

# Old rhyolite ash soils

## Soil types in this group

- Coatesville silt loam - CV
- Waitemata silt loam - WE
- Waitemata silt loam wet phase - WEm

This fact sheet uses NZ Soil Bureau map series soil type names and abbreviations.

**0-10 cm**  
dark grey silt loam

**10-45 cm**  
light grey compact silt loam

**>45 cm**  
yellowish brown mottled compact silt loam



*Coatesville silt loam (CV) soil profile*

## Features of old rhyolite ash soils

- These highly variable soils are also sometimes referred to as podzolised yellow brown loams
- They are part of the Waitemata soil suite
- They formed under kauri and podocarp forests on rhyolitic ash deposits from central North Island volcanoes (and possibly local volcanoes)
- Ash from eruptions washed downhill and was deposited on floodplains, where water mixed it with alluvium from other sources
- These soils range from weakly to moderately podzolised
- They are winter wet and have low natural fertility

## Structure and drainage management

Issues	Management tips
Topsoil structure is fragile and can be broken down easily, leading to surface sealing	Careful winter grazing management can minimise pugging and compaction and protect soil structure
Drainage can be highly variable depending on subsoil pans and where in the landscape the soil lies	Maintaining good pasture covers helps build soil organic matter and improve soil structure
Where soils have formed under thick kauri stands, acid leaching has created an impenetrable clay-rich subsoil	Avoid cultivation where possible and consider no-till or over-sowing options

## Erosion control

Erosion risks	Soil type	Specific problems	Possible solutions
Sheet erosion	All old rhyolite ash soils	Exposed topsoils are fragile and at risk of being washed away  Areas prone to winter wetness and pugging are particularly vulnerable  Frequent cultivation adds further risk	Reduce stock pressure to prevent pugging and overgrazing  Restore and create wetlands in less productive low lying areas to trap sediment
Rill erosion	All old rhyolite ash soils	Rill erosion on terrace edges and sloped surfaces has exposed underlying rock and buried soils  Topsoils exposed by frequent cropping are particularly vulnerable to rill erosion	Maintaining good vegetation covers helps build soil organic matter and improve soil structure  Avoid cultivation where possible and consider no-till or over-sowing options
Gully erosion	All old rhyolite ash soils	Water flow causes gullies to extend upslope and expand as the side walls collapse	Plant willow poles in a zig-zag pattern down the gully  Increase planting density of erosion control trees in gully heads



Coatesville soils on old terraces, Mangapai

## Nutrient management

Soil type	Nutrient status	Management strategies
All old rhyolite ash soils	<p>These soils are heavily leached and generally acidic. They are low in natural fertility and trace elements</p> <p>Less clay means nutrients are not bound and are therefore more available to plants, but excess can be lost through leaching</p>	<p>Little and often applications of fertiliser are ideal to avoid leaching and improve nutrient utilisation</p> <p>Lime may be needed to raise pH. Seek advice from your fertiliser consultant and vet for nutrient requirements</p>

## Drainage classes

Soil symbol	Full name	Drainage class
<b>WAITEMATA SUITE</b> Basement rock: rhyolitic ash, usually mixed with alluvium		
WE	Waitemata silt loam	4⇒3⇒2⇒1 - Well to poorly drained
WE <sub>m</sub>	Waitemata silt loam wet phase	4⇒3⇒2⇒1 - Well to poorly drained
CV	Coatesville silt loam	2⇒1 - Imperfectly to poorly drained

## Northland soil factsheet series

- Northland's climate, topography, historic vegetation and mixed geology have combined to form a complex pattern of soils across the region. There are over 320 soil types in Northland. Other regions in New Zealand average only 20 soil types per region.
- The information in this fact sheet is based on a 1:50,000 mapping scale. Therefore, it is not specific to individual farms or properties. However, it may help you to understand general features and management options for recent alluvial soils.
- Knowing your soils' capabilities and limitations is the key to sustainable production in Northland. Northland Regional Council (NRC) land management advisors are available to work with landowners to provide free soil conservation advice, plans and maps specific to your property.
- Regular soil tests are recommended. If you are concerned about your soil structure or health, the Visual Soil Assessment test could be useful. Contact the land management advisors at Northland Regional Council for more information.
- Further background information about the processes that have formed these soils can be found here: [www.nrc.govt.nz/soilfactsheets](http://www.nrc.govt.nz/soilfactsheets)

Contact a land management advisor on  
0800 002 004 or visit [www.nrc.govt.nz/land](http://www.nrc.govt.nz/land)