

Economic and welfare considerations for sow housing options.

The housing of pregnant sows has become a major animal welfare issue in the North American swine industry. The practice of keeping pregnant sows in gestation crates has been regarded as the industry standard and currently the majority of sows in Alberta are housed in gestation crates. This study reports on the economic and welfare implications of housing gestating sows in conventional stalls and in three different group housing situations. The first study compared gestation stalls (GS) and free access stalls (FA) and the second study compared FA stalls with an electronic sow feeder (ESF) and open access stall system with two tiered space provided by a mezzanine (2T).

The difficulty in comparing conventional housing with alternative group housing systems is the lack of consistent welfare standards. Each system has benefits and costs associated with it. The table below attempts to rank the costs and benefits from different housing systems.

Table 1. Ranking of different gestation systems for each of the five freedoms of animal welfare. Higher scores are desirable. Adapted from (Gonyou 2001).

Freedom:	Floor Feeding	Feeding Stalls	Trickle Feeding	Gestation Stalls	Electronic Sow Feeders
From Malnutrition	1	3	2	4.5	4.5
From Discomfort	3.5	3.5	3.5	1	3.5
From Pain & Injury	1	3.5	2	5	3.5
Of Movement	3.5	3.5	3.5	1	3.5
From Fear	1	3	2	5	4
Overall	10	16.5	13	16.5	19

Each score was out of 5; total out of 25. The scores and the final ranking are considered approximate. Equal emphasis was placed on each freedom. It is important to note that stall housing did not have the lowest ranking. However, if variables were weighted differently (more emphasis on freedom of movement), the outcome would be different (Gonyou 2001).

How do you balance or value the lack of social contact in stalls with the risks of aggression seen in group housing? Furthermore, how do you compare the injuries pigs receive from group housing with injuries pigs receive in stall housing?

Sows in this study housed in GS receive fewer injuries when compared to sows in FA group housing. However, group housed sows received mostly minor injuries such as superficial skin scratches. These minor injuries are the consequence of allowing sows to have freedom of movement and social interaction. Most of the injuries and fights occurred shortly after mixing sows, demonstrating that sows required an adjustment period and that prolonged aggression was unlikely.

When comparing types of group housing systems in this study the ESF poses potential technical challenges to producers as well as significant costs to install or retro-

fit barns. In terms of welfare the sows in the ESF system experienced more aggressive encounters and received more minor injuries than any other housing system. It is possible that the levels of aggression seen in ESF would be reduced with more ESF stations and with the presence of straw bedding. The aggression seen in ESF was likely due to competition for access to the feed resource.

The sows FA stalls in this study avoided the competition for food resources but the stall size and difficulties with gate mechanisms made this housing option challenging. Producers considering the FA or 2T systems need to consider the increased labor challenges posed by systems that feed to the lowest weight sow.

The open system with two tiered space provided by the mezzanine appears to be the best option for increasing common space while avoiding increased aggression and costs/problems of equipment. Retro fitting barns with gestation stalls would be easily accomplished by removing the back of the conventional gestation stall and installing the mezzanine to increase available space. The difficulty with increasing floor space is the temptation by producers to further increase stocking densities which negates the benefit of increased space.

It is likely that despite what science and economics indicates as most efficient, the final decision will be made by consumer pressures and meat suppliers. If consumers demand crate-free pork, suppliers will respond to this demand and in term place pressure on producers. Societal concern over animal welfare is likely to increase in the future. Welfare-friendly housing systems are likely to become the standard in Canada if public interest remains high. However, the potential benefit of group housing systems is difficult to quantify as market trends towards 'welfare friendly' foods remains unclear.

A more comprehensive study measuring chronic stress from social isolation in sow housing is planned between Alberta Agriculture and the Prairie Swine Research Center for fall 2007. For further information please contact Adrienne Herron at Alberta Agriculture, Red Deer, (403) 755-2047.

Gonyou, H. W. 2001. Group housing of sows: The potential for the future. Pages 29–36 in Focus on the future conference. Alberta, Canada. Prairie Swine Centre, Saskatoon, Saskatchewan, Canada.