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# Norsvin® Continuous Improvement of Landrace Productivity

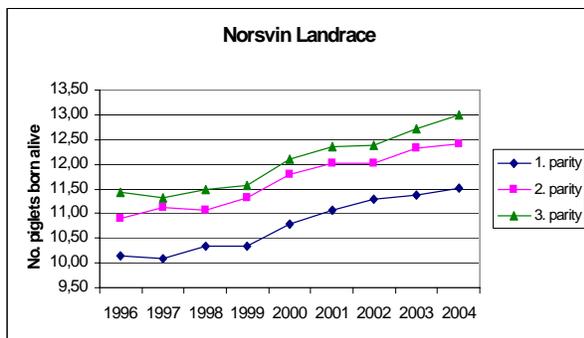
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## Introduction

Norsvin, headquartered in Hamar, Norway, operates a highly effective platform for swine genetic improvement. Extensive animal testing and intensive selection are based on Norway's high health swine population. The Norsvin Landrace population consists of approximately 2,100 sows in nucleus herds and 2,300 sows in multiplication herds. The effectiveness of Norsvin's genetic selection is proven in the phenotypic improvement of nearly 1.5 live born piglets per litter since 1998. This progress was followed by a change of the breeding goal to ensure progress sustainability.



## Material and Methods

In 2001, compulsory recordings of several new fertility traits were introduced; intensity of pro-oestrus symptoms and ability to show standing reflex (none, weak, moderate, strong), dystocia and its reason (inertia, fetal oversize, deviations of the uterus, inadequate dilations, etc), and duration of parturition (two hours' intervals).

Also in 2001, the nucleus and multiplication herds began to record individual weights of piglets at three weeks of age. The data are sent to Norsvin through the national recording scheme. Approximately 100,000 piglets are weighed annually. All of these new traits have been included in genetic analysis along with carcass and production traits. More than 200,000 phenotypic records were included in the analysis.

## Results

Quantitative genetic analysis reveals that dystocia and duration of parturition both are regulated by similar genes, but their genetic relationship to litter size is somewhat different. Increasing the number of live born piglets is associated with reduced duration of parturition but to an increased probability for birth assistance. Selecting for live born piglets will not result in an increase of stillborn piglets. The genetic relationships show the unfavourable genetic correlation of litter size to growth, leanness and feed conversion.

## Discussion and conclusion

Knowledge of genetic relationships provides a unique opportunity to detect potential unfavourable genetic responses of the breeding goal and to re-optimize it if necessary. It is important to take into account all known genetic correlations for constructing the breeding goal of a lean and prolific breed such as the Norsvin Landrace.

Therefore, in 2004, the breeding goal of Norsvin Landrace was revised. Today, 50% of the aggregated breeding value accounts for litter size, reproduction, longevity and maternal traits aimed at sustaining genetic progress.

