

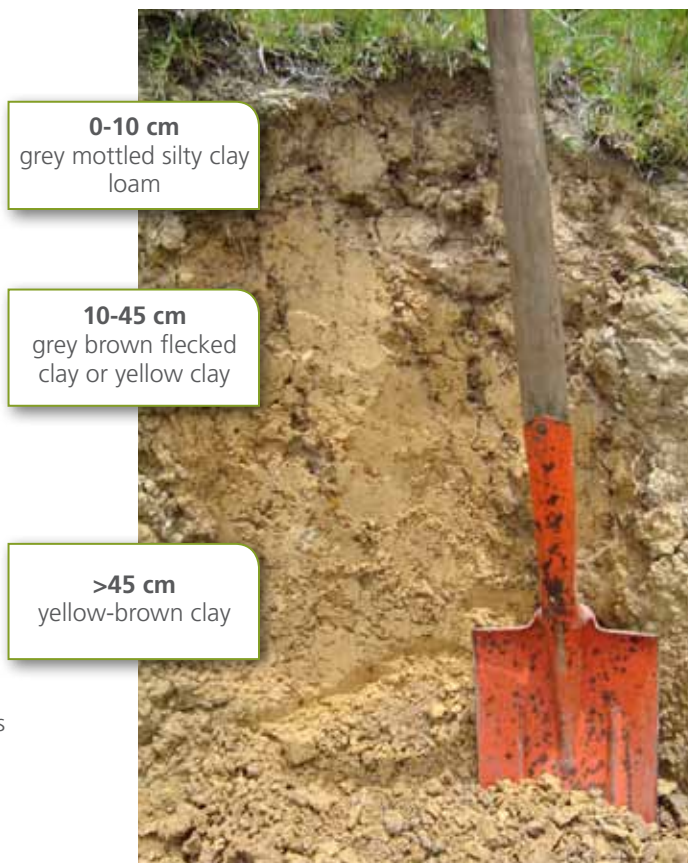
Mature greywacke soils

Soil types in this group

- Rangiora clay, clay loam and silty clay loam - RA, RAH*
- Rangiora silty clay loam - RAI, RAIH*

*The H denotes the hill variant of this soil type, which occurs on slopes over 20° and has a shallower profile.

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



0-10 cm
grey mottled silty clay loam

10-45 cm
grey brown flecked clay or yellow clay

>45 cm
yellow-brown clay

Rangiora clay, clay loam & silty clay loam (RA, RAH) soil profile

Features of mature greywacke soils

- These soils are found on rolling to steep hill country along Northland's eastern edge, from Mangonui south to Bream Tail
- They are part of the Marua soil suite, which is prone to large scale slipping
- Slip scars on Rangiora soils can be difficult to revegetate because of poor natural fertility
- Greywacke basement rock is a hard, compacted mix of sandstone and siltstone that provides a majority of roading and building aggregates
- Because it is hard, greywacke supports some steep slopes. On the adjacent rolling hill country it has weathered up to 30m deep to produce mature Rangiora soils
- These mature soils are strongly leached to weakly podzolised

Structure and drainage management

Issues	Management tips
Due to the degree of leaching, clay has moved down through the soil profile and accumulated in subsoil which cracks as it dries to form a distinct columnar subsoil structure	Consider draining wet pasture or creating / or protecting wetlands
Podzolisation has broken down topsoil structure, reducing friability	Consider retiring very steep or marginal pastoral land from grazing if pastoral returns are poor and/or weed invasion is a problem
Loss of soil structure leads to pugging and soil surface sealing in wet conditions	Careful winter grazing management can minimise pugging and compaction and protect soil structure

Erosion control

Erosion risks	Soil type	Specific problems	Possible solutions
Slipping (severe)	All mature greywacke soils, especially on steeper slopes and during heavy rain after drought	Clay washed through the soil profile creates a slip plane During high intensity rain storms following dry weather, water flows down the cracks between the columns in the soil and lubricates the slip plane, triggering slips	Open plant poplars across slopes at 5-10m spacing with the closer spacing at the toe and wider spacing towards the top and sides of the slip Reduce stock pressure to prevent pugging and overgrazing, which can lead to slipping
Slump erosion and soil cracking	All mature greywacke soils, especially steep areas	Where water flows across the regolith, a tunnel can form underground, which removes support from adjoining slopes During extended wet periods, tunnels cause slow slip movement defined by slump terraces and cracking	Open plant poplars to stabilise slump terraces Concentrate tree plantings in hollows and the heads of gullies as a preventative measure to reduce slipping



Rangiora soils on greywacke hill country, Ruakaka

Nutrient management

Soil type	Nutrient status	Management strategies
All mature greywacke soils	These soils are heavily leached and generally acidic. They are low in natural fertility and trace elements	<p>Raise pH with lime</p> <p>Little and often applications of fertiliser are recommended on these low fertility soils because whatever is applied will be available to plants, as it is not fixed.</p>
All mature greywacke soils	Previous trial work found that the micronutrient molybdenum creates a significant response in Rangiora soils	Seek expert advice for soil testing and fertiliser recommendations

Drainage classes

Soil symbol	Full name	Drainage class
MARUA SUITE Basement rock: greywacke and argillite		
RA, RAH	Rangiora clay, clay loam and silty clay loam	2 \Rightarrow 1 - Imperfectly to (very) poorly drained
RAI, RAIH	Rangiora silty clay loam	2 \Rightarrow 1 - Imperfectly to (very) 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

Contact a land management advisor on
0800 002 004 or visit www.nrc.govt.nz/land