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Media Release

6/06/2023

Biodegradable mulch shows promise in horticultural trials

Spray-on biodegradable mulch is being put to the test in Western Australian horticultural trials with the aim of assessing its potential to improve water efficiency, influence soil temperature and control weeds while contributing to overall soil health.

Preliminary observations from a South-West WA Drought Resilience Adoption and Innovation Hub (SW WA Hub)-initiated project are being presented this week at the Future Drought Fund's Science to Practice Forum and a SW WA Hub workshop at Manjimup.

The Department of Primary Industries and Regional Development (DPIRD) is leading the project after receiving an innovation grant from the Grower Group Alliance (GGA)-led SW WA Hub, via funding from the Australian Government's Agricultural Innovation Hubs Program.

Sprayable Biodegradable Polymer Membrane (SBPM) was developed by CSIRO and DPIRD research scientist Richard Fennessy described it as having a syrup-like consistency which dries to form a film.

Mr Fennessy said its application as a groundcover had increased soil moisture levels, compared with areas of bare soil, at table and wine grape sites in the Swan Valley, Frankland and Margaret River.

"Soil moisture levels where SBPM was applied were 14.5 to 15 per cent of the soil's water holding capacity, which was similar to plots where vegetation beneath the vines was controlled with herbicides and remnant vegetation remained – a conventional grower practice," he said.

"Where the surface of the soil was left bare, soil moisture levels were 13 to 13.5 per cent.

"This is a positive outcome because it demonstrates that SBPM has the potential to retain water in the soil, which is important in a drying climate – especially in regions where water availability is marginal."

Mr Fennessy said the impact of SBPM on soil temperature was more variable and varied between the Swan Valley and Margaret River demonstration sites.

"The soil at the Swan Valley table grape site is heavily shaded, and the soil temperature where SBPM was applied was similar to that achieved in the bare soil treatment, but warmer than temperatures where residues were retained," he said.

"At the Margaret River wine grape site, where the ground is exposed to more direct sunlight, soil temperatures where SBPM was applied varied significantly – from as low as 15°C to as high as 55°C.

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“These spikes in temperature could be due to the black colour of the mulch heating the soil in areas exposed to direct sunlight.

“We are still interpreting the data from these vineyard sites and look forward to sharing the findings with growers in the coming months”.

Horticultural demonstration sites for SBPM have also been established at DPIRD’s Carnarvon Research Station – on tomato and pumpkin plots.

“At this site we have observed that the local clay-based soils expand and contract with irrigation cycles, cracking the mulch and causing weed emergence,” Mr Fennessy said.

He said information from the project would assist CSIRO in refining SBPM, which would improve its formulation and increase the likelihood that it was adopted into farming systems.

“There is a lot of interest from farmers in new technologies such as SBPM that could improve irrigation efficiencies, reduce reliance on synthetic herbicides and contribute to soil health,” Mr Fennessy said.

The national online FDF Science to Practice Forum is being held from June 6 to 8. To register, visit the Australian Government’s Eventbrite page at fal.cn/3xy6W.

The in-person SW WA Hub Science to Practice Forum Workshop at Manjimup is being held on June 8. For more information or to register, visit the SW WA Hub Eventbrite page at bit.ly/41Guc6u or visit the Hub webpage at <https://www.gga.org.au/drought-hub/>.

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Caption: DPIRD research scientist Richard Fennessy is presenting results from a SW WA Hub-initiated project at the Future Drought Fund Science to Practice Forum and a workshop being hosted by the hub at Manjimup.

Caption: Biodegradable mulch applied at the DPIRD Carnarvon Research Station.

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