



7 ways automated systems can help in all facets of pork production

It is possible to care for individuals on large farrowing or finishing operations.

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Pork producers in Western Europe and North America are finding success raising pigs in group housing systems with electronic identification for individual management. Do you want to improve efficiency and performance on your operation? Here are seven reasons why the group housing trend is exploding worldwide and how you can benefit from adding automated systems to your group housing plan.

1. **Make the most of modern genetics**

The difference in performance between heritage breeds and modern pig genetics has become so wide that the use of the latter has become an obvious choice for many pig farm managers. And the gap is widening. The performance potential of the modern sow has moved above 30 pigs per sow per year. However, this is putting pressure on the sow's body development and condition. The way we care for sows can mean the difference between profitable piglet production or losing money. Research shows how group housing supports optimal body condition by making the sow comfortable and giving her room to exercise and how this supports performance.

2. **Group sow housing supports healthy pigs**

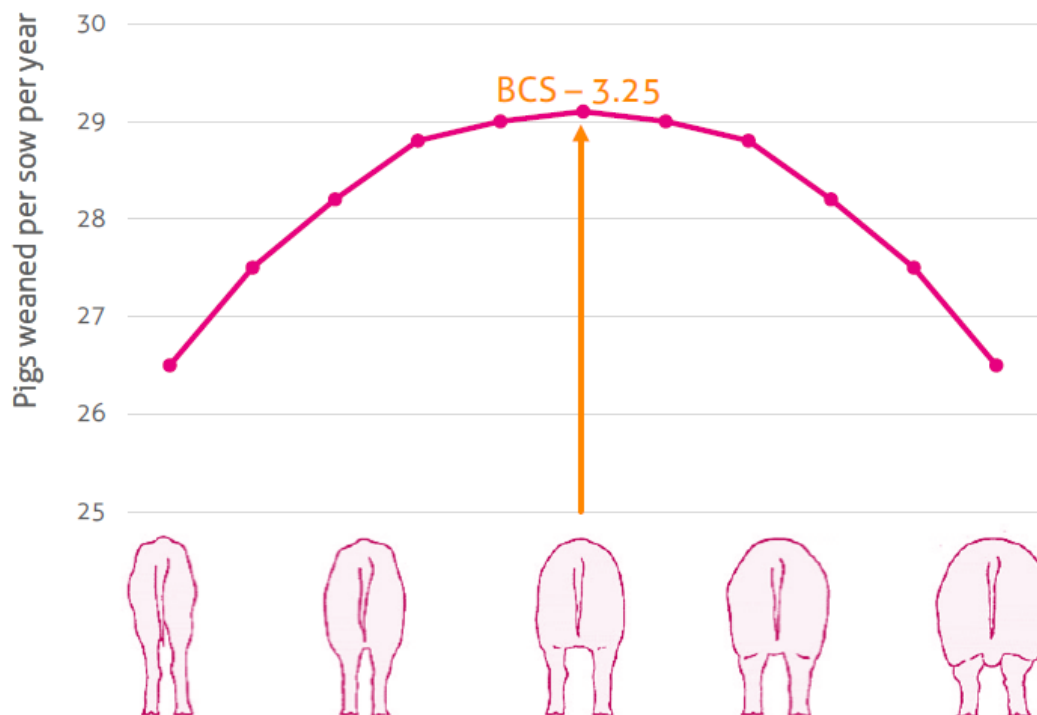
Research by Dr. Mark Knauer at North Carolina State University showed a strong correlation between sow body condition at breeding and the number of piglets born alive. The difference in performance between good and poor body condition can add up to more than 2.5 piglets per sow per year. Litter birth weight also declines sharply with sows in suboptimal body condition. Lower birth weights go on to negatively influence survival rate and lifetime pig performance. Group sow housing with ESF allows producers to accurately manage sow body condition by feeding each sow to her individual needs and preventing feed theft by aggressive sows.

3. **Manage sow body condition to minimize cull loss**

Sow body condition affects sow performance in many measurable ways. Research performed on commercial farms in the Netherlands showed higher culling rates in over- and under-conditioned sows. The combination of lower performance, higher culling rate and false allocation of feed cumulated in an average loss of \$75 for every sow out of ideal range. Being able to feed sows accurately according to their bodyweight, parity and stage of gestation assures they are in the best possible body condition when entering the farrowing facility. [reference: De Heus]



Sow caliper score

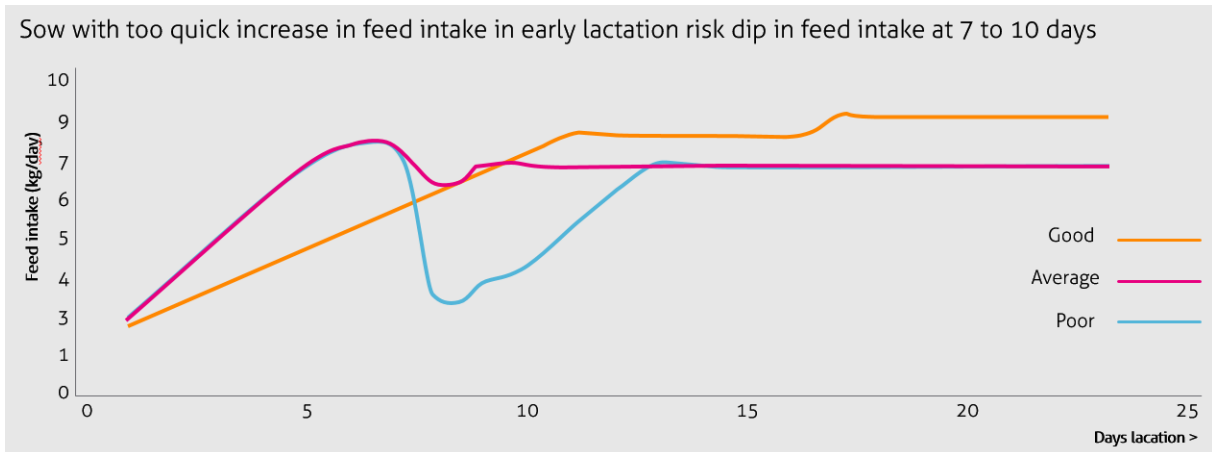


4. Manage body condition to maximize milk production

The story of a badly conditioned sow doesn't end at farrowing. Both over- and under-conditioned sows show excess loss of body condition during lactation. This can hinder the performance of the litter as well as productivity in sub-sequential parities. But what is often not taken into account is the excess feed needed to restore the sow's body condition. For every kilogram of sow body weight that needs to be restored in the next gestation, 7 to 8 kilograms of feed are needed. [Reference: Swine Feed Efficiency: Influence of Sow Feed on Whole Farm Efficiency, Author: David R. Stender, Iowa State University, 2012]

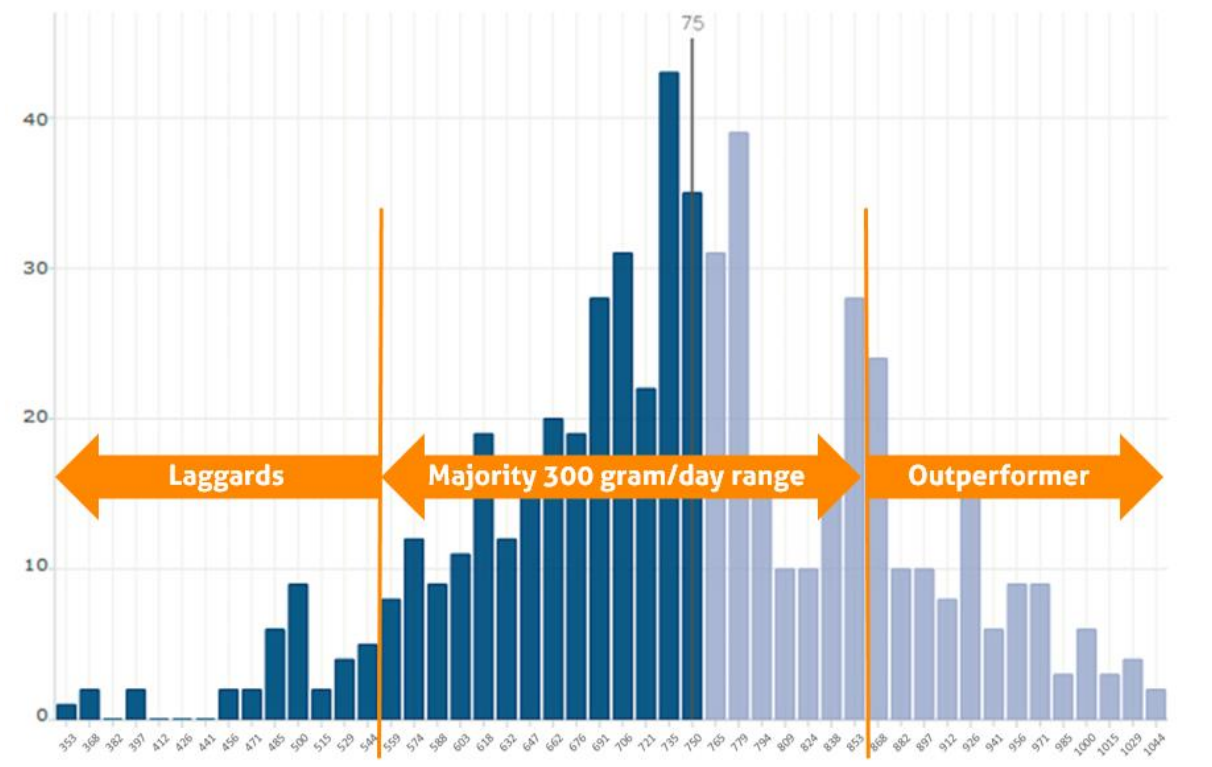
Weight loss during lactation is influenced by the body condition of the sow at farrowing and the feed intake during lactation. Feed intake, or rather the shape of the feed plan in lactation, is a search for balance. We want to maximize feed intake quickly to support milk production. At the same time, it is important to prevent overfeeding, which could reduce feed intake dramatically and stop milk production.

The below graph shows three feed intake patterns. Two of them increase too quickly. The pink line shows the dangers of overfeeding, and the blue line shows a severe case of overfeeding around 10 days of lactation. The yellow line shows an ideal curve, bringing feed intake to a higher peak and supporting higher overall feed intake during lactation. This feeding pattern will help maximize milk production and minimize excess loss of body condition. (Reference: Koketsu et al. 1996a,b)



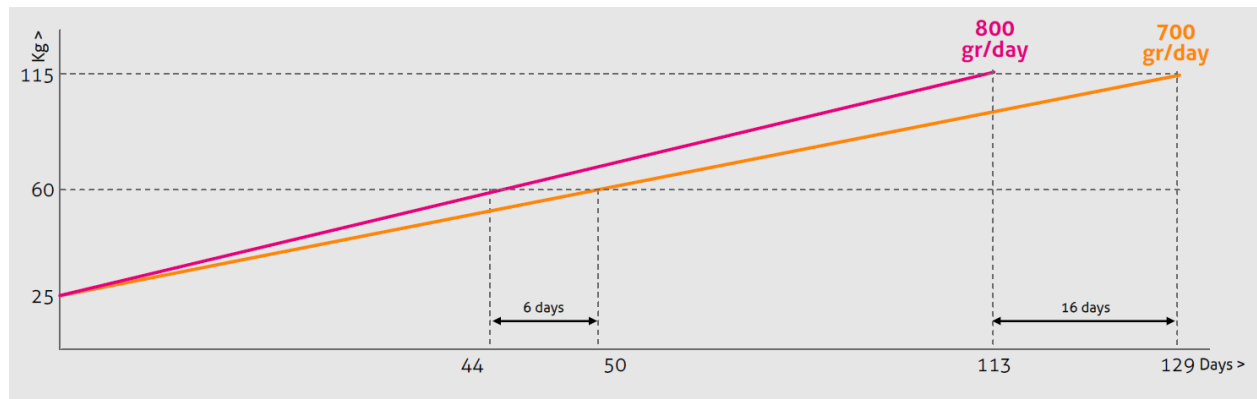
5. Individual care is possible for large numbers of finishing pigs

So far, we have discussed sows that represent a relatively high production value and have been given a certain degree of individual attention. You might not consider such attention being feasible in a facility with hundreds or thousands of commercial finishing pigs. But this kind of attention is absolutely worthwhile. The below graph shows the distribution in the growth rate of finishers in a group of 260 and explains why feeding to the individual is so important.





Even when extremes are taken out, the vast majority of the group still shows a difference of 300 grams per day in growth rate. 300 grams! For every 100-gram difference in average day growth, the quickest grower will reach 60 kilograms six days earlier than the slowest grower. (Assuming an 800-gram-per-day growth versus a 700-gram-per-day growth, both starting at 25 kilograms.) By the time the pigs have reached target live weight for delivery at 115 kilograms, the difference will have expanded to 16 days.

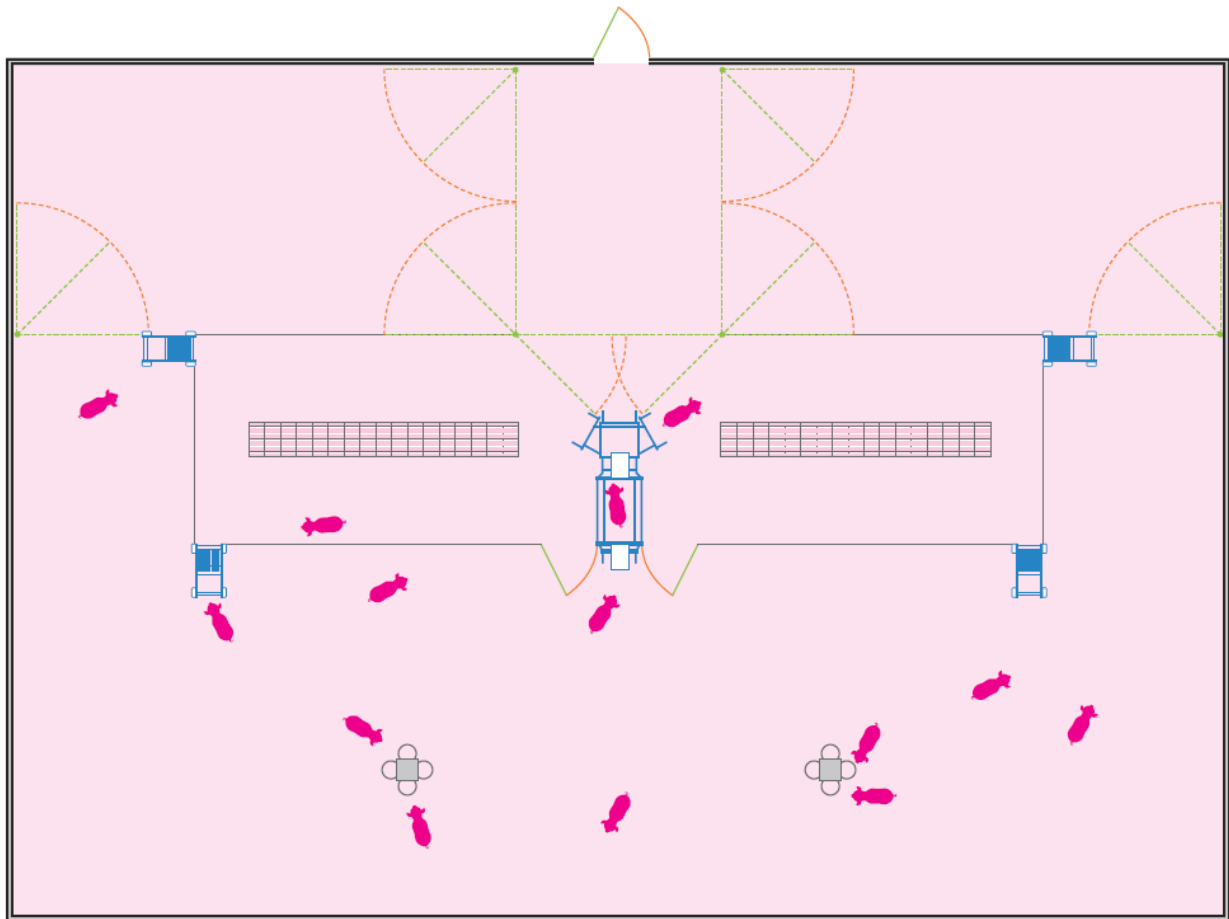


This level of variation is seen in finisher pigs everywhere but is seldom recognized or managed. There is an explanation for this. To manage something in an optimized way, you need data to make smart decisions. In this case, you would need to measure individual weights of finisher pigs. But weighing large numbers of finisher pigs individually and regularly is not a very attractive idea. And what is the point in taking a sample if the distribution is as wide as shown?

6. Make it automatic

Populations with distributions this wide can only be managed by monitoring the weight development on a regular basis and, given the huge numbers, in an automated process. That is why housing concepts have been developed that manage 250 to 500 finisher pigs in a large group. These performance testing systems continuously weigh and automatically sort pigs for different diets and delivery at target weights.

Daily weight collection has another bonus. The data will provide you with accurate information about daily gain and, therefore, help you develop an accurate forecast of pigs reaching target weight as early as four weeks in advance.



The above conclusions show a large benefit in managing pigs individually. That could justify the tendency to house pigs individually or, at least in as small groups as would be economically feasible. But here is the challenge: A decreasing number of knowledgeable farm managers are tasked with taking care of an increasing number of animals.

7. Help your people manage the diversity of pork production

At first glance, that challenge could be solved by mechanization. Automation can help a farm manager identify the needs of a large number of animals in a short amount of time. However, all automated systems are not equal.

In any material production process, such standardization would work just fine. For example, look how cars are being produced. Cars are standardized products assembled in standardized production processes. Unfortunately, it's not that easy in pig production, which is a biological process, not a material one.

Although commercial pigs might have become genetically more homogeneous, their individual response to management and their environment is still diverse. We can expect it will be for a long time to come. Therefore, success is not about managing individual animals; it is about managing diversity.

And that is what modern pig housing concepts should do: Perform individual management, monitor individual response and allow you to review and adapt to your pigs' responses. In a facility with individually housed pigs, that investment would be

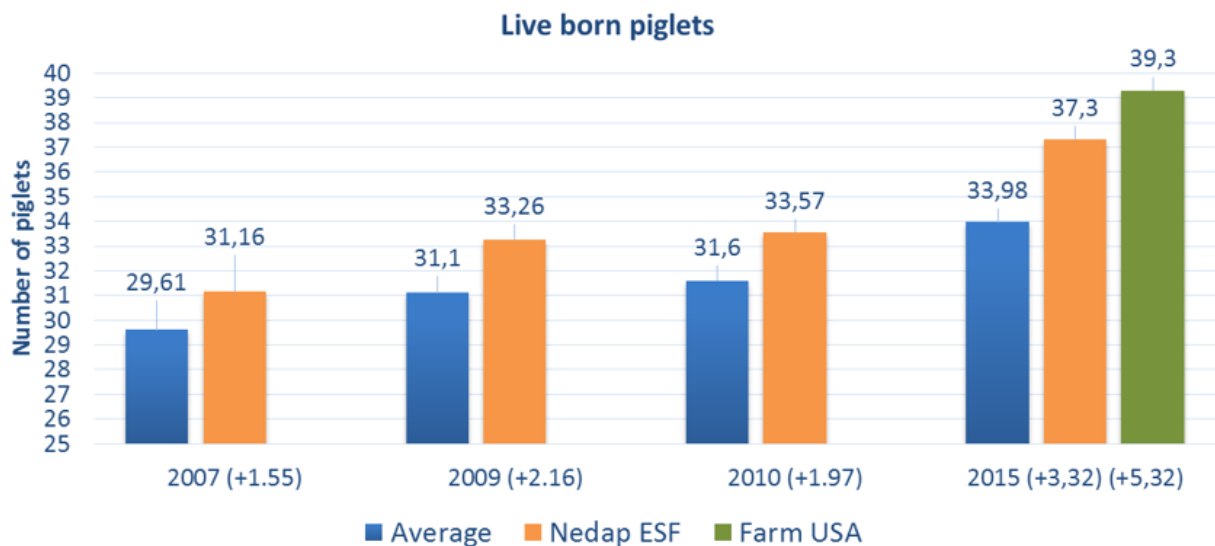


required for every single pig. However, by using automation, a group of animals can use one system, helping us to be efficient.



Overall conclusions

It is true that the introduction of group housing systems has been in some cases catalyzed by welfare regulations and consumer demands. But the results on the farms that have moved to these housing systems in combination with automated individual management show that this forced change was a blessing in disguise when it comes to supporting the performance of modern pig genetics.



When more factors such as ease of operational management and traceability are taken into account, the entrepreneurial question becomes even easier to answer. How can you benefit from group housing systems for pigs with individual automated management? Start counting the ways.

