



Market and policy issues

- Future prospects for the Irish dairy industry remain positive, largely based on a growing global population, with a concurrent increased demand for healthy, nutritious Irish grass-fed dairy products.
- Ireland's milk production will continue to grow over the next decade.
- Nonetheless, the Irish dairy industry faces challenges, including the reduction of its environmental footprint and the maintenance of both its competitiveness and industry reputation. Furthermore, EU and national Government policies are asking more of dairy farmers in the sustainability area.
- Milk price volatility is expected to continue to be a feature of dairy markets.
- Our grass-based milk production system remains our key comparative advantage.
- Milk of a higher quality will be required for the production of higher-value products.
- While alternative models of land use and management are expected to become more popular, it is important that the family farming model of milk production is maintained.
- An increasing number of trained dairy farmers and skilled dairy farm operatives will be required.
- Increased integration between the dairy and beef sectors will be required so as to sustainably manage the increased numbers of dairy beef calves.

Potential shape and size of sector in 2027

- Milk output will increase to almost 9.5 billion litres and national milk solids production (kg fat plus protein) to over 751,000 tonnes by 2027 (Table 1).
- There will be approximately 17,000 dairy farms.
- Dairy cow numbers will increase to 1.65 million, with average herd size growing to just 100 cows.
- Average milk delivered per farm will increase to over 557,750 litres at 3.60% protein and over 4.40% butterfat.

Table 1: Current and future sector size.

	Current ¹	2027
Cow numbers ('000)	1,465	1,650
Replacement heifers born ('000)	396	400
Milk output (billion litres)	7.99	9.49
Milk solids (F+P ² , tonnes)	633,993	751,353

¹ 2019 figures. ² Fat plus protein.

Environmental and land use implications

The increased size of the national dairy herd, even allowing for the projected increase in stocking rate, will increase the land requirement for Irish dairying. The requirement to improve sustainability will require a reduction in nutrient loss to water, a reduction in both greenhouse gases (GHG) and ammonia emissions and improvements in habitats for biodiversity. Key actions to be undertaken will be guided by both the Teagasc GHG and ammonia marginal abatement cost curves (MACCs), and will include:

- an overall focus on the improvement of nutrient (both nitrogen (N) and phosphorus (P)) use efficiency;
- a continued focus on grassland management to increase pasture utilisation, increase clover content and reduce chemical N fertiliser use;
- the implementation of appropriately designed ecological measures to halt the decline of biodiversity; and,
- the implementation of targeted actions to reduce risk of point source (farmyard) and diffuse (land) losses of nutrient to water.

Research, advisory and education actions

Teagasc's core activities in advisory, education and research will continue to be utilised in an integrated fashion to support on-farm innovation. We are committed to generating new knowledge through research and working with farmers, and other dairy industry stakeholders, to improve productivity, environmental outcomes and animal health.

Research actions

- Refine the sustainable dairy production model and publish a 'Sustainable Dairy Farm of the Future' blueprint.
- Adopt and demonstrate environmental sustainability best practices on all Teagasc research, demonstration and college farms.
- Develop and test technologies to increase N use efficiency, which includes improvements in soil health and the use of white clover and multi-species swards to replace chemical N.
- Improve the precision management of grassland at farm level, while simultaneously delivering a reduction in the use of chemical N fertiliser.
- Investigate options to reduce both enteric methane production and the carbon footprint of milk production.
- Develop genetic evaluations to facilitate the further development of both the Economic Breeding Index (EBI) and the Dairy Beef Index (DBI). In addition, develop an index to assist the trade of dairy calves to beef farmers.

- Increase both the usage of sexed semen and the genetic merit of beef sires used in the dairy herd.
- Develop and evaluate technologies to monitor and improve animal welfare, animal health and product quality, while also monitoring and reducing antibiotic usage on dairy farms.
- Exploit precision-farming technologies that facilitate increased sustainability.
- Lead an industry-wide campaign to deliver the People in Dairy Action Programme.
- Develop an integrated, sustainable dairy beef demonstration farm.

Advisory and education actions

- Teagasc will work with dairy farmers to accelerate the green and digital transformation of dairy farming towards more sustainable systems. We will encourage farming practices which deliver better environmental outcomes (e.g., nutrient management planning, precision grassland management, protected urea, low emission slurry spreading and liming) without undermining farm performance.
- Promote resilient and sustainable dairy farming systems.
- Deliver targeted advisory campaigns, e.g., Grass10 Phase 2 campaign, Signpost programme.
- Expand our discussion group network.
- Collaborate with milk processors and with other industry stakeholders, e.g., AHI and ICBF to promote best practices and support innovation by Irish dairy farmers.
- Promote management approaches which both encourage the optimal use of animal health products and minimise

the use of antibiotics in dairy herds (in line with the One Health Strategy).

- Develop a programme to promote and support contract rearing of both dairy replacements and dairy beef progeny.
- Provide fit for purpose, relevant education programmes and awards, including the development of an apprenticeship-based programme in dairy farm management.
- Develop a coherent lifelong learning and continuous professional development programme for dairy farmers.
- Build the capacity of our advisers and teachers to effectively engage with our clients and students.

Table 2 outlines the current and possible future (2027) performance indicators for spring calving, manufacturing milk herds. While the average stocking rate is projected to increase by 2027, this can be achieved through:

- improved soil fertility (correcting soil pH and both P and potassium (K) deficiencies);
- the incorporation of clover into some grass swards;
- more efficient use of both organic and chemical N; and,
- increased usage of PastureBase Ireland for improved grassland management decisions.

The combination of these actions is expected to lead to a reduction in chemical N usage on average.

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The road map for dairy is available on www.teagasc.ie

Table 2: Performance indicators for spring calving, manufacturing milk production herds.

	Current ¹	2027	Current research performance
Milk delivered (kg/cow)	5,484	5,750	5,800
Milk solids (kg fat plus protein)	417	465	480
SCC ('000 cells/ml)	170	150	<150
Herd EBI (€) ²	90	140	150
Six-week calving rate (%) ²	62	78	90
Average number of calvings per cow ²	3.4	>4.0	>4.5
Labour input (hours/cow/year)	40	30	16
Stocking rate (LU/ha)	2.10	2.20	2.70
Herbage utilised (tonnes DM/ha)	7.8	8.9	12.9
Concentrate per cow (kg)	1,176	750	500
GHG emissions (kg CO ₂ e/kg FPCM) ³	1.13	0.96	0.86
Fertiliser N usage (kg/ha)	184	170	150 ⁴
Slurry applied by LESS (%)	<10	80	100
Fertiliser N applied as protected urea (%)	<2	50	100
Biodiversity (habitat area as %)	7	>=10 ⁵	>=10
Net margin at 29c/l base price (€/kg milk solids) ⁶	0.58	1.13	1.84
Net margin at 29c/l base price (€/ha) ⁶	519	1,125	2,452

¹ Average of 2017, 2018 and 2019. ² ICBF data. ³ Life cycle assessment (LCA) methodology used; FPCM is fat and protein corrected milk. ⁴ In addition, approximately 100kg biologically fixed N is utilised/ha. ⁵ EU Biodiversity Strategy 2019. ⁶ An increase/decrease in the base milk price of 3c/l, will increase/decrease net margin by €0.44/kg MS and €473/ha in 2027.