

# Why data is plentiful and information is scarce

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**L**ike never before, farming is generating figures, facts and values which act as indicators of performance. Almost everything done on a farm generates a trail of numbers identifying key metrics relating to a particular event.

Take the example of a farm doing a silage quality test on a pit for diet formulation. The farmer and the advisor try to put the analysis results in context by piecing together the story behind them:

- What were the weather conditions like – leading up to and during harvesting?
- Was the grass tested prior to cutting for insolubility (sugar and nitrogen readings)?
- Was the crop wilted?
- Was there an additive used?
- What fields were ensiled in that pit?
- When were the fields last reseeded?
- What was the total yield of silage from the area harvested?
- When were the fields last grazed and when were they closed and fertilised?
- What was the soil fertility status of the fields when the fields were closed?
- How much organic and chemical fertiliser was applied?

The answers to all these questions should be available in reports, fertiliser records or diaries kept on the farm or in a computer database. Piecing it all together to identify the various decisions and factors and how they influenced the final outcome (the silage to be fed) would undoubtedly be useful.

The key to converting data into useful information to improve future decisions is to have access to all the

necessary details. The process of using this data, converted into usable information, is often called “business intelligence”.

Farmers have traditionally relied on their gut instinct, shaped by past experience, to guide them in making decisions. This will still be a core part of the decision-making process on any farm in the future but with the volume of data available now we have the ability to make data-informed gut decisions.

What this means is that farmers can take all the available facts and figures into account and once they have considered all of it... then determine what their gut is telling them. There must be room in the decision-making process for past experience and local knowledge to stack alongside the business intelligence focused hard facts and figures.

What can we do to make the best use of business intelligence? We might know all this data is there – but it will take some effort to find it, put order on it and interpret it. Putting order and understanding on the data with the eventual hopeful outcome of what is called “actionable knowledge” (information that can be used to guide your eventual decision) revolves around two goals:

- 1** Trying to find trends in the data that can point to what is happening.
- 2** Identifying common links and indicators/markers which can explain why the results of a particular decision turned out the way they did.

The “what” questions will normally be a little easier to get answers to as the data often just confirms what has already happened in terms of crop or animal performance. Having data just to back this up can give us confidence that we understand what happened and that we will know how to react in future when a decision is required.

## What does the future hold?

We know for sure that the volume of data generated on farms will continue to grow. Many of the machines and even individual animals on farms are already churning out data by the bucketload. Robot milking machines, electronic weighing scales, animal activity sensors and machine sensors are collecting electronic records by the second thereby giving “real-time” data on the farm.

There is, however, a possible danger that the increasing amount of information could overwhelm us in a flood of figures and statistics. All of this extra data could potentially hinder timely decision-making by clouding farmers’ thinking and causing them to hesitate, and miss the chance to make a timely decision as they wait for the next vital deal-breaking piece of data.

Computer systems and, in particular, smartphone apps available now can help greatly in handling, processing and most importantly displaying information from the analysis of underlying data. The problem is that many of the systems developed dis-





# COMPUTER ANALYSIS

Computer analysis can crunch the data and give predictions or model the outcomes from potential decisions to help finetune the decision making process. The potential is also there to allow an analysis programme to feed information back to an automated system to carry out actions and put the decision into practice.

This concept of the "connected farm" is already a reality on some farms with tractors and fertiliser spreaders and chemical sprayers already set up to respond to the fertiliser status of soils or pest status of crops.

However, the final decision will still rest with the farmer to decide what the data is ultimately saying and use the information to make better-timed, accurate and more influential decisions for the good of farm businesses, farm families and rural communities.

play data and information from only a single source.

But as we have already discussed, a lot of the data on farm events and performance is linked. If the information from all the various sources could be combined in one interface – on one smartphone screen or on one graph or display, then it would make the job of understanding the connection between the various bits of information easier.

Some already-developed systems are aiming to display of data from various sources. There are some significant but not insurmountable stumbling blocks: including dealing with the issues of data protection, sorting out issues to do with permissions around data-sharing for both commercial companies, as well as the farmer.

Most of all, the challenge will be to come up with a user-friendly and understandable interface able to display the information in a linked way to allow the connections between the data to become visible. Teagasc is working hard, with partners, to develop such tools.

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