Soil name: Oteramika

Overview

Oteramika soils occupy about 1,600 ha on the sideslopes of terraces and downlands across the Southland plains from the Aparima River to Tokanui. They are formed where there is thin loess overlying old gravels derived from greywacke and schist rocks. Oteramika soils are typically gravelly, and are moderately well to imperfectly drained. They are used for pastoral grazing and have a cool temperate climate with regular rainfall.

Oteramika profile

Physical properties

Oteramika soils have moderately deep rooting depth and moderate plant available water, and are limited by the subsoil gravels. The soils are imperfectly drained, although those on hilly to steep slopes are well drained. Aeration is good in upper horizons but decreases with depth, with the subsoil being slowly permeable. Textures are silt loams in the topsoil, and silty clay in the subsoil. Topsoil clay content is about 25–30%, and slightly to moderately gravelly. Subsoils are typically very to extremely gravelly.

Fertility properties

Topsoil organic matter levels are 5–9%; topsoil P-retention is 40–55%, with higher values in some subsoils; pH values are low to moderate and tend to decrease down the profile. Cation exchange and base saturation values are moderate, as are available calcium, magnesium and potassium. Soil reserves of phosphorus are low and sulphate sulphur levels are higher in the subsoil. Micronutrient levels are generally adequate.

Associated and similar soils

Some soils that commonly occur in association with Oteramika soils are:

- Woodlands: formed in deep loess, with gravels at greater than 45cm depth, and imperfect drainage.
- Pukemutu: formed in deep loess, with gravels at greater than 90cm depth, and poorly drained due to fragipan.
- Aparima: formed in deep loess, with gravels at greater than 90cm depth, and imperfectly drained due to fragipan.

Some soils that have similar properties to Oteramika soils are:

- Benio: occurs in northern Southland. Typically more strongly weathered and moderately well drained.
- Wairaki: occurs on high terraces and fans from the Takitimu mountains. Formed in tuffaceous greywacke alluvium.

Sustainable management indicators

Note: the vulnerability ratings given in the table below are generalised and should not be taken as absolutes for this soil type in all situations. The actual risk depends on the environmental and management conditions prevailing at a particular place and time. Specialist advice should be sought before making management decisions that may have environmental impacts. Where vulnerability ratings of Moderate to Very severe are indicated, advice may be sought from Environment Southland or a farm management consultant.

Vulnerability factor	Rating	Vulnerability compared to other Southland soils
Structural compaction	slight	These soils have a slight vulnerability to structural degradation by long-term cultivation, or compaction by heavy stocking and vehicles.
Nutrient leaching	moderate	These soils have a moderate vulnerability to leaching to groundwater. This rating reflects the moderate water-holding capacity and slowly permeable subsoil.
Topsoil erodibility by water	slight	Due to the topsoil clay content, the topsoil erodibility of these soils is slight. Erodibility is highly dependent on management, particularly when there is no vegetation cover.
Organic matter loss	slight	Vulnerability to long-term decline in soil organic matter levels is partly dependent on soil properties, and highly dependent on management practices (e.g., crop residue management and cultivation practices).
Waterlogging	slight	These soils have a slight vulnerability to waterlogging during wet periods, due to the imperfect drainage. The hilly and steep phases are less vulnerable to waterlogging.

General landuse versatility ratings

Note: The versatility ratings in the table below are indicative of the major limitations for semi-intensive to intensive land use. These rating differ from those used in the past in that sustainability factors are incorporated in the classification. Refer to the Topoclimate district soil map or property soil map to determine which of the soil symbols listed below are applicable, then check the versatility ratings for that symbol in the appropriate table.

OkR3 (Oteramika rolling shallow) and **OkR2 (Oteramika rolling moderately deep)**

Versatility evaluation for soil OkR3, OkR2		
Landuse	**Versatility rating**	**Main limitation**
Non-arable horticulture	Moderate	Moderately deep potential rooting depth and vulnerability to leaching to groundwater
Arable	Limited	Rolling slope
Intensive pasture	Moderate	Ease of subsoil root growth and vulnerability to leaching to groundwater
Forestry	Moderate	Moderately deep potential rooting depth and ease of subsoil root growth

OkU3 (Oteramika undulating shallow)

Versatility evaluation for soil OkU3		
Landuse	**Versatility rating**	**Main limitation**
Non-arable horticulture	Moderate	Moderately deep potential rooting depth and vulnerability to leaching to groundwater
Arable	Moderate	Risk of short-term waterlogging and ease of subsoil root growth
Intensive pasture	Moderate	Ease of subsoil root growth and vulnerability to leaching to groundwater
Forestry	Moderate	Moderately deep potential rooting depth and ease of subsoil root growth

OkH3 (Oteramika hilly shallow) and **OkS3: (Oteramika steep shallow)**

Versatility evaluation for soil OkH3, OkS3		
Landuse	**Versatility rating**	**Main limitation**
Non-arable horticulture	Unsuitable	Hilly to steep slopes
Arable	Unsuitable	Hilly to steep slopes
Intensive pasture	Limited	Hilly to steep slopes
Forestry	Limited	Moderately deep potential rooting depth and hilly to steep slopes

Management practices that may lessen versatility limitations

- Tile drains to assist drainage. Stony subsoils may prevent mole installation.
- Care with intensive grazing to minimise pugging when soils are excessively wet.
- Management of nutrient applications that minimise leaching losses
- Organic matter levels should be carefully maintained and enhanced