

Innovations in rearing dairy heifer replacements for lifetime performance

A group of dairy farmers from N.Ireland accompanied by CAFRE Dairy Development Advisers Jane Sayers and Gavin Duffy took part in a recent farm Innovations study tour to look at the rearing and management of dairy heifer replacements in the south of England.



The group of farmers that took part in the Heifer Rearing Innovation visits. Included on the extreme right and left of photo CAFRE Dairy Development Advisers Jane Sayers and Gavin Duffy

The group flew out from Belfast International airport early on the morning of 25th February 2020 and returned the following evening 26th February.

Rearing dairy herd replacements represents a major investment by dairy producers in the future of their business, the second highest cost after meal feeding in the production of milk. It is therefore crucial that heifers are reared cost effectively to calve at an age and body size which will maximise lifetime performance.

On the first day of the two day trip the group visited a number of different farming systems including the Yeo Valleys heifer rearing unit plus one of their two milking sites, a young farmer with a number of years experience of contract rearing dairy heifers who has now started to milk in his own right and finally a short stop off at the South West Dairy Development Centre, a greenfield site, state of the art 180 cow dairy unit which is testing and demonstrating new technologies to support milk production.

After an overnight stay the group travelled to the farm of Robert and Tom Reed a 370 cow Holstein friesian herd milked through 5 Lely robots and a final stop took in the Bineham City Farm of Tom and Trish Coombes, an impressive family run 280 cow unit

Below is a short summary of a number of the highlights relevant to rearing dairy replacements.

The area visited -The climate in the area visited facilitates the growing of crops such as maize silage and whole crop which are excellent alternatives in the diets of high yielding dairy cows and growing heifers. An abundance of good quality straw for bedding dictated the housing system on a number of units as large straw bedded yards for growing heifers were a feature. The heifers on both the Coombe and Reed farms were not introduced to cubicles until they entered the milking herd. Whilst the housing facilities for rearing youngstock on some farms was fairly “standard” the quality of stock on view and animal husbandry was excellent.

Although a previous farm innovation trip to the Netherlands focused mainly on best practice at the calf rearing stage, attention to detail in this period is critical to the successful rearing of replacement dairy heifers in order to meet key performance targets.

Getting off to the right start. – significant emphasis was placed on good colostrum management as an important first step in successful heifer rearing. Yeo Valley which is the home of the Lakemead Herd of pedigree British Friesians for example would prefer where possible to allow the new born calf to suck the cow so every

effort was made to ensure the calf receives adequate colostrum by this method. An emphasis on the Reeds Gatcombe farm was only to feed replacement heifers their own mothers colostrum suckled from a bottle which was continued for up to 5 days. Separation of milk at the robot allowed this to happen.

Below is a summary of some of the key performance data for 2019 supplied by two of the farms visited – Yeo Valley and Ron and Trish McCoombe

Key performance indicators

	Yeo Valley Farms	Ron & Trish Coombes
Herd size	420 cows	280 cows
Main breed	British Friesian	Holstein Friesian
Calf mortality 0-24 hours	0.5%	8%
Calf mortality 1-30 days	1.5%	1%
Calf mortality 2 – 24 mths	0.85%	0.5%
Pneumonia rate	10-15%	3%
Scour rate	2%	Less tha 5%
Average age at 1 st calving	25 months	26 months
Replacement rate	20%	35%
Survival rate to 2 nd lactation	85%	95.5%
Survival rate to 3 rd lactation	80%	95.2%
Heifer lactation yield	6250 litres	8254 litres
Cow lactation average	8250 litres	10,800 litres

Measure to manage – recording key performance data in the heifer rearing stage can highlight where improvements can be made in the system. At a first glance the first stage calf rearing accommodation on the Yeo Valley farm appeared to be an impressive building but poor air movement at the baby calf side and the mixing of different aged calves led to an above average incidence of pnemonia (see table) Plans were being put in place to improve air flow in an effort to reduce this problem. Similarly on Ron and Trish Coombes farm above average mortality in the first 24 hours was a direct result of poor sire selection on maiden heifers leading to increased calving problems and some calf losses.

Contract heifer rearing- Nick Cavil shared with the group his experiences of contract rearing and in particular the need for a robust contract that is agreed and honoured by both parties. Nick was being paid £1.03/heifer/day which was around £0.35 less than the going rate due to a low input system and the owner supplied the vet & meds. The price covered land, labour and silage.

Nicks' was an interesting story as he has since moved on to milk his own herd of 120 jersey cross cows, block spring calving and milked on a once a day system. His projected target was 3000 litres/cow at 5% fat and 4% protein. The milk was sold to Arla on a very lucrative organic contract. All young stock are reared outdoors with the baby calves being turned out to sheltered paddocks as soon as they have learned to suck from an artificial teat. Unfortunately calving was only commencing on this farm so the group were not able to view the calf rearing system in practice.



Nick Cavels close up group of crossbred cows on straw bedding fed big bales of haylage

Nick impressed with discussion about his business plan, his short, medium and long term farm goals, his work/life balance and his income from the farm calculated on a per hour worked basis, the most recent annual results showing an income/hour worked of £70. Due to the low labour requirement of the dairy enterprise Nick was

also able to manage other business interests including a successful farm contracting business.

Genomic testing – the main focus on the farm of Robert and Tom Reed was genomic testing and how this is being used to identify superior females at an early age for retention as potential dairy replacements. Mike Huskins from Semex gave a very indepth analysis of the application and benefits of genomic testing on the Reeds farm and whilst there is a significant cost associated with genomic testing - £26/ for the most popular test, the information is invaluable for those aiming for the top quartile in the breeding world. Emphasis was placed on reducing inbreeding in the herd with a figure of 2% quoted for the current crop of calves.



On the right in this picture is the separate heifer milking group on the Robert & Tom Reeds farm

The calves on the Reeds farm were reared in individual hutches on an enhanced 2 x day milk feeding programme- up to 1kg milk powder in 8 litres of water/calf/day. They felt this was critical to maximise the full genetic potential of the dairy heifer, a point emphasised on the Netherlands calf innovation trip. Decox was added into the calf ration from day 1.

Heat-time collars were used on maiden heifers as well as the cows. Conception rate to first service for the heifers (Feb19 – Jan20) 54% (42% in the cows) with 1.77 inseminations per pregnancy (2.01 cows) The average age at calving on this farm was 23.8 months. Other points of interest -the Reeds operated a multi cut silage system with an average of 6 cuts/year and all fertilisers were applied in the liquid form.

Separate heifer milking group – both the Coombes and Reeds ran a separate heifer milking group alongside the main milking herd. In both cases the heifer numbers, buildings, and milking facilities suited this approach. The Reeds had a milking herd of 370 cows with an average yield of 13,000 litres milked through 5 robots. In fact this herd boasted two of the highest producing robots in the UK with 2 individual robots turning out in excess of 950,000 litres each in the last year. Both farmers considered keeping the first lactation heifers in their own social group to be beneficial in terms of performance and worth the little extra work required. 95.2% of heifers that enter the herd surviving to 3rd lactation on Coombes farm would support this.

Housing for replacement heifers

A range in accommodation types. Liberal use of straw was common on all farms as it was readily available. Apart from issues with pneumonia at the baby calf stage Yeo Valley had two very impressive buildings



Individual pens for young calves



Group housing of calves after the individual pen stage which could be expanded as the heifer calves grew developed from a straw bedded pen to allow calves access to an external feed passage with the standing area scrapped by automatic scrapper.



Heifers on this farm were then transferred to a follow on house with varying sized cubicles designed to suit the developing heifer



The bulling heifers in large straw bedded yards with solid scrapped feeding area on the Coombes farm

Costs of heifer rearing – some work done by Kingshay on costs of rearing dairy heifer replacements highlighted very significant variations in costs depending on age of calving. Sarah Bolt, Kingshay produced data from their cost modelling work for the group which showed that by lowering the age heifers calve in at from 3 years to 2 years can reduce rearing costs by 30% from £1864 to £1301 per heifer reared, a difference of £563/head. The average age at calving of the host farms was between 23.8 and 26 months. With the exception of Nick Caval who supplied the group with fairly detailed spreadsheets on his farm costings it would be fair to say that data on heifer rearing costs on the other farms visited was limited.

Take home messages

1. Based on the farms the group visited N.Ireland probably ahead in terms of technologies, specialist youngstock housing, feeding systems and adoption of research in heifer rearing but the stockmanship and quality of stock viewed on the English was excellent.
2. Farms in the area the group visited were faced with similar challenges to N.Ireland farmers – flooding, high incidence of TB, and some of the calf diseases common here – pneumonia, scour, etc
3. Good quality land to rent/lease more readily available so more opportunities to expand enterprises. The climate suits growing of crops such as maize and cereals, the benefits of inclusion in the diets of dairy cows and young growing replacement heifers cannot be underestimated. An abundance of good quality bedding straw – a valuable resource in rearing replacement heifers
4. The South West Dairy Development Centre are investigating a wide range of technologies applicable to the milking animal but nothing relevant to calf/heifer rearing
5. A number of the farms produced very interesting data on Key Performance indicators such as incidence of scour/pneumonia, calf mortality at various stages, survival rates of heifers in the dairy herd- recording such information on N.Ireland farms would be useful when investigating issues
6. Detailed costings required to calculate a true cost of production for rearing dairy replacements
7. The need for an agreed contract when thinking of having heifers reared off farm was emphasised
8. The use of the latest thinking on genomics can and will play a vital role on some specialist dairy farms in the future breeding of the next generation replacement heifers.

Overall a very enjoyable and worthwhile trip. Thanks to Sarah Bolt, Kingshay consultant for her assistance in preparing the itinerary and her input during the visits. Thank you especially to the travelling group of farmers for participating in the scheme and contributing to all aspects of the visits. Finally thank you to the CAFRE staff for their help behind the scenes planning and organising the “Innovations in heifer rearing for lifetime performance” visit

Gavin Duffy & Jane Sayers - March 2020