 | 397 |
| 1992 | 70 | 58.6 | 37 | 9.3 | 8.4 | 7.9 | 5.9 | 291 |
| 1993 | 77 | 87.1 | 51 | 9.5 | 9.1 | 8.3 | 8.8 | 425 |
| 1994 | 75 | 88.0 | 59 | 10.0 | 9.1 | 7.8 | 14.3 | 458 |
| 1995 | 81 | 96.3 | 71 | 8.8 | 8.1 | 6.7 | 17.3 | 475 |
| 1996 | 77 | 88.3 | 64 | 9.8 | 9.4 | 8.7 | 7.4 | 557 |
| Average | 68 | 80.6 | 50 | 9.7 | 9.0 | 7.9 | 12.1 | 395 |