Dairy Australia
Your Levy at Work

Precision dairy technology

Electronic pasture meters

Fact sheet:

What is the technology?

Quad bike-based electronic pasture monitoring systems are instruments that can help you to measure pasture height over your entire farm – in just a few hours.

How do they work?

There are two main types of quad bike-based pasture meters that are commercially available. The Automatic Pasture Reader, developed at Ellinbank, is a small unit that is bolted onto the front of a quad bike. The C-Dax Pasture Meter, developed in New Zealand, is a separate unit that is towed on a sled behind your quad bike. Both of these pasture meters have easy-to-read display consoles mounted in direct view of the rider.

Both types of pasture meters estimate pasture height, but use different technologies. The Automatic Pasture Reader uses two vertically mounted sonar sensors permanently fixed on the front of the quad bike. The C-Dax Pasture Meter has multiple infrared light sensors that are fitted at various heights to detect the height of pasture. In both cases, the electronically determined pasture height needs to be converted into kilograms of dry matter per hectare. Proprietary or customised calibrations relating pasture height to pasture mass are used to convert the measurements into an estimate of pasture cover.

What data do they provide?

Both electronic pasture meters provide an estimate of the pasture available in kilograms of dry matter per hectare, which is similar information to that provided by a rising plate meter or pasture probe. But these electronic pasture meters take many more measurements (up to 200 measurements per second), allowing pastures to be measured more accurately in much less time. In addition, the data may be downloaded either directly, or via Bluetooth connections, into the computer for further analysis.

How can you use this information?

The main use for estimates of available pasture is to more accurately allocate the available feed to the herd, potentially resulting in more efficient use of homegrown and purchased feeds. The data can also be used to estimate pasture growth rates and get a view of potential future feed availability with a pasture wedge. This information, combined with visual leaf stage estimates, can be used to efficiently plan the grazing rotation.

Pasture availability can also be estimated visually and these observations can be calibrated over time based on what the herd leaves behind in the paddock. If you are experienced in estimating pasture mass, these pasture meters may not replace your intuitive estimates but may make pasture management much easier by taking the guess work and subjectivity out of pasture and supplement allocation.

Potential issues

- Accurate pasture mass measurements with pasture meters, irrespective of whether they are quad bike-based electronic instruments or the more traditional rising plate meter, rely upon accurate calibrations to convert the measured pasture height into available pasture to be consumed (kg DM/ha). Factors such as pasture composition, density, season, dry matter content and stage of pasture growth all influence the calibrations and the accuracy of pasture mass estimates. Ideally, pasture calibrations should be established for the particular farm and at different times of the year. This may require you to cut pasture quadrants to relate pasture height to pasture mass.

- The calibrations may not apply as well to high pasture heights (equivalent to pasture covers in excess of 3500 kg DM/ha) as the grass tends to lodge and may give an artificial low reading.
- The C-Dax Pasture Meter should always be towed by the same vehicle and at a constant speed within paddocks to ensure consistent readings.
- The Automatic Pasture Reader is affected by the bike's suspension when operating in hill country and it is essential that a continuous measure be conducted riding both uphill and downhill to gain an overall accurate pasture measure for the paddock.

Suppliers and cost

The Automatic Pasture Reader is available from:

- Naroaka Enterprises in Narracan, Victoria (tel. 03 5634 8262) and will cost about $3600 to $4800. For more information, visit www.pasturereader.com.au

The C-Dax Pasture Meter is available from:

- C-Dax Agricultural Solutions (New Zealand) and will cost about $5000 to $6000. For more information, visit www.pasturemeter.co.nz
- The Australian distributor is Pumps and Spray in Riverstone, NSW (tel 02 9627 9898). For your local dealer in Australia, visit http://www.pumpsandsprays.com.au/products/c-dax/pasture-solutions/pasture-meter.aspx

Further information

More detailed information on the use of the electronic pasture meters is available on the Dairy Australia website and in the following publications:

Evaluation of the C-Dax pasture meter by Dr Alister Lawson from Department of Primary Industries, Victoria, available from the Dairy Australia project DAV12955.

Oudshoorn, F. W., Hansson, S. L., and Hansen, H. (2011). "Calibration of the C-Dax Pasture Meter in a Danish grazing system", Grassland Science. 16: 166-168.

Rennie, G. M., King, W. M., Puha, M. R., Dalley, D. E., Dynes, R. A., and Upsdell, M. P. (2009). "Calibration of the C-DAX Rapid Pasture meter and the rising plate meter for kikuyu-based Northland dairy pastures", Proceedings of the New Zealand Grassland Association 71, 49-55.

If you want a copy of any of these publications, they can be obtained through the link "request article" from the DA library webpage.

www.dairyaustralia.com.au/Industry-information/library.aspx

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