

Appendix 1: Grasslands Alliance Terms and Definitions

Active ingredient (ai): A pesticide consists of several substances. The active ingredient is the chemical that triggers in the treated organisms (e.g. fungi, insects, and mice) the specific toxic effect. The other substances can assist this effect, directly or indirectly.

Adaptations: management actions taken to improve resistance and resilience of the operation's natural resource base to climate change, extreme weather and unexpected events. Adaptations are based on an awareness that conditions have changed or are about to change and that action is required to return to, maintain, or achieve desired natural resource conditions.

Adaptive Management: a structured, iterative process of decision-making that uses systematic approach of monitoring and adjusting management strategies based upon changing financial, production and ecological conditions.

Agriculture: The science, art, or occupation concerned with cultivating land, raising crops, and feeding, breeding, and raising livestock; farming. For the purposes of this Grasslands Alliance standard, all facilities and equipment engaged in growing crops and raising animals.

Agricultural Lands: lands defined as "Existing Agricultural Land" in regulations implementing the Renewable Fuel Standard provisions of the Energy Independence and Security Act of 2007, 75 Fed. Reg. 14670, 14864-14865, § 80.1401. Specifically, existing agricultural land is cropland, pastureland, and land enrolled in the Conservation Reserve Program (administered by the U.S. Department of Agriculture's Farm Service Agency) that was cleared or cultivated prior to December 19, 2007, and that, on December 19, 2007, was: (1) Non-forested; and (2) Actively managed as agricultural land or fallow, as evidenced by records which must be traceable to the land in question. Records to demonstrate eligibility include: (1) Records of sales of planted crops, crop residue, or livestock, or records of purchases for land treatments such as fertilizer, weed control, or seeding; (2) a written management plan for agricultural purposes; (3) documented participation in an agricultural management program administered by a Federal, state, or local government agency; or (4) documented management in accordance with a certification program for agricultural products.

Agro-ecological conditions: the status of ecological processes that operate in agricultural production systems.

Agronomic rate(s): The agronomic application rate (AAR) is the annual amount of fertilizer (synthetic and/or non-synthetic) that supplies the key nutrient needs (typically N, P, and/or K) of the crop or vegetation for optimal growth without leaving excess nitrogen that may leach below the root zone to pollute groundwater or move by surface runoff to pollute surface waters. The key concept is to manage the nutrients, crops, and soils to achieve the desired goal.

Aquatic ecosystems: Lakes, lagoons, rivers, streams, brooks, swamps, marshes, bogs and other bodies of liquid water that exist naturally. Not included are artificial water reservoirs or drainage systems.

Assessment: a written evaluation to determine baseline conditions for establishing a structured approach to improving the performance regarding this Standard. The initial assessment involves both the Participant and the independent auditor.

Audit: an independent evaluation of the Participants’ operation against the CSBP Standard; a systematic and independent process of obtaining evidence and evaluation to determine the extent that CSBP Standard Indicators and Criteria are fulfilled.

Auditor: the person, an employee of a certification body, conducting the audit of the Participants’ operation.

Benchmark: Grasslands Alliance refers to benchmarks within the framework of ecological sites – that reflect potential plant communities, nutrient levels, and other conditions for a site; those that would be expected on sites that have been well managed. Comparing current conditions to benchmark systems relevant to beef cattle ranches and farms (e.g., ecological site descriptions, forage suitability group descriptions), or to equivalent measures that reflect a site’s potential plant communities, soil quality measures, etc. yields data and information about the current status of ecological functions processes, and thus the effects of management or climate change.

Beta-agonist: a class of steroidal drugs including ractopamine (sold commercially as Optaflexx™) and Zilpaterol (sold commercially as Zilmax) that improves the efficiency of beef production by increasing muscle growth; cattle converts more of the feed it eats into beef, and does so more efficiently. With the use of beta agonists, cattle require less feed and water to produce the same amount of beef than if no beta agonists were used. However, an increasing number of studies have raised serious animal welfare and public health concerns regarding use of beta-agonists in meat production, including [75 to 90 percent greater incidence of death](#) among cattle. As a result, beta-agonists used in beef production have been [banned in many countries around the world](#), including the EU, Russia, and China, and also [by U.S. based meatpackers](#).

Biological Diversity (Biodiversity): The variability among living organisms from all sources including, amongst others, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. 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 through regional to global.

Biosolids: treated sewage sludge that meets the U.S. EPA pollutant and pathogen requirements for land application and surface disposal.^[3]

Body Condition Score (BCS): Body condition scores (BCS) describe the relative fatness or body condition of a cow through the use of a nine-point scale. A body condition score five (BCS 5) cow is in average flesh and represents a logical target for most cow herds. A BCS 1 cow is extremely thin while a BCS 9 cow is obese.

Carbon Sequestration: The process of increasing the carbon content of a *reservoir*/pool other than the *atmosphere* – here used to refer to increasing the carbon content of soils.

Casualty euthanasia: Ending the life of casualty (sick or injured) animals in a humane manner, with absent or minimal pain or distress.

Cattle: Animals of the family Bovidae, genus *Bos*, especially those of the domesticated species *B. taurus* and *B. taurus indicus* (zebu) raised in many breeds for meat and dairy production. Also included are domesticated American Bison (*Bison bison*)

Certification Body (CB): an independent third-party- auditing firm that provides independent assessments of the Participant’s operations regarding the compliance to this Standard.

Children: All persons under the age of 18 (ILO Worst Forms of Child Labour Convention, 1999 No. 182)

Climate Smart: a term used to describe strategies for greenhouse gas mitigation (reducing and minimizing greenhouse gas emissions) and/or adaptation (increasing resistance and resilience to climate change).

Cloned animals: Individuals born from the same cell; or with absolutely homogeneous cell lineage.

Colostrum: Milk produced by cows and sucked by calves during the first three days after their birth.

Community: People or group of people living in the same place or region and are affected or impacted by the existence or operation of a farm or group of farms. Rural workers, farm inhabitants, neighbors of farms, traditional and indigenous people, and inhabitants of villages or cities may be considered communities affected by a certain farm or group of farms.

Competent professional: An individual with demonstrated professional expertise, skills, experience and credentials in the specific area where advice is rendered.

Compost: a mixture of decayed and/or decaying organic matter (e.g., manure, crop and hay residues) used as plant fertilizer. Compost is usually made by gathering organic materials, such as manure, plant materials (leaves, crop residues, grass clippings), into a pile or bin and managing for aerobic decomposition (e.g. turning for aeration) by bacteria, fungi, and other organisms.

Conflict of interest: The situation where an individual or group's capacity for objectivity is put at risk or appears to be put at risk by financial or personal interests that are in conflict with their authorized interest in, e.g., conducting fair and impartial internal inspections or serving as the group administrator or on its staff.

Conservation: see conservation action, conservation practice, conserved.

Conservation Action: are measures designed to minimize and mitigate the effects of land management actions- to ensure that species will be conserved and to contribute to their recovery. These actions may take many forms, including, but not limited to, preservation of existing habitat; enhancement or restoration of degraded or a former habitat; establishment of buffer areas around existing habitats; modifications of land use practices, and restrictions on access. The appropriateness of an individual action is determined on a case by case basis, and is based upon the needs of the species and type of impacts anticipated.

Conservation Practice: an agricultural management practice that have been determined by the Natural Resource Conservation Service as an effective method to address resource concerns, either alone or in combination with other practices. Conservation practices are not equivalent to “best management practices.” In many cases, there are multiple conservation practice options that ranchers might consider for development of a resource conservation system to address a resource concern.

Conserved: A natural ecosystem is considered to be conserved if it has been protected against significant direct or indirect human disturbance, including: a) conversion to agricultural fields, pastures, tree plantations, or any other land use; b) mining or soil removal; c) building construction or infrastructure development; d) dumping solid waste or other refuse; e) intentional introduction of alien species; f) harvest of fish, wildlife, or plants in a manner or quantity that exceeds the regenerative capacity of such species; g) livestock grazing except as specified under “sustainable

management” below; h) change in the depth or flow direction of a water course; i) drainage or drying of water bodies or wetlands through excessive water withdrawal or other means; j) severe pollution of water bodies or wetlands that substantially alters their chemistry or species composition; or k) application of herbicides, pesticides, or fire, except for restoration purposes pursuant to a restoration plan. Natural ecosystems may be conserved through any combination of the following management approaches:

- 1) **Strict preservation:** land that is set-aside by the farm or group to exclude human activities and facilitate natural ecological succession processes.
- 2) **Restoration:** land that is managed to assist the recovery of natural ecosystems that previously experienced destruction or degradation. Restoration management may include activities such as planting of native species, removal of non-native species, and active or passive facilitation of natural ecological succession.
- 3) **Sustainable management:** land that is used for economic purposes that do not substantially alter the composition, structure, or function of natural ecosystems. This may include harvest of non-endangered species (or their parts) in a manner and quantity that does not exceed the regenerative capacity of such species; sustainable livestock grazing within bush lands, savanna, or other non-forested ecosystems; or use of natural ecosystems for non-consumptive purposes such as recreation, education, or tourism.

Consumable Water: water safe enough for drinking and food preparation.

Continuous Improvement: a long-term, ongoing effort to use incremental changes in management systems practices to achieve incremental improvements in environmental, economic and social outcomes.

Contingency Plan: a plan that develops management actions to limit resource and economic damage caused by drought and other forms of extreme weather and unexpected events (e.g. flood, wildfire).

Contract: A legally binding agreement.

Conversion: see land conversion.

Corrective Action: action in response to non-conformities raised by the certification body’s auditor.

Critical criterion: A Criterion that requires full compliance during the audit in order for the audited organization to obtain or maintain certification. Partial or non-compliance of a critical criterion will lead to the denial or withdrawal of certification for the audited organization.

Critical Habitat: the habitat necessary for the sustenance of a population within a specific locale.

Death: Irreversible loss of brain activity demonstrated by the loss of reflexes of the brain stem.

Degradation: see *Land Degradation*

Criterion: A specific provision that forms the basis of evaluation for conformity within a principle of GA standards. Throughout the standard, Criteria are identified by a second order number (1.1, etc.) or in the case of sub-principles 3.1 – 3.6, a third-order number (e.g., 3.1.1). The criterion (desired outcome) is what is actually scored and is specific enough to clarify the essence of the criterion. Indicators are added when necessary to clarify exactly what producers are expected to do, and auditors are expected to assess, in determining compliance.

Destruction: Conversion of a natural ecosystem (or portion thereof) to a different land use, or other deliberate activity that extensively alters a natural ecosystem's composition, structure, or function:

- 1) Conversion to agricultural land or tree plantations;
- 2) Large-scale logging or other vegetation harvest that reduces the ecosystem's aboveground biomass by 75% or more;
- 3) Development of buildings or infrastructure, except for small-scale construction that is incidental to the sustainable use of the ecosystem for purposes such as eco-tourism, education, research, or low-intensity harvest of timber or non-timber forest products;
- 4) Significant changes to the depth or direction of a water course;
- 5) Draining or drying of wetlands and water bodies.

De minimus alteration of natural ecosystems, defined as alteration in the above-described ways that affects a total of no more than 1% of the land area of the certificate scope, is not considered to be destruction for the purpose of this standard.

Disease control: Administration of an antimicrobial drug to group of animals containing sick and healthy individuals (presumed to be infected), to minimize or resolve clinical signs and to prevent further spread of the disease ([OIE Definitions](#))

Disease prevention: The administration of an antimicrobial drug to animals, none of which are exhibiting clinical signs of disease, in a situation where disease is likely to occur if the drug is not administered. (Adapted from FDA [GFI#209](#), page 21)

Disease treatment: To administer an antimicrobial drug to an individual or a group of animals showing clinical signs of an infectious disease. ([OIE Definitions](#))

Document: Consists of information and its means of back-up. These means can be paper, sample, photographic, magnetically imaged, optical, digital or on electronic disc.

Domestic wastewater: The wastewater from residences and institutions, carrying body wastes (primarily feces, urine and semen), washing water, food preparation wastes, and laundry wastes.

Eco-region: a relatively large unit of land or water containing a distinct assemblage of natural communities sharing a large majority of species, dynamics, and environmental conditions.

Eco-regional scale: used to described outcomes or activities for an eco-region.

Ecological Site: Ecological Sites provide a consistent framework for classifying and describing rangeland and forestland soils and vegetation; thereby delineating land units that share similar capabilities to respond to management activities or disturbance

Ecological Site Description (ESD): report that provides detailed information about a particular kind of land – a distinctive ecological site. See <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/ecoscience/desc/>

Ecosystem processes: The physical, chemical and biological actions or events that link organisms and their environment. Ecosystem processes include decomposition, production [of plant matter], nutrient cycling, and fluxes of nutrients and energy.

Ecosystem services and resources: Ecosystem services are the benefits people obtain from ecosystems. These include *provisioning* services such as food and water; *regulating* services such as flood and disease control; *cultural* services such as spiritual, recreational, and cultural benefits; and *supporting* services, such as nutrient cycling, that maintain the conditions for life on Earth.

Emasculation: Emasculation is the removal of the testicles (castration) of a male by surgical methods, Burdizzo clamp or elastrator.

Endangered species: Species of plants, animals, and fungi designated as threatened or endangered by national laws or classification systems or listed as threatened by the IUCN Red List of Threatened Species™ and/or listed in Appendices I, II, or III of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Endangered Species Act: federally mandated requirements for the protection and recovery of imperiled species and ecosystems in the United States. “Endangered” means a species is in danger of extinction throughout all or a significant portion of its range. “Threatened” means a species is likely to become endangered within the foreseeable future. Globally threatened species are species designated as critically endangered (G1), endangered (G2), or vulnerable (G3). State-listed threatened species are species designated as critically endangered (S1), endangered (S2), or vulnerable (S3). (See www.natureserve.org for additional details).

Enhance/enhanced: increased, improved. GA uses “enhanced” to describe outcomes pertaining to improved resource conditions. Where a criterion or indicator requires that a condition be “maintained or enhanced,” “enhance” is required when current conditions do not meet the Criterion, while “maintain” is required when current conditions already meet the Criterion.

Enteric methane: methane emissions generated by ruminant livestock via a digestive process (enteric fermentation) in which carbohydrates (in forage and feed) are broken down by methane-producing microorganisms into forms that support animal growth.

Environment, Health and Safety (EHS): broad set of regulations or procedures to ensure acceptable working conditions.

Extent (of weed infestations): Size of an infestation in length or square feet or meters.

Euthanasia: Practice to end a life with no pain in order to avoid prolonged suffering.

Fair Labor Standards Act (FLSA): establishes minimum wage, overtime pay, recordkeeping, and youth employment standards affecting employees in the private sector and in Federal, State, and local governments.

Farm: A smallholder farm, farm, plantation or ranch production unit and legal unit of land, which may or may not be composed of several neighboring or geographically separate production plots, which is subject to certification or audits. Farms with the same owner but different owner-authorized operational management are not considered as a single farm.

Farm infrastructure: Farm roads; irrigation channels, ponds, and reservoirs; permanently installed farm machinery; and washing, processing, and packing areas or facilities:

- **Major new farm infrastructure:** Any new farm infrastructure that, in aggregate, affects or disturbs an area greater than two hectares; withdraws more than 500,000 m³/yr of irrigation water; or discharges more than 10,000 m³/yr of industrial or process wastewater. These thresholds may be locally modified as specified in GA local Indicators documents.

Feed Crops: crops grown or purchased to feed cattle (e.g., alfalfa, corn, soy and their byproducts).

Feed Supplements: materials of nutritional value fed to livestock to optimize their growth and/or health.

Fertilizer: Natural materials and synthetic compounds, including manure and nitrogen, phosphorus, and potassium compounds, spread on or worked into soil or on leaves to increase their capacity to support plant growth.

Flowing and still water bodies: All naturally occurring streams, rivers, pools, ponds, lakes, and lagoons, as well as seasonal streams that flow continuously for at least two months in most years or flow intermittently (e.g., after strong rains) and are at least one meter wide in most places.

Forage-Animal Balance: a calculation to confirm that the total amount of available grazing forage and the addition of any supplemental feed (hay, silage, etc.) is -d with the amount consumed by the total number of livestock and wildlife to meet their daily consumption needs.

Forage Enhancement: management activities implemented to improve the amount and/or quality of forage available to livestock (e.g., brush removal, prescribed fire, herbicide applications).

Forage Suitability Group Description (FSGD): interpretive reports that provide a soil and plant science basis for conservation planning on livestock operations where forage crops are grown. More information:

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1043493.pdf

Forced or compulsory labor: All work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered herself or himself voluntarily (Convention concerning Forced or Compulsory Labour (Entry into force: 01 May 1932); Adoption: Geneva, 14th ILC session (28 Jun 1930).

Forestland: lands generally undeveloped land covering a minimum area of one (1) acre upon which the primary vegetative species are trees, including land that formerly had such tree cover and that will be regenerated and tree plantations. Tree covered areas in intensive agricultural crop production settings, such as fruit orchards or tree-covered areas in urban settings such as city parks, are not considered forestlands.

Fossil Fuel: a fuel such as petroleum, coal or gas that was formed in the geological past from the remains of living organisms.

Free, Prior and Informed Consent (FPIC): A specific right for Indigenous Peoples as recognized in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). FPIC is also recognized as good practice in development projects. It can reduce the risk of conflict between the community and company if communities are actively involved in project decisions from the outset. Non-indigenous, project-affected peoples also have the right to consultation and negotiation in decision-making processes in ways that are consistent with the principles underlying the right to FPIC.

Fresh Water Depletion: long-term declines in surface water and/or ground water levels occurring when rates of surface water withdrawal and groundwater pumping exceed rates of replenishment and recharge.

Genetically Modified Organism (GMO): An organism whose genetic material has been altered using genetic engineering techniques, i.e., the direct manipulation of an organism's genome using biotechnology or genome-editing techniques.

GHG: see Greenhouse Gas.

Good Agricultural Practices: Good Agriculture Practices or GAP refers to an evolving set of principles and technical recommendations to address human health, environmental protection, and the improvement of workplace conditions. In the absence of well-vetted science and well established production practices for grazing operations and/or pasture crops; Participants draw from the techniques developed over time to provide sustainable pathways for their grazing operations. Sustainable agricultural can be obtained through Good Agriculture Practices and specific methodologies, such as integrated pest management, integrated fertilizer management, conservation agriculture and worker/family health and safety protocols.

The GAP recognized by the FAO (<http://www.fao.org/prods/gap/>) rely on four principles:

- Economically and efficiently produce sufficient crops and livestock, safe production techniques and using environmentally sound principles;
- Sustain and enhance natural resources;
- Maintain viable farming enterprises and contribute to sustainable livelihoods;

Meet cultural and social demands of society

Grazing Management Areas: see production plot/area.

Grazing periods: Timing and duration of cattle's presence on grazing areas.

Greenhouse gas (GHG)/Greenhouse gas emissions: releases of gases that trap heat in the atmosphere, contributing to climate change. These gases include carbon dioxide (CO₂), methane (CH₄) emissions from cattle rumen (see also enteric methane) and manure, nitrous oxide (N₂O) and chlorofluorocarbons (CFCs). Greenhouse gases (GHGs) are often measured in equivalents to carbon dioxide (CO₂-e) as CO₂ is the most prevalent GHG.

Group administrator: The entity that signs the certification contract with the GA accredited certification body and takes responsibility for the development and implementation of the group's internal management system and all member farms' management systems. The group administrator assures member farms' compliance with all applicable criteria of GA standards.

Group certification: an arrangement by which grazing phase beef production units owned or managed by a number of distinct legal entities (group members) may be evaluated and subsequently certified within the scope of a single certificate.

Group member: The owner or responsible person of one or more member farms of a producer group.

Growth promoting hormones: An estimated 80 percent of all US feedlot cattle are injected with hormones to make them grow faster.^F Although the USDA and FDA claim these hormones are safe, there is growing concern that hormone residues in meat and milk are harmful to human health, animal health, and the environment. For example, According to the European Union's Scientific Committee on Veterinary Measures Relating to Public Health (SCVPH), the use of six natural and artificial growth hormones in beef production pose a potential risk to human health.^F These six hormones include three that are naturally occurring – Oestradiol, Progesterone and Testosterone – and three that

are synthetic – Zeranol, Trenbolone, and Melengestrol. When hormones are injected into cattle, some naturally occurring hormone levels increase 7 to 20 times. [F](#) The committee found that “no acceptable daily intake could be established for any of these hormones.” [F](#) The Committee also questioned whether hormone residues in the meat of growth enhanced animals can disrupt human hormone balance, causing developmental problems, interfering with the reproductive system, and even leading to the development of breast, prostate and colon cancers. [F](#) Children, pregnant women, and developing embryos are thought to be most susceptible to negative health effects from added hormones. For example, hormone residues in beef have been examined as a cause of lower sperm counts in boys. [F](#) Growth-promoting hormones not only remain in the meat we consume, but also pass through the cattle to be excreted in manure. Scientists are increasingly concerned about the environmental impacts of this hormone residue as it leaks from manure into the environment, contaminating soil, and surface and groundwater. [F](#) Aquatic ecosystems are particularly vulnerable to hormone residues. Recent studies have demonstrated that exposure to hormones has a substantial effect on the gender and reproductive capacity of fish. [F](#) Source: <http://www.sustainabletable.org/258/hormones>

Habitat connectivity: the degree to which the landscape facilitates animal movement and other ecological flows. Wildlife need to move – mobility is the key to survival for many wildlife species.

Habitat diversity: defined by Grasslands Alliance as the range of habitats present on an operation’s owned and leased lands.

Habitat heterogeneity: the variety of qualities (e.g., of plant heights and successional stages) found on an operation’s habitats.

Hazardous materials or residues: Used lead acid batteries, asbestos, energy saving mercury lamps, E-waste, electric transformers with POPs (PCBs), medical equipment, radioactive material, pesticides, expired human and veterinary medicines, used oils, bio infectious waste, disinfectants, animal parts and carcasses, and particles (ashes, dust, pesticide drifts).

Heavy metal: GA focuses on heavy metals sometimes used by beef operations as micronutrients to promote growth, such as zinc, arsenic, and copper. As contaminants in manure, they can pose water quality risks.

High Conservation Value area: A natural ecosystem that is of special conservation importance by virtue of providing or sustaining one or more of the following six values:

- 1) Important concentrations of biodiversity, including endemic species or threatened or endangered species;
- 2) Large, high quality ecosystems or ecosystem mosaics;
- 3) Rare natural ecosystems;
- 4) Critical ecosystem services (e.g. watershed protection, erosion control, or flood control) to specific local or downstream communities or enterprises;
- 5) Resources fundamental for satisfying basic necessities of local communities or indigenous peoples; or
- 6) Resources of high cultural, archaeological, historical, religious, or sacred importance.

Highest priority critically important antimicrobials (HPCIA): Antibiotics for which management of the risks from antimicrobial resistance are needed most urgently based on importance to human medicine and evidence of transfer of resistance from animals to people. Source <https://www.who.int/foodsafety/publications/antimicrobials-fifth/en/>

Hot iron process: (1) **de-horning:** Process to impede the growth of the bovine horn's button (extremity that finishes in round tip) when beginning to develop. The hot iron dehorning is carried out in order to avoid animals injuring each other and to facilitate herd management; (2) **branding:** the term used to describe how a branding iron, when heated red hot, is pressed against the animal hide to mark animal ownership. Brands and brand location are registered by each state.

Hunting: The act of pursuing or killing a wild terrestrial animal by legal means, with a rifle, shotgun or bow and arrow. Hunting is controlled and regulated by each state.

Hypoxia: the condition in water bodies in which dissolved oxygen falls below the level necessary to sustain most animal life.

Important Species, Important Wildlife Species (IWS), Important Species and Vegetation Cover Types: "Important" refers to any native plant or wildlife species or vegetation type/plant community type identified in state, regional, or national conservation plans (e.g., State Wildlife Action Plan or others) or identified as economically important or significant and therefore considered in the Conservation Plan *in addition to* rare, threatened and endangered species and communities. Examples of "important" species include those identified by using NatureServe Explorer <http://www.natureserve.org/explorer/> to (1) search by location to get a list of [G1-G3 species](#) by county or watershed, and (2) use the map viewer to quickly zoom in to the location(s) of an operation's owned and/or leased lands. G1-G3 species are defined at https://en.wikipedia.org/wiki/NatureServe_conservation_status#Commonly_encountered_ranks

Improved pasture: see Pasture.

Indigenous peoples: Peoples native to a particular place, often ethnic minorities who have been marginalized as their historical territories have become part of a state.

Illness: Functional or morphological alteration with clinical signs caused by biotic or abiotic agents that can be present in animals and vegetables and that produce modifications in its morphology or physiology.

Improvement opportunities: see Issues of Concern.

Internal Inspection: First or second party audit conducted by a person designated by a group administrator that checks compliance of member farms with applicable GA standards.

Integrated Pest Management (IPM): an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines (prevention, avoidance, monitoring, suppression; [PAMS](#)) and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment.

Integrated Pest Management Plan (IPM Plan): a plan written to guide integrated pest management (defined above), based on the [PAMS](#) approach (prevention, avoidance, monitoring and suppression).

Intensive use areas: corrals, winter feeding facilities, backgrounding lots, crop fields.

Internal Management System: A documented set of procedures and processes that a group implements to comply with GA standard and policy requirements. The existence of an Internal Management System allows the GA approved certification body to delegate inspection of all individual group members to the group administrator’s internal inspectors.

Introduced forage: planted forage species that do not occur naturally on an operation’s lands.

Invasive plant species: A plant species or subspecies that is not native to a given place, and whose presence or introduction in that place causes or is likely to cause economic harm, environmental harm, or harm to human health. Invasive plant species in each locality are those plant species identified in the Global Invasive Species Database (<http://www.issg.org/database/welcome/>) or U.S. invasive species database (<http://agclass.nal.usda.gov/>). For the purpose of this standard, crop species are not considered invasive plant species.

Invasive species: plants, animals, and microbes not native to a region, which when introduced either accidentally or intentionally cause economic or environmental harm or harm to human health.

Irritating substance: Substance that can cause physical discomfort or pain.

Issues of concern: instances of resource degradation and other non-compliances with the Grasslands Alliance standard identified as opportunities to improve management outcomes.

Land conversion: Conversion of non-cropped areas or pasture to annual or perennial crop agriculture. Conversion from one crop to a different crop, or rejuvenation of perennial crop plots, are not defined as land conversions.

- **Major land conversion:** Any land conversion (or set of land conversion activities under the same management or group organization) that has the potential to significantly affect soil, water, land, or social wellbeing, by virtue of its size. Major land conversions are presumed to be those exceeding 100 hectares.

Land Degradation: changes within an ecosystem that negatively affect the structure or function of the site, and thereby lower the capacity to supply products and/or ecosystem services.¹

Landscape scale: referred to by Grasslands Alliance to action that covers a large spatial scale beyond the individual ranch or farm, usually addressing a range of habitats, ecosystem processes and land uses.

Lethal control: control of a pest or predator animal that results in its death.

Life cycle assessment (LCA): a suite of analytical techniques for compilation and evaluation of the inputs, outputs, and the potential environmental impacts of a product system throughout its life cycle. (ISO International Standard, 14040 Environmental Management – Life Cycle Assessment – Principles and Framework, 2006. 2nd Edition)

Life cycle emissions: refers to GHG emissions that occur over the life of an animal, from birth to death.

Live fence: Line of closely spaced shrubs and tree species planted in such a manner as to separate crop and pasture areas or to define property boundaries supporting barb or plain wire fencing. Live fences cannot consist of dead fence posts only.

¹ FAO (2001); Global Forest Resources Assessment FRA 2000 – Main report, Rome.

Living wage: Remuneration² received for a standard work week³ by a worker in a particular place sufficient to afford a decent standard of living⁴ for the worker and her or his family. Elements of a decent standard of living include food, housing, education, health care, water, transport, clothing, other essential needs including provision for emergencies and unexpected events (ISEAL Living Wage Working Group).

Loading: Transfer of animals onto a vehicle, ship or container.

Locally Appropriate: GA uses this term in two ways. (1) Locally appropriate practices are those that will work best in the region of an operation, or given its climate, soils, or topography, to achieve a Criterion. (2) Locally appropriate Criteria and Indicators (e.g., “bare ground is at locally appropriate levels”) refers to instances in which the current status of an indicator (e.g., litter cover, bare ground) can mean different things in different ecoregions. For example, low levels of bare ground in many regions (e.g., the Great Plains, eastern pasture) can serve as a positive indicator of soil and vegetation health. In more arid regions, however, low levels of bare ground can serve as an indicator of degradation because such outcomes typically indicate invasions by non-native annual grasses.

Maintain: refers to maintaining *already positive* outcomes Where a criterion or indicator requires that a condition be “maintained or enhanced, “maintain” is required when current conditions already meet the Criterion, while “enhance” is required when current conditions to not meet the Criterion.

Major new farm infrastructure: see Farm Infrastructure.

Management component: a specific part of agricultural management, including: input management, field/stand management, harvest, incidental area treatment, carbon cost, and field/stand access.

Management objectives: the specific aims a landowner or manager seeks to achieve through management plans and practices.

Management options: different practices or programs that may be used to achieve management objectives.
Management practices: specific activities, measures, courses of action, or treatments used to achieve management objectives.

Manure methane: methane emissions generated by livestock manure management.

² The term *remuneration* is a broader term than ‘wage’. It includes the ordinary, basic or minimum wage or salary and any additional emoluments or earnings whatsoever, however designated or calculated, payable directly or indirectly, whether in cash or in kind, to the worker and arising out of the worker's employment; it is capable of being expressed in terms of money and fixed by mutual agreement or by national laws or regulations, and payable in virtue of work done or to be done or for services rendered or to be rendered (see ILO Conventions No. 95 (Protection of Wages) and 100 (Equal Remuneration)). As used here, it applies to all work done, whatever the form of engagement – by employment, by contract, or by casual labor.

³ Under ILO Conventions No. 1 and 30, the standard working-time schedule is a maximum of an eight hour day and a 48-hour week. Working time in a particular country may be less if provided for by national laws and regulations, or by collective agreement.

⁴ Under the Universal Declaration of Human Rights, article 23, “Everyone who works has the right to just and favorable remuneration ensuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection”; and under article 25, “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control”. These rights are developed further in particular in the International Covenant on Economic, Social and Cultural Rights (article 7, which guarantees among other things, fair wages and a ‘decent living for themselves and their families’). They are also elaborated in the instruments of the ILO: in particular the Decent Work Agenda enshrined in the 2008 Social Justice Declaration endorsing “policies in regard to wages and earnings, hours and other conditions of work, designed to ensure a just share of the fruits of progress to all and a minimum living wage to all employed and in need of (social) protection”.

Marginal Lands / Incidental Areas: Lands on the edges of cultivated areas that are often difficult to grow crops on. Marginal lands are described in ecological terms as having low production potential due to steep topography, poor soils, and limited rainfall, but also are considered useful for grazing livestock. In economic terms, marginal lands have low potential for returned profits from any investment of inputs. Others define them as idle lands that are not used for forage or crop production immediately adjacent to (e.g., hedgerows) or within (e.g., watercourses, wetlands) beef production units.

Mass nutrient balance: A nutrient mass balance (NMB) is defined as the difference between the amount of N, P, and potassium (K) imported through purchased feed, fertilizer, animals and bedding or manure, and the amounts exported off the farm via milk, meat, crops, manure and/or compost. Such assessments can help identify management alternatives that can enhance whole farm nutrient use efficiency (and hence reduce nutrient losses) and increase farm profitability.

Member farm: Farm owned or managed by a group member that signed or marked an agreement with the group administrator.

Mineral supplements: See feed supplements.

Mitigation: 1. action taken to alleviate potential adverse effects of natural or human-caused disturbances 2. compensation for damage done – note in this usage, in-kind mitigation is replacement of a lost resource with one similar (stream for stream or species for species), while out-of-kind is replacement of one kind with another (lake for stream or one species for another).

Narrow spectrum pesticide: a selective pesticide that is toxic to one or a few species or species groups —synonym selective pesticide. Contrast with broad- spectrum pesticide (a nonselective pesticide - usually an insecticide -that is toxic to many species).

Native Natural Grasslands: undisturbed grassland ecosystems with a plant cover composed principally of undisturbed native grasses, grass-like plants, forbs, and suitable for grazing or browsing.
(<http://www.ers.usda.gov/AmberWaves/September11/Features/NativeGrassland.htm#box1>. Grasslands are defined by land cover and use. Grasses are the dominant vegetation, but grasslands also include legumes, forbs, and other vegetation. Grassland use includes such activities as grazing, haying, and other forms of forage harvest. Native grasslands are also referred to as “native sod.” Native grasslands are usually classified as rangeland based on native vegetation)

Native Sod: lands on which the plant cover is composed principally of native grasses, grass-like plants, forbs, or shrubs suitable for grazing and browsing, and lands that have never been tilled for the production of an annual crop as of January 1, 2008.

Native species: Species, subspecies, or lower taxon occurring within its current natural range, i.e., the range it occupies without direct or indirect introduction or care by humans.

Natural disturbance regime: the pattern of disturbances that shape an [ecosystem](#) over a long time scale. A natural disturbance regime is distinguished from a single disturbance event because it describes a spatial disturbance pattern, a frequency and intensity of disturbances, and a resulting ecological pattern over space and time. Natural disturbance regime is closely associated with the [natural community](#) in which it occurs.

Natural ecosystem: Ecosystems that substantially resemble – in terms of species composition, structure, and function – those that are or would be found in a given area in the absence of major human management impacts. Vegetation where ecological processes primarily determine species and site characteristics; that is, vegetation comprised of a largely spontaneously growing set of plant species that are shaped by both site and biotic processes. Natural vegetative forms recognizable physiognomic and floristic groupings that can be related to ecological site features. Human activities influence these interactions to varying degrees (e.g., logging, livestock grazing, fire, introduced pathogens), but do not eliminate or dominate the spontaneous processes. (www.NatureServe.org)

These include:

1. **Flowing and still water bodies:** All naturally occurring streams, rivers, pools, ponds, lakes, and lagoons, as well as seasonal streams that flow continuously for at least two months in most years or flow intermittently (e.g., after strong rains) and are at least one meter wide in most places.
2. **Other wetlands:** All naturally occurring wetlands, where the natural hydrological conditions result in either or both of the following conditions:
 - a. Soils are waterlogged for the majority of the year.
 - b. The land is periodically or permanently inundated by shallow water. This includes floodplains; wet areas bordering ponds, streams, or the ocean; and shallow depressions that fill with water seasonally.
3. **Forests:** Forests include both humid forests (rainforest) and drier forests; lowland, montane, and cloud forests; and forests consisting of any combination of broadleaf, needle leaf, evergreen, and deciduous vegetation. Generally, forests are defined as tree-covered areas that:
 - a. Are not occupied by agriculture or other specific non-forest land uses;
 - b. Consist primarily of native plant species;
 - c. Contain a vegetation structure that generally resembles that of a natural forest of the same age in the same area; and
 - d. Have been regenerating for at least 10 years with minimal human disturbance and/or have an aboveground carbon stock at least 35 tons per hectare for lowland tropical forest, or, for other types of forest, an aboveground carbon stock of at least 25% of that of a mature second-growth forest of the same type found in the same area.
4. **Other native terrestrial ecosystems:** These include: Woodlands, shrublands, grasslands, and páramo that are present in patches of at least one hectare in size, are not being used for cultivation or enclosed grazing, and have not been used in these ways for at least the past five years.
 - Localized areas of non-forest natural vegetation within forest biomes that are not covered in any of the preceding categories, regardless of their size.
 - Further details on the definition of natural ecosystems and the identification of such ecosystems in the field will be provided in the GA Audit Process Guide.

Natural Heritage programs: state-level programs that manage site-specific and species/ecosystem-specific information on priority species and ecosystems, Natural Heritage programs identify species and ecosystems are priorities for conservation effort; build and maintain a database for priority species and ecosystems; and share the information with others so that it can be used for environmental assessments and conservation planning purposes.

Natural Resources Conservation Service (NRCS): a program of the U.S. Department of Agriculture to help America's private land owners and managers conserve their soil, water, and other natural resources. NRCS provides technical and financial assistance for many conservation activities. (www.nrcs.usda.gov)

Natural Savannah: ecosystems with a continuous native grasses and forbs layer with scattered native trees or shrubs. There are five discrete types in North America: pinyon (*Pinus cembroides*, *P. edulis*, *P. monophylla*), juniper (*Juniperus* sp.), pine (e.g. *Pinus ponderosa*, *P. palustris*), oak (*Quercus* sp.), and mesquite (*Prosopis* sp.) types. Oak savannahs are divided into California, southwestern, and Midwestern oak savannahs.

NatureServe: a non-profit conservation organization whose mission is to provide the scientific basis for effective conservation action; represents an international network of biological inventories-known as natural heritage programs or conservation data centers-operating in all 50 U.S. states, Canada, Latin America, and the Caribbean.
(www.natureserve.org)

Net Emissions: a measure of the direct and indirect total carbon and carbon equivalent emissions from across the operation (including feed production and land conversion), as well as accounting for carbon sequestration on land (pasture, rangeland etc.) used for beef production.

New Information Request (NIR): a written request by a certification body to provide additional information to determine compliance with specific requirements. It is possible that a new non-conformity may result from the evaluation of new information submitted.

Non-Conformity (NC): receiving a non-conformity means that the program is not compliant with a specific requirement of the CSBP Standard.

Non-Lethal Strategies: refers to predator management strategies that reduce the likelihood that predators will prey on livestock, but do not kill or injure predators.

Non-shade-tolerant crop: A crop that is not defined as a shade-tolerant crop.

Non-synthetic inputs: See <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5103308> for a USDA AMS decision tree used to distinguish synthetic from non-synthetic inputs.

Nutrient Management Plan: the overall conservation system that addresses all aspects of an animal feeding operation to help ensure that both agricultural production goals and natural resource concerns dealing with nutrient and organic by-products and their adverse impacts on water quality are achieved. A CNMP incorporates practices to utilize animal manure and organic by-products as a beneficial resource.

(<http://www.nrcs.usda.gov/technical/afo/pdf/CNMPFactSheet.pdf>)

Off-site compensation area: An area of natural ecosystem located outside of the farm boundaries that the farm owner or group administrator designates, through legal or other effective means, to be *conserved* on a long-term basis. For the purpose of this standard, any off-site compensation must be additional to conservation management that is already taking place (or would take place in the absence of action on the part of the farm owner or group administrator), and must reflect full prior, informed consent of any existing owners or valid claimants to the area's land or resources.

Operation's Scale: the relative size and complexity of the operations considered for GA certification, including the use of technologies and sophistication when compared to similar Participants in the region.

Optimize: make the best or most effective use of a resource in a manner that avoids unintended trade-offs or consequences to ecosystem services. For example, Grasslands Alliance favors "optimizing" soil carbon levels to locally

appropriate levels because “maximizing” soil carbon levels could justify practices such as irrigation and fertilization, which are associated with different production impacts – including to water quality, water quantity, and biodiversity.

Organic and mineral fertilizers: See synthetic and non-synthetic inputs.

Overgrazing: occurs when plants are re-grazed repeatedly prior to full recovery.

Participants: a grazing phase (cow-calf, stocker, grass finishing) beef producer who enrolls in the GA program to achieve third-party certification for meeting the Grasslands Alliance Standard for Beef Production.

Pasture: (1) Pasturelands (which occur primarily in the eastern and central U.S., as well as in western U.S. bottomlands) contain vegetation that consists mostly of introduced species adapted to higher rainfall or irrigated conditions, and typically are managed using *agronomic* principles (i.e., farmlands planted with grass to feed grazing livestock; “farming with grass”). Pasturelands are a distinct type of operation from rangelands (defined below), and are sometimes categorized by how it is managed:

Improved Pasture: pasture that receives inputs such as fertilizer, pesticides and tillage/seedbed preparation.

Irrigated Pasture: improved pasture that is irrigated.

Cropland/Cropland Pasture: Grazed croplands planted to pasture in rotation with crops; grazed cover crops; grazed crop residues; grazed feed crop fields, etc.

Unimproved pasture: Grazinglands that are not native or naturalized grassland, and are not fertilized, irrigated, or recently seeded. Land not fitted to profitable use, but that may be necessary for seasonal intensive uses such as sorting cattle, calving and winter feeding. Unimproved lands are cared for to prevent weed invasion and soil erosion, but inputs are minimal. Although ecological condition varies, lands are in stable condition.

(2) A grazing unit enclosed and separated from other areas by fencing or other barriers and devoted to the production of forage for harvest primarily by grazing.

Pasture Condition Score / Pasture Condition Scoring: Pasture condition scoring is a qualitative method for quickly assessing the overall condition of a ranch, farm or pasture with respect to grazing management via key indicators and causative factors. More information:

http://wiki.landscapetoolbox.org/doku.php/field_methods:pasture_condition_scoring

Pathogen: an organism that produces a disease. It is an organic pollution (biological hazard) and occurs from fecal contaminations. Fecal contaminations of water by beef cattle ranches and farms can introduce a variety of pathogens into waterways, including bacteria, viruses, protozoa and parasitic worms.

Peatland: ecosystems dominated by moss species, especially Sphagnum or Carex sp. as the principle life form, and in which the production of beef exceeds its decomposition resulting in the accumulation of organic matter from plant debris. Peatlands are areas with or without vegetation, with a naturally accumulated peat layer at the surface.

Pest (crop pest): An organism which is detrimental to humans or human concerns and most frequently causing economic damage, e.g. to crops or livestock. They include unwanted species of plants or animals causing harm during or otherwise interfering with the production, processing, storage, transport or marketing of food, agricultural commodities, wood and wood products or animal feedstuffs.

Pesticide: Any substance or mixture of substances intended for preventing, destroying or controlling any pest, including vectors of human or animal disease. Pesticides include herbicides, insecticides, nematocides, rodenticides,

bactericides, antimicrobials, and fungicides. They also include substances that may be administered to animals for the control of insects, arachnids or other pests in or on their bodies. The term includes substances intended for use as a plant growth regulator, defoliant, desiccant or agent for thinning fruit or preventing the premature fall of fruit. Pesticides are also used as substances applied to crops either before or after harvest to protect the commodity from deterioration during storage and transport.

Policy: Global intentions and the farm’s or group administrator’s orientation with respect to the GA standard, national laws and their requirements.

Potential / To Potential: potential plant communities, levels of key soil quality indicators, and other conditions for a site; those that would be expected on sites that have been well managed. Comparing current conditions to potential (typically provided via benchmarks such as ecological site descriptions or NRCS soil survey data that reflect e.g., expected soil organic matter levels for a site) yields data and information about the current status of ecological functions processes, and thus the effects of management or climate change. See also benchmark.

Prairie: native grasslands of North America. Prairies can be roughly divided into tallgrass, mixed-grass, and shortgrass prairie, based on height and species of grasses. (<http://www.npwrc.usgs.gov/news>)

Predator: refers to wildlife species known to prey upon livestock.

Preservation: see strict preservation

Principle: A GA principle is a set of thematically related outcomes. This set of outcomes is explained in the introduction of each principle. The elements that compose a principle and reflect its outcomes are Criteria (“Criteria” in our sister standard, the SAN). The set of Criteria of each principle addresses all its key outcomes.

Procedure: Specified way to carry out an activity or a process for the purpose of complying with GA standard and policy requirements.

Product quality: The product's ability to fulfill the expectations and needs of the end user.

Production plot/area: A contiguous area of a farm dedicated to the production of crops or livestock of any sort.

Productivity: A measure of production efficiency based on the ratio of production output to production inputs of land, capital, water, other natural resources, labor, energy, or other materials. Land productivity (tons of crop produced per hectare) is a partial measure of productivity.

Protected area: An area of land recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem assets and cultural values. This term generally refers to IUCN protected area categories Ia, Ib, II, III, and IV. It also includes zones within designated multi-use landscapes (e.g., IUCN category V and VI protected areas) that are zoned for nature conservation. Examples include national parks, wildlife refuges, forestry reserves, private reserves, and nature protection areas within UNESCO Man and the Biosphere reserves.

Rangeland: Rangelands are grasslands, shrublands, savannahs, woodlands, wetlands, and deserts that are grazed by domestic livestock or wild animals, but where rainfall is too low or erratic for growing crops. Types of rangelands

include tallgrass and shortgrass prairies, desert grasslands and shrublands, woodlands, savannas, chaparrals, steppes, and tundras. Rangelands are concentrated in the drier Western United States and are managed using *ecological* principles – as native ecosystems with few or no inputs.

Rangeland Health / Rangeland Health Assessment: the degree to which the integrity of the soil, vegetation, water and air as well as the ecological processes of the rangeland ecosystem are balanced and sustained. Integrity is defined as the maintenance of the functional attributes characteristic of a locale, including normal variability. Rangeland Health Assessment is a scientific method of assessing the ecological status of rangelands. See (<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/range/?cid=stelprdb1043629>) for more information. For a version targeted to producers, see <http://quiviracoalition.org/images/pdfs/5252-2013%2520Bullseye.pdf>.

Rare, Threatened, and Endangered Species and Communities (RTESC): species that are federally listed (e.g. by the U.S. Fish and Wildlife Service or National Marine Fisheries Service) or state listed (e.g. by state agencies or natural heritage programs) as G1- G3 and S1-S2. S3 species or communities that are listed as candidates for federal or state listing are also included. Other S3 species or communities may be considered rare based on the assessment by the landowner or manager in consultation with the appropriate state fish and wildlife agency.

Renewable Energy: energy from a source that is not depleted when used, such as wind or solar power.

Resilience: The ability to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to adapt to stress and change.

Restoration: The process of assisting the recovery of a *natural ecosystem* that has experienced *destruction or degradation*, by progressively returning its composition, structure, and function to that of an *ecosystem* that would be found on the site in the absence of disturbance or human impact. Restoration may include management activities such as planting of native species, removal of alien species, and active or passive facilitation of natural ecological succession.

Restored lands, restored: lands that through human intervention or natural processes once again exhibit some or all natural ecosystem characteristics.

Restricted entry period: Minimum amount of time that must pass between the moment a pesticide was applied to an area or crop and the moment that people can enter that area without personal protective equipment.

Rights to water use: A water right is a legal entitlement authorizing water to be diverted from a specified source and put to beneficial, non-wasteful use. Water rights are property rights, but their holders do not own the water itself. They possess the right to use it.

Riparian buffer: a "buffer strip" of vegetation maintained by management near a stream. Riparian buffers are usually forested or containing dense shrub cover, which helps shade and partially protect a stream from the impact of adjacent land uses. Riparian buffers are implemented to maintain or enhance ecosystem services such as filtering runoff to increase water quality in associated streams, rivers, and lakes, thus providing environmental and economic benefits.

Riparian zone: the vegetated area near a stream, usually forested or containing dense shrub cover, which helps shade and partially protect a stream from the impact of adjacent land uses. It plays a key role in increasing water quality in associated streams, rivers, and lakes, thus providing environmental benefits.

Risk: actual or potential threat of adverse environmental, economic and/or social impacts effects caused by poor management that results in resource degradation, resource depletion, pollution, waste, etc., arising out of an operation’s activities.

RUSLE2 (T score): Revised Universal Soil Loss Equation, which estimates soil loss from rill and interrill erosion caused by rainfall on cropland (rill and interrill erosion is the removal of layers from the land surface by the action of rainfall and runoff); used to predict the long-term average rate of rill and interrill erosion for several alternative combinations of crop system and management practices. T score refers to soil loss tolerance, the amount of soil that can be replenished annually through soil forming processes, and usually varies from 1-5 tons per acre per year, depending on the soil type. RUSLE2 calculates the average annual soil loss (A) based on factors of climate, soil, slope length, slope steepness, cover management and support practice. This value is compared with T to determine whether the system is sustainable from a soil loss perspective. (<http://www.ia.nrcs.usda.gov/news/factsheets/RUSLE2FactSheet.html>)

Safe drinking water: Free from micro-organisms, chemical substances and radiological hazards that constitute a threat to a person’s health, of an acceptable color, odor and taste as defined by the local authorities’ minimum safety parameters, or complies with the following WHO parameters:

Parameter	Value
Fecal Coliforms	No detection of coliforms ⁵
Chlorine residue or residue from other treatment disinfectants	0.2 to 0.5 mg/L
Nitrates	Maximum 10 mg/L as nitrates
pH	6.5 to 8.5
Sodium	Maximum 20 mg/L
Sulphates	Maximum 250 mg/L

⁵ *Guidelines for drinking-water quality, 4th ed., 2011 Vol. 2 Health criteria and other supporting information*, 1996 (pp. 940-949) and *Addendum to Vol. 2* . 1998 (pp. 281-283) Geneva, World Health Organization:

Organisms	Guideline value
All water intended for drinking	
<i>E. coli</i> or thermotolerant coliform bacteria ^{a,b,c}	Must not be detectable in any 100-ml sample
Treated water entering the distribution system	
<i>E. coli</i> or thermotolerant coliform bacteria ^b	Must not be detectable in any 100-ml sample
Total coliform bacteria	Must not be detectable in any 100-ml sample
Treated water in the distribution system	
<i>E. coli</i> or thermotolerant coliform bacteria ^b	Must not be detectable in any 100-ml sample
Total coliform bacteria	Must not be detectable in any 100-ml sample. In the case of large supplies, where sufficient samples are examined, must not be present in 95% of samples taken throughout any 12-month period

^a Immediate investigative action must be taken if *E. coli* are detected.

^b Although *E. coli* is the more precise indicator of faecal pollution, the count of thermotolerant coliform bacteria is an acceptable alternative. If necessary, proper confirmatory tests must be carried out. Total coliform bacteria are not acceptable indicators of the sanitary quality of rural water supplies, particularly in tropical areas where many bacteria of no sanitary significance occur in almost all untreated supplies.

^c It is recognized that, in the great majority of rural water supplies in developing countries, faecal contamination is widespread. Under these conditions, the national surveillance agency should set medium-term targets for the progressive improvement of water supplies, as recommended in Volume 3 of *Guidelines for drinking-water quality*.

Turbidity	Less than or equal to 5 NTU (Nephelometric Turbidity Unit)
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Scientific consensus: refers to the Grasslands Alliance protocol of developing standards and related guidance and policies and procedures manuals to reflect the findings of the vast majority of related scientific studies (rather than just one or a few studies).

Self-assessment: an evaluation of management practices against a set of criteria and indicators conducted by the landowner or land manager.

Semi-natural vegetation/lands: typically encompasses vegetation types where the species composition and/or vegetative growth forms have been altered through anthropogenic disturbances such that no clear natural analogue is known, but they are a largely spontaneous set of plants shaped by ecological processes.

Shade-tolerant crop: A crop or livestock species that is adapted to live under full or partial shade. This includes, but is not necessarily limited to, cardamom, cinnamon, cocoa, coffee, macadamia, nutmeg, and vanilla.

Smallholder: A producer that primarily relies on family or household labor, or reciprocal workforce exchange with other members of the community. Temporary workers can be contracted during limited periods of the harvest season, but permanent labor is not contracted. The smallholding applies for certification only as part of a producer group, not as an individual farm.

Socio-economic well-being: the social and economic health, stability, and vitality of a community.

Sod busting: refers to breaking the sod of natural grasslands and other rangelands, including with a plow or with herbicide application, for use as cropland. The Sodbuster Provision of U.S. Farm Bill is designed to discourage the conversion of erosion prone grasslands for use as croplands.

Soil Health: the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans.

Soil organic matter / Soil carbon: soil organic matter (SOM) refers to the organic constituents in the soil (tissues from dead plants and animals, products produced as these decompose and the soil microbial biomass). Soil carbon (sometimes referred to as ‘soil organic carbon’) refers to the C occurring in the soil in SOM.

Spray boom: Structure mobilized by a tractor to apply agrochemicals consisting of two arms suspended over the crop and which apply agrochemicals through their nozzles in atomized or dusty form.

Spray drift: The quantity of applied product –representing an active ingredient of a pesticide- which is deflected from the treated area by the action of air currents during the application process.

State Wildlife Action Plan: One of the conservation planning documents written by a state, tribe, or territorial fish and wildlife agency (agency) to proactively conserve wildlife and their habitats to prevent wildlife from declining to the point of becoming endangered and more costly to protect. These plans assess the health of each state’s wildlife and habitats, identify problems they face, and outline the actions that are needed to conserve them over the long term. While all SWAPs share a common framework of required elements, they are tailored to each state’s circumstances, wildlife, habitats, and conservation needs. As such there is variability in scope, species lists, focus, habitats, actions,

risks, threats and needs among state plans. These plans are written with public participation and must be updated every 10 years, although may be updated more frequently.

Strict preservation: land that is set-aside by the farm or group to exclude human activities and facilitate natural ecological succession processes. See also conserved.

Surface waters: see water bodies.

Sustainability: Adopting practices and developing products that are environmentally, socially, and economically sound, and that can meet present needs without compromising the ability of future generations to meet their needs.

Swamp busting: refers to conversion and/or filling of wetlands for use as cropland. The Swampbuster Provision of U.S. Farm Bill is designed to discourage the conversion of wetlands for use as croplands.

Synthetic fertilizers: See <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5103308> for a USDA AMS decision tree used to distinguish synthetic from non-synthetic inputs.

System: A group of elements that are mutually related or that interact. For example, a management system is a system for establishing policies and objectives, and for attaining those objectives.

Terrestrial: of or pertaining to land-based ecosystems.

To potential: see potential.

Undesirable plant species: plant [species](#) that are classified as undesirable, [noxious](#), [exotic](#), injurious, or [poisonous](#), pursuant to State or Federal law.

Unexpected events: refers forms of extreme weather (e.g., intense storms, heat , cold, wind) and rare events such as droughts, floods, wildfires, insect outbreaks, etc.

Untilled Prairie: prairie lands that has never been tilled, or the Participant cannot substantiate that the ground has ever been tilled for crop production.

Vegetation Category / Vegetation Cover Types: the determination of the primary type of vegetative cover present on beef acres. Examples of vegetation categories include annual crops, perennial crops, native natural grassland, established grassland, natural savannah, semi-natural savannah, native sod, pastureland, prairie, and woodlots.

Vegetative riparian zone: Plant habitats and communities along the margins and banks of a river or stream.

Vigorous: in botanical terms, vigor is a measure of the increase in [plant growth](#) or foliage volume through time after planting. Vigorous plants are characterized by rapid plant growth, and robust foliage volume and seed production.

Waste: Waste is an unwanted or undesired material or substance. It is also referred to as rubbish, trash, garbage, or junk depending upon the type of material and the regional terminology. Most waste is comprised of paper, plastic, metals, glass, food waste, organic material, feces and wood. Waste includes hazardous materials or residues.

Waste water: Any water that has been adversely affected in quality by anthropogenic influence. It comprises liquid waste discharged by domestic residences, commercial properties, industry, and/or agriculture and encompasses a wide range of potential contaminants and concentrations.

Water body/Water Bodies: A geographically defined portion of navigable waters, waters of the contiguous zone, and ocean waters under the jurisdiction of the United States, including segments of rivers, streams, lakes, wetlands, coastal waters and ocean waters. Grasslands Alliance also includes ponds and irrigation ditches. See also flowing and still waterbodies.

Water consumable for cattle: Drinkable water is of a pH of 6.5 to 8.5 and contains less than 4000 ppm (or mg/l) of Total Dissolved Solids, but less than 1,000 ppm of sulfate. Coliform counts must be below 50 per milliliter of water and chloride content of less than 1600 mg/l for dairy cattle and less than 4000 mg/l for beef cattle. Safe levels of potentially toxic nutrients and contaminants in water for livestock are for Aluminum 5.0 ppm, for Arsenic 0.2, Boron 5.0, Cadmium 0.05, Chromium 1.0, Cobalt 1.0, Copper 0.5, Fluorine 2.0, Lead 0.05, Mercury 0.01, Nickel 1.0, Nitrate-Nitrogen 100.0, Nitrite-Nitrogen 10.0, Selenium 0.05, Sulfate 1,000.0, Vanadium 0.1 and Zinc 25.0 respectively (based on: Greg Lardy and Charles Stoltenow, North Dakota State University 1999 / Greg Curran and Sarah Robson. 2007. Water for livestock: interpreting water quality tests. State of New South Wales through NSW Department of Primary Industries).

Wetland: lowland areas with hydric soils that are seasonally inundated or saturated sufficiently to support a prevalence of hydrophilic vegetation adapted for life in water-saturated soil conditions. (Food Security Act, as set forth in 7 C.F.R. Part 12, Section 12.2, 1985)

Wildlife: All terrestrial non-domesticated animals.

Wildlife habitat: The environment or natural home where a wild animal lives. Different wildlife species often require different environmental condition in which to live. To properly manage land for the benefit specific wildlife species, landowners must be aware of those characteristics in the environment (e.g., vegetation types, successional stages, disturbance regimes) that the species needs to survive and reproduce.

Worker: A person who works on a farm or for a group administrator, regardless of how much the person works and whether or how the person is compensated. This definition encompasses all types of workers, including permanent, temporary, documented, undocumented, migrant, transitory, and family members working in a family business. A person is considered as working on a farm if, during a short reference period such as a day or a week, he or she does any work (even for just one hour). Workers include persons temporarily absent (for such reasons as illness, parental leave, holiday, training, or industrial dispute) from a job or enterprise at which they recently worked.

Worker organization: A voluntary association of workers recognized and duly registered by the government and organized for occupational purposes with the aim of furthering and defending the interests and labor rights of workers or collective bargaining. (*Adapted from ILO Convention 87 concerning Freedom of Association and Protection of the Right to Organize*)

Young worker: The minimum age of a young worker shall not be less than the age of completion of compulsory schooling as defined by local authorities and, in any case, shall not be less than 15 years. (ILO Minimum Age Convention, 1973 (No. 138); Convention concerning Minimum Age for Admission to Employment; Geneva, 58th ILC session).

APPENDIX 2. THEORY OF CHANGE INFOGRAPHIC

The following figure summarizes the basic cause-and-effect logic embodied in the Grasslands Alliance’s Theory of Change:



Ranches/farms maintain HEALTHY & HUMANE TREATMENT OF ANIMALS

- A herd health plan is effectively implemented, reflected by records & good body fitness
- Animals do not receive non-therapeutic antibiotics (used for preventative medication or promotion of higher production), beta-agonists, synthetic growth hormones, & other substances prohibited by the Grasslands Alliance.
- Mistreatment or abuse of animals is prohibited & infrastructure is clean & safe
- Animal handling & treatment activities reduce fear, stress and pain
- Feed does not contain animal by-products or excrement
- Animal identification system enables traceability of animals arriving at & removed from the operation
- Animal transport procedures ensure animal safety & wellbeing, while minimizing stress

- Ranches support rural communities & avoid harmful impacts to them

Ranches/farms use CLIMATE SMART strategies to REDUCE GHG EMISSIONS and MAXIMIZE RESILIENCE to climate change.

- Ranches optimize grazing management, feed & breed selection to reduce & minimize GHG emissions & sequester carbon
- Land conversion & restoration activities reduce & minimize net GHG emissions
- GHGs & pollution from manure & fertilizer is prevented & minimized
- GHG emissions from fossil fuels are reduced by increasing energy & fuel efficiency & use of renewable energy
- Proactive adaptations to climate change increase resilience of the operation's resource base.



These outcomes are multiplied across many ranches/farms & supported by efforts of local communities, governments, and NGOs to sustainably manage & govern nearby areas – resulting in:

BROADER IMPACTS

Transformation of ranching and farming landscapes toward long-term sustainability

SUSTAINABLE, RESILIENT RURAL LANDSCAPES:

Landscapes that conserve native wildlife habitat, biodiversity & ecosystem services produce livestock & crops efficiently & profitably; equitably improve livelihoods for local communities; maintain high animal welfare; & are managed such that they reduce GHG emissions & can adapt effectively to changing conditions

Appendix 3: Grasslands Alliance Prohibited Pesticides

Table 1: Grasslands Alliance Prohibited Pesticides

Pesticide	CAS number	WHO Ia	WHO Ib	GHS Cancer 1A 1B	GHS muta 1A 1B	GHS repro 1A 1B	Montreal Protocol	Rotterdam Convention	Stockholm Convention	High Incidence
1) Acrolein	107-02-8		✓							
2) Alachlor	15972-60-8							✓		
3) Aldicarb	116-06-3	✓						✓		
4) alpha-BHC; alpha-HCH	319-84-6								✓	
5) Alpha-chlorohydrin	96-24-2		✓							
6) Anthracene oil	90640-80-5			✓						
7) Arsenic and its compounds	7778-39-4			✓						
8) Azafenidin	68049-83-2					✓				
9) Azinphos-ethyl	2642-71-9		✓							
10) Azinphos-methyl	86-50-0		✓					✓		
11) Benomyl	17804-35-2				✓	✓		✓		
12) Beta-cyfluthrin; Cyfluthrin	68359-37-5		✓							
13) beta-HCH; beta-BCH	319-85-7								✓	
14) Blasticidin-S	2079-00-7		✓							
15) Borax; disodium tetraborate decahydrate	1303-96-4					✓				
16) Boric acid	10043-35-3					✓				
17) Brodifacoum	56073-10-0	✓								
18) Bromadiolone	28772-56-7	✓								
19) Bromethalin	63333-35-7	✓								
20) Butoxycarboxim	34681-23-7		✓							
21) Cadusafos	95465-99-9		✓							
22) Captafol	2425-06-1	✓		✓				✓		
23) Carbendazim	10605-21-7				✓	✓				
24) Carbofuran	1563-66-2		✓					✓		
25) Chlordane	57-74-9							✓	✓	
26) Chlorethoxyphos	54593-83-8	✓								
27) Chlorfenvinphos	470-90-6		✓							
28) Chlormephos	24934-91-6	✓								
29) Chlorophacinone	3691-35-8	✓								
30) Clothianodin	210880-92-5									✓
31) Coumaphos	56-72-4		✓							
32) Coumatetralyl	5836-29-3		✓							
33) Creosote	8001-58-9			✓						
34) DDT	50-29-3							✓	✓	
35) Demeton-S-methyl	919-86-8		✓							
36) Dichlorvos; DDVP	62-73-7		✓							

Pesticide	CAS number	WHO Ia	WHO Ib	GHS Cancer 1A 1B	GHS muta 1A 1B	GHS repro 1A 1B	Montreal Protocol	Rotterdam Convention	Stockholm Convention	High Incidence
37) Dicrotophos	141-66-2		✓							
38) Difenacoum	56073-07-5	✓								
39) Difethialone	104653-34-1	✓								
40) Dinocap	39300-45-3					✓				
41) Dinoterb	1420-07-1		✓			✓				
42) Diphacinone	82-66-6	✓								
43) Disulfoton	298-04-4	✓								
44) Dimethyl sulfoxide (DMSO) treated mineral oils with a DMSO-extractable content > 3%	64741-88-4 64741-89-5 64741-97-5 64742-46-7 64742-54-7 64742-55-8 64742-65-0 72623-86-0 97862-82-3			✓						
45) DNOC and its salts	534-52-1		✓					✓		
46) Edifenphos	17109-49-8		✓							
47) Endosulfan	115-29-7							✓	✓	
48) E-Phosphamidon	297-99-4	✓								
49) Epichlorohydrin	106-89-8			✓						
50) EPN	2104-64-5	✓								
51) Epoxiconazole	133855-98-8					✓				
52) Ethiofencarb	29973-13-5		✓							
53) Ethoprophos; Ethoprop	13194-48-4	✓								
54) Ethylene dibromide; 1,2-dibromoethane	106-93-4			✓				✓		
55) Ethylene dichloride; 1,2-Dichloroethane	107-06-2			✓				✓		
56) Ethylene oxide	75-21-8			✓	✓			✓		
57) Ethylene thiourea	96-45-7					✓				
58) Famphur	52-85-7		✓							
59) Fenamiphos	22224-92-6		✓							
60) Fenchlorazole-ethyl	103112-35-2			✓						
61) Fipronil	120068-37-3									✓
62) Flocoumafen	90035-08-8	✓								
63) Fluazifop-butyl	69806-50-4					✓				
64) Flucythrinate	70124-77-5		✓							
65) Flumioxazin	103361-09-7					✓				
66) Fluoroacetamide	640-19-7		✓					✓		
67) Flusilazole	85509-19-9					✓				
68) Formetanate	22259-30-9		✓							
69) Furathiocarb	65907-30-4		✓							
70) Glufosinate-ammonium	77182-82-2					✓				
71) Heptenophos	23560-59-0		✓							

Pesticide	CAS number	WHO Ia	WHO Ib	GHS Cancer 1A 1B	GHS muta 1A 1B	GHS repro 1A 1B	Montreal Protocol	Rotterdam Convention	Stockholm Convention	High Incidence
72) Hexachlorobenzene	118-74-1	✓		✓				✓	✓	
73) Hexchlorocyclohexane; BHC mixed isomers	608-73-1							✓		
74) Imidacloprid	138261-41-3									✓
75) Isoxathion	18854-01-8		✓							
76) Lindane	58-89-9							✓	✓	
77) Linuron	330-55-2					✓				
78) Mecarbam	2595-54-2		✓							
79) Mercury and its compounds	7439-97-6							✓		
80) Methamidophos	10265-92-6		✓					✓		
81) Methidathion	950-37-8		✓							
82) Methiocarb	2032-65-7		✓							
83) Methomyl	16752-77-5		✓							
84) Methyl bromide	74-83-9						✓			
85) Mevinphos	7786-34-7	✓								
86) Monocrotophos	6923-22-4		✓					✓		
87) Nicotine	54-11-5		✓							
88) Nitrobenzene	98-95-3					✓				
89) Omethoate	1113-02-6		✓							
90) Oxamyl	23135-22-0		✓							
91) Oxydemeton-methyl	301-12-2		✓							
92) Paraquat dichloride	1910-42-5									✓
93) Parathion	56-38-2	✓						✓		
94) Parathion-methyl	298-00-0	✓						✓		
95) PCP; Pentachlorophenol	87-86-5		✓					✓		
96) Pentachlorobenzene	608-93-5			✓						
97) Phorate	298-02-2	✓								
98) Phosphamidon	13171-21-6	✓						✓		
99) Propetamphos	31218-83-4		✓							
100) Propylene oxide, Oxirane	75-56-9			✓	✓					
101) Quizalofop-p-tefuryl	119738-06-6					✓				
102) Silafluofen	105024-66-6					✓				
103) Sodium fluoroacetate (1080)	62-74-8	✓								
104) Strychnine	57-24-9		✓							
105) Sulfotep	3689-24-5	✓								
106) Tebupirimifos	96182-53-5	✓								
107) Tefluthrin	79538-32-2		✓							
108) Terbufos	13071-79-9	✓								
109) Thiamethoxam	153719-23-4									✓
110) Thiofanox	39196-18-4		✓							
111) Thiometon	640-15-3		✓							

Pesticide	CAS number	WHO Ia	WHO Ib	GHS Cancer 1A 1B	GHS muta 1A 1B	GHS repro 1A 1B	Montreal Protocol	Rotterdam Convention	Stockholm Convention	High Incidence
112) Thiram in formulations with benomyl and carbofuran only	137-26-8							✓		
113) Triazophos	24017-47-8		✓							
114) Tridemorph	81412-43-3					✓				
115) Vamidothion	2275-23-2		✓							
116) Vinclozolin	50471-44-8					✓				
117) Warfarin	81-81-2		✓			✓				
118) zeta-Cypermethrin	52315-07-8z		✓							
119) Zinc phosphide	1314-84-7		✓							
120) Z-Phosphamidon	23783-98-4	✓								

Table 2: Grasslands Alliance Obsolete and No Longer Used Substances

Pesticide	CAS Number	Reason
121) 2,4,5-T	93-76-5	Obsolete
122) 2,4,5-TCP	35471-43-3	No longer used
123) 2,3,4,5-Bistetrahydro-2-furaldehyde	126-15-8	No longer used
124) Aldrin	309-00-2	Obsolete
125) Binapacryl	485-31-4	Obsolete
126) Chloranil	118-75-2	Obsolete
127) Chlordecone (kepone)	143-50-0	Obsolete
128) Chlordimeform	6164-98-3	Obsolete
129) Chlorobenzilate	510-15-6	Obsolete
130) DBCP	96-12-8	Obsolete
131) Dieldrin	60-57-1	Obsolete
132) Dinoseb and its salts	88-85-7	Obsolete
133) Endrin	72-20-8	Obsolete
134) Heptachlor	76-44-8	Obsolete
135) Leptophos	21609-90-5	Obsolete
136) Mirex	2385-85-5	Obsolete
137) Nitrofen (TOK)	1836-75-5	Obsolete
138) Octamethylpyrophosphoramidate (OMPA)	152-16-9	Obsolete

139) Safrole	94-59-7	No longer used
140) Silvex	93-72-1	Obsolete
141) Strobane; Terpene polychlorinates	8001-50-1	No longer used
142) TDE	72-54-8	Obsolete
143) Thallium sulfate	7446-18-6	No longer used
144) Toxaphene (camphechlor)	8001-35-2	Obsolete

Appendix 4: Grasslands Alliance List of Pesticides for Use with Risk Mitigation

The Grasslands Alliance requires producers to mitigate the risks of 177 pesticides listed in the below table to human bystanders, aquatic life, wildlife and pollinators for products used on farms and through specific technical requirements. The analysis of these 177 substances is based on the Oregon State University Integrated Plant Protection Center state-of-the-science risk assessment tool ipmPRiME and a risk model that yields moderate to high (10% or greater) risk:

1. Inhalation risk subject to the mitigation requirements of critical criterion 4.13:

Inhalation risk to bystanders was calculated using the ipmPRiME model for inhalation toxicity (Jepson et al., 2014⁶) calculated on the basis of child exposure and susceptibility. This index is protective for workers who may enter fields during or after application.

2. Risk to aquatic life subject to the mitigation requirement 3.D.4:

Pesticides qualified for this risk category if one or more ipmPRiME aquatic risk models (aquatic algae, aquatic invertebrates, or fish chronic risk) exhibited high risk at a typical application rate.

3. Risk to wildlife subject to the mitigation requirement 3.D.4:

Pesticides qualified for this risk category if one or more ipmPRiME terrestrial risk models (avian reproductive, avian acute, or small mammal risk) exhibited high risk at a typical application rate.

4. Risk to pollinators subject to the mitigation requirement 3.D.5:

Pesticides were selected based on a widely-used hazard quotient (HQ) resulting of pesticide application rate (AR) in g a.i./ha, and contact LD50 for the honey bee (*Apis mellifera*). Values of HQ<50 have been validated as low risk in the European Union, and monitoring indicates that products with an HQ>2,500 are associated with a high risk of hive loss. The HQ value used by SAN is >350, corresponding to a 10% risk of hive loss.

	Pesticide	CAS number	Inhalation risk (4.13)	Risk to Aquatic life (3.D.4)	Risk to Wildlife (3.D.4)	Risk to Pollinators (3.D.5)
1)	1,3-Dichloropropene	542-75-6	✓	✓	✓	✓
2)	2,4-D, 2-ethylhexyl ester	1928-43-4		✓		
3)	2,4-D, isooctyl ester	53404-37-8		✓		
4)	Acephate	30560-19-1			✓	✓
5)	Acequinocyl	57960-19-7		✓		
6)	Acetamiprid	135410-20-7		✓		
7)	Acifluorfen, sodium salt	62476-59-9			✓	
8)	Aluminum phosphide	20859-73-8				✓

⁶ Jepson, P.C., Guzy, M., Blaustein, K., Sow, M., Sarr, M., Mineau, P., Kegley, S. (2014) Measuring pesticide ecological and health risks in West African agriculture to establish an enabling environment for sustainable intensification. Philosophical Transactions of the Royal Society B, <http://dx.doi.org/10.1098/rstb.2013.0491>

9)	Amitraz	33089-61-1	✓			
10)	Amitrole	61-82-5	✓		✓	
11)	Anilazine	101-05-3		✓		
12)	Avermectin	71751-41-2		✓		✓
13)	Azoxystrobin	131860-33-8		✓		
14)	Bendiocarb	22781-23-3	✓	✓	✓	✓
15)	Benfluralin	1861-40-1			✓	
16)	Bensulide	741-58-2	✓	✓	✓	
17)	Bentazon, sodium salt	50723-80-3			✓	
18)	Bifenthrin	82657-04-3	✓	✓		✓
19)	Bromacil	314-40-9		✓		
20)	Bromoxynil heptanoate	56634-95-8		✓		
21)	Bromoxynil octanoate	1689-99-2		✓		
22)	Captan	133-06-2				✓
23)	Carbaryl	63-25-2		✓	✓	✓
24)	Chlorine dioxide	10049-04-4				
25)	Chlormequat chloride	999-81-5	✓		✓	
26)	Chloropicrin	76-06-2	✓	✓	✓	
27)	Chlorothalonil	1897-45-6		✓	✓	
28)	Chlorpyrifos	2921-88-2	✓	✓	✓	✓
29)	Chlorpyrifos-methyl	5598-13-0				
30)	Clothianodin	210880-92-5				✓
31)	Copper hydroxide	20427-59-2	✓		✓	
32)	Copper oxide (ic)	1317-38-0		✓		
33)	Copper oxide (ous)	1317-39-1				✓
34)	Copper oxychloride	1332-40-7			✓	✓
35)	Copper oxychloride sulfate	8012-69-9				✓
36)	Copper sulfate (anhydrous)	7758-98-7		✓		
37)	Copper sulfate (pentahydrate)	7758-99-8		✓	✓	✓
38)	Cube extracts					
39)	Cyanazine	21725-46-2	✓		✓	
40)	Cycloate	1134-23-2				
41)	Cyhalothrin, gamma	76703-62-3	✓	✓		
42)	Cyhalothrin, lambda	91465-08-6		✓		✓
43)	Cypermethrin	52315-07-8		✓		✓
44)	Cypermethrin, beta	65731-84-2		✓		✓
45)	Cypermethrin, zeta	52315-07-8		✓		✓
46)	Dazomet	533-74-4		✓	✓	✓
47)	Deltamethrin	52918-63-5		✓		✓
48)	Diazinon	333-41-5	✓	✓	✓	✓
49)	Dichlobenil	1194-65-6			✓	
50)	Dichloran	99-30-9			✓	
51)	Diclofop-methyl	51338-27-3	✓		✓	
52)	Dicofol	115-32-2			✓	
53)	Difenzoquat methyl sulfate	43222-48-6	✓		✓	

54)	Diflubenzuron	35367-38-5		✓	✓	
55)	Dimethoate	60-51-5	✓	✓	✓	✓
56)	Dinoseb	88-85-7			✓	✓
57)	Dinotefuran	165252-70-0		✓		✓
58)	Diphenylamine	122-39-4		✓		
59)	Diquat dibromide	85-00-7			✓	
60)	Diquat ion	2764-72-9	✓		✓	
61)	Diuron	330-54-1			✓	
62)	Dodine	2439-10-3		✓	✓	✓
63)	D-trans Allethrin (Bioallethrin)	584-79-2				
64)	Emamectin benzoate	137512-74-4	✓	✓		✓
65)	Endosulfan I (alpha)	959-98-8		✓	✓	
66)	Endrin	72-20-8		✓	✓	✓
67)	EPTC	759-94-4	✓		✓	✓
68)	Esfenvalerate	66230-04-4		✓		✓
69)	Ethalfuralin	55283-68-6		✓		
70)	Ethion	563-12-2	✓	✓	✓	✓
71)	Etoxazole	153233-91-1		✓		
72)	Famoxadone	131807-57-3		✓	✓	
73)	Fenbutatin-oxide	13356-08-6		✓	✓	
74)	Fenitrothion	122-14-5			✓	
75)	Fenoxycarb	79127-80-3		✓		
76)	Fenpropathrin	39515-41-8		✓	✓	✓
77)	Fenpyroximate	134098-61-6		✓	✓	
78)	Fentin hydroxide	76-87-9		✓	✓	
79)	Ferbam	14484-64-1	✓	✓		✓
80)	Fipronil	120068-37-3				✓
81)	Fluazinam	79622-59-6				
82)	Flufenacet	142459-58-3	✓	✓		
83)	Fluopyram	658066-35-4			✓	
84)	Folpet	133-07-3		✓		
85)	Fomesafen sodium	108731-70-0				
86)	Formaldehyde	50-00-0	✓	✓	✓	
87)	Formetanate hydrochloride	23422-53-9		✓	✓	✓
88)	Glyphosate, isopropylamine salt	38641-94-0	✓		✓	
89)	Glyphosate-trimesium	81591-81-3			✓	
90)	Hexazinone	51235-04-2		✓	✓	
91)	Hydrogen cyanamide	420-04-2	✓	✓	✓	✓
92)	Indoxacarb, S-isomer	173584-44-6				✓
93)	Iodosulfuron methyl, sodium salt	144550-36-7		✓		
94)	Isoxaben	82558-50-7			✓	
95)	Imidacloprid	138261-41-3				✓
96)	Lenacil	2164-08-1		✓		
97)	Lime-sulfur	1344-81-6			✓	
98)	Magnesium phosphide	12057-74-8				

99)	Malathion	121-75-5	✓			✓
100)	Maleic hydrazide, potassium salt	28382-15-2				
101)	Mancozeb	8018-01-7	✓		✓	
102)	Maneb	12427-38-2			✓	✓
103)	MCPA, 2-ethyl hexyl ester	29450-45-1	✓	✓		
104)	MCPA, isooctyl ester	26544-20-7		✓		
105)	Metalaxyl	57837-19-1			✓	
106)	Metam potassium	137-41-7		✓	✓	
107)	Metconazole	125116-23-6			✓	
108)	Methoprene	40596-69-8		✓	✓	
109)	Methoxychlor	72-43-5		✓		
110)	Methyl iodide	74-88-4	✓	✓	✓	
111)	Methyl isothiocyanate	556-61-6		✓		
112)	Metiram	9006-42-2	✓		✓	
113)	Metolachlor	51218-45-2	✓		✓	
114)	Metolachlor, (S)	87392-12-9		✓		
115)	Metribuzin	21087-64-9			✓	
116)	Mineral oil, refined	8042-47-5		✓		
117)	Myclobutanil	88671-89-0			✓	
118)	Nabam	142-59-6			✓	✓
119)	Naled	300-76-5	✓	✓	✓	✓
120)	Napropamide	15299-99-7			✓	
121)	Norflurazon	27314-13-2		✓	✓	
122)	Novaluron	116714-46-6		✓		
123)	Ortho-phenylphenol	90-43-7		✓		
124)	Ortho-phenylphenol, sodium salt	132-27-4				
125)	Oryzalin	19044-88-3	✓	✓	✓	
126)	Oxadiazon	19666-30-9		✓	✓	
127)	Oxycarboxin	5259-88-1				✓
128)	Oxyfluorfen	42874-03-3		✓	✓	
129)	Oxythioquinox	2439-01-2		✓	✓	
130)	PCNB	82-68-8	✓	✓		✓
131)	Pendimethalin	40487-42-1	✓		✓	
132)	Permethrin	52645-53-1		✓	✓	✓
133)	Phosalone	2310-17-0		✓	✓	
134)	Phosmet	732-11-6		✓	✓	✓
135)	Phosphine	7803-51-2				
136)	Pirimicarb	23103-98-2		✓	✓	✓
137)	Prometryn	7287-19-6	✓	✓	✓	
138)	Propamocarb hydrochloride	25606-41-1				✓
139)	Propanil	709-98-8		✓	✓	
140)	Propargite	2312-35-8			✓	
141)	Propoxur	114-26-1	✓	✓	✓	✓
142)	Prosulfuron	94125-34-5		✓		
143)	Pyraclostrobin	175013-18-0		✓		

144) Pyrethrins	8003-34-7				✓
145) Pyridaben	96489-71-3		✓		✓
146) Resmethrin	10453-86-8		✓	✓	✓
147) Rotenone	83-79-4				
148) S-Dimethenamid	163515-14-8	✓	✓		
149) Simazine	122-34-9			✓	
150) Sodium chlorate	7775-09-9			✓	
151) Sodium dimethyl dithio carbamate	128-04-1			✓	
152) Sodium hypochlorite	7681-52-9	✓	✓		
153) Sodium tetrathiocarbonate	7345-69-9			✓	
154) Spinetoram (XDE-175-J)	187166-40-1				✓
155) Spinosad (mixture of Factors A & D)	131929-60-7				✓
156) Spirodiclofen	148477-71-8		✓		
157) Sulfentrazone	122836-35-5			✓	
158) Terrazole	2593-15-9			✓	
159) Tetrachlorvinphos, Z-isomer	22248-79-9		✓	✓	✓
160) Tetraconazole	112281-77-3	✓		✓	
161) Thiabendazole	148-79-8		✓	✓	✓
162) Thiocloprid	111988-49-9		✓	✓	
163) Thiamethoxam	153719-23-4				✓
164) Thiobencarb	28249-77-6		✓	✓	
165) Thiodicarb	59669-26-0	✓	✓	✓	✓
166) Thiophanate-methyl	23564-05-8			✓	
167) Tolfenpyrad	129558-76-5		✓		
168) Triadimenol	55219-65-3			✓	
169) Triallate	2303-17-5		✓	✓	
170) Trichlorfon	52-68-6		✓	✓	✓
171) Triclopyr, triethylamine salt	57213-69-1			✓	
172) Ziram	137-30-4		✓	✓	✓
173) Trifloxystrobin	141517-21-7		✓		
174) Trifluralin	1582-09-8			✓	
175) Triforine	26644-46-2				✓
176) Triticonazole	131983-72-7			✓	
177) Zineb	12122-67-7				✓