

Young red loam soils

Soil types in this group

- Maunu silt loam – MU, MUH*
- Maunu bouldery silt loam - MUb
- Papakauri clay loam – PKe, PKeH*
- Papakauri silt loam – PK, PKH*

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.

Features of young red loam soils

- These soils formed on lava flows from recent scoria cones
- They are part of the Papakauri soil suite
- These soils are well drained and therefore can be drought-prone and leach nutrients
- However, these soils fix phosphate, especially at low pH



Papakauri silt loam (PK, PKH) soil profile

Structure and drainage management

Issues	Management tips
Young red loam topsoils are very friable, especially on steeper slopes	Careful crop-pasture rotations can retain topsoil and soil structure necessary for plant growth
Cultivation on some of these soils can be restricted by stones and loose rocks	Where soils are rock free, planting and cultivating on the contour can protect soil structure and reduce downslope movement of moisture and fertile topsoils
Because they are generally free draining, they are drought prone	Maintain dense pasture covers to reduce drought susceptibility



Papakauri silt loam hill soil (PKH)

Erosion control

Erosion risks	Soil type	Specific problems	Possible solutions
Shallow slip erosion	All young red loam soils	Clay washed down through the soil profile creates a shallow slip plane, 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 young red loam soils	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	Cultivate and plant on the contour Sediment traps in frequently cropped areas should be part of best management practice
Sheet erosion	All young red loam soils	In heavy rain, the friable topsoil can be carried in sheets downslope losing valuable nutrients	Maintain dense pasture covers

Nutrient management

Soil type	Nutrient status	Management strategies
All young red loam soils	Soil moisture deficit in summer limits plant production, decreasing soil organic matter	Maintaining good vegetation covers helps build soil organic matter and improve soil structure
All young red loam soils	Less weathered soils have more allophane clay, which can quickly fix phosphate, particularly at low pH	To reduce leaching and fixation losses, fertiliser should be applied 'little and often' For horticulture, fertiliser applied as closely as possible to plant roots achieves best results
All young red loam soils	Surplus nitrogen can be leached through these free-draining soils into groundwater, especially where heavy dressings have been applied to vegetable crops	Careful management of irrigation and nutrients is required, especially for market gardening

Drainage classes

Soil symbol	Full name	Drainage class
PAPAKAURI SUITE Basement rock: basalt scoria and ash		
MU, MUH	Maunu silt loam	5 - Somewhat excessively drained
MUb	Maunu bouldery silt loam	5 - Somewhat excessively drained
PK, PKH	Papakauri silt loam	4 - Well drained
PKe, PKeH	Papakauri clay loam	4 - Well 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