

# Glossary

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Most of these definitions are adapted from the Resource Conservation Glossary of the Soil Conservation Society of America, 2d ed., 1976.

**Abiotic:** Nonliving, basic elements and compounds of the environment.

**Acid rain:** Atmospheric precipitation that is composed of the hydrolyzed byproducts from oxidized halogen, nitrogen, and sulfur substances.

**Aggregation, soil:** The cementing or binding together of several to many soil particles into a secondary unit, aggregate, or granule. Water-stable aggregates, which will not disintegrate easily, are of special importance to soil structure.

**Agrichemicals:** Chemical materials used in agriculture; sometimes used erroneously to emphasize a supposed difference between “chemical materials” and “natural materials.”

**Agricultural land:** Land in farms regularly used for agricultural production; all land devoted to crop or livestock enterprises—e. g., farmstead lands, drainage and irrigation ditches, water supply, cropland, and grazing land of every kind on farms.

**Agricultural pollution:** Liquid and solid wastes from all types of farming, including runoff from pesticides, fertilizers, and feedlots; erosion and runoff from plowing, animal manure and carcasses; and crop residues and debris.

**Alluvial:** Pertaining to material that is transported and deposited by running water.

**Animal unit month (AUM):** A measure of forage or feed required to maintain one animal for a period of 30 days.

**Annual plant:** A plant that completes its lifecycle and dies in 1 year or less,

**Appraisal, range:** An evaluation of the capacity of rangelands to produce income, which includes not only consideration of grazing capacity but also facilities for handling livestock, accessibility, and relation to other feed sources. The classification and evaluation of a range from an economic and production standpoint.

**Aquifer:** A geologic formation or structure that transmits water in sufficient quantity to supply the needs for a water development; usually saturated sands, gravel, fractures, and cavernous and vesicular rock. The term waterbearing is sometimes used synonymously with aquifer when a stratum furnishes water for a specific use.

**Arable land:** Land so located that production of cultivated crops is economical and practical.

**Arid:** Regions or climates that lack sufficient moisture for crop production without irrigation. The limits of precipitant ion vary considerable} according to temperature conditions, with an upper annual limit for cool regions of 10 inches or less and for tropical regions as much as 15 to 20 inches.

**Available nutrient:** That portion of any element or compound in the soil that readily can be absorbed and assimilated by growing plants (not to be confused with exchangeable).

**Basin: 1.** In hydrology, the area drained by a river. **2.** In irrigation, a level plot of field, surrounded by dikes, which may be flood irrigated.

**Bedrock:** The solid rock underlying soils and the regolith in depths ranging from zero (where exposed by erosion) to several hundred feet.

**Biennial plant:** A plant that requires 2 years to complete its lifecycle.

**Biological control:** A method of controlling pest organisms by means of introduced or naturally occurring predatory organisms, sterilization, the use of inhibiting hormones, or other methods, rather than by chemical means.

**Biomass: 1.** The total amount of living material in a particular habitat or area. **2.** An expression of the total weight of a given population of organisms.

**Biome:** A major biotic unit consisting of plant and animal communities having similarities in form and environmental conditions.

**Biota:** The flora and fauna of a region.

**Biota influence:** The influence of animals and plants on associated plant and animal life as contrasted with climatic influences and edaphic (soil) influences.

**Browse:** Twigs or shoots, with or without attached leaves, of shrubs, trees, or woody vines available as forage for domestic and wild browsing animals,

**Brush:** A growth of shrubs or small trees.

**Brush management:** Management and manipulation of stands of brush by mechanical, chemical, or biological means or by prescribed burning.

**Buffer strips:** Strips of grass or other erosion-resisting vegetation between or below cultivated strips or fields.

- Camping:** A form of recreation in which living out-of-doors in a more-or-less close relationship with the natural environment is significant.
- Capital:** All the durable and nondurable items used in production.
- Capital goods:** Tangible economic goods, other than land, that are used in production.
- Carrying capacity:** 1. In recreation, the amount of use a recreation area can sustain without deterioration of its quality. 2. In wildlife, the maximum number of animals an area can support during a given period of the year.
- Cash-grain farm:** A farm on which corn, sorghums, small grains, soybeans or field beans, and peas account for at least 50 percent of the value of farm products sold.
- Chiseling:** Breaking or loosening the soil, without inversion, with a chisel cultivator or chisel plow.
- Chisel planting:** Seedbed preparation by chiseling without inversion of the soil, leaving a protective cover of crop residue on the surface for erosion control. Seedbed preparation and planting may or may not be in the same operation.
- Chisel plow:** Plow consisting of a series of curved, sprung steel shanks with teeth spaced 18 to 30 inches apart. Because design does not turn soil over, the chisel plow disturbs less surface soil and leaves more crop residue on the surface than does a traditional moldboard plow.
- Claypan:** A dense, compact layer in the subsoil having a much higher clay content than the overlying material from which it is separated by a sharply defined boundary; formed by downward movement of clay or by synthesis of clay in place during soil formation. Claypans are usually hard when dry, and plastic and sticky when wet. They usually impede movement of water and air, and the growth of plant roots. See *Hardpan*.
- Clean tillage:** Cultivation of a field so as to cover all plant residues and to prevent the growth of all vegetation except the particular crop desired.
- Compaction:** 1. To unite firmly; the act or process of becoming compact. 2. In geology, the changing of loose sediment into hard, firm rock. 3. [in soil engineering, the process by which the soil grains are rearranged to decrease void space and bring them into closer contact with one another, thereby increasing the weight of solid material per cubic foot,
- Companion crop:** A crop sown with another crop. Used particularly for small grains with which forage crops are sown. Preferred to the term "nurse crop."
- Conservation:** The protection, improvement, and use of natural resources according to principles that will assure their highest economic or social benefits.
- Conservation district:** A public organization created under State enabling law as a special-purpose district to develop and carry out a program of soil, water, and related resource conservation, use, and development within its boundaries; usually a subdivision of State government with a local governing body. Often called a soil conservation district or a soil and water conservation district.
- Conservation plan for farm, ranch, or nonagricultural land unit:** The properly recorded decisions of the cooperating landowner or operator on how he plans, within practical limits, to use his land in an operating unit within its capability and to treat it according to its needs for maintenance or improvement of the soil, water, and plant resources.
- Conservation tillage:** Any tillage system that reduces loss of soil or water compared to unridged or clean tillage.
- Contact herbicide:** A herbicide that kills primarily by contact with plant tissue rather than as a result of translocation.
- Continuous grazing:** Domestic livestock grazing a specific area throughout the grazing season. Not necessarily synonymous with year-long grazing.
- Contour farming:** Conducting field operations, such as plowing, planting, cultivating, and harvesting, on the contour.
- Contour stripcropping:** Layout of crops in comparatively narrow strips in which the farming operations are performed approximately on the contour. Usually strips of grass, close-growing crops, or fallow are alternated with those in cultivated crops.
- Conventional tillage:** The combined primary and secondary tillage operations normally performed in preparing a seedbed for a given crop grown in a given geographical area.
- Cover:** 1. Vegetation or other material providing protection. 2. Fish, a variety of items including undercut banks, trees, roots, and rocks in the water where fish seek necessary protection or security. 3. In forestry, low-growing shrubs, vines, and herbaceous plants under the trees. 4. Ground and soils, any vegetation producing a protecting mat on or just above the soil surface. 5. Stream, generally trees, large shrubs, grasses, or forbs that shade and otherwise protect the

- stream from erosion, temperature elevation, or sloughing of banks. 6. Vegetation, all plants of all sizes and species found on an area, irrespective of whether they have forage or other value, 7. Wildlife, plants, or objects used by wild animals for nesting, rearing young, resting, escape from predators, or protection from adverse environmental conditions.
- Cover crop:** A close-growing crop grown primarily for the purpose of protecting and improving soil between periods of regular crop production or between trees and vines in orchards and vineyards.
- Cropland:** [and used primarily for the production of adapted, cultivated, close-growing fruit or nut crops for harvest, alone or in association with sod crops.]
- Crop residue:** The portion of a plant or crop left in the field after harvest.
- Crop residue management:** Use of that portion of the plant or crop left in the field after harvest for protection or improvement of the soil.
- Crop rotation:** Growing different crops in recurring succession on the same land.
- Cultivar:** An assemblage of cultivated plants which is clearly distinguished by its characters (morphological, physiological, cytological, chemical, or others) and which when reproduced (sexually or asexually) retains those distinguishing characters. The terms "cultivar" and "variety" are exact equivalents.
- Deferred grazing:** Discontinuance of livestock grazing on an area for a specified period of time during the growing season to permit plant reproduction, establishment of new plants, or restoration of vigor by old plants.
- Deferred-rotation grazing:** A systematic rotation of deferred grazing.
- Diversion terrace:** Diversions, which differ from terraces in that they consist of individually designed channels across a hillside; may be used to protect bottom land from hillside runoff or may be needed above a terrace system for protection against runoff from an unterraced area; may also divert water out of active gullies, protect farm buildings from runoff, reduce the number of waterways, and sometimes used in connection with stripcropping to shorten the length of so that the strips can effectively control erosion. See *Terrace*.
- Diversity:** The variety of species within a given association of organisms. Areas of high diversity are characterized by a great variety of species; usually relatively few individuals represent any one species. Areas with low diversity are characterized by a few species; often relatively large numbers of individuals represent each species.
- Drainage:** 1. The removal of excess surface water or ground water from land by means of surface or subsurface drains. 2. Soil characteristics that affect natural drainage.
- Drainage, soil:** As a natural condition of the soil, soil drainage refers to the frequency and duration of periods when the soil is free of saturation—for example, in well-drained soils the water is removed readily but not rapidly; in poorly drained soils the root zone is waterlogged for long periods unless artificially drained, and the roots of ordinary crop plants cannot get enough oxygen; in excessively drained soils the water is removed so completely that most crop plants suffer from lack of water.
- Dryland farming:** The practice of crop cultivation in low rainfall areas without irrigation.
- Ecology:** The study of interrelationships of organisms to one another and to their environment.
- Ecosystem:** A community, including all the component organisms, together with the environment, forming an interacting system.
- Ecotone:** A transition line or strip of vegetation between two communities, having characteristic species of both kinds of neighboring vegetation as well as characteristics of its own.
- Edaphic factor:** A condition or characteristic of the soil (chemical, physical, or biological) which influences organisms.
- Environment:** The sum total of all the external conditions that may act on an organism or community to influence its development or existence.
- Erosion:** 1. The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep. 2. Detachment and movement of soil or rock fragments by water, wind, ice, or gravity. The following terms are used to describe different types of water erosion:
- Accelerated erosion:** Erosion much more rapid than normal, natural, or geologic erosion, primarily as a result of the influence of man or, in some cases, of other animals or natural catastrophes that expose base surfaces—for example, fires.
- Geological erosion:** The normal or natural erosion caused by geological processes acting over long geologic periods and resulting in the

wearing away of mountains, the building up of flood plains, coastal plains, etc. Also called natural erosion.

**Gully erosion:** The erosion process whereby water accumulates in narrow channels and, over short periods, removes the soil from this narrow area to considerable depths, ranging from 1 to 2 ft to as much as 75 to 100 ft.

**Natural erosion:** Wearing away of the Earth's surface by water, ice, or other natural agents under natural environmental conditions of climate, vegetation, etc., undisturbed by man. Also called geological erosion.

**Normal erosion:** The gradual erosion of land used by man which does not greatly exceed natural erosion.

**Rill erosion:** An erosion process in which numerous small channels only several inches deep are formed; occurs mainly on recently cultivated soils.

**Sheet erosion:** The removal of a fairly uniform layer of soil from the land surface by runoff water.

**Splash erosion:** The spattering of small soil particles caused by the impact of raindrops on wet soils. The loosened and spattered particles may or may not be subsequently removed by surface runoff.

**Erosion classes (soil survey):** A grouping of erosion conditions based on the degree of erosion or on characteristic patterns; applied to accelerated erosion, not to normal, natural, or geological erosion. Four erosion classes are recognized for water erosion and three for wind erosion. For details see Soil Survey Staff, U.S. Department of Agriculture, Soil Survey Manual, 1951. USDA Handbook 18, U.S. Government Printing Office, Washington, D.C.

**Eutrophication:** A means of aging lakes whereby aquatic plants are abundant and waters are deficient in oxygen. The process is usually accelerated by enrichment of waters with surface runoff containing nitrogen and phosphorus.

**Evapotranspiration:** The combined loss of water from a given area and during a specific period of time by evaporation from the soil surface and by transpiration from plants.

**Fallow:** Allowing cropland to lie idle, either tilled or untilled, during the whole or greater portion of the growing season.

**Family farm:** A farm business in which the operating family does most of the work, most of the managing, and takes the risks.

**Farm:** Any place from which \$1,000 or more of agricultural products were sold, or normally would have been sold, during the census year.

**Farm management:** The organization and administration of farm resources, including land, labor, crops, livestock, and equipment.

**Fertility (soil):** The quality of a soil that enables it to provide nutrients in adequate amounts and in proper balance for the growth of specified plants when other growth factors, such as light, moisture, temperature, and the physical condition of the soil, are favorable.

**Fertilizer:** Any organic or inorganic material of natural or synthetic origin that is added to a soil to supply elements essential to plant growth.

**Fixed costs:** Costs that are largely determined in advance of the year's operation and subject to little or no control on the part of the farmer or businessman—e. g., rent of land or buildings, payment of taxes, interest on borrowed money, and upkeep of buildings, fences, and drains; costs not affected by the amount of use.

**Fodder:** The "dried, cured plants of tall, coarse grain crops, such as corn and soybeans, including the grain, stems, and leaves; grain parts not snapped off or threshed,

**Forage:** All browse and herbaceous food that is available to livestock or game animals, used for grazing or harvested for feeding.

**Forage production:** The weight of forage that is produced within a designated period of time on a given area. The weight may be expressed as either green, air-dry, or oven-dry. The term may also be modified as to time of production such as annual, current year's, or seasonal forage production.

**Forb:** A herbaceous plant that is not a grass, sedge, or rush.

**Grass:** A member of the botanical family Gramineae, characterized by bladelike leaves arranged on the culm or stem in two ranks.

**Grassed waterway:** A natural or constructed waterway, usually broad and shallow, covered with erosion-resistant grasses, used to conduct surface water from cropland.

**Grasslike plants:** A plant that resembles a true grass—e. g., sedges and rushes—but is taxonomically different.

**Grazable woodland:** Forestland on which the understory includes, as an integral part of the forest plant community, plants that can be grazed without significantly impairing other forest values.

- Grazing:** The eating of any kind of standing vegetation by domestic livestock or wild animals.
- Grazing capacity:** The maximum stocking rate possible without inducing damage to vegetation or related resources.
- Grazingland:** Land used regularly for grazing. The term is not confined to land suitable only for grazing. Cropland and pasture used in connection with a system of farm crop rotation are usually not included.
- Grazing permit:** A document authorizing the use of public or other lands for grazing purposes under specified conditions, issued to the livestock operator by the agency administering the lands.
- Grazing season:** The portion of the year that livestock graze or are permitted to graze on a given range or pasture. Sometimes called grazing period.
- Grazing system:** The manipulation of grazing animals to accomplish a desired result.
- Green manure crop:** Any crop grown for the purpose of being turned under while green or soon after maturity for soil improvement, especially nitrogen additions.
- Growing season:** The period and/or number of days between the last freeze in the spring and the first frost in the fall for the freeze threshold temperature of the crop or other designated temperature threshold.
- Habitat:** The environment in which the life needs of a plant or animal organism, population, or community are supplied.
- Halophyte:** A plant adapted to existence in a saline environment, such as greasewood (*Sarcobatus saltgrass* (*Distichlis*)), and the saltbushes (*A triplex* Spp.).
- Hardpan:** A hardened soil layer in the lower A or in the B horizon caused by cementation of soil particles with organic matter or with materials such as silica, sesquioxides, or calcium carbonate. The hardness does not change appreciably with changes in the moisture content, and pieces of the hard layer do not flake in water.
- Herbicide:** A chemical substance used for killing plants, especially weeds.
- Impervious soil:** A soil through which water, air, or roots cannot penetrate. No soil is impervious to water and air all the time.
- Indigenous:** Born, growing, or produced naturally in a region or country; native.
- Intensive cropping:** Maximum use of the land by means of frequent succession of harvested crops.
- Interplanting:** 1. In cropland, the planting of several crops together on the same land—e. g., the planting of beans with corn. 2. In orchards, the planting of farm crops among the trees, especially while the trees are too small to occupy the land completely. 3. In woodland, the planting of young trees among existing trees or brush} growth.
- Interseeding:** Seeding into an established vegetation.
- Irrigation:** Application of water to lands for agricultural purposes. Different systems include:
- Center-pivot:* Automated sprinkler irrigation achieved by automatically rotating the sprinkler pipe or boom, supplying water to the sprinkler heads or nozzles, as a radius from the center of the field to be irrigated. Water is delivered to the center or pivot point of the system. The pipe is supported above the crop by towers at fixed spacings and propelled by pneumatic, mechanical, hydraulic, or electric power on wheels or skids in fixed circular paths at uniform angular speeds. Water is applied at a uniform rate by progressive increase of nozzle size from the pilot to the end of the line. Single units are ordinarily about 1,250 to 1,300 ft long and irrigate approximately a 130-acre circular area.
- Drip:* A planned irrigation system where all necessary facilities have been installed for the efficient application of water directly to the root zone of plants by means of applicators (orifices, emitters, porous tubing, perforated pipe, etc.) operated under low pressure. The applicators may be placed on or below the surface of the ground.
- Sprinkler:* A planned irrigation system where all necessary facilities have been installed for the efficient application of water for irrigation by means of perforated pipe or nozzles operated under pressure.
- Irrigation application efficiency:** Percentage of irrigation water applied to an area that is stored in the soil for crop use.
- Irrigation lateral:** A branch of the main canal conveying water to the farm ditches, sometimes used in reference to farm ditches.
- Land:** The total natural and cultural environment within which production takes place; a broader term than soil. In addition to soil, its attributes include other physical conditions, such as mineral deposits, climate, and water supply; location in relation to centers of commerce, populations, and other land; the size of the individual tracts

or holdings; and existing plant cover, works of improvement, and the like.

**Land capability:** The suitability of land for use without permanent damage. Land capability, as ordinarily used in the United States, is an expression of the effect of physical land conditions, including climate, on the total suitability for use without damage for crops that require regular tillage, for grazing, for woodland, and for wildlife. Land capability involves consideration of: 1) the risks of land damage from erosion and other causes; and 2) the difficulties in land use owing to physical land characteristics, including climate.

**Land capability class:** One of the eight classes of land in the land capability classification of the Soil Conservation Service; distinguished according to the risk of land damage or the difficulty of land use; they include:

Land suitable for cultivation and other uses:

**CkMs 1:** Soils that have few limitations restricting their use.

**Class 11:** Soils that have some limitations, reducing the choice of plants or requiring moderate conservation practices.

**Class 111:** Soils that have severe limitations that reduce the choice of plants or require special conservation practices, or both.

**Class IV:** Soils that have very severe limitations that restrict the choice of plants, require very careful management, or both.

Land generally not suitable for cultivation (without major treatment):

**Class V:** Soils that have little or no erosion hazard, but that have other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife food and cover.

**Class VI:** Soils that have severe limitations that make them generally unsuited for cultivation and limit their use largely to pasture or range, woodland, or wildlife food and cover.

**Class VII:** Soils that have very severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife.

**Class VIII:** Soils and landforms that preclude their use for commercial plant production and restrict their use to recreation, wildlife, water supply, or esthetic purposes.

**Land tenure:** The holding of land and the rights that go with such holding, including all forms of holding from fee simple title embracing all possible rights within the general limitations imposed

by the Government, to the various forms of tenancy or holding of land owned by another.

**Legume:** A member of the pulse family, one of the most important and widely distributed plant families. The fruit is a pod that opens along two sutures when ripe. Leaves are alternate, have stipules, and are usually compound. Includes many valuable food and forage species, such as peas, beans, peanuts, clovers, alfalfas, sweet clovers, lespedezas, vetches, and kudzu. Practically all legumes are nitrogen-fixing plants.

**Loamy:** Intermediate in texture and properties between fine- and coarse-textured soils; includes all textural classes with the words "loamy" or "loam" as a part of the class name, such as clay loam or loamy sand.

**Loess:** Material transported and deposited by wind and consisting of predominantly silt-sized particles,

**Macro-organisms:** Those organisms retained on a U.S. standard sieve No. 30 (openings of 0.589 mm); those organisms visible to the unaided eye. See *Micro-organisms*.

**Micro-organisms:** Those organisms retained on a U.S. standard sieve No. 100 (openings of 0.149 mm); those minute organisms invisible or only barely visible to the unaided eye. See *Macro-organisms*.

**Minimum tillage:** Limiting the number of soil-disturbing operations to those that are properly timed and essential to produce a crop and prevent soil damage.

**Moldboard plow:** A traditional plow with a curved plate attached above a plowshare to lift and turn the soil. Invented by John Deere; first implement to successfully break prairie sod.

**Monoculture:** Raising crops of a single species, generally even-aged.

**Mulch:** A natural or artificial layer of plant residue or other materials, such as sand or paper, on the soil surface.

**Mulch tillage:** Soil tillage that employs plant residues or other materials to cover the ground surface.

**Multiple use:** Harmonious use of land for more than one purpose—i.e., grazing livestock, wildlife production, recreation, watershed, and timber production. Not necessarily the combination of uses that will yield the highest economic return or greatest unit output.

**Niche:** A habitat that supplies the factors necessary for the existence of an organism or species.

**Vitrification:** The biological oxidation of ammoni-

urn to nitrite and the further oxidation of nitrite to nitrate.

**Nitrogen assimilation:** The incorporation of nitrogen compounds into cell substances by living organisms.

**Nitrogen fixation:** The conversion of elemental nitrogen (N<sub>2</sub>) to organic combinations or to forms readily usable in biological processes.

**Nitrogen-fixing plant:** A plant that can assimilate and fix the free nitrogen of the atmosphere with the aid of bacteria living in the root nodules. Legumes with associated rhizobium bacteria in the root nodules are the most important nitrogen-fixing plants.

**Nonpoint pollution:** Pollution whose sources cannot be pinpointed; can best be controlled by proper soil, water, and land management practices.

**Nonrenewable natural resources:** Natural resources that, once used, cannot be replaced.

**No-tillage:** A method of planting crops that involves no seed bed preparation other than opening the soil for the purpose of placing the seed at the intended depth. This usually involves opening a small slit or punching a hole into the soil. There is usually no cultivation during crop production. Chemical weed control is normally used. Also referred to as slot planting or zero tillage.

**Noxious species:** A plant that is undesirable because it conflicts, restricts, or otherwise causes problems under the management objectives. Not to be confused with species declared noxious by laws.

**Nutrients: 1.** Elements, or compounds, essential as raw materials for organism growth and development, such as carbon, oxygen, nitrogen, phosphorus, etc. **2.** The dissolved solids and gases of the water of an area.

**Organic content:** Synonymous with volatile solids, except for small traces of some inorganic materials, such as calcium carbonate, that lose weight at temperatures used in determining volatile solids.

**Organic fertilizer:** Byproduct from the processing of animal or vegetable substances that contain sufficient plant nutrients to be of value as fertilizers.

**Overgrazed range:** A range that has lost its productive potential because of overgrazing.

**Overgrazing:** Grazing so heavy that it impairs future forage production and causes deterioration through damage to plants, soil, or both.

**Palatability:** Plant characteristic; or condition that stimulates a selective response in animals.

**Pan, pressure or induced:** A subsurface horizon or soil layer having a high bulk density and a lower total porosity than the soil directly above or below it as a result of pressure applied by normal tillage operations or by other artificial means; frequently referred to as plow pan, plow sole, tillage pan, or traffic pan.

**Pasture:** An area intensively managed for the production of forage, introduced or native, and harvested by grazing.

**Percolation:** The downward movement of water through soil, especially the downward flow of water in saturated or nearly saturated soil at hydraulic gradients of the order of 1.0 or less.

**Perennial plant:** A plant that normally lives 3 or more years, sending forth shoots each spring from roots or rhizomes.

**Permeability, soil:** The quality of a soil horizon that enables water or air to move through it. The permeability of a soil may be limited by the presence of one nearly impermeable horizon even though the others are permeable.

**Pesticide:** Any chemical agent used for control of specific organisms, such as insecticides, herbicides, fungicides, etc.

**Planning horizon:** A farmer's planning horizon is the length of time considered when making an investment of capital, labor, or land resources. It may be as short as one crop season or as long as his children's lifetimes. The term includes the concept of discounted value that the farmer places on future income or future costs compared with present income or costs. The terms "planning period," "payback period," and "time horizon" are often used interchangeably with "planning horizon."

**Plow:** An implement used to cut, lift, and turn over soil, especially in preparing a seedbed.

**Plow layer:** The soil ordinarily; moved in tillage; equivalent to surface soil or surface layer.

**Point row:** A row that forms an angle with another row instead of paralleling it to the end of the field. A row that "comes to a point," ending part way across the field instead of at the edge of the field.

**Polyculture:** Growing more than one crop on the same land in 1 year, or growing two or more crops simultaneously. Variations include multiple cropping, intercropping, interculture and mixed cropping.

**Postemergence (crop production):** Application of chemicals, fertilizers, or other materials and operations associated with crop production after the crop has emerged through the soil surface.

**Preemergence (crop production):** Application of chemicals, fertilizers, or other materials and operations associated with crop production before the crop has emerged through the soil surface.

**Prescribed burning:** The deliberate use of fire under conditions where the area to be burned is predetermined and the intensity of the fire is controlled.

**Prime agricultural land:** Land that is best suited for producing food, feed, forage, fiber, and oil-seed crops, and also available for those uses; includes cropland, pastureland, rangeland, forestlands, but not urbanized land or water. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed, including water management, according to modern agricultural methods.

**Range condition:** The present state of the plant community on a range site in relation to the potential natural plant community for that site.

**Range condition class:** One of a series of arbitrary categories used to classify range condition, usually expressed as either excellent, good, fair, or poor.

**Rangeland:** Land on which the native vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs, or shrubs suitable for grazing or browsing use. Includes lands revegetated naturally or artificially to provide a forage cover that is managed like native vegetation. Rangelands include natural grasslands, savannas, shrublands, most deserts, tundra, alpine communities, coastal marshes, and wet meadows.

**Range management:** A distinct discipline founded on-ecological principles and dealing with the husbandry of all rangeland and range resources.

**Reduced tillage:** A tillage sequence designed to reduce or eliminate secondary tillage operations.

**Renewable natural resources:** Resources that can be restored and improved.

**Rest-rotation grazing:** A form of deferred-rotation grazing in which at least one grazing unit is rested from grazing for a full year.

**Riparian land:** Land situated along the bank of a stream or other body of water.

**Rotary tillage:** An operation using a power driven rotary tillage tool to loosen and mix soil.

**Rotation grazing:** System of use embracing short periods of heavy stocking followed by periods of rest for herbage recovery during the same season; generally used on tame pasture or cropland pasture.

**Row crop:** A crop planted in rows, normally to allow cultivation between rows during the growing season.

**Runoff (hydraulics):** That portion of the precipitation on a drainage area that is discharged from the area in stream channels. Types include surface runoff, ground water runoff, or seepage.

**Saline soil:** A nonsodic soil containing sufficient soluble salts to impair its productivity but not containing excessive exchangeable sodium. This name was formerly applied to any soil containing sufficient soluble salts to interfere with plant growth, commonly greater than 3,000 parts per million.

**Sedimentation:** The process or action of depositing sediment.

**Selective grazing:** The tendency for livestock and other grazing animals to graze certain plants in preference to others.

**Selective herbicide:** A pesticide intended to kill only certain types of plants, especially broad-leaved weeds, and not harm other plants such as farm crops or lawn grasses.

**Shrub:** A woody or perennial plant differing from a tree by its low stature and by generally producing several basal shoots instead of a single bole.

**Siltation:** The process of depositing silt. See *Sedimentation*.

**Slope:** The degree of deviation of a surface from horizontal, measured in a numerical ratio, percent, or degrees.

**Soil:** 1. The unconsolidated mineral and organic material on the immediate surface of the Earth that serves as a natural medium for the growth of land plants, 2. The unconsolidated mineral matter on the surface of the Earth that has been subjected to and influenced by genetic and environmental factors of parent material, climate (including moisture and temperature effects), macro- and micro-organisms, and topography, all acting over a period of time and producing a product—soil—that differs from the material from which it is derived in many physical, chemical, biological, and morphological properties and characteristics, 3. A kind of soil is the collection of soils that are alike in specified combinations of characteristics. Kinds of soil are given names in the system of soil classification. The terms “the soil” and “soil” are collective terms used for all soils, equivalent to the word “vegetation” for all plants.

**Soil amendment:** Any material, such as lime, gypsum, sawdust, or synthetic conditioner, that is

- worked into the soil to make it more amenable to plant growth.
- Soil classification:** The systematic arrangement of soils into groups or categories on the basis of their characteristics. Broad groupings are made on the basis of general characteristics, subdivisions on the basis of more detailed differences in specific properties.
- Soil conditioner:** Any material added to a soil for the purpose of improving its physical condition.
- Soil conservation:** Using the soil within the limits of its physical characteristics and protecting it from unalterable limitations of climate and topography.
- Soil-conserving crops:** Crops that prevent or retard erosion and maintain or replenish rather than deplete soil organic matter,
- Soil-depleting crops:** Crops that under the usual management tend to deplete nutrients and organic matter in the soil and permit deterioration of soil structure.
- Soil erosion:** The detachment and movement of soil from the land surface by wind or water. See *Erosion*.
- Soil fertility:** The quality of a soil that enables it to provide nutrients in adequate amounts and in proper balance for the growth of specified plants, when other growth factors, such as light, moisture, temperature, and physical condition of soil, are favorable.
- Soil-formation factors:** The variables, usually interrelated natural agencies, active in and responsible for the formation of soil. The factors are usually grouped as follows: parent material, climate, organisms, topography, and time. Many people believe that activities of man in his use and manipulation of soil become such an important influence on soil formation that he should be added as a sixth variable. Others consider man as an organism.
- Soil loss tolerance:** The maximum average annual soil loss in tons per acre per year that should be permitted on a given soil.
- Soil management:** The sum total of all tillage operations, cropping practices, fertilizer, lime, and other treatments conducted on, or applied to, a soil for the production of plants.
- Soil survey:** A general term for the systematic examination of soils in the field and in laboratories; their description and classification; the mapping of kinds of soil; the interpretation of soils according to their adaptability for various crops, grasses, and trees; their behavior under use or treatment for plant production or for other purposes; and their productivity under different management systems.
- Stripcropping:** Growing crops in a systematic arrangement of strips or bands which serve as barriers to wind and water erosion. See *Buffer strips*, *Contour stripcropping*.
- Strip tillage:** Tillage operations for seedbed preparation that are limited to a strip not to exceed one-third of the distance between rows: the area between is left untilled with a protective cover of crop residue on the surface for erosion control. Planting and tillage are accompanied in the same operation.
- Stubble:** The basal portion of plants remaining after the top portion has been harvested; also, the portion of the plants, principally grasses, remaining after grazing is completed.
- Stubble mulch:** The stubble of crops or crop residues left essentially in place on the land as a surface cover during fallow and the growing of a succeeding crop.
- Subsidence:** A downward movement of the ground surface caused by solution and collapse of underlying soluble deposits, rearrangements of particles upon removal of coal, or reduction of fluid pressures within an aquifer or petroleum reservoir.
- Subsoil:** The B horizons of soils with distinct profiles. In soils with weak profile development, the subsoil can be defined as the soil below the plowed soil (or its equivalent of surface soil) in which roots normally grow. Although a common term, it cannot be defined accurately. It has been carried over from early days when "soil" was conceived only as the plowed soil and that under it was the "subsoil."
- Subsoiling:** The tillage of subsurface soil, without inversion, for the purpose of breaking up dense layers that restrict water movement and root penetration.
- Terrace:** An embankment or combination of an embankment and channel constructed across a slope to control erosion by diverting or storing surface runoff instead of permitting it to flow uninterrupted down the slope. Terraces or terrace systems may be classified by their alignment, gradient, outlet, and cross-section. Alignment may be parallel or nonparallel. Gradient may be level, uniformly graded, or variably graded. Grade is often incorporated to permit paralleling the terraces. Outlets may be soil infiltration only, vegetated waterways, tile outlets, or combinations

thereof, Cross-section may be narrow base, broad base, bench, steep backslope, flat channel, or channel.

**Terrace outlet channel:** Channel, usually having a vegetative cover, into which the flow from one or more terraces is discharged and conveyed from the field.

**Tile, drain:** Pipe made of burned clay, concrete, or similar material, in short lengths, usually laid with open joints to collect and carry excess water from the soil.

**Tile drainage:** Land drainage by means of a series of tile lines laid a specified depth and grade.

**Tillage:** The operation of implements through the soil to prepare seedbeds and root beds.

**Tilth:** The physical condition of soil as related to its ease of tillage, fitness as a seedbed, and impedance to seedling emergence and root penetration.

**Undergrazing:** An intensity of grazing in which the forage available for consumption under a system of conservation pasture management is not used to best advantage.

**Undesirable species:** 1. Plant species that are not readily eaten by animals, 2. Species that conflict with or do not contribute to the management objectives.

**Universal soil loss equation:** An equation used to design water erosion control systems:  $A = RKLSPC$  wherein A is average annual soil loss in tons per acre per year; R is the rainfall factor; K is the soil erodibility; L is the length of slope; S is the percent slope; P is the conservation practice factor; and C is the cropping and management factor. (T = soil loss tolerance value that has been assigned each soil, expressed in tons per acre per year.)

**Utility:** The ability of a good to satisfy human wants.

**Variable costs:** Costs subject to the year's produc-

tion schedule. As such, they may be largely controlled by the operator. Examples are the use of fertilizer and insecticides, hauling grain, etc.

**Water management:** Application of practices to obtain added benefits from precipitation, water, or water flow in any of a number of areas, such as irrigation, drainage, wildlife and recreation, water supply, watershed management, and water storage in soil for crop production.

**Water table:** The upper surface of ground water or that level below which the soil is saturated with water; locus of points in soil water at which the hydraulic pressure is equal to atmospheric pressure,

**Water use efficiency:** Crop production per unit of water used, irrespective of water source, expressed in units of weight per unit of water depth per unit area. This concept of utilization applies to both dryland and irrigated agriculture.

**Windbreak:** 1. A living barrier of trees or combination of trees and shrubs located adjacent to farm or ranch headquarters and designed to protect the area from cold or hot winds and drifting snow. 2. A narrow barrier of living trees or combination of trees and shrubs, usually from one to five rows, established within or around a field or for the protection of land and crops from wind.

**Wind erosion:** An equation used for the design of wind erosion control systems:  $E = f(IKCLV)$  wherein E is the average annual soil loss, expressed in tons per acre per year; I is the soil erodibility; K is the soil ridge roughness; C is the climatic factor; L is the unsheltered distance across the field along the wind erosion direction; and V is the vegetative cover.

**Wind stripcropping:** The production of crops in relatively narrow strips placed perpendicular to the direction of the prevailing winds.