

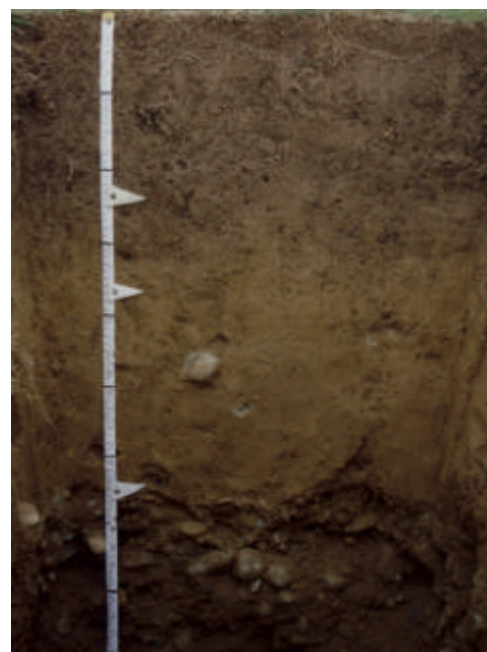
Soil name: **Ardlussa**

Overview

Ardlussa soils occupy about 6,700ha on the slowly accumulating floodplains and low terraces of the major rivers in northern Southland and west Otago. They are formed into moderately deep to deep fine alluvium over gravel. These soils are generally well drained, with good rooting depth. Ardlussa soils are suitable for a wide range of farming activities. Climate is temperate with occasional dry periods during some summers.

Physical properties

These soils have a moderately deep potential rooting depth, limited by gravel and high density in the subsoil. Ardlussa soils have moderately high available water and are well drained, with few aeration limitations except in the imperfectly drained variant, which can be wet in winter. Textures are generally light silt loams, with clay content of 15-25% in the topsoil. The deep phase will have deep rooting depth and high plant readily available water.



Ardlussa profile

Fertility properties

Topsoil organic matter levels are 4-7%; P-retention values 25-45%; pH values mostly above 5.5; moderate to low cation exchange capacity and base saturation values, which decrease down the profile. Natural reserves of phosphorus, potassium, sulphur, and magnesium are low to moderate. Micro-nutrient levels are generally adequate.

Associated and similar soils

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

- Mataura: well drained, deep or moderately deep recent soils found on the accumulating floodplain
- Gore: well drained stony soils found on similar landforms as the Ardlussa soils
- Jacobstown: poorly drained due to high groundwater. Silty textures.
- Fleming: poorly drained due to water perching on fragipan

Some soils that have similar properties to Ardlussa soils are:

- Winton: occurs on low terraces and floodplains in the lower Oreti Valley, south of Dipton. Forming into alluvium, but have clayey textures and P-retention of less than 30%.
- Charlton: imperfectly drained soils of the Mataura Valley, south of Gore. Equivalent soil to the Ardlussa, imperfectly drained variant.
- Crookston: occurs on intermediate to high terraces. Although they have similar NZSC, Crookston soils are formed on windblown loess of greater than 45cm depth.

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	Moderate	These soils have a moderate vulnerability to structural degradation by long-term cultivation, or compaction by heavy stocking and vehicles. This rating reflects the good drainage, but low clay and P-retention in the topsoil that results in low structural stability. The imperfectly drained variant will have severe vulnerability
Nutrient leaching	Moderate	These soils have a moderate vulnerability to leaching to ground water. The vulnerability is due to the moderate permeability and moderately high water holding capacity.
Topsoil erodibility by water	Slight	Due to the low 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 slight vulnerability to waterlogging during wet periods. This rating reflects the good drainage and moderate permeability. The imperfectly drained variant will have moderate vulnerability 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 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.

AdU2 (Ardlussa undulating moderately deep)

AdU1 (Ardlussa undulating deep)

AdU1vi (Ardlussa undulating deep, imperfectly drained variant)

Versatility evaluation for soil AdU2, AdU1, AdU1vi		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Moderate	Subsoil root penetrability for deep rooting crops
Arable	Moderate	Vulnerability to soil structure degradation and risk of flooding
Intensive pasture	Moderate	Vulnerability to soil structure degradation and risk of flooding
Forestry	Low	Risk of flooding

AdU2vi (Ardlussa undulating moderately deep, imperfectly drained variant): as above, except that main limitations for arable and non-arable horticulture are inadequate aeration for sustained periods and vulnerability of topsoil to structural degradation by cultivation and compaction.

Management practices that may improve soil versatility

- Cultivation and intensive stocking or vehicular traffic should be minimised during wet periods.