

Glossary

Aerobic: An environment in which oxygen is present, either in a gaseous or a dissolved form (see *Anaerobic* and *Facultative*).

Amenity: The maintenance of the environmental attributes that contribute to physical or material comfort of community members.

Anaerobic: An environment in which oxygen is absent or unavailable. In feedlots anaerobic conditions commonly occur in holding ponds and manure on the pen surface or in static manure stockpiles.

Anaerobic pond: A wastewater holding pond in which anaerobic conditions prevail. Anaerobic conditions in feedlot holding ponds typically arise where microbial degradation of organic constituents consumes the available oxygen at a rate faster than it can dissolve from the atmosphere into the wastewater.

Ash: see *Fixed solids*.

Beef cattle feedlot: A beef cattle feedlot is a confined yard area with watering and feeding facilities where cattle are completely fed by hand or mechanically for the purpose of beef production. This definition includes covered and uncovered yards.

This definition does not include the feeding or penning of cattle in the following situations

- for weaning, dipping or similar husbandry practices
- for milk production
- at a depot operated exclusively for the assembly of cattle for live export
- for drought or emergency feeding purposes
- at a slaughtering facility
- in recognised saleyards.

Buffer: The distance between a feedlot complex or waste utilisation area and a watercourse or wetland when considering waste material such as manure or effluent.

Compost: An organic material that has undergone aerobic and thermophilic treatment and has achieved a suitable level of 'pasteurisation' and stabilisation or 'maturity'.

Contamination: see *Pollution*

Controlled drainage area (CDA): A controlled drainage area is a self-contained catchment surrounding those parts of the feedlot complex

from which uncontrolled stormwater runoff would constitute an environmental hazard. It is typically established using a series of catch drains to capture runoff from the feedlot pens and all other surfaces within the feedlot complex, and ultimately convey that runoff to a collection or disposal system. Diversion banks or drains are placed immediately upslope of the feedlot complex, which are designed to divert 'clean' or uncontaminated upslope runoff around the feedlot complex.

Note: Where feedlots are built close to the crest of a hill or ridge and there will be no runoff from upslope, it is possible to have a controlled drainage area without any diversion banks or drains.

Drain or catch drain: A gutter or channel that captures runoff from within the controlled drainage area and conveys it to the sedimentation system and ultimately to the holding pond.

Dry basis (db): Reporting of constituents in a material as a concentration in the dry matter (DM) component of that material.

Dry matter (DM): The matter remaining in a sample after all the water has been removed by oven drying, usually at a temperature of 105°C, until a stable weight is reached. It includes volatile solids (VS) and fixed solids (FS) or ash.

Effluent: The runoff from the feedlot controlled drainage area stored in the holding pond.

Effluent utilisation area: An area of land to which effluent is applied.

Electrical conductivity (EC): see *Salinity measurements*

Energy efficiency: The relationship between the energy input of a system and the output of that system.

Environment: The external or internal conditions (physical, chemical, biological, aesthetic or cultural) that influence the life and wellbeing of an individual plant or animal and its interrelationship with other organisms.

Feedlot: see *Beef cattle feedlot*

Feedlot complex: The feedlot complex includes

- pens
- handling yards
- drains, sedimentation systems and ponds

- stock lanes and feed alleys
- manure stockpile and composting pads
- feed mill and feed storage facilities (this may be separate to the feedlot facility)
- stock and vehicle washdown facilities.

The feedlot complex does not include manure and effluent utilisation areas.

Fixed solids (FS): The matter remaining after a dry matter (DM) sample has been burned at 440°C (ASTM) or 550°C (ALPHA 1989) or 750°C (ASTM) to remove volatile solids (VS).

Flooding: The inundation of land as the result of the overflow of a watercourse. Overland flow not directly associated with the overflow of a watercourse is not considered as flooding in this document. Alternative definitions may apply in local, state or federal government legislation and regulation.

Greenhouse gases (GHG): Certain gases such as methane and carbon dioxide which are implicated in the greenhouse effect.

Groundwater: Water beneath the surface of the land that is free to move under the effects of gravity.

Holding pond: A pond designed to capture and store the normal runoff or effluent before it is either applied to cropland or evaporated.

Interface layer: A compacted mixture of manure and soil that forms a moist, plastic, low-permeability layer between the feedlot pad and the overlying manure.

Leachate: A liquid containing soluble material removed from a solid mixture through which the liquid has passed.

Manure: The solid waste produced by cattle. In feedlots, this is the material that collects on the surface of the pen and consists principally of cattle dung and urine.

Manure utilisation area: An area of land to which manure is applied.

MEDLI: Model for Effluent Disposal by Land Irrigation.

Permeability: Permeability is the ability of a material to allow a fluid to flow through it. An impermeable material will not permit any fluid to pass through it. Note: Few materials are totally impermeable and as a result the term is frequently applied to materials that have very low permeability rather than being totally impermeable.

Pollution: The release of a pollutant into the environment such that the resultant effects become harmful to human health, other living organisms, or to the general environment. A pollutant may be chemical, physical, biological or energy (in the form of noise, heat or light). A resource is polluted if its environmental value is adversely altered.

Risk: Exposure to hazard (e.g. chance of injury or loss).

Runoff: Runoff consists of all surface water flow, both over the ground surface as overland flow and in streams as channel flow. It may originate from excess precipitation that cannot infiltrate the soil or as the outflow of groundwater along lines where the water table intersects the earth's surface.

Salinity: The level of soluble salts present in water or soil.

Salinity measurements: The electrical conductivity (EC) of water or a soil and water mixture is a widely accepted measure of salinity. Electrical conductivity is the ability of a solution to conduct electricity, which is directly proportional to the concentration and the ionic species present. In soil the electrical conductivity is usually measured in a mixture of one part soil to five parts water (i.e. EC_{1:5}). The significance of an EC_{1:5} value in respect to plant toxicity is dependent on soil texture. As a result, laboratory EC_{1:5} values are often mathematically converted to saturated extract electrical conductivity values. The resultant values are commonly referred to as EC_{se} or EC_c values. EC values obtained from electromagnetic induction surveys are termed apparent conductivity (EC_a). These values do not directly relate to laboratory measured electrical conductivity results.

Sedimentation basins: Type of sedimentation system that is wider, shorter and deeper than terraces but still a relatively shallow, free-draining structure. The maximum depth at the design flow rate should be one metre or less. Settled solids should be deposited as a relatively thin layer. Drying should be rapid enough to allow settled material to be removed within days (rather than weeks or months) of a major inflow event.

Sedimentation system: System to remove the readily settleable fraction of the solids entrained in effluent. A sedimentation system may be a pond, basin or terrace that discharges effluent to a holding pond.

Sedimentation tanks: Are designed not to be free-draining. They are usually deeper, shorter and wider than basins, and are intended to store settled solids for lengthy periods (e.g. 3–5 years) before cleaning. To accommodate such infrequent cleaning tanks are normally substantially deeper than one metre. Tanks may not dry out between rainfall events and thus may generate more odour than basins or terraces. The use of sedimentation tanks should be restricted to feedlots remote from sensitive receptors.

Sedimentation terraces: A type of sedimentation system that consists of long, shallow, free-draining structures. They are often used in small feedlots located on gently sloping terrain or in series in larger feedlots located on very flat sites, where the limited slope precludes the construction of 'normal' sedimentation basins. After a rainfall event sediment is deposited in a relatively thin layer which dries rapidly and can be removed soon after any inflow.

Separation distance: The separation distance is the distance between a likely source of an emission and a receptor likely to be sensitive to that emission. A separation distance (also variously referred to as buffer, setback or offset distance) is measured from the nearest physical part of the emission source to the nearest point of the potential receptor.

Standard cattle unit (SCU): A standard cattle unit is equivalent to an animal with a liveweight of 600 kg. Scaling factors to convert cattle of different weights to standard cattle unit equivalents are provided in the National Beef Cattle Feedlot Environmental Code of Practice (FLIAC 2012a).

Stocking density: Stocking density is a measure of the intensity with which a feedlot is stocked. In this document, stocking density is expressed in terms of an area (m²) per standard cattle unit. Refer to the National Beef Cattle Feedlot Environmental Code of Practice (FLIAC 2012a) for information on determining stocking densities.

Surface water: Water on the surface of the land.

Sustainable: Able to be maintained in perpetuity.

Sustainable utilisation: Use of a resource so that it may yield the greatest continuous benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations.

Tailwater: Runoff from an irrigation area which arises when irrigation water is applied in excess of the infiltration capacity of the soil.

Terminal pond: A pond located at the end of an effluent irrigation area. It is intended to capture the initial and possibly heavily polluted runoff from a storm event. It is also intended to capture and hold tailwater generated by effluent irrigation systems.

Total solids (TS): see *Dry matter*.

Utilisation area: An area of land to which manure or effluent is applied.

Volatile solids (VS): Volatile solids are the organic compounds removed from a dry matter sample burned at 440°C (ASTM) or 550°C (ALPHA 1989) or 750°C (ASTM).

Watercourse: A watercourse is a permanent, intermittent or ephemeral stream shown on an official 1:100,000 topographic map. Alternative definitions may apply in state and federal legislation.