

Agriculture Update Glossary

Additional farm and food policy terms can be found at <http://www.ers.usda.gov/topics/farm-economy/farm-commodity-policy/glossary.aspx> or <http://agclass.nal.usda.gov/about.shtml>

Agriculture: the science, art, or practice of cultivating the soil, producing crops, and raising livestock and in varying degrees the preparation and marketing of the resulting products.

Aquaculture: the farming of aquatic-based species: fish, crustaceans, mollusks and plants.

Biodiversity: (generally refers to) the number of varieties or species of life in a given ecosystem.

Bt Crops: genetically modified crops with an enzyme of *Bacillus thuringiensis* (a common soil bacterium that is often used as an insecticide in organic farming) embedded into the genetic material of the crop seed to make plants that are resistant to insect predation.

Cisgenesis: (also called **intragensis**) genetic modification transferring genes between closely related organisms.

Checkoff Programs: (officially referred to as **Commodity Research and Promotion Programs**) these self-funded programs are authorized by the farm bill and are formed at the request of the producers and related businesses. Through the pooling of financial resources, farmers, ranchers, importers, and other stakeholders can educate consumers, promote their product through shared marketing, and fund research. The boards of directors are appointed by the Secretary of Agriculture, and collected funds are shared between a national organization (where one exists) and state counterparts. There are currently 19 federal checkoff programs (see <http://www.ams.usda.gov/AMSV1.0/ResearchandPromotion> for a complete list) as well as state checkoff programs (e.g. Almond Board of California, the only state producing almonds). Sample assessments: Cattle--\$1.00 each time a head of cattle is sold, pork--\$0.40 per each \$100 of value when pigs are sold. Education and marketing campaign examples include “Got Milk?” (California Milk Processor Board), the Incredible Edible Egg™ (American Egg Board).

Contour Farming: the practice of tilling sloped land along lines of consistent elevation in order to conserve rainwater and to reduce soil losses from surface erosion.

Covered Commodity: (also called **program commodity**) Agricultural products for which Federal support programs are available to producers.

Crop Insurance: the major USDA program that helps farmers manage risks of crop losses. Subsidized crop insurance remains the primary form of assistance provided by the Federal

Government against bad weather, plant diseases, and other natural hazards; disaster assistance payments are also frequently provided.

Crop Rotation: the successive movement of crops from one area to another as a means to improve soil fertility, to reduce disease, and to reduce insect populations.

Cross Breeding: **breeding** done with the intent of producing offspring that share desired traits of both parent lineages.

Ecosystem: a system that includes all living organisms in an area as well as its physical environment functioning together as a unit.

Farrowing: giving birth to piglets.

Feeder cattle: beef cattle between the calf stage and sale to finishing operations.

Finishing: bringing a feeder animal up to market, or slaughter, weight.

Genetic Engineering: any of many *processes* that alter the genetic material (DNA) of organisms in a manner that does not occur naturally. Also referred as: biotechnology, gene technology, genetic modification, or recombinant DNA technology.

Genetically Modified Organism (GMO): any living organism that is the *product* or result of any of many genetic engineering *processes*.

Forage: plant material that is eaten by grazing livestock or is brought to industrial livestock as part of their food mix, which can also include hay and silage.

Haploids: spontaneously occurring plants where half the normal number of chromosomes exist.

Haploid Breeding: process that artificially doubles the chromosomes of haploids to return the plant to the normal number of chromosomes – this process is used in creating cultivars, e.g. barley, maize, tobacco, asparagus, strawberries, and tall fescue grass.

Haylage: silage made from grass that has been partially dried.

Ht Crops: crops that result when certain genes are genetically engineered into the DNA of crop seeds, which makes the crops resistant to herbicides glyphosate and/or glufosinate, which are later applied to the cropland to reduce invasive weeds, which preserves soil nutrients for the crops, reduces erosion from tilling, and (initially) reduces the amount of herbicides needed.

Hybrid: the offspring of genetically dissimilar parents, cross-bred across breeds, subspecies, species, varieties, or genera.

Livestock: (in the broadest sense) any animal raised on the farm for a profit, including but not limited to cattle, swine, sheep, poultry, fish, and bees.

Mendel, Gregor: a botanist (plant scientist) considered to be the father of genetics. See <http://www.MendelWeb.org/Mendel.html>.

Monoculture: the agricultural practice of growing a single crop across a wide area of land; a crop system reliant on a narrow genetic mix.

Mutation Breeding: process of exposing plants to gamma rays, protons, neutrons, alpha particles, and beta particles (i.e., any ionizing radiation) OR chemicals, such as sodium azide and ethyl methane sulphonate, to induce mutations. The breeder then does an exhaustive search through the thousands of resulting mutants for useful traits.

Nanoscience: the study of phenomena and manipulation of materials at atomic, molecular and macromolecular scales, where properties differ significantly from those at larger scale.

Nanotechnology: a process that builds, controls and restructures materials that are near the size of atoms and molecules.

Non-ruminants: animals formally referred to as monogastrics because they have a simple stomach; they cannot regurgitate partly digested matter and rechew it because it is not necessary. Almost all non-ruminant animals are omnivorous or carnivorous, these include poultry and swine.

Nutrient: a chemical that an organism needs to live and grow or a substance used in an organism's metabolism, which must be taken in from its environment.

Organic Certification: a marketing label, regulated through the USDA, Agricultural Marketing Service. It specifies that the certified product was grown and processed according to USDA's national organic standards.

Organoarsenicals: (also called **organoarsenic compounds**) compounds that are produced industrially with uses as insecticides, herbicides, and fungicides. In general these applications are declining in step with growing concerns about their impact on the environment and human health.

Pollinator: an agent that moves pollen from the male anthers of a flower to the female stigma of a flower to accomplish fertilization. Bees, bats, insects, and birds are all important pollinators. Of these, bees are kept as “livestock” and are considered the most important to pollination. The USDA estimates that 80% of the fruits and vegetables eaten in the US are bee pollinated, as is much of the feed grown for livestock.

Precautionary Principle: the understanding that preventive action may be taken in the face of potential harm, even when complete scientific consensus has not been reached. Refer to the 1992 Rio Declaration on Environment and Development, <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>.

Precision Agriculture: process that integrates information and production-based farming systems designed to increase long-term, site-specific, and whole-farm production efficiencies, productivity, and profitability while minimizing unintended impacts on wildlife and the environment.

Prior Appropriation Rights: rights that are granted for beneficial uses of water and can be tied to locations away from the source watershed. Prior appropriation rights are based on “first come first serve” allowing those with the oldest claim to use the entire volume of water they claim first, before other claimants have access.

Rendered Animal Products: perishable material generated by the livestock and poultry, meat/poultry processing, food processing, supermarket and restaurant industries is used to make livestock feed, as well as an array of non-edibles. See <http://www.nationalrenderers.org/> for more information.

Riparian Rights: rights granted for beneficial uses of water to those located along the water source. Upstream water users may consume water and deplete streams prior to water reaching downstream users.

Ruminants: animals with a unique, four chambered stomach, that can convert otherwise unusable plant materials into nutritious food and fiber: e.g., cattle, sheep, buffalo, and goats. This digestive system produces methane, a potent greenhouse gas that can contribute to global climate change. No ruminant animals are, by nature, carnivorous or omnivorous.

Silage: pasture grass that has been ‘pickled.’ The grasses are cut and then fermented to keep as much of the nutrients (such as sugars and proteins) as possible.

Stocker cattle: heifers (i.e. female cattle that have not yet given birth) and/or steers (i.e. male cattle that have been castrated before reaching sexual maturity) that are being raised on pasture or other forage for later sale as feedlot replacements.

Substantial Equivalence: “the concept that if a new food or food component is found to be substantially equivalent to an existing food or food component, it can be treated in the same manner with respect to safety.” (Joint FAO/WHO Biotechnology and Food Safety Report, 1996, p. 4)

Sustainable Agriculture: “A sustainable agriculture must be ecologically sound, economically viable, and socially responsible. Furthermore, I contend that these three dimensions of sustainability are inseparable, and thus, are equally critical to long run sustainability.” (John Ikerd, U of MO, <http://www.sustainable-ag.ncsu.edu/onsustaibleag.htm>)

Tissue culture: a technique for growing cells, tissues, and whole plants on artificial nutrients under sterile conditions, often in small glass or plastic containers.

Transgenesis: genetic modification through insertion of genes from one species into another.

Transgene: the inserted gene sequence of a genetically engineered organism.