

Mature red loam soils

Soil types in this group

- Apotu friable clay – AT, ATH*
- Manganese silt loam – MZ, MZH*
- Maungakohatu friable clay – MG, MGH*
- Waimate North clay loam - WM

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

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



0-25 cm
dark reddish brown
friable clay

25-50 cm
strong orange
crumbly clay

50-100 cm
strong orange clay
with pieces of augite
rock

Maungakohatu friable clay (MG, MGH) soil profile

Features of mature red loam soils

- These soils have formed where old volcanic cones once were
- They have the properties of volcanic soils but are in fact loams
- They are part of the Manganese, Maungakohatu and Papakauri soil suites
- Some of these soils developed on manganese deposits (the Manganese suite)
- Others evolved around basalt intrusions in greywacke (the Maungakohatu suite)
- These soils are moderately to strongly leached, with reasonable drainage
- They are naturally acidic, with low natural fertility
- They are suitable for shallow-rooted plant species due to the subsoil restricting root growth

Structure and drainage management

Issues	Management tips
Mature red loam topsoils are friable and shallow, making them susceptible to damage from compaction and erosion, especially if land is cultivated when it is too dry	Careful crop-pasture rotations can retain topsoil and soil structure necessary for plant growth
Dense clay subsoils impede drainage, reducing the range of crops that can be grown	Planting and cultivating on the contour can protect soil structure and reduce downslope movement of moisture and fertile topsoils
Seepage near edges of old volcanic cones is common	Minimise pugging and compaction to protect soil structure

Erosion control

Erosion risks	Soil type	Specific problems	Possible solutions
Slip erosion	All mature red loams, but especially Apotu soils	Clay washed down through the soil profile creates a slip plane on the underlying rock, resulting in topsoil loss from steeper slopes	Protect cultivated or bare topsoil on slopes by diverting runoff from upslope using grassed swales to channel flow into vegetated waterways
Rill erosion	All mature red loams	Water runoff downslope can gouge channels or rills into friable topsoils Bare, cropped soils are especially susceptible to rill erosion Rills become deeper with successive rainstorms	Consider retiring erosion prone pastoral land (especially Apotu soils) from grazing Cultivate and plant on the contour Sediment traps in frequently cropped areas should be part of best management practice
Sheet erosion	All mature red loams	In heavy rain, the friable topsoil can be carried in sheets downslope losing valuable nutrients	Maintain dense pasture covers



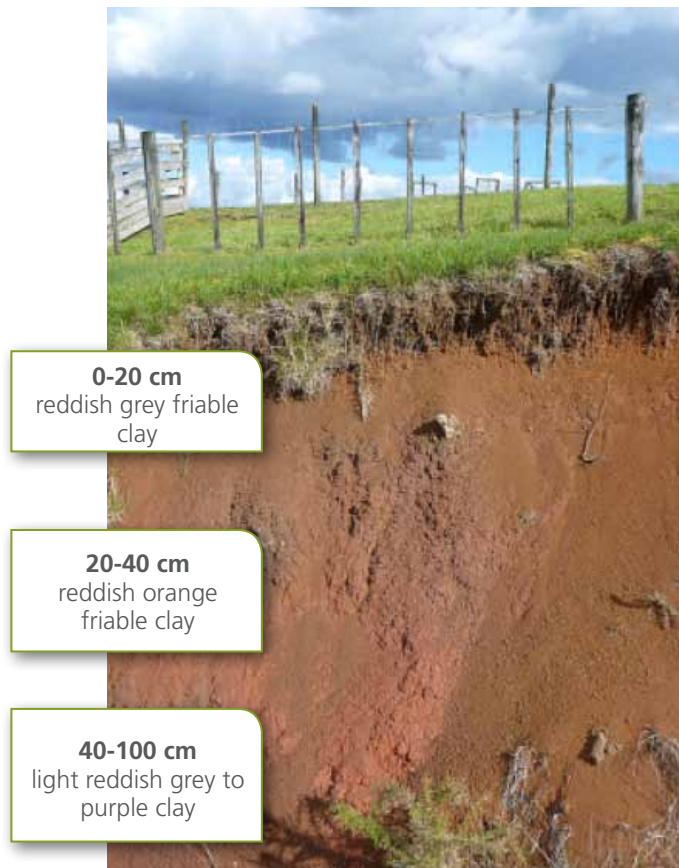
Apotu soils, foreground, north of Lake Omapere

Nutrient management

Soil type	Nutrient status	Management strategies
All mature red loam soils	Because these soils are naturally acidic and of low fertility, iron and aluminium in subsoils fix phosphate, particularly at low pH	Fertiliser should be applied 'little and often', rather than in heavy dressings, to avoid fixation losses Lime may be needed to raise pH Seek advice from your fertiliser consultant and vet for nutrient requirements

Drainage classes

Soil symbol	Full name	Drainage class
PAPAKAURI SUITE Basement rock: basalt scoria and ash		
WM	Waimate North clay loam	4 - Well drained
AT, ATH	Apotu friable clay	3 - Moderately well drained
MANGANESE SUITE Basement rock: manganese deposits		
MZ, MZH	Manganese silt loam	4 - Well drained
MAUNGAKOHATU SUITE Basement rock: volcanic deposits associated with basalt intrusions and greywacke		
MG, MGH	Maungakohatu friable clay	4 - Well drained



0-20 cm
reddish grey friable
clay

20-40 cm
reddish orange
friable clay

40-100 cm
light reddish grey to
purple clay

Apotu friable clay (AT, ATH) soil profile

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