

# Agriculture Terms

**Bacillus thuringiensis (Bt):** Bt is bacteria found naturally in soil and is used in agriculture to control pests. Today, organic farmers and home gardeners spray on their crops for insect protection. Proteins from Bt are also used in genetically modified (GM) crops, such as cotton and corn.

**Biofortification:** The process in which the nutritional quality of food crops is improved through biological means, such as conventional plant breeding. Biofortification differs from conventional fortification in that it aims to increase nutrient levels in crops during plant growth rather than through manual means during processing of the crops. (Source: WHO)

**Breeding:** Plant breeding is the act of bringing together two specific parent plants with desirable traits to produce a new offspring with those desirable traits. This results in new plant varieties and hybrids.

**Conventional agriculture:** Conventional farming systems vary from farm to farm and from country to country. However, they share many characteristics, such as use of technological advances, pesticides and fertilizers, and sometimes GMOs, to enhance crop production.

**Cover Crops:** Crops, such as grass (rye, oats, buckwheat) or legumes (field peas, alfalfa, clover), that are planted between growing seasons of the farmers' primary cash crop to conserve and improve the soil. Benefits may include weed suppression, increasing organic matter, improved nitrogen cycling, moisture conservation and reduced soil erosion. The crops may or may not be harvested for sale.

**Crop Protection:** Crop protection refers to a combination of tools a farmer can use to protect crops against diseases, fungi, weeds, insects and/or weather damage. This can include use of chemistry (organic or synthetic) or microbial products, plants that provide protection, such as by being improved through genetic modification or breeding, or agronomic practices.

**Drought-, heat- and/or stress-tolerant crops:** Crops that can withstand natural stress, like heat, wind and water. Creating stress-tolerant crops can be accomplished through traditional breeding and/or genetic modification.

**Fungicide:** Fungicides are a type of pesticide used in plant protection to control fungi or fungal diseases. They work by either killing the fungus or inhibiting its growth. There are many types of fungicides available to control different types of fungi, including organic, microbial and synthetic products.

**Gene Editing:** Gene editing technologies offer a way for scientists to make precise edits or deletions to specific plant genes to enhance beneficial or remove undesired plant characteristics. It can also be used to make site-directed integration of specific genes. The technique/method/technology is the biological equivalent to the "search and replace" function in computer word-processors. Gene editing technologies could enable plant breeders to more effectively develop better varieties and provide the opportunity for improvements in plant biotechnology.

**Genetically Modified Organism (GMO):** A GMO is created by taking a beneficial trait, like insect resistance or pesticide tolerance, from one living thing and introducing it into a new plant to help it thrive in its environment. GMOs are also commonly referred to as GM crops or products. GM crops are also referred to as biotechnology or genetically engineered, transgenic or bioengineered crops.

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**Herbicide:** Herbicides are a type of pesticide that kills weeds that compete with a beneficial plant for sunlight, water and nutrients. There are many types of herbicides, the choice of which depends on the type of plant the farmer wants to control. Herbicides are available in both organic and synthetic forms.

**Hybrid:** Hybrid seeds are created by [traditionally breeding](#) two different plants to create a third new plant, known as the hybrid.

**Insecticide:** Insecticides are a type of pesticide used to control insects. This includes organic, microbial and synthetic products that can be used in home, garden, agricultural and commercial uses. There are many types available depending on the insects farmers want to control.

**Irrigation:** Irrigation is a method in which water is supplied manually to plants. In agriculture, it is used in areas that routinely have dry conditions or can be used during periods of inadequate rainfall to ensure plants receive enough moisture to remain healthy. There are many types of irrigation methods, including center pivot sprinklers, drip irrigation, furrow and rotation. Research continues to find ways to improve irrigation and water efficiency.

**Microbial:** Microbials are made of microorganisms so tiny that millions can fit into the eye of a needle. They occur naturally in the environment and are found almost everywhere. Countless microorganisms live in the soil and in close relation to plants, making up the plants' microbiome. Many of these microbes have distinctive properties that can help control fungi, bacteria, nematodes, insects and weeds. They can also stimulate plant growth and yield by improving access to nutrients. Microbial products are made from microbes that can work alone or complement traditional methods of plant production and protection.

**Organic agriculture:** Organic farming uses production practices that allow the use of natural pesticides and fertilizers, but generally disallows the use of synthetic pesticides and fertilizers. Foods certified organic must meet specific production standards as defined by the country's recognized organic certifying body. In the case of the United States the standards are determined by the U.S. Department of Agriculture National Organic Program.

**Pesticides:** Pesticides are used to help both home gardeners and farmers protect their plants from insects, weeds and/or fungi. A pesticide is any substance or mixture of substances used to alter the life cycle of any pest. Pesticides can be a naturally derived or synthetically produced substance. They can also be an organism, for example, Bt which is used to control a number of insect pests. Pesticides are also referred to as crop protection products.

**Plant biotechnology:** At its simplest, biotechnology is technology based on biology. Biotechnology is inserting desirable traits from one organism into another. Biotechnology enables seeds for crops, such as corn, soybeans and cotton, to have greater resistance to disease, bugs and drought. Biotechnology crops have been commercially available since the mid-1990s.

**Precision farming:** Precision agriculture is the use of data analysis to help farmers improve crop production practices. Farmers analyze data to help them produce more on every square foot of every field, while using water, nutrients and fuel more efficiently.

**Seed Treatment:** Seed treatments generally refer to a type of pesticide applied directly on the seed as a coating. They are used to protect seeds, seedlings and plants from diseases, insects and other pests. They may also contain micronutrients to promote plant health. Seed treatments can be made of microbes or a synthetic compound.

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**Sustainable agriculture:** Sustainable agriculture is the long-term production of plant or animal products using farming techniques that protect the environment, public health, human communities and animal welfare year over year.

**Tillage:** Practice of plowing soil before and after harvests to remove stalks, leaves and other residue from a field. No-till farming is the absence of tillage where stalks and leaves remain in the field to improve soil by retaining water, preventing erosion and benefiting soil health. There are also other tillage methods that reduce some, but not all, of the residue.

**Trait:** A distinguishing characteristic of a particular plant. Drought tolerance or root system types are examples of plant traits.

**Transgenic crops:** Transgenic crops are synonymous with GMO crops. Transgenic stands for transfer of genes. (Source: University of California – San Diego)