



Challenges and Opportunities for the Irish Dairy Industry- Lessons to be Learnt

Conference at "XL Spring Meeting of the Portuguese Society of Pastures and Forages (SPPF)"

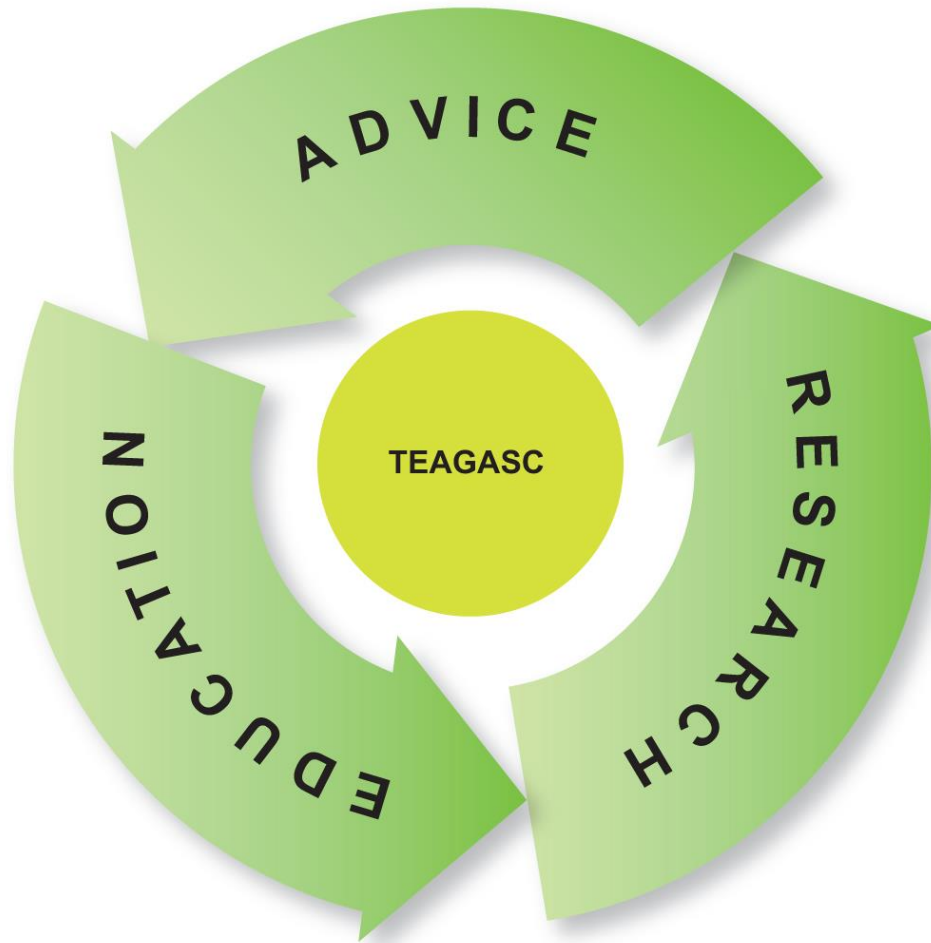
2nd May – 3rd May 2019, in Sao Miguel Azores

Pat Dillon

Head of the Animal & Grassland Research and Innovation Programme
Teagasc, Moorepark

Teagasc

Teagasc Role



Food Harvest 2020

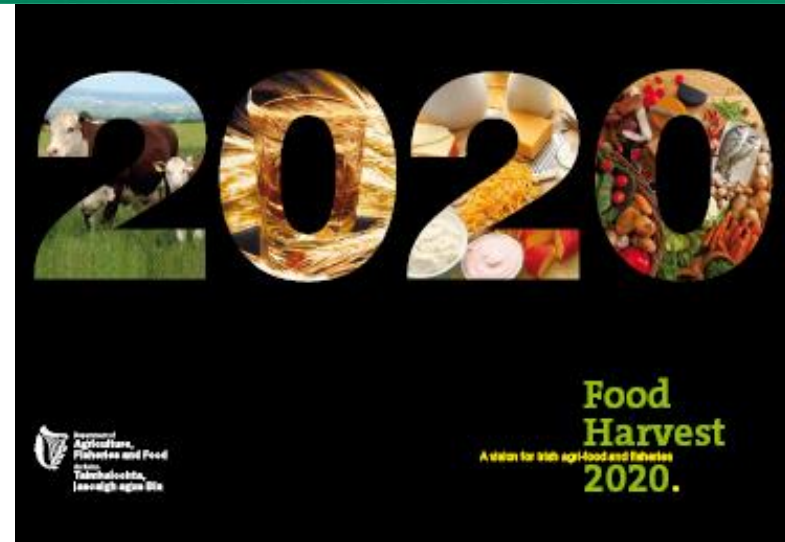
Vision for agri-food sector for next decade

Ambitious growth targets

milk volume: + 50%

beef value: + 20%

pigmeat value: + 50%



SMART – GREEN – GROWTH

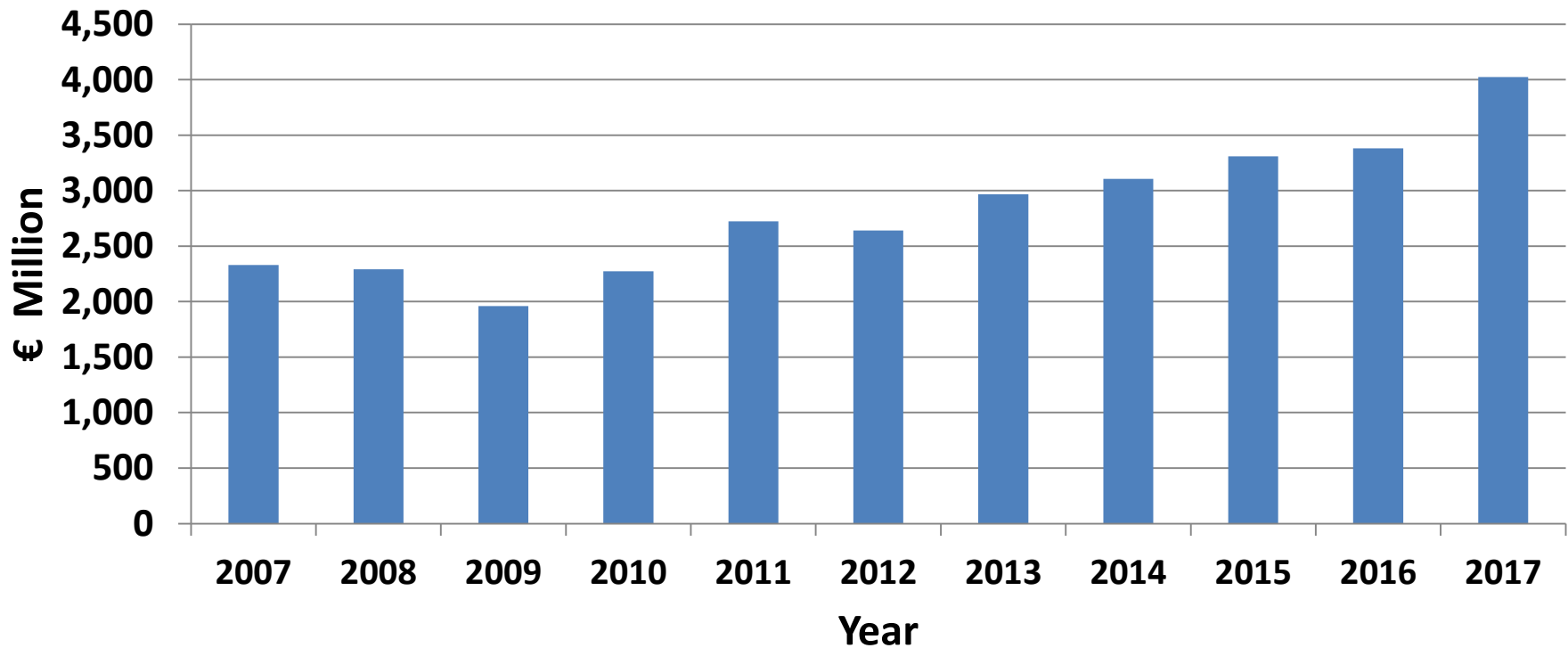
Sustainability very important

Consumer and consumer needs are central

<http://www.agriculture.gov.ie/agri-foodindustry/foodharvest2020/>

Irish Dairy Industry

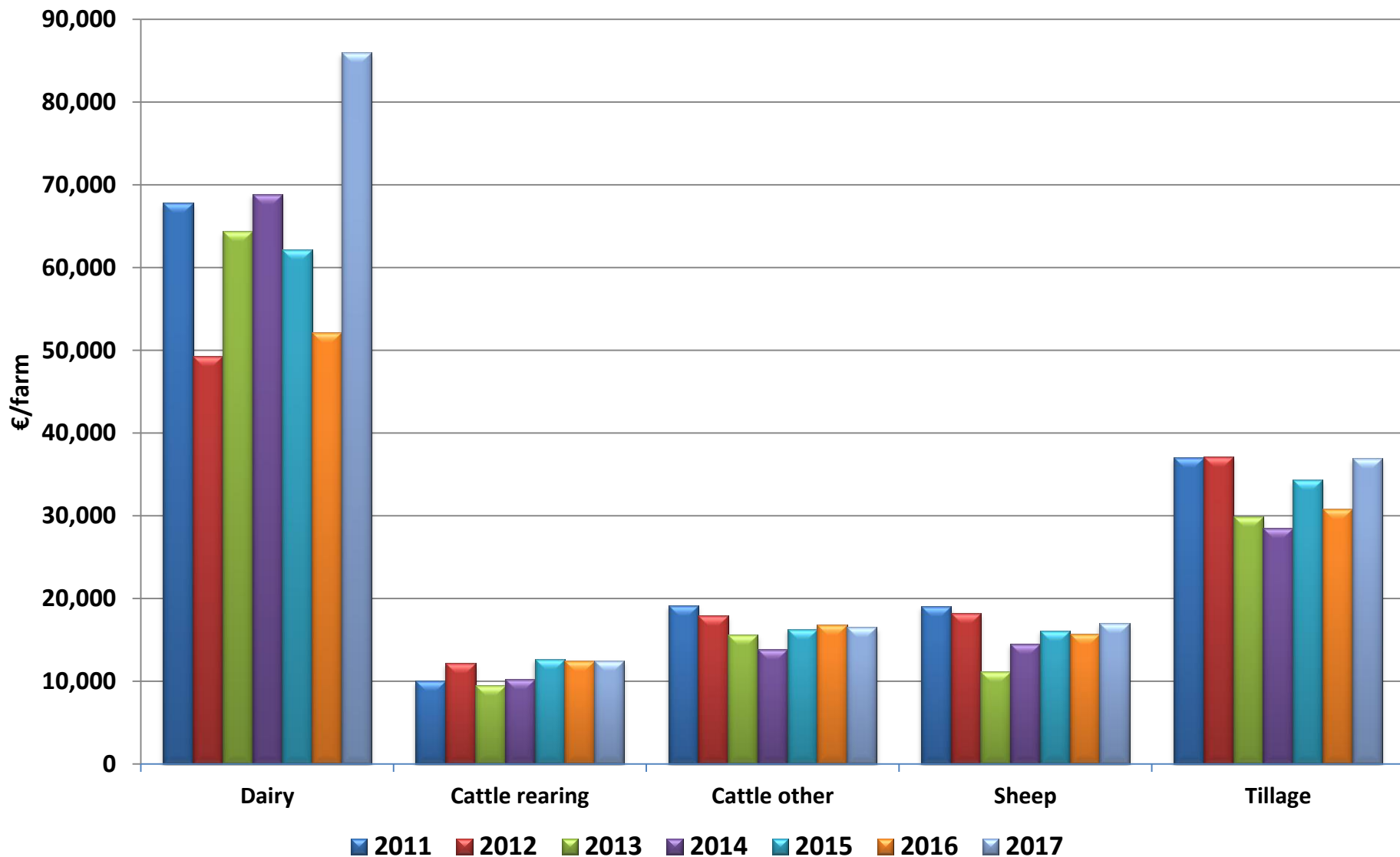
Dairy Products and Ingredients Exports (2007-2017)



Structure of Irish Dairy Industry

- Number of dairy farmers - 18,350
- 2017: Average herd size-76 cows, farm size-56 ha, producing 395,128 litres
- System : Predominately season spring calving pasture pasture-based system
- 2017: Average milk yield/cow: 5,249 liters (4.09% fat & 3.48% protein).
- Total of 19 milk processors-82% of milk processed by 6-major processors

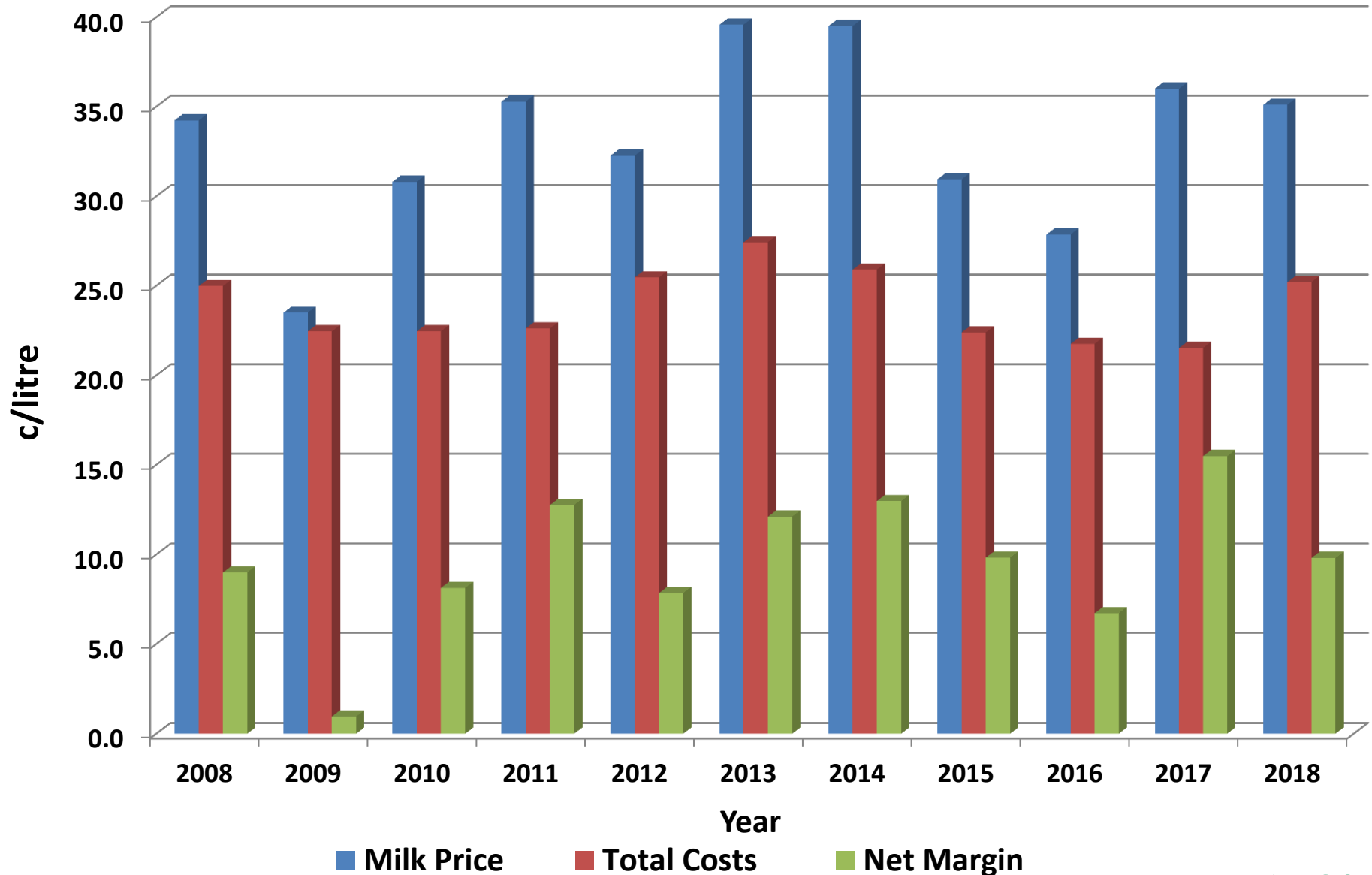
Family Farm Income 2011, 2012, 2013, 2014, 2015, 2016 & 2017: NFS



Evaluation of the Irish Dairy Industry

| Year | Milk Production (million l) | Cow Numbers (million) | Milk Yield/cow (l) | Fat % | Protein% |
|---------|---------------------------------|--------------------------|--------------------|-------|----------|
| 1984 | 5,422 | 1.549 | 3,811 | 3.51 | 3.27 |
| 2007/09 | 4,932 | 1.005 | 4,469 | 3.81 | 3.33 |
| 2014 | 5,651 | 1.192 | 4,740 | 3.99 | 3.43 |
| 2015 | 6,399 | 1.295 | 4,938 | 4.03 | 3.50 |
| 2016 | 6,674 | 1,347 | 4,956 | 4.08 | 3.46 |
| 2017 | 7,251 | 1,381 | 5,249 | 4.09 | 3.48 |
| 2018 | 7,576 | 1,435 | 5,290 | 4.14 | 3.48 |

Milk Price, Total Costs and Net Margin 2008 to 2018



Trend in Number of Dairy Cows by Herd Size 2005 to 2016

| Herd size | 2005 | 2007 | 2010 | 2013 | 2016 |
|------------------------|-----------|-----------|-----------|-----------|-----------|
| 1 to 2 cows | - | - | - | - | - |
| 3 to 9 cows | - | - | - | - | - |
| 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 |
| Average herd size-cows | 48 | 52 | 58 | 64 | 76 |
| Number of dairy farms | 23,820 | 21,320 | 18,460 | 18,150 | 18,351 |
| Total | 1,075,410 | 1,051,660 | 1,070,860 | 1,163,200 | 1,397,884 |

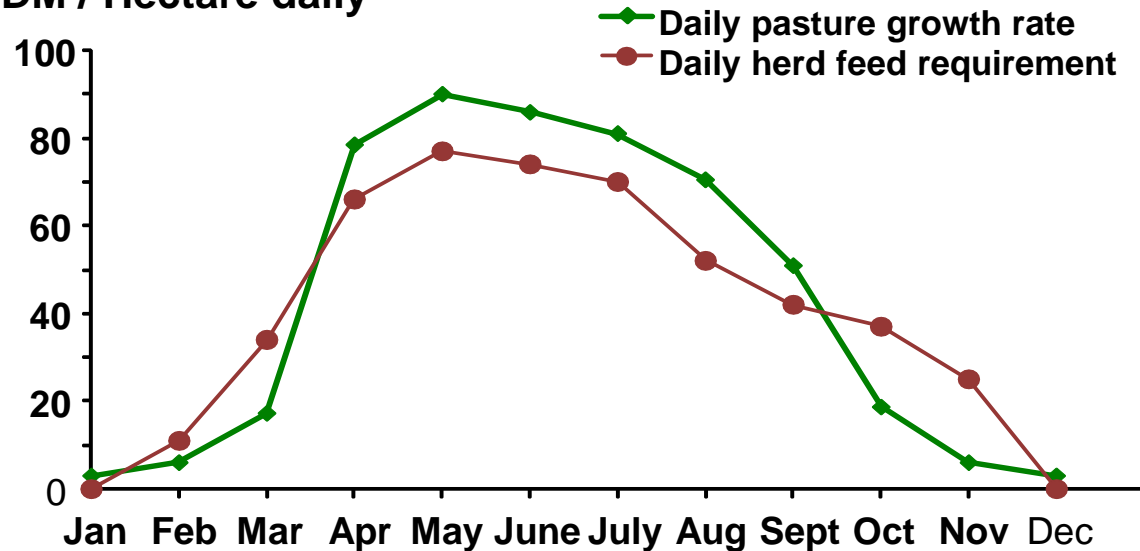
Irish Farm System

Pasture-based System

**Grass is the cheapest
Feed source available**

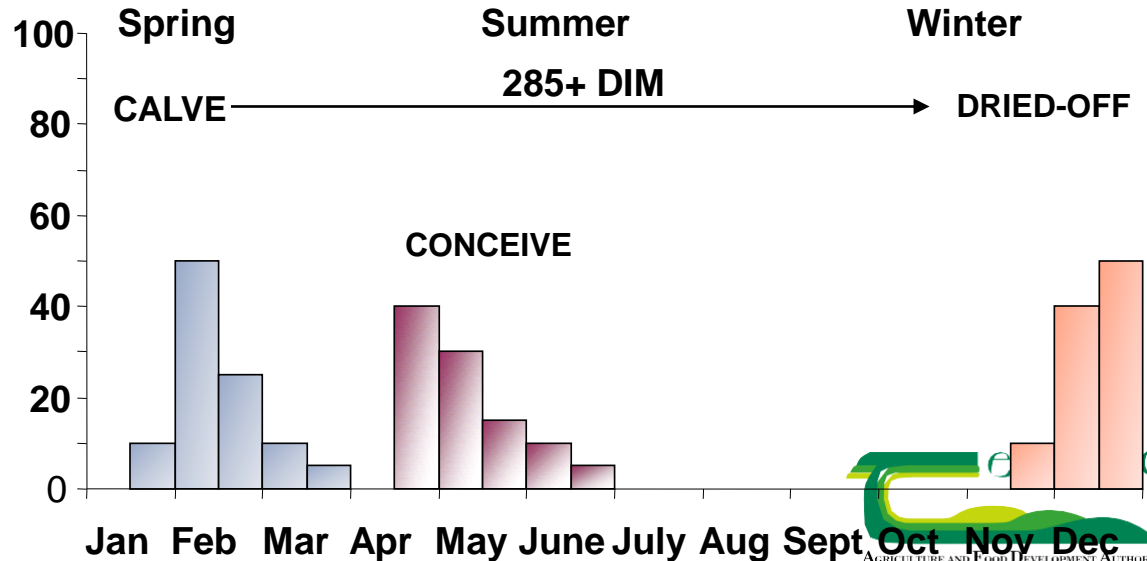
**Alignment of
Grass supply
&
animal requirements**

kg DM / Hectare daily

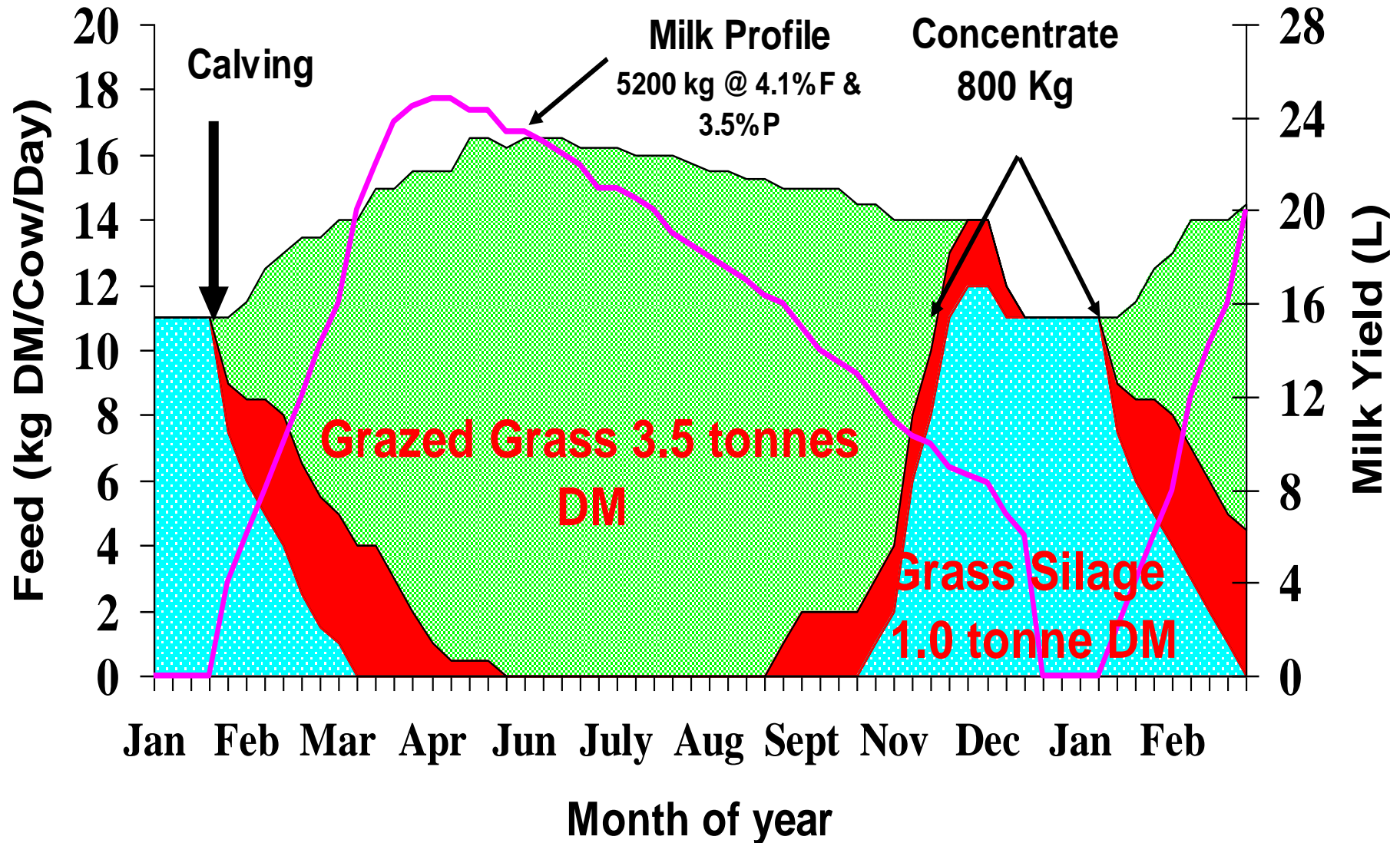


**Compact calving
high fertility status
dairy herd**

% of cows in the herd



Irish Milk Production System

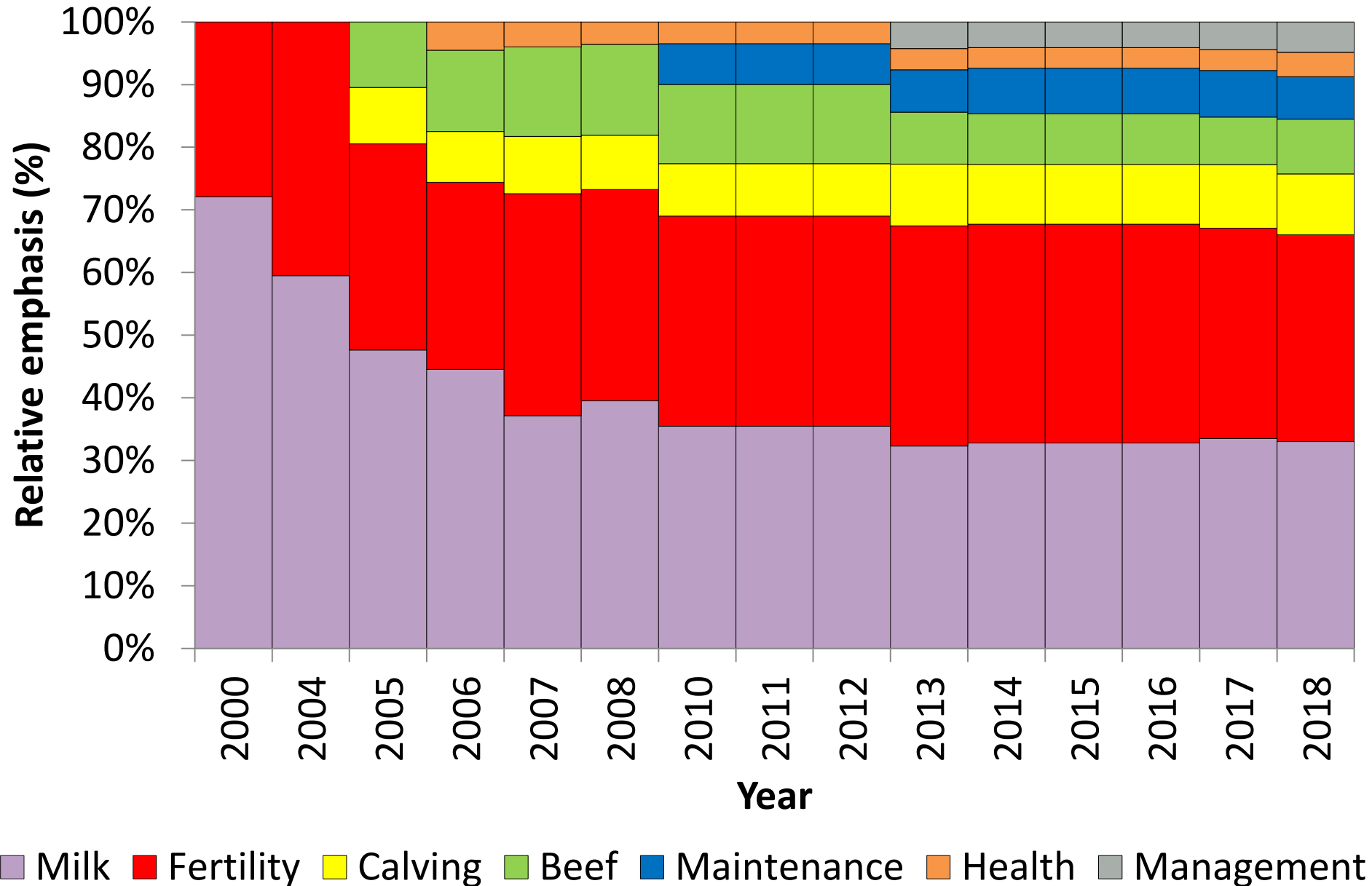


Resilient pasture-based systems

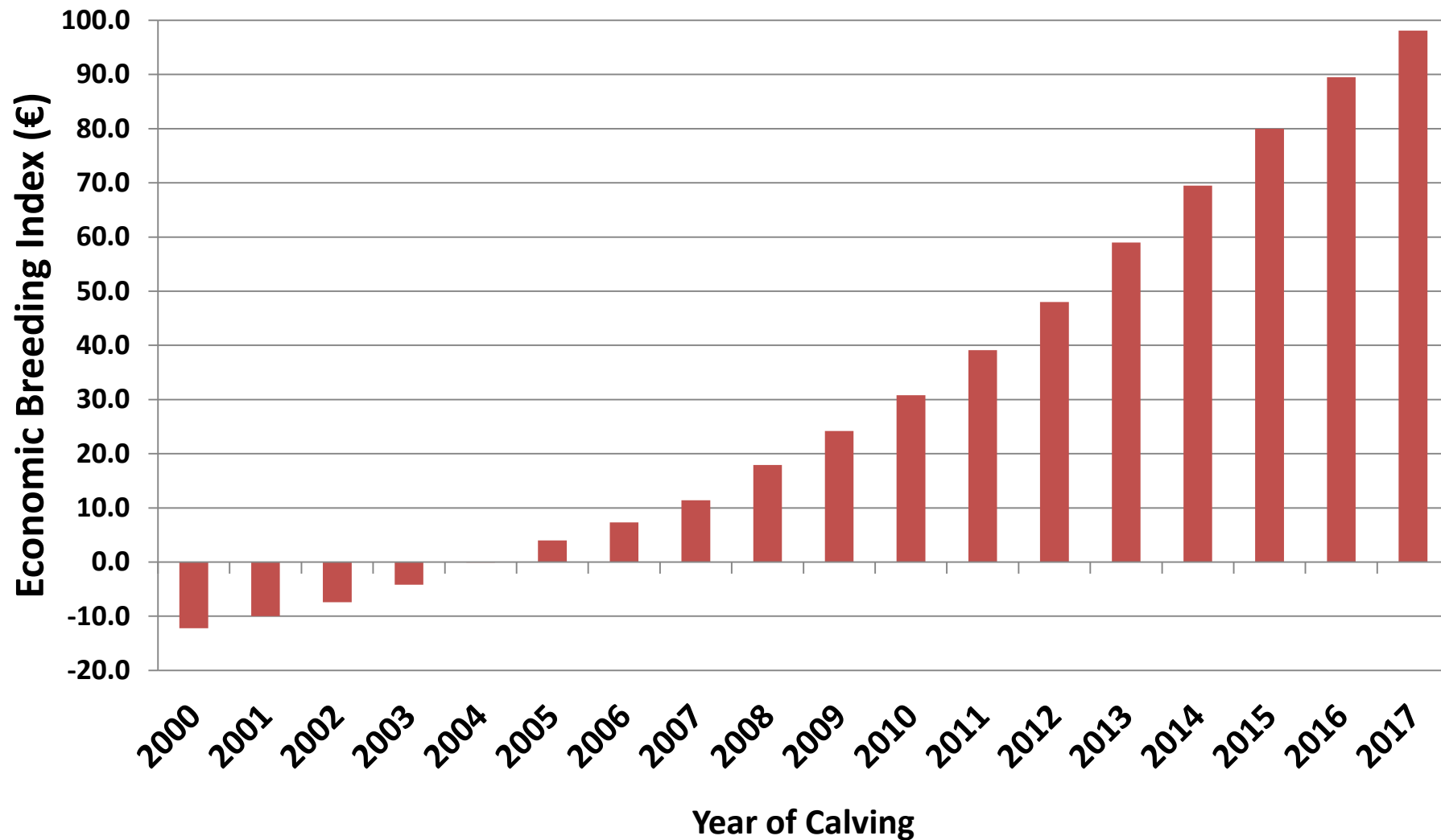
| The levers... | Average | Top 10% | Target |
|---|---------|---------|---------|
| Dairy Economic Breeding Index (€) | 86 | 122 | 200 |
| Stocking rate (livestock units/ha) | 1.9 | 2.3 | 2.9 |
| Calving rate (% calved in 42 days) | 63 | 85 | 90 |
| Pasture utilised (t DM/ha) | 7.3 | 9.6 | 13.0 |
| Milk solids (kg sold/ha) | 825 | 1,021 | 1,400 |
| Milk solids (kg/cow) | 401 | 450 | 475 |
| Total production costs (€/kg milk solids) | 4.10 | 3.50 | 3.00 |
| Net Profit (€/ha incl. full labour) | 473 | 1,032 | 2,500 |
| Herd maturity (No. calvings/cow) | 3.4 | 4.1 | 5.0 |
| Carbon footprint (kg CO ₂ eq./kg milk) | 1.05 | 0.85 | 0.80 |
| N / P use efficiency (%) | 25 / 71 | 27 / 70 | 33 / 85 |
| Habitat area (%) | 10 | 5 | >10 |

Dairy Cow Genetics

Evolution of the EBI



EBI of Cow-Year Calved

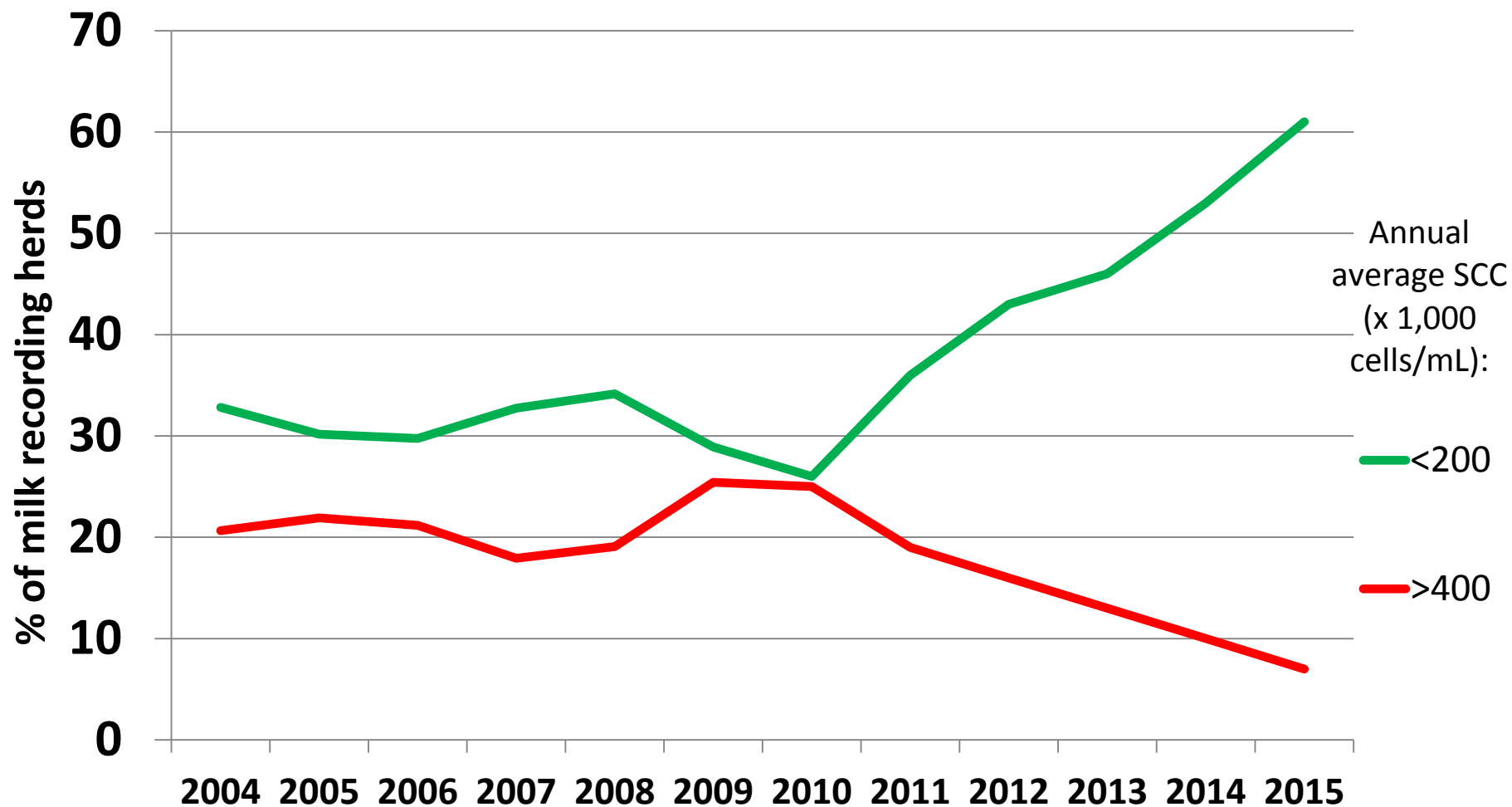


EBI: Next Generation Herd:2013-2017

| | ELITE (154) | Nat. Av. (51) |
|---------------------------------|-------------|---------------|
| Milk yield (kg/cow) | 5,780 | 5,775 |
| MS (kg) | 475 | 445 |
| Protein (%) | 3.72 | 3.52 |
| Fat (%) | 4.48 | 4.15 |
| 3 Week Sub. Rate (%) | 92 | 86 |
| Preg. 1 st Serv. (%) | 60 | 46 |
| Preg. 6 weeks (%) | 73 | 58 |
| In Calf Rate 12 weeks (%) | 92 | 81 |
| Mean BCS | 2.94 | 2.77 |
| Mature LWT (kg) | 560 | 570 |

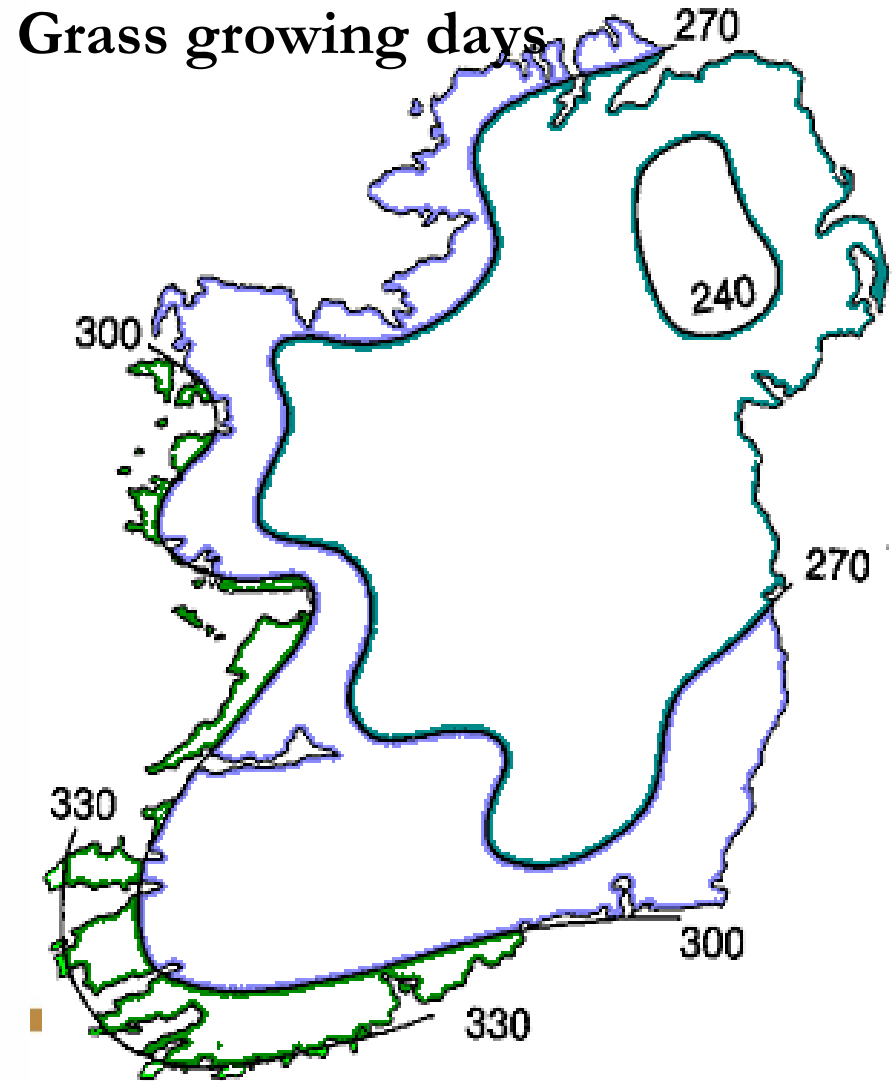
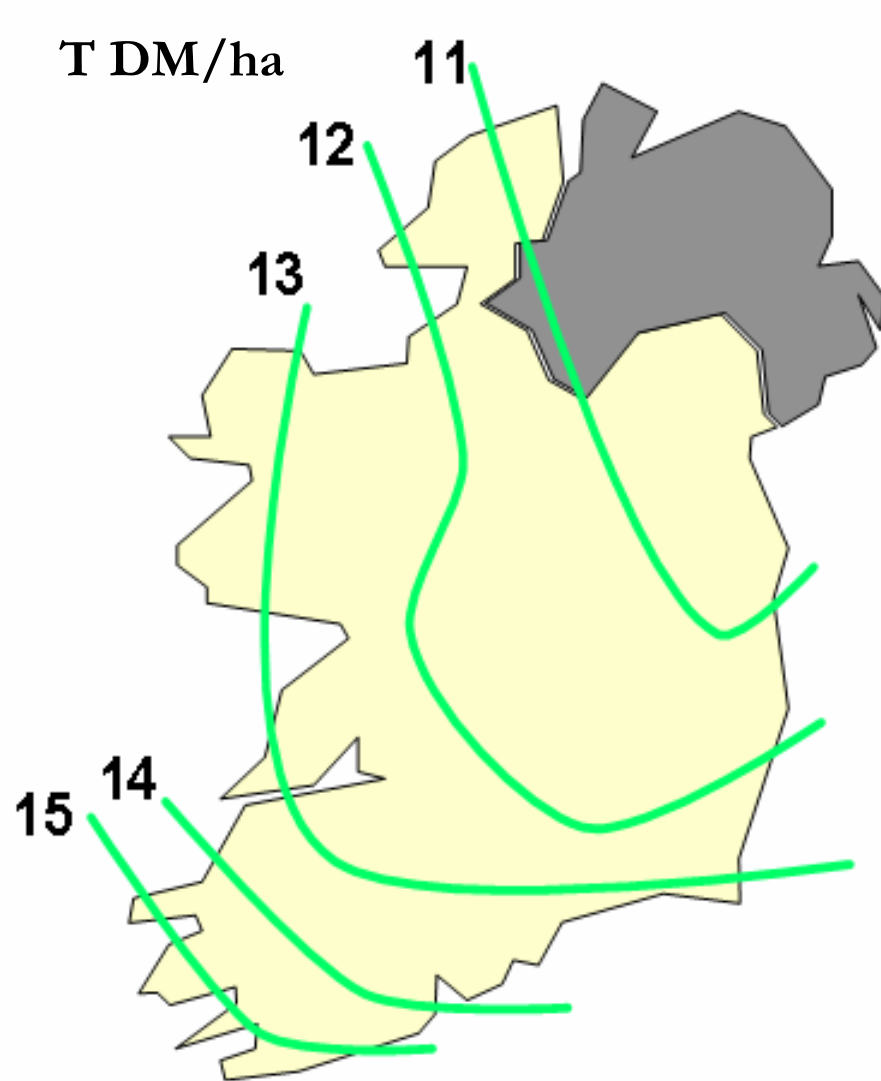
**+€200 profit
per cow per lactation**

Distribution of milk recording herds (2004 to 2015)



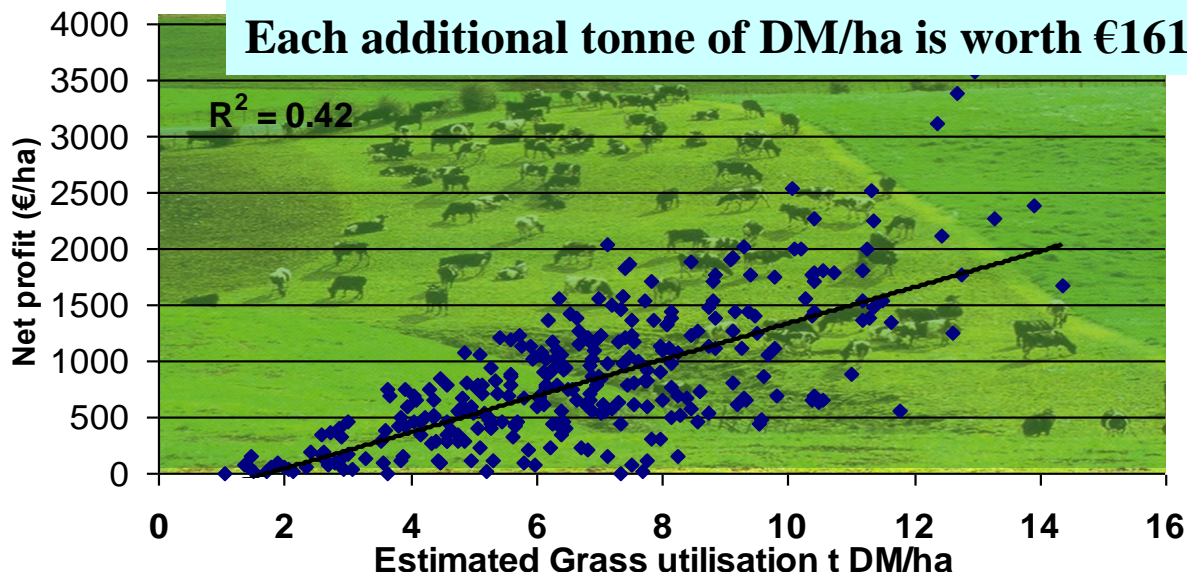
Grassland Management

Grassland production and grass growing season



Further Exploit Irish Grass-based System

- Profitability of grazing is closely linked to grass utilisation (tons DM/ha)
- Increasing SR will only be profitable when grass utilisation increases



- Optimum Stocking rate for Dairy Farms

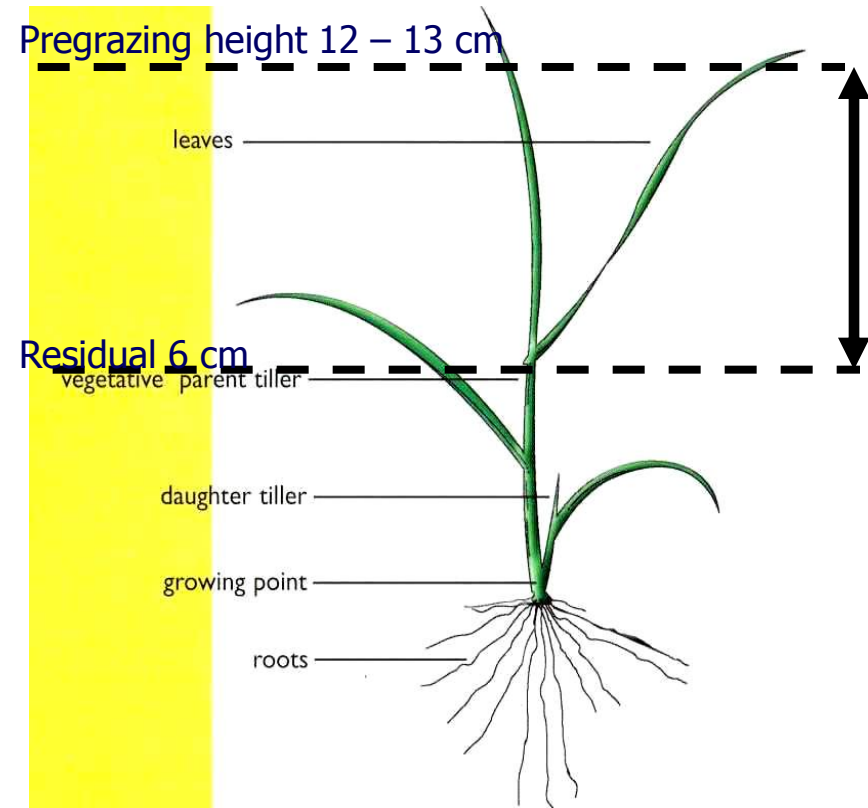
| t supplement DM/cow | Pasture grown, t | | | |
|---------------------|------------------|-----|-----|-----|
| | 10 | 12 | 14 | 16 |
| 0.00 | 1.5 | 2.0 | 2.3 | 2.6 |
| 0.25 | 1.7 | 2.1 | 2.4 | 2.8 |
| 0.50 | 1.8 | 2.2 | 2.5 | 3.0 |
| 0.75 | 1.9 | 2.3 | 2.7 | 3.1 |

Adoption of Key Grazing Management Principals

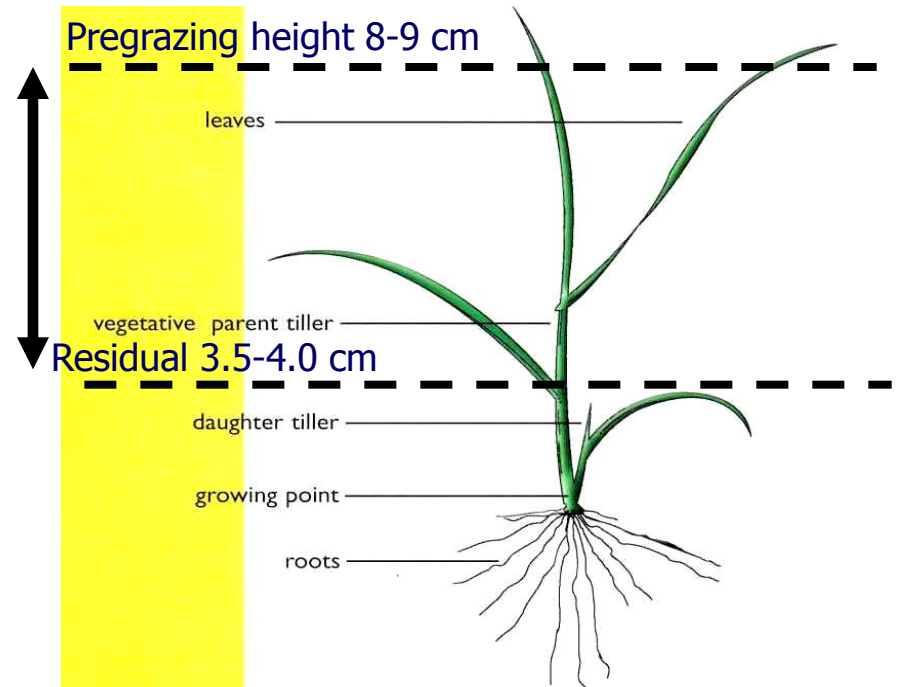
Avoid leaf death-Create Green Leafy Base

2001 - 2005

Current



Growth 14.5 tons /ha



Growth 15.5 tons /ha

Sward Species Composition



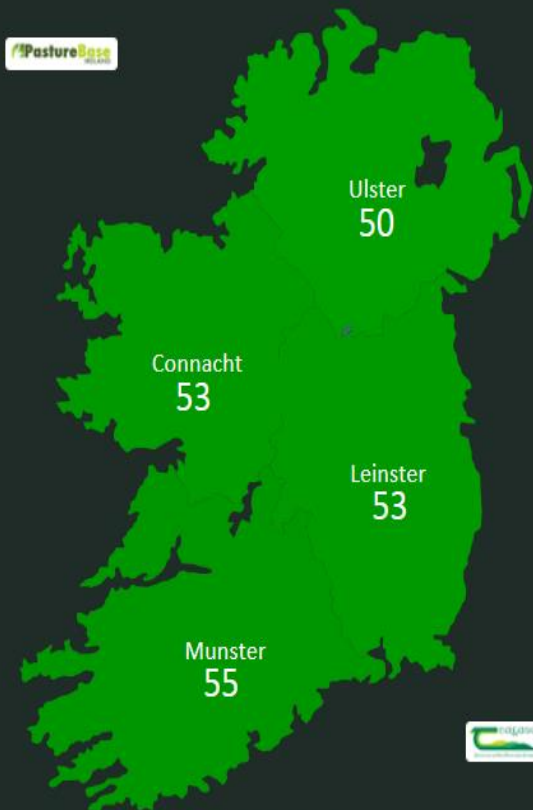
Importance of Grass Measurement: Budgeting



PastureBase Ireland – Making Grassland Management Easier

HELP CENTRE

IRELAND GRASS GROWTH



Last Updated 29/04/2019
kg DM / ha / day
[See Detailed Map](#)



Reasons to Measure Grass

Ballyhaise - 270 days at grass 2.9 cows / ha SR (Cavan)

FARM COVER DETAILS

| | |
|------------------------|---------------------------|
| Cover Date | 29/04/2019 |
| DM% | 16 |
| Farm Cover (kg DM/ha) | 773 |
| Cover/LU (kg DM/LU) | 159 |
| Growth/Ha (kg DM/ha) | 101 |
| Demand/Ha (kg DM/ha) | 78 |
| Demand/Day (kg DM/day) | 448 |
| LU/ha (LU/ha) | 4.86 |
| kg MS/cow | 1.95 |
| Milk Quality | 4.41% Fat & 3.56% Protein |

[VIEW WEDGE](#)

Tweets by @PastureBase



PastureBase Ireland

@PastureBase

Have you started the 3rd rotation??? If you started the 2nd rotation in early April its time to start the 3rd rotation and start thinking about cover/LU and growth vs demand, pre-grazing yield 1,300 - 1,500kg DM/ha
[@TeagascGrass10](#) [@teagasc](#)



9h



PastureBase Ireland

@PastureBase

Grass DM 14% this morning in Moorepark with a heavy dew [@TeagascGrass10](#) [@teagasc](#)



Apr 29, 2019



PastureBase Ireland

@PastureBase

□@stjlalor□ discussing the fertilizer plan for your typical farm at the Macnamaras farm
□@TeagascGrass10 □@Grasslandagro□



Challenges

2017 Water Indicators

Further declines of high status sites

0.6%

2013-15
v
2014-17

91

river water bodies were bad quality in 1987-90

2

river water bodies were bad quality in 2014-17

Rivers

3%

decline in water quality 2013-15 v 2014-17

Lakes

Lake biological quality

49%

are in good or high quality

29%

Percentage of lakes with total phosphorus $>0.025\text{mg/l P}$ (likely to lead to nutrient pollution)

37%

average phosphate concentrations $>0.035\text{mg/l P}$

likely to lead to nutrient pollution

Estuarine and Coastal

Inputs of nitrogen and phosphorus from rivers

Long-term reductions since 1990s

and started to increase again

Bathing Waters

93%

of bathing waters met the minimum standard

Canals

93%

good or maximum biological quality in 2015-17

Number of fish kills

23

2015

31

2016

14

2017

Groundwater

6%

of sites in 2017 had average phosphorus concentrations greater than 0.035mg/l P

16%

of sites in 2017 had average nitrogen concentrations greater than 25mg/l NO_3

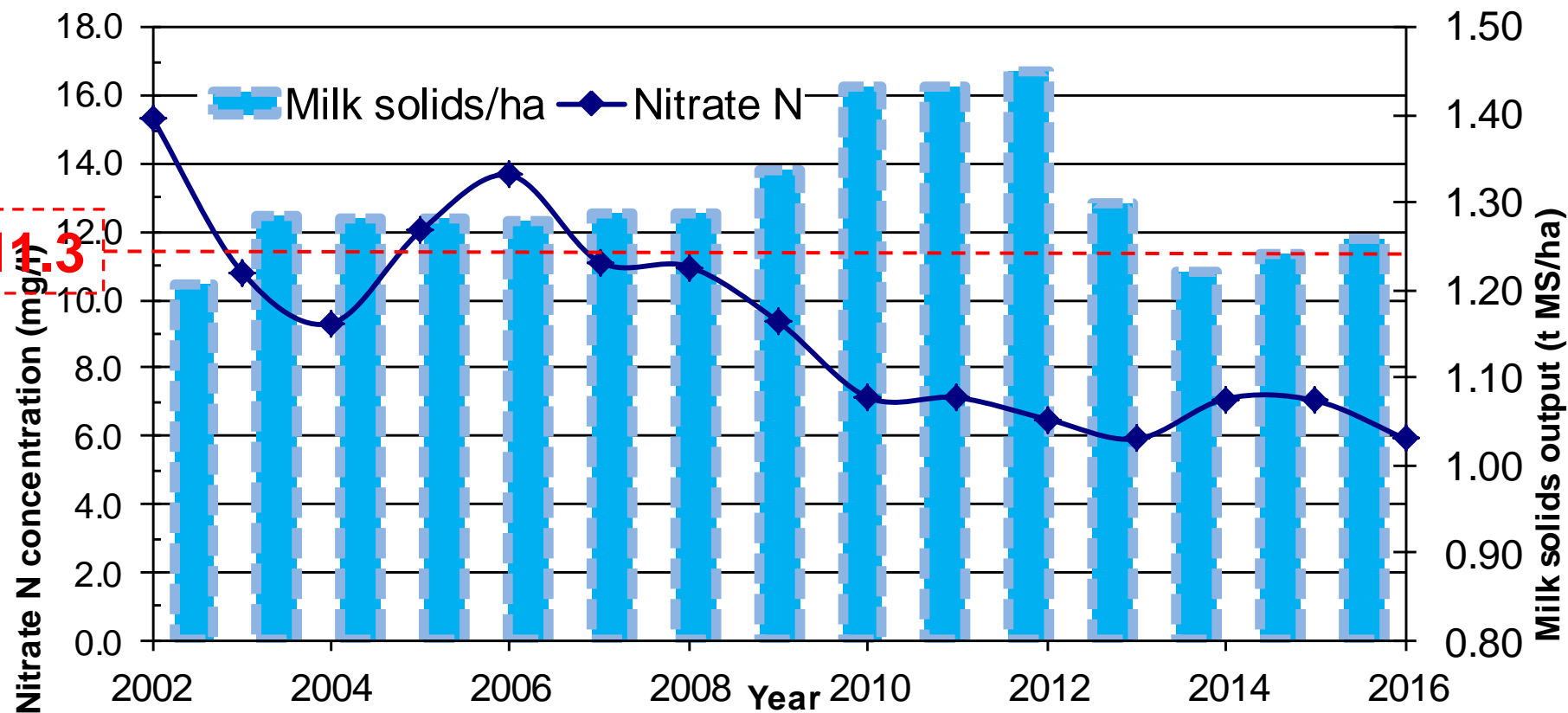
43%

of sites

Tested in 2017 contained harmful bacteria

Temporal Trends: 2002 -2016

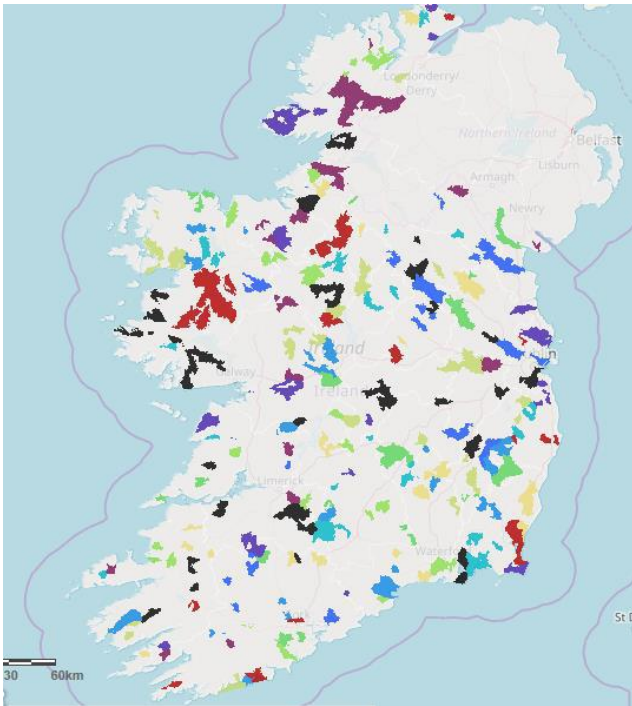
General improvement in water quality within highly productive system



| Year | 2002 | 2004 | 2006 | 2008 | 2010 | 2012 | 2014 | 2016 |
|-------------------------|------|------|------|------|------|------|------|------|
| Stocking rate (cows/ha) | 2.44 | 2.44 | 2.63 | 2.92 | 2.88 | 2.88 | 2.94 | 2.94 |
| Grazing days (No.) | 272 | 291 | 273 | 301 | 282 | 284 | 288 | 279 |
| N application (kg/ha) | 294 | 296 | 259 | 244 | 252 | 249 | 252 | 251 |

Agricultural Sustainability Support and Advisory Programme (ASSAP)

190 Catchments “Areas for Actions” 2018 to 2021



Why we need ASSAP

- Water quality has remained static
- Agriculture is the most prevalent pressure
- Support needed as well as regulation.

Teagasc

- Team of 20 ASSAP advisors
- Across the country Teagasc offices
- To help farmers address water quality in “Areas for Action” (see map)
- Free Advisory service
- Available to clients and non-clients in conjunction with private consultants

Dairy Co-Ops

- Team of 10 additional staff to address sustainability issues with Co-Op Members

What will ASSAP do

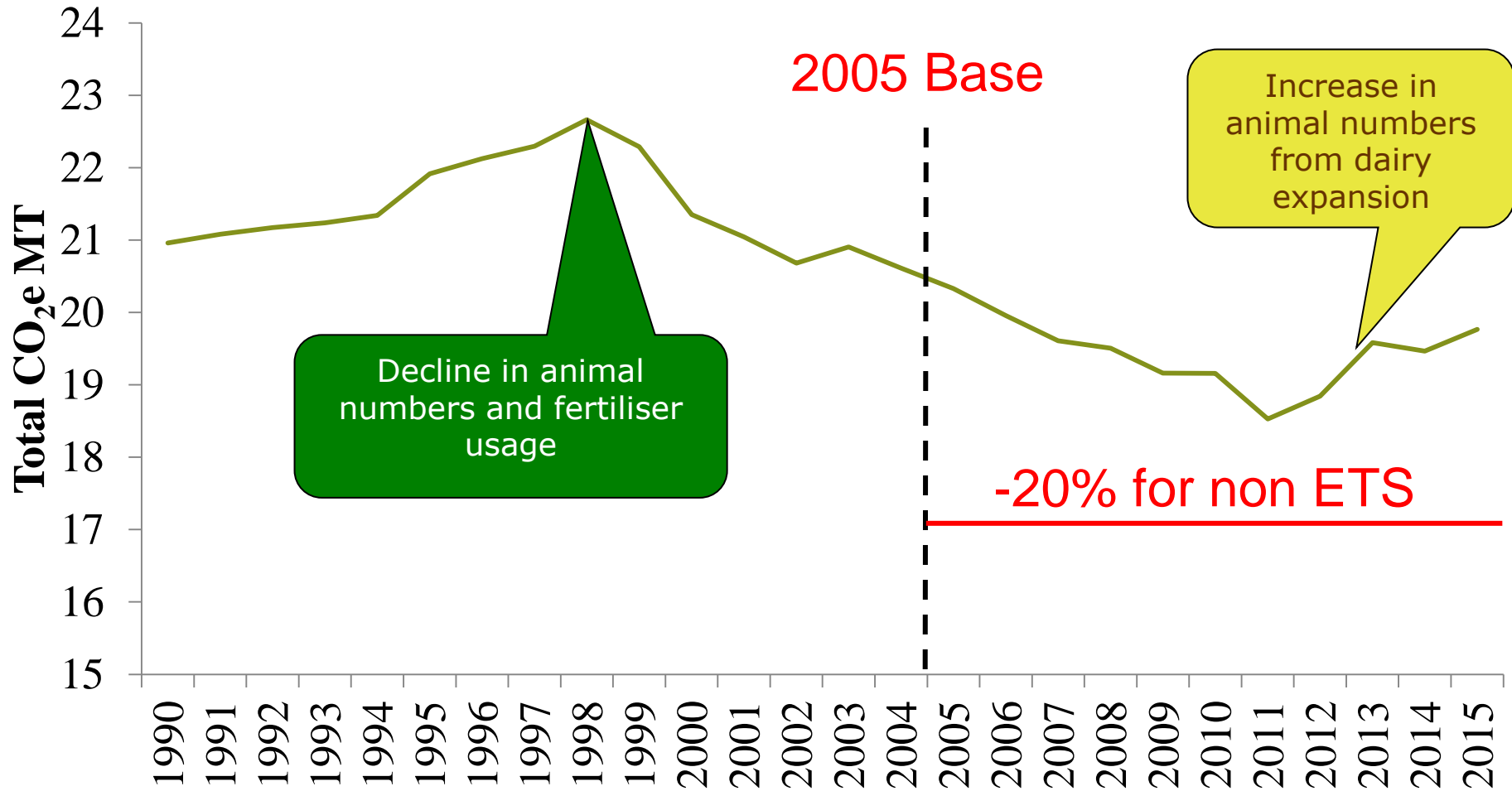
- Work with Farmers to reduce impact of farming in ‘Areas for action’
 - Improving nutrient management
 - Controlling losses from farmyards
 - Managing land to avoid losses
- Support all farmers to improve water quality
 - Know the water quality in your area
 - Farm to protect “your water”



Supported By



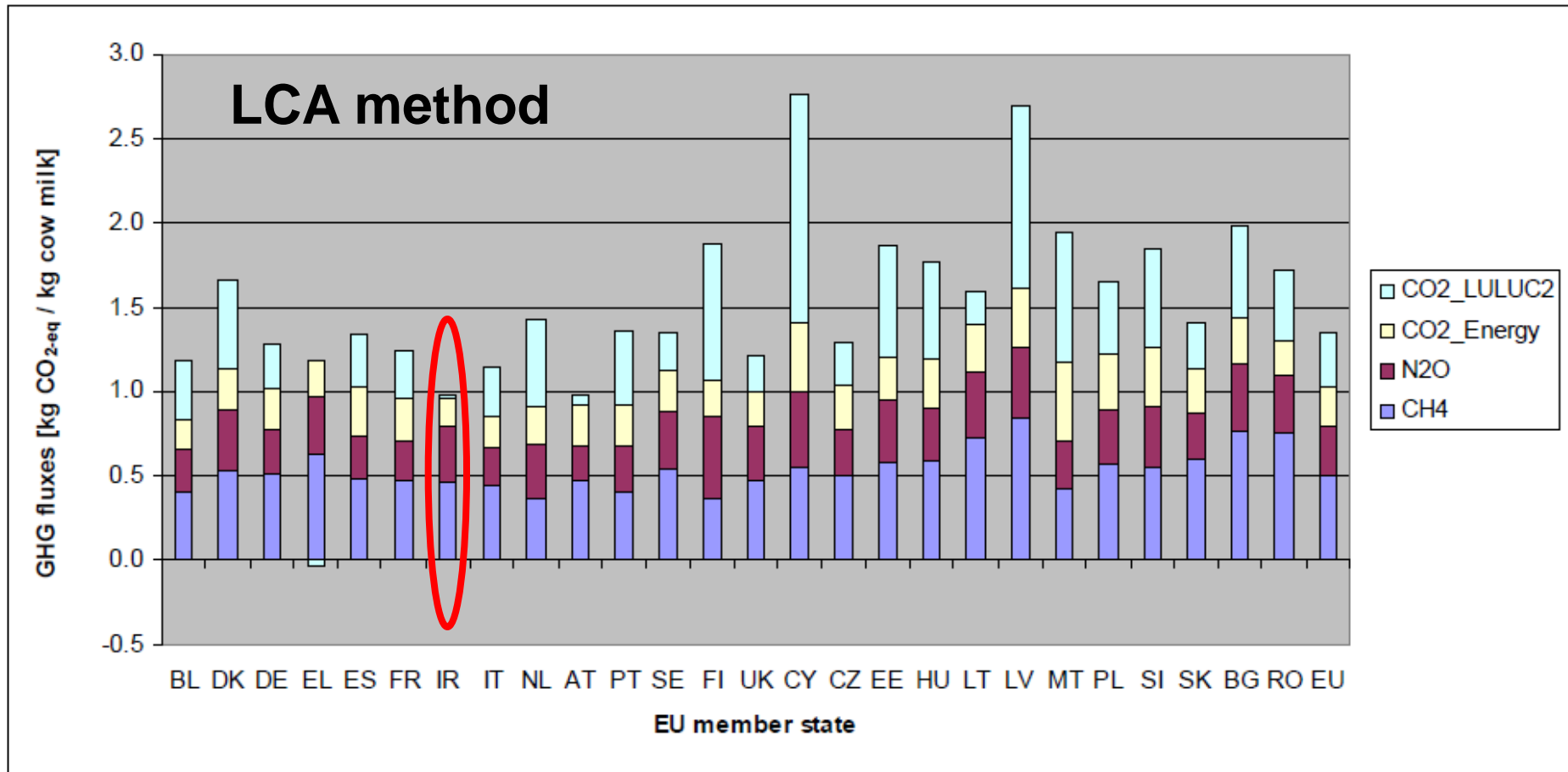
Environment: GHG emissions up to 2020



Non-ETS expected to exceed target from 2016 onwards

Agriculture projected to exceed 2005 emissions by 4%-6% in 2020

Emissions per kg milk produced in different EU countries



Source: Evaluation of the livestock sector's contribution to the EU GHG emissions (GGELS) **EC, Joint Research centre, 2010.**

Challenge: People- Supply and Skillset

AGRI-BUSINESS

DAIRY

BEEF

SHEEP

TILLAGE

MACHINERY

RURAL LIFE

SCHEMES

EU

FORESTRY & ENVIRO

Why farmer 'burnout' could derail dairy sector growth (90-hour working weeks 'not unusual')

Farmers overwhelmed by workload says Dairygold boss as co-op launches shareholder survey



Claire Mc Cormack
April 18 2017 6:00 AM



Farmer burnout could derail growth in the dairy industry, Dairygold chairman James Lynch has warned.



The State's largest farmer-owned dairy co-operative has launched an "in-depth shareholder survey" to address the issue.

The analysis, expected to be completed by mid-summer, will feed into Dairygold's expansion plans up to 2025 and beyond.


Search Go




WHY CHOOSE



- 1. Reduce shedding from Lepto carriers AND reduce kidney colonisation
- 2. Use from 4 weeks of age
- 3. Yearly booster at a time of your choice



For further information please visit www.zoetis.ie
Legal Category  Use medicines responsibly
ZV 18/02/02

zoetis

People in Dairy Action Plan

Animal & Grassland
Research and
Innovation
Programme

Moorepark

Action Area 1: Ensuring adequate availability of skilled farm operatives both seasonally and throughout the year

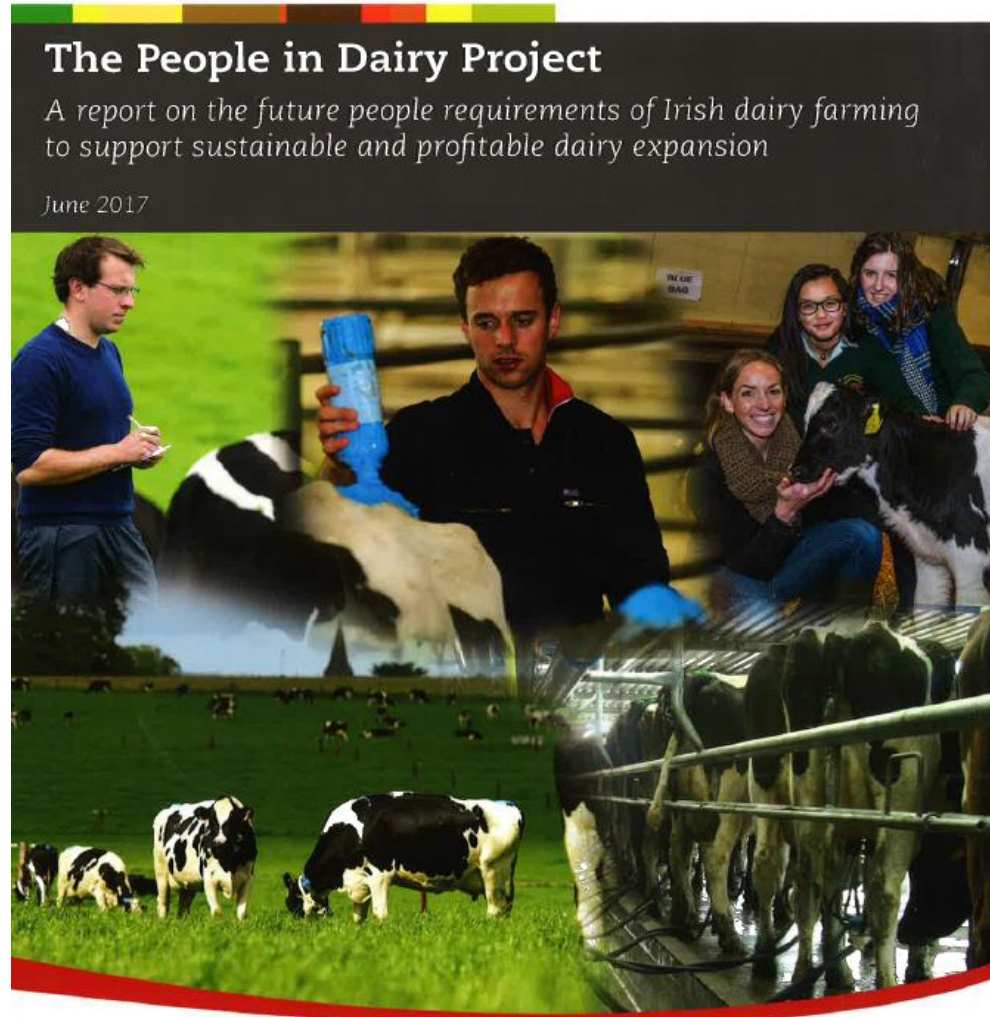
Action Area 2: Increase labour efficiency on dairy farms – create desirable places to work

Action Area 3: Dairy farmers as employers with a reputation for retaining and developing their employees

Action Area 4: The provision of excellent formal, informal and on farm training

Action Area 5: Provide multiple pathways to becoming a dairy farmer

Action Area 6: Promotion of dairy farming as an attractive career



Challenge: Reputation- Animal Welfare, Milk Quality & Public Health



Opportunities

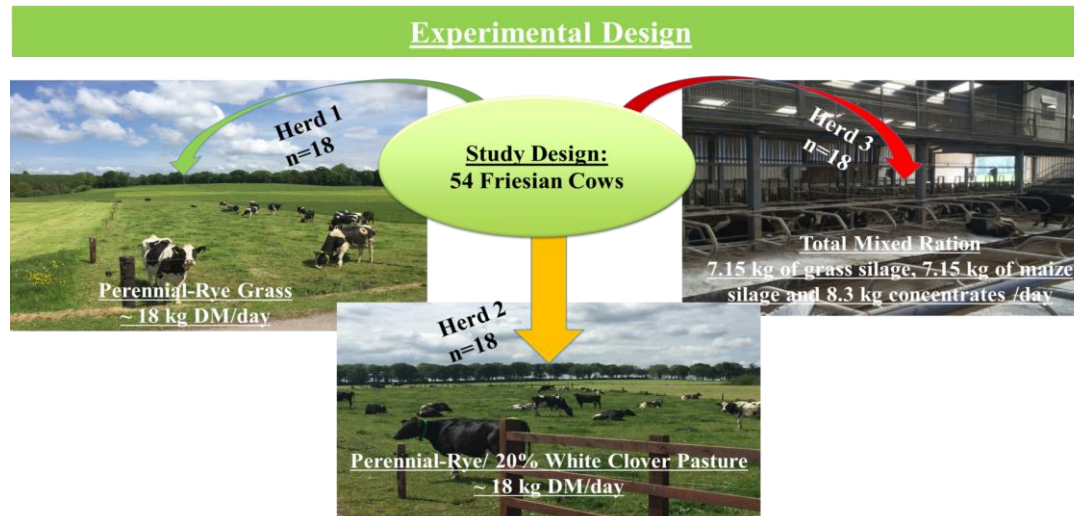
World Demand for Food is Continuing to Increase

Over the last century, the global population has quadrupled. In 1915, there were 1.8 billion people in the world. Today, according to the most recent estimate by the UN, there are 7.3 billion people — and we may reach 9.7 billion by 2050. This growth, along with rising incomes in developing countries (which cause dietary changes such as eating more protein and meat) are driving up global food demand

- Annual increase in demand of ~2% per year for dairy products.
- Continued good demand for beef and lamb; but losing market share to pork and chicken.

Opportunities: Product Differentiation Profiling

Dairy Products Produced from Pasture vs. TMR



Milk from pasture

- Had higher fat and protein and improved protein quality
- Produced milk, butter and cheddar cheese that was nutritionally superior- CLA and Omega 3 fatty acids.
- Lower palmitic acid and Omega 6 fatty acids
- Produced products with better appearance, flavour and colour (beta carotene).

Possibility of using fatty acid profiling to distinguish between milk from pasture or from TMR.

Conclusion

Key challenges at farm level:

1. Maintaining competitiveness - low cost
2. Labour- increase supply and skillset
3. Environment- water quality and GHG emissions
4. Reputation- animal welfare & milk quality
5. Exploit differentiation- high value products

Key responses at farm level:

The application of key technologies in relation to pasture management, dairy cow genetics, labour efficiency and environment sustainability