

ALIGNING GENETIC GOALS WITH EVOLVING SOW HOUSING SYSTEMS



As global mindsets shift and concerns about animal welfare continue to grow, the agricultural industry must evolve in response. Pig farming – often associated with intensive production methods – may face more significant changes to align with increasing demands for ethical practices.

National councils are urging producers to adopt farming systems that prioritise animal welfare, a movement reinforced by both ethical considerations and legislative developments. While these changes may pose challenges, they also open the door to new opportunities for innovation and improvement within the industry. For Topigs Norsvin, this evolving perspective plays an important role in the development of breeding programmes aimed at producing sows that are easily managed within welfare-friendly systems, without compromising productivity.

THE SHIFT TOWARDS GROUP HOUSING

Group housing is becoming an increasingly prominent topic of discussion, driven largely by global legislation that is pushing the industry away from traditional crated systems. In South Africa, the 2012 welfare guidelines set by SAPPO state that group housing should be implemented during at least the last eight weeks of gestation. This minimum requirement is currently under review, with the aim of further reducing the time sows spend in crates.

For progressive pig producers, group housing of sows beyond regulatory requirements has been common practice for over a decade. In fact, the first South African farm to implement group gestation from just five days after insemination - using Topigs Norsvin genetics - was established in 2012.

Several interlinked factors determine how successfully sows adapt and perform in group housing systems. These include genetics, selection traits, environment, and management.

THE ROLE OF GENETICS

Genetics plays a prominent role in the productivity of sows in group housing systems and their overall success. Since the late 1990s, innovative genetics company Topigs Norsvin, have led efforts to breed animals specifically suited to group housing



environments. Their breeding approach integrates behavioural, physiological, and reproductive traits to identify sows that are better adapted to welfare-friendly living conditions.

Group housing allows sows more freedom to express natural behaviours that are often suppressed in traditional crate systems. This, in turn, offers clearer insight into individual behavioural and reproductive differences, enabling more effective selection of animals suited for group living. Key traits such as social tolerance, aggression, adaptability, and robustness must be considered in the selection of animals to achieve success in group housing systems.

Topigs Norsvin successfully identifies and develops these traits at the nucleus farm level by selecting grandparent sows under real-world group housing conditions. This eliminates animals that do not perform well in such systems, ensuring that socially compatible, resilient traits are passed down to commercial-level sows.

KEY SELECTION TRAITS

Group settings can introduce structural and reproductive challenges, making a balanced selection approach essential. The ideal sow for these systems must be physically sound, socially compatible, and robust. Topigs Norsvin also focuses on social genetic effects - incorporating the impact that individual sows have on their group mates into their breeding program. This approach helps produce sows that can successfully navigate group dynamics without compromising performance or welfare.

Selecting animals with lower levels of aggression allows for a smoother transition from crates to groups. Less aggressive sows exhibit better social tolerance and adapt more quickly. For more submissive or weaker sows, traits like adaptability and robustness are especially important. These traits help prevent dominant sows from overpowering them, which could otherwise suppress reproductive performance. Sows bred for adaptability are better equipped to handle social and environmental stressors, while those bred for robustness possess greater physical resilience during the establishment of social hierarchies - particularly in the critical first day after group introduction. Additionally, robustness contributes to improved immune competence, which helps reduce the negative effects of stress caused by relocation or social tension on overall production.

Animal soundness is also crucial, with factors such as leg conformation and body integrity being key areas of focus when selecting sows for group housing.

By ensuring sows demonstrate these

qualities, they will be better equipped to perform well, while coexisting harmoniously with their pen mates.

THE IMPORTANCE OF THE ENVIRONMENT

The success of group gestation housing depends heavily on the design of the pen environment. Sows must have adequate space to move freely and comfortably, reducing the risk of aggression triggered by environmental conditions or social stress.

Minimising external stress factors during group formation is essential. This includes ensuring sufficient resting areas, as well as carefully planned feeder space and water access to give all sows equal opportunity to eat and drink. Providing enough space not only promotes better welfare but also enables more effective monitoring of sow behaviour and overall health.

EFFECTIVE SOW MANAGEMENT

Along with the idea that group housing aligns more closely with animal welfare perceptions, managing sows in group settings requires a greater focus on minimising the potential negative effects of social interactions. It is natural for animals to establish a social hierarchy, and sows are no exception. This behaviour must be carefully considered when introducing a sow into a group.

Some sows display more dominant behaviour than others, making it essential to manage this variation to reduce associated risks. Factors such as animal size, parity, and overall condition should be considered when forming groups. Additionally, re-grouping should be avoided to maintain social stability.

The timing of group formation is also crucial, especially considering the physiological changes sows undergo. Movement into groups should not occur during the critical period of embryo implantation, which takes place between days five and 30 after insemination. To increase reproductive



success, sows should be moved either before day five or after day 30.

Feeding strategies must also be carefully planned to ensure optimal sow satiation. Proper feeding reduces aggressive behaviour that often results from hunger or competition for food. Seasonal differences should also be considered as nutritional maintenance requirements can vary throughout the year.

BEYOND GESTATION: INNOVATING SOW HOUSING FOR FARROWING

The next major focus in animal welfare is shifting from gestation housing to the farrowing phase. The discussion around free-farrowing or free-lactation pens is becoming just as prominent as that surrounding group gestation housing. While traditional crated farrowing systems are designed to reduce piglet mortality, they are often criticised for negatively affecting sow welfare. Free-farrowing and free-lactation pens are driven by the same principles as group gestation housing – giving sows the freedom to express natural behaviours during farrowing and while caring for their piglets.

Topigs Norsvin is also leading the way in free-farrowing research and implementation. With 360 free-farrowing units at Innova Canada, detailed evaluations of sow and piglet behaviour are helping to identify and breed animals with

improved mothering ability and greater robustness. These better-adapted sows are not only expected to perform well in welfare-friendly systems but are also being bred for compatibility with traditional crated farrowing and lactation setups. A sow bred for strong maternal traits will demonstrate those qualities regardless of the housing system she is placed in.

IN CONCLUSION

As welfare standards evolve, so too must pig farming practices. A key driver of future success will be the integration of genetics and management. Forward-thinking strategies must prioritise the selection of animals better suited for future housing systems – supporting not only animal welfare, but also sustainability and productivity.

Genetic companies' breeding programmes should provide a blueprint for the future of pig farming, combining productivity with resilience in socially complex environments. By focusing on the right traits and supporting them with effective management, the challenges of future housing can be transformed into opportunities for innovation and long-term growth.

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