

# Best Practice in Cattle Breeding



## Optimal herd management through a milk sample

Are there more properties in a milk sample than just fat, protein, lactose and SCC? Or can we use new analytic approaches to answer questions regarding the likelihood that a cow will get sick or will not go in calf? These are just some of the questions being asked by ICBF, Teagasc and a group of international researchers, working in collaboration with milk recording organisations throughout the north-west region of Europe, in a project called OptiMIR ([www.optiMIR.eu](http://www.optiMIR.eu)).

The objectives of the project are to improve the sustainability of the dairy sector; by providing milk producers with online tools that will enable them to better manage animal health, fertility, nutrition, greenhouse gases and milk quality.

Milk samples are a huge potential source of biological information about each individual cow. Currently some 47% of dairy cows in Ireland are routinely milk recorded to ascertain the fat, protein and lactose composition of the milk. Machines used to test milk samples work by shining light through the samples at over 1,000 different wavelengths, in the mid-infrared (MIR) range. The amount of light in each of these wavelengths absorbed by the milk is an indication of the chemical composition



Ireland is involved in a major international project to establish additional benefits from milk recording, such as the individual animals' health status, fertility, nutrition and milk quality. All of this will be provided from the milk recorded sample. The project is currently underway in a number of milk recorded herds in the Munster and Leinster regions.

of the milk and is subsequently used to determine the milk composition. The aim of OptiMIR is to extend the use of this information to include indicators of the cows' status for a range of characteristics.

The OptiMIR team combine researchers from Belgium, France, Germany,

England, Luxemburg and Ireland. At this stage they have developed prediction equations to help establish answers to the questions at the start of this article.

The yearly improvement in profitability that can be achieved (as a result of having this information as part of routine milk recording

services) is estimated at €115 per cow.

Milk recording organisations are already collecting milk samples once a month from each cow. The machines used to test milk samples already measure the full MIR spectra and with a small modification this information can, in the

case of Ireland, be added to the ICBF database. The first spectral data has started to arrive in the ICBF database from a number of milk-recorded herds in Ireland from Munster Cattle Breeding and Progressive Genetics. These pilot farms will contribute to the validation of the new predictions and provide guidance on the best options for presenting the results in a form that farmers can readily use.

For dairy farmers involved in milk recording, no additional work or expense will be required to obtain the extra information available from MIR. The information will be automatically generated on milk samples and in the future used to generate information for management decisions and also breeding values for bulls. Over time, one can expect to see this information included in the EBI.

Recent work from Teagasc has also indicated that many milk quality attributes are superior in pasture fed animals. By building on this superiority, with a breeding

programme for improved milk quality, the milk quality of the Irish national dairy herd will further improve. This may further improve the international market share of our dairy products.

The OptiMIR project partners are also creating a trans-national database including the MIR spectral data and this is being used to facilitate further development.

Large-scale co-operation between European milk recording organisations to help develop a more sustainable dairy sector is a recent innovation. By working in partnership with scientists across the region the OptiMIR project promises to strengthen the competitiveness of the dairy sector and its ability to survive the challenges of the future.

For further information, please visit [www.optiMIR.eu](http://www.optiMIR.eu) or look for us at the Moorepark Dairy Open Day on the 3rd of July at Teagasc, Moorepark, Fermoy. We would be delighted to deal with your query.



## Pregnancy checks start on sexed semen farms

Pregnancy checking has commenced on a proportion of the 390 dairy herds involved in the sexed semen research project (some 25% of the herds in total). Pregnancy checking will be undertaken at day 60 which

will allow ICBF and Teagasc establish; (i) pregnancy status, in relation to the sexed semen project insemination and (ii) the expected gender (male or female) of the calf to born as a result of that insemination. Answers to

these two questions will provide crucial data regarding the cost-effectiveness of the sexed semen technology on Irish dairy (and beef farms) in the future. In addition to information on pregnancy status, ICBF and Teagasc

are also contacting project herds regarding any missing insemination data (especially from DIY AI herds).

**PREGNANCY STATUS DATA**  
Again this information will be used alongside the

pregnancy status data to give information on non-return rates for a much wider sample of animals from the overall project.

It is anticipated that all of this work will be completed over the summer months,

with definitive results published in early September. We look forward to the outcome of this analysis, as it is likely to have a significant impact regarding the future breeding strategy of our national dairy and beef herd.