

The People in Dairy Project

A report on the future people requirements of Irish dairy farming to support sustainable and profitable dairy expansion

June 2017



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1. Summary and recommendations

- Dairy cow numbers have increased by 327,000 since 2010 to over 1.35 million. Based on 2016 milk supply, this has resulted in a 35% increase in milk production nationally (43% based on milk solids) compared to the average of 2007 to 2009. The numbers of dairy young stock currently in the national herd, survey data of dairy farmer future plans, and the relative profitability of dairying versus other farming enterprises collectively indicate that significant further expansion is likely to occur over the next decade.
- Coupled with the overall dairy sector growth, there has also been a dramatic change in the structure of Irish dairying in recent years. Average herd size increased from 54 cows in 2005 to 76 cows in 2016, while dairy farmer numbers remained relatively static since 2010. The proportion of dairy cows in herds of 100 cows or greater increased from 13% in 2005 to 47% in 2016.
- The dairy industry is facing a severe shortage of new young recruits. With the average dairy farmer currently 58 years old, this report estimates that Ireland will need approximately 6,000 new entrants over the next decade to replace retirees and meet the requirements of expanding herds. Currently, the number of graduates qualifying from Level 6 advanced programmes in Dairy Herd Management, Level 7 Professional Diploma in Dairy Farm Management and Level 8 Dairy Business Degree (~120, 25 and 25 graduates per year, respectively) are totally inadequate given the projected requirements.
- As the dairy industry expands, there will be a greater requirement for highly skilled people. Some of these will be required to sustain existing dairy farm operations where the owner wants to step back, via either employing a farm manager or entering collaborative farming arrangements (e.g. like those facilitated by the Macra Land Mobility Service). Equally, there will be a requirement for a much greater supply of seasonal labour to cope with the additional workload during calving and breeding.
- Ireland is not unique internationally in having an inadequate supply of skilled labour at farm level to meet requirements. Three countries reviewed in this report (New Zealand, Australia and Canada) have each developed national co-ordinated programmes to attract, retain and develop people in dairying in their respective countries.

Future Vision for the Irish dairy industry

- Dairy farming will be a financially rewarding and enjoyable business, which provides a good standard of living and a good work life balance.
- Profitable and sustainable dairy expansion will be undertaken by both existing farmers and new entrants (both those changing enterprise to dairying and those starting new dairy farm businesses via collaborative farming models). Farm businesses will have the confidence to expand, knowing there are a variety of strategies to manage the increased workload of larger scale farms. These include labour efficient farm set-ups, better work practices and the access to the necessary skilled labour.
- This expansion will dramatically improve the viability of family farms in Ireland (only 37% of all farm business were considered viable in 2015, and this included subsidy income). This will have significant positive spin offs for rural Ireland in terms of direct and indirect economic activities associated with dairying.
- The workload of dairy farmers and dairy farm employees will be fully manageable at all

times of the year. This will be achieved by:

- Having labour efficient farm set-ups that make the day to day workload easier on both man and cow – leading to high levels of farmer/employee satisfaction and animal welfare.
- Having good access to both full and part time labour as needed during the year. This involves dairying competing with alternative careers.
- A change in the culture of work on Irish dairy farms to ensure that adequate rest is allocated for every person working on farm. Farming will be seen as a career with an attractive work life balance that can be incorporated enjoyably with family life.
- Irish dairy farmers will be excellent employers. This applies to both managing direct employees (full and part time) and effectively managing the incorporation of family into the business. This will require clearly defined roles and responsibilities, good communication skills and fair remuneration for work done. Farmers will be fully compliant as employers using contracts of employment, time sheets and payment structures in line with revenue requirements.
- Ireland will have a world class education and training programme for people in farming. This will include full time education for students, but will also require training programmes to up-skill the variety of people working on Irish farms from assistants to managers. Continuous Professional Development will become a key aspect for every person working on dairy farms.
- You don't need to own land to become a successful dairy farmer. Collaborative farming models will continue to become more popular, and a clear pathway from farm assistant to farm business owner will emerge. This will attract skilled and motivated people to enter the industry.
- You don't need to milk cows to make money from dairy farming. The many support services that non-dairy farmers can fulfil will be well promoted, generating further income benefits for rural Ireland and farm viability. These services include contract rearing heifers, contract machinery work, labour and other support services that dairy farming requires.

A future strategy which can realise this vision should include these six key elements

- **Promotion of dairy farming as an attractive career.** The sustainability of dairy farming relies on people wanting to work or invest in dairying over time based on the sectors attractiveness in terms of work life and wealth creation. This is relevant to people seeking both full-time and part-time roles. The industry needs to provide employment opportunities where pay, conditions and the quality of work are at least as attractive as alternative careers. A national promotion programme raising awareness of the range of opportunities available in dairying would help to dispel myths that farming careers are lowly skilled and poorly remunerated. Farmers themselves must take on the role of being positive role models and ambassadors for their industry. In addition, more must be done in schools to promote farming as an aspirational career choice, and to make better links between teaching curricula and their applications in farming.
- **Expand participation in Level 7 Professional Diploma in Dairy Farm Management course.** A skilled workforce is as strategically important to the sector as the development of technological capacity, financial flexibility and new export markets. The dairy industry needs to rethink its attitude to career pathways, training and accreditation while

maintaining an integrated model of formal and informal training, including farm placement as outlined in the Teagasc “Stepping Stones to a Career in Dairy Farming”. In this regard, it is imperative that future employees get sufficient exposure to intensive, high quality on-farm placements with host farm mentors who are themselves accredited providers of high quality placements. The Professional Diploma in Dairy Farm Management programme must become the standard education level achieved by future dairy farmers. Uniquely, this programme provides the mix of on-the-job/off-the-job diploma level training and accreditation for skilled farm operatives to assist career transitions to larger scale farm management and share farming. It is important that agricultural training programmes provide potential candidates with multiple entry points and flexible opportunities, especially for older entrants who bring a greater diversity of equity, business and technical skills to the industry.

- **Promote labour efficient farm practices.** The 30% increase in cow numbers since 2009 has markedly increased workload on Irish dairy farms. There is growing concern that many farmers have not adapted management practices, especially during the busy spring period when exhaustion and burn-out compound the physical and emotional burden experienced by farmers. The strategic importance of labour needs not only to be recognised by farmers themselves but also by many of the technical support institutions for whom labour relations are often a secondary consideration. The use of and promotion of contracting operations and innovative labour saving technologies and management practices must feature more prominently within research and knowledge transfer activities provided to dairy farmers.
- **Develop new training programmes for existing dairy farm employers, with a special emphasis on HR skills, including Health and Safety.** Employers need training on how to recruit quality staff, be a better manager, work within the law and grow the people that work for them. Additional training programmes are required for dairy farmers to become employers of choice based on improved management capabilities including better teamwork, leadership and communications skills, improved human resource management skills such as recruitment and performance management and an enhanced capacity to strategically budget for fairer and more competitive returns to labour over the longer term.
- **Facilitate career pathways for farm employees to progress from staff to business ownership.** A variety of new and emerging career pathways are becoming increasingly common within the industry including long term leasing, share farming and farm partnerships. Such arrangements must be supported and incorporated within mainstream education and training activities. Further participative research and demonstration activities are required to design a greater array of new career pathways that equitably share both risks and benefits on the basis of the relative value of the assets, skills, time and resources contributed.
- **Develop initiatives that recognise excellence in dairy farming.** There is a requirement for the dairy industry to be more proactive in building a positive industry profile to counter outdated and sometimes negative perceptions of farming careers. To that end, the development of a series of prestigious national dairy awards supported by all stakeholders and highlighting farm business success, modernisation and the industry’s position as an export leader are urgently required.
- **A national coordinating organisation is required to oversee implementation.** Developing a sound employment base for the future is a major challenge for the industry and a long-term project. An appropriate implementation structure will be required which co-ordinates the above initiatives. This structure should also have the responsibility of developing the

action plans and ensuring the implementation of the above recommendations. It can help clarify the resources required to achieve the vision set out in this document and facilitate industry discussions as to how these resources can be found. As the dairy industry is changing far quicker than initially planned for, there is a significant and urgent need for extra resources (and perhaps the reallocation of resources) to facilitate the actions outlined in this report. Some proactive steps have been already been undertaken by different industry stakeholders in recent times and they are acknowledged in Appendix 1. For this initiative to have maximum impact however, it needs to be facilitated through a co-ordinated industry approach involving all the key stakeholders (Teagasc, Farming organisations, Department of Agriculture, milk processors, FRS etc.) to ensure that the expansion of the Irish dairying industry occurs in a sustainable manner.

2. Background

The Irish dairy industry has expanded significantly over the last four years and further expansion is anticipated. In the Food Harvest 2020 report (DAFM, 2010), milk production is forecast to increase by 50% by 2020 based on the average of 2007-2009 milk supply (4.93 billion litres). Based on 2016 milk production of 6.67 billion litres, Ireland has increased milk production volume by 35% (or 43% in terms of fat plus protein yield) and is well placed to achieve the 50% target by 2020.

Since 2013 alone, Ireland has increased milk production by 23% (from 5,423 to 6,674 billion litres; CSO, 2016). In contrast, over this same period EU 28 milk production (including increased output from Ireland) has increased by 2.6%. As a consequence of the increased milk production in Ireland, the export value of Irish dairy products and ingredients has increased from approximately €2.3 billion in 2010 to €3.4 billion in 2016 (Figure 1; Bord Bia annual reports, various years). This increase in export value coming mainly from primary industry using predominantly Irish inputs has and will continue to have a very beneficial effect on the Irish economy, particularly in rural areas.

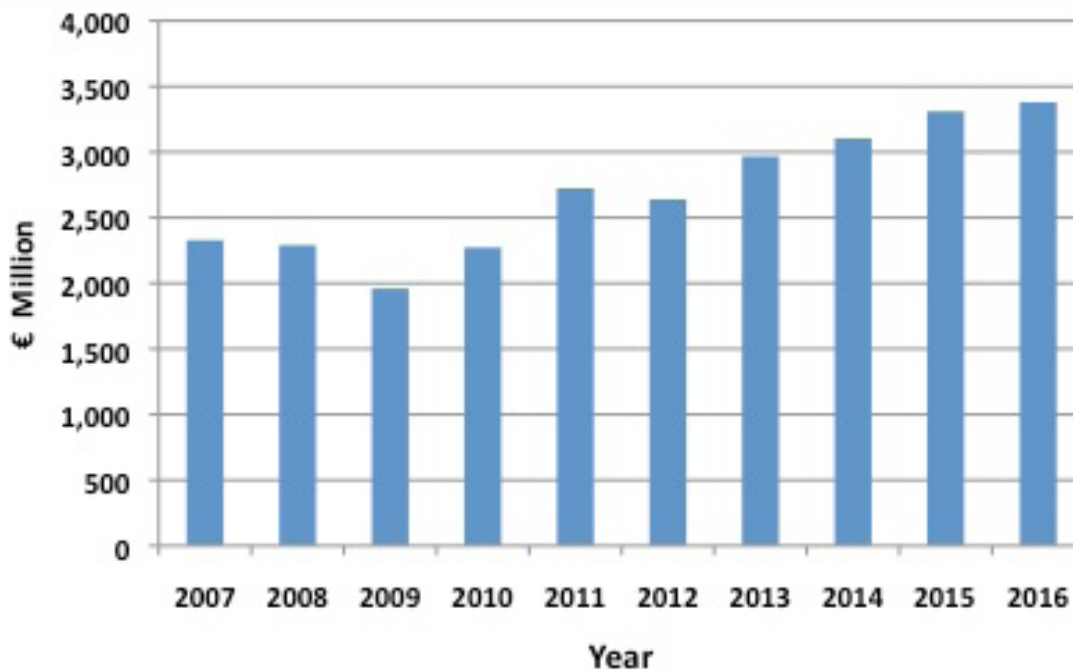


Figure 1: Export of dairy products and ingredients

To date, the increase in milk production at farm level has not been associated with an increase in the costs of milk production. This would indicate that overall farm efficiency has increased and much of the costs of expansion have been undertaken using existing resources (Dillon et al., 2016). This increased output and efficiency has allowed the industry to be extremely resilient in dealing with reduced milk prices during 2015 and 2016 and places the industry in a very strong position to exploit the opportunities expected from higher milk prices in 2017.

Based on 2015 National Farm Survey results, the average debt on Irish dairy farms were €63,000 or approximately €100,000 on dairy farms with borrowings. The overall level of debt per kg of milk fat plus protein produced on Irish dairy farms has actually decreased over the last five years despite the increase in cow numbers showing strong performance from Irish dairy farms (Shalloo and Gowing, 2016). Hence, Irish dairy farms are in a strong position to expand further and to offer competitive remuneration to the extra people who will be required to manage the increased workload.

There are also adequate cows available for future expansion and the genetic merit of these cows are improving annually as indicated by the Irish national dairy cow breeding programme (EBI). Figure 2 shows the trends in dairy cow numbers over the period 1980 to 2016. Dairy cow numbers have increased by over 223,700 (or approximately 6% per year) over the last 3 years. Based on the number of replacement dairy cattle within the national herd (in January 2017), this growth in the national herd will be maintained over the next two years. Therefore, the availability of high EBI breeding stock will not be a limiting factor to increased milk production for the foreseeable future.

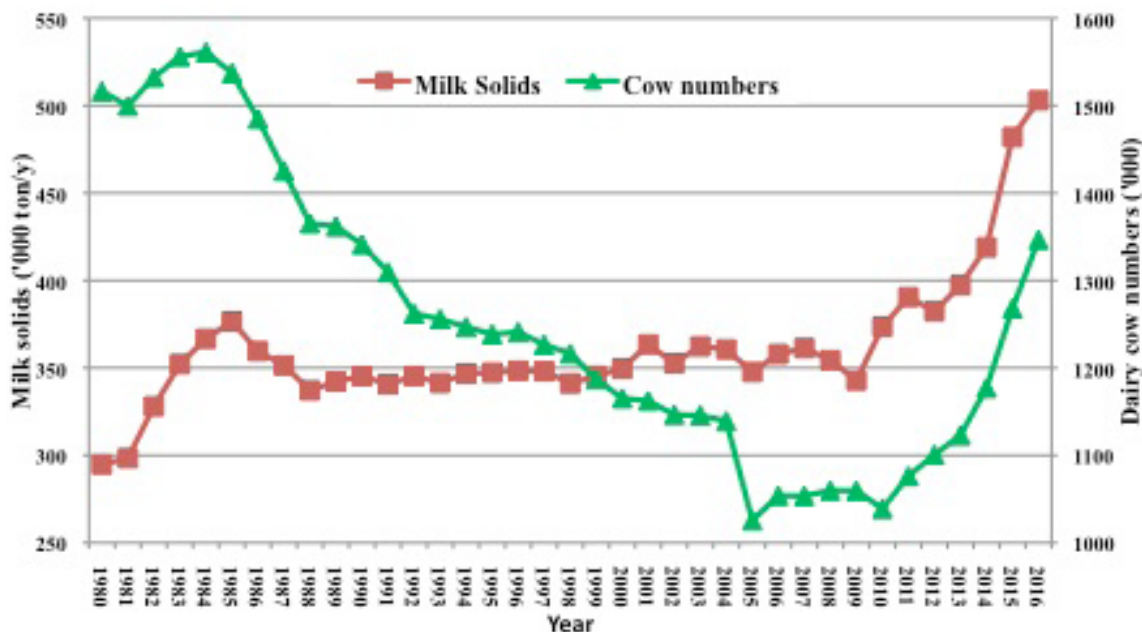


Figure 2: Trends in milk solids production and dairy cow numbers (1980-2016)

Spring calving systems of milk production have been proven to be the most profitable option for Irish dairy farms and consequently, the promotion of labour saving practices to manage seasonal workload is of paramount importance. Previous studies of the seasonality of workload reported that nearly 50% of the annual workload on farms occurs during the period of calving and breeding (Kelly et al., 2016). This generates a significant part time labour requirement to work on dairy farms during these busy periods. In addition, calving is becoming increasingly compact on Irish dairy farms with six week calving rates improving and with an increasing number of farms reaching the industry target of calving in excess of 90% of their herds in six weeks.

There are four key requirements for the sustainable expansion of the Irish dairy industry as recommended in the Food Harvest 2020 and Foodwise 2025 reports namely:

- Increased Investment: at both farm and processing level
- Increased cow numbers
- Improved land availability
- Increased availability of skilled, motivated and self-directed people

Much emphasis has been placed on the availability of capital to finance both investments on farms and within the processing sector as well as increased cow numbers to facilitate expansion. New long term leasing tax incentives introduced by DAFM in 2015 have steadily improved land availability. These requirements have been well addressed by the industry in

recent years and do not appear to be a significant limiting factor currently. However, there has been a lack of focus on the delivery of highly trained people to ensure that an adequate supply of a suitably trained workforce is available to facilitate expansion.

The availability of an adequate supply of skilled labour was identified as the greatest threat to successful and sustainable dairy expansion of the Irish dairy industry by the Teagasc Dairy Stakeholder group. Therefore, it was decided to establish a working group under the direction of the chairman (Mr. Kevin Twomey) to investigate how the dairy industry could respond to these challenges. This report presents the main outcomes of that investigation.

3. Current trends in dairy farm structures

Table 1 and Table 2 shows the number of dairy cows by herd size and number of dairy farms by herd size from 2005 to 2016, respectively using data from the CSO Farm Structure Survey 2005 to 2016. The data shows that the number of dairy herds has remained relatively static over the last 6-years. There has been an increase in the number of 'new entrants' to dairying which are replacing farmers who exit out of milk production.

Average herd size has increased from 45 cows in 2005 to 76 cows in 2016. Excluding dairy farms milking less than 30 cows (who can potentially double in herd size without requiring extra labour), the average herd size of the remaining 15,339 dairy herds in 2016 is 87 cows. Additionally, the proportion of cows in herds of greater than 100 cows has increased from 13% in 2005 to 47% in 2016. The number of dairy farms with herds greater than 100 cows has increased from 1,080 (4.5%) in 2005 to 4,262 (23%) in 2016. The average herd size for farmers in this category is now 155 cows. Figure 3 shows the rate of increase in herds with greater than 100 cows with much of the growth happening in the recent 2013-2016 period.

Table 1. Number of dairy cows by herd size 2005 to 2016

Herd size	2005	2007	2010	2013	2016
1 to 2 cows	690	630	-	-	-
3 to 9 cows	5,860	4,120	-	-	-
10 to 19 cows	35,180	24,640	30,780	25,290	20,595
20 to 29 cows	78,120	65,270	56,720	47,480	38,828
30 to 49 cows	294,100	252,750	194,450	171,640	142,922
50 to 99 cows	523,400	525,900	486,850	518,110	536,390
Greater than 100 cows	144,620	184,910	302,060	400,690	659,149
Total	1,081,960	1,058,210	1,070,860	1,163,200	1,397,884

Reference: CSO Farm Structure Survey 2005, 2007, 2010, 2013, and 2016 (Based on June cow numbers)

Table 2. Number of dairy farms by herd size 2005 to 2016

Herd size	2005	2007	2010	2013	2016
1 to 2 cows	490	430	-	-	-
3 to 9 cows	1,000	720	-	-	-
10 to 19 cows	2,390	1,700	2,110	1,730	1,437
20 to 29 cows	3,230	2,680	2,310	1,930	1,575
30 to 49 cows	7,550	6,480	4,910	4,330	3,589
50 to 99 cows	8,080	7,960	7,050	7,420	7,488
Greater than 100 cows	1,080	1,350	2,080	2,740	4,262
Total	23,820	21,320	18,460	18,150	18,351

Reference: CSO Farm Structure Survey 2005, 2007, 2010, 2013, and 2016.

Note: The CSO stopped including dairy farms with less than 10 cows in their survey from 2010.

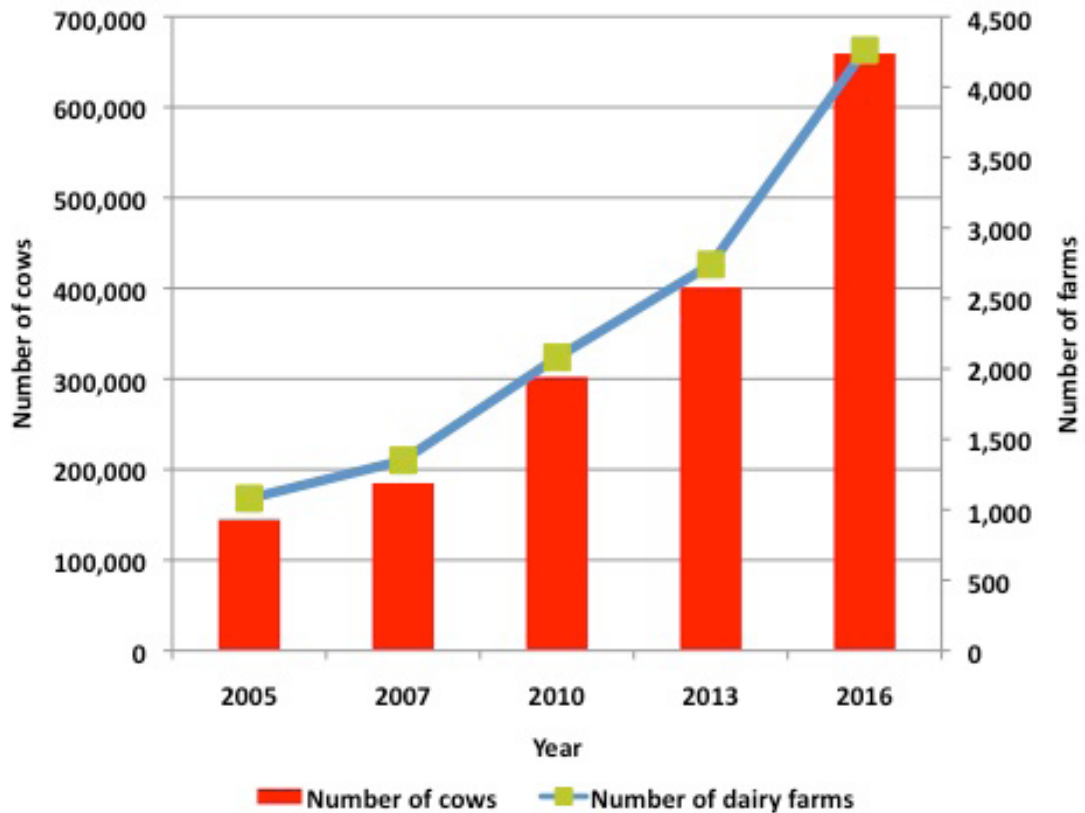


Figure 3: Changes in structures of dairy farms with greater than 100 cows – 2005-2016

This analysis shows that the structure of Irish dairy farms has changed significantly (since 2010 in particular) and this is likely to continue. There has been a dramatic shift to larger scale herds over this time with a fourfold increase in both the number of cows being milked in herds of greater than 100 cows and the number of farmers milking herds of greater than 100 cows. Since 2013 the number of cows in herds of greater than 100 cows increased by 30% per year while the number of farmers milking greater than 100 cows increased by 15% per year. This trend is likely to continue as indicated by national statistics of dairy young stock and from supplier surveys currently being carried out by some of the major milk processors.

The rapid increase of herds greater than 100 cows highlights a potential mismatch between the availability of family labour and the workload on farms. While the CSO Farm Structure Survey in 2013 highlighted a large amount of family labour exists on dairy farms, there is no guarantee this labour exists specifically on the farms milking greater than 100 cows where it is particularly needed, or that family labour is available at busy times in the season e.g. during calving in February and March. Hence there is a growing requirement for both full and part time employees to work on dairy farms.

4. The necessity for an expanded and increasingly skilled workforce

An expanding dairy industry requires an understanding of how well dairying attracts, retains and develops its workforce. Based on international studies (Nettle et al., 2011) difficulties in retaining employees in the agriculture sector have centred on four key issues namely: inadequate working conditions, lack of clear career development and promotion opportunities, neglect of occupational health and safety; and the availability of alternative employment. The suggested response to this should include:

- Setting clear HR policies;
- Offering a competitive remuneration package, not just covering wages but including benefits and potentially bonuses or profit sharing plans;
- Flexible scheduling of working hours plus the provision of training and career advancement opportunities.

Up to now, there was a general view that there is adequate availability of labour on dairy farms on the basis of large availability of family labour (Farm Structure Survey, 2013), large numbers of young people in agriculture education and surplus availability of labour in rural areas. This assumption is arguably incorrect for the following reasons:

- The increase in dairy cow numbers has been greater than predicted, especially on dairy farms with greater than 100 cows. Cow numbers are increasing rapidly with the fastest rate of growth happening in larger herds. The increased workload within such farms cannot be serviced by family labour alone. Additionally, the skill level required to manage larger herd sizes is substantially greater.
- The number of young people in agriculture education has increased significantly in recent years; however the number that have chosen a career in dairy farming is very low as substantiated by the low and static number of graduates qualifying at Level 6 advanced programmes in Dairy Herd Management, Level 7 Professional Diploma in Dairy Farm Management and Level 8 Dairy Business Degree (~120, 25 and 25 graduates per year, respectively).
- There has been a large increase in the number of agriculture courses (especially facilitated by Institutes of Technologies) which tend to provide for employment in the agri-food industry rather than in the practical dairy farming skills required to run a large dairy herd. Most graduates of these courses are likely to lack practical skills needed to work on dairy farms as there is no requirement for dairy farm placement during their education. A focussed promotion and training programme is needed to attract and upskill this group for successful careers in dairying.
- There has also been a large increase in the number of people completing Teagasc Green Cert courses; however this increase is largely to be compliant with schemes and for inheritance purposes rather than to engage in careers on dairy farms.
- The Irish economy is anticipated to grow by 4% per year during 2017 and 2018 (Economic and Social Research Institute, 2017), creating increased employment competition from other economic sectors. Given the expected increase in construction related activity, it is anticipated that a consistent fall in the unemployment will be achieved (with the rate falling to 6.4 and 5.6 per cent by the end of 2017 and 2018, respectively). Unemployment rate has already fallen to 7.4% from over 15% in 2012.

5. Influence of dairy expansion on increased labour requirement

Data from the Farm Structure Survey 2013 and 2016 were used as the basis to estimate the increase in labour requirement on Irish dairy farms up to 2025. The following assumption was used in the calculations:

- Only herds with greater than 30 cows were included in the analysis in Table 3. In 2016 there were 3,012 dairy farmers out of a total of 18,351 milking with less than 30 cows or a total of 59,500 cows. Therefore this analysis accounted for greater than 84% of dairy farms and 96% of cows. Cow numbers from 2013 to 2016 were taken from the CSO and based on the average of June and December values. An annual increase of 2% in dairy cow numbers between 2017 and 2025 were used in the analysis, cumulating to approximately 1.6 million by 2025. Other studies have predicted a growth rate of less than 2% per year and predict the national dairy herd to reach 1.5 million dairy cows by 2025 (Hanrahan and Donnellan 2015). Given the relative profitability of dairying v's other farming enterprises, it was felt by many stakeholders that growth of >2% should be targeted to improve the viability of Irish farming.
- The number of dairy farms >30 cows is projected to increase slightly each year even though nationally the total number of dairy farmers is projected to decrease slightly. This increase is due to smaller scale farmers getting bigger and from new entrants entering at >30 cows. This projection is in line with CSO data which shows the number of dairy farms milking > 30 cows increased by 9% between 2010 and 2016, while total dairy cow numbers increased by 36%.
- The number of cows per farm (greater than 30 cows) was calculated by dividing the national number of cows by dairy farm numbers; average herd size is estimated to increase from 75 cows in 2013 to an estimated 104 cows in 2025.
- The level of labour efficiency was based on an extensive study carried out on Irish dairy farms by O'Donovan (2008). In this study, labour efficiency increased from 50 hours per cow per year for herd size of 44 cows to 29 hours for herd size of 140 cows. The model used this relationship to calculate labour efficiency over the period 2013 to 2025 as herd size changed. Hours per cow includes work associated with rearing replacement heifers for the dairy enterprise.
- Hours worked per year for owner operators were fixed at 2,400, equating to a 50 hour working week, working 48 weeks per year. This is a standard which has been set by dairy industries in other countries (e.g. New Zealand Work Force Action Plan for Dairying, 2015) to ensure everyone working on farm has a sustainable workload and to minimise issues with stress, overworking, and health and safety. Survey work carried out by Teagasc¹, indicates dairy farmers are working far in excess of this level currently. In this analysis non owner operators were assumed to work 2,200 hours per year, which equates to 46 hours per week.
- Total workload is calculated by multiplying the cow numbers by the hours worked per cow. Total full time equivalents (FTE) labour requirement is calculated by dividing total hours by owner operator and other FTE hours. It is important to note that a FTE could be made up of more than one person due to the seasonal nature of labour requirement on dairy farms.

¹ Pat Clarke, Teagasc

- Non owner FTE was calculated based on an assumption that each farm had an owner operator equivalent to one FTE. (On some farms the owner won't be actively farming and may hire a manager – this is accounted for in the modelling exercise on page 18). The requirement for additional FTE is calculated based on the assumption that there is no excess labour available on Irish dairy farms and that any increase will require additional labour.
- Replacement FTE is based on a regeneration interval of 35 years. This is set as a target so that every 35 years a farm business will have a successor available to it. The availability of a successor has been shown by O'Donnell (2008) to be one of the major influencing factors for a farm business to contemplate further growth and development. This 35 year figure may underestimate the number of replacements needed over the next 10 years as CSO 2013 results indicate that 17% of dairy farmers are older than 65 and 48% of dairy farmers are older than 55.
- The model does not include a replacement rate for the non-owner FTE's who will be working on farms. These could have a much shorter turn over period due to career changers etc. Considering there will be an estimated non-owners 9,000+ working on dairy farms in 2025, a 25 year turnover rate of this group would require an extra 400 FTE's per year to enter the industry. This is nearly double the requirement of new employees who are needed to cope with increasing cow numbers.

This analysis estimates that by 2025 (in herds greater than 30 cows), there will be approximately 1.6 million dairy cows within the national herd, comprising of 15,426 dairy herds with an average herd size of 104 cows. Total dairy cow numbers have increased by over 300,000 based on 2016 figures compared to the average of 2007 to 2009 (using the average of June and December cow numbers). It is projected that numbers will increase by a further approximately 250,000 by 2025; given a total increase of approximately 550,000 dairy cows since 2010.

This analysis estimated that between now and 2025 there will be a requirement at farm level for an additional 2,315 additional full time equivalents and 3,958 people to sustain regeneration, so as to facilitate sustainable expansion of the Irish dairy industry. These estimates do not place any extra requirement for labour over the period 2013 to 2016 when dairy cow numbers increased by 20% (234,684). Based on Table 3 this expansion would have required approx. 2,500 FTEs but much of this extra work was largely absorbed by the existing farmers.

Miller et al. (2014) estimated that a 50% increase in milk production as indicated in the Food Harvest 2020 report would require an extra 4,814 FTE's in employment in primary milk production by 2020. O'Connor and Keane (2014) estimated that a 50% increase in milk production as proposed in the Food Harvest 2020 report would result in an increase of 1,150 additional new jobs on dairy farm in County Cork. This was based on an additional 92,000 cows with a requirement for one additional labour unit for each additional 80 dairy cows. Both of these estimates were much larger than that reported in this study which estimates a requirement on average of one additional labour unit per 113 cows from 2017 onwards.

Table 3. Projected increase in labour requirement on dairy farm to facilitate dairy expansion to 2025 for farms with >30 cows

Year	Cows (in herds >30 cows)	Farms	Cows / farm	Hrs. / cow	Working year (owner operator hrs.)	National ('000)	Total FTEs	Non owner FTEs	New FTEs	Replacement FTEs	Total
2013*	1,090,440	14,490	75	42.1	2,400	45,957	19,572	5,082		414	414
2014*	1,142,781	14,793	77	41.8	2,400	47,747	20,358	5,565	483	423	906
2015*	1,230,775	15,096	82	41.0	2,400	50,463	21,565	6,469	904	431	1336
2016*	1,338,461	15,339	87	40.0	2,400	53,563	22,953	7,614	1144	438	1582
2017**	1,365,230	15,352	89	39.6	2,400	54,091	23,191	7,840	226	439	665
2018**	1,392,535	15,364	91	39.2	2,400	54,605	23,424	8,060	220	439	659
2019**	1,420,386	15,376	92	39.0	2,400	55,395	23,782	8,406	347	439	786
2020**	1,448,793	15,386	94	38.6	2,400	55,923	24,021	8,635	228	440	668
2021**	1,477,769	15,396	96	38.3	2,400	56,599	24,327	8,930	296	440	736
2022**	1,507,324	15,406	98	37.9	2,400	57,128	24,567	9,161	231	440	671
2023**	1,537,471	15,414	100	37.6	2,400	57,809	24,876	9,462	301	440	741
2024**	1,568,220	15,420	102	37.2	2,400	58,338	25,115	9,695	233	441	674
2025**	1,599,585	15,426	104	36.8	2,400	58,865	25,354	9,928	233	441	674
Total 2013 to 2016											
Total 2017 to 2025											
									2,531	1,706	4,238
									2,315	3,958	6,273

* June cow numbers in herds >30 cows from the CSO for 2013 and 2016, estimate for 2014 and 2015; ** Projected forward at +2% per year

6. Career opportunities in dairy farming

To calculate the different skillsets of the people needed to facilitate Irish dairy expansion, a separate modelling exercise was completed which looked at the labour structure at different herd sizes, and based on this, the national requirement for the number of people to fulfil different farm roles were calculated.

The Teagasc “Stepping Stones to a Career in Dairy Farming” document was used to define the different career roles that exist on dairy farms and from this the model calculated the number of people required in each role by 2025. The roles included Farm Assistant (both fulltime and part time), Herd Manager, Farm Manager and Farm Business Owner. The Farm Business Owner is usually an owner operator but this could also include people in leases and or partnerships.

Using data from the Farm Structural Survey 2016 based on 32 herd class sizes combined with the views from an expert panel, a labour structure for each herd class category was defined. Class sizes from 10 to 139 were based on increments of 10 cows; 140 to 359 on increments of 20 cow; 360 to 399 cows; 400 to 499 and greater than 500.

The labour requirements used were based on;

- in excess to one fulltime labour equivalent (farm owner in most situations) for herd size class 10 to 179 cows was supplied by part time labour (with 0.9 labour units of part time labour being used at 170-180 cows i.e. almost a full time employee);
- herd class size 180 to 279 labour requirement was based on one full time Farm Assistant plus part time labour;
- herd class 280 to 339 labour requirement was based on a Herd Manager plus part time labour;
- herd class 340 to 359 labour requirement was based on a Herd Manager, Farm Assistant plus part-time labour;
- herd class 360 to 400 labour requirement was based on a Farm Manager, Farm Assistant and part time labour
- herd class greater than 500 cows labour requirement was based on a Farm Manager, Herd Manager, Farm Assistant plus part time labour.

The relative changes in both the number of dairy cows and number of farms per herd class size going from 2013 to 2016 was used as a baseline to predict forward from 2016 to 2025 at similar rates to the study outlined on page 21. This facilitated herd sizes to increase and decrease at different rates, depending on the herd size, while the national herd still grew at 2% per year. The overall workload of the farm was kept in line with levels of labour efficiency in the O Donovan (2008) study. However, this study had very little data for herds >250 cows and so the labour efficiency standard of this group was decided by the expert panel. This involved a higher level of labour efficiency than the national average of the original study and so the output from this model predicts slightly less people required to facilitate dairy expansion (1,786 FTE's v's 2,315 FTE's). This model will be updated once more data on the labour efficiency of larger herds becomes available.

Table 4 shows the estimated labour requirement with the appropriate skillsets required to facilitate a sustainable expansion of the Irish dairy industry from 2016 to 2025. There is currently and going forward a large requirement for part-time labour on dairy farms, largely due to the seasonal nature of work but also to offer time off to the 15,000 owner operators of farms. The significant seasonal aspect to this requirement means the required number of actual people to work part time will be greater than the 1,000 extra FTE equivalents estimated

in this report (5,452 FTE's working part time in 2025 v's 4,457 FTE's working part time in 2016). There will be a number of sources for these part time people:

- Family labour: family labour will be available on some farms to provide some of this part time labour; however, with larger herd sizes this form of labour will become less relevant.
- Farm relief service (FRS): traditionally the farm relief service provided a significant amount of this labour on farms. However, in recent years the availability of this labour has been reducing due the improvements in the economy (greater demand for labour in other areas in the economy i.e. building) and reduced availability of foreign workers from Eastern Europe.
- Agriculture education placement students: most agricultural education courses require a period of work on farm placement; in future years the number of student's completing agricultural courses is likely to decrease (and has already in 2017), reducing the availability of this source of labour at peak times of labour requirement.
- Agricultural contractors: one of the options available to dairy farmers is to contract out farming tasks at peak labour periods. This could entail fertilizer spreading, calf rearing, milking etc. It could also include contract rearing dairy replacements from a young age.

There will be a significant opportunity now and more so in the future for people that don't own a farm or are not from farming background to develop a career in dairy farming. Potentially starting as part time labour and then pursuing a full time career.

Based on the labour structure used in this model, the number of farm assistants, herd managers and farm managers will increase from 1,243 today to 2,034 by 2025. In this model, a farm manager is deemed to be required at a scale of >360 cows. However, many smaller scale units will be run with a farm manager with the owner maintaining a 'hands off' role. The percentage of farms operated in this way is likely to increase going forward with the current lack of successors. Hence, 5% of farms >100 cows are predicted to employ farm managers in this model. While the number of farm managers required each year does not increase dramatically in the model, added to this requirement will be farm managers to replace those who progress into a collaborative farming arrangement, those who return home farming and those who for a variety of reasons might leave the industry.

The skillset required of full time employees will be very high, therefore, requiring a high level of both formal and informal training plus on farm experience. The available of a career progression pathway will be equally important as many of these will eventually end up as business owner in their own right in a collaborative farming arrangement. This will be required as a significant proportion of the dairy farm owners will not have a family successor to take over the management of the business. These dairy farm businesses positions can be filled by dairy farm managers with the required skill set to progress, facilitated by either long term leases or share farming arrangements. These calculations do not take into account a replacement rate for these full time employees on dairy farms, which based on other countries, can be significant.

Table 4. Estimates of career opportunities in dairy farming 2016 to 2025

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Dairy cow numbers	1,354,347	1,381,434	1,409,063	1,437,244	1,465,989	1,495,309	1,525,215	1,555,719	1,586,833	1,618,570
Total farm numbers	18,351	18,259	18,167	18,077	17,986	17,896	17,807	17,718	17,630	17,541
Farms >30 cows	15,339	15,352	15,364	15,376	15,386	15,396	15,406	15,414	15,420	15,426
Farm managers*	294	313	328	344	360	376	394	411	429	448
Herd managers	174	185	197	210	223	237	251	266	282	298
Farm assistants	775	819	865	912	998	1,052	1,109	1,167	1,227	1,288
Part-time labour (FTEs)**	4,457	4,571	4,689	4,804	4,888	5,001	5,118	5,230	5,342	5,452

* 5% of farms between 100 and 370 cows were assumed to have a farm manager where the owner was not directly involved in the labour of the farm. All farms >360 cows were assumed to have farm managers also.

** The large number of farms that only require part time labour, and the seasonal nature of work on dairy farms will mean many part time labour positions on dairy farms will involve people who work part time on dairy farms along with another occupation e.g. part time farming or other employment. This means the 4,482 part time FTE's in 2016 could be made up of well over 6,000 people depending on how much part time work each person gets.

7. 'People in Dairying' - some approaches in other countries

Ensuring an adequate supply of skilled labour is available to meet the requirements of an expanding Agri-sector has also been an important consideration in other countries such as Canada, New Zealand, and Australia. A detailed summary of 'human capital' projects taking place in New Zealand is presented below followed by brief summary of projects implemented in Canada and Australia.

New Zealand

Focus area 1: Improving the image of dairying and promoting career opportunities in dairying to all people i.e. those not from farms, those currently working in other industries etc. A number of programmes were initiated which targeted various different types of people e.g.

- Dairy farming introduced to children at primary school level via the **'Rosy the Cow' campaign** - <http://www.rosieseducation.co.nz/> - this has been developed into a fun dairy farming module which teachers can complete with students. 6,000 teachers in over 1,800 schools have downloaded the module.
- National initiative to get **farmers hosting school visits** to increase exposure of school children to dairy farming - <http://www.dairyatwork.co.nz/community/Visiting-a-dairy-farm-with-your-school> . Over 21,000 countries have visited dairy farms as part of this activity.
- Dairy farming careers promoted via the **GoDairy campaign** to secondary school students and potential career changers. <http://www.godairy.co.nz/>
- **DairyNZ scholarship programme** to encourage bright young students into third level Agri education -285 young people have received scholarships to date since 2001 - <https://www.dairynz.co.nz/people/dairy-careers/dairynz-scholarships/undergraduate-scholarships/>
- In the past a **'Dairy Heroes campaign'** was run to highlight the exciting career opportunities in dairy farming by organising events with successful dairy farmers and young people via the school system.

Focus area 2: Providing excellent training to equip people with the necessary skills to successfully complete different roles on dairy farms. There are a variety of training programmes to teach the necessary skills for any position e.g. assistant, herd manager, farm manager, and farm business owner. These training programmes are flexible to allow people enter from different routes. Participants can work full time while training so can learn as they earn. Examples include:

- The **AgITO Programme** has a large range of full and part time courses for people at all levels of the dairy career ladder - <https://primaryito.ac.nz/train-me/training-we-offer/dairy-farming/>
- There are a multiple of further training programmes in specific areas of dairy farming e.g. **Mark and Measure courses** to improve financial and strategy skills and **Progression groups** to help upskill new entrepreneurs to dairying.

Focus area 3: Making sure farms are enjoyable places to work so as to attract and retain good people. To achieve this objective there is a nationally agreed **Workplace Action Plan** which was developed largely by DairyNZ and Federated Farmers but involved the input of over 20 other

stakeholders. This plan sets out a national objective of making dairy farming on average a 50 hours worked per week job. Farmers can sign up to be 'friends of the plan' which certifies they are striving to meet the objectives outlined in it.

- <https://www.dairynz.co.nz/about-us/dairy-industry-strategy/sustainable-dairying-workplace-action-plan/>.
- DairyNZ has launched a LEAN farming programme called **Farm Tune** to help dairy farms become more labour and resource efficient.
- Most New Zealand dairy farms have **contractors** doing the majority of machinery work and **contract rearers** looking after heifer rearing making the work load on farms simpler and easier.
- Many cows are also **wintered on contract** or simply **grazed on farm over the winter** again reducing workload associated with liming cubicles and feeding silage.

Focus area 4: Ensure employers have good HR skills so they can get the best from their employees and ensure their employees are happy with their jobs. A number of programmes have been initiated by DairyNZ and others to achieve this e.g.

- **PeopleSmart Programme** has a team of eight people working on it in DairyNZ both developing tools and resources and running training courses for farmers
 - **E.g. the HR Toolkit, Online Roster Builder, etc.**
- **PeopleLIFT Programme** involves HR consultants working closely with dairy farmers to improve their people skills.
- There are also a number of **private, professional, dairy farming specialised HR companies e.g. No8 HR** <http://www.no8hr.co.nz/>.

Focus area 5: Providing career progression opportunities to allow the best and brightest people achieve cow and potentially land ownership. This wealth creation opportunity attracts people into the industry and has been a key component to New Zealand dairy farming. The aspects of this focus area are:

- **The sharemilking system** which is well developed in New Zealand. Over one third of farms are operated through different sharemilking agreements.
- The **Share farmer of the Year** competition highlights the best and most successful dairy farmers who have progressed through the dairy career ladder inspiring others to aim to do the same.

Canada

Canada's response to a lack of human capital in agriculture was the establishment of the Canadian Agricultural Human Resource Council: <http://www.cahrc-ccrha.ca/homepage>. The Canadian Agricultural Human Resource Council (CAHRC) is a national, non-profit organization focused on addressing human resource issues facing agricultural businesses across Canada. The objectives set out to be addressed as part of its creation were:

- to examine issues of agriculture and Agri-food labour management and shortages.
- facilitate industry discussion from representatives across Canada's agriculture and agri-food sector.
- develop short, medium and long term solutions to address the critical labour shortages

facing the industry.

The CAHRC's vision statement is to achieve a qualified and motivated workforce that is sufficient to sustain profitable agriculture in Canada. Its mission statement is to develop solutions to support the HR management needs of agriculture. CAHRC carries out agriculture research such as labour market information. It is the central access point for customizable solutions related to HR management and training.

Industry participation is the cornerstone of the Canadian Ag HR Council. Direction and guidance for all activities are provided by a large, nationally representative Board of Directors (19 members) that includes agricultural leaders within and across various agricultural enterprise groups.

Additionally, all research, project work and product development activities are supported by national stakeholder participation to ensure quality, accuracy and relevance of prepared solutions. Stakeholders include employers, employees, youth, associations, education, and government at regional, provincial and national levels. The council is officially partnered with over 20 different industry bodies which it works with to achieve its objectives. The CAHRC has 11 staff and is funded both by industry and Government. Its annual budget is just under \$4 million (€2.8 million) of which approx. 75% comes from the Government.

CAHRC offers a number of important products and services designed to ensure effective and efficient management of the human resources required for agricultural operational success. The Council offers extensive HR management tools, guides, training and templates that provide practical assistance for agricultural job seekers, new entrants, skilled workers, supervisors, employers, and educational institutions.

Examples of current projects:

AgriHR Toolkit	Instructions, Reference Materials, Tools, Customizable Templates.
AgriPathways	Interactive tool to access Agricultural Career & Job Information.
AgriTalent	Interactive tool to access Agricultural Training Providers.
AgriGuide	Interactive tool to access Agricultural Associations.
AgriJobMatch	Interactive tool connecting Employers with Job Seekers and Interns.
AgriSkills	Courses & on-line learning modules to get workers Job Ready.
AgriHR Matters	Subscription Newsfeed with links to management articles.
Consulting	Research, Tools, Training, Speaking engagements.
Events	Summits, Ag HR Roundtables.

Australia

The Dairy Australia People in Dairy programme is based around eight areas; see Figure 4. Dairy Australia is the national research and advisory organisation in Australian dairying and is funded two thirds by farmer levies and one third by government. Dairy Australia also has a separate project which promotes a positive image for dairy farming/ promotes dairy farming as a career choice (see www.legendairy.com.au).



Figure 4: Dairy Australia People in Dairy (<http://www.thepeopleindairy.org.au/>)

Background:

The Dairy Australia People in Dairy programme was developed in response to a major industry need i.e. the potential for people related issues to limit the growth, profitability and sustainability of the dairy industry.

The People in Dairy is a national programme that helps dairy farmers attract, retain and develop the people they need to achieve the strategic visions of their businesses. The programme started in 2007 and is on-going.

All of the various elements relating to people have been gathered into one programme (Figure 4). The overall programme is co-ordinated by a Programme Leader with separate; cross-functional teams each working on delivery of specific projects within the overall programme. Each project within the overall programme has a visible delivery plan and agreed outcomes. In addition, all of the various elements are mapped with linkages between the different elements shown. The programme spans across research, extension and education.

Dairy Australia committed resources (people, time and funding) to the development of a range of KT programmes/ initiatives for the People in Dairy programme. Discrete teams were formed to develop and test different packages in each of the areas in Figure 5. Dairy Australia believes that the resources (website, training manuals, promotional materials) must be fully developed (including pilot testing) prior to the training of key stakeholders and the full roll-out of the initiative. Once the resources are developed, they are initially piloted in one geographic area with modifications and further development undertaken before national roll-out. A 'Lead and Design' team is central to the development of the various materials.

Outside expertise which included dairy farmers, was centrally involved in the development of the packages/ tools/ resources. All materials were developed with the end user (employer or employee) in mind. Once developed, industry advisers (Dairy Australia has very few of its own advisers) are trained in the use of the new materials.

The process followed by Dairy Australia was as follows:

- Agree the body of knowledge – undeniable facts, agreed terminology
- Provide resources (website, manuals)
- Skill up service providers
- Fund KT events (including through RDPs)

A 'Lead and Design' team is appointed to deliver on the first two items.

8. Key requirements

Dairy farming must promote itself as a highly-skilled, professional and exciting career to attract the best talent and secure the future of the industry. The skills and ability of dairy farmers is an important element when considering technical efficiency. Figure 5 outlines the actions required to ensure dairy farming becomes a more professional, competitive and sustainable business that in turn attracts the brightest and best into the industry:

1. **Promoted as an attractive career:** there is a requirement to promote dairy farming as an attractive career to young people in our secondary schools and third level colleges. Currently, a career in dairy farming is perceived negatively due to issues in relation to work life balance, financial rewards, gender imbalance, and career opportunities for those from non-farming background. This will require an industry co-ordinated approach involving key stakeholders (Teagasc, Department of Agriculture Food and Marine, Farming Organisations, milk processors, AgriAware and Guidance Counsellors in second and third level education) to promote dairy farming as an attractive career. The promotion should also highlight the opportunities of full or part time employment on dairy farms to people living in rural areas.
2. **Excellent industry training - formal, informal and workplace** the future success of the Irish dairy industry is dependent on developing and retaining highly skilled and motivated people, recognising their potential and optimising their performance. The dairy industry 'Stepping Stone to a Career in Dairying' outlines a clear and consistent role expectation for both employers and employees in the four key on-farm role categories: farm assistant, herd manager, farm manager and farm business manager. It also outlines the corresponding formal training, informal training and workplace experience required for each role descriptor. This includes the experience, skills, knowledge and attributes expected in the four on-farm-role categories. The industry must endeavour to ensure there are ample training opportunities and pathways for people to develop the essential skills for the different career roles in dairying. The number of graduates qualifying at Level 6 advanced programmes in Dairy Herd Management, Level 7 Professional Diploma in Dairy Farm Management levels and Level 8 Dairy Business Degree (~120, 25 and 25 graduates per year, respectively) are totally inadequate given the projected requirements.
3. **Dairy farms must be enjoyable places to work:** Dairy farming currently has difficulty in attracting people because of perceived poor working conditions, lack of career development and promotion opportunities plus the availability of alternative employment. Measures such as hours worked per cow per year, cows milked per person milking per hour and turnover rate of farm staff are used to provide a measure of labour productivity. There is a requirement for a 'time use study' to benchmark the labour productivity of Irish dairy farmers. This would include capturing on-farm innovation and raising awareness of the benefits that results in from improved labour productivity. The application of 'Lean' principals to dairy farming could improve work practices thereby increasing overall labour efficiency.
4. **Employers with a reputation for retaining and developing their employees:** Research has shown that employee turnover is lower when employees obtained higher than the average pay rates in industry, flexible work hours, limited weekend hours and very long shifts, training and development opportunities, feedback, appreciation for a job well-done, individual attention to career development and mentoring and an enjoyable work environment with good facilities. These results showed that employers that adopted correct human resource management practices had not only greater employee retention but higher overall farm profitability. There are currently no training programmes in Irish farming for a farmer to improve his/her HR skills.
5. **Career progression in dairy farming:** The dairy industry requires a clear progression pathway for those who are wishing to progress from a farm employee to farm owner. In

New Zealand the share milking model has been very successful by providing a vital step in the career progression path for young farmers. Other arrangements such as equity partnerships and long term leasing are possible alternatives structures that facilitate career progression. These types of structures allow new people career progression within the industry and those at the exit phase of their career options for their 'second phase' of their business cycle. The results of recent dairy farm surveys indicate that approximately 50% of dairy farmers do not have a successor identified. There is a requirement for the industry to develop successful pathways for progression by investigating, promoting and developing suitable business structures and to incentivise them similar to the highly successful tax reliefs available on leased land.

6. **Excellence within the dairy industry must be promoted:** dairy industry awards help raise overall farm standards by making people pay attention to best practice farming, helping to lift on-farm performance. The awards promote and showcase excellence across the whole spectrum of the dairy industry, and indicate a clear career path and help develop and nurture future leaders of the dairy industry. Promotion of the awards and television coverage help members of the public who are not involved in the dairy industry to become more aware of, and understand, the importance of the industry.



Figure 5: The People in Dairy overall programme and specific projects

9. Conclusion

The Teagasc Dairy Stakeholder group, which includes dairy farmers and industry stakeholders (milk processors etc.), identified the availability of an adequate supply of skilled labour as the greatest threat to successful and sustainable expansion of the Irish dairy industry. There was also a concern that some dairy farmers are not coping well with the increased workload associated with expansion and that this is causing increased stress at farm level for farm employers and employees. Therefore, it was decided to establish a working group under the direction of the chairman (Mr Kevin Twomey) of the Dairy Stakeholders to investigate how best should the dairy industry respond to these challenges. As part of the review all major stakeholders were consulted which included farming organisations (IFA, ICMSA, Macra), Department of Agriculture, Food and Marine, number of large milk processors, FRS, etc.

The main finding from the working group was:

- The structure of the Irish dairy industry has significantly changed in recent years; average herd size has increased from 45 cows in 2005 to 76 cows in 2016. If dairy farms milking less than 30 cows (not considered 'specialist dairy producers in CSO or NFS reports) are excluded then current average herd size is 87 cows. The proportion of cows in herds of greater than 100 cows has increased from 13% in 2005 to 47% in 2016. Over the last 6-years dairy farm numbers have remained static while dairy cow numbers have increased by 327,000. This increased workload within dairy farms cannot be serviced by family labour alone; additionally the skill level required to manage larger herd sizes is substantially greater.
- Based on international studies difficulties in retaining employees in the dairy sector have centred on four key issues namely: inadequate working conditions, lack of clear career development and promotion opportunities, neglect of occupational health and safety; and the availability of alternative employment. The suggested response to this should include: setting clear HR policies; offering a competitive remuneration package, not just covering wages but including benefits and bonuses or profit sharing plans; flexible scheduling of working hours plus the provision of excellent training and career advancement opportunities.
- From now until 2025 it is estimated that there will be a requirement at farm level for an additional 2,315 full time equivalents and 3,958 to sustain regeneration to facilitate a sustainable expansion of the Irish dairy industry. These estimates do not place any extra requirement for the substantial increase in the national dairy herd that has occurred over the last four years. The number of graduates qualifying at both, Level 6 advanced programmes in Dairy Herd Management and the Level 7 Professional Diploma in Dairy Farm Management levels (~120 and 25 graduates per year, respectively) are totally inadequate given the projected requirements.
- As the dairy industry expands there will be a greater requirement for highly skilled dairy farm managers; some of these will be required a business managers. Likewise there will be a greater requirement for part-time labour especially in spring. Both requirements are equally important.
- Ensuring an adequate supply of skilled labour is available to meet the requirements of an expanding Agri-sector has also been an important consideration in other countries such as Canada, New Zealand, and Australia. Significant resources have been allocated in these countries to try and alleviate the problem of a lack of human capital in agriculture.
- The strategy should contain initiatives around promoting dairying as an attractive career; the provision of excellent formal and informal training including workplace placement

to increase the supply of highly skilled dairy farm managers; promote labour efficient practices at farm level; employers with a reputation of retaining and developing employees and career pathways for those that wish to progress from employee to farm business manager. Some proactive steps have been undertaken by different industry stakeholders in recent times and they are acknowledged in Appendix 1. However, it is felt that for this initiative to have maximum impact it needs to be facilitated through a co-ordinated industry approach involving all key stakeholders (Teagasc, Farming organisations, Department of Agriculture, milk processors, FRS etc.) to ensure a sustainable expansion of the Irish dairying industry.

10. References

CSO (Central Statistics Office) various publications and Database <http://www.cso.ie/en/index.html>.

CSO: <http://www.cso.ie/px/pxeirestat/database/eirestat/eirestat.asp>.

DAFF (2010) “The Food Harvest 2020: A Vision for Irish Agri-food and Fisheries”. Department Agriculture, Fisheries and Food, Dublin, Ireland.

Dillon, P., Hanrahan, L., Thorne, F., Kelly, P., Shalloo, L., Moran, B., (2016). Irish Dairying: well positioned for the upturn. Teagasc National Dairy Conference, Technologies for Success, pp4 to 26.

Ahern, K., McNamara, J., and Kelly, P. (2016). Labour Efficiency on the Shinagh Dairy Farm. Moorepark Dairy Levy Research Update: Teagasc Shinagh Open Day. pp25-33.

Miller, A. C., Mathews, A., Donnellan, T., and O’Donoghue, C. (2014). The employment effects of Food Harvest 2020 in Ireland. Irish Journal of Agricultural and Food Research 53: 149-169.

Nettle, R., Semmelroth, A., Ullah, A., Zheng, C. & Ford, R. (2011). Retention of people in dairy farming – what is working and why? Final report to the Geoffrey Gardiner Foundation. The University of Melbourne. Australia.

O’Connor, D., Keane, M., (2014). Future Expansion of the Dairy Industry in Cork: Economic Benefits and Infrastructural Requirements. Report prepared for Cork County Council. Cork Institute of Technology.

O’Donovan, K., O’Brien, B., Ruane, D., Kinsella, J. and Gleeson, D. (2008). Labour input on Irish farms and the effect of scale and seasonality. Journal of Farm Management 13 (No. 5): 327-342.

O’Donnell, S., Horan, B., Butler, A.M. and Shalloo, L. (2011). A survey of the factors affecting the future intentions of Irish dairy farmers. Journal of Agricultural Science, 149, 647–654.

Shalloo, L., Gowing, P., (2016). How can you retain more cash in your business in 2017? Teagasc National Dairy Conference, Technologies for Success, pp49 to 54.

Teagasc (2013) National Farm Survey, 2012. Teagasc, Athenry.

Appendix 1

Some proactive steps have been taken by different industry stakeholders in this area and these should be acknowledged. However it's felt that these actions would be more effective if delivered as part of a co-ordinated national 'People in Dairy' project.

- Teagasc are currently undertaking a complete strategic review of their education programme.
- Teagasc have produced the 'Stepping Stones to a Career in Dairying' booklet which outlines the different career roles that exist in Irish dairying and how it is possible to progress from one role to another.
- A PhD student in Teagasc Moorepark, Justine Deming has completed a year-long labour efficiency survey with a group of 40 dairy farmers to get insights into farm labour efficiency drivers. These results will be available in 2017.
- Teagasc will release a comprehensive guide to employment on dairy farms in 2017.
- Land Mobility Service established by Macra Na Feirme with the financial support of FBD Trust, and subsequently Aurivo, Dairygold and Glanbia as well as the Department of Agriculture.
- The FRS produced a video promoting career opportunities on dairy farms through the FRS. Outside of this video there is very little promotion in Ireland regarding careers in farming.
- The Irish Farmers Journal Agri-Careers Event is promoting careers in agriculture but had a relatively small focus on careers in dairy farming in 2016 and 2017.
- Dairygold have begun to roll out LEAN management principles to their dairy farms to help farms become more labour efficient.

Notes

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