

Update on the Greenfield dairy farm, Kilkenny

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Summary

- **Milk Production** has increased each year to 144 and 123 tonnes milk solids sold in 2017 and 2018, respectively. **Herd Fertility** is at 10% infertile using 100% artificial insemination and a six week calving rate of 80%. The herd is now predominantly Jersey crossbred with an EBI of €156 (top 15%).
- **Herd Health/Animal Welfare** is good. Cow mortality is low at <2% annually and calf mortality at less than 7% annually. The average culling rate since the start is 24%.
- **Grass Production and soil fertility** is fundamental to the farm. Soil fertility is monitored yearly. The farm Phosphorus (P) and Potassium (K) levels are at an average of 10.33 ppm and 164 ppm in 2019, respectively. The farm has grown 13.1 t DM/ha on average since 2011. Clover has played an important role in helping improve grass production on the farm.
- **Environmental efficiency**. The average annual Nitrogen (N), Phosphorus (P), Potassium and Sulphur spread was 250, 12, 75 and 36 kg/ha, respectively. Nitrogen and P use efficiency were high at 0.32 and 0.93, respectively, and indicative of good environmental management.
- **The cash reserve** built during the cash surplus years was used up in 2018 due to the poor spring and the prolonged dry period in the summer resulting in extra feed being bought in. The farm has also funded extra on farm development (€300,000 since 2012). The farm debt is now at €420,000, down from €850,000.
- **People Management** is one of the key factors for a successful project. Rostering and training has always being important for the farm staff. In 2018, the farm invested in a new farm canteen, office, living quarters and large meeting room for the farm staff. **Lean management** was also introduced.

Introduction

The farm is 9.5 years through a 15 year lease. The success of the project so far is attributed to the excellent farm staff since start up. Some key figures can be seen in Table 1. David Fogarty is the current farm manager and Niall Duffy is the assistant farm manager along with Joe Murphy who is a professional farm manager student with help from third level students from February to July.

Grassland and cow herd

Grassland management on Greenfield has been challenging. In two of the eight summers, there were very prolonged dry periods with no rain that impeded grass growth. Grass production was only 12 t DM/ha in 2018 due to a poor spring (snow, storms and wet weather) followed by drought. After analysing the yearly Pasturebase data, along with low annual rainfall (800 mm) and the challenge to have enough winter feed on the farm, the decision was made to reduce the stocking rate by culling based on low EBI and Cow's Own Worth. The P index has increased but it has been a challenge to keep it at optimum levels as there is not sufficient P applied as the farm has kept within the derogation guidelines. Potassium levels have increased to optimum levels by applying over 70 kg K/ha annually. The soil pH has been maintained by applying lime annually.

Conclusion to successful sustainable expansion (small/large)

- Allow plenty of time to plan the business.
- Phase development.
- Source good genetics and invest heavily in grassland infrastructure from the start.
- Set realisable modest cow and grass production targets initially.
- Measure, benchmark and react to measurement.
- Review stocking rate compared to grass growth regularly.
- Over dependence on bought in feed is high risk and high cost and isn't sustainable.
- Plan to put cash reserves aside for the poor performance years.
- **Never underestimate** the value of excellent people.

	2011	2012	2013	2014	2015	2016	2017	2018
Peak cows (No.)	295	294	324	307	328	331	350	330
Not in calf rate (%)	13	11	10	10	5	8.5	12.7	8
Culling rate (%)		25	32	26	19	18	24	24
Milk solids sold (tonnes)	110	113	125	125	131	137	144	123
Milk solids sold (kg/cow)	368	372	386	396	400	415	408	398
Fat (%)	4.41	4.61	4.44	4.60	4.64	4.84	4.82	4.82
Protein (%)	3.52	3.57	3.62	3.74	3.87	3.81	3.82	3.90
Grass grown (t DM/ha)	11.8	11.8	10.0	13.5	13.9	14.7	15.2	12.0
Meal fed (kg/cow)	300	307	620	270	180	240	220	1,000
Environmental								
Phosphorus (% index 3/4)		87	71	55	58	60	27	37
Potassium (% index 3/4)		51	61	56	70	77	50	70
N-use efficiency	0.32	0.30	0.32	0.33	0.33	0.33	0.31	0.32
P-use efficiency	1.02	1.01	1.00	1.00	1.00	1.00	1.00	0.99
Carbon footprint (kg/kg)		1.14	1.33	1.20	1.13	1.12	1.14	1.41
Habitat cover (%)	0.7	0.7	0.7	0.7	1.0	1.5	2.0	2.0
Financials								
Total costs(c/l)	40.5	40.0	41.4	42.0	37.1	37.2	37.0	56.5
Total output (c/l)	42.7	43.6	49.4	48.8	40.3	36.6	45.0	43.0
Milk price (c/l)	38.0	35.9	41.8	42.6	34.3	31.6	42.0	41.0
Return on Investment (%)	9	6	10	11	8	1	12	<0

Conclusions

The long term success of the Greenfield project is attributed to high levels of pasture production and utilisation by a high EBI crossbred herd, a clear focus on soil fertility and pastures, excellent herd fertility and health and the committed work of a highly skilled farm team.