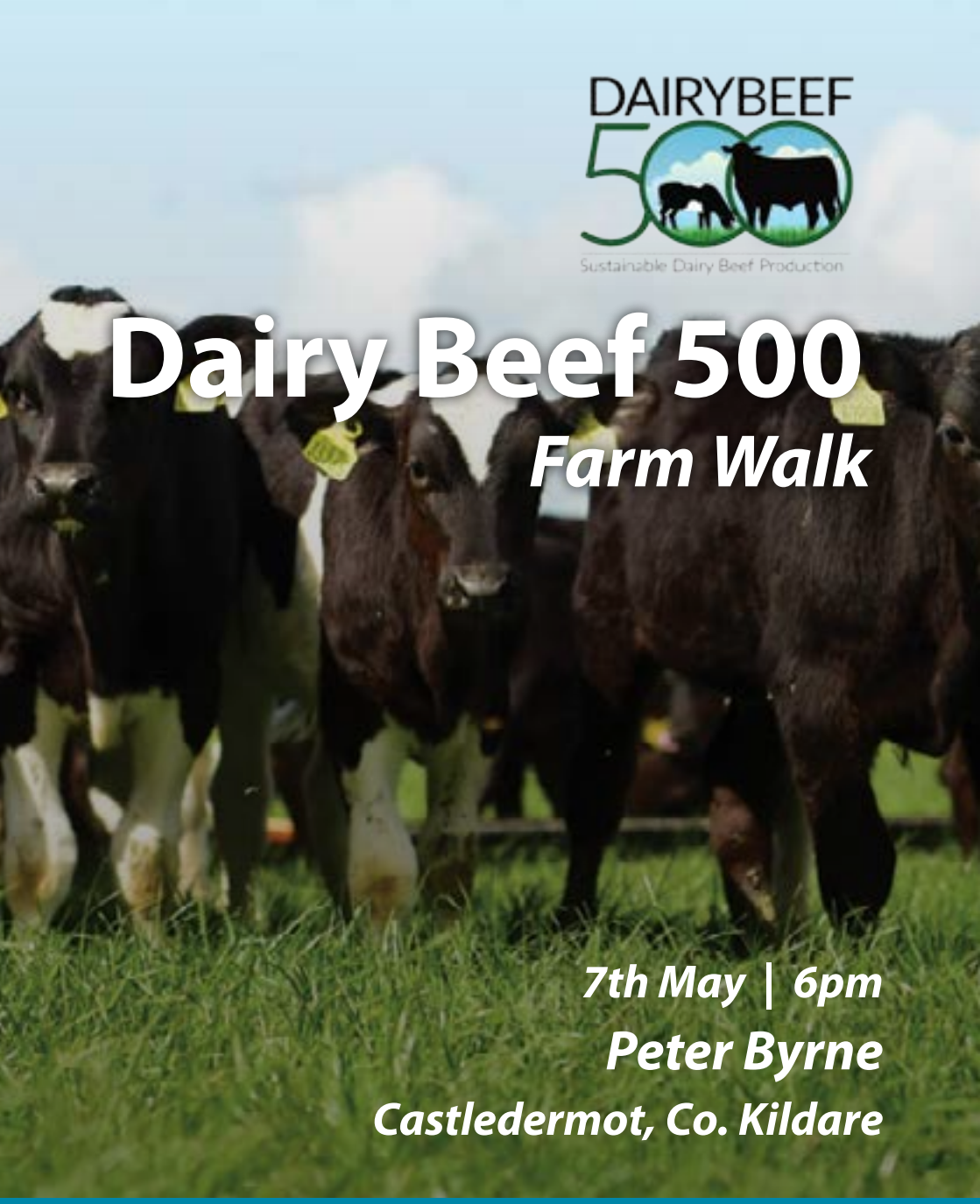

DAIRYBEEF 500

Sustainable Dairy Beef Production

# Dairy Beef 500

## *Farm Walk*

***7th May | 6pm***

***Peter Byrne***

***Castledermot, Co. Kildare***

teagasc

Agriculture and Food Development Authority

SIGNPOST

# DairyBeef500 Programme

## Sustainable Dairy Beef Production

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*The DairyBeef500 Demonstration Farmers are sponsored by:*

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*Ballyvadin Demonstration Farm is sponsored by:*

*For more information please visit:* www.teagasc.ie/dairybeef500

# Contents

# Sponsors welcome

## Welcome from Industry Stakeholders - Volac.

On behalf of all the industry stakeholders I would like to welcome you to this DairyBeef 500 Programme farm walk on the farm of Peter Byrne. We are delighted to be involved with Teagasc as industry partners in the Signpost and DairyBeef 500 Programmes.

**Una Hickey**

The funding of this programme by all involved shows a commitment to the beef sector by supporting a programme where the primary objective is to demonstrate a sustainable dairy calf to beef systems that will return a worthwhile margin to beef farmers while also helping to reduce the environmental footprint of Dairy- Beef production.

We hope that the success and knowledge gained from the previous Green Acres Calf to Beef Programmes in terms of calf rearing, animal health and grassland management can support the current participants in producing more environmentally conscious and financially sustainable dairy-beef systems.

We wish all the participants every success for the programme over the next three years.

# Sponsors note

## MSD

MSD Animal Health is one of Irelands leading suppliers of animal health and technology products to veterinary practitioners and farmers. MSD employs approximately 2800 people across its sites in Ireland, which encompass manufacturing, R&D, commercial and marketing facilities in addition to global support services

## Munster Bovine

Munster Bovine is Ireland's market leader in cattle breeding and herd management services. The Munster Bovine technician service is recognized as the leader in its field with over 70 years' experience of carrying out artificial insemination in the Munster and Galway areas. With access to the best genetics, today we offer a complete and integrated range of breeding, milk recording, fertility and performance enhancing services

## Drummonds

Drummonds is a leading supplier of agricultural inputs and animal feeds across the North East of Ireland. Annually at harvest the business processes more than 100,000 tonnes of native grain across nine locations, with manufacturing facilities for seeds and animal feeds in Drogheda and Navan. Drummonds is a trusted provider of essential supplies to the farming community.

## Liffey Mills

Liffey Mills; Backing those who feed our nation. We work closely with our 10,000 customers to ensure a bright & sustainable future for generations to come in all aspects of agriculture including Dairy, Beef, Sheep & Tillage.

## Volac

Volac is a fast-growing, ambitious international dairy business. We turn our passion for dairy nutrition into great products that advance the health and performance of consumers and farm animals. Volac's Animal Nutrition Business is a leading product specialist in Sustainably Advancing Livestock Efficiency in the key areas of young animal nutrition, feed fats forage conservation and feed additives

## Corteva

Corteva Agriscience™ is the only major agriscience company completely dedicated to agriculture. By combining the strengths of DuPont Pioneer, DuPont Crop Protection and Dow AgroSciences, we've harnessed agriculture's brightest minds and expertise gained over two centuries of scientific achievement.

# Welcome

**Alan Dillon,**

*DairyBeef 500 Campaign Manager*

On behalf of Teagasc and all the sponsors of the Teagasc DairyBeef 500 Campaign, I would sincerely like to welcome you to Castledermot, Co Kildare today to the farm of Peter Byrne for our 2024 summer DairyBeef500 farm walk. I would like to express our gratitude to Peter and his family for accommodating us to showcase what has been achieved in recent years through their involvement in the Teagasc Green Acres Dairy Calf to Beef Programme and now the DairyBeef 500 campaign.

Peter has been to the forefront of our calf to beef programmes for a number of years and has shown a deep passion for beef farming over the years. He has demonstrated his open mindedness and ambition to improve profitability of his farm through implementation of technologies to reduce inputs and age of slaughter while maintaining carcass output on the farm.

Peter has recently begun to use some higher quality beef sires, identified from the recently launched Commercial Beef Value (CBV), a tool which will bring more confidence to beef farmers that they can source calves that are of superior genetic merit in terms of carcass weight and conformation than the average dairy beef calf.

I wish to acknowledge the continued support of our programme sponsors: Munster Bovine, Volac, Corteva Agriscience, MSD, Liffey Mills and Drummonds.

# Farmer welcome – Peter Byrne

On behalf of the Byrne family, I would like to welcome you all here to Castledermot today. Since joining the Teagasc Dairybeef 500 campaign, the farm has undergone changes which have had a positive impact on both the profitability and productivity of my calf to beef system. All of which will be discussed on the farm here today.

The key area that I believe has really transformed the farm has being better utilisation of the grass that grows on this farm. This has being done through measuring grass on a weekly basis during the main grazing season, implementation of a paddock system that allows me to move cattle at least every second day and the incorporation of White and Red Clover that has led to a reduction in the amount of nitrogen fertiliser that I use. Grass is the cheapest and best quality feed that I can give my cattle, utilising good quality grass allows me to reduce the concentrate that I have to feed while at the same time improving animal performance. The farm itself is situated on free draining soil so I am lucky that I can get cattle out early, even with the challenging spring that we had this year I was able to have 60 young stock out on grass full time since mid-February.

Being part of the DairyBeef 500 program has also helped me to improve the genetics coming onto the farm, implement a health plan that ensures a healthy herd that can perform at the level I require and focus on the farm being environmentally sustainable which is important in these changing times.

Finally, we would like to thank both Teagasc and the industry stakeholders for their continued support of the programme.

# DairyBeef 500 Campaign Introduction

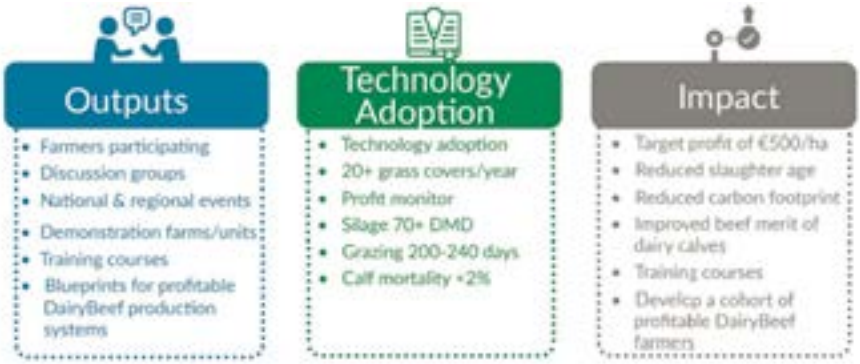
Teagasc has developed a new initiative which focuses on management practices for technically-efficient, dairy-beef systems called DairyBeef 500. The campaign will promote the adoption of technologies identified through research onto commercial farms, while monitoring their impact on farm sustainability.

## Programme aims:

- Target a net margin of €500 per hectare, excluding land and family labour.
- Increase the adoption of best practices, especially in relation to grassland management and calf rearing.
- Reduce the environmental footprint of dairy-beef production.
- Establish a cohort of profitable dairy-beef producers.
- Create greater integration between the beef and dairy industries.
- Improve the beef merit of calves coming from the dairy herd.

## Key performance indicators

The key performance indicators of the DairyBeef 500 Campaign are across three levels.



## Demonstration farms

The 16 commercially-operated demonstration farms enrolled will be a key pillar of the DairyBeef 500 Campaign. The demonstration farms will illustrate key technologies including: calf rearing; grassland management; calf health; nutrition; financial management; animal health and welfare; environmental sustainability; and the appropriate use of dairy-beef genetics.

In addition, the Ballyvadin Farm will demonstrate the deployment of best technologies in sustainable beef production. A joint venture between Teagasc, Dawn Meats and Shinagh Estates Ltd, the farm will be stocked initially with 300 calves, sired by a range of dairy and beef bulls, which will be reared through to beef as steers and heifers.

# Farm Overview – Peter Byrne

Farming just outside Castledermot, Co. Kildare, Peter and his family, run a mixed farm consisting of both tillage and a dairy calf to beef enterprise. Farming a total of just over 70 Ha all of which is in one block. The grassland area extends to just shy of 43 Ha with the remaining ground dedicated to the tillage enterprise.

The tillage enterprise consists of winter and spring barley, fodder beet and a small area of beans. Many of the crops are retained on farm as winter feed for the beef finishing enterprise and excess cereals and beet etc are sold off farm. In 2023 a combi crop of beans and barley was grown and this feed now forms part of this year's calf diet.

Last year the farm grew over 13.5 ton/DM of grass per hectare on a total of 169 kg of chemical Nitrogen per hectare. The low level of chemical N used on the grassland block is attributed to the introduction of both Red and White clover on the farm. Peter believes that the application of chemical N on the farm will reduce even further as more clover becomes established. In Spring 2023 a Red clover silage sward was established and this block received no chemical N only the 3 bags of 10-10-20 that was applied at sowing. The Red clover was cut three times and yielded 15 bales per acre in its first year and tested 73% DMD with a crude protein of 14.4 %.

Peter is a big advocate of measuring grass and uploading the figures on Pasturebase, last year Peter uploaded 33 walks onto Pasturebase. He believes that measuring grass is one of the keys to him achieving impressive weight gains at grass, "if you are not measuring what you have you are likely to go into heavy covers as you will be afraid of running out which will have a knock on effect on weight gains". Peter operates a simple paddock system with a lot of temporary wires used to allocate the correct grass allowance. Water troughs are sited in the centre of fields to allow more paddocks to be formed, the temporary fences are run off permanent fences. Residency time in the paddock is usually no more than two days and this in turn allows more grass to be grown as cattle are not getting a chance to eat off regrowth's.

A total of 162 calves were reared on the farm last this spring, 39 heifer calves and 123 bull calves. 55% of the calves are Holstein/Friesian with the remaning breeds on the farm being made up of Angus, Aubrac, Limousin

and Longhorn. Calves are now all sourced from four local dairy farmers with 60% of calves having a CBV of 3 stars or greater. Going forward Peter is going to place more emphasis on buying calves from local farmers that on average have better beef genetics.

All male animals on the farm are finished as steers at approximately 24 months of age with the aim been to having the majority of the heifer calves slaughtered prior to housing for the second winter at 19 -20 months.

# Farm physical and financial performance – Peter Byrne

| Measure | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| **Physical** | | | | |
| Land base (adj. ha) | 44.5 | 44.4 | 42.3 | 42.9 |
| Grassland Stocking rate (LU/ha) | 3.24 | 3.10 | 3.55 | 3.31 |
| Liveweight output (kg/ha) | 1656 | 1999 | 2303 | 1553 |
| **Financial** | | | | |
| Gross output (€/ha) | 2907 | 3895 | 5009 | 4176 |
| Variable costs (€/ha) | 1861 | 2173 | 3324 | 2716 |
| Variable costs (% of gross output) | 64 | 56 | 66 | 65 |
| Gross margin (€/ha) | 1046 | 1722 | 1685 | 1461 |
| Fixed costs (€/ha) | 644 | 788 | 884 | 650 |
| Net margin (€/ha)(excluding subsidies) | 569 | 934 | 801 | 811 |

The profitability on Peter's farm held steady over the last three years since a significant increase in net margin in 2021. Peter has managed to increase his output from forage in the form of both grazed grass and grass silage. Variable costs have increased over the years mainly due to price inflation and are running at 65% of gross output. Peter runs a high stocking rate on his grassland area but remains outside derogation when the tillage land is brought back in. Any cereal that is used on the farm as livestock feed is bought in from the tillage enterprise at current market prices.

Liveweight output per hectare has dropped significantly per hectare in 2023, this was due to combination of a higher amount of cattle killed earlier and at lighter carcasses than 2022. We would expect this to recover in 2024.

In 2024 Peter plans to put more land back in grassland and to increase the number of calves by 32 compared to previous years. Peter has received planning permission to construct a four bay doubled slatted unit recently and the plan is to construct this shed in early 2025. This will have an impact on increasing fixed costs in future years but if output is increased as a result net margin should also rise.

# Establishment and Management of White clover

## Benefits of white clover

The benefits of white clover tend to occur from late April/early May onwards as sward clover content increases. The main benefits of white clover inclusion in grass swards are:

- Nitrogen fixation. White clover fixes N from the atmosphere making it available for plant growth. Depending on N fertiliser application rate and sward clover content, white clover can fix up to 60 - 120 kg N/ha per year (approx. 50 - 100 units N/acre)
- Lower requirement for N especially in the mid-season. Research has shown that with 100 kg less N fertiliser (i.e. 150 vs 250 kg N/ha) grass white clover swards can produce similar annual herbage DM (approximately 14 t DM/ha)
- Increased herbage quality compared to grass-only swards in the summer months. Grass-white clover swards have higher crude protein (+ 9%) and organic matter digestibility (+ 1.2%) contents and lower fibre (- 6%) contents than grass-only swards
- Increased weight gain. Grass/Clover swards have been shown to give an extra 100g/day weight gain on beef cattle

## Establishing grass/white clover swards

Establishing white clover on farm will take some time, using a combination of both reseeding and over-sowing. Incorporating white clover in a full reseed is the most reliable method of clover establishment. Over-sowing is a simple and low cost method of introducing white clover into swards. Success is very much dependent on soil fertility, weather conditions at the time of over sowing and post-sowing grazing management.

## White clover establishment blueprint

A targeted multi-year approach should be used in establishing a white clover system i.e. a combination of reseeding and over-sowing

## Reseeding for white clover swards

- Spring reseed provides best results - April, May
- Spray off the old pasture with glyphosate

- Prepare a fine, firm seedbed (with the most appropriate cultivation method for that paddock)
- Soil sample apply required lime, Phosphorous (P) and Potassium (K)
- Use the Irish Recommended List for grass and clover cultivar selection
- Ensure good seed: soil contact by rolling after sowing
- Sowing rate 28-30kg/ha grass plus 4-5kg white clover

## Grazing management for white clover swards

Grazing management is similar for grass-clover swards and grass only swards. Flexibility and willingness to adapt to the conditions are important when managing grass-clover swards. Good grazing management is also important for increased persistency and production of white clover in grazed swards. Grass-clover swards benefit from low grazing residuals.

## Spring (First rotation)

- Target early spring grazing – this benefits white clover growth
- Avoid poaching/damaging swards – reduces white clover content
- Be flexible – use on/off grazing, graze wetter paddocks in drier weather
- Target 3.5- 4 cm post-grazing sward height

## Mid-season (April to July)

- Pre-grazing covers of 1300 to 1600kgs DM/Ha (8-10cm)
- Target 4 cm post-grazing sward height
- Chemical N fertiliser may be reduced in the mid-season (see Table 1 and 2)

## Autumn

- Build grass on the farm from early to mid-August - extend rotation length
- Close the farm in rotation from early October
- Target post-grazing sward height of 4 cm in the final rotation
- Avoid poaching swards
- Be flexible – use on/off grazing, graze wetter paddocks in drier weather
- Close paddocks with a high sward white clover content (i.e. > 30%) towards the end of the final rotation (end October/early November)

# Planning to build a fodder reserve this summer

Following a wet spring and prolonged winter housing period, silage and fodder reserves on many farms are now completely exhausted. Over the coming months, silage stocks will need to be replenished on all farms to provide adequate fodder for the next winter housing period and for any unplanned times of wet weather or drought conditions.

## 1. Complete a fodder budget

Varying weather patterns over the last number of years make it very difficult to predict how many months fodder are now required. No matter what region of the country your farm is located in, it is best to target fodder availability/reserve for at least 6 to 7 months. It is essential to know how much fodder is required in order to make a plan. If the feeding periods are shorter than planned for, having silage left over in the yard whether as pit silage or as bales is a nice luxury to have.

## 2. Maximise silage produced from own farm.

Every opportunity to harvest silage should be made this summer/autumn. Plan for first and second cuts as normal on all fields that are not required for grazing. A third cut may also be targeted on some fields in September. On grazing ground, any extra grass grown should be cut and saved as high quality baled silage.

To maximise grass growth and production, ensure that soil fertility is optimised by keeping lime, phosphorus and potassium applications up to date and ensure chemical nitrogen is applied regularly. Don't forget sulphur, apply 12 to 15 units /acre per cut and also per grazing paddock over the grazing season. Ensure to stay within your nitrates limits for both chemical nitrogen and phosphorus.

## 3. Can some stock be finished off grass?

Notwithstanding the difficulties and safety of feeding finishing cattle at grass, with the right infrastructure, is it an option to finish some animals

from grass with/without concentrates this autumn, thereby reducing the grazing demand in the back end of the year and more importantly reducing the winter fodder requirement.

## 4. Buying silage bales

Can silage bales be sourced locally in order to enhance the silage stock on farm? Buying bales can be hit and miss at the best of times! Many bales can be excellent quality, but the range in quality can be very variable. Buying locally can be of great benefit if knowledge of the farm that the bales came from and the weather conditions at baling can be known. Generally bales bought earlier in the summer will be of higher quality than bales made later in the autumn.

## 5. Short term renting land to grow a crop of silage

Renting land for a 6 to 8 week period where you can fertilise the ground in order to cut a crop of silage maybe an option in parts of the country. Sourcing land in close proximity to your home farm is key.

## 6. Growing forage crops.

Where silage is going to be tight next winter, in some instances the growing of forage crops like forage rape, redstart or kale maybe an option? These crops may be an option in fields that are planned for reseeding next year?

Access, ground conditions for grazing next winter, shelter for stock, balancing the diet with silage and concentrates and meeting cross compliance regulations are all considerations that need to be addressed before the decision to sow any of these crops are made. Seek advice on the growing of these crops if you are not familiar in doing so.

## 7. Contract cropping

In some of the tillage areas of the country, linking up with a tillage farmer to grow whole crop silage, maize silage, grass silage, beet etc. on contract may be an option. If going this route, it would be important for all parties to complete a contract cropping agreement in advance so that everyone knows their obligations.

## 8. Buy beet

Beet may be an option in some instances to fill the gap where fodder is in short supply, although many farms may not be in a position to feed beet. If thinking of buying beet it is important to consider, storage, washing, chopping and feed out of the beet, have you the machinery to complete these tasks? Also bear in mind that depending on the type of animal being fed, the overall diet will need to be adequately balanced to meet their nutritional requirements.

In building up a fodder supply for next winter it is important have a definite plan. Know your own requirements, maximise what can be achieved from your farm firstly and if there is still a short fall, assess all the alternatives and make a plan early. All options come with a cost, so ensure that provisions are made to pay for these and that they are viable.

| Fodder Budget – Winter Requirements 2024/2025 | | | | |
|---|---|---|---|---|
| | A | B | C | |
| Animal Type | No. of stock to be kept over winter | No. of months (Include 4 – 6 week buffer) | No. bales required per month | Total silage bales required (A x B x C) |
| Suckler Cow | | | 1.7 | |
| 0 -1 year old | | | 0.9 | |
| 1 -2 year old | | | 1.35 | |
| >2 year old | | | 1.7 | |
| Ewes | | | 0.15 | |
| Total SILAGE BALES required | | | | Bales |
| Total tonnes PIT SILAGE required (Total bales / 1.25) | | | | Tonnes |

## Notes/Assumptions:

Dry Matter = DM

Silage bale at 25% DM has 200kgs DM per bale

Pit silage is assumed 25% DM

If concentrate is also fed, it will reduce the total amount of silage required per head per day.

A minimum of 4 – 6 weeks of a buffer should be included.

# Red Clover working well in dairy calf to beef systems

Red and white clover are both nitrogen fixing legumes however it is slightly different to its white clover cousin. It grows upright and tall and does not creep and spread outwards like white clover. Red clover also has the ability to fix nitrogen in the soil at around 150 -200 kg N/Ha per year, this is equivalent to between four and six 50 kg bags of 27% N per acre. This means it requires no nitrogen fertiliser once fully established. Red clover is capable of producing high yields of highly digestible, high protein silage that cattle perform well on. Due to its upright growth habit and high summer yields red clover is better suited to cutting than grazing. However it will tolerate grazing in good dry conditions. The plant has a deep tap root makes red clover relatively drought tolerant

## Establishing and Managing Red Clover

- A typical seed rate for a grass dominant sward is 4 kg/acre of red clover, 8 kg/acre of rye grass and 1 kg of white clover to the acre.
- Red clover swards may be established by a full reseeding, over sowing red clover seed into an existing sward typically does not work.
- Red clover performs best on well drained, fertile soils. Conduct a soil test and target soil pH of 6.2-6.5 and Index 3 for P and K for successful establishment.

- Sow from April to July. Ensure a fine, firm and level seedbed, roll both before and after sowing.
- A typical cutting strategy for red clover would be to harvest first cut in mid-late May with the second, third and fourth cuts at 6-8 week intervals thereafter
- Red clover is a low sugar, low DM crop so wilt for 24-48 hours to achieve 25-35% DM to aid preservation
- Do not use a conditioner mower and avoid excessive handling of the crop to reduce leaf loss
- Slurry and FYM can be applied throughout the year to replenish P and K

# Ensuring the successful transition to grass

## Making the move from milk to solid feed

Correct milk feeding of the dairy-beef calf from arrival on farm to weaning is an important aspect of the calf rearing phase to ensure desired levels of live weight gain are achieved, but just as important is the transitioning of calves from milk to solid feed as they move from a pre-ruminant to the ruminant phase. Much of the skill in calf rearing is making this diet transition as smooth as possible, without set-backs to the calf's performance. During the milk rearing phase the main aim is to sufficiently develop the rumen of the calf to ensure once animals are turned out they are able to digest and utilise grazed grass.

## Getting concentrates in from an early age

Making the move from a liquid diet to a solid feed diet can cause stress on calves. To reduce the calf's reliance on milk and help to reduce potential stress, concentrates should be introduced to calves from few days of age, to encourage intake. Calves should only be weaned after they have been eating at least 1.5kg – 2kg of starter concentrates or more per day for at least three consecutive days prior to weaning. Generally this level of intake should be obtained by eight weeks of age. Concentrates should be made from high-quality ingredients, palatable and should be made available to calves as soon as they arrive on farm, and offered fresh daily.

## When and where to turnout calves

Only correctly weaned and healthy calves consuming at least 1.5kg/day of concentrates should be turned out to pasture. A well-sheltered paddock should be targeted to acclimatise calves to the outdoor setting, turning calves out in unfavourable weather conditions in extremes of warm, wet or cold should be avoided as potential upsets could result. Ideally if the fields in which calves are turned out each year first could be alternated to avoid the build-up of pathogens and diseases but this is not always practical. Paddocks that have had high levels of nitrogen applied or have very lush

covers should be avoided immediately post turnout to prevent any digestive upsets. Once calves become acclimatised to the outdoors grass pre-grazing covers of <1,000kg DM/ha should be targeted to encourage intakes.

## Keeping concentrates in the diet

Concentrate supplementation should be maintained post turnout for at least 5-6 weeks post turnout to aid in the transition to grass and minimise any potential digestive upset, with a recommended feeding rate of 1.5-2kg per head depending on weather conditions. After this to decision to continue with meal feeding should be made on the basis of calf performance and the quality and quantity of grass available.

Offering calves straw for 5-6 weeks post turn-out can also beneficial as it will provide a source of fibre especially where grass covers are lush, but this not near as fundamental as concentrate feeding.

For Peter approximately 160 calves were reared this year on the farm. The calves a mix of Holstein Friesan, early maturing and continental calves. Approximately 75% of calves are males all of which are slaughtered as steers at approximately 24 months of age with the remaining 25% of the calves been predominately early maturing heifer's which will be all slaughtered at 20 months.

Calves arrive on the farm at approximately 3 weeks of age calves are fed on an automatic milk feeder until they reach their targeted weaning weight of 85-90kg at generally 55-60 days. From arrival calves are introduced to a highly palatable calf nut. This year a home grown ration was formulated for calves, it contains barley and beans which was grown as part of a combi crop as well as flaked maize, beet pulp and soya as well as molasses and mineral and that was fed with the starter nut until calves got accustomed. Initially calves were slow enough to consume any significant levels of concentrates but once they start intakes increase rapidly especially when milk volume starts to reduce. Peter believes

keeping the troughs clean and feed fresh from the start is important to get calves to start consuming reasonable levels. Generally at weaning calves would be consuming over 2kg of concentrates per day and they are kept on this level until turnout. Straw is used as a fibre source and calves have access to clean fresh water at all times. When calves are let out to grass first they are put out to stronger covers in a paddock close to the farmyard, just to have an extra bit of fibre and that the grass isn't too lush for to prevent any potential issues with summer scour. Straw is also offered to provide extra fibre and concentrate supplementation is continued for the first 5-6 weeks post turnout and once calves get calves get accustomed to the diet concentrates are reduced and the quality of grass that they are grazing is improved.

# Stomach Worms and Lung Worm Control

Irish dairy calf to beef production is predominantly grass based, the most successful systems are those that optimise animal performance from grazed pasture and achieve a high proportion of total life time gain from grazed grass. However these systems are particularly exposed to outbreaks of stomach worms and lung worms. An important factor to achieving the desired levels of animal performance on calf-to-beef systems during the grazing season is ensuing they are free from parasites. Parasites can have a significant impact on animal performance therefore it is imperative that stock are free from burdens to prevent any impact on thrive. With the majority of dairy beef stock now outdoors the last number of month's burdens have started to develop therefore it is important to monitor these to prevent any reduction in performance.

Calves are particularly vulnerable to infection from stomach worms and this can result in ill-thrift, with subclinical infection resulting in reduced growth rate. After their first grazing season cattle generally develop sufficient immunity to prevent clinical disease, however there has being numerous cases where older animals have had high levels of worm burden. Symptoms of stomach worms can include diarrhoea,

decreased appetite and loss of weight. Stomach worms can cause severe damage to the stomach and small intestine which will cause parasitic gastroenteritis. Cattle in Ireland are usually infected with a number of stomach worm species, the most common being Ostertagia ostertagi and Cooperia oncophora.

The level of worm burden in a herd can be ascertained by counting the number of worm eggs per gram (epg) of faeces (faecal egg count or FEC). Most veterinary practices offer a faecal testing service to help determine if dosing for worms is required. In order to avoid worm resistance building up on farms, farmers should take dung samples to see if a worm dose is warranted or not. Where readings in excess 200epg are recorded treatment is advisable.

Control of stomach worms on dairy calf to beef farms is usually achieved by the administration of anthelmintic doses. There are currently three classes of anthelmintic licensed for the control of stomach worms in cattle benzimidazole (white) levamisole (yellow) and, macrocyclic lactone (Clear). These products have been highly effective in controlling stomach worm infection in cattle however in recent studies carried out by Teagasc showed resistance to all three classes of product. When implementing a dosing strategy it is good practice to alternate between the different classes of drug to minimise the risk of a potential resistance build up on farm. Taking a dung sampling a few weeks after treatment is good practice to ensure the product used gave an effective treatment.

In the case of lung worm monitoring for clinical signs such as a husky cough or difficult breathing is the best way to identify if there is an issue. Heavy infestations can lead to respiratory disease or pneumonia. As regards treatment and control most available anthelminthics are effective against larval and adult lungworms. Levamisole and white drenches will take out what parasites are there on the day of treatment and but will have no residual affect as a result shorter treatment intervals will be required whereas macrocyclic Lactones such as Ivermectins will give longer protection.

## Best practice when dosing

When administering a drench to stock particular attention needs to payed dose-to-weight calculations so animals receive a full dose. Farmers should dose based on the weight of the heaviest animal in the bunch and where a

large degree of weight variation exists, splitting the group into a heavier and lighter group and then dosing based on the heaviest in each group is advisable. When choosing a product it is important to read the label and instructions carefully to ensure that you know exactly what the dose can and cannot treat. Post treatment it is best to dose and return to dirty pasture as this will help to reduce anthelmintic resistance.

## Peter's parasite control plan

Traditionally on the farm calves would have been treated for worms with an Ivermection based product three weeks after turnout and then every five weeks after this, whether they were showing signs of a worm burden or not. "Yearlings were treated at least twice during the grazing season depending on weather conditions. However, since joining the Teagasc Dairybeef 500 Peter has changed his dosing strategy. From the end of May Peter starts taking regular faecal egg samples to check the levels of stomach worm burden in all groups of stock. The results of these tests will determine when a dose is administered. Last year I didn't dose the calves until the first week in June and the yearling cattle wouldn't have received their first dose until July. "Generally I won't go in with a dose until the FEC goes above 200epg. Performance of the calves remained good last year with average daily gain (ADG) for these animals through the summer being 0.8kg. With regards to lungworms, when the first signs of coughing start to appear Peter would administer a treatment. When treating he would now generally try to alternate between the different classes of the drug used to try and prevent any resistance building up on the farm.

# The Signpost Programme: meeting our greenhouse gas emissions targets to 2030+ on beef farms

The main technologies that farmers are being asked to adopt to reduce greenhouse gas (GHG) emissions are those that reduce costs and/or improve profitability while also reducing emissions. These technologies include: improving animal performance through better genetics; reducing age at slaughter; implementing a herd health plan; increasing days at grass; using protected urea to replace CAN and straight urea; reducing chemical nitrogen use through improved soil fertility and in particular liming; optimising the use of organic manures; and incorporating clover into grassland swards.

## The Signpost Programme

The Signpost Programme, led by Teagasc, is a collaboration of farmers, industry, state organisations, farm organisations and media all working together to support and enable farmers to farm more sustainably. The main focus of the programme is to reduce greenhouse gas (GHG) emissions but also to improve water quality and enhance biodiversity on Irish farms. The Signpost Programme is taking a holistic view of sustainability, encompassing economic, social and environmental sustainability.

## Current technologies to reduce emissions

There are a suite of technologies currently available to beef farmers to reduce our greenhouse gas emissions. The key technologies available to beef farmers include:

### *1. Reduced age at slaughter*

Finishing animals older at slaughter results in higher lifetime emissions from greater quantities of methane produced, additional emissions from slurry stored and spread and dung and urine excreted during grazing. The economic impact of increased weight gain is estimated at €0.21 per kg beef produced for an increase of 100g /head / day in lifetime performance. The impact of increased weight gain on GHG emissions is estimated at 2% per 100 g increase in lifetime average daily gain for beef cattle systems.

### *2. Health*

The implementation of a comprehensive health plan will improve the efficiency of the farming system and reduce GHG emissions by reducing age at slaughter.

### *3. Grassland*

Increasing the grazing season length lowers GHG emissions. Grazed grass has higher digestibility than grass silage resulting in improved productivity and less energy lost as methane. Also, the ensuing shorter housing period means less slurry stored and less slurry to be applied, resulting in less emissions.

### *4. Protected urea*

Nitrous oxide (N2O) is a GHG which has almost 300 times more global warming potential than carbon dioxide (CO2). It is lost to the atmosphere from the breakdown of organic and chemical fertiliser. The spreading of chemical fertilisers including calcium ammonium nitrate (CAN) emit high levels of N2O. Protected urea is designed to slow the rate at which urea is converted to ammonium, reducing N2O emissions. Protected urea is 25-30% cheaper than CAN and grows similar grass yields. Protected urea has 71% lower nitrous oxide emissions than CAN.

### *Reducing chemical nitrogen use*

In addition to switching to lower emitting forms of fertilizer, reducing total quantities of chemical N reduces N2O emissions. A reduction in N fertiliser of 10 kg per ha will reduce farm GHG emissions by 1% and improve income by €10 / Ha.

# How to reduce farm inorganic fertiliser application rate?

### *Improving soil fertility and in particular liming*

Soil sampling and the implementation of a nutrient management plan are key to reducing chemical N fertilizer use. Spreading lime to increase soil pH has the potential to release up to 80 kg N from the soil and yield a return of €6-10 for every €1 spent on lime.

### *Optimising the use of slurry*

Slurry is a valuable source of fertilizer particularly if it is applied at the right time of the year (spring), using the right equipment (low emissions slurry spreading (LESS) equipment). Spring application captures an extra 3 units N / 1,000 gals of slurry and using LESS contributes an additional 3 units N / 1,000 gals of slurry. Spring application also reduces the storage period and the associated emissions. A 20% shift to spring application can reduce farm GHGs by 1.3% while a shift to trailing shoe can lead to a reduction of 0.9% in GHG emissions.

### *Incorporating clover*

Incorporating clover into grassland reduces the demand for chemical nitrogen. Therefore, if there is less chemical N fertilizer spread, there is less N2O being emitted into the air. Clover has been shown to 'fix' the equivalent of 100 kg inorganic N/ha from the atmosphere.

# Notes

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# Introducing the DairyBeef500 team

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