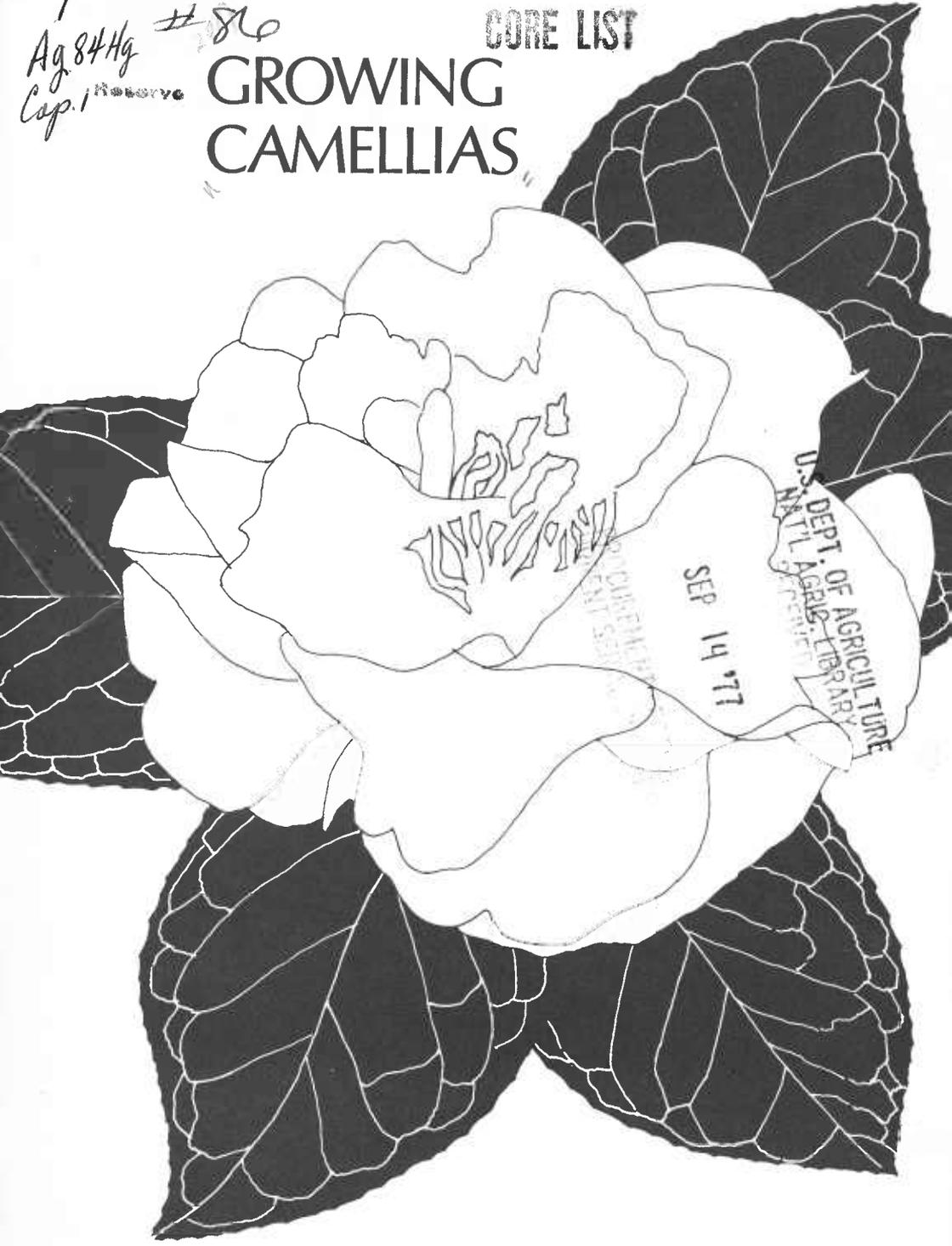


1  
Ag 844g #86  
Cap. 1 Reserve

CORE LIST

# GROWING CAMELLIAS



U.S. DEPT. OF AGRICULTURE  
NATL. AGRI. LIBRARY  
SEP 14 1977



UNITED STATES  
DEPARTMENT  
OF AGRICULTURE

HOME AND  
GARDEN BULLETIN  
NUMBER 86

PREPARED BY  
AGRICULTURAL  
RESEARCH  
SERVICE

# Growing Camellias

Camellias bloom when few other plants do—in late fall, winter, and early spring. These evergreen shrubs will grow and bloom best in light shade.

Though camellias are primarily plants of the Deep South, their area of adaptation extends as far north as Long Island, N.Y. In general, camellias can withstand winter temperatures as low as 10° F. You can grow camellias anywhere if you can protect them from temperatures lower than 10° and keep their roots from freezing.

Like most other shrubs that grow in shade, camellias are shallow rooted. They grow best in loose, fertile soil that is slightly acid. They will not tolerate poor drainage.

## KINDS OF CAMELLIAS

Three species of camellias are in general cultivation in the United States—*Camellia japonica*, *Camellia sasanqua*, and *Camellia reticulata*. Varieties of these species have flowers that are red, pink, or white, or combinations of these colors.

*Camellia japonica* is the hardiest of the three species. It is the best species for planting along the Atlantic coast north of the District of Columbia. This species has glossy leaves. It blooms from late winter through spring.

*Camellia sasanqua* is almost as hardy as *C. japonica*; its northern limit of hardiness along the Atlantic coast is the District of Columbia. *C. sasanqua* also has glossy leaves. It blooms in October and November.

The tenderest of the camellias commonly grown in the United States is *Camellia reticulata*. It can be grown outdoors in southern California or in the deep South, but in other areas it needs indoor protection during the winter. This species has dull-green leaves. It blooms in spring.

## BUYING PLANTS

Before buying plants, be sure you know which varieties are adapted to your area. For a list of varieties that are adapted to your area, contact your county extension service, local nurserymen, or members of garden clubs or camellia societies. They can tell you which varieties are available in your area.

Most nurseries offering camellias for local sale sell them planted in a container or with a burlap-wrapped ball of soil around the roots. Most mail-order nurseries sell camellias bare rooted, to save shipping charges. Buy container-grow or balled-and-burlapped plants if you can; they are easier to establish successfully than are barerooted plants.

Buy plants that are at least 2 years old; plants of this age are 18 to 24 inches tall.

Be sure they are healthy. Inspect plants for wounds or scars near the base of the main stem. Wounded areas may become cankerous and cause the plant to die. Note: Grafted plants may have a swollen area near the base of the main stem; this is not a sign of poor health.

If you are selecting plants from a

group, select plants that are well branched from the ground up. Choose those that have the best shape and the freshest, greenest foliage. If you select the plants with the greatest number of healthy leaves, you probably will get those with the best root systems.

Do not be misled by the size of the containers. A vigorous plant growing in a gallon can is better than a poor plant in a 5-gallon can; the vigorous plant will probably outgrow the poor one in a single season.

## PLANTING

In general, fall is the best time for planting camellias. However, in Virginia, Maryland, and States to the north, spring planting is best.

### Planting Site

Try to select a planting site that provides alternating sunshine and shade in summer, some shade in winter, and protection from winter winds. A planting site under tall pine trees or on the north side of a building can provide these conditions.

### Planting Distance

Mature camellias spread to 8 or 10 feet in diameter. To allow for future growth without crowding, set plants at least 3 feet away from buildings. When using them as hedge plants, set camellias 5 to 7 feet apart; this will provide a compact hedge when the plants are fully grown.

### Setting Plants

If your soil is well drained, dig planting holes for your camellias. If your soil

is heavy and poorly drained, set the plants in mounds.

### Planting Holes

Dig planting holes about twice the width and depth of the rootball. Refill the hole slightly more than half full with good soil. Tamp the soil to provide a firm base for the plant.

If the roots of the plant are balled and burlapped you may remove the burlap before setting the plant in the hole. If the rootball is broken or if the removal of the burlap may cause the soil to fall apart, you can cut the twine and fold back or cut off exposed parts of the burlap after setting the plant in the hole.

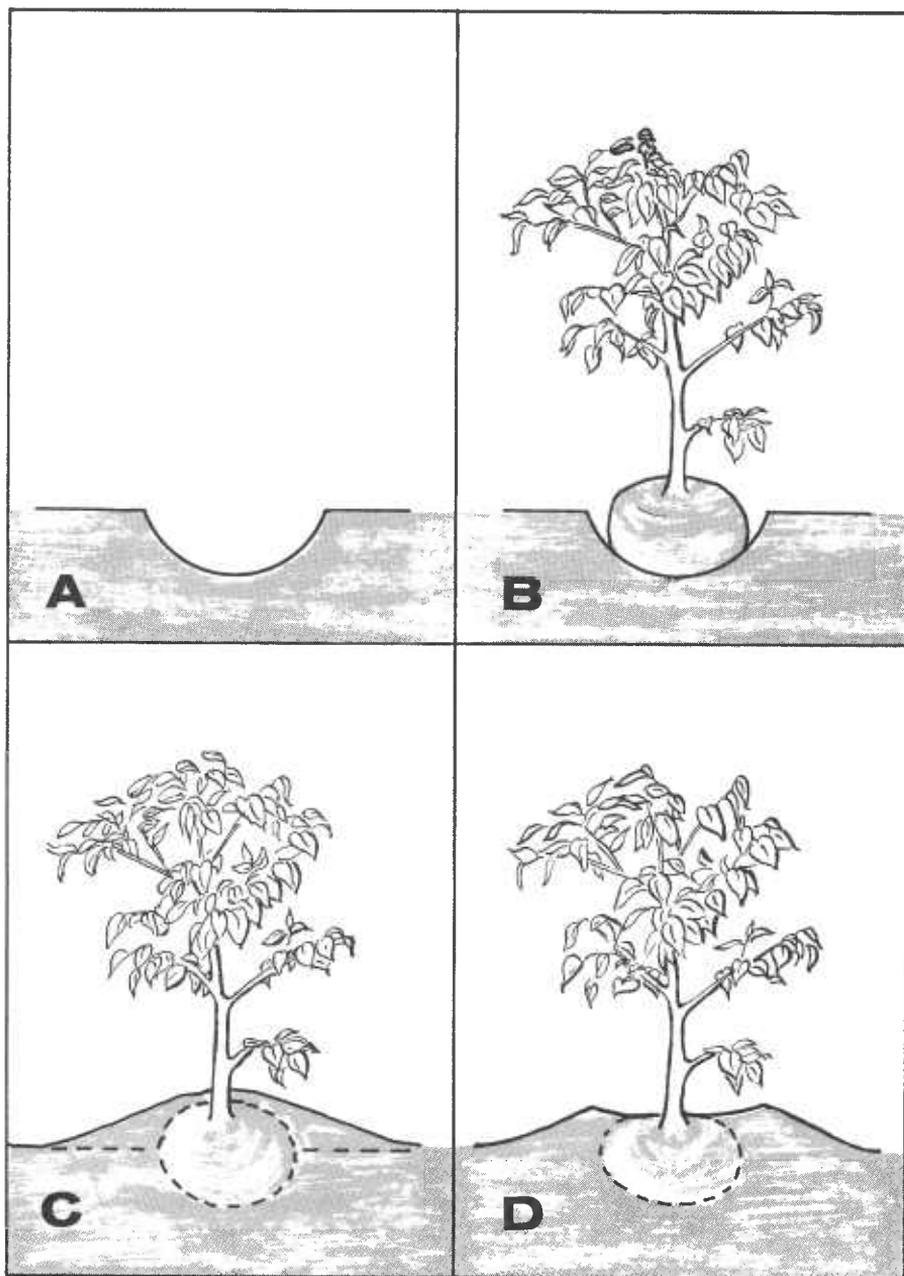
If the plant is in a container, cut away the side of the container with metal shears and remove the rootball carefully. Do not knock the rootball from the can; you are likely to injure the roots if you do.

Place the plant in the hole and pack soil under the rootball until the plant sits slightly higher than it grew in the container or nursery soil. Then refill the rest of the hole with a mixture consisting of equal parts soil and organic matter—peat moss, weathered sawdust, or muck from fresh-water ponds. Press the soil firmly around the rootball and water thoroughly.

After the plant has settled, its depth should be the same as it was before transplanting. Avoid planting too deep; this is the most common cause of plant failure.

### Mounds

If you are setting the plant in a mound, first dig a hole in the soil about one-fourth to one-half the depth of the rootball and the same diameter as the



### MOUND PLANTING

- A. Dig a hole the same diameter as the rootball and about one-half its depth.
- B. Set the rootball in the hole.
- C. Cover the rootball with a mixture of soil and organic matter; slope the soil away from the plant.
- D. Form a basin around the stem for watering, and water thoroughly to settle the soil.

rootball. Set the plant in the hole and build a mound around it with a half-and-half mixture of topsoil and peat moss.

Cover the rootball with soil mixture to a height several inches above the original soil level of the plant. Slope the soil away from the plant so it extends 2 to 3 feet from the rootball.

Then scoop the loose soil away from the base of the main stem to form a basin for holding water. Fill the basin with water and soak the mound thoroughly to settle the soil around the plant's roots.

## CARE

### Mulching

Apply a mulch after planting and maintain it continuously. Mulching reduces fluctuations in soil temperatures, conserves soil moisture, and helps to prevent weeds from growing.

For mulching materials use granulated peat, pine needles, or weathered sawdust; apply it 2 to 3 inches deep over the root zone. Oak leaves, forest debris, bagasse, and other similar coarse materials also are satisfactory if kept at a depth of 2 to 4 inches.

### Watering

Normal rainfall in humid areas ordinarily provides enough moisture for mulched camellias. During droughts, however, the plants should be watered at weekly intervals. When you water, soak the ground thoroughly. Particular attention should be given to providing adequate water during the time of bud set.

## Fertilizing

Camellias may need light fertilizing during the first growing season. Apply in spring when the plants are beginning growth.

After the first growing season, organic matter usually furnishes enough nutrients to the plants. If the plants are making 6 to 8 inches of new growth a year, no fertilizer is needed. Overfertilizing—a common practice—promotes loose, open growth that spoils the compact habit of the plant. Overfertilizing also increases the susceptibility of the plants to winter injury.

If fertilizer is needed, broadcast cottonseed meal over the root area at a rate of 8 to 16 ounces per plant. Or use a fertilizer formulated especially for camellias. These special formulations are available at garden-supply stores. Apply them according to the directions on the package.

Do not fertilize after July 1.

Do not use lawn fertilizers on camellias; these fertilizers are often alkaline.

### Adjusting Soil Acidity

Camellias grow best in acid soil. The soils in most areas where camellias can be grown are acid enough for good growth. In some areas, however, the soil is too alkaline, and the acidity must be increased.

If the soil is not acid enough for camellias, the leaves turn yellow and the plant grows slowly, even though it has been adequately fertilized and watered. Your county agricultural agent can arrange to have your soil tested.

To increase acidity, apply powdered sulfur to the soil. Use 1 pound of sulfur per 100 square feet in sandy or

loamy soils or 2 pounds per 100 square feet in clay soils. Water the sulfur into the soil.

Repeat the application in 1 or 2 months if the plant fails to regain its normal color and growth.

### Pruning

Camellias grow well without pruning. You may want to prune your plants, however, to remove dead, injured, or diseased branches, or to reduce the size of the plants.

The best time to prune is after the plants have bloomed. Make pruning cuts back to a bud or a larger branch.

Treat pruning wounds larger than one-half inch in diameter with a tree-wound dressing to prevent harmful fungi from invading the branches.

### Weeding

Pull weeds out by hand. Do not use hoes or other tools; they may injure the surface roots of the plants.

### Transplanting

Transplant camellias when they are dormant. In North Carolina and States to the south, move the plants in fall, winter, or spring. In States to the north, move them only in the spring.

Dig a good-sized ball of earth to protect the roots from drying. Dig a ball about 13 inches in diameter for a 2- to 3-foot plant. Add 2 inches to the diameter for each foot of height greater than 2 to 3 feet. Make the depth of the ball about three-fourths of its diameter—9 or 10 inches for a 13-inch ball, 10 to 12 inches for a 15-inch ball.

Follow instructions on page 3 for replanting the camellia.

Camellias can be moved in warm



BN-15846

Container-grown camellias can be transplanted in the garden or can be grown as potted plants.

weather but at greater risk than when the plants are dormant. If you move them in warm weather and the plants wilt, spray the leaves with water several times a day.

## PREVENTING WINTER INJURY

The first step in preventing winter injury to camellias is selection of varieties that are adapted to your area. The second step is selection of a planting site that protects plants from winter sun and wind.

Even after you have selected a hardy variety and have planted it in a favorable location, your plants may be winter injured by sudden cold weather or by soil freezing.

Though camellias are hardy to 10° F. when they are dormant, a sudden drop

to below-freezing temperatures after warm fall weather may injure new growth and buds. If a sudden cold snap is forecast after warm weather, you can protect your camellias to some extent by covering them at night with cloth, plastic, or paper tents. Support the covering above the plants so it does not touch the plants. Remove the covering materials as soon as the weather warms to normal.

When the soil freezes, leaves and stems of the camellia cannot get water from the roots and the top of the plant may become dehydrated. However, if you maintain a good mulch on the soil surface, it will keep the soil from freezing too deeply.

## POTTED PLANTS

Camellias can be grown in containers indefinitely if they are given the proper care. Their requirements are essentially the same as for plants grown outdoors—partial shade, adequate moisture, rich soil, and good drainage.

If the plant you buy from the nursery is container grown, you need not transplant it unless you want a more attractive container. Nursery plants are usually potted in good soil. If your plant outgrows its container, you can transplant it at any time of the year.

Use a potting soil made of one-fourth woods mold, one-fourth sand, and one-half peat moss. Place a 1-inch layer of gravel at the bottom of the new container to provide drainage.

Water the plants heavily, then allow the soil to dry moderately before watering again. The critical period in watering occurs in spring when the plants are growing rapidly. They need much more water than at any other time of the year.

During the hot summer months, spray the leaves with water every afternoon. Spraying keeps the air humid around the plants.

Fertilize potted plants monthly throughout the year. For monthly feedings from March through July, use a liquid fertilizer, analysis 15-5-5. In August through February use a 7-6-19 liquid fertilizer. Do not over-fertilize; it is better to feed too little than too much. Never fertilize a dry plant.

Potted camellias may be pruned any time of the year to control their size and maintain their shape. When cutting a bloom, take two or three leaves with it. This will help to maintain the shape of the plant.

You may want to disbud your plant to obtain large specimen blooms. The best time to disbud is when you are able to distinguish the flower bud from the growth bud. For early blooming varieties this may be as early as mid-summer. For mid- or late-blooming varieties, disbudding is best done in September or October.

To disbud, use a large pin or a shingle nail to pierce a hole from the tip of the bud downward. This allows air to enter the bud so it will dry and fall off naturally, thus eliminating possible injury to the adjoining bud that you want to keep.

In some parts of southern California, southern Texas, and Florida, potted camellias can be left outdoors all winter. In other areas it is best to move them in winter to some place where their roots will be protected from freezing.

They can be taken indoors and will bloom there if the room temperatures can be kept between 35° and 50° and the humidity held reasonably high.

## DISEASES

Inspect your plants frequently for the signs of camellia diseases described below. Treat these diseases promptly.

### Die-back and Canker

Die-back and canker is a fungus disease that forms cankers on twigs and causes branches to die back. Young succulent shoots suddenly wilt and die when attacked by this fungus. The leaves turn dark brown but may remain attached to the shoot for some time. Where the dead and living tissues join, a small area of bark and woody tissue may turn brown.

Cankers are usually present. Often, however, they are inconspicuous, slightly depressed dark areas in the bark at the base of the dead portion of the twig or branch.

To control this disease:

- Remove dead twigs or branches well below any visible cankers, and paint wounds with wound dressing.
- Burn all infected debris.
- Spray pruning wounds or scars left where infected leaves fell off with



N-43093  
The shriveled leaves on the right are affected with die-back and canker.

bordeaux mixture or captan during the growing season.

- Dip graft scions and grafting or pruning tools in ferbam or captan (8 teaspoons per gallon of water) to prevent transfer of the fungus to new wounds.

### Flower Blights

*Sclerotinia flower blight.* The main fungus causing flower blight is *Sclerotinia*. It invades the flower as soon as the tips of the petals are visible. The first signs of this infestation are small, irregular, brownish specks on the expanding flowers. Where spring is warm and humid, the specks enlarge and unite until the whole petal is destroyed. Then the entire flower becomes dull brown and falls from the plant.

The fungus continues to develop in the fallen flower and eventually forms hard, irregularly shaped, dark brown to black bodies called sclerotia. These sclerotia endure through the winter and spores from them infect new flowers the following spring.

To control this disease, gather and destroy all fallen flowers for at least two seasons. Drench the soil with ferbam or captan (8 teaspoons per gallon of water) to reduce the number of sclerotia surviving in the soil.

New flower infections can often be prevented by placing a 3-inch mulch of woodchips around the base of each plant. This provides a barrier that prevents the spores from the sclerotia from blowing onto the leaves or flowers.

*Botrytis flower blight.* Plants that have been damaged by frost may be attacked by the fungus, *Botrytis*. This

fungus invades weakened tissue during cool, humid weather. It causes brown, discolored areas on the petals or leaves. Often a "cloud" of spores can be seen coming from infected tissue with the slightest air movement. The only control for this disease is to prevent tissue injury.

### Leaf Gall

Leaf Gall is caused by a fungus that invades new leaf tissue in the spring. Infected tissues swell and appear fleshy. Extreme swelling results in a whitish, fleshy gall on the leaf by summer.

To control this disease, prune out and burn these galls, and spray the foliage with bordeaux mixture (2-2-50), zineb, or captan (4 teaspoons per gallon of water).

### Leaf Scorch

Leaf scorch normally occurs when the leaves dry out during freezing winter weather, and the plant cannot get enough moisture from the soil. Protect plants exposed to freezing wind with burlap windbreaks. Water plants during winter. Heavy mulching helps to keep the subsoil from freezing.

The scorched appearance of leaves may also result from too much sun, too much or too little fertilizer, or deep planting.

### Chlorosis

Yellow leaves or areas on leaves often appear on camellias. This disorder is often caused by deficiency of some elements in the soil, especially iron. Normally it can be corrected by application of iron chelate to the foliage or to the soil, or to both.



BN-36232

Leaf gall on camellia.

### Bud Drop

Bud drop causes the tips of young buds and edges of petals to turn brown and decay, or to drop completely from the plant. This disorder results from growing camellias in an unfavorable environment.

Bud drop on indoor plants is usually due to over-watering, insufficient light, high temperatures, or pot-bound roots. Outdoor plants may drop buds during severe frost in the fall or severe freezing in the winter. In dry climates, bud drop may result from lack of adequate water.

### INSECTS

Camellias may be severely damaged by insects unless they are protected by prompt application of insecticides. No

one insecticide will control all pests of camellias. To select an effective insecticide you must first identify the insect or its characteristic plant injuries. Recommended insecticides are available at garden-supply stores. Follow label directions for dilution and care in handling.

### Scales

The leaves or bark of camellias frequently become encrusted with hard-shelled insects known as scales. The insects feed on plant juices and cause injury or death to the plant.

The most common species of scales

found on camellias are tea scale, peony scale, and wax scales.

### Description

The young insects of all species are tiny, flat, and yellow; they can be seen crawling on leaves in summer.

Some characteristics of the adult scales are as follows:

*Tea scale*.—Brownish shell, about  $\frac{1}{16}$  inch long. Causes yellow blotches on upperleaf surfaces; infested leaves drop off prematurely.

*Peony scale*.—Grayish brown; grows to about  $\frac{1}{10}$  inch long. Burrows beneath bark of twigs and stems and feeds on plant juices; infested areas swell, later sink; smaller stems die quickly. Produces one generation of young a season; other species, several generations.

*Wax scales*.—Reddish-brown body with thick, white or slightly pink waxy coating. Grows to about  $\frac{1}{8}$  inch long. Causes stunting or dying of plants.

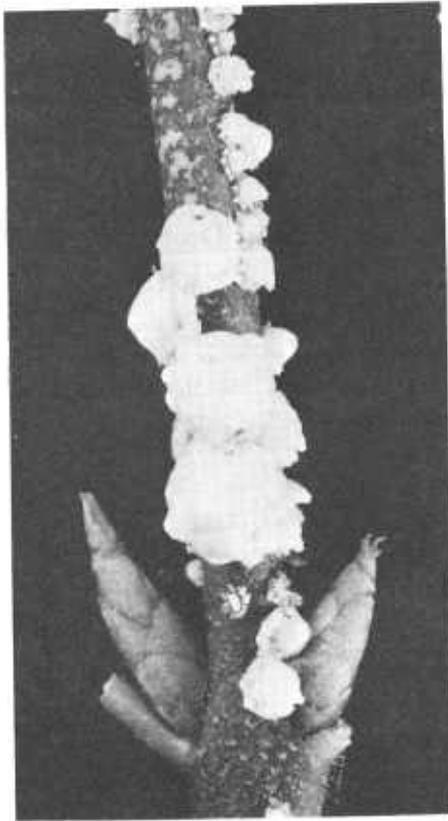
### Control

When the scales are in the crawler stage, spray leaves and twigs with malathion or dimethoate 3 times or more at 10- to 15-day intervals. Begin spraying in May or June in the South, and June or July in the North.

Some species of scales, such as the tea scale and the peony scale, can be controlled with summer oil emulsion. Apply it only in early spring before plant growth starts. Summer oil emulsion does not give satisfactory control of wax scales.

### Whiteflies

Adult whiteflies are very tiny; they have pale-yellow bodies and white-powdered wings. The scalelike young



Wax scale (enlarged).

TC-7468B

feed on underleaf surfaces and cause black, sooty deposits on the leaves.

To destroy overwintering young, spray foliage with a summer-oil emulsion in early spring before plant growth starts.

For summer infestation spray with malathion or lindane. Make two or three applications at weekly intervals.

### Mealybugs

Adult mealybugs are oval or elongated about  $\frac{1}{8}$  inch long, with a white waxy or mealy covering. Black sooty molds on leaves followed by wilting and dying of the leaves are signs of infestation by mealybugs.

Mealybugs are usually found in clusters along the veins and undersides of leaves or in crotches of twigs. They secrete a sticky honeydew that attracts ants; the ants feed on the honeydew and spread the mealybugs to other plants.

The first step in controlling mealybugs is to eliminate ants in the garden with Baygon and diazinon.

The second step is to kill the mealybugs. Spray with malathion as for whiteflies when they are first observed. Spray two or three more times at 10-day intervals.

### Fuller Rose Beetle

The fuller rose beetle leaves black excrement on leaves and eats notches in the leaf margins. This pest is common on camellias in the South.

The adult beetle has a brown or grayish body. It is about  $\frac{3}{8}$  inch long and has a white diagonal stripe across each side.

Spray or dust plants with lindane

about July 1 and repeat 2 weeks later.

### Leaf Feeding Beetles

Several kinds of beetles sometimes feed on the foliage or flowers. Beetles such as flea beetles can be controlled with diazinon.

### Mites

Speckled leaves that later turn rusty brown are a sign of the southern red mite. This dark-red pest is common on camellias throughout the South. It attacks both upperleaf and lowerleaf surfaces. It lays shiny eggs that resemble red pepper.

Feeding injury starts in April and continues until fall. Injured leaves do not recover, but control measures will prevent injury to new growth.

When injury is noted, spray foliage with dicofol. Repeat spraying in 10 days.

### USE OF PESTICIDES

This publication is intended for nationwide distribution. Pesticides are registered by the Environmental Protection Agency (EPA) for countrywide use unless otherwise indicated on the label.

The use of pesticides is governed by the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended. This act is administered by EPA. According to the provisions of the act, "It shall be unlawful for any person to use any registered pesticide in a manner inconsistent with its labeling." (Section 12(a)(2)(G).)

EPA has interpreted this Section of the Act to require that the intended use of the pesticide must be on the label of the pesticide being used or covered by a Pesticide Enforcement Policy Statement

(PEPS) issued by EPA.

The optimum use of pesticides, both as to rate and frequency, may vary in different sections of the country. Users of this publication may also wish to consult their Cooperative Extension Service, State agricultural experiment stations, or county extension agents for information applicable to their localities.

The pesticides mentioned in this publication are available in several different formulations that contain varying amounts of active ingredient. Because of this difference, the rates given in this publication refer to the amount of active ingredient, unless otherwise indicated. Users are reminded to convert the rate in the publication to the strength of the pesticide actually being used. For example, 1 pound of active ingredient equals 2 pounds of a 50 percent formulation.

The user is cautioned to read and follow all directions and precautions given on the label of the pesticide formulation being used.

Federal and State regulations require registration numbers. Use only pesticides that carry one of these registration numbers.

USDA publications that contain suggestions for the use of pesticides are normally revised at 2-year intervals. If your copy is more than 2 years old, contact your Cooperative Extension Service to determine the latest pesticide recommendations.

The pesticides mentioned in this publication were federally registered for the use indicated as of the issue of this publication. The user is cautioned to determine the directions on the label or labeling prior to use of the pesticide.

*Reviewed by* ERIK A. NEUMANN

ARS curator of education  
U.S. National Arboretum  
Washington, D.C. 20002



Washington, D.C.

Revised June 1974  
Slightly revised July 1977

For sale by the Superintendent of Documents, U.S. Government Printing Office  
Washington, D.C. 20402  
Stock Number 001-000-03691-2