Our Natural Advantage

Practical information, resources and opportunities for north-west Tasmanian farmers and agricultural service providers.

Welcome to the December edition of *Our Natural Advantage*, Cradle Coast NRM's monthly climate-smart farming snapshot.

With World Soil Day coming up later this week, it seems appropriate to celebrate some of the things this magnificent and dynamic substrate does for agriculture.

While soil is continuously forming, it is not a renewable resource. One centimetre of topsoil takes between 1,000-4,000 years to form depending on environmental conditions. The highly productive rich red Ferrosol soils farmed intensively on the northwest coast of Tasmania have taken tens of millions of years to form. Around a dozen small volcanoes (such as Table Cape and the 'Nut' at Stanley) covered large parts of the landscape with a pyroclastic lava flow of basalt. This would have happened rapidly, pyroclastic flows can travel at 700 km per hour and reach 1,000°C. The weathering of basalt in a temperate, high rainfall environment has led to the development of these well-structured soils, which are some of the most productive soils in Australia.

Soil is effectively the interface between the atmosphere and bedrock, and is an ecosystem in itself. Obvious soil 'horizons' mark transitions moving down through the soil profile from the humous-rich topsoil to the subsoil capping the bedrock. The topsoil or organic horizon on the surface is composed of minerals, organic matter, gases, water, and living organisms. Minerals within a given soil type will vary depending on the type of rock or parent material which has weathered over time into rock fragments, gravel, sand, silt and clay. Organic matter in the soil accumulates from the microbial breakdown of material from plants and other living things in the soil as well as waste from microorganisms and earthworms.

Cradle Coast NRM Land Team conducting soil sampling

A healthy soil is teeming with life of many kinds; microorganisms such as fungi, bacteria, protozoa, nematodes and viruses, as well as springtails, spiders, insects, mites and earthworms. In one teaspoon of healthy soil, there are more microorganisms than there are people on earth. In one hectare of healthy soil, there will be 4-15 tonnes of microorganisms cycling nutrients and organic matter making nutrients available for plant uptake.

Soil erosion on bare-fallow paddocks during winter can remove tonnes of topsoil in one rainfall event alone, with the valuable organic topsoil horizon being the first soil lost.

Poorly treated soil can effectively 'die' and lose all productive capacity. An example of this is the American dust bowl of the 1930's. Decades of cultivation, the removal of deep-rooted native prairie grasses to sow cash crops destroyed the living networks of microorganisms and reduced the ability of the soil to hold water. When drought occurred, 75% of the topsoil in some areas of the great plains was eroded by wind leading to the degradation of approximately 40 million hectares.

Badly treated soil can release vast amounts of carbon emissions into the atmosphere, estimated to be approximately 75 billion tonnes in the European Union alone. Conversely, well managed soil can remove carbon from the atmosphere. Increasing soil carbon stores is estimated to have the potential to offset between 5-15 percent of all fossil fuel emissions. Land management practices such as revegetation, reduced tillage farming, manuring and compost application and cover cropping can sequester carbon underground, repair degraded soil and promote better crop yield attributes.

Check out the practical soil resources below to support effective soil management on Tasmanian farms. Please contact the Cradle Coast NRM Land team if you would like a hard copy of these resources on landprogram@cradlecoast.com.

Topsoil erosion

Resources

Soil test interpretation guide by Naomi Palombi and Doris Blaesing: this practical guide provides valuable information on soil fertility testing and chemical analysis for farmers and agronomists. View the digital book here.

Nutrient management for farming in Tasmania by Bill Cotching: this comprehensive guide offers insights into nutrient management on Tasmanian farms. View the digital book here.

Land drainage for farming in Tasmania by Bill Cotching and Samantha Gadsby: Learn essential "rules" of drainage gleaned from hands-on knowledge and explore the role of digital technology in planning and implementing drainage systems for farming in Tasmania. View the digital book here.

Soils Alive by NRE Tasmania: Learn to understand and manage soil biology in a Tasmanian farming context. Read the publication here.

Events and Opportunities

Forthside Field Day
Hosted by: Tasmanian Institute of Agriculture
Location: Forth
Date: 9 December
Get your tickets here.

Biologically Priming Soil with Dave Roberts-Thomson
Hosted by: Cradle Coast NRM
Location: Wynyard
Date: 10 December, 6:00pm to 7:30pm
RSVP to Hannah Sadler at hsadler@cradlecoast.com or on 6433 8400.

TIA Future Forum: How does regenerative agriculture impact profit and GHG emissions?
Hosted by: TIA
Location: Online
Date: 17 December, 2:00pm to 3:00pm
Register here.

Missed a previous edition? Browse other topics from *Our Natural Advantage* below.

View past editions

If you would like to share a relevant resource, event or opportunity, please email **landprogram@cradlecoast.com** by 21 November to be considered for the next edition.

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Australian Government

Cradle Coast NRM
CRADLE COAST AUTHORITY

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