Glossary

Abbreviations for units of measure

°C degree Celsius (°C = (°F - 32) X 5/9)

cm centimetre (1 cm = 0.01 m; 2.54 cm =1 inch)

g gram (1 g = 0.001 kg = 0.035 ounce; 454 g = 1 lb)

ha hectare (1 ha = 10 000 m^2 = 2.47 acres)

h hour

kg kilogram (1 kg = 1000 g = 2.2 lb)

km kilometre (1 km = 1000 m = 0.62 mile)

kPa kilopascal (1 kPa = 0.145 psi; 1 psi = 6.89 kPa)

L litre (1 L = 1000 mL = 0.88quarts)

m metre (1 m =100 cm = 39.4inches)

min minute

mL millilitre (1 mL = 0.001 L)

mm millimetre (1 mm = 0.001 m)

pm micrometre (1 pm = 10^{-6}m)

mS millisiemens (unit of electrical conductivity; 1 mS = 1 mmho)

nm nanometre (1nm = 10^{-9} m)

ppm parts per million

t tonne (1 t = 1000 kg = 2205 lb)

A

abaxial the leaf surface facing away from the axis of a stem; the lower surface of a leaf.

abdomen the posterior division of an insect's body.

acaricide a chemical or other agent used to control mites.

acervulus (-i) a subepidermal, saucer-shaped fruiting body of a fungus that produces conidia on a hymenium of conidiogenous cells lining the cavity and which also may produce setae, e.g. in some *Colletotrichum* species.

acid-fast bacteria bacteria, especially mycobacteria, that stain with basic dyes and fluorochromes, and resist decolorization by acid solutions.

acidic having a pH of less than 7.0.

acropetal development of organs or cells in succession towards the apex, with the oldest at the base and youngest at the apex.

actinomycete bacteria that form branching filaments.

active ingredient the portion of a formulated pesticide that is the actual toxicant; abbreviated **a.i.**

adaxial the leaf surface facing toward the axis of a stem; the upper surface of a leaf.

adult a mature stage in animals and plants; non-molting in most arthropods.

adventitious arising in an abnormal position, e.g. roots developing from a plant part other than a root, such as a stem or leaf cutting.

aeciospore a dikaryotic, unicellular fungal spore of the rust fungi (Uredinales) produced in an aecium after fertilization by hyphal fusion or the union of uninucleate pycniospores.

aecium (-ia) an asexual fruiting body of the rust fungi containing dikaryotic conidia (aeciospores); usually cup-like.

aerobic pertains to the need for oxygen, as in a physiological process or the capacity of an organism to live in the presence of oxygen.

agar a gel-like carbohydrate derived from certain red algae; used to solidify culture media on which some microorganisms can be grown; a term also applied to the medium itself.

aleurioconidium (syn. aleuriospore) a thick-walled, pigmented, or sometimes thin-walled and hyaline conidium developed from the blown-out end of a conidiogenous cell or hyphal branch from which it separates with difficulty.

alkaline having a pH above 7.0; basic.

allantoid slightly curved with rounded ends; sausage-like in form; especially in reference to fungal spores.

allele one of two or more alternative forms of a gene at a given site on a chromosome.

allelopathy the harmful influence on a plant by another living plant that secretes a toxic substance.

alluvial pertaining to minerals or soils deposited by running water.

alternate host a plant species required to complete a parasite's life cycle, e.g. macrocyclic rusts.

alternative host a plant species that serves as a host for a parasite, but which is not specifically required for the parasite to complete its life cycle; see **alternate host.**

ameroconidium (syn. amerospore) one-celled (non-septate) conidium with a length:width ratio of less than 15:1.

amphigynous fungi (Pythiaceae) having an antheridium throughout which the oogonial intercept grows.

ampulla (-ae) the swollen tip of a conidiophore that is either conidiogenous or develops a number of short branches or discrete conidiogenous cells.

ampulliform flask-like in shape.

anaerobic pertains to the lack of a need for oxygen, as in a physiological process, or the capacity of an organism to live where there is no oxygen.

anal pertains to the region of the anus in animals and to the last abdominal segment in insects.

anamorph that part of the life cycle of a fungus characterized by the production of asexual spores borne on conidiomata.

anastomosis group a grouping of similar strains of a fungal species in which all members can anastomose (fuse) with each other.

anastomosis (-es) the fusion between branches of the same or different hyphae or other structures to make a bridge or network; leads to the combination of hyphal contents.

anhydrobiote a nematode that is able to enter a coiled dehydrated state and survive in moderately dry substrates for several months.

annelloconidium (-ia) (syn. annellospore) a conidium formed from an annellophore.

annellophore a conidiophore or conidiogenous cell that proliferates per-currently and bears a succession of ring-like scars (annellations) of previous conidial succession around the apex; a conidiophore that produces annelloconidia in basipetal sequence.

annual a plant that completes its life cycle within one year.

antheridium (-ia) the male sex organ or sex cell (gametangium).

anthraquinone a quinone comprised of three linked benzene rings; produced by the oxidation of anthracene.

antibiotic a synthetic chemical or microbial product that is toxic to microorganisms, killing them or inhibiting their growth.

antibody a specific protein formed in the blood of warm-blooded animals in response to the injection of an antigen.

antigen any foreign chemical, normally a protein, that induces antibody formation in animals.

antiserum (-a) blood serum containing antibodies.

anus the opening of the alimentary tract in animals through which excrement is voided.

apical pertains to the end, tip or outermost part.

apical dominance inhibition of lateral bud growth by the apical bud of a shoot; a response to auxins produced by the apical bud.

aplerotic oospores not filling the oogonium; pertains to Pythiaceae.

apothecium (-ia) a type of ascocarp; cup-shaped and becoming open at maturity; with or without a stalk.

appressorium (-ia) the swollen tip of a hypha or germ tube that facilitates attachment to and penetration of the host by a fungus.

apterous wingless.

arthroconidium (-ia) (syn. arthrospore) a conidium formed by segmentation and fragmentation of vegetative hyphae, usually but not always in a chain.

arthropod animals with segmented appendages, including aquatic and terrestrial forms; in this publication, refers mainly to insects and mites.

artifact the remains, workings or damage left by an organism that may no longer be present.

ascocarp the sexual fungal fruiting body of an ascomycete; contains asci and ascospores.

ascospore a haploid fungal spore produced in an ascus.

ascus (-i) a component of an ascocarp; a sac-like cell; functions meiotically to produce ascospores.

asexual reproduction without fertilization.

asexual state in a fungus the part of the life cycle in which cells are produced only mitotically.

asymmetric flattened, concave or irregular on one side.

autoecious a parasitic fungus that can complete its entire life cycle on one host species, e.g. certain members of the rusts (Uredinales).

autotoxicity the capacity of a component to cause injury to the organism producing it.

avirulent a lack of pathogenicity by known pathogens, especially on particular plant cultivars.

axenic culture the growth of organisms of a single species in the absence of cells or living organisms of any other species.

axillary placed or growing in the axil of a branch or leaf.

axis the center line of an organism, organ or other plant part.

B

bactericide a chemical or other agent used to control bacteria.

bacteriocin bactericidal substances produced by certain strains of bacteria and active against some other strains of the same or closely related species.

bacterium (-ia) a one-celled microorganism without a true nucleus in the cell.

ballistospore a forceably ejected basidiospore.

bar a unit of pressure equal to 10^5 pascals.

basal pertains to the base or point of attachment.

basidiospore a haploid fungal spore produced on a basidium after meiosis.

basidium (-ia) a fungal structure that produces basidiospores; produced by basidiomycetes.

basipetal development of organs or cells in succession toward the base, with the oldest at the apex and youngest at the base.

biennial a plant that completes its life cycle in two years.

biflagellate possessing two flagella.

biguttulate spores or cells containing two oil-like drops inside.

binucleate containing two nuclei.

biocontrol agent see **biological control.**

biological control agent see **biological control.**

biological control the use of living organisms (biological, biotic or biocontrol agents) for the inhibition or destruction of a pest population.

biotic agent see **biological control.**

bipolar at both ends or poles of a bacterial cell or spore; also, sexual compatibility in some basidiomycetes in which two of the basidiospores on a basidium are of one strain and two are of another.

biseriate in two rows.

biverticillate having parts in two rings or whorls.

blastoconidium (syn. blastospore) a condium produced by the marked enlargement of a recognizable conidial initial before the initial is delimited by a septum.

blight sudden, severe and extensive spotting, discoloration, wilting, or destruction of leaves, flowers, stems, or entire plants, often affecting young, growing tissues; in disease names, may be coupled with the name of the affected part of the plant (e.g. leaf blight), the kind of causal organism (e.g. bacterial blight), or a distinctive symptom (e.g. halo blight).

blotch a symptom characterized by large, irregularly shaped spots on above-ground plant parts.

botryoblastoconidium (syn. botryoblastospore) one of a cluster of coni- dia borne on the swollen apex (ampulla) of a conidiogenous cell, either singly or in chains.

botryose clustered like grapes.

breeding line plant strain used in a breeding program and usually containing one or more desirable characteristics.

budding a method of vegetative propagation of plants by implantation of buds from the mother plant onto a rootstock.

bug the group name given to insects with piercing - sucking mouthparts and wings; a popular term for any insect.

butyrous resembling the texture or color of butter.

C

caducous spores falling off readily; deciduous.

calcareous containing lime.

calyx (-ces) outermost part of a flower, consisting usually of green, leaflike structures known as sepals, which in the bud stage enclose and protect the other flower parts.

canker a dead portion of a stem, root or fruit that is sunken or shrivelled; a sharply delimited necrosis.

canopy a mass of leaf-bearing shoots characterized by height, width or density; the formation of upper branches (shoots), providing a cover of foliage.

capitate having a well-formed head.

carbohydrate one of numerous chemical compounds comprised of carbon, hydrogen and oxygen, e.g. sugars, starches and cellulose.

cardinal growth temperatures the minimum, maximum and optimum temperatures at which an organism can grow.

carlavirus a group of viruses of which the type member is carnation latent virus.

casing a layer of material (usually peat moss or soil) used to cover spawned compost in edible mushroom production; mushrooms are produced on the casing.

catenate (syn. catenulate) in chains or end-to-end series.

caterpillar a popular term for the larva of an insect, usually reserved for larvae of moths and butterflies.

cauda the posterior region of the abdomen in aphids.

caulicolous living on herbaceous stems.

causal agent an organism or agent that produces a given disease.

cellulolytic having the ability to decompose cellulose, e.g. certain species of bacteria and fungi.

chlamydospore a fungal resting spore; thick walled, asexual and frequently intercalary.

chlorophyll green pigment of plants that absorbs light energy during photosynthesis.

chlorosis the yellowing of normally green tissues.

chromosome string- or bead-like structure(s) in the nucleus that contains genes.

chrysalis (-ises, -ides) a butterfly pupa that is not enclosed in a case of silk or other matter.

cladophyll a branch arising from the axil of a true leaf and resembling a foliage leaf.

clamp connection a hyphal outgrowth in some basidiomycete fungi which, at cell division, makes a connection between the two resulting cells by fusion with the lower cell; buckle; nodose septum; by-pass hypha.

clavate club-shaped.

cleistothecium (-ia) an ascocarp lacking a specialized opening or ostiole and containing asci and ascospores.

coalesce to run together, as in small lesions merging into larger blotches.

cocoon a covering made by an insect larva before pupation; composed wholly or partly of silk.

coenocytic a multinucleate mycelium, not divided by cell walls.

collarette a cup-shaped structure at the apex of a phialide.

collenchyma tissue providing mechanical support to young, actively growing, plant structures; consists of living cells with walls strengthened by cellulose thickening; commonly found in cortex of herbaceous stems.

colony growth of a microorganism in mass, especially as a pure culture in the laboratory.

columella a sterile central axis within a mature fruit body which may be uni- or multicellular, unbranched or branched; of fungal or host origin.

conidiogenesis the production of conidia.

conidioma (-ata) a specialized, multi-hyphal, conidia-bearing structure.

conidiophore a modified, fertile fungal hypha bearing conidiogenous cells from which conidia are produced.

conidium (-ia) an asexual, non-motile fungal spore borne on a conidiogenous cell, usually decidious; not formed by cleavage or free cell formation.

cornicle a tube-like, abdominal structure in aphids; dorsal and bilaterally paired.

cortex a more or less thick outer covering in plants; parenchyma tissue surrounding the vascular cylinder in stems and roots, and bounded on the outside by the epidermis.

cortical pertaining to the cortex.

cotyledon (-s) the first leaf or pair of leaves in a germinating seed; frequently remain below ground.

crenate having the edge with rounded teeth.

cultivar an artifically bred, cultivated plant variety, including hybrids, inbreds, open-pollinated and a sexually propagated lines; abbreviated **cv.**

culture a colony of organisms on a medium; also refers to the growing of an organism on a medium.

culture medium see **medium.**

cupulate cup-like in form.

cuticle the water-repellent, waxy covering (cutin) of epidermal cells of plant parts, such as leaves, stems and fruits; the outer sheath or membrane of arthropods and nematodes.

cyst a nematode artifact, consisting of the dead remains of the female with or without viable eggs in some groups of nematodes; rounded and sac- like; also the resting spore of some fungi.

D

damping-off the collapse or death of a seedling; occurs suddenly before or after emergence.

defoliation loss of leaves from a plant.

degree-day a unit of accumulated temperature above a certain threshold over a period of days; abbreviated DD.

deliquescence becoming liquid after maturing.

dendroid tree-like in form.

denitrification the reduction of nitrate or nitrite to gaseous products such as nitrogen, nitrous oxide and nitric oxide; brought about by denitrifying bacteria.

denticle a small, tooth-like projection on which spores are borne.

desiccated dry.

diapause a genetically determined, physiological condition of arrested development in arthropods.

dichotomous dividing into two more or less equal branches.

diclinous having the oogonium and the antheridium that fuses with it on different hyphae.

dicotyledon a plant with two cotyledons.

dieback a progressive dying from the tip of shoots or roots.

dikaryon a cell with two genetically compatible haploid nuclei that divide synchronously; usually in fungi.

dikaryotic pertaining to a dikaryon.

dimorphic having two forms, e.g. fungi with yeast and mycelial forms.

diploid having paired chromosomes.

disease a dysfunctional, abnormal condition caused by one or more pathogens, toxic chemicals, nutritional deficiencies, environmental stress, and genetic abnormalities; often restricted to conditions caused by pathogens and accompanied by definite symptoms.

disease cycle the chain of events involved in the development of a disease; includes the stages of development of the pathogen and the effect of the disease on the host.

disinfectant a physical or chemical agent that is used to free a plant or plant part from infection.

disinfestant an agent that is used to kill or inactivate a pathogen in the environment or on the surface of a plant or plant part before infection occurs.

disorder a dysfunctional condition caused by factors other than pathogens, such as toxic chemicals, nutritional deficiencies, environmental stress during growth or in storage, and genetic abnormalities; usually accompanied by visible symptoms.

dissemination spread of infectious material (inoculum), often from diseased to healthy plants.

dissociation the appearance of a novel colony type on solid media after one or more subcultures of the microorganism in liquid media.

distal pertains to an area furthest from the body or point of attachment.

diurnal related to the 24-hour cycle of day and night.

DNA deoxyribosenucleic acid; an organic compound formed from nucleotides, each of which contains the sugar deoxyribose, a low-energy phosphate group, and usually one of four different bases: adenine, thymine, cytosine or guanine; DNA forms the basic material in the chromosomes of the nucleus; it contains the genetic code and transmits hereditary patterns.

doliiform barrel-like in form.

dolipore septum (-a) a septum of a dikaryotic basidiomycete hypha which flares out in the middle portion, forming a barrel-shaped structure with open ends.

dorsal pertains to the top, back or upperside.

E

echinulate having small pointed processes or spines.

economic injury level the lowest population density of a pest that will cause damage equal in value to the cost of control measures.

economic threshold the population density of a pest at which control measures should be applied to prevent it from reaching the economic injury level.

ectoparasite a parasite that lives outside the body of its host.

edema (syn. oedema) a swelling of tissue, mainly through increases of intercellular fluid content; results in a general over-development of plant cells.

egg an early developmental stage in animals.

eguttulate refers to cells or spores that lack oil-like drops inside.

ELISA enzyme-linked immunosorbent assay; a serological test in which the antibody-antigen reaction is detected by having the antibody attached to an enzyme which catalyzes the reaction of a substrate and causes a color change.

elytron (-a) the stiffened, thickened or leathery forewing of beetles.

enation a small swelling or gall.

encyst to become surrounded by a cyst or shell.

endemic being native or permanently established in a particular area; usually existing at low, stable population levels.

endoconidium (-ia) (syn. endospore) a conidium formed inside of a hypha, e.g. a phialoconidium produced within a phialide, as in *Chalara***.**

endoparasite a parasite that enters and feeds within its host.

endosperm the nutritive protein material within the embryo sac of seed plants; storage tissue in the seeds of gymnosperms.

endodermis the innermost layer of cortex surrounding the stele; characteristic of all roots and the stems of a few plants.

enteroblastic a situation where the inner wall (tretic conidium formation) or neither wall (phialidic conidium formation) of the blastic conidio- genous cell contributes to the formation of a blastoconidium.

enzyme a protein produced by a living organism that catalyzes organic reactions.

epidemic an increase of disease with time; in popular terms describes a disease or pest that has rapidly increased to a high level.

epidemiology the study of the initiation, development and spread of infectious disease.

epidermis the outermost layer of tissue on the surface of an organism.

epinasty a conditon resulting from the more rapid growth of the upper side of an organ, e.g. in a leaf, resulting in downward curling of the leaf blade.

epiphyllous on the upper side of a leaf.

eradication the elimination of an organism from a specific area.

erumpent bursting through the surface of the substrate.

etiology the study of the cause of disease.

exudate a substance that is exuded or discharged; ooze.

exuviae an arthropod artifact consisting of the molted body wall or fragments thereof.

F

facultative parasite/saprophyte an organism capable of changing its lifestyle, e.g. from saprophytic to parasitic or the reverse.

facultatively aerobic relating to a microorganism that sometimes lives, or a process that sometimes occurs, in the presence of molecular oxygen.

facultatively anaerobic relating to a microorganism that sometimes lives, or a process that sometimes occurs, in the absence of molecular oxygen.

falcate curved like the blade of a scythe or sickle.

fallow refers to fields or soils that are cultivated and kept free from a crop or weeds during the normal growing season.

family a category of classification in plants and animals; above genus and below order.

fascicle a small group or bundle of conidiophores.

fasciculate growing in fascicles.

fastidious having special growth and nutritional requirements; usually in reference to bacteria.

femur (-ora) a segment in the insect leg.

fibrosin bodies straight or slightly curved, dark structures occasionally found in fungal spores, e.g. *Erysiphe cichoracearum.*

field capacity water content of soil after it has been flooded and allowed to drain.

filiform thread-like.

flaccid not stiff; limp.

flagellum (-a) a whip-like appendage of a motile cell.

fleck a small spot.

flexuous flexible; bending in a zigzag manner; wavy.

fluorescence emission of light that is caused by the flow of some form of energy into the emitting body and which ceases abruptly when the flow of energy ceases.

foot cell the basal cell of the macroconidium of *Fusarium* species; also, the basal cell supporting the conidiophore of *Aspergillus* species.

foot rot necrosis of the basal stem, crown, and often the roots.

forma specialis (formae speciales) a category in classification within a species; distinguishable mainly by pathogenicity on specific host plants; abbreviated **f. sp.**

frass an animal artifact; consists of solid excrement or a mixture of excrement and destroyed plant tissues.

fruit body a fungal structure that produces or contains spores.

fumigant a toxic chemical in the form of a gas or a volatile liquid that becomes gaseous upon release; used to disinfest an area or space from pest organisms.

fumigation the practice of injecting a gas or a volatile liquid chemical into soil or other type of growing media; the use of chemicals in gaseous form for the purpose of disinfestation, whether performed in storage areas, in the field under tents, or by direct application to the soil under cover of a tarpaulin or plastic sheet.

fungicide a chemical used to inhibit or kill fungi.

fungistasis the nonlethal inhibition of fungal growth or spore germination.

fungus (-i) a non-photosynthetic (heterotrophic) lower organism composed of hyphae, usually reproducing by spores, and deriving nutrients from other organisms or dead organic matter.

funiculus an ovule stalk in the ovary or fruit or a flowering plant.

fusiform spindle-shaped; tapering toward the ends.

fusoid somewhat fusiform.

G

gall an abnormal growth or swelling of plant tissue caused by certain bacteria, fungi, viruses, insects, mites and nematodes.

gametangium (-ia) cells or structures that fuse to produce sexual cells or spores, e.g. zygospores in Mucorales.

gene a unit within a chromosome organism controlling one or several heritable characteristics.

generation the life of an organism from any given stage in its life cycle to the same stage in its progeny.

genetic relating to heredity; referring to heritable characteristics.

geniculate bent abrubtly at an angle, as in a bent knee.

genome the genetic endowment of an organism; the haploid set of chromosomes.

genus (-era) a category of classification in plants and animals; above species and below family.

germ tube a fungal hypha produced by a germinating spore.

globose spherical or almost so.

Gram-negative bacteria that decolorize and stain with the pink counterstain when treated with Gram's stain.

Gram-positive bacteria that retain the violet stain and do not decolorize when treated with Gram's stain.

granulosis virus (-es) a baculovirus with a single virion embedded in each granular inclusion body.

grub a popular term for the larva of insects such as beetles and moths; thick-bodied, whitish and usually slow moving.

guttation pertains to the exudation of water droplets from plants; occurs particularly along leaf margins through hydathodes.
guttulate containing one or more oil-like drops, e.g. in spores or cells.

H

habitat the natural place of occurrence of an organism.

haploid the state of having unpaired chromosomes.

haustorium (-ia) a modified fungal hypha inside a host cell used for the absorption of nutrients.

head the anterior division of an animal's body.

hectare a unit of measure for an area of land 10 000 m^2 in size; abbreviated **ha.**

herbs the leaves and stems of soft-stemmed plants of which the main stem dies down to the ground at the end of the growing season; occasionally, woody- or semi-woody-stemmed plants, e.g. rosemary, sage and thyme, are considered herbs, used for food flavoring or medicinally; distinguished from spices by their lower content of essential oils and their use to produce delicate or subtle flavors, in contrast to the aromatic flavors imparted by spices; see spices.

heteroecious undergoing different parasitic stages on two unlike hosts, as in the rust fungi.

heterokaryon a cell with two or more genetically different haploid nuclei.

heterothallic existing in two or more self-incompatible mating types, as in many fungi and some algae.

heterozygous having two dissimilar alleles in a diploid cell.

hilum (-s) in plants, a scar on a seed marking the point of detachment from the funiculus; in fungi, a scar or mark on a spore at the point of attachment to a conidiophore or sterigma.

holohlastic pertaining to eggs that undergo total cleavage due to the absence of a yolk mass; a process by which fungal spores are formed from a conidiogenous cell and where both the inner and outer walls of the conidiogenous cell contribute to the formation of a blastoconidium.

homothallic having genetically compatible hyphae; the absence of self- incompatible mating types in a fungal species.

homozygous having two identical alleles in a diploid cell.

honeydew a sugary fluid excreted from the anus of insects such as aphids.

host a living plant or animal from which a parasite obtains its food.

host range all the host species that are subject to attack by a parasite.

hyaline colorless or transparent.

hybrid the offspring of sexual reproduction by two individuals differing in one or more heritable character traits.

hydathode a structure on a leaf with one or more openings that exudes water from the interior onto the surface.

hydrolysis decomposition or alteration of a chemical substance by water; reactions of cations with water to produce a weak base or of anions to produce a weak acid.

hyménium (-ia) the spore-bearing layer of a fungal fruiting body, especially of ascomycetes and basidiomycetes.

hyperplasia increase in cell number causing an increase in the size of a tissue or organ.

hypersensitive extremely or excessively sensitive; having a type of resistance resulting from extreme sensitivity to a pathogen.

hypertrophy excessive growth or abnormal cell enlargement.

hypha (-ae) a vegetative filament of a fungus.

hypocotyl the portion of a stem below the cotyledon.

hypodermis the outermost cell layer of the cortex of plants, also known as the exodermis; the layer of cells that underlies and secretes the cuticle in anthropods and some other invertebrates.

hypophyllous located or growing on the lower surface of a leaf.

I

ilarvirus a group of viruses of which the type member is tobacco streak virus.

imago (-s) see **adult.**

imperfect state or **stage** see **anamorph.**

imperfect fungus (-i) see **imperfect state.**

incipient an unnoticeable or hidden stage early in the progression of a disease.

infect to enter and colonize a host.

infection the establishment of a pathogen within a host.

infectious disease a pathogen-induced disease that can spread to a healthy plant.

infective capable of infecting a host.

infest to be present in or on a substrate or area; usually implies large numbers of a pest organism.

inoculate to bring a pathogen into contact with a host plant or plant part.

inoculation the transfer of a pathogen to a host.

inoculum (-a) any infectious material; a pathogen or its parts that can cause infection.

inoculum potential the energy or potential of inoculum to cause disease.

insect an arthropod with three main body divisions and three pairs of legs in the adult stage.

insecticide a chemical or other agent used to control insects.

instar a developmental period between molts of the larval or nymphal stage in immature insects; numbered from beginning to end as first instar, second instar, etc.

integrated control a management strategy that makes use of any or all available methods to control a disease or pest, or to control all the diseases and pests of a crop, at the lowest cost and with the least damage to the environment.

intercalary being along and within a fungal hypha rather than at the ends of the hypha.

intercellular between cells.

internode a portion of a stem between the nodes.

intracellular within a cell or cells.

intumescence production of blisters on leaves, usually under conditions of high moisture and restricted transpiration.

invasion the spread of a pathogen or pest into a host or crop.

invertebrate animals without an internal bony skeleton.

in vitro in artificial culture

in vivo in real life; in nature.

isolate a culture of a microorganism, and usually the subcultures derived from it; also, a collection of a pathogen made at a specific time.

isolation pertains to the separation of an organism from its substrate or habitat, and the culture of same on a nutrient medium.

isometric the variation of pressure with temperature when the volume of the substance is held constant.

isometric particle a virus particle with all sides of equal length; appears spherical when viewed with an electron microscope.

K

kingdom the highest category in the classification of living organisms.

L

lacuna a small space or depression.

lageniform flask-shaped.

lamellae thin scales, plates or membranes, e.g. the hymenium-covered vertical plates on the underside of the cap of a mushroom.

lamina a thin sheet or layer of tissue; a scale-like structure; the blade of a leaf.

larva (-ae) a developmental, immature stage in invertebrate animals; worm-like, with or without legs; occurs between the egg and pupa in certain insects.

latent infection the state in which a host is infected with a pathogen but symptoms are not apparent.

lenticel a loose-structured opening in the periderm beneath the stomata in the stem of many woody plants and in potato tubers that facilitates gas transport.

lesion localized area of diseased tissue.

lethal dose a statistic about a toxicant; usually given as the amount of active ingredient needed to kill a given proportion of an animal or pathogen population; for example, the **LD 50** value refers to the amount required to kill 50% of individuals exposed to it.

leucoplast a nonpigmented plastid, capable of developing into a chromoplast.

life cycle the series of changes undergone by an organism from fertilization or spore formation to death.

lipolytic capable of dissolving fat; fat-reducing.

locule a cavity, especially in the stroma of an ascomycete.

looper a moth larva that lacks some of the abdominal prolegs, causing the body to arch when moving.

LOPAT test a series of tests used to distinguish between pathogenic and non-pathogenic fluorescent pseudomonad bacteria; L- levan production, 0 - oxidase positive, P - potato rot, A - arginine dihydrolase positive, and T - hypersensitivity on tobacco.

lunate like a new moon; crescent-shaped.

luteovirus a group of viruses of which the type member is barley yellow dwarf virus.

M

macroconidium (-ia) the larger, septate and generally more diagnostic conidium of a fungus, which also produces microconidia; a long, large conidium.

macrocyclic a rust fungus having binucleate urediniospores as well as teliospores and sporidia; having a life cycle that is long or complex.

macroscopic visible to the naked eye without the aid of a magnifying lens or microscope.

maggot a fly larva that lacks legs and has no apparent head.

mating types morphologically identical forms of a fungus that are sexually self-incompatible but can interact to produce sexual spores.

matric potential a measure of the water content of soil; measured in bars or atmospheres.

matrix intercellular substances in which cells are embedded.

medium (-ia) an artificial food or substrate on which an organism can be grown.

medulla pith; central core of usually parenchymatous tissue in those stems in which the vascular tissue is in the form of a cylinder; functioning in food storage; may occur in some roots where central tissue develops into parenchyma instead of xylem.

meiosis sexual or reduction division of cell nucleus whereby chromosome number is halved.

meiotic pertaining to meiosis.

melanin dark brown pigment in which different concentrations give brown and yellow coloration.

meristem localized region of active cell-division in plants from which permanent tissues are derived.

metabasidium the developmental stage of a basidium in which meiosis occurs.

microconidium (-ia) a smaller, usually nonseptate conidium of a fungus also having macroconidia.

microorganism any organism of microscopic size.

microsclerotium (-ia) a very small sclerotium.

microscopic visible only with the aid of a magnifying lens or microscope.

midrib large central vein of a leaf.

millipede arthropods with a head and an undifferentiated body consisting usually of more than 20 segments, many of which have two pairs of legs; cylindrical, coiling when disturbed.

mite arthropods with two main body divisions and usually four pairs of legs in the adult stage, related to spiders and ticks; microscopic.

miticide see **acaricide.**

mitosis asexual or duplication division of chromosomes.

mitotic pertaining to mitosis.

molar solution a solution that contains one mole (gram-molecular weight) of solute in one liter of the solution; abbreviated M.

mold (syn. mould) any fungus that produces conspicuous spores or profuse or woolly mycelium on the outer surface of a host or substrate.

mollusc invertebrate animals that may or may not have an external shell; includes terrestrial slugs and snails.

molluscicide a chemical or other agent used to control molluscs.

molt a process in an animal's life cycle when old epidermis is shed, usually but not always before entering another stage of growth and development.

moniliform having swellings at regular intervals like a string of beads.

monoclinous having the antheridium on the oogonial stalk.

monocotyledon a plant with one cotyledon, e.g. grasses, small grain cereals and corn.

monoculture exclusive production of a single crop.

monogenic resistance resistance determined by a single gene.

monokaryon a cell containing one haploid nucleus.

monokaryotic pertaining to a monokaryon.

monophialide a conidiogenous cell from which a basipetal succession of conidia develop without an increase in length of the phialide itself.

montmorillonite a group name for all clay minerals with an expanding structure, except vermiculite.

mosaic pattern of light and dark green or yellow areas, as in a leaf.

multitrichous having many hairs.

muriform resembling the arrangement of courses in a brick wall, e.g. fungal spores having both horizontal and vertical septa.

myceliogenic forming or growing as mycelium.

mycelium (-ia) a collective term for fungal hyphae.

mycoplasma (-s) a popular term for an organism that is Gram negative, generally non-sporing, non-motile, lacking a cell wall, and resembling a bacterium; usually occurs in association with vertebrates, often as a pathogen; belongs to the class Mollicutes.

mycoplasma-like organism similar to a mycoplasma but not fully understood; a term applied to certain fastidious prokaryotic plant pathogens capable of causing "yellows" type diseases; formerly thought to be viruses with unusual characteritics but now thought to be unique; occurring in phloem sieve cells; transmitted by and propagated in insects, particularly leafhoppers; abbreviated MLO.

mycorrhiza (-e) a symbiotic association of a fungus with the roots of a plant that is beneficial to both organisms.

mycotoxin a toxin produced by certain fungi.

N

necrosis death of cells; in plants, often associated with loss of color or with darkening or discoloration of tissues.

necrotic pertaining to (causing or undergoing) necrosis.

necrotroph a parasite that derives its energy from dead cells of the host.

nematicide a chemical or other agent used to control nematodes.

nematode invertebrate animals that live in water or soil as saprophytes or as endo- and ectoparasites of plants; generally worm-like and microscopic.

neoplasm (-s) a tumor; abnormal localized multiplication of a cell.

non-acid-fast bacteria see **acid-fast bacteria.**

non-infectious disease a disease that is caused by an environmental factor, not by a pathogen.

non-persistent transmission a form of virus transmission in which the virus remains transmissible for a short period, e.g. hours or days, while in association with its vector.

nucleic acid an acidic substance in the cell nucleus having to do with heredity by being duplicated and passed from one generation to the next.

nucleotide a compound composed of an organic phosphate, a pentose sugar, and a nitrogen base; the structural units of DNA and RNA.

nutrient film technique a form of crop culture that requires no soil and recycles a balanced supply of nutrients and oxygen in water; abbreviated **NFT.**

nymph a developmental, immature stage in insects that do not have a larva; occurs between the egg and adult; adult-like, but lacking fully developed wings and sex organs.

O

obclavate inversely clavate; widest at the base.

obligate parasite a parasite that, in nature, can grow and multiply only on or in a living host.

obovate inversely egg-shaped; the narrow end is usually attached to a stalk, e.g. some leaves or spores.

obovoid inversely ovoid; roughly egg-shaped with the narrow end downward.

obpyriform inversely pear-shaped; attached at the base or with the wider end downward.

obtuse rounded or blunt.

oedema see **edema.**

oogonium (-ia) the female gametangium of oomycete fungi; contains one or more oospheres.

oomycete a category of fungi, the Mastigomycotina; produces oospores and biflagellate zoospores.

oospore a diploid fungal resting spore; develops in the oomycetes as a thick-walled resting stage arising from the fertilized oosphere.

order a category of classification in plants and animals, above the family and below the phylum.

osmosis a diffusion that takes place between two miscible liquids through a permeable membrane.

ostiole a pore-like opening in perithecia, pycnidia and pseudothecia through which spores escape.

oviposition the act of laying eggs.

ovipositor egg-laying structure(s) in certain insects.

ovule a structure in the ovary of a seed plant that develops into a seed after fertilization.

oxidation the combining of oxygen with or the removal of hydrogen from an element or compound.

ozone a highly reactive form of free oxygen that consists of three oxygen atoms; may cause plant injury, even at very low concentrations.

P

papilla (-ae) a small, rounded process.

papillate having or covered with papillae.

papulaspore a large multicellular asexual spore, e.g. in *Papulaspora sepe- doniodes.*

paragynous having the antheridium at the side of the oogonium.

paraphysis (-es) a sterile, upward growing, basally attached hyphal element in a hymenium.

parasexual recombination genetic recombination other than by means of the alternation of karyogamy and meiosis that is characteristic of sexual reproduction.

parasite an organism that lives on or in a plant or animal host, harming and sometimes killing the host.

parenchyma a tissue of higher plants consisting of living cells with thin walls that are agents of photosynthesis and storage; abundant in leaves, roots, and the pulp of fruit, and found also in stems.

parthenogenesis refers to eggs that develop without fertilization in some aphids, beetles, wasps and other insects, and in some nematodes.

pathogen an infective agent; any living organism that incites disease.

pathogenicity the capacity of a pathogen to cause disease.

pathovar a category in bacterial classification below the level of species that is characterized by pathogenic reaction in one or more hosts; pathotype.

pectin a carbohydrate in cell walls often extracted from the inner portion of the rind of citrus fruits, or from apple pomace; consists chiefly of partially methoxylated polygalacturonic acids.

pectolytic capable of degrading pectin through enzyme activity, e.g. pectinase and pectase.

pedicel the stem of a fruiting or spore-bearing organ.

pedicellate having a pedicel.

peduncle a flower-bearing stalk; also a stalk supporting the fruiting body of certain thallophytes.

penicillate having a tuft of fine hairs; brush-like.

percurrent growing through in the direction of the long axis, as in a conidial germ tube emerging through the hilum or as a proliferation through the tip of a conidiogenous cell.

perennial a plant that can survive continuously for three or more years.

perfect state see **teleomorph.**

periderm a group of secondary tissues forming a protective layer that replaces the epidermis of many plant stems, roots, and other parts; composed of cork cambium, phelloderm, and cork; in animals, the superficial transient layer of epithelial cells of the embryonic epidermis.

perithecium (-ia) a fungal ascocarp; flask-like with an ostiole.

peritrichous having hairs or flagella all over the surface.

persistent transmission a form of virus transmission in which the virus remains transmissible for a prolonged period, i.e. several weeks, while in association with its vector.

pest any living organism that is undesirable and of economic concern.

pesticide any substance or mixture of substances that is used to kill or manage pests.

petiole the stalk of a leaf.

pH an expression of the degree of acidity or alkalinity of a solution, where the hydrogen ion concentration changes by a factor of ten for each unit of change on a scale of 0 to 14; see **acidic** and **alkaline.**

phenology study of periodic and developmental biotic events, e.g. flowering, migration, etc., in relation to climate and other factors.

pheromone a volatile substance that insects secrete; usually active at very low concentrations; affects the behavior of other members of the same species.

phialide a conidiogenous cell that develops one or more open ends from which a basipetal succession of conidia develops without an increase in length of the phialide itself.

phialidic the sort of enteroblastic conidiogenesis in which each conidium is delimited by a new wall that is not derived from existing walls or layers of the wall of the conidiogenous cell.

phialoconidium (syn. phialospore) a conidium produced on a phialide.

phloem the food-conducting tissue of a vascular plant, consisting of sieve tubes, companion cells, parenchyma cells and fibers.

photosynthesis formation of sugars in plants from carbon dioxide and water under the influence of light and dependent upon chlorophyll.

phyllody change of floral organs to leaflike structures.

phylum (-a) a category of classification in plants and animals, above order and below kingdom.

phytophagous plant-feeding animals, such as certain insects, mites, millipedes, molluscs, and nematodes.

phytotoxic the capacity to harm or kill plants.

pileus (-ei) the umbrella-shaped upper cap of mushrooms and other basid- iomycete fungi.

pinnule the secondary branch of a plume-like or pinnate organ.

pionnote a spore mass having a fatty or grease-like appearance, e.g. in some *Fusarium* species.

plasmid an extrachromosomal genetic element found in various strains of bacteria.

plasmodium (-ia) a multinucleate, motile mass of protoplasm, generally reticulate and lacking a firm wall; characteristic of the growth phase of myxomycete fungi.

plastid a small, specialized body in the cytoplasm of a plant cell that is the site of activities such as food manufacture and storage.

pleomorphic variable in shape; in fungi, having more than one spore state.

polyhedrosis virus a baculovirus with several virions embedded in a multi-sided inclusion body.

polypore members of the family Polyporaceae, a group of wood-decaying fungi.

polysaccharide a carbohydrate composed of many monosaccharides.

potexvirus a group of viruses of which the type member is potato virus X.

potyvirus a group of viruses of which the type member is potato virus Y.

predator an animal that kills and feeds on other animals, consuming many of its prey in its lifetime.

predisposed prone to infection because of some specific environmental factor.

prepupa (-ae) a developmental stage in insects; a fully fed larva, usually quiescent, before molting to the pupal stage.

primary root the first root that develops from a seed.

primary inoculum (-a) the inoculum of a pathogen that causes primary infection of a plant or crop.

primary infection the first infection of a plant by the overwintering or oversummering inoculum of a pathogen.

primordium (-ia) the earliest stage of development of an organ.

proboscis (-es) a set of protruding mouthparts in sucking insects.

prokaryote an organism lacking membrane-limited nuclei and not exhibiting mitosis, e.g. in bacteria.

proleg a fleshy leg on the abdominal body segments of an insect larva; bilaterally paired.

promycelium the germ tube of the teliospore (Uredinales) or ustilospore (Ustilaginales) from which promycelial spores (sporidia) are produced.

propagule a reproductive structure, e.g. a spore or vegetative part capable of dissemination and able to germinate or propagate.

propupa (-ae) a developmental stage in thrips before becoming a pupa; non-feeding, usually quiescent but capable of movement.

protectant a substance that inhibits or prevents infection.

proximal nearer the main body or point of attachment.

pseudoparaphysis (-es) a fungal structure resembling a paraphysis.

pseudoparenchyma fungal tissue resembling parenchyma.

pseudosclerotium (-ia) a fungal structure resembling a sclerotium, often containing remnants of decayed host tissue and substratum such as soil or stones.

pseudostroma (-ata) a stroma of fungal tissue and remnants of host tissue.

pseudothecium (-ia) a fungal ascocarp resembling a sexually derived perithecium; an ascostromatic ascocarp having asci in numerous, unwalled locules, as in the Loculoascomycetes.

pulvinus a cushion-like enlargement of the base of a petiole which functions in turgor movements of leaves.

pupa (-ae) a developmental, immature, non-feeding stage in insects with a larval stage; occurs between the larva and adult stages; often capable of limited movement; may be in a covering or cocoon.

puparium (-ia) a pupa that forms inside the last larval body without it molting, such as in flies and whiteflies.

pustule an eruption on the exterior of a host usually containing spore masses of the pathogen.

pycnidiospore a conidium formed in a pycnidium.

pycnidium (-ia) a flask-like asexual (anamorphic or conidial) fungal fruiting body.

pycniospore a haploid spermatium formed in a pycnium, i.e. in the Uredinales.

pycnium (-ia) a fungal fruiting body containing pycniospores and arising from basidiospore infection, e.g. in the Uredinales.

pyriform pear-like in form; attached at the narrowest end or with the narrow end down.

Q

quarantine human intervention to prevent the spread of diseases and pests by exclusion or enforced isolation.

quiescent inactive, latent or dormant; often referring to disease or a pathological process.

R

race a category of classification in plants and animals below the species and subspecies level; a genetically distinct group of a plant pathogen specific to one or several plant cultivars.

racemose bearing flowers or structures in clusters (racemes).

rachilla (-e) the axis of a grass spikelet.

radicle the main root(s) of a germinating seedling.

ramoconidium (-ia) an apical branch of a conidiophore that secedes and functions as a conidium, as in *Cladosporium***.**

ramulus (-i) a small branch.

recessive an allele that is not expressed phenotypically when present in the heterozygous condition.

recurvate bent backwards.

repellent a chemical that drives pests away from a treated object or area.

resistance the ability of an organism to withstand attack.

resting spore a thick-walled spore of a fungus which is resistant to extreme conditions of temperature and moisture, and which often germinates only after a period of dormancy.

rhizomes underground horizontal stems, often thickened and tubershaped, and possessing buds, nodes, and scale-like leaves.

rhizosphere that part of the soil occupied by living roots and in which the activity of microorganisms is increased.

RNA ribonucleic acid; a long chain, usually single-stranded nucleic acid consisting of repeating nucleotide units containing four kinds of hetero

cyclic organic bases: adenine, cytosine, guanine, and uracil; involved in intracellular protein synthesis.

rogue removing diseased or atypical plants from a crop.

rostrate beaked.

rot softening, discoloration and often disintegration of plant tissue as a result of fungal or bacterial infection.

rotation growth of different kinds of crops in succession in the same field.

russet an area on a plant surface that is brownish and roughened due to cork formation.

rust a type of fungus (Uredinales); the disease caused by one of the rust fungi.

S

sanitation the removal of infected plant residue; the decontamination of tools, equipment, hands and clothing.

saprophyte an organism that utilizes dead or decaying plant material as its food.

saprotroph an organism that utilizes dead or decaying organic matter for its food.

scab a roughened crust-like area on a plant surface; a disease that causes such areas to form.

scion a section of a plant, usually a stem or bud, which is attached to the stock in grafting.

sclerotioid resembling a sclerotium.

sclerotium (-ia) a mass of fungal mycelium that serves as a resting stage; often hard and compact.

scorch the burned appearance of leaf margins caused by infection or unfavorable environmental conditions.

secondary root a root that develops from a crown or node.

secondary infection infection subsequent to primary infection which is caused by secondary inoculum and usually involving spatial dissemination of the pathogen.

secondary inoculum (-a) the inoculum that spreads disease within a crop, arising from a primary infection during the same season.

secondary organism an organism that multiplies in already diseased tissue but is not the primary pathogen.

sedentary stationary; staying in one place.

seed leaf see **cotyledon.**

seed piece a portion of a potato tuber that is planted to produce a new plant; contains at least one bud eye.

seed treatment application of a biological agent, chemical substance or physical treatment to seed, to disinfect; to disinfest or protect seed or plant from pathogens or to stimulate germination of the seed or growth of the plant.

selective medium a culture medium suitable for the isolation of one or a few kinds of microorganisms.

senesce to age.

sepal one of the structures composing the calyx.

septate having cross walls.

sessile attached directly to a branch or stem without an intervening stalk; the condition of a plant or fungal structure lacking a stalk or stem.

seta (-ae) a hair-like structure.

sexual state see **teleomorph.**

siemens a unit of conductance; equal to the conductance between two points of a conductor such that a potential difference of one volt between these points produces a current of one ampere; abbreviated **S**.

skeletonize feeding that removes most of the interveinal tissue of a leaf.

slug terrestrial mollusc with no apparent or a much reduced external shell.

smut a type of fungus with dark powdery spores; the disease produced by smut fungi (Ustilaginales).

snail mollusc with an external shell; may be aquatic or terrestrial.

solarization the practice of covering the soil with a transparent plastic sheet to trap heat from the sun, thus warming the soil; used to reduce the population of certain pathogens, such as nematodes and fungi.

sorus (-i) a fungal spore mass, as in rusts and smuts.

spawn-run the colonization of compost by mushroom spawn.

species a category of classification in plants and animals, theoretically referring to a group of similar individuals capable of interbreeding; below genus and above subspecies; abbreviated **sp.** (singular) or **spp.** (plural).

spermagonium (-ia) a walled structure in which spermatia are produced, as in ascomycetes and rust fungi (= pycnium).

spermatium (-ia) a haploid fungal cell usually produced in a spermagonium; functions sexually.

spices dried plant products used primarily to season food, including "true spices" (e.g. pepper, cinnamon, nutmeg), potent herbs (e.g. basil, marjoram), aromatic seeds (e.g. sesame, cardamon), blends (e.g. pumpkin pie spice) and dehydrated vegetables (e.g. onion, garlic); see herbs.

spiracle a breathing pore on the surface of the body in insects; usually lateral and bilaterally paired.

sporangiophore a specialized hypha, bearing one or more sporangia.

sporangium (-ia) a fungal fruiting body that is usually microscopic; contains one or more endogenous, asexual spores, e.g. in the Myxomycètes and Mastigomycotina.

spore a fungal reproductive structure, one- or many-celled.

sporidium (-ia) a basidiospore of rust and smut fungi.

sporodochium (-ia) a superficial, cushion-like fruiting body or conidioma bearing conidiophores on its surface.

sporogenous producing spores.

sporophyte the diploid or asexual phase in the life cycle of a higher plant.

sporulate to produce spores.

stadium (-ia) see **stage.**

stage a developmental period in the life of an arthropod, e.g. the egg stage, larval stage, pupal stage, and adult stage.

stele the part of a plant stem including all tissues and regions from the cortex inward, including the pericycle, phloem, cambium, xylem and pith.

sterigma (-ta) a slender stalk arising from the basidium of some fungi, on the top of which basidiospores are formed.

sterilization the elimination of pathogens or other living organisms from a substrate, such as soil or containers, by means of heat, chemicals or irradiation.

stipe a stalk.

stipitate stalked.

stolon a creeping stem or runner capable of forming roots and stems, and ultimately a new individual; hyphae produced above the surface and connecting groups of sporangiophores.

stoma (-ata) a specialized opening in the plant epidermis.

stomate see **stoma.**

strain a distinct form of an organism or virus within a species, differing from other forms of the species biologically, physically or chemically.

stroma (-ata) a compact mycelial structure on or in which fungal reproductive structures usually are formed.

stylet a slender feeding structure in some nematodes and some insects, e.g. aphids and whiteflies.

suberization infiltration of plant cell walls by suberin resulting in the formation of corky tissue that is impervious to water.

suberin a complex mixture of oxidation and condensation products of fatty acids present in walls of cork cells, rendering them impervious to water.

subglobose approximately spherical.

subobclavate approximately obclavate.

subspecies a category of classification in plants and animals; below the level of species; abbreviated **subsp.** (singular) or **subspp.** (plural).

substomatal situated beneath the stomata of plant epidemis; often in association with a chamber or cavity.

substrate the substance on which an organism lives or from which it obtains nutrients; chemical substance acted upon, often by an enzyme.

subulate awl-shaped; narrow and tapering from a base to a fine point.

susceptible lacking the ability to resist disease or attack by a given pathogen.

sympodial a continuation of growth of a conidiogenous cell, after the main axis has produced a terminal spore, by developing a succession of new apices, each of which originates below and to one side of the previous apex.

symptom any external or internal sign of disease in a plant.

synanamorph applied to any one of the two or more anamorphs which have the same teleomorph.

synnema (-ata) (syn. coremium) a group of conidiophores, usually united, that bear conidia.

synonym a term in biological nomenclature referring to another, usually previously used name for the same organism; abbreviated **syn.**

systemic spreading from within, throughout the entire body; applies to a pathogen or chemical in a host.

T

tassel the male inflorescence of corn and certain other plants.

teleomorph that part of the life cycle of a fungus in which sexual spores, i.e. ascospores or basidiospores, are produced.

teliospore a spore produced by some basidiomycete fungi, primarily the Uredinales, often with a thick, dark wall; sometimes a resting or overwintering stage that gives rise to a basidium; dikaryotic at first, with the nuclei fusing and undergoing meiosis before spore germination; the “black” stage of rust fungi.

telium (-ia) a sorus producing teliospores.

teneral the state of being incompletely hardened or darkened, as in insects after molting.

teratogenic causing morphological malformations or monstrosities.

testa a seed coat.

thallophyte a thallus plant, e.g an alga, bacterium or fungus; a member of the Subkingdom Thallophyta.

thallus a plant body that is not differentiated into special tissue systems or organs and may vary from a single cell to a complex, branching, multicellular structure.

thorax (-ces) the middle division of an insect body.

threshold a level beyond which an activity begins or ceases.

Ti-plasmid a tumor-inducing plasmid found naturally in the gall-producing bacterium *Agrobacterium tumefaciens.*

tiller side shoot arising at ground level.

tissue a group of cells of similar structure and function.

tobamovirus a group of viruses of which the type member is tobacco mosaic virus.

tolerance according to law the allowable amount of toxic residue in, or on, an edible plant or plant part on the allowable percentage infection of pedigree seed on certified potato tubers with a pathogen; the ability of a plant to sustain attack by a pathogen or other organism without suffering heavy yield loss.

torulose cylindrical but having swellings at intervals; moniliform.

toxic poisonous; producing injury.

toxicant the poisonous chemical or agent in a formulated product.

toxicity the capacity of a compound to produce injury.

toxin a poisonous substance.

transmission the spread of an infective agent from one host individual to another.

transovarial through the ovary.

transpiration water loss by evaporation from leaf surfaces and through stomata.

trichome an appendage derived from the protoderm in plants, including hairs and scales.

true leaf any leaf produced after the cotyledons.

truncate abbreviated at an end, as if cut off.

turgid a state in which the cell wall is rigid, stretched by an increase in volume of cellular contents due to the absorption of water.

U

umbel an indeterminate inflorescence with the pedicels all arising at the top of the peduncle and radiating like umbrella ribs; there are two types, simple and compound.

umbonate having or forming a rounded or conical protuberance.

undulate to move in waves; wave-like in outline.

unilocular having a single cavity.

uniseriate in one row.

urediniospore (syn. urediospore) an asexual spore produced by rust fungi; binucleate, summer or "red" stage of rust fungi.

uredinium (-ia) (syn. uredium) a sorus producing urediniospores.

V

vacuole a membrane-bound cavity within a cell; may function in digestion, storage, secretion or excretion.

variety the taxon below subspecies; a group that distinctly differs from other varieties within the same subspecies.

vascular pertains to the conductive tissue or region of conductive tissue of a plant.

vascular pathogen a pathogen that grows primarily in the conducting tissues of a plant.

vector an organism that carries and transmits a pathogen from one host to another.

vegetative pertains to the somatic, non-reproductive growth stage of plants.

vein a vascular bundle in a plant leaf or the rib-like vessels in the wing of an insect.

ventral pertains to the lower or underside.

verrucose having the surface covered with wartlike protuberances.

verruculose delicately verrucose.

verticil a whorl, an arrangement resembling spokes of a wheel.

vessel a xylem element or series of such elements; functions to conduct water and mineral nutrients.

virescence the abnormal greening of floral parts.

virion a complete virus particle.

viroid (-s) the smallest known infective agent of plants, consisting of a short strand of ribonucleic acid with no protein coating; unable to multiply outside of living plants and unable to persist in the soil or in any kind of resting stage outside of a living host.

virulence the ability of a particular race or strain of a given pathogen to attack a host cultivar; the severity of attack on the plant.

virulent causing a disease; being pathogenic.

viruliferous carrying virus particles, as in an aphid.

virus (-es) an infective agent consisting of genetic material within a protein coat; unable to multiply outside of living plants or animals and unable to persist in the soil or in any kind of resting stage outside of host tissue.

W

water potential a measure of water content of soil and tissues based on the energy level of the water relative to pure water.

water-soaked a disease symptom in which the host tissue appears wet and dark or somewhat translucent.

wilt drooping or loss of turgidity of plants or plant parts due to insufficient water.

wing pad the undeveloped, encased wing of a nymphal insect; bilaterally paired.

witches'-broom an abnormal cluster of small branches, twigs or roots that grow as a result of attack by fungi, viruses, dwarf mistletoes or insects.

X

xylem the plant tissue involved in water conduction and which consists of tracheids, vessels, parenchyma cells and fibers.

Y

yellows a plant disease characterized by yellowing and stunting of the host; often associated with mycoplasma-like organisms.

Z

zonate having concentric lines, often forming alternating pale and darker zones near the margins.

zoosporangium (-ia) a sporangium producing zoospores.

zoospore a motile asexual fungal spore bearing flagella and capable of movement in water.

zygospore the resting spore of zygomycetes resulting from the conjugation of similar sex cells (isogametes) or by the fusion of like gametangia, as in the Zygomycetes.