

Innovations in Cross Breeding in Moderate to High Yielding Dairy Herds

FIV Trip January 2023 Report

A group of dairy farmers from N.Ireland accompanied by CAFRE Senior Dairy Technologist Judith McCord and CAFRE Dairy Advisor Elizabeth Calvin took part in a 2 day farm Innovations study tour to look at innovations in cross breeding in moderate to high yielding dairy herds in the south of England.

Day 1 – Genus HyVig

Visiting three farms in Somerset and Devon:

a) Dillington Farms, Ilminster

Fully housed robotic unit of 350 crossbred cows in 3-breed rotation doing almost 11,000 litres.

b) Middleton, Woodbury

270-cows autumn block calving herd doing 7,100 litres in 2-breed rotation

c) Knapman Farms, South Molton

400 cows autumn calving, fully housed; 3- way cross with an average yield of 8,765 litres

Day 2 – Viking Genetics

Visiting three farms in Devon and Somerset:

a) Phil Daniels, Holsworth

All year-round calving herd of 170-cows cross-breeding for 8 years and doing 9,200 litres with a 3-breed rotation.

b) Gavin Fowler

280 cows, autumn block calving. 8000 litres with a 3-breed rotation

c) Peter Edmonds, Ashcott

Autumn block calving herd of 270 cows doing 8,700 litres with a 3-breed rotation.

Cross Breeding in Dairy Herds

Crossbreeding is practiced in the majority of livestock production systems including beef, sheep, pigs and poultry, but dairying in contrast is dominated by pure breeds – predominantly the Holstein which has been used widely from

the 1980s because of its ability to produce large volumes of milk. The Holstein breed has revolutionised milk production, but it has also been associated with declining fertility, health and longevity. While dairy crossbreeding is the norm in lower yielding grass-based production systems such as New Zealand and the Republic of Ireland, the problems of the Holstein inspired scientists in the USA to examine the potential for crossbreeding in moderate to high yielding dairy herds - the results of which inspired CAFRE to develop a Farm Innovation Visit to the southwest of England on the subject.

Cross Breeding in Devon and Somerset

At the end of January, a third group consisting of 8 farmers went on a 2-day trip to Somerset and Devon and visited six herds that have successfully implemented crossbreeding over the last 10-15 years. The farm visits were arranged in association with Viking Genetics and Genus Hyvig and those on the trip got the opportunity to hear the first-hand experiences of the host farmers. None of the farmers visited regretted their decision to go down the crossbreeding route, and David Mackey, the CAFRE Dairying Adviser who organised the trip said “that the farmers all talked about the invisible cow” – a cow whose number isn’t familiar because she goes into calve at first insemination, doesn’t have any mastitis or lameness problems, gives a reasonable amount of milk, calves regularly every year and sticks around in the herd for up to a lactation longer. However, while highlighting the merits of crossbreeding, Andy Dodd, an independent breeding consultant who had formerly worked at AHDB cautioned on the seriousness of such a decision highlighting that the changes to the £PLI index have much improved the functional traits of the Holstein breed.

All farms visited had started with a herd of Holstein cows and “dabbled” with crossbreeding at first, serving a small number of cows with an alternative breed at first and waited to see how the crossbreds did in their first lactation before committing to it any further. Had they to make the decision about crossbreeding again, all those visited said that they wouldn’t have dabbled but would have just gone “whole hog” instead. The representatives from both Viking Genetics and Genus agreed that the greatest benefit came from the first cross. Each of them favoured use of the Scandinavian Red, whether that be a Viking Red or a Norwegian Red, as these breeds brought the greatest benefits in terms of health, fertility and longevity whilst also decreasing cow size. To maintain hybrid vigour five of the six farms visited used a third breed, either Montbeliarde or Fleckvieh, to improve body strength and milk quality before

crossing back to the Holstein again for its strengths in terms of milk yield and udder conformation. Each farmer visited on the trip talked about the importance of work-life balance, and how crossbreeding has facilitated this by creating an easy-care cow. However, as with conventional breeding in purebred Holstein herds, they stressed the importance of making strategic breeding decisions over several years to produce the type of cow they wanted – and that sires still need to be selected on their relative merits with two sires of each breed type being selected for use each year. Three of the farms visited had autumn calving herds with all cows calving down in a 10–12-week block. As well as focusing the workload to specific times of the year, it allowed for drying cows off from early summer to better cope with the grass shortages brought about by the drought conditions in south Devon and Somerset each year.

Summary

Main considerations for an optimal crossbreeding plan

- ◆ Firstly – is crossbreeding suitable for you?
- ◆ If so, choose distinct breeds with a sizable population and progressive selection programme.
- ◆ Choose breeds that are complementary in terms of their strengths/ weaknesses.
- ◆ Ideally use 3 breeds in rotation as this maximises hybrid vigour without diluting the benefits of each individual breed.
- ◆ Use only the highest-ranking bulls of each breed.

Lessons learned ...

- ◆ Importance of work-life balance
- ◆ Each farm has a system – and strived to identify and improve on weaknesses.

- ◆ Breeding policy needs to be strategic and fit with long-term herd plan.
- ◆ Consider breeds being used and what they are being used for:
 - Viking/Norwegian Red – health/fitness traits
 - Montbeliarde/Fleckvieh – strength/milk quality (especially protein)
 - Holstein – milk yield and udder conformation
- ◆ Still need to select sires carefully from each breed for desired traits.

Practical Benefits of Crossbreeding ...

- ◆ Created an “invisible” cow that works hard and gives no trouble.
- ◆ Improved milk quality beyond that of selecting for BF% and PR% in Holstein.
- ◆ Allows for compact autumn calving to enable early dry off.
- ◆ Improved fertility, cow health and longevity.
- ◆ Needs to be strategic and fit with long-term herd plan.

None of the farmers visited had any regrets about crossbreeding, but if they were to do it again would go at it “whole hog” from the start rather than dabbling.