

Excerpts from the Pasture and Livestock Standard

The highlighted text is unique to the Pasture and Livestock Standard and does not appear in the Farmland Management Standard.

Indicator 2.1.5 Effluent Application: Manage the effect of *effluent addition* to land where *appropriate*, to minimise degradation of soil structure, salinisation, waterlogging, chemical contamination or erosion, and to instead utilise the nutrient benefit of effluent application to land by following *best management practices* (e.g. *nutrient budgeting*) and soil and *effluent testing advice*.

Indicator 2.2.2 Pastureland Soil Management: Apply a process of *grazing* management that includes agricultural best management practices to maximise ground cover and minimise *soil erosion* and physical damage (e.g., compaction) of *pastureland*.

Indicator 3.2.3 Water Quality Protection from Livestock: Application of agricultural *best management practices* to protect *surface water, wetlands, and riparian areas* from the impacts of livestock.

Indicator 4.1.1 Pest and Disease Prevention: A process for preventing *pests and disease* through appropriate *biosecurity* and *agricultural best management practices*.

Indicator 4.1.5 Withholding Periods: Application of a process to ensure all *withholding periods* are met following application of inputs to *crop or pasture* including *crop and pasture protectants* and *effluent* as per relevant legislation and guidelines to meet *animal and human health objectives*.

Indicator 5.2.3 Odour Management: Minimise off-site nuisance or interference with amenity, such as odours associated with inappropriate or poorly operated waste treatment processes.

Indicator 6.2.3 Responsible and Efficient Management of Effluent: Manage *effluent* in line with relevant legislative and guideline requirements, to protect surface and ground waters from impacts of effluent, contain effluent within the bounds of the property and utilise the nutrient resource appropriately on farm while avoiding environmental nuisance (odour, faecal matter, water impacts) to surrounding amenities and neighbouring lands.

Indicator 7.2.4 Grazing Land for Wildlife Habitat: Application of *best management practices* on *grazing land* to maintain and enhance *wildlife habitat* where *appropriate*. Examples could include, but are not limited to, appropriate stocking rates, appropriate fire/grazing regimes, protection of wetlands, riparian management,

Objective 13. Lessee-Operated Operations

To promote the use of *agricultural best management practices* on *pasture* and *farmland* operated under *lessee* or *share-farming* arrangements to broaden the practice of sustainable agriculture and to promote the efficient use of agricultural inputs and the management of adverse environmental impacts.

Performance Measure 13.1 Leased-Land and Share-Farm Management: *Standard users* shall clearly define and implement strategies to ensure that *lessee* and *share-farm* activities adhere to the principles of sustainable agriculture.

Indicator 13.1.1 Leased-Land and Share-Farm Program: A program to help ensure that *pasture* and *farmland* management complies with the *agricultural best management practices* and the *Principles and Objectives* of the *Leading Harvest Australia Standard* as determined by a *Standard user, lessee* and *share-farmer*.

Indicator 13.1.2 Farmland Lease and Share-Farm Agreements: Written agreements with *lessees* and *share-farmers* demonstrating their commitment to applying *agricultural practices* and *animal husbandry practices* consistent with *best management practices*.

Indicator 13.1.3 Communicating Leased-Land Objectives: A written statement clearly defining sustainable agriculture goals of the *Standard user* for *pasture* and *farmland* that is shared with *lessees* and *share-farmers* and made available to *appropriate stakeholders* upon request.

Indicator 13.1.4 Lessee and Share-Farmer Social Responsibility Commitment: A written statement by *lessees* and *share-farmers* demonstrating their commitment to operate safely and responsibly; provide a safe working environment; and comply with applicable Commonwealth, state and local laws, statutes, and regulations.

Performance Measure 13.2 Leased-Land and Share-Farm Monitoring: *Standard users* shall monitor *agricultural practices* used by *lessees* or *share-farmers* to ensure their consistency with *agricultural best management practices*.

Indicator 13.2.1 Verifiable Monitoring System: Use of a *verifiable monitoring system* with:

Indicator 13.2.1a A process for monitoring the *agricultural practices* used by *lessees* and *share-farmers*; and

Indicator 13.2.1b A process for evaluating application of *agricultural practices* by lessees and *share-farmers* and identifying and communicating areas where lessees and *share-farmers* can improve their performance and achieve greater consistency with *agricultural best management practices* and the *Principles and Objectives* of the *Leading Harvest Australia Standard*.

Performance Measure 13.3 Agistment Management and Monitoring: *Standard users* shall clearly define and implement strategies to ensure that agistment activities adhere to the principles of animal well-being and are able to monitor these outcomes.

Indicator 13.3.1 Agistment Program: A program to help ensure that *animal management* complies with *animal well-being best management practices* and the relevant *Principles and Objectives* of the *Leading Harvest Australia Standard* as determined by a *Standard user* and *agistor*.

Indicator 13.3.2 Agistment Agreements: Written agreements with the *agistor* demonstrating their commitment to applying *animal husbandry practices* consistent with *best management practices*.

Indicator 13.3.3 Communicating Agistment Objectives: A written statement clearly defining animal well-being goals of the *Standard user* for animals that are *agisted* off the enrolled *pasture* or *farmland* and made available to *appropriate* stakeholders upon request.

Indicator 13.3.4 Animal Monitoring System: A process for monitoring and evaluating application of *animal husbandry practices* by *agistors* and identifying and communicating areas where *agistors* can improve their performance and achieve greater consistency with *animal husbandry best management practices* and the relevant *Principles and Objectives* of the *Leading Harvest Australia Standard*.

Objective 14. Animal Well-Being

To ensure people responsible for animals have the required competencies to perform their responsibilities in such a manner that ensures the basic *physiological* and *behavioural* needs of animals are met; with a goal of avoiding unnecessary animal stress and prioritising animal health and continual improvement in *animal husbandry practices*.

Performance Measure 14.1 Animal Health Program: *Standard users* have an up-to-date herd health program that ensures *appropriate* animal nutrition, protection, health monitoring, breeding, and health treatments and is *appropriate* to the region of the *Standard user*, including relevant guidelines and standards.

Indicator 14.1.1 Animal Care: A process to ensure animals have reasonable access to food and water to meet nutritional needs, health, and production goals and animals are protected from external threats such

as extreme weather events, predator impact and *biosecurity hazards*.

Indicator 14.1.2 Animal Health Management: Management of animal health including:

a) **Preventative Health:** A process for preventing *pests and disease* through *appropriate biosecurity*, *preventative health care* and *animal management best management practices*.

b) **Monitoring Animal Health:** A program for inspecting, collecting information, and reporting on animal health on a regular basis, in accordance with *country or regional animal welfare best practices and/or guidelines*, with a focus on continuous improvement to increase accuracy and efficiency of record keeping.

c) **Breeding for Animal Health and Production:** A process for identifying and selecting *desirable traits* best suited to the local environment, which maintain or improve animal health outcomes, as well as animal productivity.

d) **Application of Animal Health Products:** A process for identifying and managing animal health conditions that require treatment using *animal health products* to alleviate or eliminate symptoms of ill health and/or improve lifetime *animal welfare*, with a focus on selecting the lowest risk, most selective treatment option.

Indicator 14.1.3 Use of Animal Health Products:

a) **Prohibited Use of Health Care Products:** Prohibition of the use of *animal health products and supplements* to enhance animal growth or products that are not registered or permitted for use and/or trial. Note: this does not include products where the primary reason for administration is for animal health benefit.

b) **Withholding Periods:** Application of a process to ensure all withholding periods or export slaughter intervals are met following applications of inputs to pasture or animals, including animal protectants, animal health products or feed treatments as per relevant legislation and guidelines to meet animal and human health objectives.

c) **Storage of Animal Health Products:** Storage of animal health products according to the label instructions and regulatory requirements and application of practices to protect employees, farm workers, public health and the environment.

Performance Measure 14.2 Animal Husbandry: *Standard users* shall ensure best management practices are followed in accordance with *country or region animal welfare best practices and/or guidelines* for the industry in which it operates; underpinned by continuous improvement to reduce and/or eliminate *animal husbandry methods* that may compromise animal welfare.

Indicator 14.2.1 Animal Handling: Application of animal handling methods, including design of handling facilities and use of equipment, to minimise the occurrence of

pain, stress or injury to the animal, and to improve handler safety.

Indicator 14.2.2 Animal Transport: Application of animal transport procedures that minimise stress on the animal and follow requirements of *country or region animal welfare best practices and/or guidelines* for the industry in which the *Standard user* operates and have a system to report concerns and/or adverse outcomes.

Indicator 14.2.3 End-of-Life Care: Administer safe, timely and humane euthanasia to prevent animals suffering, where treatment is not an option or has failed to improve the health of an animal.

Indicator 14.2.4 Standard Animal Husbandry

Procedures: A process for implementing standard *animal husbandry* procedures, for *castration, tail docking (sheep)*, that

result in benefits to lifetime animal welfare, better animal management, and/or improved occupational and animal health and safety.

a) *Discretionary Animal Husbandry Practices:*

A process for implementing discretionary *animal husbandry* procedures, such as *mulesing, tail docking (cattle), dehorning, disbudding, calving induction, spaying*, that result in benefits to lifetime animal welfare, better animal management, and/or improved occupational and animal health and safety in line with *country or region animal welfare best practice and/or guidelines* of the *Standard user*.

b) *Continuous Improvement of Practices:* A

process for continuous improvement in use of discretionary *animal husbandry* procedures, including adoption of pain relief and, where applicable, a program to move towards alternative practices/procedures to improve animal health and reduce pain.

Performance Measure 14.3 Calf-Rearing in Dairy:

Standard users shall follow requirements of *country or region animal welfare best practices and/or guidelines* to ensure calves in calf rearing systems are adequately cared for.

Indicator 14.3.1 Monitoring and Managing Calf Feeding: Programs are to be undertaken to ensure calves receive appropriate nutrition and care to maintain or enhance calf health, including colostrum after birth.

Indicator 14.3.2 Calf Rearing System Management: A process for providing *appropriate* care to maintain and/or improve calf health in calf-rearing systems and protect them from external threats such as weather and predator impact, following requirements of *country or regional animal welfare best practices and/or guidelines*.

Indicator 14.3.3 Managing Surplus Dairy Calves: A program to demonstrate the adoption, or move towards the adoption, of practices designed to reduce the incidence of surplus dairy calves; otherwise healthy calves must not be euthanised on-farm.

Excerpts from the Pasture and Livestock Standard Glossary

The below definitions are unique to the Pasture and Livestock Standard and do not appear in the Farmland Management Standard.

Agistment: The movement of livestock from a property where there is little feed or water to another property where there are adequate supplies, generally in exchange for payment.

Agistor: The person who takes animals onto their land to graze in exchange for payment. Responsible for animal care when they are on their land.

Agricultural best management practices: A practice or combination of practices deemed to be best practice for meeting productivity, economic, social and environmental (sustainability) outcomes. These recommended practices are typically developed by any combination of industry Research and Development Corporations (RDCs), state government agencies, research institutions (such as Universities and CSIRO), Natural Resource or Catchment Management Authorities, and farming systems groups.

Agricultural chemicals: Includes any substance or organism used to: destroy, stupefy, repel, inhibit the feeding of, or prevent *pests* on plants or other commodities; destroy a plant or to modify its physiology; modify the effect of another *agricultural chemical* product; attract a pest for the purpose of destroying it. This encompasses all herbicides, insecticides and fungicides. Dairy cleansers for on-farm use, *crop* markers, insect repellents for use on humans, swimming pool disinfectants and algicides, rodenticides, antifouling paints, preservatives, and household and home garden products for pest and weed control have been deemed to be *agricultural chemical* products. Some pest traps and barriers using chemical attractants also require registration. (DAWE).

Agricultural land: Land that is used directly or indirectly in the production of *agricultural products* including *cropland*, grassland, rangeland, *pasture* and other land on which *Agricultural products* or livestock are produced and resource concerns may be addressed. It may include *cropped* woodland, marshes, incidental areas included in the agricultural operation, and other types of land used for production of livestock (DAWE).

Agricultural practices: Specific methods including tillage system, planting, application practices for *fertilisers* and *crop protectants*, harvesting and other *cropping* practices that are applied to grow and harvest annual or perennial *crops* for food, animal feed, forage, fibre, oilseed and other *Agricultural products*.

Agricultural products: *Crops* for food, animal feed, forage, fibre, oilseed, medicine, cultural practices, fermentation products, or fuel, livestock and livestock products. These products include (but are not limited to) grains and flours, fresh and processed fruits and vegetables, meat and meat products, dairy products, natural fibres, sugar and wine (ABS 2018).

Agricultural waste: Refers to *solid waste* that is generated by the rearing of animals or the production and harvest of *agricultural products*. This may include, but is not limited to, poultry and livestock manure and residual materials in liquid or solid form generated from the production and marketing of poultry, livestock, furbearing animals, other livestock products and *crop residues* from row *crops* and permanent *crops* (DAWE).

Animal health products: Includes pharmaceutical, immunobiological and complementary products that can be administered to the animal, internally or externally, to manage a specific disease, condition or circumstance. The use of such products results in a direct affecting on the animal.

Animal husbandry: Breeding and caring for farm animals. It includes day-to-day care, selective breeding and the raising of livestock.

Animal production: The change in energy requirements to achieve production metrics regarding animal growth, liveweight gain, pregnancy, lactation and exercise.

Animal welfare: The state of an animal and how well it is coping with the conditions in which it lives.

Appropriate: Suitable or proper in the circumstances for a particular purpose. Considerations may include whether an activity will achieve the goal of an indicator or performance measure in a specific setting, is practical and reasonable and contributes to achieving regulatory compliance or obtaining social license.

Appropriate deforestation cutoff date: A date (day, month and year) specified by the most relevant biome- or geography-specific deforestation protocol(s) after which farmed land cannot have been deforested, unless allowed within the parameters of a regulated no-net-negative impact (or equivalent) program. An example of a relevant deforestation protocol could include, but is not limited to, the Canadian Boreal Forest Conservation Framework.

Australian Animal Welfare Standards and Guidelines: A guiding document that aims to harmonise and streamline livestock welfare legislation in Australia, ensuring that it results in improved welfare outcomes and is practical for industry. The documents cover producers' responsibilities and set out animals' needs in relation to feed and water; risk management in extreme weather conditions, natural disasters, disease, injury and predation; facilities and equipment; handling and management/ husbandry; breeding management; and humane killing.

Behavioural: Reactions made in response to stimuli

Biosecurity: Biosecurity is the management of the risks to the economy, the environment, and the community, of *pests* and diseases entering, emerging, establishing or spreading. *Biosecurity* focuses on a hierarchy of controls, beginning with preventing the entry of *pests* into areas where they do not occur, monitoring for and eradicating those that do enter, and managing the negative impacts of those that become established (DAWE).

Biodiversity: The variety and abundance of life forms, *processes*, functions and structures of plants, animals and other living organisms, including the relative complexity of species, communities, gene pools and ecosystems at spatial scales that range from local to regional to global (SFI). This includes soil organisms, pollinators, beneficial organisms, agricultural and grassland plants and *wildlife*.

Body condition score: Assessment of the amount of fat and muscle covering the bones of animals.

Carbon farming: Carbon farming is the *process* of changing *agricultural practices* or land use to increase the amount of carbon stored in the soil and vegetation (sequestration) and to reduce greenhouse gas emissions from livestock, soil or vegetation (avoidance) (Dept Primary Industries and Regional Development, WA).

Castration: The removal or disruption of the function of the testes by excision, or by constriction and / or crushing of the testicular blood supply (using a rubber ring, tension band or burdizzo clamp) or by dysfunction created by the cryptorchid method.

Certification body: An independent third party that is accredited and competent to conduct certifications to the Leading Harvest Standard.

Climate change: Change in the state of the climate that can be identified (e.g. by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. It may be due to natural internal *processes* or external forcings or to persistent anthropogenic changes in the composition of the atmosphere or in land use (Intergovernmental Panel on *Climate Change*).

Climate-smart agriculture (practices): Practices and principles that promote sustainable increases in agricultural productivity (including sustainable intensification) while adapting to *climate change* and reducing greenhouse gas emissions (Food and Agriculture Organization of the United Nations).

Conservation: 1. *Protection* of plant and animal *habitat*.

2. Management of a renewable natural resource with the *objective* of sustaining its productivity in perpetuity while providing for human use compatible with sustainability of the resource.

Construction: Nature of facilities or equipment including the design, layout, installation, assembly of the facilities and the materials of which they are made.

Contract management company: A third-party company used by a *Standard user* to directly operate enrolled *farmland*.

Covenant of quiet enjoyment: A covenant that promises that the grantee or lessee of an estate in real property will be able to possess the premises in peace, without disturbance by hostile claimants. Quiet enjoyment is a right to the undisturbed use and enjoyment of real property by a lessee.

Cover cropping: Cover *crop* refers to a specific plant that is grown primarily for the benefit of soil. Establishing a cover *crop* during a fallow period in cropping rotations or between rows in orchards or vineyards can assist with managing soil erosion, improving soil fertility, water infiltration and carbon and controlling diseases and pests. Cover *crops* may include grasses, cereals or legumes. (Department Primary Industries NSW)

Critically endangered: Under the EPBC Act, a flora species, fauna species or ecological community, that meets any of the following five criteria:

- (1) Undergone, is suspected to have undergone or is likely to undergo in the immediate future a very severe reduction in numbers (measured over the longer of 10 years or 3 generations) of 80% or higher;
- (2) Its geographic distribution is precarious for the survival of the species and is very restricted: Extent of occurrence (EOO) < 100 km² and Area of occupancy (AOO) < 10 km² and at least two of the following: Severely fragmented OR Number of locations = 1; Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of *habitat*; (iv) number of locations or subpopulations; (v) number of mature individuals; or extreme fluctuations in any of the previous (i) – (v).
- (3) Estimated number of mature individuals is very low (< 250) and one of (a) or (b): (a) evidence suggests that the number will continue to decline at a very high rate (25% in 3 years or 1 generation - whichever is longer) (b) the number is likely to continue to decline and its geographic distribution is precarious for its survival, based on one of the following three conditions: (i) Number of mature individuals in each subpopulation ≤ 50, (ii) % of mature individuals in one subpopulation = 90 – 100%, (iii) Extreme fluctuations.
- (4) The estimated total number of mature individuals is extremely low (< 50).
- (5) The probability of its extinction in the wild is at least 50% in the immediate future (in 10 years or 3 generations, whichever is longer - 100 years maximum) (DAWE, 2021).

Critical external factor: Any off-farm attribute or factor that is materially and substantially relevant to the viability, long-term profitability, and sustainability of agricultural production of a management unit or farm. These may include economic factors (e.g., labour availability, regional market demand and opportunities, regulatory changes, *farmland tenant* availability, supplier availability and technological advancements), environmental factors (e.g., *climate change*, regional availability of water, and other inputs), and social factors (e.g., social license).

Crop: Plant species that are purposefully grown and/or harvested to satisfy human and livestock needs. They can include plants grown for food, feed, forage, fibre, decorative purposes, oilseed, medicine, cultural practices, fermentation products or fuel, including, but not limited to, field *crops*, hay or forage, fruits, vegetables, nuts, grains and horticultural specialties. *Cover crops* and companion *crops* may be considered *crops* if purposefully grown.

Cropland: Land used primarily for the direct production of *agricultural products* for harvest, including, but not limited to, land in row *crops* or close-grown *crops*, forage *crops* that are in a rotation with row or close-grown *crops*, permanent hay land, horticultural *crops*, orchards, vineyards, *cropped* woodland, marshes, cranberry bogs and other lands used to produce *crops*. It may include both irrigated and dryland areas.

Crop productivity: The inherent capacity of a particular site to produce a *crop*, often measured in volume or weight per hectare.

Crop protectants: Also known as pesticides or *crop Protection* products, *crop protectants* are used to keep *crops* healthy and abundant by protecting them against *pests* (insecticides), weeds (herbicides) and diseases (fungicides). Specific chemicals are labelled for very specific uses and quantities. They can be synthetic (developed in laboratories and manufactured) or natural. Chemicals used in agriculture need to be approved by the Australian Pesticides and Veterinary Medicines Authority (APVMA). State and territory governments are responsible for controlling the use of *crop protectants* beyond the point of retail sale; in some states, more than one agency is involved.

Crop residues: Materials from growing *crops* left on the soil surface or partially incorporated into the surface layer of *cropland* to reduce *soil erosion*, conserve soil moisture and improve soil tilth. These materials may include, but are not limited to, stalks, stubble, leaves, chipped branches and vines, woody biomass from orchard and vineyard redevelopment and seed pods.

Crop genetic diversity: Variation in genetic and phenotypic characteristics of plants used in agriculture. Its two components are the genetic diversity within each *crop* (within *crop* diversity, including different *crop* varieties or hybrids of the same species) and the number of *crop* species commonly grown (between-*crop* diversity).

Deforestation: The conversion of *forest* to another land use or the long-term reduction of the tree canopy cover below the minimum 20 percent threshold. It includes areas of *forest* converted to agriculture, *pasture*, water reservoirs, residential and industrial areas, and urban areas (Food and Agriculture Organization of the United Nations).

Dehorning: The removal of attached horns.

Desirable traits: Breeding for traits that are more suitable for production systems and are conducive of reducing animal welfare issues (e.g., temperament, polledness, structural and udder soundness, disease and pest resistance, heat tolerance, doing or “fleshing” ability, mothering ability, and calving ease).

Disbudding: Removal of an area of skin including the horn bud in a young animal prior to solid attachment of the horn bud to the skull.

Discretionary: Available for use by the judgment of the user in consideration of a particular situation.

Effluent: Effluent from dairy sheds or other infrastructure such as yards, feedpads and calving pads predominantly consisting of manure, urine and washdown water. It may also include gravel, detergents, soil particles, cow hair, milk, string, paper and wire and is high in nutrients, particularly nitrogen, phosphorus and potassium.

Endangered: Under the EPBC Act, a flora species, fauna species or ecological community, that meets any of the following five criteria:

- (1) Undergone, is suspected to have undergone or is likely to undergo in the immediate future a severe reduction in numbers (measured over the longer of 10 years or 3 generations) of 50% or higher;
- (2) Its geographic distribution is precarious for the survival of the species and is restricted: Extent of occurrence (EOO) < 5000 km² and Area of occupancy (AOO) < 500 km² and at least two of the following: Severely fragmented OR Number of locations ≤ 5; Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of *habitat*; (iv) number of locations or subpopulations; (v) number of mature individuals; or extreme fluctuations in any of the previous (i) – (v).
- (3) Estimated number of mature individuals is low (< 2500) and one of (a) or (b): (a) evidence suggests that the number will continue to decline at a high rate (20% in 5 years or 2 generations - whichever is longer) (b) the number is likely to continue to decline and its geographic distribution is precarious for its survival, based on one of the following three conditions: (i) Number of mature individuals in each subpopulation ≤ 250, (ii) % of mature individuals in one subpopulation = 95 – 100%, (iii) Extreme fluctuations.
- (4) The estimated total number of mature individuals is very low (< 250).
- (5) The probability of its extinction in the wild is at least 20% in the near future (in 20 years or 5 generations, whichever is longer - 100 years maximum) (DAWE, 2021).

Energy-efficient agricultural practices: Practices that deliver more services for the same energy input or the same services for less energy input (modified from the International Energy Agency definition of energy efficiency).

Enrolled lands: Lands managed by the *Standard user* and enrolled under the *Leading Harvest Standard* and subject to third-party audit to the *Leading Harvest Standard*.

Equal opportunity employment: To provide employment where an employer agrees not to discriminate against any employee or job applicant because of race, colour, religion, national origin, sex, physical or mental disability, or age.

Euthanasia: Put to death humanely; a person conducting the euthanasia must take reasonable action to confirm the animal is dead.

Export slaughter interval: the minimum time that must elapse between veterinary chemical administration to livestock and their slaughter for export (APVMA, 2021).

External threats: Including extremes of weather conditions, drought, fires, floods, disease, injury and predation.

Farmland: Land that includes native vegetation and modified *pastures* that are grazed, *cropping* land, horticulture and sheep-wheat that are part of an agricultural operation (ABARES Agricultural Snapshot 2021).

Farmland lessee: A lessee of *farmland* where the lease is managed by a *Standard user*.

Farm labour contractor: A person or business who charges a fee to recruit, transport, supply or hire seasonal farmworkers (including migrant/backpacker labourers) to work for or under the direction, supervision or control of *Standard user* or a *contract management company* under the oversight of a *Standard user* (DAWE).

Fertiliser: Fertiliser is defined as a substance that is manufactured, represented, supplied or used as a means of directly or indirectly fertilising the soil; supplying nutrients to plants; or conditioning the soil by altering the chemical, physical or biological composition of the soil.

(Fertiliser Australia, National Code of Practice 2018) State Governments have developed regulations to manage the description and safety of fertilisers. Fertiliser Australia has developed a National COP for Fertiliser Description and Labelling (2018).

Forest: An area, incorporating all living and non-living components, that is dominated by trees having usually a single stem and a mature or potentially mature stand height exceeding 2 metres and with existing or potential crown cover of overstorey strata about equal to or greater than 20 per cent. It encompasses woodland. (ABARES).

Gender equitable: The fair treatment for men and women according to their respective needs. This may include equal treatment or treatment that is different, but which is considered equivalent in terms of rights, benefits, obligations and opportunities (UNESCO). Equivalency between men and women does not mean that women and men have to become the same, but that their rights, responsibilities and opportunities will not depend on whether they were born male or female.

Geoheritage: Outstanding examples of geology and the geological *processes* that formed the Earth's surface, as well as the plants and animals that have lived on it, can be seen at all scales in landforms and natural rock outcrops, river banks, sea cliffs and shore platforms, in road cuttings, mines, quarries and other excavations. *Geoheritage* sites are protected under the EPBC Act as sites of World or National Heritage value. Regional sites are protected under state and territory legislation (Geological Society Australia).

Grasslands: *Grasslands* are natural ecological communities dominated by grasses and with no or only sparse tree or shrub cover. They are dominated by a range of grass species but contain a diversity of other herbs. *Grasslands* are among the most species-rich plant communities in Australia. Secondary or derived *grasslands* are those in which the woody species (trees and/or shrubs) have been removed, leaving only the native herbaceous ground layer (FOG, 2021).

Greenhouse gases: Gases in the atmosphere that can absorb infrared radiation from the sun, trapping outgoing energy in the form of heat in the atmosphere. Key greenhouse gases include carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), sulphur hexafluoride (SF₆), perfluorocarbons (PFCs) and hydrofluorocarbons (HFCs) (Climate Change in Australia, CSIRO).

Groundwater: Water occurring naturally below ground level (whether in an aquifer or otherwise). In Australia *groundwater* is strongly connected to *surface water* (Water Act 2007, Geoscience Australia).

Groundwater depletion: A long-term decline in levels of *groundwater* which can be caused by a combination of increased human usage (of ground and connected *surface water*) and changes to recharge (e.g. rainfall and human usage) (DAWE).

Groundwater regulatory agency: A local, state or territory government agency with statutory authority to exercise regulatory or supervisory oversight in the use and/or extraction of *groundwater*, with coordination provided by the Natural Resource Management Ministerial Council (NRMCC).

Habitat: A place, natural or otherwise (including climate, food, cover and water), where an individual or population of animal species or plant species naturally or normally lives and develops.

Hazardous waste: Waste that is dangerous or potentially harmful to human health or the environment, which can be liquid, solid, gas or sludge. It can be discarded commercial products, like leftover cleaning fluids or *crop protectants*, or the byproducts of manufacturing *processes* (Department of Agriculture Water and the Environment).

Health and safety: Regulations and procedures intended to prevent accident or injury.

Humane killing: Must ensure that the animal is killed at the first reasonable opportunity.

Indicator: A specific metric that provides information about an organisation's agricultural and environmental performance and that is integral to assessing conformance to the *Leading Harvest Standard*.

Indigenous Peoples: People defined in international or national legislation as having a set of specific rights based on their historical ties to a particular territory and their cultural or historical distinctiveness from other populations that are often politically dominant. More specifically, Australia is home to two very distinct *indigenous* cultural groups: Aboriginal and Torres Strait Islander peoples. (AIATSIS, 2021).

Indigenous heritage: *Indigenous heritage* places are landscapes, sites and areas that are particularly important to *Indigenous* People as part of their customary law, developing traditions, history and/or current practices. Some *indigenous heritage* places are protected under national law (EPBC Act, as World or National Heritage sites), others are protected under state or territory legislation. (DAWE).

Indigenous protected area: an area of indigenous-owned land or sea where traditional Indigenous owners have entered into an agreement with the Australian Government to promote *biodiversity* and cultural resource *conservation* (DAWE).

Integrated Pest Management: The control of *pests*, including insects, at tolerable levels below economic thresholds, by the strategic use of biological, cultural and chemical practices. IPM seeks to use natural predators or parasites (i.e. beneficials) to control *pests*, using selective pesticides for backup only when *pests* are unable to be controlled by natural means (Farm *Biosecurity* Australia). *Appropriate* techniques may include, but are not limited to, enhancement of natural enemies, planting pest-resistant *crops*, adaptation of cultural management and judicious use of *crop protectants*. **Inspections:** Careful examination.

Land use conversion: A change in the extent or composition of an ecosystem or *habitat* where there is a shift from one land use to another that is considered significant or irreversible.

Listed Threatened Species and Ecological Communities: The EPBC Act provides for the listing of native, nationally *threatened species* and ecological communities, native migratory species and marine species. An MNES, *threatened species* (flora and fauna) are listed in any one of the following categories: extinct, extinct in the wild, *critically endangered*, *endangered*, *vulnerable*, or *conservation dependent*. *Threatened ecological communities* are listed under three categories: *critically endangered*, *endangered* or *vulnerable*.

Living wage: The minimum income necessary for an employee or contract worker to meet their basic needs (e.g. food, childcare, health insurance, housing, transportation and other basic necessities (e.g., clothing, personal care items, etc.)). A *living wage* is set higher than a minimum wage and may be “pegged” to (fixed as a percentage of) some other measure of living standards, such as average weekly earnings. This ensures that the *living wage* holds its relative value over time. While the minimum wage sets a bare minimum, the *living wage* aspires to be a socially acceptable minimum. Typically, this is seen as a level that keeps workers out of poverty. Australia’s national minimum wage is set each year by an expert panel of the Fair Work Commission (FWC).

Low-emission technologies: Advanced technologies used to significantly reduce greenhouse gas emissions levels, airborne pollutants and other adverse environmental impacts. This can include high-efficiency equipment and technology using *renewable energy* (e.g., hybrid vehicles, solar energy).

Lowest risk, most selective treatment options: A treatment used to control site-specific *pests* that minimises impact to non-target organisms and people and has the least overall impact while meeting management *objectives*. Considerations may include the target pest, the degree of control needed, cost, the season and timing of application, rates and methods, terrain, *crop* conditions and the presence or absence of water bodies.

Matter of National Environmental Significance (MNES): There are nine MNES protected under the EPBC Act: *world heritage properties*; *national heritage places*; *wetlands* of international importance (listed under the Ramsar Convention); *listed threatened species and ecological communities*; migratory species protected under international agreements; Commonwealth marine areas; Great Barrier Reef Marine Park; nuclear actions (including uranium mines); a water resource, in relation to coal seam gas development and large coal mining development.

Minimise: To do only that which is necessary and *appropriate* to accomplish the task or *objective* described.

Mulesing: The removal of skin from the breech and/or tail of a sheep using mulesing shears.

National Heritage Place: An MNES, *National Heritage Places* are natural, historic and Indigenous places of outstanding significance to the nation. Once a heritage place is listed under the EPBC Act, special requirements come into force to ensure that the values of the place will be protected and conserved for future generations. The EPBC Act provides for the preparation of management plans which set out the significant heritage aspects of the place and how the values of the site will be managed.

Native habitats: Areas where a native species naturally occurs and that have the living and nonliving environmental conditions necessary for survival, including areas for feeding, shelter, protection and/or reproduction.

Natural communities: An assemblage of indigenous interacting plant and animal species and their common environment, recurring in specific ecological areas across the landscape. There are specific definitions of natural communities defined principally by the dominant vegetation. Some of these are defined in this glossary and include forests, woodlands, grasslands, rangelands, wetlands. They also include non-forest vegetation such as heathland and shrubland.

Natural forest: *Forest* composed of indigenous trees and not classified as a planted *forest*.

Nutrient management: To manage the amount, source, placement, form and timing of the application of nutrients and *soil amendments* to ensure adequate *soil fertility* for plant production and to minimise the potential for environmental degradation, particularly *water quality* impairment and unnecessary air emissions. In Australia the Fertcare *program* has been established to ensure that *fertiliser* suppliers are *appropriately* skilled to provide sound advice, minimising environmental and food safety risks and optimising productivity (Fertilizer Australia).

Objective: A fundamental goal.

Occupational: Relating to a job or profession.

Overgrazing: The regrazing of plants before they are allowed sufficient time for recovery and the grazing of plants for prolonged periods that exceeds the carrying capacity of the pasture.

Pasture: (1) Grazing lands comprised of introduced or domesticated native forage species that are used primarily for the production of livestock. They receive periodic renovation and/or cultural treatments such as tillage, fertilisation, slashing, and weed control, and may be irrigated. They are not in rotation with *crops*. (2) A grazing area enclosed and separated from other areas by fencing or other barriers (paddocks); the management unit for grazing land. (3) Forage plants used as food for grazing animals. (4) Any area devoted to the production of forage, native or introduced, and harvested by grazing.

Performance measure: A means of judging whether an *objective* has been fulfilled.

Pests: A pest is an organism living and growing where they are not wanted, which can cause damage to plants, humans, structures, and other creatures, including *crops* that are grown for food. *Pests* can include weeds, plant pathogens (certain fungi, bacteria, and viruses), rodents, and nematodes in addition to plant-feeding insects and mites. *Pests* include vertebrate animals (both native and introduced) where they negatively impact the environment or *agricultural lands*. Pest animals and weeds not only reduce agricultural productivity, they can also cause damage to the environment and natural resources. (DAWE)

Physiological: Relating to the processes of the body, typically outside of conscious perception.

Policy: A written statement of commitment to meet an *objective* or to implement a defined *program* or plan to achieve an *objective* or outcome.

Prime agricultural land: Land that has the best combination of physical and chemical characteristics for producing *agricultural* products and is available for these uses. Its use for agriculture is not impeded or restrained by non-agricultural use or development. The definition of prime agricultural land is complex because land conditions are not static, it is influenced by both soil quality and proximity to water resources, access to infrastructure, and future technology and innovation, and a changing climate. Individual state and territory governments have their own definitions of policies to protect prime agricultural land and national and state farming bodies (e.g., NFF) also have policies around prime agricultural land (National Farmers Federation)

Process: A series of purposeful actions or operations that leads to a sought-after end or outcome. This can include a set or sequence of informal or formal practices, procedures or routines.

Professional work environment: A nondiscriminatory workplace environment free from harassment and composed of competent, respectful, mature and accountable employees working toward a common goal.

Program: An organised system, *process*, or set of activities to achieve an *objective*, *performance measure* or *indicator*.

Property Identification Code (PIC): An eight letter/digit code which defines each property spatially and is the basis of Australia's food safety and traceability programs.

Protection: Maintenance of the status or integrity, over the long term, of identified attributes or values including management where *appropriate*, giving consideration to past disturbance, land use, and pest risk when determining *appropriate conservation* strategies.

Quality of life: The standard of health, comfort, and happiness experienced.

Rangeland: The rangelands are those areas where the rainfall is too low or unreliable and the soils too poor to support regular *cropping*. They cover about 80% of Australia and include savannas, woodlands, shrublands, *grasslands* and wetlands. The rangelands are largely undisturbed or natural bioregions within Western Australia, South Australia, New South Wales, Queensland and the Northern Territory (DAWE, 2021).

Reasonable actions: Take all practical measures to prevent or diminish further damage.

Regulatory action information: Information related to compliance with government regulations such as permits, reports and corrective action documentation.

Renewable energy: Energy from sources that are naturally replenishing but flow-limited. It is virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time, including wood, waste, geothermal, wind, photovoltaic, tidal and wave, hydropower and solar thermal energy.

Riparian zone: A transition zone, it is any land which adjoins, directly influences, or is influenced by a body of water (ARRC, 2021).

Risk: Uncertainty about the effects/implications of an activity.

Runoff: Water from precipitation or irrigation on an area that does not infiltrate, but instead is discharged from the area. The water that flows off the surface of the land is called *surface runoff*. Water that enters the soil before reaching surface water is called *groundwater runoff* or seepage flow from *groundwater*.

Share-farming: An arrangement whereby two parties (ordinarily both farmers) bring certain elements together to farm a property to generate profits which are then shared between the parties (Coulter Legal, 2023).

Soil amendments: Materials that typically are added to soil, plants or the plant-growth environment to enhance plant growth. These include *fertilisers*, compost, sludge, manure, microbes, additives, materials improving soil condition (i.e., adjusting the pH of the soil, improving soil structure and texture, aeration adjustment and moisture *conservation* among others), materials controlling or suppressing *crop pests*, and others or combinations thereof. Inorganic *soil amendments* are composed of synthetic chemicals and/or minerals, while organic *soil amendments* are often composed of organic matter from plant/animal sources and/or microbes, and may include materials such as manure, earthworm castings, soil, sphagnum peat, grass clippings, straw, wood chips, various composts, seaweed, guano, or naturally occurring mineral deposits, and living microorganisms, among others.

Soil erosion: A *process* by which soil and rock are removed by water and wind and then transported and deposited in other locations.

Soil fertility: The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth and other growth factors are favourable.

Soil health: The capacity of soil to function as a vital living ecosystem that sustains *crops*, soil organisms and humans. Its maintenance includes consideration of the physical, chemical and biological characteristics of soil.

Soil loss: *Soil erosion* where the removal of topsoil occurs faster than the soil-forming *processes* can replace it due to natural, animal and human activity.

Soil mismanagement: Agricultural operations, practices and/ or treatments that result in the decline of *soil health* and *soil productivity*, including *soil loss*.

Soil productivity: The capability of soil for producing a specified plant or sequence of plants under specific management.

Solid waste: Any solid, semisolid, liquid or contained gaseous materials discarded from agricultural operations. It includes garbage, construction debris, commercial refuse, sludge from water supply or waste treatment plants and other discarded materials.

Special sites: Sites that include *unique geological features* or *Unique culturally important features* that are recognised regionally or nationally or by *Indigenous Peoples*.

Standard user: An organisation certified or committed to being certified by an accredited *certification body* to be in conformance with the *Leading Harvest Standard*.

Suffering: The state of severe distress, disease or injury.

Supply chain: The sequence of processes involved in the production and distribution of a commodity to a consumer.

Surface water: Water that is on the Earth's surface, such as in a stream, river, lake or reservoir.

Tail docking: The removal of a portion of an animal's tail, or actions that cause the loss of a section of the tail. It does not include any trimming of the switch hairs (the bush) (cattle).

Threatened ecological community: An ecological community that is at risk of extinction, where its natural composition and function of the ecological community have been significantly depleted across its full range. This can be due to many reasons, including clearing of native vegetation, inappropriate fire regimes, non-native or invasive species, climate change, water diversion, pollution and urban development (DAWE, 2021).

Threatened species: Species (flora and fauna) that are at risk of extinction due to various threats, including loss, degradation and fragmentation of *habitat*, invasive species, altered fire regimes, unsustainable use and management of natural resources, changes to the aquatic environment and water flows and *climate change* (DAWE, 2021). *Threatened species* may be listed under Commonwealth (EPBC Act) and/or state/ territory legislation.

Unique culturally important features: Features having significance for or being representative of human activities or beliefs. Examples could include, but are not limited to, documented areas such as archaeological sites, unusual historical sites, cemeteries and sacred sites. Typically these sites have been documented in databases established by state governments or the federal government and have been significant historically. In Australia, these include *National Heritage Places*, *indigenous heritage sites* and *indigenous protected areas*.

Unique geological features: Naturally occurring physical features on Earth's surface, which are unique or locally rare, typically limited in extent (0.1 to 100 hectares), often less than 10 hectares. Examples could include, but are not limited to, exceptional waterfalls, stream or river gorges, canyons, arches, caves or mine entrances, *outcrops* of fossil beds or rare mineral deposits, bluffs, buttes and cliffs. In Australia, these include *World Heritage Properties* and *geoheritage sites*.

Verifiable monitoring system: A system capable of being audited by a third party that includes: 1. a means to characterise *farmland* under the authority of a *Standard user*, 2. a *process* to identify and use sources of available data regarding the use of *agricultural best management practices*, and 3. a method to assess *farmland* lessee performance.

Vulnerable: Under the EPBC Act, a flora species, fauna species or ecological community, that meets any of the following five criteria:

- (1) Undergone, is suspected to have undergone or is likely to undergo in the immediate future a substantial reduction in numbers (measured over the longer of 10 years or 3 generations) of 30% or higher;
- (2) Its geographic distribution is precarious for the survival of the species and is limited: Extent of occurrence (EOO) < 20,000 km² and Area of occupancy (AOO) < 2,000 km² and at least two of the following: Severely fragmented OR Number of locations ≤ 10; Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of *habitat*; (iv) number of locations or subpopulations; (v) number of mature individuals; or extreme fluctuations in any of the previous (i) – (v).
- (3) Estimated number of mature individuals is limited (< 10,500) and one of (a) or (b): (a) evidence suggests that the number will continue to decline at a substantial rate (10% in 10 years or 3 generations - whichever is longer) (b) the number is likely to continue to decline and its geographic distribution is precarious for its survival, based on one of the following three conditions: (i) Number of mature individuals in each subpopulation ≤ 1000, (ii) % of mature individuals in one subpopulation = 100%, (iii) Extreme fluctuations.
- (4) The estimated total number of mature individuals is low (< 1000).
- (5) The probability of its extinction in the wild is at least 10% in the medium-term future (in 100 years) (DAWE, 2021).

Water quality: The chemical, physical and biological characteristics of water, with respect to its suitability for a particular purpose (e.g., drinking water for humans or livestock, commercial and industrial use, aquatic species *habitat* and *crop* irrigation) (*Water Quality Australia*)

Weather conditions: The forecast of weather (temperature, humidity, precipitation, wind, cloudiness and atmospheric pressure) and severe weather warnings (thunderstorms, tornadoes, hurricanes, winter storms, snow, droughts) to include observations, flood information, seas forecasts and climate information.

Wetlands: *Wetlands* are areas of permanent or periodic/ intermittent inundation, with water that is static or flowing fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6 metres. To be a wetland the area must have one or more of the following attributes: (1) at least periodically the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle, or (2) the substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop

anaerobic conditions in the upper layers, or (3) the substratum is not soil and is saturated with water, or covered by water at some time. This includes areas those areas shown as a river, stream, creek, swamp, lake, marsh, waterhole, wetland, billabong, pool or spring on topographic maps or local or regional maps, areas containing recognised hydrophytes, saturated parts of the *riparian zone*, artificial wetlands such as farm dams, water bodies not connected to rivers or flowing water such as billabongs and rock pools (DES, QLD 2015).

Wildlife: Aquatic (freshwater), marine and terrestrial fauna.

Woodlands: Ecosystems which contain widely spaced trees, fewer and more scattered trees than in *forests*, the crowns of which do not touch and of 20 to 50 per cent crown cover. In temperate Australia, woodlands are mainly dominated by Eucalyptus species. Temperate woodlands occur predominantly in regions with a mean annual rainfall of between 250-800mm, forming a transitional zone between the higher rainfall *forested* margins of the continent and the shrub and *grasslands* of the arid interior (ABARES, 2021).

World Heritage Property: An MNES, World Heritage sites are places that are important to and belong to everyone, irrespective of where they are located. They have universal value that transcends the value they hold for a particular nation. A declared *World Heritage Property* is an area that has been included in the World Heritage List or declared by the Minister to be a *World Heritage Property*. Once a heritage place is listed under the EPBC Act, special requirements come into force to ensure that the values of the place will be protected and conserved for future generations. The EPBC Act provides for the preparation of management plans which set out the significant heritage aspects of the place and how the values of the site will be managed (DAWE, 2021).