Glossary

Achene — The sunflower fruit consisting of hull and "seed;" a small, dry, one-seeded fruit that does not open at maturity.

Apothecium (pl. apothecia) — Cup- or saucer-shaped fruiting structure of some fungi.

Ascospore — Fungal spore borne in a structure within the apothecium.

Annuala — Plant in which the entire life cycle is completed in a single growing season.

Bract — Modified, reduced leaf structure beneath ray flowers on sunflower head.

Canker — Sharply defined dead area of tissue on stem.

Corolla — Collective term for petals of the sunflower.

Cytoplasmic Male Sterility — Male sterility inherited through hereditary units in the cytoplasm, rather than through nuclear inheritance.

Defoliate — To remove leaves of a plant.

Dehull — Removal of outer seed coat (hull) from the "seed."

Depredation — A plundering or despoiling; robbery.

Desiccant — A dry-down or defoliating chemical.

Disk Flower — Tubular flowers that compose the central part of the sunflower head; produce the seeds.

Fungicide — A chemical or physical agent that kills fungi.

Fungus (pl. fungi) — A group of organisms that lack chlorophyll and that obtain food through absorption, frequently from plants.

Herbicide — A chemical or physical agent that kills plants.

High Oleic — Oilseed sunflower that contains a trait for high oleic fatty acid content in its oil. A premium oil used in the snack food industry.

Host — The organism affected by a parasite or disease.

Hybrid — The offspring of two unlike parents.

Insecticide — A chemical or physical agent that kills insects.

Instar — Any stage of insect development; larval growth stage.

Involucral Bract — An individual bract within a distinct whorl of bracts that subtend the flowering part of a plant.

Kernel — Term used for true seed in processing, preferred to "nutmeat." The sunflower seed is neither "nut" nor "meat."

Larva (pl. larvae) — The preadult form of an insect.

Nonoilseed — Preferred term, equivalent to nonoil sunflower or confectionery sunflower.

NuSun — Term that describes the new mid-oleic sunflower oil. It is lower in saturated fat (less that 10 percent) than linoleic sunflower oil and has higher oleic levels (55 percent to 75 percent) with the remainder being linoleic (15 percent to 35 percent)

Oilseed — Preferred term, equivalent to oil sunflower.

Open Pollinated — Naturally pollinated by selfing or crossing between two related strains.

Perennial — A plant that continues its growth from year to year, not dying after once flowering.

Petiole — The stalk of the leaf.

pH — Expression of acidity or alkalinity of soil or water.

Physiological Maturity — Stage at which a seed has reached its maximum dry weight.

Pollinator — Insect that carries pollen from plant to plant.

Pupa (pl. pupae) — The stage between larva and adult in some insects.

Ray Flower — Flattened, ray shaped flowers on margins of sunflower head. Commonly referred to as the petals. These are sterile and do not produce achenes.

Receptacle — Fleshy, thickened part of sunflower head just above the stem that bears the flower parts.

Sclerotium (pl. sclerotia) — The hard, resting bodies of certain fungi.

"Seed" — True seed in sunflower is the kernel; however, "seed" commonly is used to describe the kernel plus hull, which is equivalent to the achene.

Self Compatability — Production of fruits and normal seeds following self pollination.

Sporea — Reproductive structure of fungi.

Sunflower — The preferred term, equivalent to sunflowers.

Sun Oil — The preferred term, equivalent to sunflower oil, sunflower seed oil.

Variety — A subdivision of a species; a distinct group of organisms.

Volunteer Plant — Plant arising from seed dispersed from a previous crop.

Appendix 1

Diseases of Sunflower (Oilseed, Confection and Ornamental)

(Helianthus annuus L.)

BACTERIAL DISEASES

Apical chlorosis
Pseudomonas syringae pv. tagetis (Hellmers) Young et al.

Bacterial leaf spots
Pseudomonas syringae pv. aptata (Brown and Jamieson)Young et al.
P. cichorii (Swingle) Stapp
P. syringae pv. helianthi (Kawamura) Young et al.
P. syringae pv. mellea (Johnson) Young et al.

Bacterial wilt
Pseudomonas solanacearum (Smith) Smith

Crown gall
Agrobacterium tumefaciens (Smith and Townsend) Conn

Bacterial stalk rot
Erwinia carotovora subsp. *carotovora* (Jones) Bergey et al.
E. carotovora subsp. *atroseptica* (van Hall) Dye

FUNGAL DISEASES

Alternaria leaf blight, stem spot and head rot
Alternaria alternata (Fr.:Fr.) Keissl. = *A. tenuis* Nees
A. helianthi (Hansf.) Tub. and Nish. = *Helminthosporium helianthi* Hansf.
A. helianthicola Rao and Rajagopalan
A. helianthinficiens Simmons et al.
A. protenta Simmons
A. zinniae M.B. Ellis

Charcoal rot
Macrophomina phaseolina (Tassi) Goidanich
= *Sclerotium bataticola* Taubenhaus
= *Rhizoctonia bataticola* (Taubenhaus) E.J. Butler

Downy mildew
Plasmopara halstedii (Farl.) Berl. and De Toni in Sacc.

Fusarium stalk rot
Fusarium equiseti (Corda) Sacc. = (teleomorph: *Gibberella intricans* Wollenweb.)
F. solani (H. Mart.) Sacc.
= (teleomorph: *Nectria haematococca* Berk. and Broome)
Microdochium tabacinum (Van Beyma) Arx
= *Fusarium tabacinum* (Van Beyma) Gams
= (teleomorph: *Monographella cucumerina* (Lindfors) Arx)

Fusarium wilt
Fusarium moniliforme J. Sheld.
= (teleomorph: *Gibberella fujikuroi* (Sawada) Ito in Ito and K. Kimura)
F. oxysporum Schlechtend.:Fr.

Gray mold
Botrytis cinerea Pers.:Fr.
= (teleomorph: *Botryotinia fuckeliana* (de Bary) Whetzel)

Leaf smut	*Entyloma compsitarum* Farl. = (anamorph: *Cercosperella columbrina* Ell. and Ever.
Myrothecium leaf spot	*Myrothecium roridum* Tode:Fr. *M. verrucaria* (Albertini and Schwein.) Ditmar:Fr.
Petal blight	*Itersonilia perplexans* Derx.
Phialophora yellows	*Phialophora asteris* (Dowson) Burge and Isaac
Phoma black stem	*Phoma macdonaldii* Boerema = (teleomorph: *Leptosphaeria lindquistii* Frezzi) = *P. oleracea Sacc.* var. *helianthi-tuberosi* Sacc.
Phomopsis stem canker	*Phomopsis helianthi* M. Muntanola-Cvetkovic et al. = (teleomorph: *Diaporthe helianthi* M. Munt.Cvet. et al.)
Phytophthora stem rot	*Phytophthora* spp. *P. drechsleri* Tucker
Powdery mildew	*Erysiphe cichoracearum* DC. = (anamorph: *Oidium asteris-punicei* Peck) *E. cichoracearum* DC. var. *latispora* U. Braun (anamorph: *Oidium latisporum* U. Braun) *Leveillula compositarum* Golovin *f. helianthi* *L. taurica* (Lév.) G. Arnaud (anamorph: *Oidiopsis sicula* Scalia) *Sphaerotheca fuliginea* (Schlechtend.:Fr.) Pollacci
Pythium seedling blight	*Pythium* spp. *P. aphanidermatum* (Edson) Fitzp. *P. debaryanum* Auct. non R. Hesse *P. irregulare* Buissman
Rhizoctonia seedling blight	*Rhizoctonia solani* Kühn (teleomorph: *Thanatephorus cucumeris* (A.B. Frank) Donk)
Rhizopus head rot	*Rhizopus arrhizus* A. Fischer = *R. nodosus* Namyslowski *R. microsporus* Tiegh. *R. stolonifer* (Ehrenb.:Fr.) Vuill = *R. nigricans* Ehrenb.
Rusts	
(common sunflower rust)	*Puccinia helianthi* Schwein.
(cocklebur rust)	*P. xanthii* Schwein.
(nutsedge rust)	*P. canaliculata* (Schw.) Lagerh.
(unnamed rusts)	*P. massalis* Arthur, *P. enceliae* Diet. and Holw.
Pine needle rust	*Coleosporium helianthi* (Schwein.) Arth.
Sclerotinia basal stalk rot and wilt, mid-stalk rot, head rot	*Sclerotinia sclerotiorum* (Lib.) de Bary
Sclerotinia basal stalk rot and wilt	*Sclerotinia minor* Jagger
Southern blight	*Sclerotium rolfsii* Sacc. (teleomorph: *Athelia rolfsii* (Curzi) Tu and Kimbrough)
Septoria leaf spot	*Septoria helianthi* Ellis and Kellerm. *S. helianthina* (Petrov and Arsenijevic)
Texas or cotton root rot	*Phymatotrichopsis omnivora* (Duggar) Hennebert = *Phymatotrichum omnivorum* Duggar
Verticillium leaf mottle	*Verticillium dahliae* Kleb.
White rust	*Albugo tragopogonis* (Pers.) S.F. Gray = *Pustula tragopogonis* (Pers.) Thines

Misc. foliar pathogens	*Ascochyta compositarum* J.J. Davis *Cercospora helianthi* Ell. and Ever. *C. pachypus* Ell and Kellerman *Colletotrichum helianthi* J.J. Davis *Epicoccum neglectum* Desm. *Phyllossticta wisconsinensis* H.C Green *Sordaria fimicola* (Rob. ex Desm.) Ces. and Not.

NEMATODES, PARASITIC

Dagger, American	*Xiphinema americanum* Cobb
Pin	*Paratylenchus projectus* Jenkins
Lesion	*Pratylenchus* spp. *P. hexincisus* Taylor and Jenkins
Reniform	*Rotylenchulus* spp. *Rotylenchulus reniformis* Linford and Oliviera
Root knot	*Meloidogyne arenaria* (Neal) Chitwood *M. incognita* (Kofoid and White) Chitwood *M. javanica* (Treub) Chitwood
Spiral	*Helicotylenchus* sp.
Stunt	*Tylenchorhynchus nudus* Allen *Quinisulcius acutus* (Allen) Siddiqi

VIRUS and PHYTOPLASMA DISEASES.

Aster yellows

Sunflower mosaic potyvirus (SuMV)

Sunflower chlorotic mottle virus (SuCMoV)

Cucumber mosaic virus (CMV)

Tobacco mosaic virus (TMV)

Tobacco ringspot nepovirus (TRSV)

Tobacco streak lilarvirus (TSV)

Tomato spotted wilt tospovirus (TSWV)