

Sky no limit on soil tests

By PAUL SELLARS

SCIENTISTS are developing revolutionary techniques to map farm root zone moisture levels — with a little help from NASA.

Senior lecturer in environmental engineering at the University of Melbourne, Dr Jeffrey Walker, is part of a team of researchers that has developed a method to generate high-resolution soil moisture estimates from a low-flying plane.

Dr Walker said soil moisture readings on 50km stretches of Australia had already been obtained from a NASA satellite.

But he said Australia now had the unique capacity to measure moisture levels on stretches of 50m, from planes flying as low as 160m.

This provided the capacity to take precise soil moisture readings of individual paddocks.

Dr Walker, his colleagues from Flinders University and

the University of Newcastle, and a NASA researcher believe their work has could greatly enhance water-use efficiency in some of the nation's most stressed catchments.

"A lot of farmers rely on moisture content information to determine when to irrigate, how much to irrigate, when to plant, and whether they should consider planting 'opportunity' crops," Dr Walker said.

"A better understanding of soil moisture distribution will make a huge difference to farmers.

"It will enable them to develop better farm management techniques for using water in soil and to make better use of their limited allocation for irrigation."

Dr Walker said the research was still in its early phase but "the dream is that in the next 10 years, we will have got to the point where there would be a website where farmers can



Eyes in the sky: soil moisture is being tested from aeroplanes.

download and look at paddock-scale soil moisture content on their farm."

The Australian Research Council provided almost \$660,000 a year ago to scientists involved in the work for a thermal imager and an l-band microwave radiometer.

The radiometer measures naturally emitted electromagnetic energy from the earth's surface at microwave wave-

lengths that can be related back to soil moisture.

The device is being installed on a plane at the Airborne Research Australia research centre at Flinders University.

The centre has also given the researchers \$667,000 over three years for field experiments and to develop techniques for high-resolution satellite mapping of surface and root zone soil moisture in key farming areas,

including the Murrumbidgee catchment.

Dr Walker said having precise measurements of soil moisture down to 5cm below the surface would lead to improved estimates of root zone soil moisture by combining this information with computer models.

"This could have major benefits for farmers for whom moisture levels at the root zone

play a critical role in decision making," he said.

Dr Walker also said it had been shown that soil moisture was more important than sea surface temperatures in some rain forecasting.

"More accurate soil moisture estimates should lead to better weather and climate predictions, which are also critical in making key farm management decisions," he said.

Juice king's recipe for recovery

By SANDRA GODWIN

IT'S not enough to have ideas. You have to do something about them, a leading motivational speaker has told groups in north-west Victoria.

Alan Marion — the man who took The Original Juice Company from zero sales to \$45 million in seven years — shared some of his secrets with business and farm operators at Swan Hill and Robinvale last week in a bid to help them recover from drought.

Swan Hill community development officer Fiona Gormann said many businesses had struggled during the continuing drought and needed a boost.

Mr Marion said drought, even though unpredictable and unpreventable, was no different to any other obstacle.

"It's all about accepting responsibility," he said.

"It's no good blaming other factors. You need to look at what you can do as opposed to what you can't do."

Mr Marion has developed a 12-step program for achieving personal and company goals, which he outlined at the two workshops.

While his background is in wholesale and retail sales, Mr Marion said the

fourth step was especially relevant for farmers and businesses in drought-stricken communities.

"No. 4 is to identify a goal and come up with 10 ideas that can make it work," he said.

"Then put together an action plan for things to do that won't cost money and set a date for it to happen."

As well as a motivational session based on his experiences in sales and training with The Original Juice company and confectionery giant Mars, Mr Marion divided the audience into groups of three to work on each other's goals.

"Sometimes you can be so close to your own business that it takes an outsider to come up with fresh ideas," he said.

Damian Williamson, who started a computer sales and service business at home in Swan Hill 18 months ago, said his goal was to supply 20 new computers by the first week of July.

"Most of my trade has been from word of mouth," he said.

"One thing that Mr Marion said that really struck me was it doesn't matter what you can't do, it's about what you can do. There's always a way through challenges."

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When Phil and Sam Daniels took the plunge and got married, they also plunged into a new life running a dairy farm.

Phil said, "We've got 165 milkers and our aim is to have 300. We didn't think we'd be able to afford a new tractor so soon, but our local Case IH dealer made it happen."

It's one thing to understand tractors, but Case IH dealers understand farming too. Sam said, "John at Case IH showed us it was financially smarter to upgrade than to fit a new loader to the old one."

Phil reckons that for big tractor technology in a smaller machine, nothing comes close to Case IH. "The smart thing is a package that helps us grow. And that's what we've got."

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