A small group of First Milk members in Cumbria has been working in partnership with the University of Leeds on a government-funded project called Resilient Dairy Landscapes. This is a wide-ranging, multi-year project with social, economic, natural and veterinary science research being conducted simultaneously. The natural science research team has recently shared some very relevant conclusions on soils and hedgerows and may help inform your choices to support First Milk’s regenerative farming goals.

Soil pH
The research found soil pH ranged between 4.8 and 6.8, but only 40% had a pH of 6 - 6.5, the optimal range for ryegrass pasture production.

An optimal soil pH has many benefits, including:
- Increases availability of nutrients (NPK) to grass seedlings
- Promotes soil micro-organisms and encourages earthworm activity to break down plant and animal residues to release plant nutrients
- Improves the availability of phosphorous to plants and aids its release from organic matter

At a time of high fertiliser prices, keeping soil at the recommended pH is a good investment and likely to yield environmental benefits.

Soil Organic Matter (SOM)
SOM content was lower in fields classified as grass leys than permanent pastures. The number of silage cuts per year appears to influence the SOM with lower content in fields with more cuts. Both tillage and crop removal reduces SOM content.

The Resilient Dairy Landscapes project is funded by Global Food Security with support from BBSRC, ESRC, NERC and Scottish Government.

The Resilient Dairy Landscapes research has indicated soil organic carbon sequestration rates in the first 50cm underneath a hedgerow is 226kg/carbon per km.

From our Farm Business Review data, we estimate there are nearly 6,000kms of hedgerows on our members’ farms. This equates to a national First Milk hedgerow carbon sequestration of 1,350 tonnes per year - equivalent to offsetting nearly 5,000 tonnes of CO₂.
Birds/mammals trying to avoid predation.

Healthy, strong, diverse hedgerows also act as a habitat for beneficial insects and nutrient run-off when planted across slopes, equivalent to 5.3 tonnes CO2/ha.

The estimated annual sequestration rate is over 50t/ha more soil organic carbon stock and is one of the benefits of direct drilling.

Healthy, strong, diverse hedgerows also act as a habitat for beneficial insects and provide a wildlife corridor for small birds/mammals trying to avoid predation.

Hedgerow Soil Organic Carbon

The results of soil sampling in and around hedgerows has shown their sequestration potential. Mature hedges were shown to have over 250gha more soil organic carbon stock in the top 50cm than neighbouring fields. The estimated annual sequestration rate is equivalent to 5.3 tonnes CO2/ha.

Current recommendations for hedge management in climate change mitigation are to encourage hedges to become wider and taller to increase above ground carbon stock and plant new hedges along field boundaries to increase soil organic carbon stock over time.

Healthy, strong, diverse hedgerows also provide shade and shelter for stock, prevent nutrient run-off when planted across slopes, act as a habitat for beneficial insects and birds and provide a wildlife corridor for small birds/mammals trying to avoid predation.

DIGITAL INNOVATION IMPROVES CALF HEALTH AND WELFARE

First Milk Next Generation members continue to use apps to share their experiences and the improvements they’re making on farm. We hear from two members involved in a digital innovation project using automated systems to improve youngstock health and welfare as well as saving financial and labour-saving benefits.

Ewan Kennedy, Perryston Farm, South Ayrshire

Ewan Kennedy milks 250 pedigree Holsteins with his father, John, at Perryston farm on the west coast of South Ayrshire.

"We started expanding our calf-rearing facilities six years ago, having realised a six-fold increase in numbers, we were short of both calf accommodation and labour to feed the extra heifer calves. We upgraded our calf feeder two years ago at a cost of £33,000. It provides the right amount of milk at the correct temperature exactly when they need it. It also saves at least two hours of labour a day. As a result, we have more time to watch the calves for early signs of disease and attend to the newborn calves being bottle fed colostrum for the first 3 days.

Calf welfare is better as they are in larger social groups from a younger age and fed more frequently. They are also weaned gradually on an individual basis rather than as a group. The calf milk replacer we use is in the correct ratio to promote optimal skeletal growth in Holstein calves. This increases the chance of calving them at 24 months, our target for herd profitability and sustainability.

The automated system is quicker to spot concerns than we could see by eye. It records daily milk intake, time of feeding and litres drunk, as well as the speed of drinking - an indicator of the calf’s health status.

Future innovation plans include linking the calf feeding system to Wi-Fi so I receive reports and alerts on my phone at any time."

Feeding regime

• 6 litres/day spread over three meals, every eight hours
• Buttercup Bloom CMR: 24% protein, 20% fat
• Daily milk intake one litre higher than previous, manual method

View Ewan’s video: https://youtu.be/9R7mgwU50kg

William McJannet, East Enoch Farm, Mauchline, Ayrshire

William McJannet farms in partnership with his parents on East Enoch Farm in Ayrshire. They are currently milking 150 cows.

"Following our investment in a fully automated Delaval Fullwood 16 swing-over parlour four years ago, we’ve invested in our youngstock through an automated Volac calf feeder and improved calf housing.

The calf feeder saves my mother about an hour at the end of each day, representing a £30/day or £210/week saving on labour. The feeding machine provides 4-5 litres/day depending on the age of the calf and allows them to feed at any point during the day or night. But it limits intake to 1.8 litres per feed so the calf can’t become bloated.

The new technology helps us make quick management decisions through its simple fitness monitoring. The feeding machine provides a range of data to the farmer to help with management and production decisions.

We feel the expense of this technology is more than justified. Our calves are thriving, with a positive impact on performance and it has eased the burden on my mother who has responsibility for calf management."

Feeding regime

• Ad lib feeding up to 7 litres over 24 hours
• Limit of 1.8 litres/feed to avoid digestive upset

View William’s video: https://youtu.be/6nNhmT99O1s

Benefits seen from implementing automated calf feeding

• Ideal temperature and feed consistency
• Calf not feeding well highlighted quickly
• Increased intakes and better calf performance
• Early growth gains achieve first calving age
• More time for calf management and care
• Labour saving costs of £30/day or £210/week

View Ewan’s video: https://youtu.be/vKrmgzUG84g

View William’s video: https://youtu.be/6nNhmT99O1s

Continued from page 1...
Plastic use on First Milk farms

At a time when we are all trying to lessen our impact on the environment, one of the hottest topics is the reduction in use of plastic.

Plastics have changed the way we live and farm dramatically, but with so much plastic waste now in our oceans, it is affecting marine life, birds, the food chain and the ecosystem.

As consumer awareness and expectation around plastic continued to rise, it was only a matter of time before it would enter the dialogue with our customers. We have recently been asked for information about our plastic use by a customer trying to understand the impact of single-use plastic within its supply chain. To try and collate some indicative data, we approached 76 member farms in Cumbria and South West Scotland to take part in an exercise to benchmark the use and disposal of single-use plastic.

Plastic use

The average amount of single-use plastic brought onto members’ farms per million litres of milk produced was 839 kgs per year. Looking at this more closely, use is broken into the following major categories as averages per million litres of milk produced:

- Feed/mineral bags: 49kgs - 6%
- Sawdust bags: 49kgs - 6%
- Dairy chemical drums: 67kgs - 8%
- Fertiliser bags: 99kgs - 12%
- Crop storage using plastic wrap: 544kgs - 65%
- Other: medicines, PPE, oil/grease: 31kgs - 4%

Plastic disposal

We also looked at the disposal of plastic. Approximately 87% of plastic being used is recycled, but this leaves an average 112kgs per million litres of milk produced being sent to landfill.

- Recycled off farm: 654kgs - 78%
- Landfill: 112kgs - 13%
- Recycled on farm: 73kgs - 9%

This survey gives us useful insight and we encourage all members to benchmark their farm with this data. If we apply similar figures to our entire milk field, it suggests around 80 tonnes of single-use plastic is lost to landfill annually from First Milk farms.

Supply chain solutions required

One of the most common issues members highlighted was that many supplying companies are not willing to take back their empty containers. First Milk intends to contact these companies and discuss how a collaboration on this issue can deliver positive change.

But we can all begin to implement changes now and we urge members to consider how plastic is used on farm, and how it can be reduced, reused and disposed of responsibly.

If you would like to be involved or for further information, please contact your Area Manager.

First Milk is proud to have undertaken this project in partnership with Nestle UK.

Good Food, Good Life

Telephone: 0141 847 6800  Email: membershipteam@firstmilk.co.uk
First Milk, Cirrus House, Glasgow Airport Business Park, Marchburn Drive, Paisley, Renfrewshire, Scotland, PA3 2SJ
© First Milk Ltd 2021. All rights reserved.