

Appendix
Pests affecting
Ornamental Plants
in Utah

Nonpathogenic Tree Diseases

Disease	Host	Symptoms	Causes and Controls
Faciation	Birch, maples, many others	Abnormally flatter and wider stems develop	Many suspected causes including genetics, diseases, mites, and chemicals
Glyphosate Damage	All plants	Yellowing foliage; small ribbon-like leaves; dieback of foliage and branches	Glyphosate getting on green growth
Iron Chlorosis	All species; silver maple, pin oak, vine maple are very sensitive	Green veins, yellow interveinal areas, dead leaf margins, dieback	Insufficient iron take-up into plant
Leaf Tatter	Maple, many others	Numerous holes, Tattered foliage appearance	Cause of this disease is often uncertain; suspected causes include frost, viruses or genetic causes, Often caused by early season insect feeding before the buds unfold
Mechanical Damage	All plants	Bark is removed at tree base or large wounds are seen on trunk, This causes leaf drop and dieback in the treetops	Keep all mechanized equipment away from tree trunks Use tree rings, mulches, or appropriate herbicides to keep grass away from trees
Phenoxy Herbicide Damage	All broad-leaved plants	Damage is variable depending on the chemicals Severe on young, foliage, 2-4D causes curled leaves or long ribbon-like leaves with parallel veins Dicamba causes cupping of the leaves and a white or light colored rim around the leaf edge	Avoid spraying around sensitive plants, under the dripline of trees, or when temperatures exceed 85degrees. Use same precautions with weed and feed materials
Salt Damage	Many Plants	Scorched leaf edges. Needle burn in conifers. Usually most severe in older needles	Choose species that are not sensitive to salt. Select salt free areas, soils, and amendments. Avoid over-fertilization. Avoid de-icing salts

Disease	Host	Symptoms	Causes and Controls
Scorch	Most Trees	Leaves or needles die from base to tip or margins to center. Caused by water evaporation faster than uptake. Many factors, including drought, heat, drying wind, poor root system, root or trunk injury, toxins in soil.	Depends on causative agent, impossible to determine cause by visual inspection of leaves alone
Southwest Winter Injury	Many trees but more severe on trees with thin bark including Prunus spp; linden, and maple	Cracking, peeling bark on the southwest side of the tree	Wrap young trees with white tree wrap in the winter. Paint trunks with white latex paint. Shade trunks during winter.
Sterilant Damage	All	Marginal chlorosis and necrosis similar to iron chlorosis except vein bands are wide	Avoid using soil sterilants (triazine herbicides) around trees. Activated charcoal, soil removed or barriers may reduce damage on existing trees
Summer Leaf Scorch	All species	Drying and death of leaf margins and interveinal areas	Deep irrigation. Selective pruning. Avoid stress or mechanical damage to plants Treat for iron chlorosis on susceptible species.
Sunburn	Trees with thin bark, such as honey locusts, sweet gums and maples	Dead bark on south and west sides of young trees	Wrap trees with white or reflective covering
Transplant Shock	Most species, some more resistant	Leaf scorch, leaf drop, stunted growth	Care in transplanting. Small trees suffer less damage. Transplant early in spring so roots can develop before summer stress
Winter Injury	Many plants	Dried foliage on broad-leaved evergreens. Dead branches. Cracking and peeling bark	Choose adapted species. Avoid fertilizing trees in late summer because it may stimulate vegetative growth. Prune out dead tissue

Flower Insects and Other Pests

Pest	Hosts	Description	Damage	Control	
				Cultural	Chemical
Ants	Many	Red to black in color Three distinct body sections	Make soil mounds Disturb roots Make vector diseases	Find Queen and Destroy	Ant bait to control visible ants Aphids and other sucking insects
Aphids	Chrysanthemum Honeysuckle	Small, white sucking insects	Curling at new foliage	Green lacewings, Lady bird beetles, and other predators	Insecticidal Soap Sprays containing acephate or malathion
Birds	Some flowers Decorative fruits Many other plants	Quail, robin, starling, pigeon, sparrow and others	Most damage to ripening fruit Eat holes in fruit causing fruit to spoil	Netting over trees Scarecrows in trees	No legal Chemical controls
Blossom Weevils	Hollyhock	Adult beetle about 1/8" long Dull, grayish brown color	Eat blossoms before they open Skeletonize leaves	Cut and destroy infested seeds and pods	Spray with acephate
Brown Soft Scale	Poinsettia Ferns	Other greenhouse plants that are used out of doors	Small, flat brown insects about 3/16" long Black, sooty mold Sucking insects that remove plant sap	Remove physically	Insecticidal soap Insecticides containing acephate or alcohol
Bulb Mite	Iris Tulip	Small, white, spider mites	Destroy developing bulbs Allow pathogenic fungi to invade	Clean bulbs before storage	Soil fumigation
Bumble Flower Beetle	Sunflower	Adult beetle resembles bumblebee	Chew on some flower petals and bulbs	Clean up any manure or rotting fruit	Chemical control is seldom needed
Cabbage Looper	Carnation Geranium Chrysanthemum	Larvae are pale green with white lines on back and sides Moths are gray brown with silvery spot on forewings	Chewed leaves Eat small buds	Remove physically	Insecticide containing permethrin or Dibrom
Carpenter Bees	Yucca	Small bees about 3/16" long Metallic blue or blue-green	Burrow into stems and make cells for young	Prune damaged stems	Cover cut stems with wax
Caterpillars	Many	Fuzzy, worm-like insects with many legs Turn into moths or butterflies	Eat leaf and flower edges	Hand pick larvae	Dipel Thuricide Permethrin Methoxychlor

Pest	Hosts	Description	Damage	Control	
				Cultural	Chemical
Corn Earworm	Geranium Gladiolus Rose Sunflower	Large, green, brownish, or reddish colored worms	Eats petals, buds, and occasionally leaves	Hand pick larvae	B.T. Acephate Sevin Malathion
Cutworm	Zinnia Petunia Other Flowers	Smooth, fat, soft caterpillar	Cut plants off at the base Will climb plants and eat leaves	Paper collars that extend into the soil 2" to prevent damage Fall tilling	Dursban granules on soil Diazanon, BT, Dipel or Thuricide
Earwig	Many	Dark reddish brown, elongated segmented insect. Pincers at end of abdomen	Eat holes in petals, leaves, fruits.	Yard sanitation Remove sheltering debris.	Dursban granules on soil
Fungus Gnats	Most bedding plants or container plants	Small black flying insects that resemble fruit flies	No damage to plants unless very numerous	Dry out soil	Insecticides are almost never needed with outdoor plants
Earthworms	Bedding Plants	Large smooth worms that burrow in the soil	Small transplants and their root systems are disturbed or eaten	Handpick the worms from potted plants Water less frequently	No chemical Control
Flea Beetle	Many	Small brown to dark blue jumping beetles	Tiny Circular holes in leaves	Wash leaves with a strong stream of water	Insecticidal soap Most common insecticides
Greenhouse Whitefly	Fuschia Martha Washington Geraniums	Small white butterfly appearing pests	Sticky leaves often grow sooty, black mold Suck plant juices	Wash undersides of leaves	Insecticidal soaps on undersides of leaves Sprays containing pyrethrum
Lace Bugs	Sunflower Chrysanthemum Asters Scabiosa Others	Tiny insect that feeds on leaves	Skeletonized leaves with fleshy tissue removed leaving veins	Wash leaves with a strong stream of water	Use insecticidal soap Most common garden insecticides
Leafhoppers	Ivy Dahlia Others	Small, active white or green insects about 1/8" long	Stripped foliage that lacks chlorophyll Gray-green dirty foliage	Wash leaves to remove pests and residue	Insecticides or soaps applied to undersides of leaves
Leafminers	Columbine Chrysanthemum Delphinium	Small light colored larvae	Lower leaves of plant appear "mined" or have a serpentine pattern in leaves	Heavily parasitized by other insects	Insecticide control not recommended
Mealybugs	Fuchsia Lantana Others	White cottony tufts on leaves and stems	Sucking insect damage Foliage lacks chlorophyll General plant decline	Hand pick small infestations	Scrub with oil Insecticidal soaps Summer weight oil

Pest	Hosts	Description	Damage	Control	
				Cultural	Chemical
Narcissus Bulb Fly	Narcissus Amaryllis	Adult is similar in size and appearance to small bumble bee Large maggot 1/2 - 3/4" long	Plants don't grow or grow poorly Bulbs eaten or large tunnels inside	Discard affected plants	Chemical control is usually not effective
Root Weevils	Columbine Peony Many others	Black, brown, or gray beetles with a long snout	Notched leaves appear trimmed by pinking shears	Parasitic nematodes	Acephate (Orthene) Bendiocarb
Rodents	Tulip and other bulbs except daffodills	Small to medium sized mammals that feed on plant bulbs, seeds and leaves	Damage to leaves evident No growth if bulb or seed is eaten before emergence	Plant bulbs under chicken wire mesh or in wire baskets Cats or live animal traps	Baits
Slugs and Snails	Most Plants	Slimy, soft-bodied worm-like mollusks Snails have hard shell over extremely soft bodies	Holes chewed in leaves Small seedlings eaten	Hand picking or traps	Slug and snail baits with metaldehyde
Spittlebug	Daisy Chrysanthemum Many others	Insects resemble large leafhoppers	Froth or spittle covering insect Very little damage unless numerous Plants may be distorted or small	Wash off with strong stream of water	Susceptible to most insecticides
Sunflower Stem Weevil	Sunflower	Small, dark beetle	Feeds on sunflower stems	Remove affected plant	None recommended
Thrips	Gladiolus Chrysanthemum Aster Iris Delphinium	Brown or Yellow adults very small insects with feather type wings. Young white without wings.	Leaves turn brown or gray Sandpaper appearance	Hard to control	Insecticidal soap Acephate Systemic insecticides Lysol
Tiger Moths	Petunia	Brown to orange butterfly-like insects	Chewing damage on flowers and leaves	Handpick larvae	Use B.T. or acephate
Tobacco Budworm	Petunia Snapdragon Geranium Nicotine	Green or brown moth caterpillar Blends well with foliage and difficult to locate	Buds and blossoms destroyed Holes in leaves Sticky leaves	Handpick larvae	Use B.T. or acephate
Two Spotted Spider Mite	Hollyhock Marigold Many Others	Small brown spider mite with two distinctive black spots	Gray dirty appearance Dried leaves Webbing	Wash undersides of leaves	Insecticidal soap Kelthane/Vendex

Pathogenic Turf Diseases

Disease	Importance	Symptoms	Controls	
			Non Chemical Control	Chemical Control
Gray Snow Mold <i>Typhula</i> spp.--fungus	A serious problem where persistent snow cover is common	Dead patches(3-24 " across)covered with grayish mold after snow melt. Sandgrain-sized, brown fungal sclerotia embedded in dead leaf tissue	Avoid heavy snow accumulations Physically spread piles of snow or apply black fly ash or graphite to hasten snow melt	Apply Banner, Bayleton, Chipco 26019, Dyrene, Prostar, Rubigan, Terraclor (PCNB), Thiram in late fall
Melting Out <i>Drechslera</i> spp.--fungus Also known as Helminthosporium diseases	Prevalent every year; Major reason for dead areas in turf	General thinning of grass with turf appearing to fade away Circular purplish-brown around straw-colored spots on leaf	Aerate to reduce thatch in early spring Avoid a single heavy application of soluble nitrogen in the spring Water infrequently but deeply Mow at 2.5 - 3 inches during hot weather	Apply Banner, Chipco 26019, Cleary 3336, Curalan, Daconil, Dyrene, Fore, Terraclor (PCNIE3), Vorlan
Pink Snow Mold <i>Microdochim nivialis</i> --fungus	Major problem in late fall and early spring Snow cover is not necessary	Irregular bleached tan or whitish-gray to reddish-brown round patches May have light pink margins One to eight inches in diameter	Avoid heavy fertilization in the fall Avoid heavy snow accumulations Use resistant varieties	Apply fungicide(Banner, Bayleton, Chipco 26019, Cleary 3336, Fungo, Rubigan, Terraclor, Vorlan)fall and spring. to susceptible areas
Slime Molds <i>Various fungal species</i>	None	Appears in any season after heavy rains or watering Slimy mass covering grass that turns dry and powdery	Unightly, but not harmful; no control needed	Unightly, but not harmful; no control needed
Damping-Off Seed Rot Many Soil Fungi	May be a problem in wet areas	Seeds rot in soil Grass is thin and weak in irregular patches Seedlings are stunted, may die	Use high-quality seed Provide for good drainage Avoid overwatering Plant in late summer or early fall, if possible	Treat seed before planting with captan or thiram seed protectant
Fairy Ring <i>Various Basidiomycete fungi</i>	Common but only important in a few situations	Dark green circle of grass with mushrooms in the band Grass may die within the ring Dry subsurface often with white, fungal growth under soil even after watering	Inject water 10 to 24 inches deep, core aerate or use surfactants to improve water penetration.Fertilize for even turf color Kill grass with glyphosate herbicide, rototill and replant	Prostar provides suppression Consan labeled for fairy ring control Often better to live with the problem

Turf Insect Pests

Insect	Description	Symptoms	Controls	
			Non Chemical	Chemical
Ants	Red to black in color Three distinct body sections	Make soil mounds Disturb roots Vector diseases	Controlling aphids drives ants away Drench nests with hot water	Use baits or apply insecticide granules to nesting areas
Cutworm	Plump, smooth, black to green caterpillars up to one and a quarter inches long	Feed on grass blades and cut off plants near soil surface	Birds, insects, other predators. Paper collars around plants	Treat only if serious Carbaryl, diazinon, mavrik, acephate, others
Sod Webworm	Moths -- one inch long and whitish gray or brown Caterpillar -- 3/4 inch long, light brown with coarse hairs,	Caterpillar feeds on blades Brown patches Moths fly from grass in zigzag pattern	Birds, insects, other predators	Treat only if serious Carbaryl, diazinon, Mavrik, acephate, Triumph, others
Bluegrass Billbugs	1/4 inch long black snout weevil Larvae --legless and white, with orange head, 1/4 inch long that feed on roots	A general thinning of the lawn Individual plants can be pulled from the soil. Grass appear to lack water	Vigorus turf, parasitic nematodes, endophytes, resistant grasses	Treat in June when hot weather comes Carbaryl, diazanon, Merit, Turcam
White Grubs	3 year life cycle Overwinters as off-white larvae and brown beetle adults in soil Eggs - in soil	Wilting, brown patches of dead grass which can be rolled back like carpet	Parastic nematodes, ground beetles	Necessary if 3 or more grubs per square foot Carbaryl, diazinon, dursban, triumph, others

Indoor Plant Pests

Early diagnosis of problems is essential to maintain healthy indoor plants. Most indoor plant problems are caused by improper care, too much or too little water, light, heat or fertilizer or improper soil. Infrequently, diseases, insects or other pests are involved. Mites and insect pests are small and hard to detect so check damage symptoms as a guide for when to use pest controls.

Soil related pests including springtails and fungus gnats are not usually a serious problem and are easily controlled. More serious are the leaf and stem feeders. Sucking indoor plant pests include aphids, mealybugs, mites, scales and whiteflies. Thrips are tiny insects that rasp plant tissue and suck up the sap from damaged plant cells. Chewing insects also attack interior plants on occasion.

Most indoor plant pests cause very characteristic damage to plants. Some plant diseases closely resemble insect damage. Symptoms and the pests that cause them include:

- Sticky accumulation on the leaves or stems, often resulting in sooty mold growth: Aphids, whitefly nymphs, scales and mealybugs.
- Leaves are yellow or have small yellow specks: Whitefly nymphs, mites, aphids, scales and mealybugs.
- Leaves with yellow specks and minute webbing on new growth: Mites.
- Leaves and leaf stems with distinct gray or brown spots: Scales.
- Plants stunted, begin drooping without obvious cause: Stem or root damage caused by fungus gnat maggots or springtails and garden symphylids.

Check new plants for pests and isolate them for a few days before placing them with healthy plants. Use sterilized soil or soilless mixes to prevent soil pest outbreaks.

Wash infested plants with warm soapy water to remove aphids, mealybugs, thrips, spider mites, and scale. Rinse well.

Hairy leafed plants such as gloxinia and African violet may be damaged by cool sprays. Use room temperature water. Handpick pests when populations are low. Control mealybugs or aphids by darr

Few pesticides are registered for use on indoor plants. Several pesticide aerosols, insecticidal soaps and horticultural oils are available. Some sprays have objectionable odors and may cause allei

Phytotoxic injury from spraying shows as leaf burns, spotting, yellowing, cupping, curling, or other distortion on foliage or flowers. Flowers and buds are highly susceptible to pesticide injuries.

Indoor plants are subject to specific pests since they are grown in the protection of buildings.

Pest	Description	Damage	Control	
			Cultural	Chemical
Aphids	Small, white softbodied sucking insects -- on new growth, base of buds, and underside of leaves. Indoors aphids reproduce continuously producing only females.	Curling at new foliage Sticky leaf or stem surfaces Sooty mold growth	Wash plant with warm, soapy water.	Insecticidal Soap Acephate or malathion
Armored Scales	Circular or elongated, smooth or rough, depending on species. Female body covers formed from wax and earlier molted skins. Armored scales do not excrete honeydew. Males do not feed.	Yellow or mottled leaves with small yellow specks	Remove physically by scraping or handpicking	Insecticidal soap Insecticides containing acephate or alcohol
Brown Soft Scale	Small, flat brown leathery mounds about 3/16" long. Females produce living young which crawl around the host plant before settling down to feed.	Yellow or mottled leaves with small yellow specks Sticky coating and black, sooty mold	Remove physically by scraping or handpicking	Scrub with oil Insecticidal soaps Summer weight oil
Hemispherical Scale	Strongly convex, hard, smooth, brown, shiny cover. The underside of the female is cupped to house large numbers of eggs. Ferns are one of its favored hosts.	Yellow or mottled new growth with small yellow specks Sticky coating and black, sooty mold	Remove physically by scraping or handpicking	Insecticidal soap Acephate or alcohol

Fungus Gnats	Small, dark colored flying insects less than 1/8 inch long that resemble fruit flies. Larvae are white maggots about 1/4 inch long with shiny black heads.	No damage unless very numerous Make plants look unappealing or insect infested. Larvae feed on diseased or dying root systems. Very annoying in the home	Dry out soil. Clean pots and saucers Keep pots raised above saucers	Insecticides are seldom needed Use pyrethrum after watering at weekly intervals
Whitefly	Adult resembles a tiny moth less than 1/8 inch long Spindle shaped eggs rising at one end from a short petiole, form a circle	Sticky deposits on leaves and attendant sooty mold growth Weakened leaves because insects suck out sap Adults flutter off plant when disturbed.	Wash undersides of leaves	Insecticidal soaps on undersides of leaves Sprays containing pyrethrum
Mealybugs	White cottony tufts on leaves and stems 3/16 inch long pale tan or white, flat, oval insects. Eggs in compact, cottony, waxy sac at the axils of branching stems or leaves.	Sucking insect damage Foliage lacks chlorophyll General plant decline	Hand pick small infestations Wash with soapy warm water	Scrub with oil Insecticidal soaps Summer weight oil
Thrips	Brown or yellow slender adults of less than 1/8 inch with feathery wings. Young white wingless nymphs feed actively.	Leaves turn brown, gray or white with silvery blotching and streaking of the foliage and flowers Sandpapered appearance	Hard to control	Insecticidal soap Acephate Systemic insecticides Lysol
Cyclamen Mite	Small white, green or pale brown mites Favored by humid conditions and temperatures below 60 degrees	Distorted, curled leaves with purplish blotches. Small, distorted flowers and buds that fail to open.	Wash undersides of leaves	Insecticidal soap Kelthane Vendex
Two Spotted Spider Mite	Small brown spider mite with two distinctive black or green spots	Gray dirty appearance Speckled, mottled or dry leaves. Webbing	Wash undersides of leaves	Insecticidal soap KelthaneVendex