Animal & Grassland Research and Innovation Centre

Moorepark

Moorepark Dairy Levy Research Update

Teagasc Greenfield Dairy Programme

Moorepark Animal & Grassland Research and Innovation Centre
Kilkenny Greenfield Open Day

Wednesday 2nd July, 2014
Series 24

Greenfield DAIRY PROGRAMME

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Teagasc
Agriculture and Food Development Authority

Contents

Greenfield Dairy Farm: First four years physcial performance (2010-2014)

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Summary

- Due to moisture deficits, average grass growth was 10 tonnes DM/ha during 2013 compared to 12 tonnes grass DM/ha during the previous two years.
- To-date in 2014 the farm has grown 6.5 tonnes DM/ha which is two tonnes greater than the same period in 2013.
- The soil fertility is at Index 3 for P and 4 for K. The farm has increased a full K index due to the high applications of potash each year. Soil pH is 6.7.
- The farm is unique in that all paddocks are monoculture's grasses with clover. Tyrella is the most consistent variety on the farm.
- The farm buys in up to 30% of its annual winter feed supply. It's less costly to buy in good quality feed than to make a second cut silage crop on the farm since the stocking rate has increased.
- Cow numbers have increased from 265 purchased cows in 2010 to 307 mostly homebred cows in 2014. There has been a high replacement rate of 30% per year due to culling for the usual issues such as cows not in calf, lameness and high somatic cell count (SCC).
- Herd fertility is improving each year. The breeding season has been reduced from 16 to 12 weeks using 100% AI and no stock bulls. The submission rate reached 90% in 2014 up from 78% in 2013. The six week non-return rate is at 60% for the past few years. The not in calf rate has been running at about 10% annually.
- Milk solids production per cow and per hectare is increasing each year. Average milk solids per cow has increased from 334 kg in 2010 to 402 in 2013 while milk solids per hectare has increased from 795 to 1094 kg/ha during the same period. The total tonnes of milk solids produced in 2013 were 129 tonnes, an increase of 50% since 2010.
- The herd is healthy and has a total herd health plan that is been implemented each year.

1. Grass Production, fertilisation levels and soil fertility

The farm has produced high quality grass and utilised over 90% annually since start up however total annual DM production is somewhat disappointing. Growth on the farm has been restricted by low soil organic matter content and moisture deficits
in recent years. In 2012, the farm grew 11.8 tonnes compared to 10 tonnes/ha during 2013. The growth capacity of the farm is increasing with every grazing season and the farm has grown 2.14 tonnes/ha more grass to 17-June 2014 compared to the same period in 2013 (Table 1).

Table 1. Grassland productivity at the Greenfield farm (2012 – 2014)			
Year	2012	2013	2014 to date
Grass Grown (tonnes DM/ha)	**11.8**	**10.0**	**6.36**
Rainfall (mm)	791	746	497
Fertilizer application (kg /ha)			
Nitrogen	250	250	250
Phosphorus	0	16	18
Potassium	34	73	50
Sulphur	36	40	17
Soil Fertility			
P index	4	3	3
K index	3	4	4
Soil pH	6.6	6.7	6.7

Each paddock of the farm is soil sampled annually and the farm is in nitrate derogation since 2012. The farm has been allowed spread 30,000 kg N per year and we believe this is definitely reducing grass production especially on a farm that is low in organic matter and only newly reseeded. Initially, N fertilizer was bulk spread monthly, however this has been changed to weekly spreading since last year. For the past three years the farm is getting two rounds of sulphur (16 kg/acre). We have increased Potash levels, and on average 74 kg/ha of potash were applied for the past two years. Most of this was applied to the silage ground. Potash is mostly applied to grazing ground from July onwards with a small amount applied in the spring as the herd is susceptible to grass tetany. The farm gets its phosphorus application in the spring. Only limited P application is permitted and consequently, the proportion of the farm at soil P index 3 and 4 had dropped from 90 to 64%. Soil pH levels are adequate for optimum grassland production; however, some paddocks will need lime this autumn.

In terms of day-to-day grazing practices, cows graze pre-grazing covers of less than 1,500 kg DM/ha in the main grass growing season in 24 to 36 hour allocations. The post grazing height in the main grass growing season is about 4cm. The farm has never been topped and instead, paddocks are removed as bale silage when the pre-grazing paddock cover exceeds 1,600 kg DM/ha. Each year, approximately 25% of the grazing area is stopped for a large first cut of grass silage.

2. Individual cultivar performance

The farm is a unique in that all paddocks are monoculture's grasses with clover in all paddocks and a detailed analysis of the performance of individual cultivars is provided in Appendix 1. To-date, Tyrella has been the most consistent cultivar in

terms of DM production. In 2014, additional land (10ha) was leased and was reseeded in April to two more monoculture grasses (Aston Lord and Aberwolfe). Clover has been set in all paddocks and is growing actively from May onwards. The DM production of the individual paddocks (cultivars) over the last three years is shown on Appendix 1.

3. Feed budgets

Winter feed production has been variable since the start of the project. The overall requirement of winter feed for the farm is 3.29 tons DM/ha.

Table 2. Overall feed budget/ha for the Greenfield farm (2012 – 2014)			
Year	**2012**	**2013**	**2014 to date**
Grass Grown (tonnes DM/ha)	11.8	10	6.50
Grazed grass utilised (tonnes DM/ha)	10.5	9.1	
Winter feed produced (tonnes DM/ha)	2.13	1.15	1.92
Winter feed requirements (tonnes DM/ha)	3.29	3.29	3.29
Purchased Feeds			
Concentrate (tonnes DM/ha)	0.78	1.70	0.50
Silage (tonnes DM/ha)	0	1.57	0.20

Due to the poor growth rates in spring 2013, additional silage was purchased for the winter of 2013/14. No second cut silage was made during 2013 due to drought. We plan to make no second cut silage in future for three reasons; (1) not enough nitrogen available to spread due to nitrate directive limitations; (2) second cut silage puts pressure on the ability to build grass for the autumn especially as you increase stocking rate and (3) depending on price it's actually cheaper to buy in the same quality feed compared to fertilising and cutting it. Instead, some surplus paddocks will be taken as bales. There is approximately 74 tonnes silage DM left over from the 2013/2014 winter feed in stocks for 2014/15 winter. Buying up to 30% of the winter feed is not a problem as high quality fodder can be sourced locally, although it can be difficult to source from one location. To-date in 2014, 200 tonnes of dry matter has been harvested from the farm in the form of bales and pit silage. Including the silage that was carried over from last years and 100 bales purchased recently; to date 90% of the winter feed has been made for winter 2014/15 (320 tonnes DM for 133 days). Milking cows would possibly need a further 52 tonnes for 58 days (depending on growth rates and weather!); so an additional 430 bales are needed to fill the deficit. The plan is to cut more surplus bales instead of second cut. It's too early to know if

the entire winter feed will be made from the grazing area. In 2013, 154 bales were fed to the cows during the drought period along with meal. The farm wasn't able to grow any second cut so hence the farm had to purchase 100 tonnes of whole crop silage.

4. The Genetic profile of the Dairy herd

Each year since the start of the project the percentage of Jersey blood in the herd has been increasing and today, 55% of the herd are crossbred. The extreme Holstein-Friesian cows were not suitable for the long walking distances so these naturally culled themselves from the herd. Due to the high culling rate in the initial years of the project, the herd is very young with 60% in either 1st or 2nd lactation. Each year the top EBI bulls are selected from the EBI Active bull list. The main focus of sire selection is on the milk, fertility and health sub-indices and a mixed team of genomic and daughter proven bulls are used. In 2013, easy calving Hereford AI straws were used during the last 3 weeks of the breeding season. The average EBI of the herd has increased from 123 in 2012 to 161 in 2014. The list of the individual sires use over the last 5-years is shown on Appendix 2.

5. Herd size, stocking rate, culling and replacement rates

The herd was originally assembled from seven different herds in 2009 and 2010. Since 2011, the herd has been generating its own replacements. The stocking rate on the farm is increasing gradually and is 2.74 cows/ha in 2014; an additional 10ha has been leased in 2014 adjacent to the milking parlour (Table 3).

Table 3. Peak cow numbers and stocking rate 2010 to 2014

Year	Stocking Rate (cows/ha)	Cow Numbers
2014	2.74	307
2013	2.83	320
2012	2.60	294
2011	2.61	295
2010	2.35	265

Table 4 shows the replacement and culling rates for 2013 and 2014. Each year since the herd was assembled a high replacement rate was required in order to: (1) increase the herd EBI and cull cows with problems. Cow mortality is low for a herd of this size due to excellent stockman ship and herd health. The number of cows sold was high in 2013; this was because 25 in-calf cows were sold due to surplus cows. Culls are generally not kept for the winter. Cows are primarily culled due to high somatic cell counts (SCC), lameness and infertility. It is hoped that the cull rate will be reduced from 2014 onwards as the herd is now a young high EBI herd.

Table 4. Replacement and culling rates 2012 to 2014			
	2012	2013	2014 to date
Cows at start of year	306	346	331
Cow Mortality (%)	2%	2%	2%
No. 1st lactation animals (%)	57 (19%)	116 (34%)	93 (29%)
No. Cows sold %	72 (24%)	102 (29%)	17 (5%)
No. Cows at end of year	233	240	
No. In calf heifers in Dec	116	93	

6. Herd fertility performance

Since the start of the project herd fertility is improving each year and so too is the overall herd EBI. In 2013, the calving date for the herd was brought forward by one week based on applying best reproductive management practices. A number of improvements were made in 2012 and replicated in 2013 and 2014 to improve submission rates (increase of 20%), non-return rates and not in calf rates (decrease of 3%). A lot of work and effort was put in place to improve the compactness of calving. The plan can be seen in Appendix 3 and 4. In 2013, the decision was made to use no stock bull so 100% AI was used; this is been repeated in 2014. Vasectomised bulls (4) have been used for the past two years to aid heat detection. These have worked really well. They are introduced to the herd approximately week four of the breeding season as it gets difficult to spot cows on heat from that stage as there is less activity when less of them are cycling. Care must be taken with vasectomised bulls as they can be as aggressive as ordinary stock bulls. They are sent to the factory a few weeks after the breeding season is completed.

Table 5: Herd fertility performance 2011-2014				
	2011	2012	2013	2014 to date
Expected calving start date	31-Jan	31-Jan	23-Jan	29-Jan
Days when 50% herd is calved		1-Mar	12-Feb	13-Feb
Herd EBI (€)		123	144	161
Mating start date	26-Apr	16-Apr	24-Apr	24-Apr
Breeding season length (weeks)	15	12	12	
Not in calf rate (%)	13	11	10	
No. first lactation cows	70	57	116	93

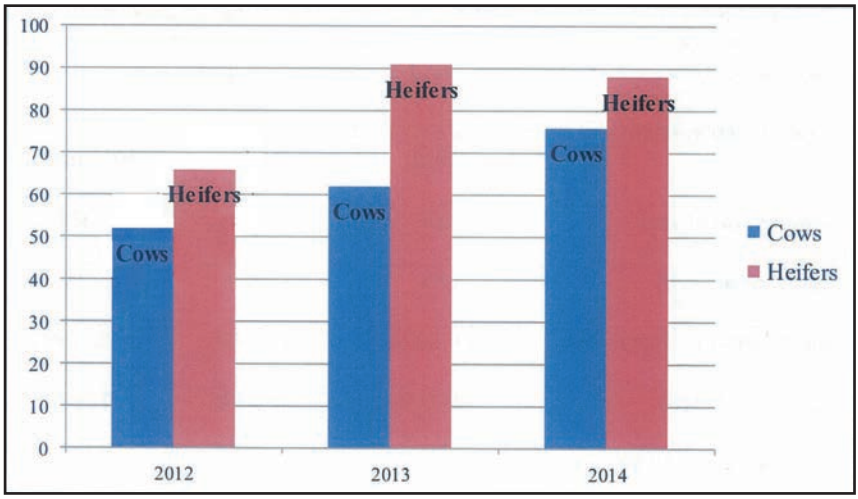

Figure1: Six week calving rate 2012 to 2014

As can be seen from Figure 1, the six week calving rate is improving each year for both the cows and heifers. This is as a result of the management procedures been followed in Appendix 3 and 4. This means a busier February and higher milk production for February and March (Figure 2). An extra labour unit was taken on in February 2014 to deal with the extra workload.

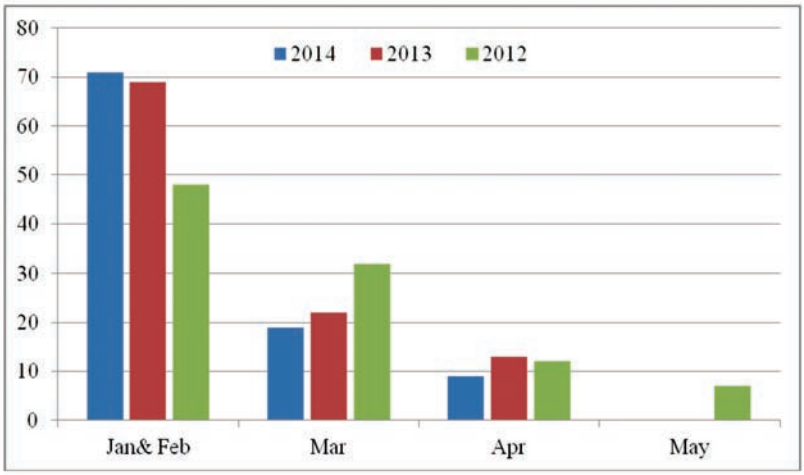

Figure 2: Herd calving pattern 2012 to 2014

7. Milk production

Milk solids production is improving each year since the project was set up (Table 6). The total milk solids production has increased by 50% since the start. Since the herd was been assembled in 2009 and 2010 so really proper production only began in 2011; the herd has produced well considering it's a new young herd. Milk solids produced per cow was 400 kg /cow in 2013. Milk solids per hectare is also increasing per year, this is as a result of a higher stocking rate and improved milk solids production. Milk solids percentage has improved also. Meal fed per cow was 300, 300, 600 and 180kg in 2011, 2012, and 2013 and to date in 2014 respectively.

Table 6. Milk production 2010 to 2014

	2010	2011	2012	2013	2014 to 17-Jun
Tonnes MS produced (t)	86	114	117	129	58
Milk Solids sold/cow (kg)	314	368	372	386	189
MS produced/cow (kg)	334	388	398	402	209
MS sold/ha (kg)	785	961	968	1094	517
Butter Fat (%) Protein (%)	4.28 3.54	4.41 3.52	4.61 3.57	4.44 3.62	4.64 3.50
Milk Price (c/l)		37.8	35.9	41.0	

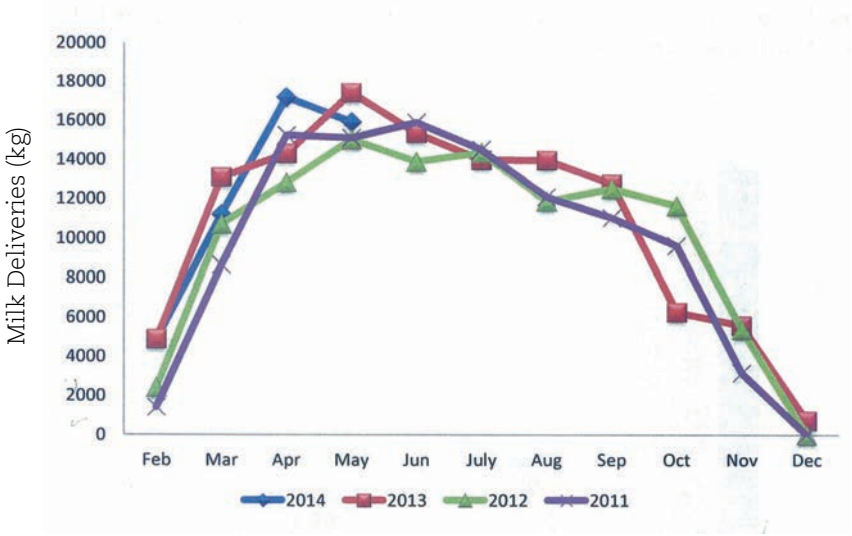

Figure 3. Milk Production profile 2011 to 2014

Animal health

In general the herd health status is good on the farm. The biggest problem in 2012 was SCC in cows in the form of Staph Aureus. Extra milk recording, milking the infected cows in a separate herd last has improved the SCC cows. Unfortunately, the SCC was bought from one of the original herds to the Greenfield farm.

In 2014, a high percentage of heifers (20%) calved down with mastitis. This was very time consuming and frustrating in the milking parlour especially when it was a busy time with calving and calf rearing. The problem seemed to be mainly in the first calving heifers. Cows tested very low for SCC in this period. The cows were dry cow tubed and teat sealed at dry off. Obviously, the heifers were not. A plan will have to be put in place for the winter 2014/2015 to prevent this from happening again. No plan has been decided yet. It is difficult to teat seal heifers. Pre spraying their teats before calving has worked well on some farms.

Lameness was a problem in the spring of 2013. The increased walking distance for heifers and poor roadway surface led to small stones damaging cow's hooves. The excess rainfall of November 2012 washed any topping off the roadways. The foundation on the farm roadways was excellent but the surface had washed away. So in 2013 2 km of farm roadway was surface with 'slig' (shale) and roll at a cost of €20,000. Almost immediately the lameness issue in cows improved. This year there is very little lameness in the herd.

The foot bath in the exit yard is topped up daily with bluestone. It is too small for the herd size. It gets dirty quickly and the dirty solids are not able to empty from the foot bath. Apart from a small percentage of ketosis, milk fever and grass tetany there are no other health problems. Cows and heifers are vaccinated for IBR, BVD, Salmonella and Leptospirosis annually. A plan is prepared in January annually (our practise for vaccination can be see seen in Appendix 5). In 2014, the IBR vaccine was brought forward to before the breeding season (see Appendix 5).

Conclusion

The Greenfield dairy farm has so far only been 4.5 years in operation but performance physically and financially has been improving each year. All production areas of the farm are been measured. By measuring the grassland production it is easier to know how many cows can be carried on the farm into the future.

Total milk production is increasing each years 50% increase since 2010.
This is from an increase in stock numbers, better breeding and increased grass utilisation. Breeding targets have been reached with careful management but each year the targets must be achieved and improved on. The amount of annual grass production grown is disappointing.

Appendix 1. Dry matter production (kgDM/ha) of the individual paddocks 2012-2013 (2014 to17-June)

Paddock	Cultivar	Total DM yield 2012	Total DM yield 2013	Total DM yield 2014 to 17-Jun
1	Dunluce	14.59	7.02	5.22
2	One 50	14.4	7.65	5.55
3	Banquet	14.07	11.42	5.63
4	Astonenergy +Clover	9.95	12.23	5.56
5	Astonenergy +Clover	11.1	12.78	7.44
6	Astonenergy +Clover	11.5	9.05	6.36
7	Bealey+Clover	13.3	8.53	6.3
8	Twymax+Clover	8.6 (New 2011)	9.92	6.94
9	Bealey+Clover	14	11.44	8.35
10	Abermagic+Clover	9.9	11.58	6.65
11	Abermagic+Clove	10.8	10.27	8.27
12	Abermagic+Clover	9.6	9.56	6.26
13	Bealey+Clover	9.6	9.15	6.96
14	Bealey+Clover	11.4	9.15	5.48
15	Dunluce	14.4	7.78	5.25
16	Dunluce	14.5	8.16	5.35
17	Dunluce	8.1	8.41	4.88
18	Tyrella+Clover	12.2	15.12	6.39
19	Tyrella+Clover	13.5	11.94	7.06
20	Dunluce+Clover	12.2	11.05	7.43
21	Dunluce+Clover	11.7	10.86	7.68
22	Dunluce+Clover	10.06	12.46	9.13
23	Abermagic	11	8.45	5.14
26	Drumbo	7.8 (new 2011)	9.58	4.17
27	Abermagic	11.3	8.94	4.97
28	Astonenergy +Clover	12.2	9.26	Swapped for new land
29	Aston energy +Clover	14.7	8.86	Swapped for new land
28	Kintyre			5.48 (new)
29	Kintyre			7.92(new)
	Average	**11.8**	**10.02**	**6.36**

Appendix 2. Details of AI sires used on Greenfiel Dairy Farm since 2010			
Year	**Al Bulls Used**	**No. of wach breed used**	**Total no. Al straws**
2014	GZY, JRE, ZBT, GXY, PKA, OKM, WLY, MSF	100 Jersey (17%) 500 Friesian (83%)	646
2013	HJT, OKM, PZS, WDS, WLY, LHZ, BGJ, HYD, JKF	100 Jersey (20%) 400 Friesian (80%) 12 Norwegian Red? Hereford	500
2012	HYK, MJS, OKM, PKU, TIO, WT, GFS, HYZ, MOK, TEZ, PSH, VBT, EKE, FEA	212 Jersey (43%) 191 Friesian (39%) 48 Jersey Cross (9%) 14 Norwegian Red 31 Hereford	496/461
2011	BHQ, HWY, HYK, KJW, KTR, PKU, TIO, WFM, BHZ, HZS, MJD, MTW, SIZ, WDS, WNE, UDP, BWU, GIP	389 Jersey (67%) 102 Friesian (18%) 50 Jersey Cross (9%) 29 Hereford Angus	578
2010	ABT, BHQ, HWY, MJS, PKUBHZ, BYJ, HRJ, HZS, MTW, SIZ, SOK	156 Jersey (80%) 40 Friesian (20%)	196

Appendix 3. Breeding season plan for 2014			
Day	Date	To do list heifers	To do list for cows
Fri	1-Apr	Book AI technician for heifersOrder Breeding technology e.g. Kaemars, tail paint etc.	Tail painted calved cows (yellow) for pre heat detection. List all cows on heat on prepared breeding charts on the dairy wall.
Tues	10-Apr	Organise DIY course	
Mon	21-Apr	Apply heat detection aids. Average weight at bulling was 320kg	291/309 cows had condition score ≥ 2.5 on 3-Apr, remaining were between 2-2.5 and were left on OAD.
Tues	22-Apr	MSD (mating start date) for heifers (93). Remove bulled heifers to separate paddock	
Thur	24-Apr		MSD for cows (300)
Mon	28-Apr	Decided not to PG any heifers as 72/92 heifers were served in 14 days with no intervention. AI for 3 weeks.	
Tues	29-Apr		Scan any cows that did show sign of heat and >32 days calved, CIDR + wash out cows (64 scanned, no cysts, 4 dirty, 5 with no CL's that got CIDRS.
Thur	13-May	Stock bulls running with heifers(90/92 were served to AI with no intervention in 21 days)	
Thur	24-May		Scan any cows that didn't show signs of heat in past 22 days. Two were dirty & washed out, 14 were given estrumate even though they had a CL(corpus Leuteum)
Wed	4-Jun		Vasectomised bulls introduced(60% Non-Return Rate)
Mon	25-Jun	Remove bulls from heifers(9 weeks breeding season)	Finish Dairy AI on cows
Wed	2-July		Finish Dairy Al on cows
Thur	3-July		Start using short gestation Hereford AI straws for three weeks
Wed	10-July		Finish all AI of cows (11 weeks)

Appendix 4. Daily to do list for breeding season

Event	Time	Comments
Heat Observation - cows yellow tail paint removed	12pm, 9pm, am & pm milking	Little activity at 12pm, plenty at 9pm, tail paint gone next am milking. Noted in heat detection sheet on dairy wall
Drafting of cow with tail paint removed	At am milking	Up to 20 cows/day for first 21 days
1+2 in charge of inseminating If busy get local inseminator	10am	Straw from tank to cow <5min!All insemination products near crushClear, odourless gel, sterile gloves, paper towel, flask with water @30-35 degrees, scissors, chemise, clean environmentCheck N levels in tank regular
After each cow is inseminated	10-11am	Return to paddock
Weekly	Tuesday	See if on target for submission rate: 270/300 in 23 days = 90%.
Unserved cows	16-May Onwards	Getting difficult to spot cows less activity Repeats at day 42 (target: 108=40% Non-Return Rate)
Vasectomised Bulls (4)	16 May	To run with cows Break every 2nd Day for bulls Feed bulls nuts every day
Thur	13-May	Stock bulls running with heifers(90/92 were served to AI with no intervention in 21 days)

Appendix 5. Yearly vaccination plan				
Vaccine	**2012**	**2013**	**2014 (plan)**	**2014 (Actual)**
IBR Cows IBR Heifers(Maiden) IBR Calves (3mths-live) IBR Calves (6 mths-inactive)	28-Jun 22-Jun Mid-Apr	20-Jun 22-Jun Mid-Apr	13-Apr 14-Apr 10-Jun 10-Dec	17-Apr 18-Apr 12-Jun
Lepto Cows Lepto Heifers(Maiden)	5-Apr 15-Mar + 5-Apr	30-Mar 25-Mar + 15-Apr	1-Apr 17-Mar + 17-Apr	4-Apr 10-Mar + 19-Mar
BVD Cows BVD Heifers	5-Apr 15-Mar + 5-Apr	30-Mar 25-Mar + 15-Apr	1-Apr 17-Mar + 17-Apr	4-Apr 10-Mar + 19-Mar
Salmonella Cows Salmonella Heifers	4-Oct Same	8-Oct 25-Sept + 9-Oct	1-Sept 3-Sept +2-Oct	

The Greenfield Dairy Farm: first four years- financial performance

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Introduction

The Greenfield Dairy Farm has now been in operation for almost one third of the overall lifetime of the project (Year 5 of 15). This is a good opportunity to present how the overall farm has performed over this period; to look forward to the future of this overall project as well as to discuss how potential future investments will be appraised within the overall business. To start this process it is important to remind ourselves of the circumstances that the farm was set up in 2009. Business plans for this project were put together and refined on a number of occasions between 2007 and 2009. Up to 2009 the plans that were developed were based on a milk price of 28 cpl with an investment of approximately €1.8 million. These plans were dramatically changed as a result of the experiences of 2009 (experiences that most dairy farmers will never forget) where milk price averaged approximately 23 cpl as well as being a difficult grass growing and utilisation year. As a result of this experience the business plan was rebuilt based on a milk price of 24 cpl with an overall investment of €1.1 million. The agreement between the three shareholders (Glanbia, Phelan family and Farmers Journal Trust) was secured in May 2009 and planning permission was finally secured in November 2009. Between November 2009 and February 2010 all winter housing, slurry storage and milk harvesting facilities were constructed. The farm has been operational since February 2010 with 4 full lactations now complete. This paper describes the farm under a number of headings:

1. Farm performance
2. Financial performance
3. Where to from here?

1. Farm performance

The original farm business plan for the Greenfield Dairy Farm can be accessed at www.greenfielddairy.ie/node/103. The plan was based on minimising capital investment on the farm while expanding cow numbers in order to maximise grass utilisation (Table 1). Cow numbers were projected to increase from 250 in Year 1 to 350 in Year 10. Milk solids yield per hectare was projected to increase from 760/Ha in Year 1 to 1300kg/Ha in Year 10. The projected base milk price included was 24 cpl per litre with the farm plan only showing modest cash flows and profitability until Year 5. While in the plan the conversion was estimated to costs

were €1.1 million the actually cost was €1.2 million. The reasons for this included overruns in certain areas (e.g. farmyard), additional facilities (e.g. mobile home and new gate entrance) and also because it was decided to increase the rate of expansion resulting in more cows being bought for Year 2. The additional investment was borrowed from AIB and was part of the original loan facility with €850,000 borrowed out of a potential €900,000.

Average cow numbers were 250 in Year 1, 300 in Year 2 (2011) 307 in Year 3 (2012), 320 in Year 4 (2013) with an estimated figure of 307 in Year 5 (2014). Milk solids/ hectare was 743kg/ha in Year 1 and 968kg/Ha in Year 2, 983 kg/Ha in Year 3 and 1,084 kg/Ha in Year 4. The base milk price and the milk price received has been substantially higher than the original projections with a base milk price of 27.9, 31.9, 28.9 and 36.6 cpl in Years 1 to 4, respectively, and a budgeted milk price of 33.7cpl in 2014.

Table 1. A comparison of the farm level physical projections for the Greenfield Dairy Farm in the original business plan compared to what was realised in the first 5 Years

Year	Cow Numbers	Grass Growth Kg DM/Ha	Labour Costs €	Protein %	Fat %	Sales MS Kg/Ha	Sales MS kg
1 Projected	250	9,205	88,800	3.41	3.90	761	91,081
1 Actual	248	12,000	87,810	3.54	4.28	743	83,197
2 Projected	270	10,386	91,020	3.41	3.90	846	101,143
2 Actual	294	11,383	90,347	3.52	4.41	968	108,471
3 Projected	290	11,667	93,240	3.42	3.93	933	111.504
3 Actual	307	11,800	101.963	3.57	4.61	982	111,012
4 Projected	300	12,462	95,460	3.46	3.99	999	119,357
4 Actual	320	10,027	93,576	3.62	4.44	1,084	122,450
5 Projected	310	13,216	97,680	3.48	4.03	1,049	125,393
*5 Actual	307	**	89,352	3.70	4.67	968	121,251

* Land area has increased in 2014; ** Fifth year is now only half way completed, Projections for protein fat and milk output

2. Financial performance

Over the first four years of this project the farm has performed substantially ahead of what was included in the original budget. This has largely been due to the higher milk price than was originally set out in the original budget. Table 2 shows a summary between actual and projected performance for the farm over the first four years with an estimation included for 2014. The farm has generated substantial profit over the four years and will generate significant profitability for 2014 based on projections for the remainder of the year. Debt servicing for the farm was based on interest only for the first two years with capital and interest being paid since 2011. One of the key problems for most start up or expanding dairy businesses is around generating positive cash flows in the early years of investment. While a business may be profitable, this profitability may not result in positive cash flows. However within the Greenfield Dairy Farm both cash flows and profitability have been positive over the first five years of the project. Based on original budget on average the farm receipts are running at 30% ahead, while total costs are running 21% ahead of budgeted. In the original business plan the farm was not expected to be profitable until Year 4 and in effect the farm has been profitable from Year 2, which has meant that the accumulated profits are significantly more than what was originally considered.

A number of metrics are used beside profitability to evaluate the financial performance of the Greenfield Dairy Farm; these include return on investment and return on equity and overall cash flow. Return on investment (ROI) is a performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. In order to calculate ROI, the benefit (return) of an investment is divided by the cost of the investment; the result is expressed as a percentage or a ratio.

The return on investment formula:

$$ROI = \frac{(\text{Gain from Investment} - \text{Cost of Investment})}{\text{Cost of Investment}}$$

In the above formula “gains from investment”, refers to the profit obtained from the investment of interest and the cost of the investment is the financing costs (interest). Return on investment is a very popular metric because of its versatility and simplicity. That is, if an investment does not have a positive ROI, or if there are other opportunities with a higher ROI, then the investment should be not be undertaken. A target set out for ROI is dependent on the individual and the level of risk associated with the investment. A general guideline figure is that a target return on investment should be set at 5% above the costs of funds (interest rate).

Table 2: Comparison of farm level financial projections in the original business plan when compared to what was realised in the first 5 years for the Greenfield Dairy Farm

	Year 1 (2010)		Year 2 (2011)		Year 3 (2012)		Year 4 (2013)		Year 5 (2014)	
	Projected	**Actual**	**Projected**	**Actual**	**Projected**	**Actual**	**Projected**	**Actual**	**Projected**	**Actual**
Farm Receipts	380,397	397,949	419,132	567,323	458,657	573,666	490,029	725,910	512,089	683,785
Total Costs	387,462	397,831	445,888	537,640	460,015	527,654	454,996	608,626	462,432	593,073
NetProfit	-7,066	118	-26,756	81,433	-1,057	45,323	35,034	97,483	49,656	102,632
ROI	-			9		6	7	10	7	11
ROE				23		13	10	21	11	21
Surplus Cash	24,093	47,239	4,403	103,334	30,101	20,155	17,715	97,339	30,156	90,632

Return on equity is defined as the amount of net income returned as a percentage of shareholders equity. Return on equity is a measure of how much profit a company generates with the money shareholders have invested. ROE is expressed as a percentage and calculated as:
Return on Equity = Net Income/Shareholder's Equity.

In the Greenfield Dairy Farm both ROI and ROE calculations are completed for the farm annually and compared to budgeted projected figures. On average the ROI for the farm is running at just under 9% when year one is excluded from the calculation which corresponds to approximately 5% above the cost of funds. In relation to return on equity the farm is running at 19.5% for the Years from 2 to 5. It is anticipated that the return on equity will drop over time as debt is repaid and as the equity proportion of the overall investment increases. Both ROE and ROI returns for the farm to date would compare favourably with any investment that may be made in competing investments on or off the farm.

One key concern centres on the fact that the overall cost structure has been well ahead of what was originally planned. This is something that requires careful consideration to ensure that the business is viable even at lower milk prices which we know will be a feature of international markets in the future. There are a number of key areas where the farm has had substantially higher costs than originally budgeted. These areas include overall farm borrowings, heifer rearing, fertiliser, on-going maintenance and development, standoff pad maintenance and bark mulch costs; also purchased feed costs. Overall borrowings are €100,000 higher, there are approximately 20 additional heifers being reared, fertiliser price is on average one third higher, farm maintenance costs and bark mulch costs is approximately three times more expensive than had been originally budgeted. Additionally, both concentrate price and feeding levels are higher than originally planned as well as the requirement to purchase forage. There is now a focus to reduce costs in each of these areas. In 2013 the cash breakeven base milk price was approximately 30.5 cpl with the target in 2014 to reduce this figure to 27.5 cpl with the ultimate target of reducing this figure to 25cpl. The overall profit and loss and cash flow statement for 2013 is shown in Table 3. The reduction in costs is being achieved through a reduction in expenditure on maintenance and development, reducing the number of replacement heifers reared, evaluating options for the standoff pad but ultimately the main focus centres on growing more grass on the milking platform. This will have the dual effect of reducing the amount of purchased feed required as well as increasing milk production from the milking platform. In 2013 there was €104,568 (€61,833 on concentrate and €42,735 on purchased forage (over 50% was drought related)) spent on purchased feed, €31,634 on maintenance and farm development and €71,721 on heifer rearing which correspond to 14.4 cpl or €1.60 / kg MS. The corresponding figures budgeted for 2014 were €51,184 on purchased feed, €20,144 on maintenance and farm development and €64,844 on heifer rearing (less heifer calves sent to the contract rearer). With similar milk outputs expected

in 2014 when compared to 2013, this would result in cost savings of €71,751 (€0.59/kgMS or 4.9 cpl). However, it is anticipated that some other cost items will increase in 2014; like an increase in the requirements to conserve feed on the farm, therefore resulting in the breakeven milk price settling at 27.5 cpl, which corresponds to a reduction of 3.0 cpl. It is anticipated that further cost reductions will be achieved by further reducing the numbers of replacement heifers reared, further increasing grass growth and matching the stocking rate to the herbage produced. Due to the high cost base and the expected milk price volatility in the future, the key focus of the business over the past number of years has been to increase the business resilience. There has been a dual focus of banking cash from the business when available as well as focusing on strategies to increase grass growth and reduce costs of production. To this end there has been a sink fund built up of approximately €125,000 which is available for risk management into the future. This leaves the Greenfield Dairy Farm in a very sustainable footing, capable of dealing with challenges as and when they arise.

Table 3. Profit and Loss account and cash flow statement for the Greenfield Dairy Farm for 2013

		Farm	€/Ha	€/kgMS
Sales	Milk	621354	5499	5.07
	Livestock	96957	858	0.79
	Other SFP refund	7598	67	0.06
	Total	**725910**	**6424**	**5.92**
Purchases	Bulls	7800	69	0.06
	Total	**7800**	**69**	**0.06**
Inventory +/-		-12000	-106	-0.10
Gross Output		**706110**	**6249**	**5.76**
Contracting	Silage	24179	214	0.20
	Slurry spreading	10098	89	0.08
AI	Straws	9799	87	0.08
	Breeding costs	2720	24	0.02
Animal	Tags	1850	16	0.02
Bedding	Woodchip	9872	87	0.08
Dairy	Supplies	8878	79	0.07
	Milking Machine costs	3264	29	0.03
	Milk Rec	3279	29	0.03
Feed	Dairy cow	61833	547	0.50
	Purchased forage	42735	378	0.35
	Minerals	6006	53	0.05
Fertilizers	N. P. K	48718	431	0.40
Grass	Seeds	1340	12	0.01
Heifer	Calf feed	550	5	0.00
	Contract rearing	71171	630	0.58
Levies	Milk Levies	6788	60	0.06
Veterinary	Routine including dosing, dry cow and testing	11176	99	0.09
	Vaccines	6622	59	0.05
	Hoof care	2619	23	0.02
Total Variable costs		**335341**	**2968**	**2.73**
Gross Margin		**370769**	**3281**	**3.02**
Adminstration	Accountancy	3476	31	0.03
	Consultancy	888	8	0.01
	Office (including herd plus, computer, phone etc)	1344	12	0.01
Bank	Fees	1227	11	0.01
	Interest	18000	159	0.15
Energy	Electricity	7303	65	0.06
	Tractor fuel	4171	37	0.03
Insurance		4600	41	0.04
Labour	Salery (including staff traingin)	61337	543	0.50
	Staff housing costs	8310	74	0.07
	PRSI etc	22880	202	0.19
Machinery	Repairs and maintenance	941	8	0.01
	Car.jeep expenses	3334	30	0.03
Repairs & Main	Including fencing and water fittings	31634	280	0.26
Depreciation	Buildings	49794	441	0.41
Land	Rental	52998	469	0.43
Total Costs		**608626**	**5386**	**4.96**
Net Profit		**97483**	**863**	**0.79**
Profit before Rent & Bank		**169708**	**1502**	**1.38**
Capital repayments		**61938**	**548**	**0.50**
Capital Inflows		**725910**	**6424**	**5.92**
Cash Outflow		**628570**	**5563**	**5.12**
Cashflow (Exclude Inv change & Dep)		**97339**	**861**	**0.79**

3. Where to from here?

Within the original shareholders agreement that was set up on the farm a dividend for each shareholder was set down based on a return of 8% of the owner's equity which was to be allocated (but not paid) within the company to the shareholders on an annual basis in the form of a dividend. This money will be accumulated within the company over the next number of years. The Greenfield Dairy Farm has made significant progress in relation to its overall financial performance and there will now be a continued focus to reduce costs on the farm through increasing grass growth and utilisation, matching replacement heifer rearing requirements with the numbers of heifers needed on the farm and minimising the investment on maintenance and repair each year which as has been previously stated will reduce the base breakeven milk price to 25 cpl or less.

From time to time there may need to be investment put into the farm. Each investment will be appraised on a case by case basis with the consideration that company will potentially be investing in assets that will have a useful life which is much longer than the remaining period of the lease. To this regard any investment made will be designed in a fashion that the Greenfield Dairy Partners will achieve a minimum ROI of 10%. For larger capital investment decisions this will mean that if the investment is to be made there will have to be a contribution from the land owners which reflects that the assets will only have a relatively short useful life for the company. The decision around the level of capital investment that is shared for each investment will be calculated based on all available information including the period remaining in the lease, the effect of the investment on performance (if any) and the effect of the investment on the overall running costs of the business. This process is currently been undertaken in relation to conversion of the standoff pad to something that has lower running costs such as topless cubicles or a conventional shed. It is now possible to consider investing on the farm using a portion of the cash generated in the first number of years. However this investment must be appropriate for all stakeholders in the business, ultimately resulting in a significant return for the shareholders that are involved in the business.

Conclusion

The Greenfield Dairy Farm is now in its fifth year and is now quiet profitable albeit with a high milk price. A key focus over the next number of years will be to maintain and increase profitability, ROI and ROE through increasing milk production from grazed grass on the farm, matching the heifers reared to the heifer requirements and reducing the expenditure on repairs and maintenance. A key focus on the farm is to reduce the costs to a situation where there is a cash neutral breakeven base farm milk price of 25cpl which will put the farm in a relatively sustainable position at low milk prices and will allow the farm to generate substantial cash surpluses when milk price is high.

Lessons learned to date and challenges facing the Greenfield Dairy Farm

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Summary

Lessons learned

- Stock health has been good from the start and the initial capital investment in bio-security, disease screening and vaccination has been justified. The two main disease problems have been lameness and high somatic cell count.
- The herd has achieved a very compact calving spread with low empty rates. This has been achieved by putting a major emphasis on heat detection and cow management through the breeding season.
- Labour availability and quality has been a significant strength on the farm to date. It's important to trust and train young and interested people.

Challenges

- The farm has grown 11.7 tonnes grass DM/ha on average during the last 3 years with 2013 being a particularly poor year. Droughts, lack of nitrogen and phosphorus and low organic matter are the main limitations to increased DM production. The long term target for the farm is to grow over 14 tonnes DM/ha.
- The annual running costs of the out wintering pad have increased significantly since 2009. As the farm is leased for 15 years, it is more difficult to justify investing in long term capital investments such as a cubicle shed on a leased block without a significant capital investment by the land owner.
- Calf sales are higher than budgeted for this year; the average price of calves was €200 which was as a result of selling high EBI heifer calves. It remains a challenge to sell jersey bull calves.

Lessons learned and what is working well

Stock Health

There was a major disease screening and vaccination programme put in place from the beginning of the project in 2010 to protect the herd from BVD, Leptospirosis, IBR and Salmonella. The main animal health issues that have caused problems are lameness and SCC. The lameness problem became acute in 2013 as the farm roadway surface had become very rough. The cost of fixing 2 km of roadways was €20,000. Almost immediately after this essential maintenance, there were no new cases of lameness although cows with damaged hoofs have never really recovered. Roadways will always require on-going maintenance to maintain the ideal camber and heavy machinery traffic on cow tracks should be avoided.

Heifers calving down with mastitis were also a problem in the spring of 2014. The farm staff found this very frustrating during an already extremely busy period.

The entire herd was individually quarter sampled in February, and this showed that the mature cows had a very low SCC however the first calving heifers had elevated SCC results. While the cows got dry cow tubes and teat sealers at drying off, heifers were not teat sealed pre-calving however this will have to be undertaken next winter to avoid similar problems in future.

Breeding

The breeding management of the herd is improving each year. Extra emphasis was put on recording of pre-heats, and staff has been provided with extra training on breeding management. For the past 2 breeding seasons, no stock bulls have been used on the cows. Stock bulls did not work well for a number of reasons: (1) they are expensive to buy and a large number are needed, (2) they add additional wintering expense, (2) they are a danger to staff and visitors, and (3) they were not able for the long walks and get tired quickly. Instead, vasectomised bulls have been used to aid intensive heat detection and are sold at the end of the breeding season. This year, 4 male calves have been sent to the contract rearers farm and these will be used for next year's vasectomised bulls.

Labour

The farm has two full time staff and part time student labour throughout the year. The farm has been fortunate to have excellent students from UCD over the past few years. The first clusters are put on at 7am each morning and with the exception of spring; the work day is finished at 5.30pm. All of the machinery work is contracted out and young stock is contract reared off farm. The main responsibility for the farm staff is to milk the herd, manage grass allocation and ensure all animals are healthy. The period from calving up to the breeding season is very busy; staff roistering allows each person working on the farm to have every second weekend off (from Friday midday to Monday morning).

Challenges

Grass grown

The farm has averaged 11.7 tonnes of grass grown per hectare since 2011. The light soils on the farm are low in organic matter content due to continuous tillage cropping pre 2009. The farm P indices have decreased in recent years in spite of applying the recommended levels of P allowed within the nitrates regulations. In contrast, soil K levels are increasing due to the high applications of potash (up to 76 kg /ha applied annually). Potash is applied in a small amount in the spring and then on the silage ground in large quantities (120 kg /ha). The grazing area also gets potash from July until September in medium quantities (12 kg/ha per month).

Allowable chemical N levels are seriously limiting the grass growing potential on the farm. In 2014, the farm was spread once per month with N and then from the end of May, the farm was spread once per week. This has resulted in better growth rates and fewer grass deficits during the main grass growing season. It has resulted in more surplus bales been made.

The farm is situated in an area of low annual rainfall (790mm, 745mm in 2012 and 2013, respectively) and this was particularly problematic during 2013 and

consequently the farm struggled to grow enough winter feed for all cows during 2013.

Where to from here?

- Continue to monitor grass growth to identify and reseed poor performing paddocks.
- Soil test annually to maintain soil fertility status.
- Continue to spread the permitted amount of P and N and meet lime requirements.
- Continue to spread large quantities of K to get the farm to Index 4.
- It has been difficult to reach autumn grass supply targets for the past few years as a result of delayed regrowth's following second cut grass silage. Last year no second cut silage was made and we plan to make no fixed second cut silage in 2014 and instead simple harvesting surplus grass quickly as bale silage.
- Buying in winter forage is cheaper than second cut silage if it is high quality feed you are buying in and if the farm is at maximum stocking rate. For us in this region where there are other forage options, it is still profitable to buy in a proportion of the winter feed (30%). The more feed that has to be bought in the more difficult it is to source locations and to get good quality especially in a poor year. It is beneficial to have surplus feed in stock, even if you have to purchase it in a good milk price year.

Wintering facilities

While the out wintering pad has been a real success in terms of animal welfare and provides a comfortable bed for calving cows, currently, the annual cost of running the out wintering pad is approximately €15,000 per year (which is an increase of over 50% from Year 1); woodchip is increasingly difficult to source at reasonable prices. In addition, the disposal of the waste bark is also a challenge for the farm. Ideally the waste bark from the winter should be stored on a concrete base for 3-4 years to allow it to rot before being spread on the paddocks. Currently, there is no such facility for this on the farm so it is directly applied to paddocks each October.

While milking cows did stay on the out wintering pad by night for up to 14 nights in the wet February of 2014, it was important that the area was topped up with fresh bark every two days to provide a dry lying area for freshly calved cows. While this worked well in the conditions last spring, this would be a particularly expensive long term cost if required each year. Currently the out wintering pad has only one feed face allowing for approx. 150 cows to feed at the one time. This made feeding milking cows in the spring more difficult, especially as there were dry cows on the pad as well, so there is a need for another feed face.

Where to from here?

- The farm is in Year 5 of the 15 year lease, and consequently, investing heavily in conventional housing is not an option for the project during the remaining 10 years. Consequently, the project partners are investigating the potential payback from lower cost housing options such as topless cubicles

- to reduce wintering costs for the remaining years of the project. Any future capital developments on the farm will require a significant investment from the land owners as a large portion of the residual value of any infrastructure will be retained on the farm after the end of the lease.

Selling calves

This year the average sold calf price was €200. This is a good average calf price and is much higher than expected. This was mainly due to the good price achieved for high EBI female calves and also included 52 Jersey cross bull calves which were given away for free to various customers. It is becoming more difficult to find a buyer for crossbred dairy bull calves for this farm.

Stock numbers

The longer term objective of the farm plan is to match the overall farm stocking rate to the grass production capacity of the farm with minimal purchased supplementary feed requirements and associated risks. Due to excellent herd fertility, the actual increase in stock numbers is currently ahead of the business plan; the farm has reared a high level of replacements. Last year, 25 of the poorer performing cows were sold as surplus breeding stock and additional replacements were introduced. While higher proportions of young stock improve the quality of the herd, they are a drain on cash flow.

Table 1. The planned and actual stock numbers on the Greenfield farm (2010-2017).

Year	2010	2011	2012	2013	2014	2015	2016	2017
Planned Herd size (No. Cows)	250	270	290	300	310	320	330	350
Actual herd size (No.cows)	265	295	294	320	307			
No. 1st lactation cows			57	103	93	92	82	85

Where to from here?

- Surplus high EBI heifer calves were sold since the spring of 2013.
- The farm is now stocked at 2.74 cows/ha (307 cows/ 112 ha). The farm has recently leased an additional 8 ha which will reduce the stocking rate to 2.55 cows/ha. In 2015, it is planned to calve down approximately 345 cows and milk 330 at peak (equivalent to an overall stocking rate of 2.74 cows /ha).

Conclusion

Ingvar Kamprad, founder of IKEA, the world's largest furniture brand once said, "only those who are asleep make no mistakes."

The Greenfield dairy farm project is focused on maximising financial returns on a leased dairy farm. The objective of the project is to provide direction and support to farmers that are considering expanding their dairy farm businesses post quotas and the lessons learned from the project will inform dairy farmers of the pitfalls of expansion.

Case study 1

Farmer (Cathal Moran, Kilkenny) has expanded through the quota era by purchasing quota and keeping farm spending to the minimum. Currently he is milking 150 cows and he now plans to go to the next phase of 300 cows after quota have gone. The farm is free draining in a low rainfall area. This case study will explain how the farmer has increased to current stock levels and the challenges he had to overcome while getting to current stock numbers.

The Reason for expansion initially was because

1. There was too much good grass been wasted every year and there wasn't enough stock utilising the grass properly. In 2009 margins were so low and there was no cash left over.

Table 1 Area farmed, stock number over the expansion period to date

Year	2007	2008	2009	2010	2011	2012	2013	2014
Cow No.	65	74	76	144	148	138	150	150
0-1yr. heifers	13	20	41	45	60	67	68	81
1-2 yr. heifers	14	13	20	41	45	59	63	68
Area Owned (ha)	101	101	101	101	101	101	101	101
Area leased (ha)	22	22	22	38	38	38	38	38
Area farmed	56	56	56	72	72	72	72	72
Area cows can graze (16 ha of this is leased)	56	56	56	72	72	72	72	72

Table 1 shows how the farm has developed over the years from milking 65 cows in 2007 to 150 cows in 2014. Each year some of the grazing area was set down to fodder beet or kale so that is not included in the stocking rate. All of the grazing area is now reseeded.

Investment on the farm during expansion

Although the herd size was increasing since 2007, the herd wasn't going to grow to 150 cows fast enough even with a high replacement rate, so a decision was made in 2010 to buy extra cows. This enabled the farm to get to the cow numbers and generate more cash to expand. In 2013, topless cubicles (100) were built at a cost of €400/ cubicle for the extra cows. There was enough slurry storage for all the extra stock as the lagoon was built with excess capacity in 2007. During the last number of years the farm has been reseeded, new roadways on the owned and leased farm were put in place and the farm was paddocked for extra cows. Quota was purchased during the past few years.

Table 2. Case study Business Plan prepared in 2010 compared to actual figures Key Messages from business plan prepared in late 2010				
Key Business Indices	2010	2011	2012	2013
Actual Milk Sales(€)	192,960	223,599	197,151	319,342
Targeted Milk Sales (€)		196,896	218,400	220,920
Actual Milk Solids/Cow	361	343	386	435
Targeted Milk Solids/Cow		400	445	445
Actual Butter Fat/Protein %	4.11/3.58	4.05/3.58	4.15/3.60	4.05/3.57
Targeted Butter Fat/Protein %	4.10/3.60	4.10/3.60	4.15/3.65	4.15/3.65
Actual Milk Price (c/l)	32.40	36.11	33.50	40.10
Targeted Milk Price (c/l)	28	28	28	28
Costs and Profit				
Actual Feed Costs(Conc. + forage)	25,165	19,318	29,928	77,047
Targeted feed Costs	17,500	17,500	19,500	20,500
Actual Fertiliser Costs	28,793	31,265	25,943	42,997
Targeted Fertiliser Costs	36,000	36,000	36,000	36,000
Actual Total Costs(c/l)	24.2	35.4	30.8	28.0
Targeted Total Costs(c/l)		22.34	20.75	20.88
Net Margin(c/l)	3.9	1.9	3.1	11.7
Targeted Net Margin(c/l)		9.0	10.6	13.0

- The business plan was modelled on a base milk price of 28c/l originally. As a result of setting a low milk price investment decisions are taken more carefully. It allowed for minimum investment in farm buildings and it made the farmer more cautious about investing. The actual margin excludes single farm payment and capital loan repayments.
- Most of the expenses incurred were much higher than what was budgeted for. Quota was purchased for the extra milk production. Initially fodder beet and kale were sown to winter the extra stock. This worked well due to the dry nature of the farm, but it did reduce the soil fertility subsequently.
- Costs such as feed and forage were seriously under estimated in the business plan. The farm didn't grow as much grass as previously thought and the price of concentrate increased significantly. The actual cost of winter feed was 50% higher than in the business plan. This was mainly as a result of the farm going through a drought period in 2013 and long cold springs in the previous years when the grass didn't start growing until late April. The soil fertility of the farm was only medium so this also impacted on grass production. In 2010, the farm grew 9 tonnes of dry matter per hectare, and since then it is growing 11 tonnes of DM/Ha.Milk solids per cow were below what was expected in the business plan. Milk solids production is excellent even though the herd is still very young (63% first and second lactation in 2013). But it should be noted 900kg

concentrate was fed per cow in 2013 as a result of decreased growth rates due to the droughts in the summer and poor growth rates in the spring. Fertiliser costs were similar to the business plan in some of the years as extra was needed for reseeding and to build phosphorus and potash levels.

- The actual margin excludes loans and drawings. The margin was 5c/l lower than what was estimated in the business plan. By doing a sensitivity analysis of +/-1c/litre meant the cash flow would be +/-€8,000/year.
- Expansion is a huge drain on cash. Grass production won't be as high as you would expect during the initial years of expansion especially if the Phosphorus, Potash and ph. levels are low and if the farm isn't reseeded.

Where to from here -Why expand again?

- More money is needed.
- Passion to have more cows and develop the enterprise to the maximum.
- Hire more labour and work a little less because at the moment too much time is spend on the farm and not enough time off the farm.

The business plan has now been changed with a view to milk 300 cows. Table 3 below shows the business plan from 2014 to 2017. All costs are now inflated at 5 %. The base milk price is set at 30.5c/l. The current parlour is a 12 unit parlour and is now coming under pressure for current cow numbers. Milking time is 2.5 hours in the morning and evening. The farm will need a full time labour unit and relief staff at busy periods during the year. The plan is assuming 500kg concentrate will be fed per cow and 20% of the winter feed will be purchased annually. Heifers will be contract reared. Current borrowings and future borrowings, drawings and single farm payment are not included in the plan below. Milk yield and solids are predicted at 4500 litres and 400 kg respectively per cow. In conclusion, while expansion is exciting and a strong possibility of making plenty of money, careful decision making, realistic business planning and borrowings need to be made if expanding,

Table 3. Case study business plan prepared in 2014 to expand to 300 cows

Key Business Indices	2014 Predicted	2015 Predicted	2016 Predicted	2017 Predicted	2018 Predicted	2019 Predicted
Cow Numbers	150	180	217	250	292	300
No. 1-2 yr. old heifers required	68	81	90	100	85	85
% Cull Cows sold per year	20	18	21	18	20	20
Milk Sales (€)	353,088	279,106	337,766	390,637	457,428	471,754
Milk Solids/Cow	431	350	351	353	354	355
Butter Fat/Protein %	4.10/3.60	4.15/3.63	4.16/3.65	4.17/3.67	4.18/3.68	4.19/3.70
Base Milk Price (c/l)	38	30.5	30.5	30.5	30.5	30.5
Costs and Profit						
Feed Costs (Conc. + forage)	34,000	35,000	45,570	52,500	55,100	57,000
Fertiliser Costs	43,000	44,544	43,859	44,151	45,306	45,344
Total Costs	169,633	205,208	214,125	233,875	264,498	278,839
Cash left over	226,955	89,343	141,891	181,083	218,811	221,915

Case study 2

Daniel and Amy O Donnell were allocated quota *in 2010 as part of the Greenfield project. The O Donnell's are farming a heavy upland farm in a high rainfall area. Adjacent land was purchased prior to project start in 2007. Most of the farm investment in grazing infrastructure and grass improvement to date was completed from cash flow. At this stage the farmyard needs some upgrading so the case study will examine the effect investment will have on the cash flow. The farm is now milking 112 cows on 41ha of owned land, with rented land (19ha) about 1 mile and 2 miles away.*

Case study details:

The roadways, fencing, paddocks, reseeding are now completed on the 41ha. During the past 5 years up to 40% of the farm was drained. The farm has expanded from its own replacements and now has a very fertile cross-bred herd. It's managed and run by the farm owner with occasional help through the year.

Table 1. Herd fertility

Herd Fertility	2012	2013	2014
Expected Start Date Calving	10-Feb	4-Feb	5-Feb
No. days when 50% herd is calved	11	12	21
Herd EBI	124	140	155
Breeding Season (days)AI/St. Bull	10	10	12
Not in Calf (%)	10	7.5	6
No. First lactation Cows	20	31	34

Current issues

- The grazing area infrastructure is almost complete.
- The next investment stage is slurry storage, winter accommodation, cow feeding facilities and calf rearing facilities.
- Calf rearing was an enormous challenge in 2014 as the calf shed was too small. Heifers are being contract reared for part of the year to allow for more cows on the grazing area.
- Ideally, the parlour needs to be upgraded as its currently taking four hours per day to milk.
- The farmer plans to borrow for the investment for a minimum of 15 years, this will make it easier to manage cash flow.

Table 2. On-farm investment 1998-2017											
Details of Expansion	'98-07	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cow Numbers	52	56	64	61	80	82	100	112	120	120	120
Stocking RateMilking Area				1.67	2.19	2.19	2.71	2.73	2.93	2.93	2.93
Heifers(0-1yrs)				20	44	31	26	26	26	26	26
Heifers (1-2yrs)				20	20	44	30	26	26	26	26
Stock						€1800					
Milking Facilities						€1,350					
Paddocks/ Roadways				€2,500	€3,800	€5,747					
Fencing						€1,957					
Reseeding			€2,300	€3,475	€5,500	€1,220	€3,000	€1,800			
Drainage				€6,000	€11,000	€4,585	€1,747	€1,500			
Slurry Storage	€30,000							€20,000 (E)			
Winter Accommodation	€30,000							€4,000 (E)			
Land	x										
Farm Maintenance						€5,497	€403	€1,500			
Machinery							€650				
Total	€60,000		€2,300	€11,975	€20,300	€21,883	€5,800	€28,800	€	€	

Note E= Estimate

Since 1998, the farm has invested €122,260 (excluding the land loan) in farm infrastructure to the end of 2013. These investments have allowed the farmer to keep more cows on the farm. Most of the money invested since 2008 was from cash flow. This has resulted in weak annual cash flows since then. Since 2012, there is an annual budget prepared. The predicted annual investment is factored into the budget. Most of the decisions are based on the previous year's cash flow report.This time the decision was made to fund the next phase of development from a loan spread out over a longer period.

Table 3. Case study business plan prepared in 2014 with a base milk price of 30.5 c/l

Key Business Indices	2013 Actual	2014 Predicted	2015 Predicted	2016 Predicted	2017 Predicted	2018 Predicted
Cow Numbers	***100***	**112**	**120**	**120**	**120**	**120**
No. 1-2 yr. old heifers required	*34*	22	24	24	24	24
Litres Sold to Coop	*432,350*	494,785	559,000	565,000	571,000	595,000
Milk Solids/Cow	***350***	**382**	**398**	**405**	**413**	**432**
Butter Fat/Protein %	*4.48/3.54*	4.45/3.65	4.50/3.66	4.55/3.67	4.68/3.60	4.65/3.67
Costs and Profit						
Feed Costs(Conc.+ forage) (€)	*41,690*	29,508	31,122	32,282	32,642	32,849
Fertiliser Costs (€)	*17,252*	19,040	20,909	20,909	21,000	24,000
Total Costs(€)	*130,545*	148,780	163,897	165,088	166,332	181,465
Surplus Cash	***57,668***	**74,600**	**55,589**	**64,051**	**66,983**	**65,392**

Business planning progress report

This farm has a very fertile herd with good milk solids production and will strive to get higher milk solids every year. The business plan has factored an increase in costs per year and including increased labour. The business plan has included the actual figures for 2013. The surplus cash figure excludes single farm payment, loan repayments, depreciation, tax and drawings. If the farm can grow additional grass, build soil fertility it will reduce the purchased feed requirement. In 2013, the winter feed bill included a carry-over from the previous difficult year, there was also winter feed left over in 2014. In 2013, there was 890kg meal fed per cow compared to 600kg meal fed per cow in the previous year. As more land has now been reseeded and the newly drained land will produce more feed and hopefully this will reduce feed costs into the future.

The business plan has included a contract rearing expense which will allow for more cows to be kept on the home farm and it will reduce the labour. An increase in labour will be required especially in the spring to cope with seasonal time demands of calving and calf rearing. With forecasted milk price of 30.5 cent/litre the farm will struggle to take on debt to fund the next development stage so a cautious approach will be taken to the next development stage. Low cost wintering facilities (topless cubicles) and low cost calf rearing facilities will be constructed. The loan will be structured over a 15 year period. Debt can be paid down before the end of the loan term if cash flow improves. This case study demonstrates that minimal expenditure can be done and a vigilant eye must be kept on cash flow in order to manage the expansion properly.

Managing through expansion – Lessons learned by case study farmer

Cash Flow Management - Lessons Learned

1. Plan spending for priority areas such as grazing infrastructure. This enabled more cows to be stocked on the farm which generated more income.
2. Calving date was around the 6-Feb for this farm, but it means less milk produced in February so there will poor cash flow until late spring.
3. Don't make any rash decisions on an extreme year like 2012.
4. Repay infrastructure loans over a long time period to help cash flow.
5. Cash Flow can be tight during expansion especially on adverse weather years.
6. As stock numbers increase pressure will come on all facilities.
7. To increase the herd from 64 cows to 112 cows over 5 years, a 34% replacement rate was needed. Expansion is a slow process if expanding from own replacements, but, there is less risk from disease. If the herd is fertile then a lot of heifers can be generated each year. This can be a drain on cash flow with more young stock around the farm and lower production.
8. Heifers can get stressed, heifers were under stress in the spring of 2013 and their SCC levels increased.
9. Reaching target heifer weights is a challenge when numbers increase as later born calves will need to be kept as replacements.
10. Having a high closing cover on a heavy farm in mid-November is essential for this farm as it tends to be drier in spring than autumn.
11. Measure winter feed stocks early and plan in advance.
12. Calf rearing is taking too much time. One must be organised for calf rearing in December as there won't be time once cows start calving. Calf rearing in 2014 was really difficult as the calves were sick which used up a lot of time and money as a result of the calf house being too small.
13. For a one person operation you need to be well organised.
14. If the outside farm is a heavy farm then it should be operated at a lower stocking rate.
15. It takes a number of years for a herd to mature and get high milk solids.
16. Expansion can be achieved through careful management on a heavy farm
17. It's enjoyable but hard work during the initial years.

Case study expansion phases

Phase 1. Getting the Grass Growing, drainage and cow roadways.
Phase 2. Grow the herd.
Phase 3. Now: Low Cost Wintering, cubicles, slurry storage and calf rearing.

Successful expansion requires strong planning

Patrick O'Meara, AIB

The abolition of the EU milk quota regime in 2015 presents the first real opportunity for Irish dairy farmers to expand output and exploit the natural production advantage offered by our grass based production system. Expansion plans are already well underway on many farms throughout the country. This is evident from the increased stock numbers on the ground, and the increased level of on-farm investment that has taken place, particularly over the past 12 months. Many more farmers plan to expand existing operations in the months and years ahead.

Planning farm expansion

Realising the opportunities presented by quota removal requires careful planning to ensure that investment in expansion does not in any way undermine an already strong and profitable business. The increased milk, calf and cull cow sales offered by herd expansion will undoubtedly increase farm revenue and receipts; however, the degree to which this translates into increased farm profitability is very much dependent on cost control and technical management.

There are a number of key considerations a farmer must weigh up prior to undertaking expansion, some of which are discussed below:

Know your long term goals

It is important to invest adequate time and resources in the planning phase. Be sure that expansion fits in with your long term business and personal goals and plan accordingly. The initial expansion phase may involve a heavier workload, longer working days and balancing farm management with development activities. It is important to ensure that there is adequate capacity to meet this demand. With farm expansion, significant financial resources are often tied up for a number of years and it is likely to be a number of years before you see the full financial benefits of expansion. This is particularly the case where expansion is taking place on a phased basis.

Only expand from an efficient base

A vital part of planning for the future involves looking at the present and establishing the existing efficiency levels on farm. Expansion will only give a return to farmers who are currently operating from an efficient base. Expanding from an inefficient base will only magnify existing inefficiencies. The priority for all farmers should be to improve and maximise existing efficiencies before considering expansion. While this may take a period of time, it will ensure that when expansion does take place it will be from a position of strength which will deliver a better return.

Allow for a reduction in farm efficiency

Even with excellent management, dairy farms in the initial years of expansion rarely achieve the levels of on-farm efficiency that existed prior to expansion. An increased

proportion of heifers in the herd will result in lower output per head. Some herds adopt lower culling rates in order to increase cow numbers which may compromise the overall quality of the herd. In addition, farmers will need to adjust to the heavier workload, will have less time to devote to individual stock, and may be more reliant on hired labour. Farmers considering expansion should base projections on conservative market prices, levels of output and operating costs.

Establish the appropriate stocking rate

Ireland's competitive advantage in milk production, now and in the future is centred on the maximum utilisation of grazed grass in the dairy cows diet. In a grazing system, access to land, particularly around the milking parlour will have a major influence on how a dairy farmer can undertake profitable expansion. The scale of the milk production platform, land quality, management and soil fertility will determine the maximum sustainable stocking rate that the platform can service without having to utilise increasing quantities of concentrate supplementation to achieve desired levels of output. For all grazing operations, there is therefore a level beyond which it becomes unprofitable to further expand - a factor of the prevailing milk price and feed price.

Determine the capital expenditure cost

A further consideration for farmers is the level of capital expenditure required to allow the farm to achieve the proposed expansion. Some farmers over the past number of years have been installing capacity beyond existing requirements when undertaking farm development in the knowledge that they would be expanding output in the medium term. However, for many, a substantial investment may be required in milking facilities, winter accommodation, grazing infrastructure and/or additional slurry storage. The individual cost of expansion will depend very much on the existing facilities, the speed and scale of expansion along with the type of infrastructure required. Before undertaking any farm development it is important to fully cost the investment. Take time to visit similar projects and learn from the investment experiences of others. Get quotations from a number of suppliers for the work being carried out and build in a contingency in the budget for overruns that may occur.

Understand the cash flow implications

Another key consideration for farmers contemplating farm expansion is the impact of the proposed expansion on farm cash flow. Expansion is cash hungry and is likely to increase the working capital requirements of the farm. This is due largely to higher working capital demands from increased stock numbers and increased financial commitments, particularly where bank finance is used to fund capital expenditure. In addition, some farmers carry out additional farm development from cash flow in the following years - e.g. calf sheds, roadways, fencing - while others overlook the cost of retaining additional stock in their planning. It is important to account for the rearing costs involved and the opportunity cost of not selling this stock once reared. It is very useful to complete a cash flow forecast for the initial 3-5 years post expansion to truly analyse the net cash effect of expansion on the farm business.

Determine your level of repayment capacity

It is important for farmers considering expansion to ensure that the proposed expansion does not in any way undermine an already profitable business. The

expanding farm must be able to generate sufficient cash flow to meet personal and financial commitments as and when they fall due. It is important to distinguish between farm cash flow and profit as increased farm profits may not always be fully available to meet higher bank repayments. For many farmers, bank finance will be required to partially fund their expansions plans. While prudent use of bank borrowings is an effective part of growing a business, it is important to recognise that heavily borrowed farms are significantly exposed to external shocks.

The level of debt an individual farm can sustain is very much dependent on a range of factors including existing farm productivity and efficiency, family living expenses and the existing levels of debt. Table 1 below outlines a range of borrowing levels and examines the repayments on a per cow and a per litre basis over periods of seven and fifteen years.

Table 1: Annual repayments on a per cow and a per litre basis

Borrowing levels / cow	Annual repayment / cow over 7 years	Annual repayment / litre over 7 year	Annual repayment / cow over 15 years	Annual repayment / litre over 15 year
€1,500	€265 / cow	5c / litre	€149 / cow	3c / litre
€3,000	€530 / cow	10c / litre	€298 / cow	6c / litre
€4,500	€795 / cow	16c / litre	€446 / cow	9c / litre

Note: [1.] Interest rate is assumed to be 5.5%. The interest rate assumed is an example interest rate which is being used for illustrative purposes only and may not reflect current bank interest rates.
[2.] Yield of cows is assumed at 5,000 litres
[3.] Figures used are for indicative purpose only.

When planning farm expansion, plans should be stress tested to ensure that the farm can withstand periods of low milk prices, as in 2009, increased feed expenditure similar to Winter 2012/Spring 2013 or indeed an increase in interest rates.

Manage the effect of volatility

Milk price volatility has become a feature of the market in recent years due to the reduced level of intervention by the EU in market management. Milk price has fluctuated from 22c/litre in 2009 to 39c/litre in 2013 – a difference in milk revenue of approximately €85,000 on a 500,000 litre farm. It is important that farm businesses are able to weather periods of reduced income while taking advantage of the good years. Farmers who undertake significant investment tend to be more exposed to the effects of volatility as savings may be depleted and bank repayments tend to be higher. Building a buffer in the good years will better position the farm to cope with a downturn period.

Financial management

For a dairy farmer considering expansion there is an acceptance that they need to be efficient at grassland management, breeding and other on-farm practices. However, there are also other skills that are of equal importance in order to make expansion a success, one of which is financial management. It is important that any expansion

is carried out in a planned and sustainable manner and that adequate time is devoted to the planning process. Putting a plan in place, in the form of a farm budget, will allow for a greater understanding and control of farm performance. Actual performance (farm revenue and costs) can be compared to projected performance, which will help identify presenting challenges at an early stage and allow corrective action to be taken from a proactive rather than a reactive stance. Time spent in the planning process is always time well spent and in some cases enlisting the support of a professional such as a Teagasc advisor, consultant or accountant may be beneficial.

Conclusion

While it is important to make the most of the opportunity of quota removal, it is also important that any farmer considering farm expansion takes the time to plan their investment. Expansion can give a significant positive return to Irish dairy farmers provided it is carried out in a planned and sustainable manner. For efficient producers expansion can be justified, however for inefficient producers, it could be detrimental to their business. These farmers should first seek to improve existing on-farm performance.

Expansion is a long-term project, often taking a period of time before the cash gain becomes evident. Indeed cash flow pressure can be an issue on some expanding farms, particularly in the initial years, as reduced on-farm efficiencies, increased working capital requirements and financial commitments put pressure on farm finances. For all farmers considering expansion it is important to take the necessary time to plan their investment ensuring it fundamentally serves to enhance and strengthen the existing operation.

It is an exciting time for the Irish dairy sector with many farmers planning for their futures in a post quota environment. The medium to long term outlook for the sector remains positive albeit with some challenges ahead. At AIB we believe Irish farmers are well placed to capitalise on the opportunities ahead. We are committed to supporting the development of the sector.

Planning your own Greenfield – who is going to carry the extra workload?

Peter Byrne, CEO Farm Relief Services

As we approach the beginning of an exciting new era in Dairy farming in Ireland, those in the industry are ensuring that they are prepared for the challenges and opportunities ahead. There has been much written and talked about the practicalities of either increasing herd size or indeed entering the industry for the first time. Most of the discussion has centred on the economics of conversion/scaling-up as well as the management decisions related to getting the system to suit your farm type. Which parlour do I go for? Which cow type suits my farm best? What type of feeding regime should I adopt?

But what about you the farmer – how will you cope with the extra workload? How will you cope with a busier lifestyle? Will you be able to manage 120 cows as well as you managed 60 without additional help? There are very real practical and financial implications with regard to your additional labour requirements following expansion or conversion and FRS is there to help. In this article I will attempt to give you a flavour of some of the common issues which we at FRS have encountered over the past 34 years and how this experience may help you in planning for the future. I would strongly advise any farmer considering expansion or converting to dairying to speak to their local FRS office for some free, no-obligation advice on their options.

What is FRS and how can we help you?

First of all, for those of you who are unfamiliar with FRS or unsure of what it is we do, FRS (Farm Relief Services) is a farmer-owned co-operative established in 1980 and today has a nationwide network of offices. Initially FRS was established to provide cost-effective relief milking and skilled, trained labour. Over the years, we have added additional services such as pregnancy scanning, hoof-care and freeze-branding where our specialist operators come trained and equipped to your farm to carry out these tasks. All of our operators are insured as is their work, so you have added peace of mind. Also there is no need for you to worry about employment law, PRSI contributions, holiday pay and so forth as all FRS operators work for FRS, you just receive a single monthly invoice based on the hours worked (you the farmer approve and sign the timesheets for the operator). Naturally as all work is invoiced, it is tax deductible.

FRS has options to suit all budgets and requirements in terms of relief labour at busy periods, we can facilitate bookings from one milking to one year and everything in between. Spring and early summer are busy on most Irish dairy farms and this coincides with our busiest period also. Many farmers first try an FRS operator on a regular basis at this time of year for one or two days per week to assist throughout the busy period when there are a lot of freshly calved cows around and plenty of calves to feed and look after. Later in the summer we see the emphasis changing to silage making, pasture management and re-seeding. Most farmers choose this time

of year to take the all-important break away to rest and re-charge the batteries and to get a little time away from the farm with family. Thankfully more and more farmers are realising the importance of taking time out to enjoy with their families and to give themselves a mental and physical break away from the day to day running of their farms. It is all too easy to pass up on the opportunity to take time out with family and friends, but farming more than any occupation can be physically and emotionally stressful, with long periods often spent working alone. This can easily take its toll, and it is good to get some perspective.

Milking routine training for farmers and operators

The vast majority of our operators come from a farming background, and we seek to employ those with some formal agricultural training. Many have completed one year at agricultural college and growing numbers have come through the advanced certificate in dairy herd management. Regardless of previous experience and training, all FRS operators receive on the job training – this training is constantly under review so that it reflects industry demands. We have just announced our latest training course which is open to everyone – not just FRS operators, it is a Milking course focusing on the practical aspects of producing quality milk. This FETAC-accredited course has been developed jointly by FRS, AHI and Teagasc, the course takes two days and is a mix of theory and in-parlour practical's, with a one-to-one assessment at the end. We believe it is an invaluable tool for FRS operators and farmers alike in refreshing their milking skills and producing the highest quality milk. The skills should help farmers and milkers to lower SCC, TBC and thermoduric bacteria as well as helping to reduce or eliminate the likelihood of inhibitors or chemical residues in milk. The course costs just €250 which is a very small investment for the return in terms of quality bonuses in the milk cheque and in avoiding penalties, let alone the reduced incidence of mastitis cases and costs associated with these.

Protecting your livelihood

While planning for the future, we all plan to be fit, healthy and accident-free, unfortunately the reality can sometimes be very different and for farmers this can have an even bigger impact. Most farms are owner-operated in Ireland with a little full or part-time assistance, in the event that a farmer is sick or has an accident there are severe consequences – both financial and practical. Every farmer should plan for this eventuality and for how he/she would cope financially if they were temporarily unable to work on the farm, as well as having a plan in place for somebody to replace them at short notice. I would encourage farmers to discuss this with their family and financial advisor, and to include FRS in the discussion. As a member of FRS, farmers can avail of our Member Benefit Scheme which entitles our farmer members to the use of a skilled experienced FRS operator at short notice at just 25% of the regular cost for up to 12 weeks in the event of accident or sickness. The maximum benefit is €500 per week, with the first week excluded. This cost-effective protection also gives the added peace of mind to the farmer in that only one call is needed to secure somebody to run their farm at short notice.

Making your farm a safer and more comfortable workplace

We all know that farms are dangerous places to work and that the accident rates are continuing to rise, so we all need to play our part in helping to make farms a safer place to be. First of all know your hazards and make sure anyone coming on to

your farm knows them too – do not take this for granted. Communication to all farm workers coming on to the farm should not be limited to describing tasks to be done but should include a safety briefing as a matter of routine. Fill out the HSA farm safety risk assessment either online or on paper as it will remind you of the real hazards on your farm and share this with family members and workers. Be aware of the most common hazards – slurry gas during agitation, open slurry manholes and slurry stores, PTO shafts, chainsaws, livestock (bulls and freshly calved cows in particular) any equipment with moving parts, quad bikes and tractors. Make sure that you and all coming on to your farm are aware of the hazards and have undergone appropriate training for the tasks they are carrying out. Have the appropriate protective clothing and equipment available on-farm such as eye protection/goggles, safety masks for dust/pesticides, ear protectors, gloves etc. Do not leave children unsupervised around farmyards, livestock and machinery and ensure that they are not carried as passengers on tractors. Keep your yard and sheds tidy and uncluttered to reduce the chances of slips or trips, store fodder and stacked materials carefully so that they do not fall. For further guidance please visit www.hsa.ie .

For those expanding, ensure that your roadways, yards, sheds and handling facilities are able to cope with additional numbers and that cow flow is not impeded by narrow passages or sharp turns – all of this will save time and not put cows under pressure. Appropriate drafting and crush facilities makes for safer and more efficient cow handling. When designing sheds, try to design them so that they are easier to clean out using tractors/loaders as this will also save on labour. Try to bear in mind labour requirements when designing your feeding systems, milking systems and calf accommodation as this will all help to reduce milking time. You will need to become a better time manager as more demands are placed on you, and being able to delegate your time in advance is a good practice to get into. Dividing your time across tasks will also help you decide how much labour you will need to supplement your own.

How will you cope with all of that extra record-keeping?

FRS has always listened to our farmer members and their changing requirements, and in recent years we have had much debate on how we could assist with reducing the workload on record-keeping. FRS has developed a new product to cope with this called 'Herdwatch', this mobile herd management software works on PC, Tablet/iPad, Android smartphone/iPhone and is 'cloud-based'. The program is linked to the CMMS database so that your herd-profile is always up to date. This easy to use program enables you to register calves, record remedy purchase and usage, manage breeding and AI, set up alerts and much more anywhere, anytime. Your data is backed up so it is protected in case you lose or break your phone, you can also allow others to use it on your behalf on their own devices. The program records are stored in a format which is acceptable for Department of Agriculture Cross Compliance inspections as well as for Bord Bia Sustainable Dairy Assurance Scheme requirements.

To find out more contact FRS or visit www.herdwatch.ie

Finally, I would say that communication becomes increasingly important as you have greater interaction with additional labour – communicating what you want to do and when in advance as well as safety advice and any current issues are very important. Communication when you take back the herd from another milker is equally important. To summarise, getting ready for expansion or conversion will be

a challenging as well as a rewarding experience, here are the main tips and advice from a labour management perspective:

- Plan your farm with labour efficiency in mind, design sheds, roads, yards, milking parlour and handling facilities with cow and operator comfort and safety in mind and with the objective of getting the job done quickly.
- Plan your time in advance to make the best use of it and your farm workers time.
- Use only skilled, trained, insured staff. Remember FRS can do all of this as well as giving you one invoice which is tax deductible. Black market labour can be very costly if the work is not carried out correctly, it can also end up costing you more if you compare to the net cost of using FRS (including for tax deductibility).
- Make a plan for your record-keeping, don't let paperwork get on top of you or keep you from the important business of farming.
- Evaluate your own training needs – enrol in the new FRS/AHI/Teagasc milking course. DO you have any other training needs?
- Protect your livelihood by planning for unforeseen circumstances such as accident or illness.
- Make sure your farm is a safe and comfortable working environment. Are there any areas which could be made safer or more efficient?
- FRS can help you to plan for expansion, call us for confidential, no-obligation free advice.

I would like to take this opportunity to wish you luck in your endeavours over the next few years, and would hope that you keep FRS in mind when you are making your expansion decisions. FRS can be contacted on 0505-22100 or at any of our nationwide offices. Full details on www.frsnetwork.ie

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National Open Day
The Greenfield Farm Kilkenny

Importance of Contracts
Full / Fixed / Part / Casual
Policy Handbook
Minimum Wage
Experience Worker V Trainee
Recording Break Times
Annual Leave
Absence Management

What do Farmers have to think of when they employ

Hiring Staff:

- Advertise Job in a public form
- Clear job description
- Have a clear set of questions prepared for the interview
- Conduct Interview
- Keep detailed notes of interviews held

9 Grounds of Discrimination:
Gender, Civil status, Family status, Age, Disability, Race, Sexual Orientation, Religious Belief, Membership of the Traveller community

Employer Problem:
Accused of Discriminating against a person at interview.
Cost: € 12,700 non-employee or Two Years' Salary Current Employee

Staff Hired:

- Issue correct type of contract
- Issue policy handbook
- Translate Contract & Policy Handbook to employee's native language if required
- Record working & break times
- Authorisation to work in Ireland

Employer Problem:
Contract of employment incomplete.
Cost: 4 weeks' pay per employee

Employer Problem:
Employers responsibility to ensure employees have the correct authorisation to work in Ireland
Cost: € 5000 Fine or 12 Months Imprisonment

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Agriculture and Food Development Authority

NDP
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