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OILSEEDS NEWS

PIGS MIGHT MAKE CANOLA YIELDS FLY

Compost is something we normally associate with backyard vegetable gardens. But recent research has found that composted pig litter lifted the yields of a canola crop by seven per cent, where some more innovative approaches failed to make an impact.



HAPPY HARVEST: Victoria DPI's Roger Perris and Kelsey Arnold from Horsham check a grain sample while harvesting a canola trial at Brimpaen, aimed at overcoming subsoil constraints.

Photo: Felicity Pritchard

The results are from a trial this year at Brimpaen in the southern Wimmera conducted by the Victorian Department of Primary Industries (DPI) as part of a wider project in Victoria and southern New South Wales to overcome the challenges of growing canola in paddocks with hostile subsoils and disease issues.

The project is funded by the Grains Research and Development Corporation, and links in with 10 other trial and demonstration sites in the Mallee and southern NSW.

Previous research has identified that canola yields were suffering in southern New South Wales due to diseases and subsoils that inhibit root development, meaning that some crops were unable to extract moisture from the soil that would otherwise be used by the crop to fill grain.

The soil at the Peter McGennissen's property at Brimpaen is sandy loam over heavy cracking clay, becoming increasingly alkaline and saline with depth.

Research scientist James Nuttall, of the Victorian DPI said that four treatments were compared: 20 tonnes per hectare (t/ha) of composted pig litter, deep ripping to 35 centimetres to break up the plough pan, deep ripping with liquid gypsum injected at a rate of 7.5 t/ha and an injection of liquid fertiliser at a depth of 20 centimetres.

“The deep fertiliser treatment and the compost had a big effect on the amount of dry matter (plant material) produced in the early stage of the crop's life. But there was no advantage in deep ripping the soil, even when the gypsum was applied,” he said.

“By the time the crop was flowering, all the potential benefits from the early increase in dry matter seemed to disappear, and there were no differences in dry matter for the different treatments.”

At harvest, the composted treatment came out as the clear winner, with seven per cent more yield than the untreated plots. The deep nutrients and the two deep ripping treatments didn't improve the yields, which averaged 2.6 t/ha over the trial.

He said that the initial improvement in dry matter levels in the canola given the injection of fertiliser at 20 centimetres would suggest that nutrient supply may be an issue.

“The results suggest that the compost helped provide a supply of nutrients to boost plant growth early in the season, just like the deep fertiliser treatments. But the difference was, this was translated into higher yields for the compost treatment,” he said.

“The compost possibly provided other benefits in addition to nutrients, like improved soil structure, giving a double whammy for the crop”.

“We haven’t yet established exactly what attributes of the compost are creating these yield advantages,” he said.

Dr Nuttall suspected the deep ripping treatment did not increase yields because the self-mulching nature of the subsoil at the site may have allowed roots to penetrate into the subsoil anyway.

He will examine data to see if some of the treatments helped the canola plants extract more water from deeper in the subsoil.

“If the roots can get down, we need to find out if there is some other limitation of the soil, like sodium toxicity or salinity, which tends to be worse in drier years.”

The research project is managed through Mark Conyers of the EH Graham Centre, and involves the southern New South Wales farming group ‘Farmlink’, Charles Sturt University, CSIRO, the University of Melbourne, and the New South Wales and Victorian DPI.
