New genetic index for herds engaged in crossbreeding

A new genetic index has been developed for dairy herds involved in crossbreeding, with the aim of reaching goals which are more typically required by these producers.

The index, called the ProCROSS Ranking (PCR), has been developed by ProCROSS, a programme recognised as the only proven crossbreeding concept in the world*.

The programme involves the alternate use of the Holstein, Montbeliarde and VikingRed breeds in a structured manner, which maintains the maximum possible level of hybrid vigour while blending important economic and physical traits from the three complementary breeds.

“Breeders who have chosen to crossbreed are usually pragmatists,” according to Stéphane Fitamant, Managing Director for ProCROSS. “They often don’t get hung up on breed characteristics but would rather focus on traits which confer ease of management, health, fertility, robustness and ultimately profitability on to their herds.

“VikingGenetics and Coopex Montbeliarde – who operate the ProCROSS programme – have therefore developed the ProCROSS Ranking to help producers around the world select the best sires to achieve these goals,” he says. “We have based the index on science – and as such, the PCR is not unlike many countries’ economic indexes, such as the £PLI in the UK, ISU in France, NTM in the Viking countries or NM$ in the USA – but have adjusted the weighting of the traits to fulfil the requirements crossbreeders have told us they value and need.”

Furthermore, because the hybrid vigour in the ProCROSS programme has been proven to deliver higher health and fertility than predicted by the parent average, the opportunity has been taken to place a slightly greater emphasis on production in the PCR than in many other indexes.

“This means the PCR includes a weighting of 45% production and 55% non-production traits,” he says.

However, because there’s a distinct divergence between producers’ needs – some of whom supply a purely liquid market while others need high solids for cheese or other manufacturing contracts – there are two versions of the PCR. One is for liquid (PCR_L) and the other is for contracts with an emphasis on solids (PCR_S).

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Behind the new index is a further recognition of the differences between the three ProCROSS breeds.

“The Holstein is renowned for her exceptional production and udder conformation but has become too tall for many producers; the VikingRed is renowned for health, udder health, fertility, milk quality, longevity and medium stature; while the Montbeliarde’s reputation is for fertility, body condition, robustness and high protein milk,” says Mr Fitamant.

“So, the formula for PCR has been carefully tailored to build on the strengths and diminish any weaknesses within each breed.

“For example, there’s a penalty for too much stature in the Holstein, and in fact for too much and too little in the VikingRed; there’s an added bonus for udder conformation in the two red breeds and a bonus for good temperament in the Montbeliarde, to counteract some bulls which were negative for that trait in the past.”

The result is that by selecting sires on PCR, alongside each country’s national breeding goal, the ProCROSS cattle in any herd will become more consistent and uniform – including in stature and overall conformation – and produce higher weights of milk and/or milk solids.

“We think it will make crossbreeding a lot easier for producers and be tailored more closely to their goals, especially those using a team of bulls, rather than individually mating their cows,” says Mr Fitamant. “When using the ProCROSS programme, they follow a sequence of the three breeds because of its proven success, so can make quick and easy sire selections by ranking their current breed on the PCR.”

The index is expressed on a scale of around 400 to 600, with 500 representing the average.

Like most countries’ national breeding indexes, it is expressed for each breed, so one breed’s PCR cannot be compared with another.

Using the ProCROSS Ranking (PCR) for sire selection

- Builds on strengths of each individual breed: Holstein, VikingRed and Montbéliarde
- Holstein: Capitalises on production while moderating stature and improving feet
- VikingRed: Builds on health, longevity and milk quality while improving udder conformation
- Montbeliarde: Builds on fertility, milk protein and robustness while improving temperament
- Allows a programme to be followed for either liquid milk or manufacturing contracts
- Achieves more uniformity in herds using the three breeds in the ProCROSS programme

Notes for editors

- VikingGenetics is a farmer-owned cattle breeding cooperative operating across Sweden, Denmark and Finland. With its strong focus on both environmental and commercial sustainability and its long history of measuring and improving health-related traits, the cooperative has helped farmers across the Nordic countries and worldwide breed cattle with an optimal balance of productivity and health, which are renowned for their lifespan and profitability.
- Coopex Montbeliarde is the world's largest and most innovative Montbeliarde breeding programme. It has worked with farmers around the world for more than 40 years and is present today in over 60 countries. With headquarters in eastern France, it has an 82% share of France's Montbéliarde genetics market.
- ProCROSS is a crossbreeding programme developed by VigingGenetics and Coopex Montbeliarde, using three dairy breeds – the VikingHolstein, VikingRed and Coopex Montbeliarde – in sequence. The breeds have been chosen for their complementary qualities and their proven ability to produce uniform herds of easily managed cattle. By continuing the three-way cross in sequence, the benefits of hybrid vigour are optimised and maintained over the generations.
- * The ProCROSS concept has been proven over a 10-year trial at the University of Minnesota. The trial demonstrated that ProCROSS cattle produce daily profits which are, on average, 9-13% greater than those from a pure Holstein. The financial advantage was demonstrated to come from a range of factors including greater lifetime production of fat plus protein solids, better fertility, fewer health treatments, higher calf and cull values and improved survival. This means the substantial difference in the crossbreeds' economic performance stemmed from their lower costs of production.

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