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GLOSSARY

The following definitions have been extracted from:

Charman, P.E.V; (1991). Glossary of Soil Science Terms. In "Soils their properties and management", A soil conservation handbook for New South Wales, Eds. Charman, P.E.V and Murphy B.W.. (Sydney University Press)

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Aluminium toxicity
Plant growth in agricultural crops may be affected if aluminium levels are greater than 15 micro grams per gram, (15ug/g). For the purposes of this report soils with aluminium levels greater than 15ug/g are regarded as being toxic and lime may be required to promote plant growth.

The value of 15ug/g has been extracted from information provided by:

Peverill, Margetts, Brown, Greenhill, and Monro
Analytical and Interpretive Services, Ag-Plus, State Chemistry Laboratory, Melbourne

Apedal:
Describes a soil in which none of the soil material occurs as peds in the moist state. Such a soil is without apparent structure and is typically massive or single-grained.

Available water for plant growth:
The amount of water in the soil that can be held between field capacity and the moisture content at which plant growth ceases.

Bleaching:
The near-white colouration of an A_2 horizon which has been subject to chemical depletion as a result of soil-forming processes including eluviation. The colour is defined for all hues as having a value ≥ 7 with a Chroma ≤ 4 on dry soils. Conspicuous bleaching means that > 80% of the horizon is bleached whereas Sporadic Bleaching means that < 80% of the horizon is bleached.

Consistence:
Consistence refers to the strength of cohesion and adhesion in soil. Strength will vary according to soil water status.

Drainage:
Drainage is a term used to summarise local soil wetness conditions. It is affected by internal attributes which include soil structure, texture, porosity, hydraulic conductivity, and water holding capacity, and external attributes such as quality of water, evapotranspiration, gradient and length of slope and position in the landscape.

Categories are as follows:

- Very poorly drained: Free water remains at or near the surface for most of the year. Soils are usually strongly gleyed. Typically a level or depressed site and/or a clayey subsoil.

- Poorly drained: All soil horizons remain wet for several months each year. Soils are usually gleyed, strongly mottled and/or have orange or rusty linings of root channels.

- Imperfectly drained: Some soil horizons remain wet for periods of several weeks. Subsoils are often mottled and may have orange or rusty linings of root channels.

- Moderately well-drained: Some soils may remain wet for a week after water addition. Soils are often whole coloured, but may be mottled at depth and of medium to clayey texture.

- We/l-drained: No horizon remains wet for more than a few hours after water addition. Soils are usually of medium texture and not mottled.

- Rapidly drained: No horizon remains wet except shortly after water addition. Soils are usually of coarse texture, or shallow, or both, and are not mottled.

Duplex soil
A soil in which there is a sharp change in soil texture between the A and B horizons (such as loam overlying clay). The soil profile is dominated by the mineral fraction with a texture contrast of 1.5 soil texture groups or greater between the A and B horizons. Horizon boundaries are clear to sharp.

Electrical Conductivity:
A measure of the conductivity of electricity, based on a 1:5 soil/water suspension used to determine the soluble salts in the extract. The unit of electrical conductivity is the 'siemens' and soil salinity is normally expressed as microsiemens per centimetre at 25°C.

Gradational soil:
A soil in which there is a gradual change in soil texture between the A and B horizons (for example, loam over clay loam over light clay). The soil is dominated by the mineral fraction and shows more clayey -texture grades on passing down the solum of such an order that the texture of each successive horizon changes gradually to that of the one below. Horizon boundaries are usually gradual or diffuse. The texture difference between consecutive horizons is less than 1.5 soil texture groups, while the range of texture throughout the solum exceeds the equivalent span of one texture group.

Gully erosion:
Erosion of soil or soft rock material by running water that forms channels larger and deeper than rills i.e. 300 mm.

Hardpan:
A hardened and/or cemented horizon, or part thereof, in the soil profile. The hardness is caused by mechanical compaction or cementation of soil particles with organic matter or with materials such as silica, sesquioxides or calcium carbonate. Such pans frequently reduce soil permeability and root penetration, and thus may give rise to plant growth and drainage problems.

Land Capability Assessment:
A method of determining the relative ability of different areas of land to sustain a specific land use and level of management without being degraded or causing any long term off-site degradation.

Land component:
An area of land, distinct from adjacent components because of specific slope, soil, aspect and/or vegetation characteristics.

Land system:
An area of land, distinct from surrounding terrain, that has a specific climatic range, parent material and landform pattern. There features are expressed as a recurring sequence of land components.

Linear shrinkage:
See Shrink/Swell Potential.

Mottling:
Irregular patches of colour interspersed with and different from the dominant soil colour, that vary in number and size. Mottling can indicate impeded drainage but may also be a result of parent material weathering.

Organic matter:
All constituents of the soil arising from living matter i.e. plant and micro-fauna detritus, fresh or decomposed. The following values for organic matter have been used in this report:

Very low	< 1%
Low	1-2%
Moderate	2-3%
High	> 3% (Organic matter % = Organic C% x 1.72)

Parent material/rock:
The geologic material from which a soil profile develops. It may be bedrock or unconsolidated materials including alluvium, colluvium, aeolian deposits or other sediments.

Permeability:
The characteristic of a soil, soil horizon or soil material which governs the rate at which water moves through it. It is a composite expression of soil properties and depends largely on soil texture, soil structure, the presence of compacted or dense soil horizons and the size and distribution of pores in the soil. In this study, the permeability has been measured as K_{sat}. (saturated hydraulic conductivity). Where estimates have been made, based on the properties of the soil profile, this is clearly indicated.

pH (soil reaction):
A measure of the acidity or alkalinity of a soil. A pH of 7.0 denotes neutrality, higher values indicate alkalinity and lower values indicate acidity. Strictly, it represents the negative logarithm of the hydrogen ion concentration in a specified soil/water suspension on a scale of 0-14. Soil pH levels generally fall between 5.5 and 8.0 with most plants growing best in this range.

Plasticity index:
The plasticity index of a soil is the numerical difference between the plastic limit and the liquid limit.

Rill erosion:
Erosion by small channels less than 300 mm deep which can be completely smoothed by normal cultivation.

Rock outcrop:
Any exposed area of rock that is inferred to be continuous with the underlying parent material.

Self-mulching:
The condition of a well-aggregated soil in which the surface layer forms a shallow mulch of soil aggregates when dry. Aggregation is maintained largely as a response of the clay minerals present to the natural processes of wetting and drying. Such soils typically have moderate to high clay contents and marked shrink-swell potential Any tendency to crust and seal under the impact of rain is counteracted by shrinkage and cracking, thus producing a mulch effect as the soil dries out.

Sheet erosion/sheet wash:
The relatively uniform removal of soil from an area without the development of conspicuous channels.

Shrink/Swell potential:
The capacity of soil material to change volume with changes in moisture content, frequently measured by a laboratory assessment of the soil's linear shrinkage. It relates to the soil's content of montmorillonite type clays. High shrink swell potential in soils, such as cracking clays, can give rise to problems in earth foundations and soil conservation structures. Categories used are:

Shrink-Swell potential	**Linear Shrinkage**
Very low	0-6%
Low	7-12%
Medium	13 - 17%
High	18 - 22%
Very High	> 22%

Slaking:
The partial breakdown of soil aggregates in water due to the swelling of clay and the expulsion of air from pore spaces. It is a component, along with soil dispersion and soil detachment, of the process whereby soil structure is broken down in the field.

Slope:
Landform element that is neither a crest or a depression and that has an inclination greater than 1 %. Slope can be broken up into the following categories:

< 1%	level
1 - 3%	very gently inclined
3 - 10%	gently inclined
10 - 32%	moderately inclined
32 - 56%	steep
> 56%	very steep

Soil Colour:
Determined by comparison with a standard Munsell soil colour chart or its equivalent. It includes three variables of colour; hue, value and chroma.

Soil horizon:
A layer within the soil profile with distinct morphological characteristics which are different from the layers above and/or below. Horizons are more or less parallel to the land surface, except that tongues of material from one horizon may penetrate neighbouring horizons.

Soil profile:
A portion of a soil exposed in a vertical section, extending usually from the land surface to the parent material. In very general terms, a profile is made of three major layers designated A, B and C horizons. The A and B horizons are those modified by soil development. The C horizon is weathering parent material that has not yet been significantly altered by soil forming processes.

Soil texture:
The relative proportions of sand, silt and clay particles in a sample of soil. The field assessment of texture is based on the characteristics of a bolus of wetted soil moulded by hand.

Six main soil texture groups are recognised:

Texture Group	**Approx. clay content**
1. Sands	< 5%
2. Sandy Loams	10-15%
3. Loams	20-25%
4. Clay Loams	30%
5. Light Clays	35-40%
6. Heavy Clays	> 45%

Unified Soil Classification:
A soil classification system based on the identification of soil materials according to their particle size, grading, plasticity index and liquid limit. These properties have been correlated with the engineering behaviour of soils including soil compressibility and shear strength. The system is used to determine the suitability of soil materials for use in earthworks, optimal conditions for their construction, special precautions which may be needed, such as soil ameliorants, and final batter grades to be used to ensure stability.

Uniform soil:
A soil in which there is little, if any change in soil texture between the A and B horizons (for example, loam over loam, sandy clay over silty clay). The soil is dominate by the mineral fraction and shows minimal texture difference throughout, such that no clearly defined texture boundaries are to be found. The range of texture throughout the solum is not more than the equivalent span of one soil texture group.