

This Information Sheet describes the *typical average properties* of the specified soil. It is essentially a summary of information obtained from one or more profiles of this soil that were examined and described during the Topoclimate survey or previous surveys. It has been prepared in good faith by trained staff within time and budgetary limits. However, no responsibility or liability can be taken for the accuracy of the information and interpretations. Advice should be sought from soil and landuse experts before making landuse decisions on individual farms and paddocks. The characteristics of the soil at a specific location may differ in some details from those described here.
No warranties are expressed or implied unless stated.

Soil name: **Stonycreek**

Overview

Stonycreek soils occupy about 700 ha on lower slopes on the north side of the Hokonui Hills. They are formed into a thin layer of loess mixed with colluvium derived from tuffaceous greywacke rock. Soils are imperfectly to poorly drained, with a slightly deep rooting depth, and moderate plant available water. Present use is pastoral farming with sheep, deer and beef cattle. Climate is temperate with regular rainfall during the year, though summers can be seasonally dry.

Physical properties

Stonycreek soils have moderate plant available water and a slightly deep (45–60cm) rooting depth that is limited by the subsoil gravels. The soils are imperfectly to poorly drained, with the aeration being limited by the slow subsoil permeability. Textures are silt loams in the topsoil, with heavier clay loams to silty clay in the subsoil. Topsoil clay content is about 20–30%. Gravel occurs throughout the profile, but may vary in abundance.



Stonycreek profile

Fertility properties

Topsoil organic matter levels are about 6%, P-retention 20–35% and topsoil pH moderate (high 5s). Subsoil pH increases with depth (typically >6.0). Cation exchange levels are moderate and base saturation levels high. Available calcium and magnesium levels are moderate and potassium and sodium moderate to low. Soil reserves of phosphorus are low. Micronutrient levels are generally adequate.

Associated and similar soils

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

- Kaihiku: well drained shallow soils formed in gravelly tuffaceous greywacke colluvium
- Mandeville: well drained shallow soils forming onto bedrock within 45cm depth
- Glenure: poorly drained deep to moderately deep soils formed into loess

Some soils that have similar properties to Stonycreek soils are:

- Mossburn: poorly drained deep to moderately deep soil formed into loess and gravelly colluvium
- Lintley: poorly drained shallow soil formed into greywacke fan gravels

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	severe	These soils have a severe vulnerability to structural degradation by long-term cultivation, or compaction by heavy stocking and vehicles. This rating reflects the imperfect to poor drainage, with moderate to low organic matter, clay and P-retention.
Nutrient leaching	severe	These soils have a severe vulnerability to leaching to groundwater. This rating reflects the imperfect drainage and slow permeability, but moderate water holding capacity. Poorly drained soils are likely to be moderately vulnerable.
Topsoil erodibility by water	moderate	Due to the moderate to low clay and organic matter levels, topsoil erodibility in these soils is moderate. Erodibility is highly dependent on management, particularly when there is no vegetation cover.
Organic matter loss	moderate	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	moderate	These soils have a moderate vulnerability to waterlogging during wet periods. This rating reflects the imperfect to poor drainage and slow permeability.

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 ratings 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.

StR3 (Stonycreek rolling shallow)

Versatility evaluation for soil StR3		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Limited	Inadequate aeration; restricted rooting depth
Arable	Limited	Rolling slopes
Intensive pasture	Moderate	Inadequate aeration; restricted rooting depth
Forestry	Limited	Restricted rooting depth

StU3 (Stonycreek undulating shallow)

Versatility evaluation for soil StU3		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Limited	Inadequate aeration; restricted rooting depth
Arable	Moderate	Inadequate aeration; vulnerability to structural compaction
Intensive pasture	Moderate	Inadequate aeration; restricted rooting depth
Forestry	Limited	Restricted rooting depth

StH3 (Stonycreek hilly shallow)

Versatility evaluation for soil StH3		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Unsuitable	Hilly slopes
Arable	Unsuitable	Hilly slopes
Intensive pasture	Limited	Hilly slopes
Forestry	Limited	Restricted rooting depth

Management practices that may improve soil versatility

- Careful management after heavy rain and wet periods will reduce the impact of short-term waterlogging. Intensive stocking, cultivation and heavy vehicular traffic use should be minimised during these periods.

Copyright © 2002, Crops for Southland

www.cropssouthland.co.nz

This Information Sheet may be reproduced in whole or in part and in any form for educational or non-profit purposes without special permission from the copyright holder, provided acknowledgement of the source is made. Crops for Southland and Environment Southland would appreciate receiving a copy of any publication that uses this Information Sheet as a source. No use of this Information Sheet may be made for resale or for any other commercial purpose whatsoever without prior permission in writing from Crops for Southland.