KERRY AGRIBUSINESS

teagasc
Agriculture and Food Development Authority

FOCUS ON PROFIT

Kerry Agribusiness / Teagasc

Joint Programme 2016-2019

OUR MISSION

We will empower our client farmers by providing them with up-to-date technical advice and financial expertise to set and achieve financial goals. The Joint Programme provides a blueprint for profitable, safe and environmentally sustainable farming while ensuring a good work life balance and quality of life.

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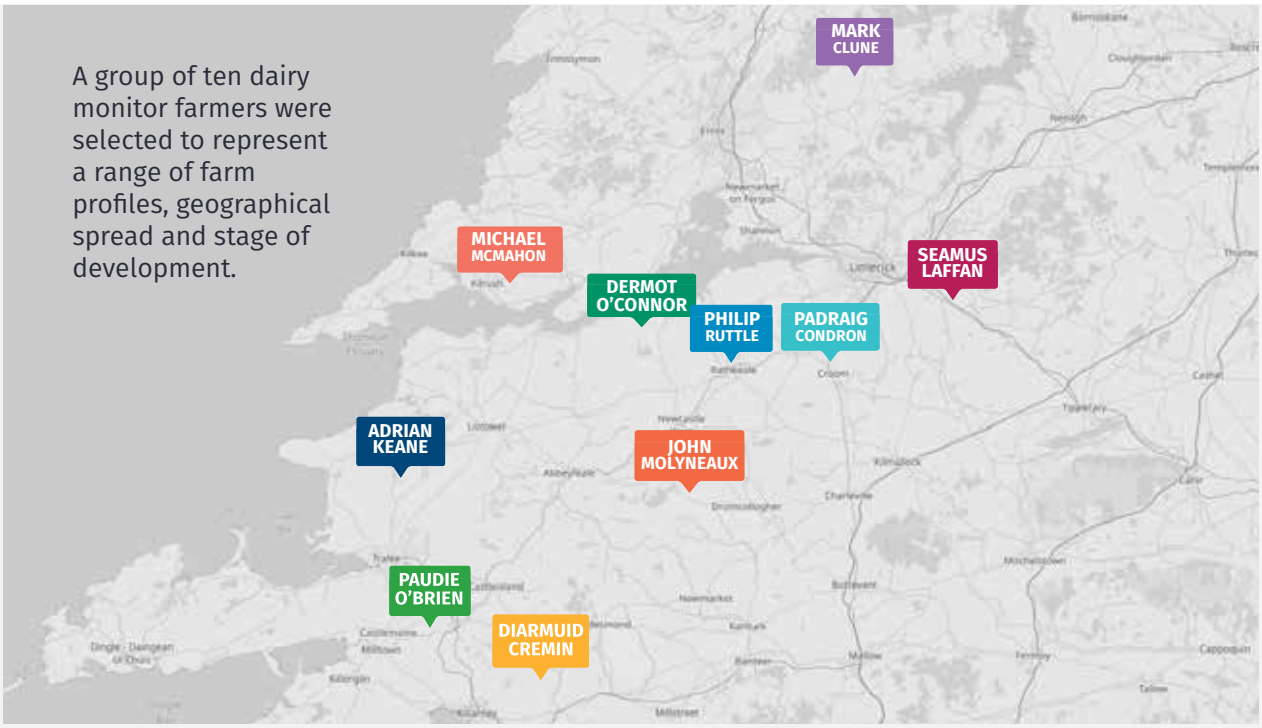


FOREWORD

The Kerry Agribusiness/Teagasc Joint Programme commenced in 1994 and was an innovative concept of peer-led learning and knowledge transfer. This was the first such programme in Ireland and formed the foundation of sustainable dairy production within the Kerry Agribusiness milk supplier base and we proudly celebrated 25 years of the program in 2019.

In the 2016 to 2019 period of the programme much focus was placed on improving soil fertility, enhancing nutrient use efficiency and further increasing the amount of grazed grass converted to milk solids.

In 2019, we undertook a detailed survey of our milk suppliers' attitude towards the programme and they told us that they valued on-farm demonstrations, learning from leading farmers and attending local and timely events. They prioritised environmental sustainability and grassland management as key areas of focus for the next programme.

As we move into a new phase of the Kerry Agribusiness/Teagasc joint programme, it is obvious that addressing climate change, water quality, biodiversity coupled with securing our reputation and competitive advantage within our grass-based production systems are going to form a key part of our focus. This will be supported by a continued focus on farm profitability and positioning dairy farming as a great career for the next generation.

We look forward to continuing our journey working with our milk suppliers to ensure we provide our global consumers with highly nutritious, sustainably produced dairy products.

OBJECTIVES SET BY THE GROUP

- Increase milk solids per cow and per hectare
- More money in the bank account - better control of spending
- Increase confidence in decision making
- Grow and utilise more grass from every hectare
- Happy within the group and achieve a good work-life balance

Monitor Group Performance

Monitor Group	2016	2019	Change %
Cow Numbers	87	106	22
Stocking rate: milking platform (LU/ha)	2.35	2.71	15
Stocking rate: whole farm (LU/ha)	2.01	2.32	15
Milk solids per cow (kg)	414	468	13
Milk solids/ha on milking platform (kg)	959	1,266	32
Milk yield per cow (l)	5,261	5,708	8
Milk production per farm (l)	457,637	607,628	33
Milk solids per farm (kgs)	36,018	49,608	38
Protein (%)	3.52	3.65	4
Fat (%)	4.11	4.30	5
SCC (,000)	169	142	16
TBC (,000)	18	17	5
Grass grown (t DM/ha)	11.6	13.6	17
Concentrate per cow (kg)	620	684	10
Herd EBI (€)	88	141	60
6 week calving (%)	74	82	11

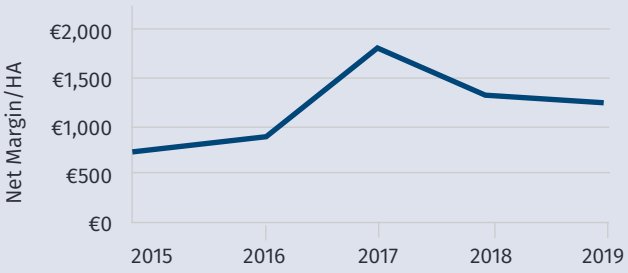
TRENDS IN SOIL FERTILITY OF THE MONITOR FARMS FROM 2017 TO 2019

Paddocks were sampled each autumn to monitor progress in soil fertility. The green bar indicates the proportion of paddocks optimal for each nutrient in 2019. Overall soil fertility at optimum increased from 18% in 2017 to 41% in 2019.

In 2019, 92% of paddocks on the milking platform were greater than 6.2 for soil pH. This is the foundation of good soil fertility and optimum nutrient use efficiency.

Phosphorus (P) status has improved from 2017, however, progress is slower than with soil pH mainly due to issues around increased milk solids offtake and P fixation on some high clay content soils. A total of 55% of soil samples were correct for P in 2019 compared to 39% in 2017. In 2020, the group have placed much more emphasis on ensuring Potassium (K) offtake via surplus bales is replaced.

Financial Progress of the Monitor Group



Whole farm net margin (margin remaining to pay family labour and capital repayments), increased from €873/ha in 2015 to €1383/ha (+58%) in 2019. In order to assess progress in key productivity measures during the programme, we must consider the performance of the core business and it's ability to generate cash. The net gain from productivity within these farms from 2015 to 2019 was €479 per hectare or €28,744 per farm. This highlights the importance of focusing on the core business; namely animal performance, grassland management, soil fertility and cost control in order to increase the income generated within the farm gate.

Financial Summary

Year	2019	4yr Avg
Gross Output (c/l)	35.51	33.29
Total Variable Costs (c/l)	12.49	11.91
Total Fixed Costs (c/l)	8.75	8.49
Total Costs (c/l)	21.24	20.29
Net Margin (c/l)	14.27	12.90

Variable Costs

Year	2019	4yr Avg
Feed (c/l)	3.41	4.12
Fert (c/l)	2.82	2.75
Vet (c/l)	1.35	1.33
AI/Breed (c/l)	0.58	0.64
Contractor (c/l)	2.23	1.86
Other Variable Costs (c/l)	2.10	1.99

Fixed Costs

Year	2019	4yr Avg
Machinery (c/l)	1.03	1.05
Car / ESB/ Phone (c/l)	1.14	1.17
Depreciation (c/l)	1.82	1.93
Hired Labour (c/l)	1.42	0.80
Leases (c/l)	1.18	1.14
Other Fixed Costs (c/l)	2.15	2.33

Note:

Net Margin excludes own / family labour and Direct payments.

Cost of heifer rearing is included in Gross Output and typically costs approximately 3.5c/l - excluding land and labour charges.

Base milk price for 2019 was 30.15c/l at 3.3% Protein and 3.6% fat and excluding bonuses.

ADRIAN KEANE

Kilflynn, Co. Kerry

Objective:

"When I joined the monitor group, my main focus was breeding to increase milk solids and grass measurement to increase grass utilisation".

Adrian's experience:

"Breeding improvements were made by purchasing 20 high Economic Breeding Index (EBI) heifers. In their 2nd year, 19 of these heifers calved down again. This helped cull older cows with poorer genetics. Since then, more in-calf heifers and maiden heifers were purchased to further improve the herd. By measuring the grass weekly, it provides me with great information so that cows can graze the paddocks at the correct stage".

Farm Productivity 2016 to 2019

Year	Cow No's	Stocking rate LU/Ha milking block (whole)	Herd EBI (€)	Milk solids/ha (kg) milking block	6 week calving rate (%)	Concen-trates fed (kg/cow)	Grass grown (tonnes DM/ ha)
2016	102	3.19 (2.41)	57	1009	62	573	12
2017*	109	3.41 (2.62)	76	1204	77	672	13.5
2018	120	3.01 (2.40)	109	1109	79	750	11.4
2019	124	3.11 (2.56)	118	1246	54[x]	442	15.7

*Milking platform area increased by 7.9 ha to 39.9 ha in 2017.

[x]Herd health issues arose in spring 2018 that impacted negatively on herd fertility and subsequently six week calving rate in 2019.

Farm details 2019

Total land	Owned land	Leased land	Milking platform
63.9 ha	**32.5 ha**	**31.4 ha**	**39.9 ha**

Cows	Replacements 0-1 years	Replacements 1-2 years
124	**30**	**32**

Farm Focus

The development focus has been on herd improvement & achieving the grass production potential of the farm:

HERD IMPROVEMENT

Adrian has accelerated his herd improvement programme by increased use of high EBI sires on his herd (2020 born calves have an EBI of €190 v herd average of €139). The herd is currently quite young with approximately 50% being first and second lactation. Adrian feels that when these animals reach full maturity the full potential of their genetics will be realised.

As part of the improvement strategy and to speed up progress, Adrian sourced high EBI in-calf heifers with high genetic merit for milk solids production and fertility in 2017 and 2018.
Milk recording data for 2019 for both own herd and purchased groups are shown below. It highlights the impact of high EBI stock when compared within herd where nutrition & management were identical for both groups.

Comparative EBI, days in milk, production performance and milk value of own herd and purchased stock.

Home bred	EBI (€)	Days in milk	No.	Milk (Kgs)	B/Fat (%)	Protein (%)	Milk solids/cow (kg)	SCC (,000)	Milk value (€)
Own Herd									
1st lactation	82	232	10	5352	3.88	3.53	397	55	1806
2nd lactation	83	259	11	6253	3.85	3.49	459	67	2085
Purchased									
1st lactation	160	257	17	5556	4.67	3.87	474	55	2163
2nd lactation	174	254	15	6057	4.28	3.68	481	47	2195

	Lact.	Difference in milk solids/ cow (kg)	Milk Value (€)
Purchased V Own Herd	2	77 kgs	€357
	3	22 kgs	€110

The impact of the fertility sub-index, within the EBI, is key to the greater performance achieved by high EBI stock. Table 1 highlights the difference in the fertility sub-index of Adrian's home bred and purchased stock.

The fertility sub-index had a significant impact on the speed with which the replacement heifers went in-calf during the difficult spring of 2018. Purchased stock went in-calf much quicker resulting in a significant impact on days in milk for these animals in their first lactation: 232 versus 257 days in milk for own herd and purchased stock respectively.

TABLE 1

Differences in EBI and fertility sub-index between second and third lactation homebred and purchased stock.

Home bred	Number	EBI (€)	Fertility Sub-index (€)
Own Herd			
1st lactation	10	82	33
2nd lactation	11	83	34
Purchased			
1st lactation	17	160	64
2nd lactation	15	174	70

Adrian's Key Message

"Capitalising on high EBI stock is a key business investment. Ideally homebred, but progress can be accelerated, particularly where herd EBI is low, by sourcing genuine high EBI stock which generate a high return on investment over a much shorter time span".

DERMOT O'CONNOR

Shanagolden, Co. Limerick

Objective

"I needed to monitor costs, improve overall financial management and manage my time more effectively".

Dermot's experience

"The group allowed each farmer to openly discuss any areas of concern on their farm and provided an opportunity for us to gain new knowledge and insights into technologies and data for our own farm. A dairy system where the herd calves compactly to grass and the farm achieves its full grass production potential leads to a system that is easier to run. Work can be blocked into different time specific tasks e.g. calving/breeding/calf rearing. These are all predictable tasks with well-defined time requirements which need to be matched to the overall labour supply. A definite finishing time each evening helps to focus the mind in getting tasks achieved in a timely manner".

Farm Productivity 2016 to 2019

Year	Cow No's	Stocking rate LU/Ha milking block (whole)	Herd EBI (€)	Milk solids/ha (kg) milking block	6 week calving rate (%)	Concen-trates fed (kg/cow)	Grass grown (tonnes DM/ ha)
2016	151	2.93 (2.11)	105	1228	81	690	12.3
2017	169	3.07 (2.27)	110	1468	84	810	15.1
2018	176	2.90 (2.56)	144	1411	81	1530	12.3
2019	197	3.28 (2.64)	155	1648	79	835	14.0

Farm details 2019

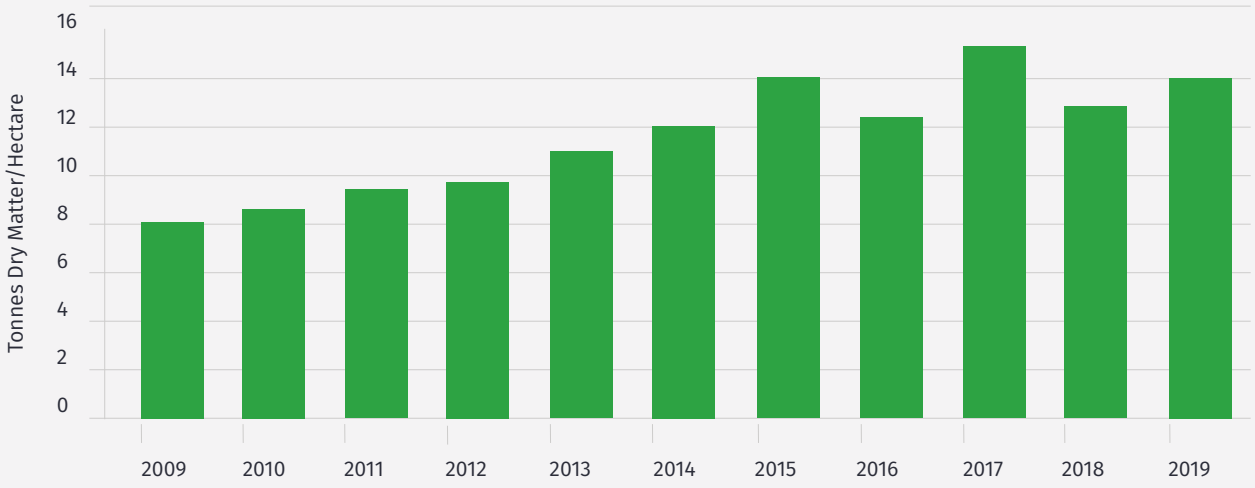
Total land	Owned land	Leased land	Milking platform
85 ha	**49 ha**	**36 ha**	**60 ha**

Cows	Replacements 0-1 years	Replacements 1-2 years
197	**56**	**46** *(contract reared from mid-May)*

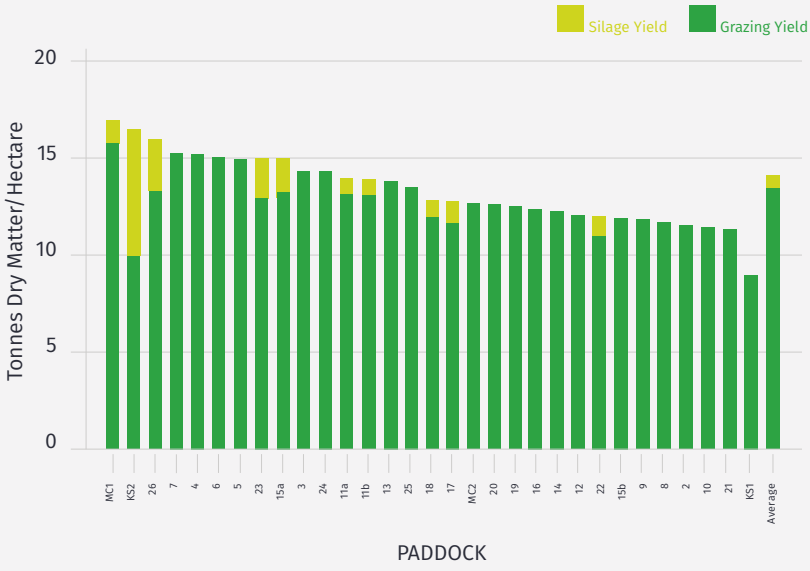
Farm Focus

Cow numbers increased from 151 cows in 2016 to 197 cows in 2019 with all replacement stock contract reared off-farm from mid-May. Additional labour was employed in spring to ease the workload and free up more time for family. Particular emphasis was placed on increasing grass growth and utilisation.

Farm Grass Growth-Progress



Individual Paddock Yield 2019



Dermot has focused on increasing grass grown to support the higher stocking rate. This has been achieved through:

- Increased investment in Phosphorus (P) and Potassium (K) fertiliser and lime.
- Annual reseeding programme using high Pasture Profit Index varieties.
- Weekly grass measurement.
- 290 days at grass - the focus on spring grazing management has increased the annual tonnage grown.

NOTE: In 2018, the drought impact reduced grass production by 3 tonnes DM/ha to 12.3 tonnes/ha on the farm - this impact was replicated across many of the other monitor farms in 2018.

Dermot's Key Message

"Focusing on getting the basics of the business right, soil fertility, grass growth and dairy cow genetics, has allowed me to increase my cow numbers without increased levels of concentrate supplementation. Initially, 40% of the farm was optimum for soil fertility and now 60% is at optimum as a result of the targeted use of P, K and lime."

DIARMUID CREMIN

Gneeveguilla, Co. Kerry

Objective

"Increase milk solids per cow by increasing grass production and utilisation and further enhancing the financial resilience of my business".

Diarmuid's experience

"The importance of grass measuring as a tool for efficient grass utilisation and early turnout to set up the farm for the year was a key learning for me. On the financial side, I learned that cash flow is as important as profit and participation in the programme allowed me to significantly improve my financial management, particularly, cash flow management".

Farm Productivity 2016 to 2019

Year	Cow No's	Stocking rate LU/Ha milking block (whole)	Herd EBI (€)	Milk solids/ha (kg) milking block	6 week calving rate (%)	Concen-trates fed (kg/cow)	Grass grown (tonnes DM/ ha)
2016	60	2.63 (2.08)	120	1165	83	623	11.6
2017	60	2.63 (2.11)	125	1191	91	710	13.3
2018	65	2.65 (2.21)	164	1331	89	1230	12.2
2019	68	2.98 (2.22)	176	1414	94	840	14.6

Farm details 2019

Total land	Owned land	Leased land	Milking platform
38 ha	18 ha	20 ha	22.8 ha

Cows	Replacements 0-1 years	Replacements 1-2 years
68	19	13

Farm Focus

Diarmuid milks a herd of 68 cows on a milking block area of 23 ha (57 acres) or a stocking rate of 3 LU/ha. Young stock are carried on an additional 3.2 ha of good ground. Approximately, 66% of silage requirement is harvested from the milking block with the rest cut from short term rented ground. An area of 12 ha rough grazing contributes some mid-summer grazing for replacements.

The key focus in Diarmuid's development plan was to achieve a sustainable living from a 68 cow herd. Diarmuid's approach is not to complicate the system and focus on the areas that give best return on effort.

Continuous herd improvement through better breeding

• Herd EBI is €176 with a big emphasis on fertility and milk solids production from a more easily maintained cow.

• Last year's production was 474 kgs MS/cow; milk protein of 3.69% and butterfat of 4.45% and 91k SCC/ml.

• Fertility drives milk solids production through a 94% six week calving rate and 365 day calving interval. The herd is mature with the cows that were culled averaging 5.7 lactations in 2018.

Increasing the grass growth potential & utilising more grass

• 14.6 t DM/ha grown in 2019.

• Achieved through investing in lime and P & K build-up fertilisers over the four years. Annual soil test results monitored progress and informed decision making.

• Use of spur roads to help grazing in spring and autumn.

• An active participant in Kerry grass group.

Cash Flow Management

• As with many farms, cash flow management can be challenging yet Diarmuid and his family ensure that all spending is carefully evaluated. Diarmuid budgets to retain 50% of receipts and reviews all spending according to this metric.

• At the end of 2019, Diarmuid had 50% of his milk supply in Kerry Agribusiness Forward Price Schemes. In Diarmuid's opinion, this is a major benefit to cash flow management taking away the need for speculation on potential price fluctuation and providing income stability.

Diarmuid's Key Message

"Focusing on the core business principals of better breeding, nutrition and cash flow management combined with keeping the system simple contribute to a long term sustainable future for your dairy business.".

MARK CLUNE

Feakle, Co. Clare

Mark's objective

"Focus on improving milk solids production from grazed grass with a mature herd".

Mark's experience

"Being involved in a group such as this makes you look at every aspect of how your farm is managed, from stocking rate, six week calving rate to the amount of grass grown on the farm each year and inspires you to make improvements ".

Farm Productivity 2016 to 2019

Year	Cow No's	Stocking rate LU/Ha milking block (whole)	Herd EBI (€)	Milk solids/ha (kg) milking block	6 week calving rate (%)	Concen-trates fed (kg/cow)	Grass grown (tonnes DM/ ha)
2016	80	3.2 (1.91)	98	1291	76	520	-
2017	80	3.2 (2.10)	109	1420	78	650	9.1
2018	82	2.93 (2.04)	138	1364	73	1010	11.5
2019	84	3.00 (2.16)	147	1439	80	719	15.1

Farm details 2019

Total land	Owned land	Leased land	Milking platform
56 ha	44 ha	12 ha	28 ha

Cows	Replacements 0-1 years	Replacements 1-2 years
84	17	23

Farm Focus

Land type is a mixture of a heavy clay with an undulating landscape and some more free draining soils.

The main focus has been on:

- Herd improvement - focusing on the fertility sub-index to improve herd maturity and high genetic potential for butterfat and protein percentages to deliver high milk solids per cow and per hectare (1439 kgs milk solids per hectare milking block)
- Grassland Management - a good farm map is important for setting up paddocks for 36 hour grazing as well as getting set up on Pasture base for grass measuring which has made decision making much easier in relation to keeping grass quality right.

Herd EBI report & production performance for 2019

High genetic potential for b/fat & protein %

Animal Group	Number of Cows	Milk Kg / Fat % / Prot %	Surv % / CI Days	Milk	Fertility	Calv	Beef	Maint	Mgmt	Health %	EBI €
Cows with EBI	92	4		€50	€68	€29	€-13	€15	€1	€2	**€152**
Missing EBI*	0	8.0 0.13	2.0								
Total Cows	92	5.7 0.1	-3.5								
1st Lactation	18	-13		€73	€72	€36	€-19	€19	€3	€1	**€185**
		12.7 0.23	2.2								
		7.8 0.14	-3.6								
2nd Lactation	12	85		€60	€66	€26	-€13	€12	€2	€3	**€155**
		9.4 0.10	2								
		8.3 0.09	-3.3								
3rd Lactation	12	17		€62	€80	€29	-€13	€14	€1	€2	**€174**
		8.9 0.14	2.2								
		7.6 0.12	-4.2								
4th Lactation	13	21		€41	€65	€31	-€12	€15	€0	€5	**€145**
		6.6 0.10	1.8								
		5.0 0.07	-3.4								
5th Lactation	37	-25		€35	€64	€25	-€11	€13	€1	€2	**€130**
		5.4 0.11	1.9								
		3.6 0.07	-3.2								

Two thirds of cows are 3rd lactation or more

Milk performance for 2019 (Jan-Dec) based on Kerry Agri data	Your Herd	Kerry Agri Average	Kerry Agri Top 10%	Your rank out of 100%	Your star rating
Fat + protein (Kg/cow) Average fat and protein yield per cow for your herd	469	392	492	83%	*****
Litres per cow per day Avg litres of milk per cow from Jan-Dec 2019	15.74	13.69	17	77%	****
Fat % to end of December 2019 Weighted average fat % from Jan-Dec 2019	4.27	4.1	4.35	83%	*****
Protein % to end of December 2019 Weighted average protein % from Jan-Dec 2019	3.66	3.53	3.68	88%	*****

Delivered 469Kg milk solids per cow with supplementation of 719Kgs/cow growing 15.1t DM/Ha

Mark's Key Message

"The real impact of focusing on herd fertility is in the extra lifetime production of each cow. Herd maturity drives increased milk solids production and the herd requires less replacement stock, which has a positive knock on environmental impact through a reduction in the farms carbon footprint".

MICHAEL MCMAHON

Kilrush, Co. Clare

Michael's objective

"Focusing on improving aspects of the core business including soil fertility, grass growth and herd genetics".

Michael's experience

"Milk solids have increased by 445 kg/ha on the milking block and cow numbers increased by 28% on the same size milking platform. Grass measurement and the ability to identify deficits and surpluses has been a key learning for me plus I now use contractors for slurry and silage which gives me more time to manage the cows and grass".

Farm Productivity 2016 to 2019

Year	Cow No's	Stocking rate LU/Ha milking block (whole)	Herd EBI (€)	Milk solids/ha (kg) milking block	6 week calving rate (%)	Concen-trates fed (kg/cow)	Grass grown (tonnes DM/ ha)
2016	71	1.62 (1.52)	86	739	70	782	10.8
2017	63	1.42 (1.46)	98	605	88	780	9.5
2018	81	2.31 (2.04)	129	1057	89	1130	8.4
2019	86	2.42 (2.22)	132	1184	84	697	10.1

Farm details 2019

Total land	Owned land	Leased land	Milking platform
50.6 ha	30.6 ha	20 ha	35 ha

Cows	Replacements 0-1 years	Replacements 1-2 years
86	22	22

Farm Focus

Grazing infrastructure is of great importance on this farm. Spur roads with multiple access points were installed to ensure that all parts of paddocks are no more than 70 meters from a hard road surface. Michael targets to utilise the extra grass that is now available to him during the shoulders of the year particularly during inclement weather conditions.

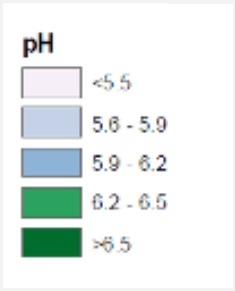
Spur roadways and roads on Michael's farm.

Colour coded maps for pH illustrate positive impact of applying ground limestone on a heavy soils farm in West Clare.

2017 pH

2019 pH

Target on Peat Soils is pH 5.5 -5.8 shaded blue



Michael has had a positive experience of lime application on heavy soil types. The benefits of faster regrowths, increased palatability and making more efficient use of fertiliser and slurry have contributed to the increased milk production without additional concentrate supplementation. Michael feels that keeping application rate to 1.5 tonnes/acre on the heavier type paddocks negates any risk of softening the surface layer. Target pH on the peat soils is 5.5-5.8.

Michael's key message

"Manage your farm by doing the simple things right and the rest will fall into place".

PADRAIG CONDRON

Croom, Co. Limerick

Objective

"Getting to grips with labour efficiency on my farm".

Padraig's experience

"Improvement in grazing efficiency has been significant - measuring takes all the guess work out and gives you a great tool to keep quality grass in front of the cows at all times. This couldn't have been done without improving the soil fertility. Soil testing and spreading the right fertilizer to match soil deficiencies was a win win. Secondly, improving labour efficiency on the farm has been crucial - listening to others and participating in the Moorepark labour study greatly benefitted me."

Farm Productivity 2016 to 2019

Year	Cow No's	Stocking rate LU/Ha milking block (whole)	Herd EBI (€)	Milk solids/ha (kg) milking block	6 week calving rate (%)	Concen-trates fed (kg/cow)	Grass grown (tonnes DM/ ha)
2016	124	2.14 (1.94)	79	824	63	511	-
2017	145	2.12 (2.27)	83	963	77	463	10.6
2018	156	2.07 (2.44)	107	1126	73	1380	8.9
2019	168	2.32 (1.99)	115	1011	84	666	11.9

Farm details 2019

Total land	Owned land	Leased land	Milking platform
107 ha	68 ha	39 ha	60 ha

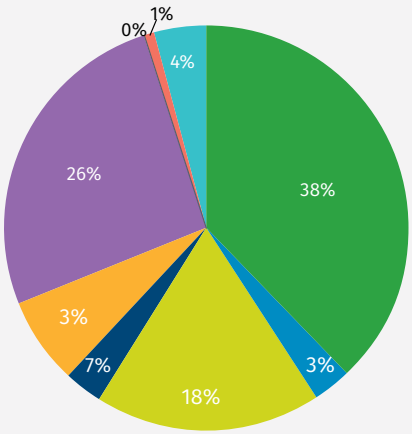
Cows	Replacements 0-1 years	Replacements 1-2 years
168	30	30

Farm Focus

Measuring and benchmarking labour efficiency was a key objective for Padraig. Padraig took part in a labour study in conjunction with Teagasc Moorepark involving weekly recording of total labour input hours into the range of farm practices from January to June 2019. The study measured labour efficiency on Padraig's farm compared to the average and top 25% of farms that were representative of Padraig's herd size.

A total of 2043 work hours were recorded which equated to 12.1 hours per cow (Jan-June) putting total labour input on this farm in the top 25% most efficient. The study highlighted areas of opportunity to reduce Padraig's own hours worked. For example, total contractor hours were 146 hours for Padraig versus 205 hours for the top 25%. This extra work was then undertaken by Padraig, for example slurry spreading in spring, and so is an area to be considered to improve work-life balance.

Allocation of Padraig's total labour hours dedicated to different work practices from January to June 2019.



Comparative performance of Padraig's farm to the average and top 25% of farms for labour efficiency representative of Padraig's herd size. HSC = Herd Size Category.

Parameter	Padraig's Farm	Your HSC* (145-236)	Top 25% in your HSC (145 - 236)
Efficiency (h/Cow)	12.1	14.7	12.3
Total farm hours (h)	2043	2558	2215
Average herd size (milk & dry cows only)	169	178	187
#Hours by farmer (h,h/cow, %)	1306 7.7 64%	1337 7.8 52%	1229 6.9 55%
#hours by family (h, h/cow, %)	46 0.3 2%	274 1.5 11%	244 1.4 11%
#hours by hired (h, h/cow, %)	545 3.2 27%	778 4.5 30%	538 2.8 24%
#hours by contractor (h, h/cow, %)	146 0.9 7%	168 1.0 7%	205 1.1 9%
Avg start time (farmer)	6:41 AM	6:56 AM	6:44 AM
Avg finish time (farmer)	6:56 PM	6:51 PM	6:17 PM
Length of day overall (farmer) (h)	12.2	11.9	11.6

* HSC = Herd Size Category

Padraig's Key Message

"Measuring labour efficiency allows us compare our system to similar scale operations particularly for the busy spring period. Planning the right balance of labour for your circumstances including use of contractors is key to making the business more sustainable".

PAUDIE O'BRIEN

Firies, Co. Kerry

Objective

"My main priorities were to improve soil fertility, increase grass production and utilisation and improve milk solids per cow".

Paudie's experience

"Participation in the progrmme gave me confidence to go farming full-time and to push my stocking rate and expand my cow numbers to 81 cows in 2020. Over time, I gained confidence to go after spring grazing and prioritise getting grass into cows. I started doing grass covers as part of my routine where I now do over 40 grass covers a year. By doing this, I increased grass grown from 10.8 t DM/ha of grass in 2016 to 15.7 t DM/ha in 2019. Grass sample analysis indicated that good quality grass was better than any ration I could feed. I could see in real-time what nutrition the cows were getting from grass".

Farm Productivity 2016 to 2019

Year	Cow No's	Stocking rate LU/Ha milking block (whole)	Herd EBI (€)	Milk solids/ha (kg) milking block	6 week calving rate (%)	Concen-trates fed (kg/cow)	Grass grown (tonnes DM/ ha)
2016	52	2.08 (1.86)	73	762	68	604	10.8
2017	61	2.41 (2.54)	92	1014	97	730	13.3
2018	65	2.57 (2.71)	126	1214	95	1450	12.2
2019	76	2.46 (2.41)	133	1120	95	738	15.7

Farm details 2019

Total land	Owned land	Leased land	Milking platform
38.1 ha	**22.1 ha**	**16 ha**	**38.1 ha**

Cows	Replacements 0-1 years	Replacements 1-2 years
76	**16**	**20**

Farm Focus

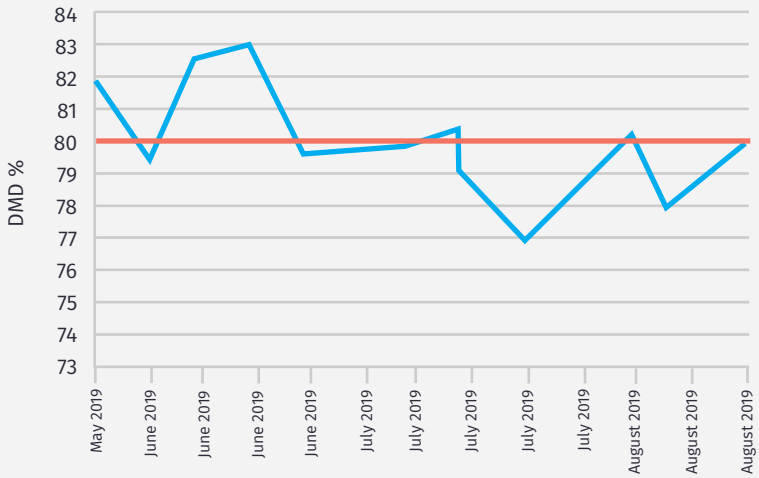
Paudie placed significant emphasis on improving farm productivity via increasing soil pH, improving grazing infrastructure and increasing milk solids production per cow, while maintaining high levels of reproductive efficiency. Paudie also focused on weekly grass quality analysis. The dry matter, dry matter digestibility, crude protein and crude fibre contents, UFL and nitrates of the sward provided Paudie with very good data on the quality of the grass offered to his herd.

The figures below show the Dry Matter Digestibility (DMD) and protein content of the grass just before grazing in the summer of 2019. It highlights some variability from week to week but most importantly the high quality of the grass offered to his herd in a 20 day rotation.

DMD%

DMD %

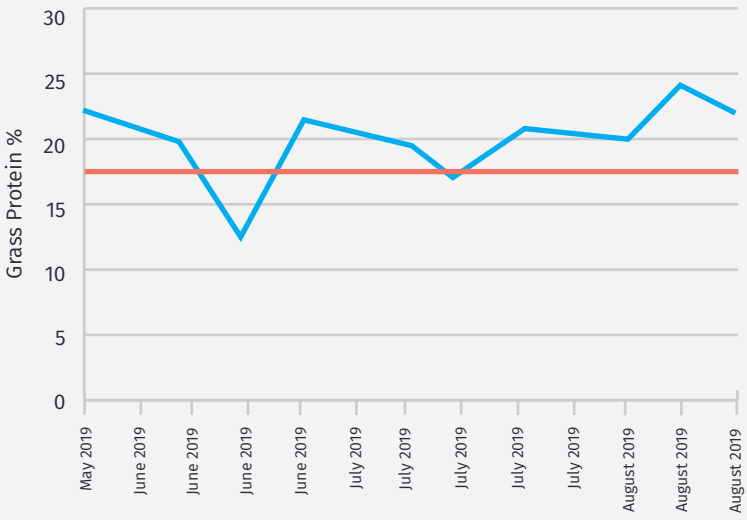
Profile of grass dry matter digestibility on Paudie's farm from May to August.



PROTEIN

PROTEIN %

Profile of grass protein content on Paudie's farm from May to August.



Paudie's Key Message

"Using key information specific to your farm ensures better decision making. This is enhanced by sharing experiences with other farmers and gaining confidence in your ability to effectively manage the resources on your farm".

PHILIP RUTTLE

Rathkeale, Co. Limerick

Objective

"My aim was to identify areas of investment which gave a high rate of return, improved labour efficiency and ensured my farm business was sustainable".

Philip's experience

"The programme has taught me the importance of financial management and to focus investments on areas with a high rate of return such as grassland and grazing infrastructure. The monitor programme has shown me the potential that my farm has to be a progressive and sustainable family business and has given me a roadmap and the necessary toolkit to reach my goals. Benchmarking and meeting with likeminded farmers has shown me the strengths and weaknesses of my farm".

Farm Productivity 2016 to 2019

Year	Cow No's	Stocking rate LU/Ha milking block (whole)	Herd EBI (€)	Milk solids/ha (kg) milking block	6 week calving rate (%)	Concen-trates fed (kg/cow)	Grass grown (tonnes DM/ ha)
2016	72	2.06 (1.89)	99	887	67	459	11.9
2017	73	1.82 (2.02)	107	941	81	497	13.2
2018	76	1.90 (2.06)	133	933	84	1469	9.3
2019	80	1.95 (2.15)	143	956	86	593	12.5

Farm details 2019

Total land	Owned land	Leased land	Milking platform
49 ha	49 ha	0 ha	37.2 ha

Cows	Replacements 0-1 years	Replacements 1-2 years
80	17	24

Farm Focus

Philip set out to improve labour efficiency and compliance over the course of his development plan. He constructed a 54 unit cubicle house with an outdoor tank being converted to a slatted tank as well as converting some existing buildings to calving boxes.

New calving facilities at Philip's.

This work had a big effect on the spring workload as well as ensuring the farm was compliant from a slurry storage point of view and was financed, after grant, by a bank loan at €1200/cow over 10 years.

Philip places a lot of emphasis on monitoring cash flow as a developing farm is cash demanding. Philip has used the Teagasc profit monitor programme to benchmark himself against similar farms and achieved his target of increasing gross output to €4000/ha with 50% running costs target also achieved.

Philip's Key Message

"As well as developing the basics of soil fertility, breeding and herd nutrition, investment is required on the compliance and labour efficiency aspects of the business. Setting out a long term cash flow plan to fund this investment is crucial to the long term farm sustainability.".

SEAMUS LAFFAN

Boher, Co. Limerick

Seamus's objective

"Adopt key technologies that improve farm profitability".

Seamus's experience

"I have learned a lot from my interactions with the other monitor farmers across the region and this has helped me on my own farm development programme. I started grass measuring when I joined the programme. I am now completing over 40 grass walks each year and entering the information on Pasture base. This helps me to ensure there is quality grass in front of my cows at all times, which has in turn improved my milk solids produced"

Farm Productivity 2016 to 2019

Year	Cow No's	Stocking rate LU/Ha milking block (whole)	Herd EBI (€)	Milk solids/ha (kg) milking block	6 week calving rate (%)	Concen-trates fed (kg/cow)	Grass grown (tonnes DM/ ha)
2016	74	2.56 (2.30)	60	1116	69	830	-
2017	77	2.66 (2.13)	71	1124	68	750	14.1
2018	81	2.84 (2.40)	106	1273	72	1350	11.6
2019	94	2.84 (2.35)	121	1308	73	792	12.2

Farm details 2019

Total land	Owned land	Leased land	Milking platform
64.8 ha	34 ha	30.8 ha	34 ha

Cows	Replacements 0-1 years	Replacements 1-2 years
94	23	27

Farm Focus

In 2016, Seamus milked 75 cows and today milks 100 cows on a milking block of 34 ha giving a milking block stocking rate of 2.8 LU/ha with some silage grown and all replacements reared on an out block.

The key focus areas for Seamus in the joint programme have been:

GRASS MEASUREMENT

Prior to joining the programme grass measurement was a sporadic practice. He now carries it out weekly and in 2019 forty-one grass measurements were recorded by him on Pasturebase.

SOIL FERTILITY

Annual soil testing has given Seamus great control of his soil fertility. Targeted improvements in specific paddocks that were low in pH, P or K were undertaken. In 2019 Seamus applied 140 tonnes of lime.

BREEDING

Progress to improving the herd EBI is on-going (currently €118). The 2019 young stock had an EBI of €187 with an emphasis on milk solids and fertility. Limiting the breeding season to 12 weeks was very effective in removing late calvers from the herd.

GRAZING INFRASTRUCTURE

Seamus has increased the number of spur roads serving his cow grazing area. This has improved grass utilisation at the shoulders of the year and has increased the number of cow grazing days on the milking platform.

Spur roadways

Seamus's Key Message

"Give priority to the areas that have the biggest impact in increasing your farm profitability. The support of your peers is invaluable and the willingness of the farming community to share their experiences and encourage each other is second to none. Being part of a discussion group gives great encouragement in your decision making".

JOHN MOLYNEAUX

Broadford, Co. Limerick

Objective

"My priority was to improve the soil fertility on the farm. P and K levels weren't where I wanted them to be".

John's experience

"When we started the programme our soil fertility were at indexes 1 and 2 for P and K. The pH was also low. It took a lot of time and investment but soil fertility has improved significantly resulting in increased grass production. Grass is the key driver for our system. We now have the farm at index 3 for P and K and our pH is at 6.3 for the whole farm".

Farm Productivity 2016 to 2019

Year	Cow No's	Stocking rate LU/Ha milking block (whole)	Herd EBI (€)	Milk solids/ha (kg) milking block	6 week calving rate (%)	Concen-trates fed (kg/cow)	Grass grown (tonnes DM/ ha)
2016	84	2.34 (2.05)	105	1037	83	506	12.5
2017	102	2.84 (2.08)	115	1271	84	520	11.8
2018	104	2.98 (2.62)	146	1481	87	1410	9.9
2019	97	2.70 (2.49)	162	1335	89	515	14.4

Farm details 2019

Total land	Owned land	Leased land	Milking platform
52.3 ha	41.7 ha	10.6 ha	38.9 ha

Cows	Replacements 0-1 years	Replacements 1-2 years
97	38	22

Farm Focus

John's main focus was on soil fertility and increasing grass production. He made a considerable investment in soil fertility which more than doubled from 2014 to 2018; €252 per ha in 2014 to €544 in 2018.

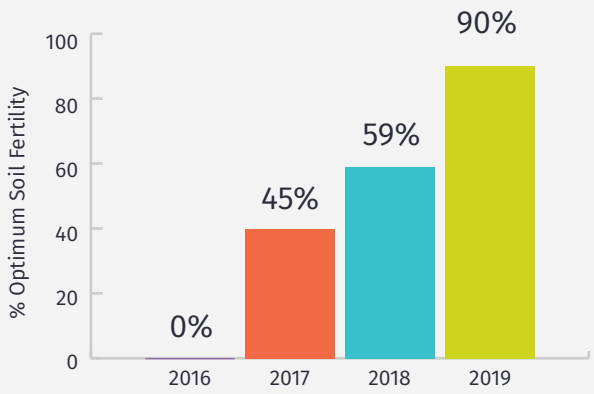
The table below outlines the feed and fertiliser costs from 2016 to 2019 with a greater investment in fertiliser in both 2016 & 2017. John's target is to fully feed the herd with forage produced within the farm gate with minimal purchased feed. The farm was soil sampled every year when building up soil fertility.

Feed and fertiliser costs (cents/litre) from 2016 to 2019 on John's farm.

Year	Feed Cost (c/l)	Fertiliser Cost (c/l)
2016	2.33	2.99
2017	2.54	2.96
2018	6.65#	3.54
2019	2.38	2.29
Average	**3.84**	**3.16**

high due to the drought.

Proportion of soil on the milking block with optimum soil fertility.



Use of low emission spreading slurry (LESS)

Slurry is spread using low emission slurry spreading by a contractor. John says "we are very happy with the grass growth response and the fact that leaf contamination is greatly reduced encouraging us to remain with this system of slurry spreading in future."

Protected Urea nitrogen fertiliser and improving nitrogen use efficiency

The nitrogen (N) fertiliser use across the whole farm in 2019 was 236 kg N/ha. Over 50% of the N fertiliser applied on the farm was in the form of protected-urea. John says "the 2019 season was our first year using protected-urea and we were very happy with the outcome, seeing no negative impact on our three week grass growth cycle and our annual production at 14.5 tonnes DM/ha. Overall the nitrogen use efficiency (NUE) on the farm was calculated at 30% which I understand is a good figure for grazing systems. Our high milk protein levels of 3.76% and low concentrate feed use have helped to achieve this, as well as being self-sufficient for forage to feed all our stock".

John's Key Message

"Investing in the basics and adopting new environmental technologies is key to the future of sustainable dairy farming systems".

2019 JOINT PROGRAMME SUPPLIER SURVEY

In autumn 2019, Kerry Agribusiness in conjunction with Teagasc commissioned a supplier survey to gauge a range of stakeholder opinions and viewpoints on the Joint Programme. The Kerry Agribusiness/ Teagasc Joint Programme is embarking on a new initiative which aims to meet the requirements of Kerry Agribusiness milk suppliers using the results generated from the survey. The following is some key feedback from suppliers on the joint programme and focus for future programmes.

Attendance at Events
Some 86% of farmers who identified that they had reasonable/considerable engagement with the programme stated that they had attended an event/meeting on a monitor farm over the past 3 years (48% of all farmers).

Level of agreement with statements relating to monitor farms by milk suppliers who attended events on these farms.

Statements regarding monitor farms	% who agree
Monitor farms are useful in demonstrating environmental best practices (n=378)	92
Monitor farms are an ideal approach to sharing information (n=378)	91
Monitor farms are relevant to me (n=379)	88
Monitor farms set a standard which others can aspire to (n=379)	85

Monitor farms were recognised as being willing to share their information, experiences and key messages. The information and events were open to all, not just those involved in discussion groups and therefore played a key role in information sharing. The monitor farm information provided an opportunity for individual farmers to compare and contrast what they were doing on their own farms with that of the monitor farms.

Future Areas of Focus - Farmer Views

	Reasonable/ Considerable Past Engagement (n=440) %	No Past Engagement But Future Interest (n=162) %
Soil Fertility/Nutrient Management Planning	39.3	29
Environmental Sustainability	39.3	36
Grass Management	39.1	36
Financial Management/Performance	35	33
Fertility/Herd Genetics	31.8	33
Herd Health	28.2	29
Milk Composition/Quality	27.3	28
Labour Efficiency	26.8	31
Farmyard Management	18.6	14
Herd/Farm Expansion	9.5	12

The elements listed above were provided as options in the survey questionnaire & the list was randomised during data collection and respondents were invited to select their top 3 options.

Elements that milk suppliers would prefer to see in a future Kerry Agribusiness Teagasc Joint Programme.

Element	Reasonable/ Considerable Past Engagement (n=432) %	No Past Engagement But Future Interest (n=158) %
Practical Demonstrations at Events	47.9	41.8
Learn from Top Performing Farmers	45.4	39.2
Local and Timely Events	40.3	48.1
Small Group Meetings – 2-3 key times per year	38.9	27.8
Events on Monitor Farms	32.4	16.5
Videos of Farmers/Useful Tips	31.3	37.3
Single Topic Event (e.g. grass, infrastructure, health)	30.1	27.2
Small Conferences/Seminars	17.8	20.9

The elements listed above were provided as options in the survey questionnaire & the list was randomised during data collection and respondents were invited to select their top 3 options.

Kerry Agribusiness & Teagasc
wish to thank all of the programme participants for their co-operation and goodwill throughout the programme and all farm families who facilitated on-farm events.

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