

# Economics of Pig Space in Finishing Facilities

Animal welfare pressures have spurred researchers and producers alike to consider adding space for pigs in confinement barns. In view of animal welfare, the optimal levels of pig stocking density are measured as either improvements in growth performance or improvements in behavior (less fighting, dunging in sleeping areas, etc.). Prairie Swine Centre researcher Harold Gonyou reports that space allocations greater than 8.73 sq. ft./finishing pig at 269 lb. don't produce further increases in average daily gain or feed intake, but they do improve up to this space allocation. This is in contrast to economically optimal stocking density which has been reported as about 6 square feet per pig (Brumm; Powell et al.). Based on these prior studies, there is clearly an economic trade-off associated with increasing pig space allocations to rates where performance improvements are no longer seen.

A recent study sponsored by the National Pork Board and completed by Brian Buhr, Derald Holtkamp, Micheal Brumm and Jim Kliebenstein sought to determine the economic implications of potential increases in pig space allocation. To do so, it was first necessary to determine the current industry practices for stocking pigs. To assess this an industry survey of three-dozen producers, veterinarians, industry consultants and university swine specialists was completed and results showed that finishing pig space allocations currently used in confinement barns averaged 7.19 sq. ft. and 11.57 sq. ft. for hoop systems – well below possible animal performance based space allocations.

The survey also asked for responses regarding marketing practices. This is critical because given the same fixed facility constraints pig growth causes space allocation to decrease over time. Therefore, at heavier projected marketing weights there would either need to be fewer pigs stocked per pen at the outset, or a portion of the pigs would need to be marketed at lighter weights which then has implications for prices based on packer quality matrices.

Survey results of marketing practices found that 90% of the U.S. hog industry topped finishing pens and sold pigs from a finishing facility for 24.8 days on average, the critical weight for space allocation to maintain a space allocation of 8.73 square feet is also much reduced and would have tremendous impacts on prices received under current packer grids.

Using parameters based on the survey of actual practices, an economic simulation model was developed that estimated the cost of increasing pig space allocation at finishing. This simulation included the entire production system from farrowing through finishing to capture the potential effects of bottlenecks in pig flows at the finishing stage.

To increase space allowances with existing facilities, producers have two main options. Producers can choose to maintain the same number of pigs in a system but market some or all of them at lighter weights than optimal under current practices. Selling pigs at lighter weights increases the space allocation per pig at the time when finishing pigs are most crowded, near marketing. Alternatively, producers can reduce the initial stocking rates of the finishing facility by either selling pigs prior to entering the facility or scaling back farrowings. Remaining pigs can then be marketed at optimal market weights as before the space restrictions.

There are three alternatives for placing fewer pigs in a barn. One is to reduce the breeding herd and therefore, the number of pigs weaned/year thus underutilizing breeding herd assets. The second is to sell weaned pigs while maintaining the same level of finishing space. The third and best economic alternative is the longer-range solution of adding finishing barns to accommodate the same number of pigs with extra space. This makes some intuitive sense in that rather than incurring additional costs for every pig entering the system, the added finishing barns represent a one-time capital cost that is amortized over the life of the additional facilities.

Overall, regardless of the alternative strategy adopted, the result will be a 10% to 97% reduction in return on equity.

Therefore, adoption of space restrictions should be carefully considered in concert with any potential economic benefits which might occur, namely consumer willingness to pay for pigs raised in facilities with greater per pig spacing.

As food chains consider imposing the space requirements on suppliers, they must recognize that the producers affected must be able to pass on some of the cost to downstream processors, retailers and ultimately consumers.

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