

Piglet Mortality in Various Hut Types for Outdoor Farrowing

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Summary and Implications

This study documents differences in pig crushing mortality rates in various outdoor farrowing hut types. Larger huts with the door in the corner and space for piglets to stay away from and protected from the sow had lower crushing losses. Mothering ability by the sow may be particularly important in outdoor systems where the sows have greater freedom and mobility.

Introduction

Mortality of young pigs is a major problem in the swine industry. Preweaning mortality of 10–15% is common in large U.S. swine industry databases. About 50% of the losses occur in the first 3 days after birth. Pig crushing (trauma) by sows accounts for about 40% of all preweaning mortality and is the leading cause of piglet mortality in both indoor and outdoor farrowing systems (2,8).

Piglet mortality is often higher in outdoor farrowing systems than in indoor farrowing systems in the United States (6) and in many other countries (2,5).

One factor affecting piglet mortality in outdoor systems is the type (size and shape) of the farrowing hut (1,4). Therefore, a study was conducted to evaluate piglet mortality in various hut types in a U.S. outdoor farrowing system.

Materials and Methods

For 9 years (1990–1998), seven different floorless farrowing huts (wood A-frame, A; steel English style, B; modified plywood A-frame, C; plastic pig saver, D; curved steel, E; plywood pig saver, F; plastic A-frame, G) (see illustrations) were used with an outdoor farrowing herd at the Iowa State University (ISU) Western Research Farm near Castana, IA. Only hut type F had guardrails. Not all huts were used each year. A total of 438 litters was farrowed. Piglet deaths were recorded from birth until 10 to 14 days of age when the pigs began to leave the hut. Farrowing occurred in September and early October of each year. Cause of piglet death was noted as crushing or

other by visual inspection. Primiparous × Yorkshire × Duroc × Hampshire sows were used.

The bedded huts were randomly arranged in farrowing pastures. The primiparous sows were allowed free access to select a bedded hut and were not confined in the huts. Fenders were not used on the huts. However, bedding boards or their equivalent were used to keep straw and piglets in the huts. The sows had free access to feed and water (*ad libitum*) at central locations within the pastures.

Results and Discussion

Results of preweaning mortality for hut type are shown in Table 1. Piglet crushing death rates ranged from 3.7–19.4% of the pigs born alive for the various hut types. Piglet deaths by other causes were similar (0–27%) for the various huts.

The smaller huts tended to have the higher crushing losses. For example, huts A, E, and G with floor space of 33.8 to 37.4 sq ft had crushing losses of 10 to 19%. Conversely the larger huts tended to have lower crushing losses. For example, huts B, C, and F had floor space of 42.0 to 49.5 sq ft and had crushing losses of 7%.

Other factors may have been important. For example, hut F came equipped with guardrails and had a low pig crushing loss rate of 6%. It was also a large hut. Huts B and C have the door in the corner rather than the center of the end. Huts B and C had low pig crushing losses of 6.3 and 7.6%, respectively. Huts B, C, D, and F have designs to protect pigs, i.e., guardrails or steep-angled walls to protect piglets. These huts all had crushing losses of 7%.

The construction material of the hut (steel, plastic, or plywood) did not seem to affect crushing losses. Overall hut design probably is a factor, but is somewhat difficult to characterize. Protection for piglets is important and a door in the corner may help create “safe” space in the corners of the hut because the sow would tend to lay on a diagonal in those huts.

The number of live pigs born per litter (8.2 to 9.9) was acceptable for first-litter gilts. Crushing losses for some of the huts (B, C, D, and F) were low (<7%) and less than industry standards in farrowing crates of about 10%.

Acknowledgments

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Table 1. Years used, floor space, litters farrowed, number of live pigs per litter, and preweaning mortality for pigs farrowed outdoors in different hut types.

Hut type	Year	Floor space (sq ft)	Litters (no.)	Live pigs/litter	Crushed deaths (%)	Other deaths (%)	Total deaths (%)
A	8	36.0	34	3.0	19.4	2.2	21.6
B	4	49.5	49	9.3	3.7	0.0	3.7
C	9	42.0	152	9.4	7.0	1.1	8.1
D	3	32.5	19	8.2	5.8	0.0	5.8
E	9	33.8	110	9.3	10.6	1.5	12.0
F	8	42.6	40	8.9	3.9	1.4	5.3
G	8	37.4	34	9.9	14.3	2.7	17.0

A.



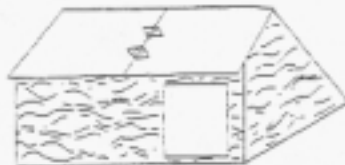
A-frame (wood)

B.



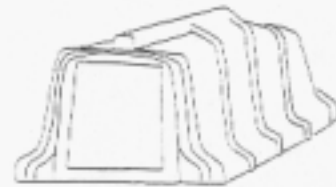
English style (steel)

C.



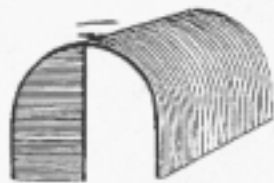
Modified A-frame

D.



Pig-saver (plastic)

E.



Quonset (curved steel)

F.



Pig-saver (plywood)

G.



A-frame (plastic)