



Precision dairy technology

C-Dax Pasture Meter

Case study:

Duncan MacDonald

Duncan MacDonald uses the C-Dax Pasture Meter on two dairy farms at Yolla in Tasmania. Each farm has 550 cows and each spring calving herd is on a 180-hectare milking platform that is a mix of dryland and irrigation.

Duncan started using the C-Dax Pasture Meter five years ago, primarily to speed up the process of measuring pasture cover. With two 180-hectare farms, it was time-consuming to walk the farm each week with a rising plate meter and other jobs were often considered a higher priority.

Duncan measures pasture cover with the C-Dax Pasture Meter each week during spring and at other crunch times during the year. The period between measurements is extended to fortnightly at less critical times.

The C-Dax Pasture Meter has two rows of sensors that record the height of pasture 200 times a second as it is towed behind an ATV bike. These measurements of height and density are used in a calibration to estimate pasture cover in kilograms of dry matter pasture per hectare.

Duncan uses a consistent pattern of towing the device across each paddock so that he gets a representative sample of the pasture cover in the particular paddock and can compare estimates from one week to the next. When he first bought the C-Dax Pasture Meter, Duncan spent considerable time developing his own calibrations for the two farms, and related the measurements to rising plate measurements that he had previously taken.

Newer versions of the C-Dax Pasture Meter come equipped with a number of standard calibrations that have been developed for several dairying regions in New Zealand. Subsequent testing has shown that the Canterbury/Southland calibration supplied with the C-Dax Pasture Meter corresponds well with the customised calibration that Duncan developed several years ago.

Duncan uses the same calibration all year round. He can download the information into a spreadsheet and has the option to modify the dry matter content of pasture to better reflect the pasture cover on dryland pastures in summer. Ultimately the milk production of the cows will tell Duncan if there are any errors in the absolute values of pasture cover generated by the C-Dax Pasture Meter.

The measurements are downloaded from the C-Dax console by Bluetooth to the farm computer. Duncan uses the pasture mass data from each paddock to calculate pasture growth rates, for pasture allocation and to prepare feed wedges. Pasture is the main source of nutrients on the farms and it is critical for Duncan to know how much feed is available each week and the growth rates of pasture in different paddocks. He uses this data for planning future pasture availability on the farms.

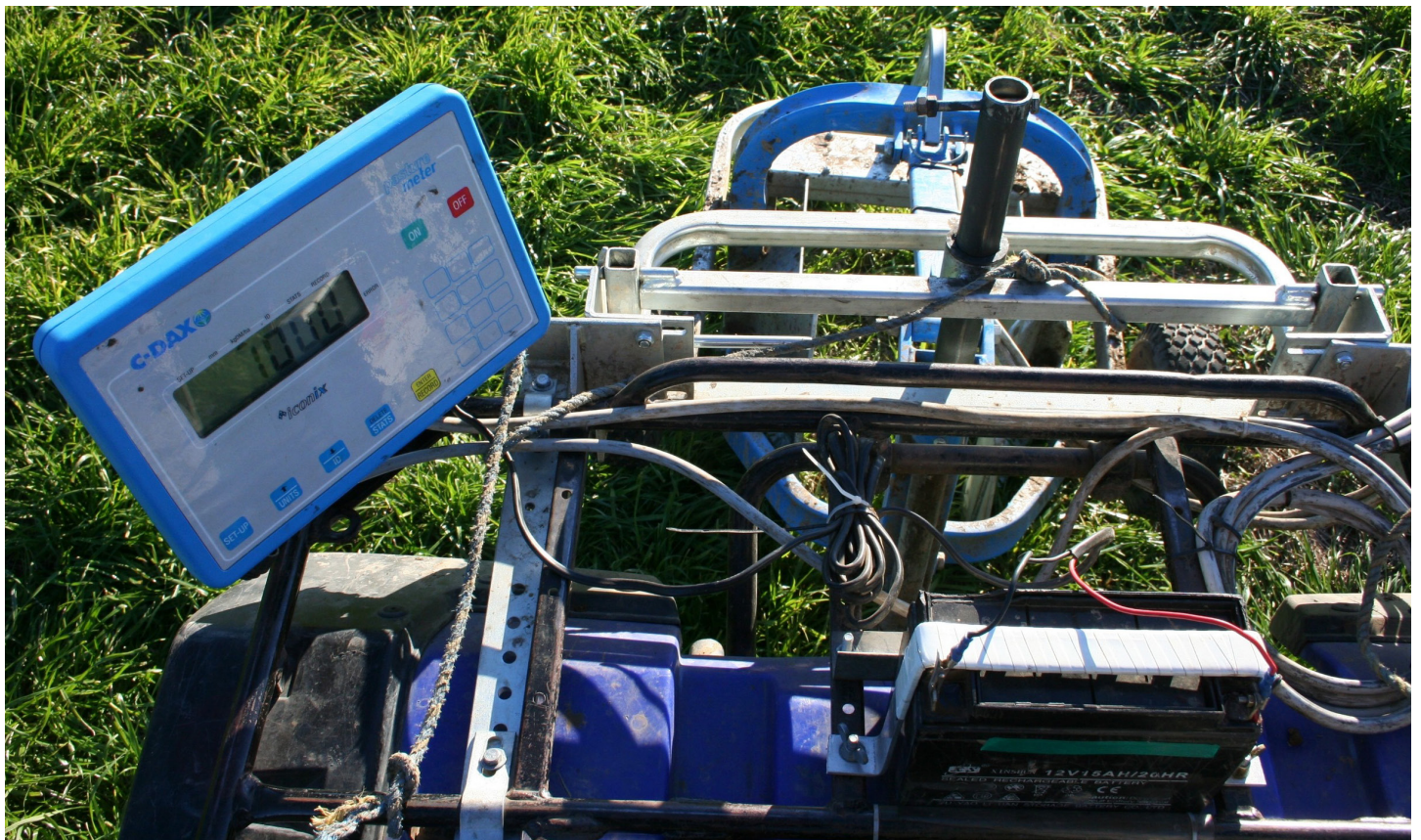
An example of the benefits of knowing weekly pasture cover for each paddock was demonstrated in the past spring. Initially, looking subjectively at the pasture in several paddocks locked up for silage, Duncan thought that the pasture was growing well. But after his weekly ride around towing the C-Dax Pasture Meter he quickly realised that there was not as much pasture in the paddocks as he had thought. He subsequently mowed the paddocks prior to grazing and produced silage from other paddocks that had considerably more cover.

Using the C-Dax Pasture Meter to measure pasture mass of each paddock takes Duncan about 1.5 hours on each farm. If he was using a rising plate meter it would take almost a full day. Most paddocks have a front and back gate, so that he can quickly move around the farm and drive diagonally across the paddocks to get good estimates of pasture cover. He has found that spending more time in the paddock with other configurations does not necessarily improve the accuracy of the pasture cover estimates. In addition, he carries an insulated peg that allows him to lift up electric fences and go under the wire without stopping.

Duncan found that grass and mud tended to block the sensors on his original C-Dax Pasture, leading to errors in pasture mass estimates. A new model of the device has largely fixed this issue by adding a protective plastic guard around the sensors.

Duncan is trialing the new model, which is available from Pumps and Sprays in NSW, and has had considerably fewer problems with dirt and grass covering the sensors.

The new model also uses a GPS unit to record the position every three seconds. This feature allows Duncan to drive over the whole farm without stopping to record paddock number, review the average pasture cover for the paddock as he leaves it and check that it is reasonable.



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