



“The time is now to address Climate Change As the future of the industry share your vision of what a sustainable dairy operation should look like.”

Sustainability can be defined as meeting our own needs without compromising the ability of future generations. To adapt and ensure the longevity of the dairy industry, action is needed now. Climate change is a key driver and is giving rise to an increase in pressure for necessary steps to be taken to suppress the effects. The dairy industry, and agriculture as a whole, has in recent years been placed in the spotlight as a perceived key contributor to global warming. A dairy farmer now has many roles; a business owner, teacher, supply-chain manager, accountant, livestock rearer agronomist and now, and more importantly than ever an environmental scientist. There is great opportunity to work collectively to ensure the dairy industry is sustainable for future generations through environmental, social, and economic factors.

Environmental sustainability

As with any form of food production or operation, dairy comes with a carbon cost. Every stage of the operation has a part to play. Granular data of the precise impact of dairy sector emissions is difficult to isolate, but according to RABDF, the carbon footprint of a litre of British milk is around 1.2kg CO₂e compared to a global average of 2.9kg CO₂e. The UK, due to high welfare standards and strategies in place, are forward thinkers in comparison to other nations, and great progress has already been made with UK milk production decreasing greenhouse gas (GHG) emissions by nearly a quarter since 1990. Farmers are aware that methane and nitrogen released during milk production has to reduce further to future proof but also to make the industry more socially and consumer accepted. Understanding the need to review and make changes to environmental factors with the reduction of GHG emissions, will be pivotal when looking to the future of the dairy industry. NFU have committed for the UK dairy industry to be carbon net zero by 2040 – to meet this target there is a requirement from ALL stakeholders to be accountable and make positive changes such as through genetic breeding, diet formulation and carbon offsetting opportunities.

Social Sustainability

The perception of the dairy industry in the public eye has seen an increase in consumer buying habits towards milk alternatives, with almost 50% of 16-24 year olds in the UK concerned with how their diets affect climate change. Market analysis has shown that milk alternatives usage in the UK has increased from 25% to 32% of consumers over the last year. There is opinion that, this increase is due to the general public naively assuming that dairy production is bad for the environment and is un-ethical towards treatment of its animals. Which as advocates of the industry, we know this is largely falsified through adverse media. The UK dairy industry has some of the highest animal welfare standards in the world, and to focus on social responsibility the message of 'Eat Local' should be shared as a contribution to reduce food miles. Industry bodies such as NFU and Dairy UK (through Dairy Road Map) have identified that by committing to becoming carbon neutral, demonstrating that the dairy industry is forward thinking and critically analysing each stage of production can help towards reversing the misconception the media has provided in recent years. As milk alternatives would then have no viability in being promoted as a climate friendly alternative as they are currently. To ensure longevity from a social aspect we need to, as dairy advocates, share the successes of the UK dairy industry on a wider scale, and need the support from the likes of NFU and Dairy UK to provide guidance on how to effectively do so and challenge the misconceptions.



On the other hand, whilst social sustainability can be focused on the public's perception of dairy, to meet social demands within the industry itself there needs support and encouragement towards the next generation of farm workers to ensure there is sufficient staffing to support the future of the industry. Providing young farmers with fundamental education, to support in making choices on their own farms when it comes to sustainability should also be high on an agenda. Young farmers are the future and deserve to be invested in.

Economic Sustainability

Economic sustainability is the efficient use of assets to maintain profitability. With government funding reducing from 2022 (Single Farm Payment), rise in inflation and milk price uncertainty, dairy operations are needing to make changes to ensure economic viability going forwards. Over 400 dairy farmers exited the industry in 2020, which predominantly have been cited due to a lack of financial viability. To be economically sustainable an operation looks for their profits to be higher than their costs. Ultimately every stage of a dairy operation is a business and peoples livelihoods depend on them. Economic sustainability could therefore be argued as the most important aspect when considering the future of the industry, farms will continually look at their costs and trying to reduce them but can adopting change in reference to social and environmental factors, contribute to being more financially viable for the future?

There are numerous ways in which a sustainable dairy operation can be approached, and whilst several milk processors and industry bodies (such as Arla, NFU, Dairy Road Map) have clear strategies, it is the dairy farmers as the first stage of the supply chain who have the power to evolve successfully for the future. My vision of a sustainable dairy operation is one where all factors of sustainability are addressed and where collaboration and accountability are at the forefront by creating efficiencies, improving genetics, and having a greater carbon awareness.

Genetic Breeding

The rapid and continuous improvement of genetic breeding can be instrumental in achieving a sustainable outlook. Already through genomic breeding, improved health traits and increased yield are sought, but new scientific research suggests there is opportunity to explore breeding for a sustainable cow. Selection regarding life span of a cow can reduce inputs through rearing costs and can maximise lifetime profitability. Reducing or maintaining body size can avoid an increase in maintenance requirement or increased GHG emissions. Productivity and yield have long been a focus to contribute to more efficient cows which ultimately require less input and thus reducing emissions associated with producing the same volumes. Feed intake however is an area which can be explored in a greater detail, we know that a cow's digestion is closely related to GHG emissions through the production of methane, therefore genetically breeding cattle to directly affect the amount of food required for optimal yield can not only reduce waste and reduce costs but can also minimise GHG emissions. Envirocow, launched in August 2021, is a new genetic index focused on breeding cows for their environmental credentials (and subsequently economic) and AHDB believe that over a 20 year period we can help contribute a 20% reduction on carbon emissions through better breeding. If genetic breeding can contribute to an environmental gain whilst also reducing waste and reducing costs, it can be a significant move towards a sustainable dairy future. Similarly, the use of sexed semen can help achieve the desired number of replacements, thus minimising GHG production.



Diet Formulation

A cow's methane production is closely related to the dry matter intake by cattle, therefore, to look at environmental factors, seeking to minimise or encourage efficiency through closer analysis of diet formulation should be a key approach. Excess protein in a cow's diet can be lost as ammonia and nitrous oxide, by additional analysis of a cow's feed ration dairy farmers have the opportunity to reduce emissions and reduce costs. Consumers are more aware of their food miles, and the same theory should be applied when sourcing feed and the ingredients used.

Carbon Offsetting

When focusing solely on reducing emissions by offsetting, renewable energy sources can provide benefit. Up to 46% of farmers already use sources of renewable energy. The use of solar panels and bio-digesters evidence dairy operations as adopters of change, but equally can be expensive to implement. However, every farmer should be aware of their own carbon footprint and look to make small changes such as through recycling or sustainable sourcing.

Efficiency

Efficient cows are sought by all dairy farmers, that produce an optimal yield for minimal input. Continuous improvement and lean management techniques can be successfully applied to any supply chain and can easily be applied to dairy operations. Analysis of day to day processes, through these practices, to make small incremental changes, be that in connection to animal health, breeding, milk yield, crop growth or time saving activities, can have a large scale influence. For example, by reviewing calving age averages can reduce the need for inputs and research shows calving earlier can maximise an animal's lifetime performance and improving the carbon footprint of milk. With 278 million dairy cattle worldwide, according to NFU UK, if these animals were as efficient as UK dairy farms, to produce the same quantities of milk only 27% would be required. Having an efficient supply chain can result in an environmental gain, but also in a financial gain on the farm and thus contributing to a sustainable future.

Collaboration

To be sustainably viable, the dairy community needs to collaborate (DSF 2020). Arla, through their Arlagarden initiative are forward thinkers and their focus on climate change is to reduce GHG emissions (by 30% per kilo of milk by 2030,) have high animal welfare standards and seek to use more renewable energy. Other dairy farmers should look to take inspiration as a dairy operation should be open and transparent and each stage of the supply should be aware of their own carbon footprint. Dairy UK through the Dairy Road Map, the introduction of climate checks as part of the Red Tractor audits, encourages collaboration on all levels and should be a focus on dairy farms. Similarly as well, the dairy farming community should be looking to share best practices with one another as ultimately all have a common goal of a sustainable industry for the future.

In Conclusion, 'The Time is Now' and, every farmer, farm, processor, or dairy advocate has a part to play in albeit a daunting task. Dairy is undoubtedly here to stay, but to ensure dairy operations are viable all areas, of sustainability needed to be addressed as opposed to just environmental – regardless of that being at current the most topical. Those who are adaptable and respond positively to change will prosper for future generations. This can be done by a balanced approach and some of the above factors can contribute towards this. A greater awareness of environmental and climatic needs can help reduce a carbon footprint, but actions can be taken so that this also contributes to a social and economic benefit. We, all as dairy advocates need to take accountability and move forwards together to achieve sustainable success. By adopting change in reference to social and environmental factors, economic sustainability will follow.