

“Your Mission: With the end consumer in mind, develop a breeding strategy that keeps milk relevant”

What is the difference between the glass of milk you enjoy today and the one that your grandparents drank decades ago? While they may look and taste similar, the present day one has a much lower carbon, water, and land footprint. In short, it's better for the environment than ever before.

The interest of consumers in products that guarantee animal welfare and a high level of quality is on a rapid upward trajectory. UK consumers are beginning to pay great attention to food and agricultural products characterized by ethical and nutritional aspects linked to the welfare of food-producing animals. Consumer choices can change production technologies and marketing strategies as they determine which products will be accepted or not by the market. Consequently, product quality, taste, and nutritional value should motivate paying higher prices for dairy products from producers with lower environmental impact and better animal welfare.

Our mission as dairy producers is to understand the changes in consumer priorities, adapt and change accordingly to flourish in years to come. Driving yield per head, enhanced breeding strategies, health & welfare and contemporary technologies should all be key in our breeding strategies to keep milk relevant.

Driving Yield per Head

Reducing the amount of global dairy cows, while increasing the amount of milk a cow produces, has allowed world milk supply to grow on a year-by-year trajectory. These improvements that have stretched more than 70 years, have reduced land use by 90 percent, feed usage by 77 percent, and water use by 65 percent for each glass of milk produced. There are few, if any industries, that come close to dairy's progress in shrinking its environmental footprint in such a short period of time (UCDavis, 2021).

Efficient feed conversion by dairy cattle has a direct impact on the animal's carbon footprint. With the dairy industry being under intense scrutiny for its contribution to greenhouse gas emissions, the industry must recognize the urgency to develop and implement innovative technologies to prepare for potential regulations in the future. There is a huge opportunity to substantially reduce the carbon footprint of dairy production by increasing the feed conversion efficiency of dairy cattle. The EcoFeed index by STgenetics is an integrated approach to genetic selection based on progeny testing of females to identify sires that produce progeny who consume less feed while maintaining production compared to their herd mates to increase profitability and global sustainability.

Enhanced Breeding Strategies

Making informed, and progressive breeding decisions is a vital part of a business strategy. Implementing a strategic approach to driving efficiencies and profitability by using sexed semen, high quality beef semen and genomically testing females. Increasing the overall genetic merit of the cow and her ability to produce a product that is one of the most nutritious foods in the world. Keeping functional type at the forefront is key as overall functionality is positively correlated with lifetime CFP. According to Holstein UK, VG85 and over first calf heifers achieve from 500 to 1,000kgs more CFP on average compared to first calf heifers with poorer conformation.

With the fate of dairy bull calves at the centre of debate on welfare, UK dairy producers need to drive up standards to respond to consumer requests and secure a supply chain for the future. The advancing science behind sexed semen over the past decade have resulted in a lower-cost product that offers conception rates rivalling those achieved using conventional semen. Using gender sorted semen from genetically elite bulls should be the leading tool in the modern dairy producers breeding strategy. Recent advancements in sex-sorting technology have shown a 75% improvement in pregnancy rate and gender accuracy upwards of 90%.

Using beef semen on low genetic merit cows in the herd is becoming a growing practice on many UK dairies. An increased value in the beef calf from the dairy cow compared to the traditional dairy male

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calf ensures maximisation from profit per pregnancy. Whilst the monetary return is a real incentive, the use of sexed semen on the top proportion of the herd to create replacement heifers also increases selection intensity and fuels genetic progress.

Using genomics, a heifer's genetic potential is revealed early in life, genetic progress can be accelerated with confidence and herd profitability is enhanced by capitalising on improved performance across several traits. The data gained from genomic testing holds long term value and continues to be crucial when making breeding decisions. Genomic data forms the foundations of any mating decision whether that be where to use sexed semen to gain dairy replacements or to form a beef on dairy strategy for added profitability per pregnancy.

Health & Welfare

Profound changes in the dairy industry in recent decades have benefited the health and welfare of dairy cows, as well as consumers. Cow health, welfare and longevity need to be a focus of any breeding strategy when talking about keeping milk relevant as there is no substitute for good animal health. Undoubtedly it is a key area of attention from consumers with other options on the market, and of course without a healthy cow, production and genetics only have a limited chance of being used to their full potential. Food safety of milk leaving the farm, in terms of free from antibiotics, is the most important to gain the trust of today's consumer as well as the ongoing battle with antibiotic resistance. Having the ability to impact the costs associated with medication and labour by incorporating a programme such as Immunity+ from Semex whilst genetically improving the health of animals within the herd is a industry changer. At 25% heritability, sires within the Immunity+ range have a naturally high immune response and by using these sires you can improve your herd's overall health and welfare. Immune response from these sires is passed on to their daughters and future generations.

Contemporary Technologies

Livestock are an important source of food for the planet's eight billion humans; societies across the globe must work together to meet the ever-increasing demand for food through reproductive technologies if we hope to attain global food security. embryo transfer (ET) enables genetically superior females to produce a larger number of highly productive offspring than would occur with conventional breeding programs. The world's first calf produced by ET was born on December 19, 1950 in Wisconsin, U.S.A, and today more than 1 million bovine embryos are transferred each year across the globe. The power of ET has been demonstrated not only by the creation of cows exhibiting record milk production but also by the creation of bulls who are subsequently used as AI sires to generate highly productive offspring.

Using genomic testing technology will enhance the results obtainable from AI & ET. With this genetic technology, the genetic makeup of an animal is examined and then animals can be genetically selected for the SNP leading to greater productivity.

Conclusion

In conclusion, I believe that seeing the unrivalled progress that has been made by the dairy producers of the last century, now more than ever, milk and dairy products as a whole are already incredibly relevant to the consumer's choices in terms of choosing a highly nutritious product with a low carbon foot print, produced sustainably and to an extremely high level of animal welfare. However I also believe that like anything in our ever changing and growing society we as dairy producers have to keep pushing forward and have a responsibility to adopt these breeding strategies to ensure we keep on building on the foundations that have been set and work with milk processors to highlight the work we do and by doing so I have no doubt we will accomplish the ongoing mission of keeping milk relevant.

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