

Moorepark attractions

Some of the topics which will be on show at the Teagasc Moorepark Open Day on July, 3rd



Teagasc food scientists Dr Daniela Freitas, Dr Alina Kondrashina, Dr Andre Brodkorb and Bhavya Panikuttira discussing the 3D-printed molecular structure of beta-lactoglobulin, a protein found in bovine whey.

Food research at Moorepark 19

The Teagasc Food Research Programme will have a significant presence at Moorepark '19. You will have an opportunity to see butter being made with 'grass-fed' milk and learn about the beneficial effect of 'grass-fed' on the nutritional composition of milk and dairy products.

You will get also be able to see how milk composition is determined using 'in-line' near-infra-red technology. There will be a display demonstrating the vast range of dairy ingredients produced nationally, with information on target markets (nationally and internationally) and nutritional status of these ingredients, in addition to a display featuring the latest in drying technologies (for developing dehydrated dairy products for export markets).

Of course in Teagasc Moorepark, the Food Research Programme always aims to be at the cutting edge, and those attending Moorepark 2019 will be interested to see how we apply 'digital dairy' technologies such as robotics, 3-D printing and virtual reality technologies to the investigation and development of dairy for Ireland.

Did you know that the structure of food has a significant bearing on its digestion? Check out this exhibit and discover the science behind this research.

Something that is always of interest to attendees of open days at Moorepark, is the exhibit that features products developed via Teagasc research and specialist commercial services. Call in and try some of these tasty products. These Teagasc services are available to small and medium sized enterprises, multinational subsidiaries and food entrepreneurs. You might be inspired to develop your own food business!

Moorepark'19 will also feature up to date information on the science behind the role of the gut microbiome in maintaining health (for infants, elderly and athletes), and the potential for using health-promoting microbes to increase the benefits of a range of foods. There will also be a feature on the health benefits of fermented foods. Food Research Programme staff will be available to answer questions about all exhibits.



PastureBase Ireland

At the Moorepark open day the PBI stand will be directly beside the Grazing Demo.

Over 1,500 grass covers are being uploaded weekly.

Help will be available on the day if you have any queries or want to get signed up to use the programme.

At the open day we will be launching the new milk report and phase one of the fodder budget.

At approximately 11am and 12 noon there will be a farmer presentation on why they use PBI and the benefits they are getting from the system.

Micheal O'Leary



Thomas Tubritt.

Choosing varieties.

Increasing the proportion of grazed grass in the diets of dairy cows increases profitability on farm. Perennial ryegrass varieties are known to differ in the level of utilisation they support. Therefore Irish farmers need perennial ryegrass varieties with superior grazing traits.

Suitability of perennial ryegrass varieties to grazing is not routinely measured in Recommended List trials. The objective of our work was to evaluate the grazing performance of the leading perennial ryegrass varieties in Ireland. Varieties were assessed for herbage yield, quality and persistence. After this, dairy cows grazed the plots and post-grazing sward height was recorded as a measure of grazing efficiency.

This study showed that tetraploid varieties are consistently grazed to lower post-grazing sward heights. Farmers wishing to improve utilisation of grazed grass on their farms should opt to sow increased proportions of tetraploid varieties on their farm.

Thomas Tubritt



Continued on p24



Alison Sinnott and Hazel Costigan.

Addressing the labour shortages associated with calf rearing

To maintain a sustainable future for our dairy farms, finding solutions to overcome the labour shortage associated with calf rearing is critical. We are carrying out research to evaluate how calf management practices can be advanced and streamlined in a way that improves labour using LEAN efficiency principals, without negatively affecting the calf.

The project began in spring 2019, with an initial investigation into the effect of automated calf feeding systems on calf health, welfare and labour. Further research will take place over the next four years to develop a comprehensive training programme and guide to rearing calves in an efficient and sustainable way.

Alison Sinnott

Rearing strategies for dairy heifers

Developing an optimum heifer-rearing strategy is becoming increasingly necessary; such a strategy must begin shortly after birth and continue until the heifer calves down.

In spring 2018, we began a three-year study at Teagasc Moorepark to investigate the effect of weaning age and post-weaning growth rate on growth performance, fertility parameters, age at first calving and first-lactation milk production of the maiden heifer.

Heifer calves were weaned at either eight or 12 weeks and subsequently offered either a high or low level of concentrates post-weaning. In the second year, grass was managed so that the heifers previously offered high and low levels of concentrates were grazed to 4.5 and 3.5 cm, respectively. To learn more visit us at Moorepark 2019.

Hazel Costigan

Becoming an employer of choice

As well as technical topics there will be a huge amount to learn about people management at Moorepark 19.

Work by Thomas Lawton, Suzanne Groome, Martina Gormley, Pat Clarke and Marion Beecher have shown that:

- Good communication and training opportunities are the main characteristics employees seek from their employer
- 77% of farmers surveyed do not issue payslips to employees
- Improvements required regarding fair treatment and respect of employees, including employers compliance with employment law

VistaMilk

The recently established €40m VistaMilk SFI Research Centre (@VistaMilk; www.vistamilk.ie), co-funded by Science Foundation Ireland, the Department of Agriculture, Food and the Marine, and 40 industry partners, aims to digitalise dairy production and processing in Ireland from the soil, through to the grass and animal, and eventually into the milk and resulting products while considering the impact at the level of the human gut.

The centre will develop sensing, communication and analytical solutions to current and future problem statements across the dairy-food chain. The pillars of focus include the 1) soil and pasture, 2) cow (ie genetics and management) and 3) food. By always considering the entire production chain, potential upstream and downstream ramifications of modifications in any link along the chain can be readily quantified.

Led by Teagasc, the partners in VistaMilk include the ICBF, Tyndall Research Institute, Waterford Institute of Technology, Dublin City University and University College Dublin and Galway. The opportunities that arise at the interface between the agri-food and technology industries will be the basis for the competitive advantage and international reputation of the centre.

The outputs from VistaMilk are human capital, new knowledge, potential spin-out companies and of excellent scientific publications, all of which will have measurable economic, societal and environmental key performance indicators such as improved competitive metrics, new markets, a vibrant agri-tech industry, foreign direct investment attractor, reputation enhancement, food security, tailored nutrition, more informed policies, and lesser environmental footprint.

Grass modelling

The VistaMilk project will draw on the work of a wide range of disciplines and scientists including Elodie Ruelle at Teagasc Moorepark who is modelling grass growth by looking at the influence of weather and other factors on the plant.

Predicting on-farm grass growth is challenging as it depends on soil type, farm management and weather conditions. Since early 2019, the MoSt grass growth model has been live tested on 40 farms. Individual grass growth prediction for each of those farms each Tuesday and Friday is helping farmers with their weekly farm management decisions.

Elodie Ruelle



Ellen Fitzpatrick

Clover

In an era where sustainability is at the forefront of Irish agriculture, including white clover in swards of PRG can offer increased nutritive value of the herbage, improved animal performance and reduced nitrogen application rates.

A study is ongoing in Teagasc, Moorepark to determine the dairy cow performance off four different treatment groups: total mixed ration (TMR), grass-only 250 kg N ha-1, grass-clover 150 kg N

ha-1 and grass-clover 100 kg N ha-1.

Milk solids, cumulative milk yields, herbage production, sward clover content, dry matter intakes and methane emissions are recorded to maximise milk production while improving nitrogen use efficiencies on intensive dairy farms. The work carried out for the project aims to enhance the sustainability of milk production in temperate climates based on the inclusion of white clover.

Ellen Fitzpatrick.

Grass only v grass clover

Since the removal of the European milk quotas, the most limiting factor to Ireland's milk production is land. This has spiked a renewed interest in white clover inclusion due to its production benefits. Teagasc Clonakilty trial work is now comparing different N rates, 150 kg N/ha and 250 kg N/ha, both with and without clover to quantify white clover benefits in the sward while also tracking its persistency in an intensive grazing system.

Along with this a grazing plot investigation is being carried out comparing the efficacy of CAN, Urea and NBPT-Urea at both 150 kg N/ha and 250 kg N/ha at two site locations, Clonakilty and Moorepark.

Aine Murray

'Healthy Cows – High Quality Milk'

Of interest to all farmers will be updated research on the effectiveness of treating cows with teat sealant only, compared to teat sealant plus antibiotics at drying off. Chlorine free milking machine cleaning routines are very topical currently, and we will have a panel discussion with farmers, milk quality advisors and researchers on best practice options. Animal Health Ireland will be present at our 'village' at Moorepark 19 discussing all aspects of herd biosecurity with a particular focus on managing Johne's disease.

We will have plenty of research updates from recent trials completed around calf health and contract rearing, and will have a live demo looking at heifer target weights which is a key area to get right for every dairy farmer.

David Gleeson