

SOIL TYPES IN SOUTHERN TASMANIA

Tasmania is characterised by a high diversity of soil types. The types of soil on a property impact both its management and what the land can be used for. Being able to identify and understand the soils that are present on your property is important for all landholders to guide the adoption of appropriate land management practices. This includes:



- Reducing soil erosion risk.
- Understanding the best soil cultivation approaches.
- Nutrient management considerations.
- Avoiding soil waterlogging and the need for and type of drainage.
- Irrigation scheme design.
- The selection and type of suitable pastures grasses, legumes and herbs.
- Success and opportunity for more intensive agriculture, such as suitability of different tree crops (e.g. vines, fruit trees) or cropping.

Table 1: Characteristics of key soil types in southern Tasmania's agricultural areas¹

SOIL TYPE	DESCRIPTION	AGRICULTURAL QUALITIES					TYPICAL TOPOGRAPHY AND LOCATION
		Drainage capacity	Fertility	Water holding capacity	Seasonal water table presence	Erodibility	
Chromosol	Strong texture contrast (sand and over clay) with moderately acidic subsoil	Low	Low	Low	Often	High	Associated with hilly and rolling country on sandstone geology. Common throughout southern midlands, Tasman Peninsula, Derwent Valley and Channel areas.
Dermosol	Moderately structured, increasing clay content with depth	Moderate	Moderate	Moderate	Sometimes	Moderate	Often present on higher rolling hilly ground, such as elevated ground east and west of the Coal Valley
Kurosol	Strong texture contrast (sand over clay) with a highly acidic subsoil.	Low	Low	Low	Often	High	Presence of undulating ground throughout many areas of the Huon and Derwent Valleys and Buckland.
Sodosol	Strong texture contrast (sand over clay), high sodium content and moderately acidic subsoil	Low	Low	Low	Often	High	Often on gently sloping and flatter ground – e.g. throughout the Coal Valley and north Burny Island

HOW DO I FIND OUT WHAT MY SOIL TYPES ARE?

The LIST is a free, easy to use, online map application that allows people to view, create and share their own customised maps of Tasmania. The LIST allows you to identify a wide range of features relating to your property, including soil information. Please refer to the Further Reading section at the end of this factsheet for more information on how to access and use the List.

Table 2: Managing different soil types

ATTRIBUTE	SOIL TYPE			MANAGEMENT CONSIDERATIONS
	SAND	LOAM	CLAY	
Drainage	High	Medium/ High	Low	Install appropriate drainage systems as required to limit the incidence and severity of soil water logging. Surface drains are appropriate for sand and loam soils. Surface and sub surface drains can be used for clay soil.
Water holding capacity	Low	Medium/ High	High	Irrigate your soils according to texture, e.g. lighter and more frequent irrigation is appropriate for sandy and loam soils.
Aeration	High	Medium/ High	Low	Improve and maintain soil aeration and reduce the potential for compaction by limiting traffic access, maintain productive pasture, destock and don't cultivate waterlogged soils. Clay soils need to be carefully managed as they are often more prone to soil waterlogging and compaction.
Compaction potential	Low	Medium/ High	High	
Resistance to pH change	Low	Medium	High	
Nutrient supply (cation exchange capacity)	Low	Medium	High	Soil test routinely to achieve optimal soil pH and fertility levels.
Ability to retain chemicals and nutrients	Very low	Low	Medium/High	
Ease of cultivation	High	Medium	Low	Select the appropriate cultivation implement and limit the use of powered machinery (e.g. rotary hoe).
Root penetration	High	High	Low/Medium	Select deeper rooter pasture grasses and legumes which can grow deeper into the soil.
Susceptibility to wind erosion	High	Medium	Low	Maintain at least 80% ground cover for all soil type, and if on sloping ground this should be 100% groundcover at all times.

SUSTAINABLE SOIL MANAGEMENT PRACTICES

A range of sustainable soil management practices can be undertaken, including

Grazing and pasture management

- Maintain productive pastures and aim for a year-round minimum 80% groundcover. This reduces the potential for soil erosion (chromosol and kurosol soils are particularly susceptible).
- Run a sustainable number and class of livestock. Avoid over stocking which can result in pasture degradation, reduced groundcover and soil pugging.
- Exclude browsing wildlife from pastures (install wildlife proof fencing where needed)
- Encourage a high legume content in your pastures. This promotes grass production, increases overall pasture quality and quality, and improves soil biology.

Cropping and sowing pastures

- Adopt minimal tillage soil practices. Minimise the depth and frequency of soil cultivation, limit use of powered implements, avoid ploughing and never cultivate wet soils.
- Only crop your soils on a frequency consistent with the land capability (refer to NRM South's Land Capability Factsheet).
- Between cropping events grow green manure and cover crops to protect topsoil from erosion, improve biological activity and introduce organic matter.

Monitoring and amendments

- Soil test on a regular basis (every 3 to 4 years) to address soil pH and nutrient deficiencies and avoid excessive nutrient levels. Achieving optimal nutrient levels is more effective than maximising nutrient content in pasture and crop production.
- Where possible apply organic based fertiliser (e.g. compost, manure) . This adds soil carbon, releases nutrients slowly and enhances soil microbial activity. Fertilisers should be weed free, not contaminated and if using compost, well processed.

Drainage and irrigation

- As required, install a well-designed grassed drainage system that collects and diverts excess surface water run-off. See specialist advice on design and location of drains on your property and check with the authorities (local council and/or NRE Water Branch) before doing drainage works close to public lands or waterways. Always check with Before You Dig prior to commencing any drainage works.
- Do not over irrigate soils as this can lead to waterlogging, erosion, reduced crop/pasture production, salinity, compaction and nutrient leaching. Seek specialist advice when installing an irrigation system and learn how to correctly irrigate relative to the soil type present, pasture/crop being grown and seasonal conditions.

Sodic soils

- Do not expose sodic soils, and this includes in both the top and subsoil, when cultivating or installing surface drains, and if required apply gypsum to remediate these soils. Sodic soils are associated with kurosols, sodosols and dermosols.

If needed, seek specialist advice from an agronomist, environmental/soil scientist, civil engineer or NRM extension officer to assist with decision-making on matters relating to sustainable land management.

THE MOST IMPORTANT SOIL MANAGEMENT ACTIONS THAT LANDHOLDERS SHOULD ADOPT ARE TO MAINTAIN PRODUCTIVE PASTURES, MAINTAIN AT LEAST 80% GROUND COVER, RUN A SUSTAINABLE NUMBER OF LIVESTOCK, SOIL TEST ON A REGULAR BASIS AND LIMIT ANY SOIL CULTIVATION ACTIVITIES.

FURTHER READING



The List Map



The List Map
user guide



NRM South Healthy
Farms property
planning guide



Climate Smart Farming
'Useful Resources'

¹ Modified from Soil Science Australia 'Getting to Know Your Garden Soil' factsheet

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