

Plant Diseases

Identifying Problems of Garden Flowers

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There are many causes of garden flower and perennial landscape plant problems, and a number of these problems can appear to have the same symptoms on the plant.

To identify the cause of the plant's problem, it is usually necessary to look at the plant closely; examine the flowers, leaves, stem and (sometimes) the roots; and do some detective work to determine possible causes. Often the process of elimination of the possible causes will lead to the identification of the problem. Once the cause is correctly identified, corrective measures can be taken to eliminate or reduce the problem.

Additional suggestions for determining plant problems can be found in the fact sheet "Check Your Ornamental Plants," SP 370-H. Representative plant samples can also be sent to the UT Extension Diagnostic Lab in Nashville. Contact your local county

Extension personnel for assistance in sending samples to the UT Lab.

The following chart deals with some possible causes for the most common plant problems of annual, biennial and perennial flowers in the home yard. The plant symptoms are divided into 1) problems mainly on flowers; 2) problems confined to the leaves; and 3) problems that affect the entire plant.

Under each of these three categories there are symptom descriptions with a list of possible causes and corrective measures that can be taken. Because there are a large number of similar pesticides under various brand names that can be used for control, no specific pesticides are listed in the chart.

Each county has a local UT Extension office with personnel who can assist in choosing the correct cultural control method or pesticide to control specific insect and disease problems.



Table 1. Problem Occurs Mainly on the Flowers

SYMPTOMS	POSSIBLE CAUSES	CONTROLS/COMMENTS
Plants fail to flower; foliage looks healthy	Wrong season	Some plants have specific day-length requirements for flowering
	Low temperatures, freeze injury	Low temperature injury may damage flower buds
	Insufficient light	Do not plant sun-loving plants in shade
	Too much nitrogen	Do not over fertilize as too much nitrogen stimulates foliage, not flower, production; follow soil test recommendations
	Overcrowded plants	Divide perennials at recommended time of year
	Immature plants	Biennials and perennials often do not flower the first year; peony may not flower for several years
	Undersize bulbs	
Too many small flowers	Plants not debudded	Some flowers, e.g. chrysanthemum, need to have some buds removed to produce large flowers
Flowers wilt or fail to open; grayish mold appears on flowers and leaves in moist weather conditions	Botrytis gray mold (fungal disease)	Pick off and destroy affected flowers to remove a source of disease; keep water off foliage or water early in evening so foliage will dry before nightfall; use a registered fungicide
Flowers distorted and abnormally colored	Thrips; small tannish yellow or brown wedge shaped insects mainly found inside flower petals	Use registered insecticide
Rosetting of florets; ring pattern on leaves; yellow and light green mosaic or mottle	Virus disease (any of several)	Destroy affected plants; insect control may reduce virus spread to non-infected plants
Light green, yellow or white flecks on leaves	Spider mites; Tiny 8-legged 'spiders' with webbing on underside of leaves	Hard blast of water on underside of leaves; insecticidal soap or horticultural oil or use a registered miticide (insecticide for spider mites) on underside of leaves

Table 2. Problem Mostly Confined to Leaves

SYMPTOMS	POSSIBLE CAUSES	CONTROLS/COMMENTS
Corky, raised spots on lower leaf surfaces	Oedema, a physiological problem usually associated with excess humidity	Do not overwater; space plants to increase air movement around plants, esp. geranium; thinning foliage may help reduce humidity
Brown, dead areas on outside margins of leaves and/or between leaf veins	Scorch, due to hot, dry weather conditions or newly transplanted plants	Supply water by soaker hose; mulch plants; can also occur on plants divided and moved at wrong time of year
	Severe nutrient deficiency	Soil test and follow fertilization recommendations
	Chemical injury	Check for pesticides used in area of affected plants; follow pesticide label directions
	Salt injury	Do not salt iced sidewalks where water will run off into plant beds
	Anthracnose leaf blight (fungal disease)	Cut and remove diseased foliage in late fall or early spring to remove source of disease. Avoid overhead watering or water so that leaves dry before nightfall. Use recommended fungicide sprays for leaf spots.
	Sun scald & winter sunburn as foliage dries when roots cannot take up enough water to keep foliage alive	Mainly occurs on evergreen plants such as magnolia and rhododendron during the winter. New foliage will be fine. Can use an anti-desiccant on foliage to help it retain moisture.
Bleached leaves	Sunburn	Move plant under shade; use only sun loving plants in areas with full sun; Moving plants from shade (or from inside house) immediately to intense sunlight will cause sunburn; move plants gradually from one light intensity level to another to acclimate them slowly.
Brown, purple or black dead circular or irregular spots on leaves	Fungal, bacterial or leaf nematode disease (any of several)	Submit leaf sample for laboratory diagnosis
Grayish-white powdery growth on leaves, stems and flowers	Powdery mildew (fungal disease)	Use registered fungicide; buy resistant varieties of plants
Pustules containing orange, yellow or brown powdery substance on leaves	Rust (fungal disease)	Use registered fungicide; destroy infected plants
Leaves wilt, turn yellow and/or drop; roots decayed	Root rot (any of several)	Many perennials will not tolerate poorly drained soils; check cultural conditions; submit sample with roots and soil for laboratory diagnosis

Table 2. Problem Mostly Confined to Leaves (**continued**)

SYMPTOMS	POSSIBLE CAUSES	CONTROLS/COMMENTS
Yellow and green mottle or mosaic pattern on leaves	Virus disease (any of several)	Remove affected plants; do not touch healthy plants after diseased ones; avoid use of tobacco products (which can harbor plant viruses) before handling plants; wash hands in milk to neutralize virus particles before handling plants; control insects that can spread virus to other plants
	Nutrient deficiency	Soil test and follow fertilization recommendations
Twisted, stunted or puckered leaves, often mottled or abnormally colored	Herbicide injury	Check for use of phenoxy type herbicides, e.g. dicamba and/or 2,4-D used in area. May be taken up by root zone (granular herbicide) or drifted on wind up to 1/2 mile.
Tiny white flecks or white interveinal areas on leaves	Ozone injury	Some plant varieties are more susceptible to ozone injury (air pollution damage) than others
	Spider mites; Tiny 8-legged 'spiders' with webbing on underside of leaves	Hard blast of water on underside of leaves; insecticidal soap or horticultural oil or use a registered miticide on underside of leaves
	Thrips; small tannish yellow or brown wedge shaped insects mainly found inside flower petals	Use registered insecticide
Light colored tunnels or blotches in leaves	Leafminers	Use registered insecticide; remove affected leaves if only a few are affected
Leaves chewed with ragged holes or may be completely eaten	Various insects – usually caterpillars or beetles	Submit insect for identification
Leaves chewed with ragged holes; slime trails	Slugs	Use beer bait or commercial slug bait; check plants at night for actively feeding slugs
Only leaf veins or clear areas left on leaf; no green in these sections	Sawfly caterpillars or leaf skeletonizer beetles	Submit insect for identification
Leaves with smooth holes or only slightly ragged areas with yellow halo	Bacterial shot hole	Cut and remove diseased foliage in late fall or early spring to remove source of disease. Avoid overhead watering or water so that leaves dry before nightfall.

Table 2. Problem Mostly Confined to Leaves (continued)

SYMPTOMS	POSSIBLE CAUSES	CONTROLS/COMMENTS
Black soot on surface of leaf or stem; scrapes off surface easily; may peel off in sheets	Sooty mold	Secondary fungus growing on surface of honeydew sap left by insects (aphids, scale or whiteflies) as they feed on plant; control insects with registered insecticide
Clusters of insects on stems or underside of leaves; leaves may be curled or distorted; may have sooty mold	Aphids; soft bodied round insect with two small 'stalks' on rear end, may be green, red, or tan depending on plant sap	Use registered insecticide or insecticidal soap
Leaves and stems covered with small, soft-bodied or crusty insects that can easily be removed	Scale (various)	Use registered insecticide
Tiny white winged insects on undersides of leaves	Whiteflies	Use registered insecticide
White, cottony masses on leaves or stems	Mealybugs	Use registered insecticide
Irregular bronze or brown spotting on leaves; adults are yellowish-green with four black stripes down wing covers; immature insects are orange to red with black spots and yellow stripes	Four-lined plant bug	Use registered insecticide
Grayish mold appears on flowers, stems and leaves in moist weather conditions	Botrytis gray mold (fungal disease)	Pick off and destroy affected foliage to remove a source of disease; keep water off foliage or water early in evening so foliage will dry before nightfall; use a registered fungicide

Table 3. Problem Affects Entire Plant

SYMPTOMS	POSSIBLE CAUSES	CONTROLS/COMMENTS
Plants wilt; flowers may drop and leaves may turn yellow; check roots and stems for possible rot disease	Dry soil	Supply water
	Waterlogged soil may drown plants due to lack of oxygen in soil	Improve drainage; do not allow plant roots to sit in water or in waterlogged soil; some perennials will not tolerate poorly drained soils
	Transplant shock	Do not transplant in heat of day; water regularly after transplanting; divide and transplant perennials in fall or spring
Seedlings wilt; stems turn brown and soft and may be constricted at the soil line	Root or stem or corm rot; may be fungal or bacterial disease	Plant in well-drained soil; destroy affected plants; do not purchase plants with brown or black rotted roots
	Damping-off (fungal disease)	Plant in well-drained, disease-free soil; plants should be planted in sterile potting soil
	Insufficient light	Pay attention to light requirements of plants (planting a sun loving plant in shade will result in weak leggy plants)
General yellowing of leaves; yellowing may be interveinal; plant may be stunted; but no wilting	Nutrient deficiency	Soil test and follow fertilization recommendations
	Virus disease	Submit sample for laboratory diagnosis; destroy affected plants as virus may be spread further by insects or through handling plants
Plants stunted and yellow; small galls or swellings on roots	Root knot nematodes (Note: galls are normal on leguminous plants)	Use resistant species of plants in these locations; replant susceptible varieties in another area
General browning of foliage; on tender, new foliage can look bronze or red; occurs after a cold spell	Frost injury	New growth should occur below damaged area; do not plant annuals until danger of frost is past
Small, gnat-like flies around potted plants; small 1/4" white maggots (larvae) with black heads in soil around plant roots	Fungus gnats	Use registered insecticide; avoid overwatering plants; clean up and remove all plant debris in area; if planting in pots or planters, use sterile potting soil
Plants cut off at ground level	Cutworms	Worms hide during day in soil or in debris close to base of plants. Spray soil & base of plant with labeled insecticide or uncover and kill cutworms around base of plants.

a UT Extension Reminder

Poison Information

Emergency poison control telephone numbers in Tennessee

Human Pesticide Emergency:

Poison Control Center Hotline (800) 222-1222

General Questions on Pesticides:

EPA Pesticide Telecommunications Network (800) 858-7378

EPA Community Right-to-Know Hotline (800) 535-0202

Alliance for a Clean Rural Environment (ACRE) (800) 545-5410

Pesticide Emergency:

National Pesticide Safety Network - Chemtrec (800) 424-9300

Non-emergency Pesticide Information:

Chemtrec Information Line (800) 262-8200

Animal Pesticide Emergency:

National Animal Pesticide Control Center (800) 548-2423

Note: There may be a fee charged for this service

ATTENTION

1. Read the label of any pesticide before applying.
2. Do not rely on pesticides alone; employ all cultural methods of control.
3. Regulations and guidelines concerning use of pesticides are subject to change without notice. Consult the label of the product for usages and rates before applying. If recommendations in this manual conflict with the label, please follow the label instructions.
4. When a range of rates and application intervals are recommended, use the lower rate and longer interval for mild-moderate infestations and the higher rate and shorter interval for moderate-severe infestations.
5. Use of trade or brand names in this manual is for clarity and information. The Tennessee Agricultural Extension Service does not imply approval of the product to the exclusion of others which may be similar, suitable composition, nor does it guarantee or warrant the standard of the product.
6. Please read the label before using a product.

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