

To cross or not to cross?

AI has successfully enabled the widespread use of elite sires to improve dairy productivity, but over time this genetic selection for fewer sires has reduced the gene pool and led to an increase in inbreeding in the national herd. The effects of inbreeding, known as inbreeding depression, cause great concern among Holstein breeders. Research has shown that each percentage increase in inbreeding reduces milk production by 15kg per lactation and increases calving interval by around 0.4 day. It's the reduction in health, fertility and longevity that is causing most concern and is also the hardest to quantify.

What are the options?

Over recent years many farmers have turned to crossbreeding. Crossbreeding increases the gene pool, and as such, has the opposite effect of inbreeding depression, improving health, fertility and productivity. This improvement is called hybrid vigour.

Recent results from a trial in California, are already showing some impressive results.

First lactation averages (305 days, milking twice a day)

Breed	Rel%	Milk (kg)	Fat (%)	Prot (%)
Holstein x Holstein	380	9,890	3.56	3.10
Normande x Holstein	245	8,592	3.76	3.24
Montbeliarde x Holstein	494	9,202	3.66	3.17
Scandinavian Red x Holstein	328	9,308	3.68	3.20



Crossbred Backgard daughter

On the plus side...

- Crossbreeding has been found to improve fertility by 10% and production by 6.5%.
- Health traits are improved; increased resistance to disease makes crossbreeding particularly attractive to organic farmers.
- There is a vast selection of breeds available so farmers can select those with the desired characteristics for their system.

On the negative side....

- The value of stock instantly falls, as the herd is no longer purebred.
- To maximise hybrid vigour it is important to use a minimum of three breeds; more breeds will improve hybrid vigour, but increase complexity of management and dilute the impact of any one particular breed.
- If the best quality animals are not used, the improvement through hybrid vigour is unlikely to make up for the reduction in genetic improvement.

Recent research done by MDC Breeding+ suggests that inbreeding levels in the national herd has risen to 2%. Compared to the USA and Canada this is relatively low, but still a cause for concern and indeed action. But ultimately the decision of whether to crossbreed or simply look to reduce inbreeding by selecting outcross sires in the Holstein Friesian breed, will depend on the individual farm circumstances.

Summary

- Crossbreeding is NOT genetic improvement.
- Continuous use of top sires is essential for genetic improvement.
- Hybrid vigour is a bonus that dairy producers can expect on top of the individual gene effects from the use of top A.I. sires within breed.
- The bonus from hybrid vigour should be about 6.5% for production and at least 10% for fertility, health, and survival of dairy cows.
- Most crossbreeding systems should use three breeds to allow for good levels of hybrid vigour, without the complications inherent in using more than three breeds.
- Farmers should decide whether to look to reduce inbreeding by crossbreeding, or using outcross sires from within the breed.

This issue:

We take a look at
the Dourie
Farming
Company

Introducing New
Young Sire
Ballycairn Oman
Echo

New Jersey
Sire
Forest Glen
Lemvig Gunner



Who Said Extensive Syst

If you thought large herds required acres of concrete, 365 days a year housing and a TMR feeder, think again! The Dourie Farming Company at Port William, near Newton Stewart is living proof that large herds can be successfully managed without a huge investment in infrastructure.



Robin and Rory Christie

Rory Christie and his team manage over 900 cows on a spring calving, grassland based system and are achieving an excellent level of technical performance. "The key to our management is keeping things simple and avoiding tying up capital in machines and buildings. For example, I can't see the point in using diesel to take the feed to the cows and then move the slurry out - that's what cows have legs for. While the systems in New Zealand have had a huge influence on our approach I feel we are actually running a system that suits the climatic conditions in SW Scotland."

Dourie Farming was started by Rory's grandfather in 1954 and the business is now run by Rory, his father Robin and brother Gregor who has responsibility for the 900 sow unit and 8,000 finishing pigs that are on site at any one time. The farm rears all heifers and steers.

The farm has always had dairy cows but numbers began to expand rapidly as the milk price fell. A new 44 point rotary was installed in 2005 and Rory purchased 150 cows from Ireland and 50 Danish Jerseys to push numbers further. The farm now carries over 960 cows with 800 at the main

Dourie unit and the balance as a smaller unit at South Barsalloch.

The cows calve from February to the beginning of May and are out-wintered in the main. Given the rigour of the system Rory is very particular about the type of cow he is breeding.

"We select for milk quality but place great emphasis on functional type, particularly legs, feet and udders. We are really interested in survivability. We need a cow that can stand the bad weather and maintain condition as we need them to get back in calf quickly."

The herd is predominantly Friesian or Friesian cross Jersey although there is some Holstein influence. Most recently Rory has been using Irish bulls including Tittenser Hylke, Dovea Sem and Grietman. This year, in addition to Friesian sire the plan is to crossbreed some of the cows with Swedish Red.



Dry cows are out-wintered in groups of 100 and are fed ad lib grass silage. They are grouped by condition and calving date. The out-wintering paddocks are on sandy soil which means they are more freely draining and can tolerate cattle through the winter.

As soon as the cows calve they go onto clean grazing are expected to be eating 15kg grass DM per day. They will be fed around one tonne of high energy feed in the parlour with feed rates limited to 4kg/day. The feed is seen as an energy supplement and Rory has used feeds such as beet pulp and molasses in the past.

Systems Only Suited Small Herds?

Cows are targeted to peak at 25 litres and are currently averaging 5,750 litres at 4.25% butterfat and 3.6% protein from 1,114kg concentrates per head. Cell counts are running at around 120,000 cells/ml and Rory believes both mastitis and lameness are less of a problem with out-wintered cows.

Milk is sold to the Caledonian Cheese Company and the price is based on constituents with no seasonality payments or deductions. This is a plus point for Rory as the daily production will range from 2,000 - 20,000 litres per day.

Rory takes an aggressive approach to getting cows back in calf as he wants to minimise replacement rate and maximise days in milk. The breeding window starts on 1st May and AI is used for nine weeks. All cows seen bulling are served and extensive use is made of tail paint. Cows are painted three weeks before the start of the breeding window. After the nine weeks a team of Hereford bulls are used to sweep up. All cows not seen cycling by 50 days post calving are seen by the vet and all cows are PD'd six weeks after the bulls come out.

The results achieved are very impressive and defy the argument that spring calved, out-wintered cows tend to be difficult to rebreed. Of 690 cows served by AI at Dourie in the nine week period, 595 are in calf to black and white - 86%. A further 60 cows are in calf to the sweeper bulls. This year 250 cows will calve in February, 214 in March and 150 in April. In addition 175 heifers will calve down in February.

Rory believes the key to the fertility success is team work. "We have two full time staff on the Dourie unit along with a contract milker and two seasonal workers who are with us from February to August. The 160 cow unit is run by one exceptional stockman, John Rennie.

"All our staff work closely with the Genus ABS technicians to spot cows in heat and make sure nothing is missed. We are very lucky to have an excellent herd manager Owen Spice who is as important to our team as his cousin is to the Cardiff Blues." (Jason Spice is first choice scrum half with the Magners League club.)

With so many cows due to calve in the spring, grazing management has to be of the highest order. The farm

uses a paddock grazing system with 200+ha split into 2ha paddocks. The 800 cows at the Dourie unit will graze as two groups. "We graze the heifers and lighter cows separately from the mature cows so they get a fair chance to graze."

In the early part of the season the cows are moving round the paddocks on a 15 day cycle extending to 40 days towards the end of the season. Any excess grass is cut for silage.

Fields will be topped as required after each grazing before a dressing of pig slurry is applied. With fertiliser prices moving ever upwards, Rory is grateful for a regular supply of pig slurry.



As he is expecting cows to consume 15kg DM per day from grazing, Rory takes a very measured approach to grassland management. Grass height is regularly assessed with a plate meter and a New Zealand pasture growth programme is used to calculate the available feed.

"The truth is that well managed grass will retain its feed value throughout the season. The grass we were feeding in November was very similar feed value to the grass available in May (see table below)."

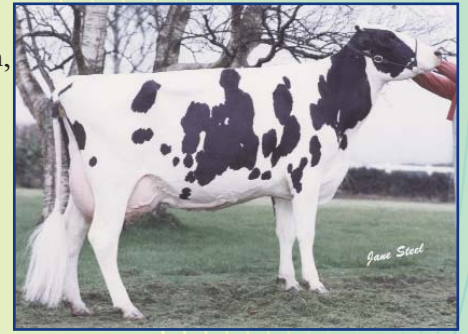
	Sampled 23 May	Sampled 15 June	Sampled 15 November
Crude Protein (%)	27	25	25
'D' value	78	76	77
ME (MJ/kg/DM)	12.5	12.2	12.4

The system at Dourie Farming is testimony to the fact that carefully bred, well-managed cows can turn in a healthy level of performance in a low capital, extensive system.



New Irish Young Sire

Ballycairn Oman Echo is an exciting new young bull who we expect to be available from late spring. His dam, Avest No Elise is a Delta Novalis daughter, who is currently working hard in the renowned Ballycairn herd in Coleraine, Northern Ireland.



Avest No Elise, dam of Echo EX91(2)

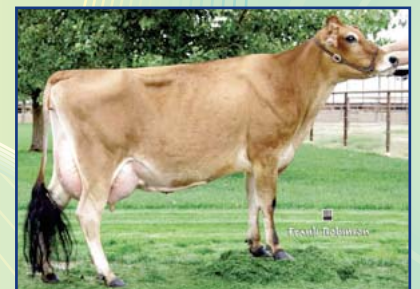
Elsie's sire Delta Novalis was himself an ideal choice for those farmers looking to maximise profit from grazing. Not extreme for production and with an average stature he boasts an exceptional lifespan at +0.5, improves cell counts at -2 and ranks among the top bulls for daughter fertility at +2.3 (the breed average being -3.5).

Elise is performing very well, regularly producing great milk yields with incredible components, her last lactation average was 5% fat and 3.53% protein! She is now on her fifth lactation and continues to achieve this impressive production whilst still getting back in calf on a regular basis.

Mating Elise to Oman has resulted in an ideal young bull for grassland systems. Like his sire, Echo has an exciting predicted EBI of €114 (Oman tops the EBI rankings with €214!). Echo also scores well for lifespan, cell count, production and daughter fertility suggesting his daughters will get in calf, last a long time in the herd and lower somatic cell counts - perfect!

Forest Glen Lemvig Gunner New Jersey Sire

A new sire Forest Glen Lemvig Gunner has recently joined the Genus ABS Jersey line up. A Lemvig son bred from an impressive family in the well known Forest Glen herd, Gunner combines high production with very good fat and protein percentages.



Horizon Gunner 6476

Gunners daughters have high rear attachments and very strong udder support. Lemvig bloodlines have been very popular with grassland farmers around the world and his sons have performed well in New Zealand, Denmark and North America. Gunner daughters have plenty of strength and should work well in more extensive grassland systems.



Coming soon...The latest Genus ABS Friesian Directory will be available early spring. This will feature; Winnoch Officer, Lakemead Prancer, Catlane Metropolis, Tittenser Hylke, Dovea Bass, the newest addition to our proven stud Lakemead Alphonso plus many more.



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