Soil name: Oughton

Overview

Oughton soils occupy about 300 ha on low river terraces of the east side of the Mataura River adjacent to Wyndham. They are formed into fine alluvium overlying gravels derived from both the Mataura River and streams draining nearby tuffaceous greywacke hills. Soils are moderately well to imperfectly drained, with moderately deep rooting depth, moderately high plant available water, and silty clay textures. Present use is sheep and dairy farming. Climate is cool temperate with regular rain throughout the year, so soils rarely dry out.

Oughton profile

Physical properties

Oughton soils have a moderately deep rooting depth, with moderately high plant available water, limited by the underlying gravels. The soils are moderately well to imperfectly drained, with moderate to slow subsoil permeability (above the gravels). Textures are silty clays, grading to silt loams and sands in the gravels. Topsoil clay content is about 40%. Deep soils are stone free but moderately deep soils contain gravel below 45cm depth.

Fertility properties

Topsoil organic matter levels are 6–8%; P-retention 45–70% and pH low (low 5s). Cation exchange levels are moderate and base saturation low. Available calcium and potassium levels are low and magnesium moderate. Soil reserve phosphate levels are low. Micronutrient levels are generally adequate.

Associated and similar soils

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

- Gore: well drained shallow soil, with gravels within 45cm depth
- Fleming: deep, imperfectly to poorly drained soils with a fragipan
- Jacobstown: moderately deep to deep, poorly drained soil due to a high groundwater table

Some soils that have similar properties to Oughton soils are:

- Nithdale: formed in tuffaceous greywacke alluvium on low terraces; has dominantly silty textures
- Niagara: imperfectly drained equivalent of the Nithdale soil; has dominantly silty textures, but may have some silty clay layers.

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	minimal	These soils have a minimal vulnerability to structural degradation by long-term cultivation, or compaction by heavy stocking and vehicles. This rating reflects the moderate drainage, P-retention and high clay content.
Nutrient leaching	moderate	These soils have a moderate vulnerability to leaching to groundwater. This rating reflects the moderate drainage and moderately high water-holding capacity.
Topsoil erodibility by water	slight	Due to the high clay content, topsoil erodibility in these soils is slight. Erodibility is highly dependent on management, particularly when there is no vegetation cover.
Organic matter loss	minimal	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 to moderate vulnerability to waterlogging during wet periods. This rating reflects the moderate 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.

OgU2 (Oughton undulating moderately deep) and **OgU2vi (Oughton undulating moderately deep, imperfectly drained variant)**

Versatility evaluation for soil OgU2		
Landuse	**Versatility rating**	**Main limitation**
Non-arable horticulture	Moderate	Risk of short-term waterlogging after heavy rain; restricted rooting depth
Arable	Moderate	Risk of short-term waterlogging after heavy rain; plus (on imperfectly drained variant) inadequate aeration during wet periods
Intensive pasture	Moderate	Vulnerability to leaching to groundwater or (on imperfectly drained variant) inadequate aeration during wet periods; risk of short-term waterlogging after heavy rain.
Forestry	Moderate	Restricted rooting depth and (on imperfectly drained variant) vulnerability to sustained waterlogging.

OgU1 (Oughton undulating deep): high versatility for forestry, with few limitations; moderate versatility for other landuses, with main limitation of risk of short-term waterlogging after heavy rain for non-arable horticulture and arable landuses plus (for intensive pasture) vulnerability to leaching to ground water.

OgU1vi (Oughton undulating deep, imperfectly drained variant): moderate versatility for all landuses; main limitations for forestry are vulnerability to sustained waterlogging and restricted rooting depth; limitations for other landuses are inadequate aeration during wet periods and risk of short-term waterlogging after heavy rain.

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 fraffic use should be minimised during these periods.
- Installation and maintenance of subsurface mole and tile drains will reduce the risk of short-term waterlogging.
- If compaction occurs, aeration at the correct moisture condition and depth can be of benefit.