

MEDIA RELEASE
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Cotton industry's new framework to help farmers improve soil health

The Australian cotton industry has launched a new framework designed to help all Australian farmers make better soil management decisions by taking the complexity out of soil health.

Starting with the Australian government's National Soil Strategy definition of soil health as "the capacity of soil to function as a living system", the cotton industry has drawn together thinking from numerous sources to focus farmers on two key principles for supporting a living system: food and shelter.

Soil organisms are provided food by maximising living roots and biodiversity above and below the ground, and soil habitat is protected by maximising soil cover and minimising disturbance.

The framework shows how adopting more of these practices should have a positive impact on soil properties like soil organic matter, nutrients and compaction, which in turn will help soil better perform functions needed to support a farm enterprise like water holding, nutrient cycling, disease suppression and resilience to weather extremes.

University of New England Associate Professor of Soil Systems Biology and CottonInfo technical lead for soil health, Dr Oliver Knox, said a principles-based framework has a number of important advantages.

"This framework gives individual farmers the flexibility to choose practices that fit their unique circumstances, and it avoids the confusion that can arise when focusing on a specific soil property or function," Dr Knox said.

"It provides a simple guide for farmers to think about what practice changes they could make over the next year or the next decade to improve productivity by improving soil health.

"Farmers have already adopted many practices within these principles, so the framework also makes it easier to explain to our stakeholders what soil health is, and what farmers are doing to manage it."

Cotton industry grower surveys conducted by the Cotton Research and Development Corporation (CRDC) show 98% of growers conserve crop residues, 92% use minimum tillage, integrated pest management is universally used to minimise soil disturbance by pesticides, and 30% of growers were using cover crops in 2021.

Mullaley cotton and grain grower Scott McCalman plants a winter mixed species cover crop which is terminated manually with a chevron pattern roller crimper at 12 weeks to kill and mulch the crop to provide water retention, green manure, generate and build soil nutrition, and weed suppression during the fallow.

"The soil framework really mirrors what I'm doing here," Mr McCalman said.

"Mixed cover crop species like rye, field peas and radish provide diverse living roots to feed the soil, the terminated cover crop provides a thick mat to shelter the soil, the breaking down mulch provides more

nutrition for the soil, and the weed suppression and nutrient boost we get means we dramatically reduce pesticide and fertiliser disturbance of the soil.

“Cover cropping has been quite spectacular for our operations, but the good thing about the soil health framework is it takes a horses for courses approach, so any farmer can look at those principles and plan for practices that best suit their farm.”

Mr McCalman estimates cover cropping has reduced herbicide and pesticide use, reduced reliance on synthetic nitrogen, and improved water use efficiency by reducing evaporation and trapping all available moisture like dew.

The soils framework is designed to help farmers make soil health decisions, while the National Soil Strategy undertakes work to develop nationally consistent ways to measure soil health.

“It’s essential the Australian cotton industry uses the same indicators and methods to measure soil health as grains and beef and sheep and other sectors, because the last thing we want is farmers being confused by different industries measuring the same thing in different ways,” Cotton Australia Chief Executive Officer Adam Kay.

“The cotton industry supports the important work of the National Soil Strategy to develop these nationally consistent measures, but we don’t want to stand still while we wait for the extraordinary complexity of soil to be defined by a number of indicators.

“This framework aims to make the complex subject of soil health clearer, to guide growers and to better tell our story to customers and other stakeholders now.”

The soils framework is available at the cotton industry’s online sustainability hub [here](#).

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For media enquiries, please contact:

Darrin Davies
Cotton Australia
0490 047 166

Ruth Redfern
Cotton Research and Development Corporation
0408 476 341