

Terrace soils

Soil types in this group

- Albany silt loam - AB
- Kamo clay loam - KO
- Kamo peaty silt loam - KOy
- Kamo red clay loam - KOR
- Kamo silt loam - KOI
- Kohumaru clay - KM
- Kohumaru mottled loamy clay - KMm
- Pakotai brown clay - PCr
- Pakotai clay - PC
- Pakotai dark grey clay - PCm
- Pakotai peaty clay loam - PCy
- Waipapa clay - YF
- Waipu clay - YU
- Waipu peaty sand - YUay
- Waipu peaty silt loam and peaty clay - YUy
- Waipu sand - YUa
- Waipuna clay - WU
- Wairua clay - YA
- Whareora clay - WO
- Whareora sand - WOa



Waipu clay (YU) soil profile

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

Features of terrace soils

- These soils are found on terraces and alluvial fans that are generally above flood level and no longer being replenished by sediment in floodwater
- They are part of the Waipapa, Waipu, Whareora and Kohumaru soil suites
- These alluvial soils formed from a variety of volcanic or sedimentary parent material previously deposited by water
- These soils vary considerably at a paddock scale and should be managed accordingly
- Although soils within this group vary from well drained to very poorly drained, the majority are seasonally very wet. It is the drainage characteristics of the individual soils that largely determine their versatility

Structure and drainage management

Issues	Management tips
Terrace soils can have a pan in their subsoil that restricts natural drainage. Where a pan exists waterlogging can create anaerobic conditions that impact on soil structure, root growth and nutrient availability	Pans may be broken with subsurface drainage to improve soil structure
	Heavy applications of lime will help build up humus, improve soil structure and drainage and reduce the loss of soluble nutrients
High clay content can cause terrace soils to crack in summer as the soils dry out and shrink	Managing winter grazing to minimise pugging will create conditions that result in the build-up of humus and improve soil structure
Soil cracking also allows water to drain quickly to subsurface drains, exaggerating leaching of effluent and nutrients. This is particularly a problem if heavy rain falls after a prolonged dry period	Where possible water from subsurface drains should be routed through natural or constructed seeps or wet areas to remove ammonia, nitrates and soluble phosphates
The high clay content makes these soils prone to pugging when wet, especially when fodder crops are fed in situ	Fodder crops should be fed off-paddock or in drier seasons on site, with back fencing to reduce runoff into waterways
They have impeded drainage and do not dry out enough in spring to allow early cultivation	Ensure soils are dry enough for cultivation and harvest; crops with short growing seasons are more suitable for wet soils.

Erosion control

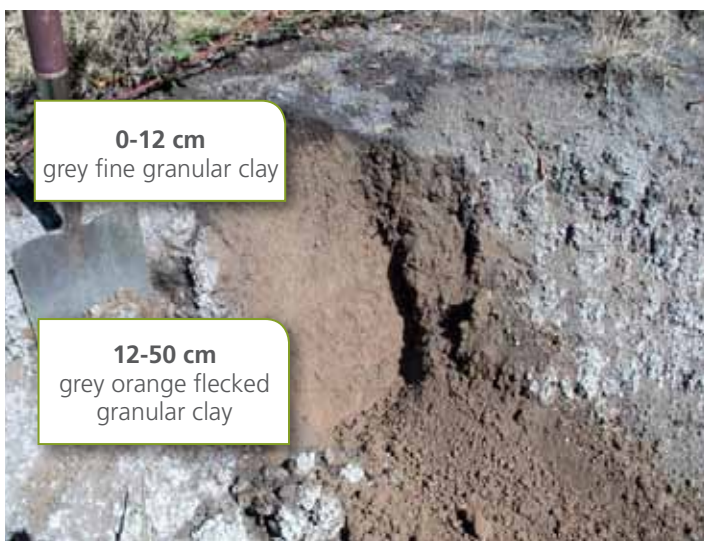
Erosion risks	Soil type	Specific problems	Possible solutions
Terrace edge slips	All terrace soils	Slips can occur where open drains discharge water over the edges of terraces On the edges of terraces, natural seepage may also cause slips	To control terrace edge slips, drainage channels can be armoured with rock Channels can also be planted with willows Slip areas can be planted with willows to stabilise soil movement



Waipuna clay (WU) on higher terrace, Whakapara soils on flats (described in recent Alluvial soils, Factsheet 1.1.1 & 1.1.2)

Nutrient management

Soil type	Nutrient status	Management strategies
Most terrace soils	These soils are generally reasonably fertile	A 'little but often' maintenance fertiliser programme will minimise leaching losses



0-12 cm
grey fine granular clay

12-50 cm
grey orange flecked granular clay

Pakotai clay (PC) soil profile



0-15 cm
very dark brown to dark brown granular silty clay loam

15-30 cm
brown to dark yellowish brown compact silty clay

30-95 cm
strong brown to yellowish brown with small manganese concretions

Kohumaru clay (KM) soil profile

Drainage classes

Soil symbol	Full name	Drainage class
KOHUMARU SUITE On terraces built from Tangihua volcanic alluvium (dolerite and andesite rocks) 5–10 m above floodplain Found in Tangihua volcanic rock catchments		
PCr	Pakotai brown clay	4 - Well drained
KM	Kohumaru clay	3 - Moderately drained
PC	Pakotai clay	2 - Imperfectly drained
KMm	Kohumaru mottled loamy clay	1 - Poorly drained
PCm	Pakotai dark grey clay	1 - Poorly drained
PCy	Pakotai peaty clay loam	1 - Poorly drained
WHAREORA SUITE On terraces built from sedimentary rock alluvium 5–10 m above floodplain Found in Tangihua sedimentary rock catchments		
AB	Albany silt loam	2⇒1 Imperfectly to very poorly drained
WOa	Whareora sand	4 - Well drained
WO	Whareora clay	3 - Moderately drained
WU	Waipuna clay	1 - Poorly drained
WAIPU SUITE On terraces built from sedimentary rock alluvium 3–5 m above floodplain Found where rising sea or lakebed levels have blocked off valleys in greywacke hill country catchments		
YUa	Waipu sand	1- Poorly drained
YUay	Waipu peaty sand	1- Poorly drained
YA	Wairua clay	2⇒0 - Very poorly drained to imperfectly drained
YUy	Waipu peaty silt loam and peaty clay	1⇒0 Very poorly drained
YU	Waipu clay	0 - No natural drainage
WAIPAPA SUITE On terraces built from basalt rock alluvium 15–20 m above floodplain Found in valleys draining Tangihua volcanic high country		
KOr	Kamo red clay loam	4⇒1 - Well to poorly drained
KO	Kamo clay loam	1- Poorly drained



Whareora (WO) on low terraces, hills have Rangiora soils (described in Mature graywacks soils fact sheet 3.4.2)

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