Genetics Update

Winter 2025

In this issue, we share insights from Martin van de Peut's sireline nucleus unit in the Netherlands - the source of some of our TN Tempo boars.

We also hear from Jenelle Dunkelberger, PhD, Geneticist at Topigs Norsvin, who explains their latest advances in using camera-based data collection to enhance resilience and social behaviour in pigs.

Giles Christie, Sales Director, JSR Genetics

Breeding Excellence: Insights from Van De Peut's High-Health Nucleus

We were pleased to recently host a visit from Martin van de Peut, owner of a sireline nucleus unit in the Netherlands. Martin plays an important role with our genetic partner, Topigs Norsvin, breeding high-quality boars which are then distributed across Europe.

JSR Genetics receives TN Tempo boars from the van de Peut unit, along with Topigs Norvin's Delta Canada unit. These boars are housed within our AI studs and provide UK producers with our top quality AI semen.

Martin's unit is in an extremely isolated location which has maintained its Specific Pathogen Free (SPF) status for many years, meaning it is free from all common pig diseases. Biosecurity is clearly a way of life on the unit.

The unit, along with Delta Canada, has successfully farmed for many years without tail docking, reflecting the temperament and behaviour traits of the TN Tempo.

The ongoing genetic improvement and development which Topigs Norsvin is renowned for can clearly be demonstrated on Martin's unit. The following table below shows the average results of all TN Tempo boars in 2024:

TN Tempo Test results 2024

Growth	1372 g/d
FCR	1.93
Fat	9.0 mm
Loin	65.0 mm

(source: Van de Peut, NLD)

Martin received Topigs Norsvin's boar of the month in October 2025, which had some truly impressive results:

- **147 days: 157 kilograms**
- **Live growth: 1068 grams per day!**
- **Test growth 1597 grams per day**
- **Back fat at 157 kg – 9.8 mm**
- **Loin depth at 157 kg – 82.3 mm**

The TN Tempo continues to show strong sales growth in the UK, reflected by the investment in our new stud, as well as positive feedback from our customers. Producers are seeing pigs that are healthy, robust, easy to manage, with performances that highlight the ongoing genetic progress delivered through Topigs Norsvin genetics.

JSR GENETICS
Powered by Topigs Norsvin

Look out for an update on our brand-new stud in the next edition »

Resilient by Design: How Topigs Norvin's Genetics are breeding healthier pigs

Jenelle Dunkelberger, PhD, Geneticist at Topigs Norsvin

Improving health and welfare is a fundamental goal of Topigs Norsvin's breeding program. Topigs Norsvin addresses this goal by selecting for enhanced robustness under both conventional and diseased challenged conditions, and for desired behaviour during different phases of production. The aim is to improve health under conventional conditions by selecting animals based on specific health traits, such as conformation, body condition score, reduced susceptibility to osteochondrosis, and reduced susceptibility to uterine prolapse. Improving health under disease challenged conditions is addressed by selecting animals based on indicators of performance under challenge, and soon to be accompanied by more comprehensive traits for disease resilience.

Disease resilience is defined as an animal's ability to maintain performance in the face of a disease challenge, or to recover quickly following exposure. This trait is not specific to a certain disease but refers to animals that are simply better at responding to whatever type of pathogen they may be exposed to. Breeding pigs for improved behaviour and disease resilience is highly relevant for efficient, sustainable, and economical pig production. Both trait categories consist of complex, multifactorial, and difficult-to-measure traits. In contrast to traits like body weight and back fat, disease resilience and behaviour cannot be defined using data collected at a single point in time, but rather, require repeated, detailed phenotypes.

Topigs Norsvin has been developing a strategy to breed pigs for improved disease resilience since 2018. This approach requires collecting data in real-world challenge scenarios, including performance, morbidity, and mortality information following exposure to major swine diseases. Data collected

under these conditions captures variation in how pigs respond to disease and are used to derive an individual's genetic merit (i.e. breeding value) for disease resilience. Results from a recent "proof-of-concept" study show that selection based on these breeding values can be used to create significant contrasts in growth rate, treatment rate, and mortality rate between pigs sired by boars with low vs. high breeding values for disease resilience.

Detailed phenotyping is also critical to facilitate selection for (or against) certain types of behaviour, but it's not always feasible (or possible) to obtain behavioural phenotypes via manual recording. Cameras, however, can be used to collect a high volume of data over extended periods of time, dramatically reducing the time and labour needed to collect data for these kinds of traits. Topigs Norsvin has camera pipelines installed at several locations, including farms in Canada and in Europe. Data is being collected at these locations to study posture traits (i.e. standing, sitting, lying), as a first step towards evaluating differences in more intricate behaviour, such as instances of biting, belly nosing, or even play behaviour. In Canada, camera data is collected to study maternal behaviour, such as time spent lying in a certain position. Models have also been developed to detect individual piglets and are being extended to study differences in piglet behaviour from farrowing to weaning.

Topigs Norsvin has made significant investments to develop new health and welfare traits. Data collected under disease challenged conditions, and video footage collected on pigs during various phases of production, are being used to define novel resilience and behaviour traits. Breeding pigs for enhanced resilience and social behaviour is an important part of Topigs Norsvin's strategy to contribute to healthier, more sustainable pork production.