Future Beef Programme

National Beef Farm Walk

Ger, Karen & Ella McSweeney's Farm

Tooreenbawn, Millstreet, Co.Cork | 7th Sept. 2023

Teagasc Future Beef Programme

The aim of Future Beef is to demonstrate to beef farmers how they can produce a quality product as efficiently as possible to make beef farming more profitable while also making it more environmentally and socially sustainable. Future Beef farmers are also participants in the Signpost Programme.

The whole programme hinges on our network of 22 demonstration farms. All our farmers have a very positive attitude towards suckler farming. They are willing to take on new technologies and develop efficiencies to improve profitability and reduce the negative effects of agriculture on the environment around them.

Key objectives:

- Create more sustainable and profitable farms
- Reduce greenhouse gas (GHG) & ammonia emissions
- Improve water quality
- Improve biodiversity

We will achieve this by focussing on reducing inputs and the costs of production while increasing the performance of every animal on the farm.

Acknowledgement

We wish to thank the farmers that have agreed to take part in the programme, particularly to Ger and his family for hosting this farm walk. We look forward to working with them and their local advisors over the coming years. We are confident that all parties involved in the programme will benefit hugely from the experience. We wish to acknowledge all the sponsors of the Future Beef Programme and thank them for their commitment to the programme.

Table of Contents

1. Introduction to Farm

Figure 1: *Farm layout*

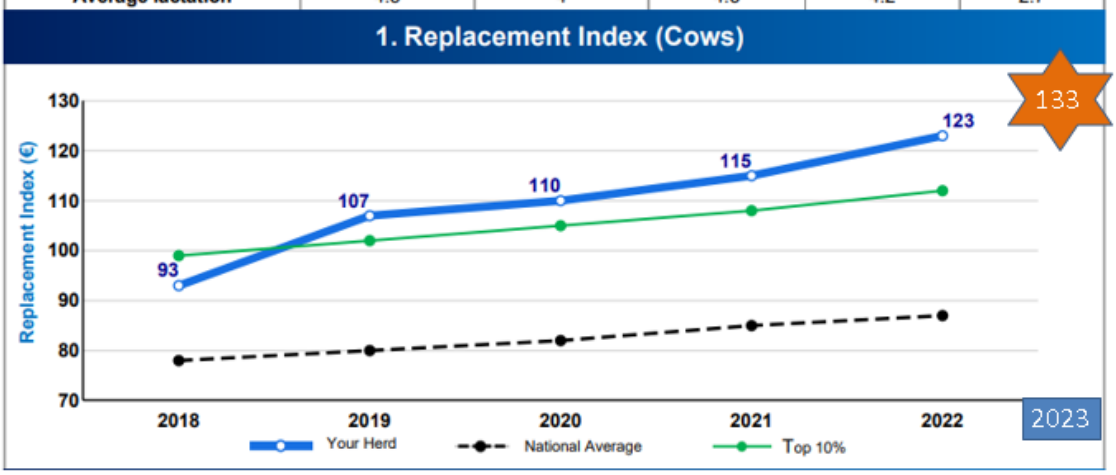
- **38** suckler cows
- Males finished at **15.1 month** bull beef
- Females finished at **21 months**
- **100%** AI
- Stocking rate 2022: **1.73 LU/ha** or **140 Kgs N/ha**
- Carbon footprint: **10.1kg CO2e per kg live weight gain**

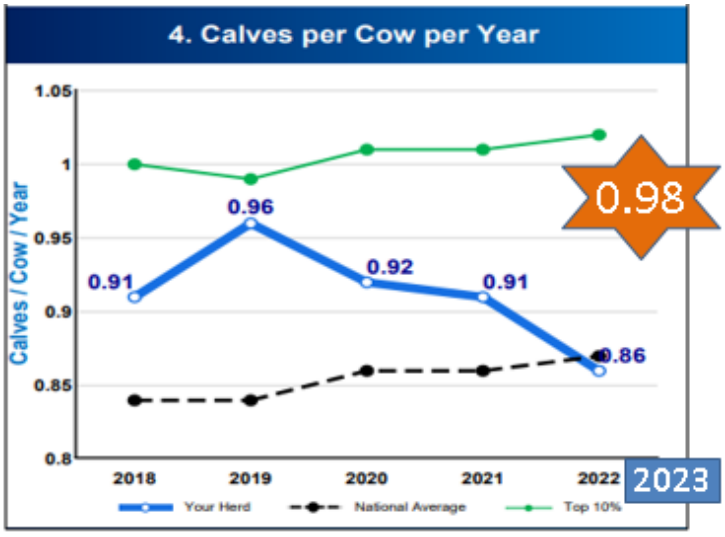
Table 1: *Slaughter performance 17th Aug. 2022 to 17th Aug 2023*

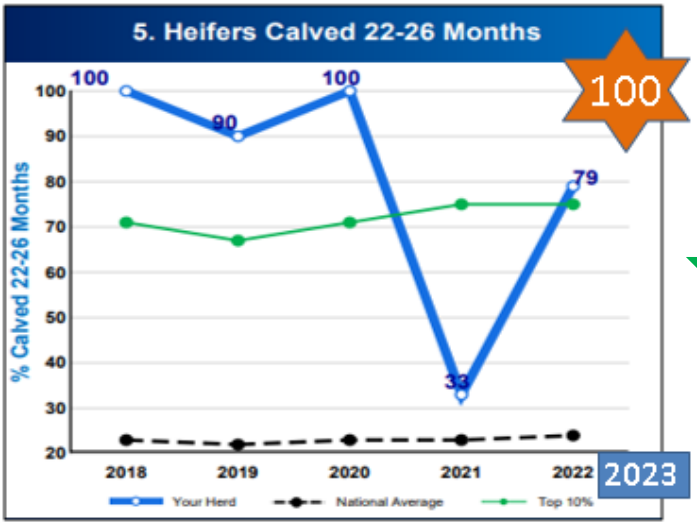
Slaughter Performance (17th Aug. 2022 – 17th Aug. 2023)			
	Age at Slaughter (Months)	**Slaughter Performance**	**Price/head**
Heifers (9)	21.1	372kg, R+3+	€1845
Young bulls (19)	15.1 *(2021: 15.1)*	381kg, R+3- *(2021: 405kg, U=3-)*	€2036
Cows (11)	69	421kg, R=4-	€1923

2. Progression of the Suckler Herd 2018-2023

Cow Numbers Over The Last 5 Years					
*Figures are taken on 30th June each year	2018	2019	2020	2021	2022
*Total Cows	30	36	33	30	38
Average lactation	4.5	4	4.5	4.2	2.7







Carbon footprint by **12%** if calving at 24 vs. 36 months of age

How does Ger achieve this?

- Picking most maternal cows & heifers
- They are bred to high replacement index bulls with good carcass weight & conformation
- All heifers calved at 24 months
- Rest go to high terminal bull
- Culling out neospora positive cows & progeny
- Automated heat detection system

Look at the Euro-Star Report

Animal Details				Replacement Index				
Jumbo	Animal Tag / Date Of Birth / Breed	Sire ID / Dam Tag	Calvings	Index Value (€) / Across Breed Stars	Rel % / Herd Rank	Carcass Weight (Kg) Across Breed	Daught. Milk (Kg) Across Breed	Daught. Calving Interval (Days) Across Breed
613	372212871170613 01-JAN-2021 SA(50%),AA(25%)	SA2153 372212871110566	1	€185 ★★★★★	48% 2	+17.1 ★★★	+9.8 ★★★★★	-2.6 ★★★★
621	372212871170621 25-JAN-2021 CH(50%),LM(25%)	FSZ IE151093650494	1	€123 ★★★★★	52% 51	+25.7 ★★★★★	+0.9 ★★	-2.72 ★★★★
566	372212871110566 17-MAR-2019 AA(50%),SI(25%)	372217220511870 372212068651203	3	€114 ★★★★	47% 56	+12.3 ★★	+10.3 ★★★★★	-2.3 ★★★★

200 Day Weights		
	Bull Calves Kg/day	**Heifer Calves Kg/day**
2020	1.4	1.17
2021	1.38	1.2
2022	1.43	1.2
2023	1.4	1.2

Bull Selection

- The aim is to keep improving on the genetics that you have.

Curaheen Gunshot SI4147

Star rating across breed	Economic Index July 2023	€ value per progeny	Index reliability
★★★★★	Rep. index	€175	93%
★★★	Terminal index	€105	93%
★★★★	Carcass weight	33.2 kg	99%
★★★★★	Daughter milk	+8.5 kg	96%
★★★★★	Daughter calving interval	-3.88 days	84%

Prohurst Eoghan AA7485

3.8% calving difficulty heifers

Star rating across breed	Economic Index July 2023	€ value per progeny	Index reliability
★★★★★	Rep. index	€174	53%
★★★★	Terminal index	€116	60%
★★★	Carcass weight	18.7 kg	54%
★★★★★	Daughter milk	+12.3 kg	47%
★★★★★	Daughter calving interval	-7.45 days	43%

Grenache LM4351

6% calving difficulty heifers

Star rating across breed	Economic Index July 2023	€ value per progeny	Index reliability
★★★★★	Rep. index	€176	79%
★★★★★	Terminal index	€132	91%
★★★★	Carcass weight	20.9 kg	96%
★★★★★	Daughter milk	6 kg	81%
★★★	Daughter calving interval	-1.4 days	56%

Pottlereagh Mark CH4160

Star rating across breed	Economic Index July 2023	€ value per progeny	Index reliability
★★★★★	Rep. index	€148	89%
★★★★★	Terminal index	€138	92%
★★★★★	Carcass weight	34.5 kg	99%
★	Daughter milk	-6.3 kg	93%
★★★★★	Daughter calving interval	-9.42 days	75%

Match bull to cow

Watch for calving difficulty

Reliability is Key

3. Utilising More Grass

How much grass does Ger need to grow?

- Rule of thumb: 1 LU requires 5 t DM/year
- Stocking rate 1.73 LU/ ha (adjusted): 1.73 LU/ha x 5t DM

= Ger needs to grow **10.8 tonne grass DM/ha** at 80%

Why?

- Reduced housing costs
- Reduce N fertiliser
- No bought in silage on the farm

How much nitrogen does this require?

- Nitrogen requirement of grass = 3%
- 10,800 kg DM/ha x 3% = 324 Kg N/ha required
- Subtract:
  - Mineralised N from soil @ 140 Kg N/ha
  - Animal recycling @ 30 kg N/ha
  - Slurry @ 10kgs N/ha from slurry
- Need **144 Kg N/ha** or **115 units N/acre**

NMP

Year	t grass DM/ha grown	Kg N/ha
2020	10	255
2021	10.1	109
2022	9.6	111
2023	8.5 (YTD) / ~9.9 (Expected)	111

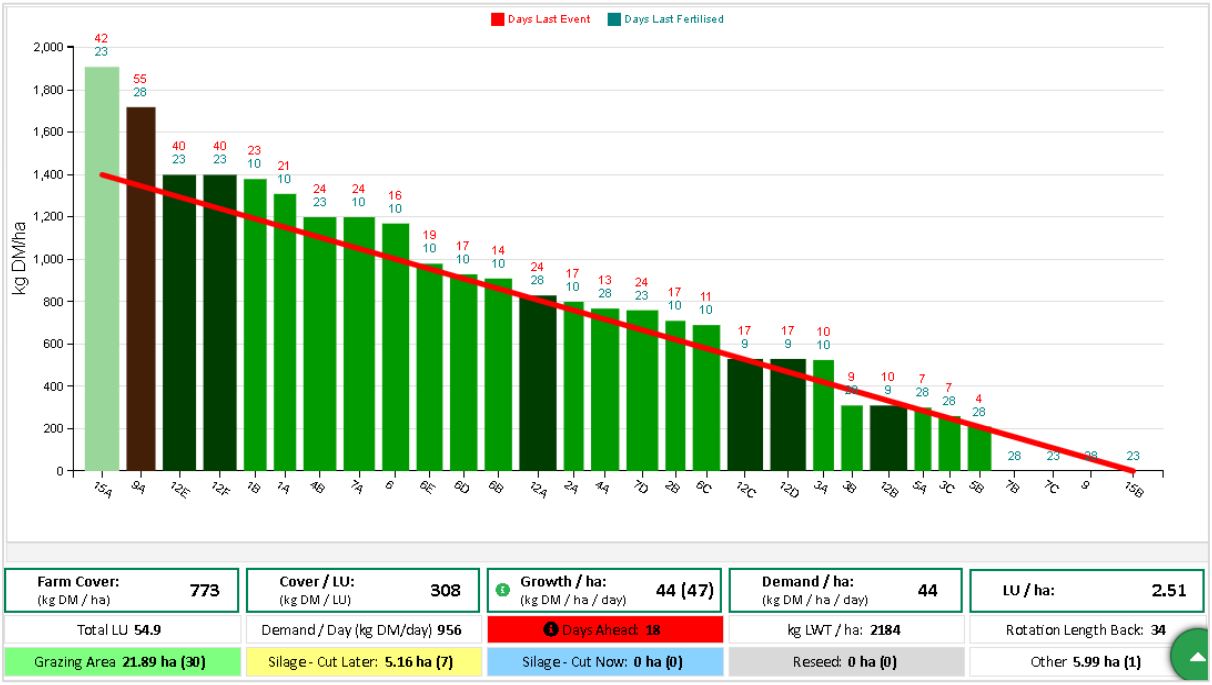


Figure 2: *Example of a grass wedge from PBI that Ger uses to make grassland decisions on the farm*

How does Ger utilise more grass?

1. Paddock Size

- Every 1 tonne animal live weight requires 0.05 ha for 3 days
- 38 cows + calves x 0.75 t (combined pair weight) = 28.5 t
- Ideal paddock size = 28.5 t x 0.05 ha = **1.4 ha**

- Ger's actual average paddock size is **0.73 ha**

2. Infrastructure

- Water troughs (Min. 75 gallon trough for 38 cows & calves)
- Access roadways / gates for crossing main road
- Reels & temporary fencing

3. Excellent Grass Management

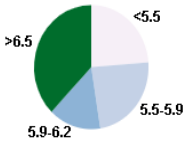
- Turnout late Jan/early Feb & house in Nov (spring/autumn planner)
- Measuring grass to match grass growth to demand
- Grazing paddocks at correct heights & removing surpluses as silage

4. Building Soil Fertility

Overall Fertility Status
pH > 6.2, P & K index 3 or 4

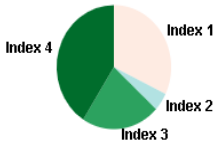
	Ha's	%
Yes	10.00	26%
No	28.60	74%

Lime
Soil pH > 6.2



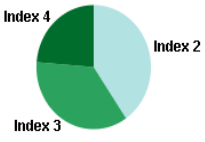
pH	Ha's	%
<5.5	9.18	24%
5.5-5.9	9.15	24%
5.9-6.2	5.69	15%
6.2-6.5	0.00	0%
>6.5	14.58	38%

Phosphorus
P Index



Index	Ha's	%
1	12.40	32%
2	1.82	5%
3	8.55	22%
4	15.83	41%

Potassium
K Index



Index	Ha's	%
1	0.00	0%
2	15.61	40%
3	13.83	36%
4	9.16	24%

Soil tested every 4 years and using the results

Applied 2t lime/acre to low pH fields – Need to apply more

Went from 27's > Mainly 18-6-12+S.

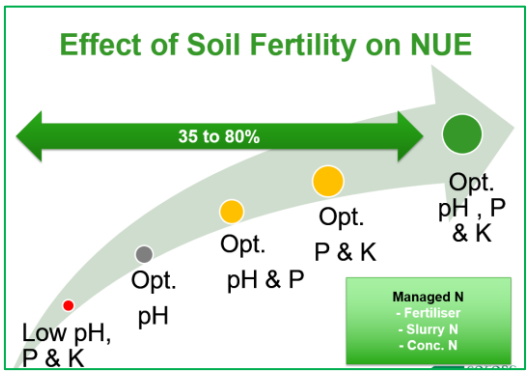
Blanket spread 1.5 bags/acre, in March for maintenance. Another 1.5bags/acre on index 1&2 soils later in June

Better use of slurry – 2,500gls "saved" for silage ground & tested.

Rest on index 1 & 2 soils.

Spread by LESS (dribble bar)

15 units sulphur per acre on grazing area and per cut on silage area



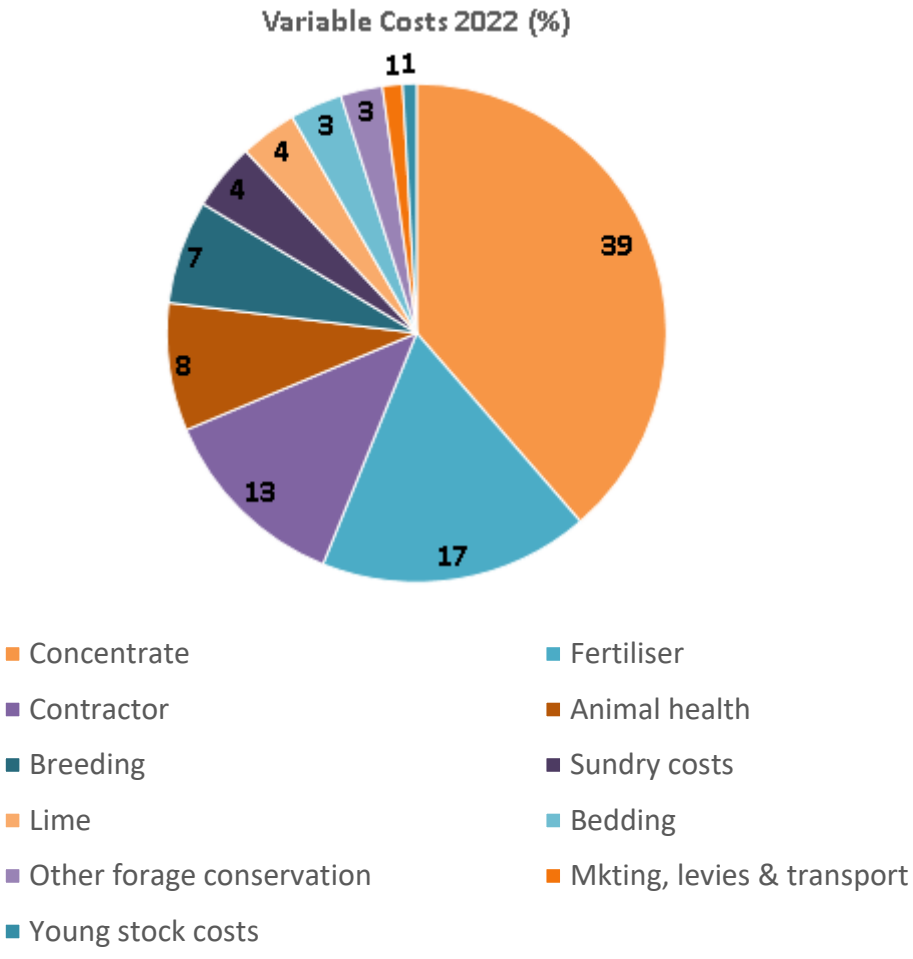
NB – Fertiliser Limits!

Carbon footprint by **6%** if spreading all straight N as protected urea vs. CAN

4. Financial Performance

Measure	2020	2021	2022	Target 2026
Gross output (€/ha)	1,731	1,663	1,913	2,687
Variable costs (€/ha)	1,062	974	1,085	1,343
Variable costs (% of gross output)	61%	59%	57%	50%
Gross margin (€/ha)	669	689	828	1,343
Fixed costs (€/ha)	842	1,077	801	800
Net margin (€/ha)	-173	-388	27	543

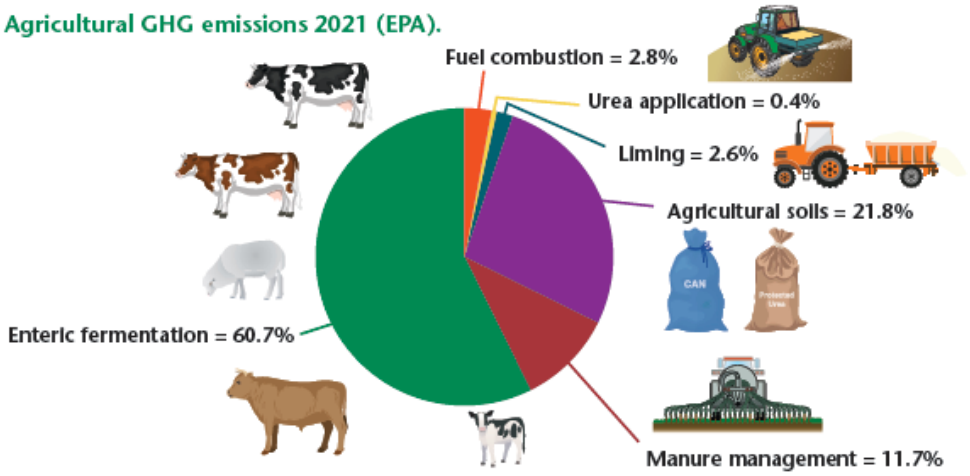
Note: Fixed costs are high due to depreciation of machinery and buildings (€288/ha) and land lease (€196/ha). Typically fixed costs are ~€500/ha. Additionally, cattle direct payments are €136/ha and other payments add €793/ha.



5. Future Plans

Reduce carbon footprint by:

- Extending the grazing season by 2 weeks ↓ 2%
- Reducing ration use with silage DMD >72%
  - By cutting earlier, reseeding silage ground
- Reducing fertiliser use by 20% ↓ 1.6%
  - Increasing white clover content
  - Improving soil fertility
  - Spreading slurry by LESS in spring ↓ 2.7%
  - Targeted spreading of slurry at correct time
  - Spreading straight N as pro. urea vs. CAN ↓ 6%
- Improving herd health to improve performance
  - Vaccinating against respiratory disease
  - Culling for neospora
  - Increasing carcass weight & keep low age at slaughter



Improve biodiversity by:



360m new hedgerow | Barn owl boxes x2 | 724m riparian buffer strips

6. Ger's Herd Health Plan

Vaccinations

- ✓ Clostridial diseases(Feb/Mar)
  - ➢ 2 shot programme for calves
  - ➢ Annual booster for all other stock
- ✓ Leptospirosis (Apr)
  - ➢ 2 shot programme for heifers
  - ➢ Annual booster for cows
- ✓ RSV, Pi3 & Mannheimia (Sept)
  - ➢ 2 shot programme for calves
  - ➢ No IBR, based on vet advice

Dosing

- ✓ FEC sampling calves
  - ➢ July (lung & GI worms)
  - ➢ September(lung & GI worms)
  - ➢ At housing (lung & GI worms, fluke)
- ✓ FEC sampling cows
  - ➢ In autumn
  - ➢ For rumen & liver fluke

Minerals

- ✓ Feeding pre-calving minerals
  - ➢ Helps to supplement low zinc, iron, molybdenum & selenium in Ger's silage
- ✓ Bolus after calving
  - ➢ Provides copper, cobalt, selenium & iodine

7. Under 16 Month Bull Beef: The Stages

Stage 1: Feb - Oct

- Properly wean a heavy calf
- ADG 1.3kg +
- Should be eating meal pre-housing
- 350 kg at housing
- Vaccinations & dosing programme

Compact Calving

Stage 2: Nov- Jan

- Housing environment
- Top quality silage
- 2kg to 6kg of meal
- Target 1.3kg/day until 500kg
- Routine

>70% DMD

Stage 3: Feb-June

- Silage + ad lib ration
- Ensure balanced diet (Energy, fibre & protein)
- 680-700kgs
- Fat class 2+

500kg @1yr

8. Parasite Control Options

PARASITE CONTROL OPTIONS

BEEF HEALTHCHECK

- Collects and reports health outcomes at slaughter to farmers
- Access to reports on ICBF website

WORMS CAN DEVELOP RESISTANCE TO WORMERS WHICH THEN NO LONGER WORK EFFECTIVELY

12% of Irish cattle farmers think drenches aren't fully effective on their farms.

But in the last three years only 3% of cattle farms tested if the drenches used on farm are working.

*Based on 2022 Parasite Control TASAH surveys of 14,879 farms

Slaughter conditions linked to extra days on farm

For beef herds at slaughter from 2016-2021:		HEIFERS		STEERS	
		% animals affected	Average days older if diseased	% animals affected	Average days older if diseased
	**LIVER FLUKE**	11%	39 days	12%	38 days
	**LIVER ABSCESS**	2.7%	9 days	3.2%	8 days
	**PNEUMONIA**	1.3%	11 days	1.5%	15 days

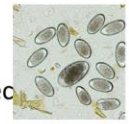
Earlier finishing improves net margins by €0.7-0.76 per head per day.

168.7 $kgCO_2e$ savings for every month reduction in national slaughter age.

*Teagasc MACC 2023

GOOD WORM CONTROL

- ✓ Have a herd health and parasite plan
- ✓ Use grassland and animal management to minimise the need for treatment
- ✓ Test to know what wormers work on your farm
- ✓ Treat with the recommended dose rate and give correc
- ✓ Treat only when needed



WORMERS

WHITE (1-BZ)	YELLOW (2-LM)	CLEAR (3-ML)

FLUKICIDES **COMBINATION**

Resistance has been shown to all classes of wormer.

9. National Beef Welfare Scheme

- 1 year programme - Increased Economic Efficiency
  - Enhanced Animal Health & Husbandry
- Calves born from 1st July 2022 to 30th June 2023 eligible
- Two Mandatory Actions:

Meal Feeding

- 4 weeks before and 2 weeks after weaning
- Compound ration or straights with adequate minerals
- Recommended feeding rate of 1kg /hd/day
- €35 per head up to max of 40 calves

IBR Testing

- Max 20 animals blood tested by vet **before 1st November**
- Herd with less than 20 - ALL must be tested
- Ideally breeding stock over 9 months old should be tested
- Vet must send to accredited lab

Closing date 12th September 2023 – Online application only!!

Payment Calculation:

	Number of Bovines Tested	Payment per Herd
Action 1 - IBR	2 – 6 Animals	€120
	7 – 10 Animals	€180
	11 – 15 Animals	€250
	16 – 20 Animals	€300
Action 2- Meal Feeding	Meal Feeding @ €35 per calf up to a maximum of 40 calves	

Herd owner A:

38 bovines on farm

20 cows and 18 calves

IBR Payment €300 (16-20 animals tested)

Meal Feeding €700 (18 calves x €35)

Total Payment €1,000

Herd owner B:

116 animals on farm

60 cows and 56 calves

IBR Payment €300 (16-20 animals tested)

Meal Feeding €1,400 (40 calves x €35)

Total Payment €1,700

10. SBLAS Certification for SCEP

Are you SBLAS certified for SCEP?

- **Deadline: must be certified 16th of October for SCEP**

How to join:

1. Call 015240410
2. Application over the phone
3. Receive member pack in the post
4. Auditor will contact you for suitable date and time for audit to be carried out

Common Issues at Audits:

1.Remedies:

- Usage record not up to date or available.
- Details within Remedy Usage Records incorrect.
- Purchase records not fully up to date or available

2. Sustainability survey not fully completed in advance of the audit.

3. Farm Safety Risk Assessment not available or fully completed.

Farm Documents required:

- Bovine Herd Register.*
- Flock Register. *
- Animal Remedy Purchase Records.*
- Animal Remedy Usage Records.*
- Animal Health Plan.
- Feed Purchase Records.*
- Own Farm Feed Records.
- Farm Safety Risk Assessment / Farm Safety Statement.*
- Pesticide Usage Records*

* Legal Requirements

Audit Support & Advice

- Issues raised at audit can be closed out <1% not eligible rate
- Visit farm.bordbia.ie.
- Scan QR code for templates and sustainability survey

11. SCEP Scheme Requirements

Are you meeting your SCEP requirements?

Replacement Requirements

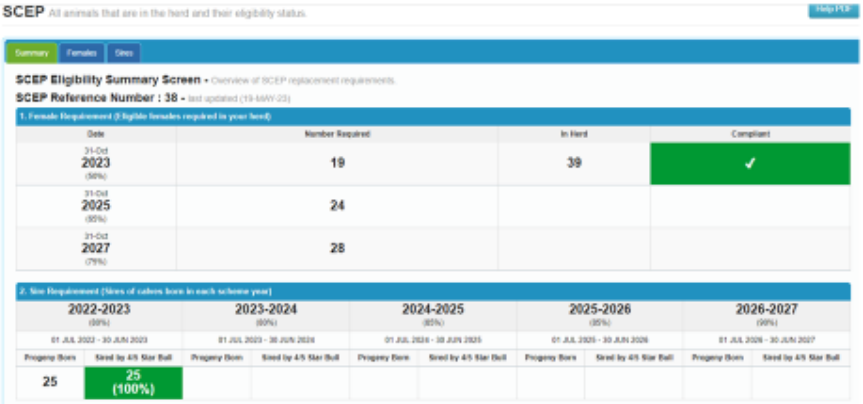
- 31st October - **50%** reference number must be 4/5 star cow/heifer
- 31st October 2025 - **65%** reference number must be 4/5 star cows/heifers
- 31st October 2025 - **75%** reference number must be 4/5 star cows/heifers

Heifers must be at least 16 months old – born before end June previous year

Where are you now?

Eligible Bull/AI

2023 + 2024	80%	Calves sired by 4/5star bull/AI on replacement or terminal index
2025 + 2026	85%	
2027	90%	



If not – what are your choices?

Check your own stock

- Have you ungenotyped 4/5-star females
- Contact ICBF to order sample kits

Purchase SCEP eligible females

Checklist: ✓

- Born on/before 30th June 2022 (min 16 months old on 31st Oct 2023)
- Genomic evaluation
- 4 or 5-stars on the Replacement Index

Breed your own

- Look at your Beef Euro-Star Profile, see what their replacement value is and breed to a high replacement bull
- E.g. Cow €97 x bull €150 = calf €123 ★★★★★
- Too late to breed females for 2023 deadline

Animal Details								Replacement Index		
Jumbo	Animal Number	Breed	Birth Date	Sex	Calvings	Dam	Sire	Genomic Eval	Index €	Euro-Star Within Breed	Euro-Star Across Breed
415	372224667870415	SI (56%) AA (25%)	26-JAN-22 ✓	F	0	372224667880300	SI2152	Yes ✓	200		★★★★★ ✓
420	372224667840420	LM (50%) SA (25%)	02-FEB-22	F	0	372212703462965	JSS	Yes	141		★★★★★
421	372224667850421	SI (63%) SA (25%)	02-FEB-22	F	0	IE141461040260	SI4250	Yes	181		★★★★★
423	372224667870423	SA (50%) SI (41%)	06-FEB-22	F	0	372224667870332	SA4604	Yes	184		★★★★★
426	372224667810426	SA (50%) LM (25%)	06-FEB-22	F	0	IE151094460764	SA4604	Yes	164		★★★★★

Heifers must be at least 16 months old – born before 30th June previous year

Female Replacement Strategy

Reference Number: 39 cows

SCEP Reference Number*	39

(Average No. cows calved in the best three years from 2016 – 2021)

- Farmer can reduce reference number – year one – can never go above this
- In January of each year can reduce by 20% of the reference no (8), can go back up

- 31st October 2023 = 50% reference number must be genotyped 4/5star on replacement index — **20**
- 31st October 2025 = 65% — **25**
- 31st October 2027 = 75% — **29**

50% of the reference number must calve each year. Failure means removal from the scheme

Heifers must be at least 16 months old – born before end June previous year

Eligible Bull/AI

Within	Economic Indexes	Index	Rel%	Across
★★★★★	Replacement	€113	50%	★★★★
★★★★★	Terminal	€154	54%	★★★★★

- 2023 + 2024

80% calves sired by 4/5star bull/AI on replacement or terminal index

- 2025 + 2026

85% calves sired by 4/5star bull/AI on replacement or terminal index

- 2027

90% calves sired by 4/5star bull/AI on replacement or terminal index

Genotyping

- 70% of the reference number of animals must be genotyped
- Deadline 30th November each year — **27**
- Cost €20 per animal

Weighing

- 80% of calves born and their dams must be weighed
- Unweaned
- Between 50 days –> weaning
- Before the 1st of November

Surveys

- Tag within 27 days
- Complete calving survey — **15th February Deadline**
- Keep calves for 5 months –
  - Complete Calf + Cow surveys by 30th November to be paid in full Dec.

Training

- Must be completed by 15th November 2024
- Two courses
- General SCEP information,
- Health and safety & livestock handling course

Other Terms and Conditions

- Must be a member of Bord Bia Quality Assurance – 16th Oct 2023
  - Apply early – have to be inspected and pass checks before 16th Oct 2023
  - Must remain in scheme for 5 years – If not removal from SCEP
- Must complete a BISS application each year – If not removal from SCEP

Payments

- **Area based – Environmental Scheme**

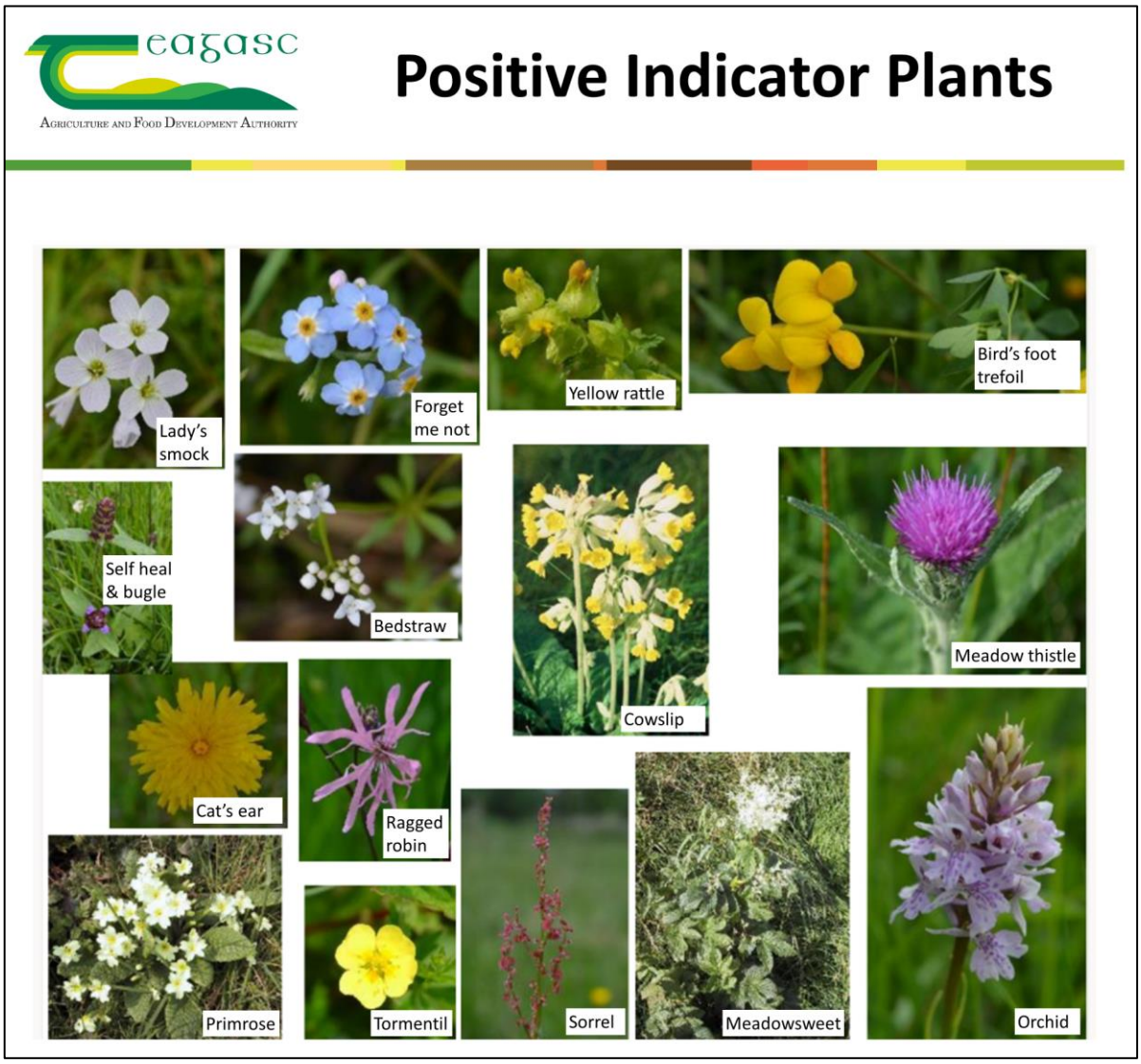
Farm SCEP Reference Number*	39

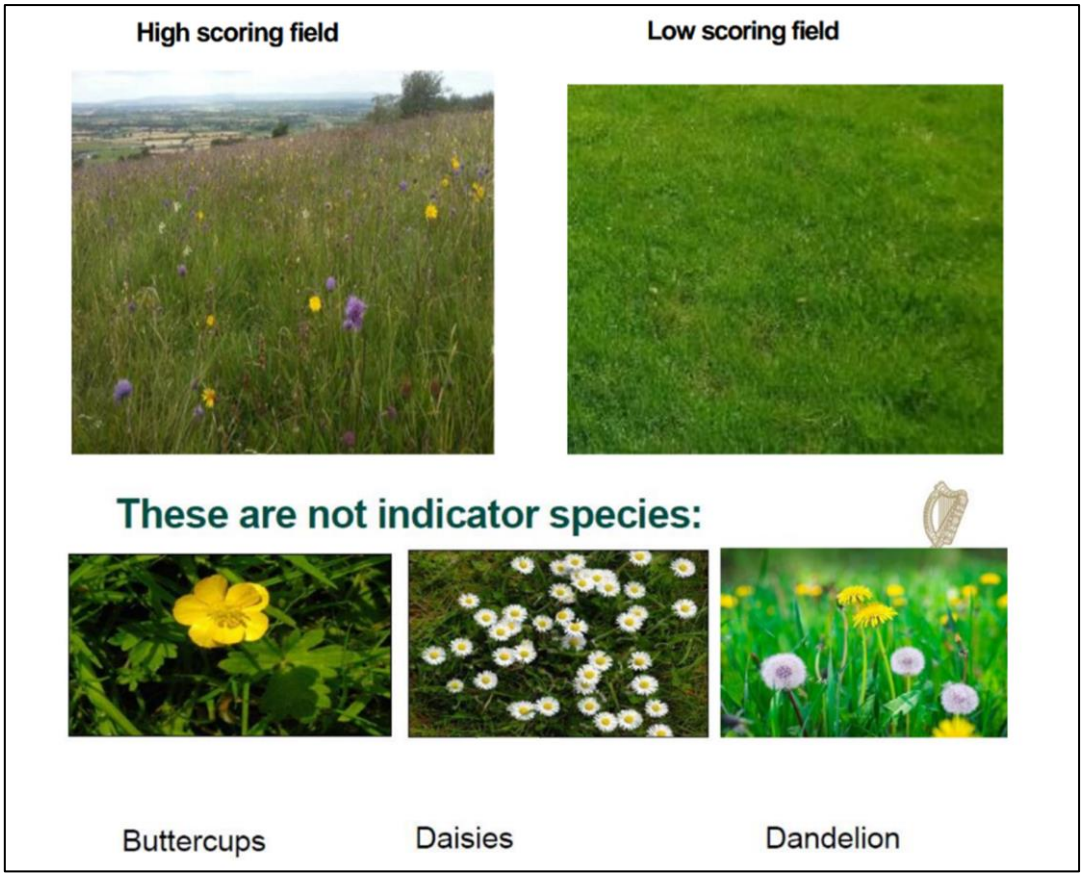
- **Reference no. / 1.5 = Ha (Max Payable Area)** **Can't drop below 80%**
- **McCarthy's 39/1.5 = 26 ha - MPA**
  - **15ha x €225/ha = €3,375**
  - **11ha x €180/ha = €1,980**
  - **Gross payment = €5,355**
  - **(Minus Genotyping €540)**
- **Net Payment = €4,815**

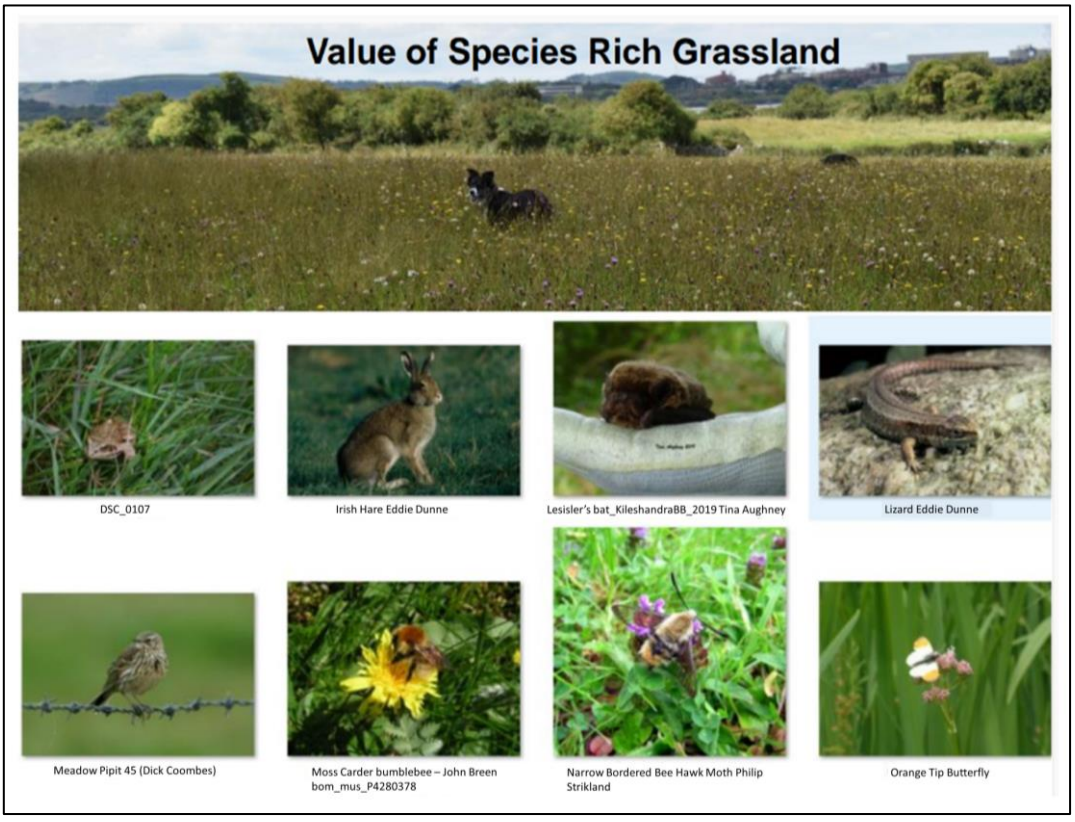
- **First 15ha @ €225 /ha**
- **Remaining @ €180/ha**
- **No max.**

- **First 22.5 cows @ €150**
- **Remaining @ €120**

12. ACRES Scheme




High scoring field
Low scoring field
These are not indicator species:
Buttercups
Daisies
Dandelion


Value of Species Rich Grassland
DSC_0107
Irish Hare Eddie Dunne
Lesisler's bat_KileshandraBB_2019 Tina Aughney
Lizard Eddie Dunne
Meadow Pipit 45 (Dick Coombes)
Moss Carder bumblebee – John Breen bom_mus_P4280378
Narrow Bordered Bee Hawk Moth Philip Strikland
Orange Tip Butterfly

Round Bale Storage from 2023

In the absence of effluent storage facilities, including farmyards, bales should be;

- Stacked at a maximum height of **two bales**
- Stored **>20m** from surface water

Buffer Zones from Watercourses

- 3m for the application of chemical fertiliser
- 3m for arable crops (6m for late harvested crops)
- 5m for slurry spreading
  - Increases to 10m for first 2 & last 2 weeks of permitted spreading season

Manure Spreading

- Closed chemical fertiliser period for Co. Cork (Zone A): 15th September 2023 - **26th January 2024**
- Closed slurry period: **1st October 2023** – 12th January 2024
- Closed FYM period: 1st November 2023 – 12th January 2024
- All farms stocked **>130 kg N/ha** to spread slurry by LESS from 1st January 2024

14. Calving Beef Heifers at 2 Years of Age

The percentage of beef heifers calved at 22-26 months of age nationally stands at 23%. This is compared to 74% of dairy heifers that calve at the same age.

What are the benefits to calving heifers at 2 years of age?

- Calving at a younger age means that breeding females have the opportunity to produce more calves over their lifetime.
- There will be a lower stocking rate on the farm than if older heifers are being carried as replacements.
- By getting your genetically superior heifers to calve down younger, you will get faster genetic improvement into your herd and can further improve this by breeding replacements from your best heifers and cows.
- If you calve your heifers at an older age, it will cost you €50/heifer/month in a 50 cow herd for the extra unproductive time she spends on the farm until calving.
- Heifers that calve at 24 months can reduce the carbon footprint on your farm by 12% vs. calving at 36 months of age.

How can you calve your heifers at 2 years of age?

- If you are breeding your own replacements, your replacement heifers should be identified early. These can be selected based on the following criteria;
    - ✓ Visual assessment: The heifer should have good feet and legs, which can also be assessed from her dam if possible. She should have a good frame too, particularly in the pelvic area but care should be taken that she is not too well muscled either as this can cause difficulties later at calving if she is small.
    - ✓ Weight for age: She should be gaining over 1.1 kg/day from birth and have a 200 day weight of over 250kg.
    - ✓ Eurostar index: Heifers should be genotyped as 4 or 5 star on the replacement index, with positive figures for milk and docility, and negative figures for calving interval.
    - ✓ Family history: The heifer should have a good milky dam that is docile and fertile. The sire should have positive figures for daughter milk and a negative figure for daughter calving interval.
- You should examine on your ICBF weaning performance report what the average weight of your cows are, and this will help to determine what the mature weight of your heifers will be. Based on this information, performance targets should be set as with the table below.

Table 3: *Performance targets for calving heifers at 24 months*

Performance targets for calving at 24 months				
Stage	**Age (mths)**	**ADG (kg/day)**	**Target Weight (kg)**	**How is this achieved on farm**
Birth	0		45	
Weaning/Housing	8	1.1	275-300	- Good grass management - High milk in cows
Turnout	12	0.6	335-375	Good quality silage + meal
Bulling	14	1	380-420	- 60% of mature bodyweight - Early turnout
Housing 2nd winter	20	0.8	540-570	Good grass management
Calving	24		550-590	- 80% of mature bodyweight - In correct body condition
Overall Lifetime ADG required		0.72		

- Heifers should be well fed over the first winter as they will have to gain between 60-80 kg to ensure they meet their weight targets. The silage on the farm should be tested and they should be given >70% dry matter digestibility (DMD) silage. Their diet should be balanced with ration as appropriate to ensure that there is adequate energy and crude protein for them to gain 0.6 kg/day over the housing period.
- Replacement heifers are priority stock on the farm and should be turned out to grass early in spring to help them settle at grass before breeding commences and so that they will reach their target weights before breeding at 15 months of age.
- When breeding the heifers, the bull selection is crucial. The bull's heifer calving difficulty should be less than 8%, with over 80% reliability to reduce the incidence of difficult calvings.

Pre-calving care for heifers

Over their second winter, heifers should be monitored closely. They should be dosed and vaccinated as necessary to ensure that they have no health setbacks which could impact their performance.

They should have a body condition score (BCS) of over 2.75 to ensure that they are fit and not fat at calving. If they are lower than this, there will be a slower return to breeding, the cow will be weaker at calving and the colostrum will be poorer. On the other side, if BCS is higher than 3.0 the cow will have greater difficulty calving and re-breeding could be delayed.

This can be assessed by handling cows for fat cover on the edge of the loin bones (transverse processes) and on the tail head and ribs. At a condition score 3.0 and greater, loin bones cannot be felt so focus on the tail head and the fat cover over ribs.

Figure 2: *Body condition score examples*

It is very easy for maiden heifers to be bullied by older cows when they are in the shed, which can cause injuries and affect their feed intakes. Ideally they should be housed in a separate pen to prevent this from happening, and to ensure that they have enough feeding and lying space.

As with all heifers, they should be supervised at calving.

Post calving care for heifers

After calving, heifers should be given good quality feed to help them meet their energy demands. If housed indoors, they should be given over 70% DMD silage and at least 2kg ration. They should be turned out to grass as early as possible to give them a chance to build condition before breeding again.

15.Oestrous Synchronisation or Timed Insemination

In Ireland, less than 20% of calves in beef herds are bred from AI. Such low usage of this effective technology most likely reflects the difficulty and labour requirements for heat detection, assembly of cow(s) for insemination as well as land fragmentation in beef herds. Synchronisation is a process that aims to reduce the labour requirement and make AI more accessible to beef farms

What is Heat Synchronisation?

Simply put 'oestrous or heat synchronisation' is the process of manipulating the oestrous cycle of the cow by the use of synthetic hormones in order to better manage the timing of breeding.

Why should a farmer consider using synchronisation?

• So he/she can plan the dates to best suit the availability of labour on the farm

• With timed AI all cows can be bred on a predetermined day, regardless of whether they showed heat or not

• It can also be used to induce heat in anoestrous cows. However, conception rate achieved at the induced heat in such cows is generally lower than cows that are cyclic, fertility at subsequent repeat heats is normal (55-70%)

• Increasing the use of AI means you can have a more targeted breeding policy

• You can use more bulls of higher genetic merit

• You can have a more focused replacement policy

• It helps to shorten the breeding season and compacts the following calving season

• For larger herds the need for a number of natural service bulls can be reduced and thus the quality improved

How does it work?

In order to develop and test a robust and repeatable timed AI program for Irish suckler beef farmers, Teagasc conducted a large on-farm trial, which involved timed AI of over 2,200 cows on 85 herds throughout the length and breadth of Ireland. The protocol in Table 1 (below) is the outcome of this work. An overall pregnancy rate of 55% to the timed insemination was achieved, which is very acceptable considering that in the region of 50% of the treated cows were anoestrous (had not resumed normal heat cycles) at the start at the start of the regimen. When combined with repeat breedings, 80% of synchronised cows were pregnant in the first three weeks of the breeding season, which obviously has very positive benefits for average herd calving interval and the subsequent calving season.

Table 2: *Recommended synchronisation regimen for beef cows ≥35 days calved at time*

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
Day 0	Day1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
10am							10am			10am
Prid in + (GnRH optional)							Prid Out PG + eCG	Record heats	Inseminate cows – evening	Continue to inseminate Or Fixed time AI -72hrs after prid removal + GnRH
								Cows will show standing heat in evening - record	Most heats expected	

Notes
- **All drugs are Prescription Only Medicines (POMs) and are under veterinary control.**
- **Dosage of drugs: will vary according to drug and drug formulation.**
- **Inadvertent administration of prostaglandin to a cow/heifer during the first 3-4 months of pregnancy will cause abortion.**

For best results with oestrous synchronisation in beef cows, it is recommended that:

• Cows are in a moderate BCS score (2.5 –3.0) at time of treatment. It is equally important that cows are a minimum of 35 days calved at time of PRID or CIDR insertion and are on a good plane of nutrition (plentiful supply of grass) for a minimum of 3-4 weeks prior to, during and after treatment.

• Synchronisation should only be used in herds where the level of management and in particular heat detection skills are high in order to detect heats and particularly repeat heats. Alternatively, a bull should be turned out with cows 7-10 days following the initial AI.

It is vitally important that high fertility semen is used and the competence of the inseminator is high. Semen must be thawed carefully (15 seconds in water at 35ºC) and the cow inseminated within 1-2 minutes of thawing. The correct site for semen deposition is in the common body of the uterus. Each straw should be thawed separately.

Synchronisation regimens for replacement heifers

As the vast majority of replacement heifers should be cyclic during the breeding season there is a reduced requirement for incorporating an exogenous source of progesterone in the regimen for heifers. Consequently, prostaglandin-based regimens are the method of choice for use on replacement heifers. A very cost effective regimen involves good heat detection initially carried out for 6 days and all heifers detected in heat inseminated. On the 6th day all heifers not yet detected in heat are injected with prostaglandin. The injected heifers will respond to the prostaglandin and show heat 2-4 days after injection and should be inseminated as normal; conception rates of 65 to 70% should be expected. The remaining heifers not yet recorded in heat and inseminated can be treated with a 2nd prostaglandin injection 10-11 days (see Figure 1) after their initial injection. Up on 80% of the heifers will respond to one or either injection of prostaglandin. Using this protocol drug use, semen costs and veterinary costs are minimised.

Table 3: *Alternative prostaglandin-based regimen for replacement heifers*

Monday – Sunday	Tuesday	Thursday to Saturday		Thursday	Tuesday
Day 0-7	Day 8	Day 10 - 12		Day 19	Day 23
Detect heat and inseminate as normal. Should have 1/3 inseminated	Inject heifers not seen in heat with PG	Detect heat and inseminate for 5 days	Heifers should respond to PG injection in 2-4 days Conception rates of 65 -70% expected	Inject all heifers not seen in heat or inseminated to date	Detect heat and inseminate for 6 days 80% of heifers should be inseminated after the 2nd injection
	Inject Prostaglandin (PG)			Inject Prostaglandin (PG)	

Fixed Time A.I. in Heifers

There is an option to use a PRID/CIDR device in heifers using a similar protocol to what was outlined for the cows. The options are to: i. Heat detect and AI as normal, any heifers not showing heat inseminate at 72-84 hours after device removal and administer an injection of GnRH; OR ii. Avoid heat detection and inseminate all heifers at 55-60 hours after device

withdrawal. GnRH must be administered at insemination. This approach will ensure a 100% submission rate and induce ovulation in some non-pubertal heifers. Pregnancy rates of over 70% have been achieved at Grange, to a single timed insemination in 15-16 month old beef heifers using this regimen.

It is imperative that heifers are bred to easy calving sires, as dystocia or calving difficulty can be four-fold higher in heifers than in more mature cows.

Fixed time AI for heifers					
Monday Day 0	Saturday Day 5	Sunday Day 6	Wednesday Day 9	Day 22 FTAI	Day 23
Prid in + Inject GnRH	Inject PG	Prid Out + Inject PG	Fixed time AI - 72hrs after PG + Inject GnRH	Heifers can be AI'd 72 and 96 hours after second PG	

List of Products used:

- PG Prostaglandin-*Estrumate, *Lutalyse, *Enzaprost.
- GnRH-*Receptal, *Ovarelin.
- ecG- *Folligon PMSG,*Synchrostim

Idea of costs – this will depend on your vet and the number you are orderings

- Cidrs x 10 €99.67
- Prids x 10 €88.78
- Receptal x 5 €113.82
- Estrumate x 5 €211.14
- Folligon x 5 €181.38
- Cidr Applicator x 1 €13.36
- Prid Applicator x 1 €13.36
- Kamar Heat Patches x 50 €82.52

Notes

A to Z of FARM SAFETY

A	**Always** consider SAFETY on the farm.
B	**BULLS:** Beware of aggressive animals on your farm. Be sure to cull cross bulls, cows, rams, stags from your farm.
C	**CHILDREN:** Always supervise children on the farm, especially during machinery operations.
D	**DRAWBARS:** Never let anyone ride on the drawbar of your tractor or any other machinery. Do not allow anyone ride in an open trailer.
E	**ELECTRICITY** can kill. Beware of overhead power lines and buried cables.
F	**FORESTRY and tree felling:** Take care not to be caught under falling trees and logs. Attend a chainsaw and tree felling course.
G	**GAS:** Slurry gases can kill. Remove all stock from slatted sheds before agitating. Never enter a shed when slurry is being agitated. Close agitation point after each use.
H	**HORSES:** Some horses can be dangerous. Always wear safety equipment e.g. helmet when handling or riding horses. Be wary of being kicked by horses.
I	**INSPECT:** Check safety equipment on your farm regularly, e.g. machinery safety covers, PTO guards, fire extinguishers and First Aid kits.
J	**JAWS:** Keep away from blades of shear grabs, mowers, revolving knives and chainsaws.
K	**KEEP CLEAR** of machinery such as tractors, HiMacs, bulldozers when they are working. Stay in their line of vision and wear a high visibility jacket or vest.
L	**LIVESTOCK:** Be wary of being kicked or crushed while working in pens, yards or fields with livestock.
M	**MACHINERY:** Ensure safety covers and PTO guards are in place and working on all farm machinery. Avoid wearing loose clothing near machinery.
N	**NEVER** start a tractor when you are standing on the ground alongside it.
O	**OVERTURN:** Remember tractors have a high centre of gravity and can overturn easily. Drive slowly over uneven ground.
P	**PESTICIDES** and other toxic chemicals: Keep them out of the reach of children. Read the label and follow the manufacturer's advice on proper use, storage and disposal.
Q	**QUAD bikes:** Always wear a safety helmet when using a quad bike. Avoid letting children on them. Drive slowly over rough ground.
R	**ROOFS:** Use a roofing ladder when working on farm sheds. Stay clear of skylights.
S	**SAFETY:** Complete and update your Risk Assessment Document. This can be completed online at www.farmsafely.com. Take action on risks highlighted.
T	**TRAINING:** Attend a Farm Safety training course NOW at your local Teagasc centre.
U	**UNTIDY:** Poorly maintained farmyards/farm can lead to accidents. Keep your farmyard/farm neat, tidy and well maintained.
V	**VISION:** Your eyesight is vital – protect it. Wear safety goggles where your eyes are in danger.
W	**WARNING SIGNS** should be erected to warn the public of dangers or hazards such as "Tractors Crossing", "Beware of Bull".
X	**XTRA:** Be extra careful when there are children or elderly people on the family farm. Restrict access to dangerous ponds, tanks, unstable heights etc.
Y	**YOU and YOUR FAMILY:** Take every precaution to remain safe and healthy. Assess every farm task carefully for potential dangers or risks. Organise and complete tasks with safety in mind.
Z	**ZOONOTIC DISEASES** and infections which can be transmitted from animals to humans. E.g. TB, Toxoplasmosis, Weil's Disease, E.Coli ... Wear gloves when handling livestock. Always wash your hands after being in contact with animals.

REMEMBER: HEALTH IS WEALTH. THINK SAFETY. BE SAFE!

Thank you for your attention and safe home!