

dairying

Today's farm

# Healthy people, healthy COWS

Changing the balance of fats in milk could benefit humans, dairy cows, and farmers, who will have a more valuable product to sell at home and abroad

**T**EAGASC Moorepark aims to provide a health boost for humans and dairy cows through cattle breeding. By investigating, and potentially breeding, for different types of fat produced by dairy cows, researchers hope to increase the health-giving properties of milk for consumers.

The cow can benefit too because stressful 'negative energy balance' in early lactation seems to be related to the balance of fats in her milk.

Reducing the time a cow spends in stressful energy deficit would yield healthier cows that produce healthier milk.

"Dairy milk contains saturated fats, which are considered less healthy, as well as more beneficial unsaturated fats," said Sinead McParland. "Conjugated Linoleic Acid (CLA) is an unsaturated fat in milk which has been shown to

By investigating, and potentially breeding, for different types of fat produced by dairy cows, researchers hope to increase the health-giving properties of milk for consumers



**ABOVE:** The proportions of fat and protein in milk are already estimated using infra-red spectrometry — shining light through the milk.

**LEFT:** Sinead McParland says milk is set to become even healthier.



have anti-cancer properties."

The average dairy cow produces more than twice as much saturated fat as unsaturated and Sinead, together with colleague Donagh Berry, hopes to find ways to tip the balance through breeding in favour of the more healthy fats.

The work is part of the Europe-wide *RobustMilk* project that brings together geneticists from six leading European agricultural research institutes, including Teagasc Animal and Grassland Research and Innovation Centre, Moorepark.

The experiment involves collecting milk samples from cows of several dairy breeds, including Holstein-Friesians, Jerseys, Normandes, Montbeliardes, dual purpose Belgian Blues and Norwegian Reds from Ireland, Belgium and Scotland.

The objective is to find gene-based technologies which may enable breeders to identify and breed cows that produce healthier milk, while the cows themselves stay healthier. "Cows in negative energy balance — when they are using

more energy than they are consuming — produce a higher proportion of the unhealthy fats," said Donagh Berry. "Reducing periods of negative energy balance could benefit the cow and the consumer."

The proportions of fat and protein in milk are already estimated using infra-red spectrometry — shining light through the milk — and this technology can also be used to establish the major fat types in a milk sample. Therefore, estimates of the different fatty acid content of individual cows can be assessed on all samples taken during milk recording at no additional cost.

We know there are large genetic differences among animals and, therefore, we can improve milk fatty acid content through breeding. Milk quality could ultimately make its way into the Economic Breeding Index (EBI) in dairy cattle.

Teagasc Moorepark and the ICBF are also considering a new project to create computer software based on the results of this study to help farmers make management and breeding decisions to increase the value of their product.

They are also considering a project to ensure that altering the milk fatty acid content does not change other quality parameters of the milk itself, as well as the performance of the cow.

**Story & pictures:** Mark Moore

This article is based on one which appeared in the Teagasc publication, *TResearch*.