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The Maternal Herd

(Evaluation of suckler cow replacement strategies – home-bred versus dairy-crossbred and high versus low maternal index)

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Summary

- The function of the *Maternal Herd* is to allow us validate the Euro-star Replacement Index. It is a herd that will provide direction and confidence to stakeholders on the utilisation of the index to select animals suitable for breeding replacements.
- The *Maternal Herd* will be a valuable resource for collecting new information on maternal traits that are important for beef suckler systems.

Introduction

Genetics play an important role in overall farm profitability by facilitating optimal breeding decisions that have the potential to increase long-term animal productivity. The ideal suckler cow for Ireland is a cow that will efficiently produce a weanling that has a good weight-for-age, from a grazed grass diet, and that will go back in calf each year. Key drivers to profitability of suckler beef production include stocking rate, mean calving date, age at first calving, number of calves per cow per year, calf growth rate at grass and days to slaughter. However, all these drivers are irrelevant if the appropriate cow suited to a grass-based system of production has not been established. Current industry figures show that, on average, suckler cows are 30 months of age at first calving, have calving intervals of greater than 395 days and are, on average, producing 0.85 calves per cow per year. Since genetic gain is cumulative and permanent, an animal with high genetic merit for maternal traits should be superior for milk production and fertility traits, and this should extend to subsequent descendants. In autumn 2012, ICBF launched a new Replacement Index (similar to the Self Replacing or Maternal Index used in the UK) for beef cows that aims to identify bulls to breed heifers as suitable replacements for the beef suckler herd.

Teagasc's *Maternal Herd* has been established at Teagasc Grange. The research carried out with this herd will involve detailed observations on genotype for performance traits such as milk production, reproductive efficiency, weaning weight, body weight and body condition score, as well as detailed feed intake and energy balance measurements.

Establishment of the Maternal Herd

The herd was established in 2013 with the purchase of maiden heifers (weanlings) from commercial farms throughout the country. The primary goal was to validate the Replacement Index that was launched by ICBF in 2012. These heifers represent two divergent categories of animals – those of high and low genetic merit for maternal traits. Heifers were selected based on their sire's Replacement Index, as well as the breeding values for the key maternal profit indicator traits (i.e. age at first calving, calving interval, maternal weaning weight and maternal calving difficulty). Only heifers from sires with high reliability (>70%) values for the Replacement Index were selected. Two sire breeds were selected for this experiment, an early-maturing breed (Aberdeen Angus) and a late-

maturing breed (Limousin). A total of 10 sires from each of the breeds were selected and 5 daughters per sire are used. Heifers were selected from two breeding sources, the dairy herd and the suckler beef herd. Figure 1 represents the composition of the Maternal Herd. The high Replacement Index heifers have an average maternal index of €179. The low Replacement Index heifers have an average Replacement Index value of €86.

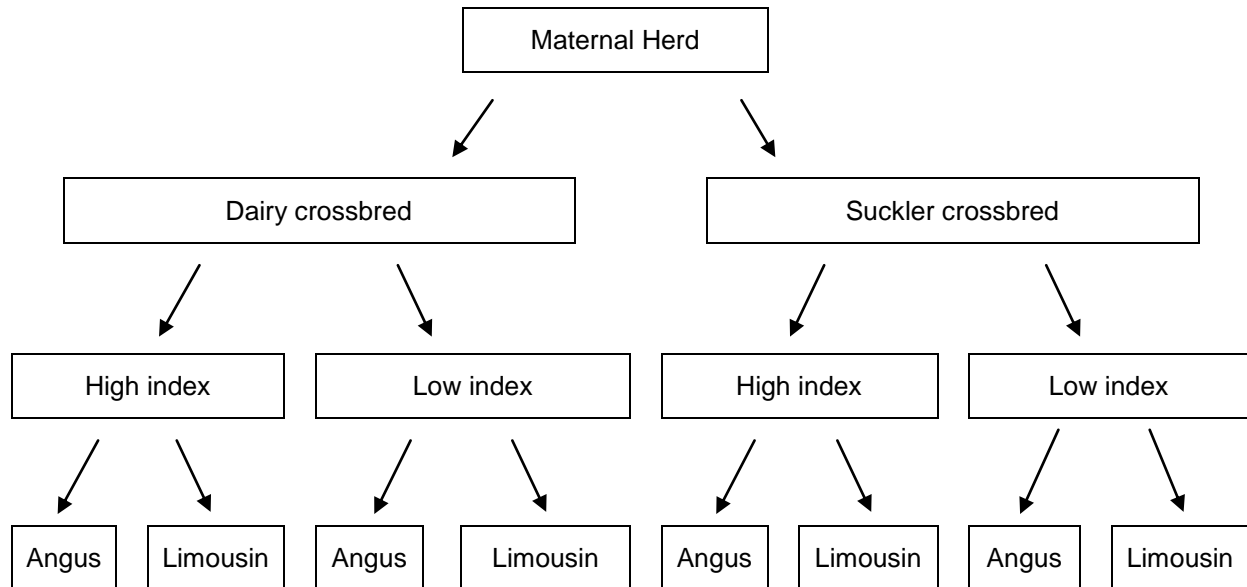


Figure 1 - Summary of the composition the new Maternal Herd.

Preliminary results

Mean calving date in year one of the study was March 21st 2014. Early production performance indicates no differences in cow live weight and body condition score at calving between the two genetically diverse groups. Results to date also showed no differences in calf birth weight or calving score between high and low replacement index animals.

Table 1 - Current performance of cows in the Maternal Herd.

	Dairy crossbred		Suckler crossbred	
	High	Low	High	Low
Generic merit				
Age at first calving (days)	754	748	769	769
Body weight at calving (kg)	497	493	521	540
BCS at calving	2.28	2.31	2.35	2.39
Calf birth weight (kg)	39	40	39	41
Calving score (1-5)*	2.15	1.85	2.17	2.32

* Calving score of 1-5: 1 = unassisted, 5 = caesarean

Conclusion

The *Maternal Herd* is of fundamental importance to the industry and is an excellent research project that will provide direction and confidence to stakeholders on the utilisation of the Replacement Index. The herd will be a valuable resource for collecting new information on important maternal traits for

beef suckler systems.

The above article was reproduced and adapted courtesy of Teagasc.

Footnote comment from Simon Marsh, Principal Lecturer – Beef Cattle Specialist, Harper Adams University & NBA Board Director.

Whilst the results to date show minimal differences between the high and low index heifers it is of interest to compare the mean results to highlight the differences between dairy and suckler crossbred replacements which are shown in table 2.

Table 2 - Current performance of cows in the Maternal Herd - dairy versus suckler bred.

	Dairy crossbred	Suckler crossbred
<i>Age at first calving (days)</i>	751 (24.6 months)	769 (25.2 months)
<i>Body weight at calving (kg)</i>	495	531
<i>BCS at calving</i>	2.30	2.37
<i>Calf birth weight (kg)</i>	39.5	40
<i>Calving score (1-5)</i>	2.0	2.25

It is of interest to note that the dairy crossbred replacements were younger at first calving (18 days), were 36kg lighter and recorded slightly less assistance at calving which are all positive traits. There was no difference in calf birth weight. The suckler crossbred heifers were in slightly higher condition score which would be as predicted.