More than 20 farmers and researchers at the Kellerberrin Demonstration Group’s recent end of season field walk were excited to see wheat roots tapping moisture more than two metres below the surface.

Part of the Grains Research and Development Corporation (GRDC) funded, UWA-based Local Farmer Group Network, the Group held its 2005 trials on farms in the Wallatin and O’Brien catchments, with support from Farm Focus Consultants of Northam.

The GRDC supported agribusiness trials are assessing how soil type and texture affect plant available water.

Neal Dalgliesh, CSIRO Queensland, who has been running plant available water workshops in WA for agronomists and advisers, told growers that no-tillage systems were a good first step in improving water use.

“With no-tillage methods, soil organic matter increases, positively affecting the soil’s water holding capacity and its responsiveness to nutrient inputs,” he said.

“Soil texture, density, plant cover and run-off potential, together with sub-soil constraints, all affect a crop’s ability to extract water from the soil.

“There are obvious correlations between the size of soil particles and their water holding capacity.

“Improvements in stored water capacity will allow small falls of rain to move deeper on sandy soils and therefore reduce evaporation.

“Crops can use old root pathways left by previous crops to extract more available water, especially if the land has previously hosted a more vigorous crop.”

Mr Dalgliesh concluded that growers aware of their soil-stored moisture could take advantage of this information when planning sowing and limit their risk if false breaks occurred.

The morning field walk examined soil pits, allowing growers to better understand different soil profiles.
According to Dr Yvette Oliver of CSIRO Floreat, measuring the effect of soil type on plant available water and yield and nutrient requirements was the trials main objective. .”

They viewed root depths of 2.2 metres at Rod Forsyth’s property, under deep yellow sandy soil with 20 per cent clay, with researchers calculating crop available moisture at 90mm.

The second pit, at Gavin Morgan’s, in sandy loam over gravelly clay, had up to 60mm.

For the ultimate benefit of growers, Mr Dalgliesh conducted a series of one day workshops on plant available water for agronomists and advisors

Lisa Mayer of the Local Farmer Group Network, said the workshops delivered hands-on training on soil water characterization for the monitoring and management of local soils.

“Growers better managing their soil water stores will reap economic and environmental benefits,” she said.

For more details about the trials, growers should visit www.lfgn.org.au/groups/central/kellerberrin

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