



---

## ANNEX II GLOSSARY

**BOTULISM:** poisoning from ingesting botulin (Clostridium botulinum), which affects the central nervous system producing difficulty in swallowing, visual disturbances and respiratory paralysis.

**BRONZING:** reddish-brown discoloration of leaves or stalks indicating a nutrient deficiency.

**CHISELLING:** mechanical preparation of land leaving it in a rough, cloddy condition, which helps to control wind erosion during dry periods and assists infiltration when the rain starts, or irrigation.

**CHLOROSIS:** yellowing or bleaching of green portion of a plant, particularly the leaves. May be caused by disease organisms, nutrient deficiencies, or other factors, e.g. low temperatures.

**CORROSION (ELECTROLYTIC):** corrosion (of well screens, pump components, cases or pipes) due to electrolytic action induced by metals from which the units are manufactured (see ELECTROLYTIC PROCESS).

**DENITRIFICATION:** the reduction of nitrates to atmospheric nitrogen and oxides of nitrogen.

**DISEASE VECTOR:** the living transporter and transmitter of the causative agent of a disease.

**DRAINAGE WELL:** a well from which water is pumped in order to lower the water table.

**DRIP IRRIGATION:** form of localized irrigation whereby the water is emitted from a tube or pipe in drips or drops (see LOCALIZED IRRIGATION).

**ELECTRICAL CONDUCTIVITY (ECe):** of the saturation paste at 25°C. The property of a substance to transfer an electrical charge (reciprocal of resistance). Used for the measurement of the salt content of an extract from a soil when saturated with water. Measured in dS/m, mS/cm, or µS/cm.

**ELECTROLYTIC PROCESS:** a process whereby the conduction of electricity induces chemical changes leading to solution or melting of substances.

**ENCEPHALITIS:** inflammation of the brain. Can be due to enteroviruses and certain arboviruses which cause serious central nervous system diseases (e.g. encephalitis). Vectors: mosquitoes (Culex), sandflies, gnats, midges and ticks.

**EVAPOTRANSPIRATION (ET):** rate of water loss through transpiration from vegetation plus evaporation from the soil.

**EXCHANGEABLE SODIUM PERCENTAGE (ESP):** the degree of saturation of the soil exchange complex with sodium; it may be calculated by the formula:

$$\text{ESP} = \frac{\text{exchangeable sodium (me/100 g soil)}}{\text{cation exchange capacity (me/100 g soil)}}$$

**GYPHIFEROUS SOIL:** soils that contain at least a percent of gypsum, i.e. calcium sulphate ( $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ). The range varies widely, e.g. 1% in Argentina and Brazil, or 5% in Syria.

**LARVICIDE:** a substance that kills larval stages of insects.

**LEACHING FRACTION (LF):** that portion of the irrigation water entering the soil that effectively must flow through and beyond the root zone in order to prevent the build-up of salinity. LF indicates that the value must be expressed as a fraction (see LEACHING REQUIREMENT).

**LEACHING REQUIREMENT (LR):** that portion of the irrigation water entering the soil that effectively must flow through and beyond the root zone in order to prevent the build-up of salinity. LR can be expressed either as a fraction or percentage of irrigation water.

**LOCALIZED IRRIGATION:** irrigation systems which wet, in particular, the area of soil at the base of the plant. Umbrella term for other irrigation systems such as: trickle, drip, drop, daily flow, micro.

**LODGING:** the beating down of crops by wind or rain; the tendency of certain long-stalked gramineae to collapse owing to nutrient deficiency.

**LYMPHATIC FILARIASIS:** infection in humans caused by filarial worms. The vectors are culicine or anopheline mosquitoes. Water habitat at larval stage.

**MALARIA:** infection in humans caused by four different malarial parasites (*Plasmodium*) introduced into the human bloodstream by the bite of an infected mosquito (*Anopheles* sp.) Water habitat at larval stage.

**MOISTURE RETENTION CURVE:** a graph showing the relationship between the amount of water remaining in the soil at equilibrium as a function of the matric suction. It is also known as soil-moisture characteristic curve.

**MOLLUSCICIDES:** a substance that kills molluscs (generally chemical).

**NECROSIS:** death of plant tissue due to disease, nutrient deficiency, toxicity, or climatic conditions, e.g. frost.

**ONCHOCERCIASIS:** or 'river blindness', disease caused by the filarial worm, *Onchocerca volvulus*. The vectors are black-flies (*Simulium* sp.). Water habitat at larval stage.

**OSMOTIC EFFECT:** the force a plant must exert to extract water from the soil. The presence of salt in the soil-water increases the force the plant must exert.

**OSMOTIC POTENTIAL:** the additional energy required to extract and absorb water from a salty soil.

**READILY AVAILABLE SOIL MOISTURE:** the depth of water between field capacity and wilting point stored in the root zone and available to the plant.

**RESIDUAL SODIUM CARBONATE:** a value that indicates the sodium hazard in water due to the loss of calcium and magnesium ions from the water by their reaction with bicarbonate and carbonate ions.

**ROOT ZONE:** the area of the soil from which the roots of a crop extract water and nutrients.

**RUMINANT ANIMALS:** any artiodactyl mammal of the suborder Ruminantia, the members of which chew the cud and have a stomach of four compartments; any other cud-chewing animal, e.g. the camel.

**SALINITY PROFILE:** a diagrammatic representation of zones of varying levels of salinity, as exposed in a cut section of a field.

**SALT INDEX:** concerning fertilizer salts and compound fertilizers; an index of the extent to which a given amount of fertilizer increases the osmotic pressure of soil solution.

**SATURATION INDEX:** an estimate of carbonate precipitation from irrigation water as a function of the degree of calcium carbonate saturation of the soil solution.

**SCHISTOSOMIASIS (bilharziasis):** a disease caused by infestation of the body with blood flukes of the genus *Schistosoma*. Vector: intermediate host, snails. Water habitat or water-associated habitat.

**SCHOONOVER GYPSUM REQUIREMENT TEST:** a laboratory method of determining gypsum requirements of sodic soils; a method established by Mr. Schoonover.

**SODIUM ADSORPTION RATIO (SAR):** a ratio for soil extracts and irrigation water used to express the relative activity of sodium ions in exchange reactions with soil; expressed in me/l.

$$SAR = \frac{Na^+}{\sqrt{\frac{Ca^{++} + Mg^{++}}{2}}}$$

**SOIL AGGREGATE:** a single mass or cluster of soil consisting of many soil particles held together, such as a clod, prism, crumb or granule.

**SOIL AMENDMENTS:** a substance or material which improves soil by modifying its physical properties rather than by adding appreciable quantities of plant nutrients.

**SOIL CRUSTING:** soil crusts are formed as a result of compaction at the immediate surface due to an externally applied force. This force is supplied primarily by the impact of raindrops, and also by irrigation water, as the soil is wetted and the radiant energy of the sun dries the soil.

**SOIL SOLUTION:** the aqueous solution existing in equilibrium with a soil at a particular moisture tension.

**SOIL-WATER:** depth of water available in the root zone from earlier rain, snow, or irrigation which partly or fully meets the requirements of a crop.

**SOIL-WATER POTENTIAL:** the amount of work that must be done per unit quantity of pure

water in order to transport reversibly and isothermally an infinitesimal quantity of water from a pool of pure water at a specified elevation, at atmospheric pressure, to the soilwater at the point under consideration. The total soil-water potential is the sum of gravitational matric and osmotic potentials.

**SPECIFIC ION TOXICITY:** any adverse effect from a salt constituent in the substrata on plant growth that is not caused by the osmotic properties of the substrata.

**TRANSPIRATION:** rate of water loss through the plant which is regulated by physical and physiological processes.

**WATER AMENDMENTS:** chemicals added to water in order to improve certain soil-water properties such as increasing infiltration rates by causing a change in the chemical composition of the soil-water complex.

#### ABBREVIATIONS

dS/m	deciSiemens per metre
kg/ha	kilogramme per hectare
me/l	milliequivalent per litre
mg/l	milligramme per litre
mm/hr	millimetre per hour

