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geraniums
for the
home and
garden

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Lady Washington Geranium

geraniums for the home and garden

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GERANIUMS have become one of our most popular flowering plants because they are colorful, easy to grow, and adaptable to a wide variety of situations. They can be grown in beds or containers of various sizes and shapes for use in or around the house, patio, and garden. When grown as house plants they will flower during the winter months if located where there is adequate light.

Since geraniums are not winter-hardy in Illinois, they are used mainly to provide masses of color around the home throughout the spring, summer, and fall. In the warmest areas of the United States, however, geraniums are left outdoors through the winter and used as perennial shrubs or trained as climbers.

Types of Geraniums

Most of the cultivated geraniums may be grouped into four general horticultural classes:

Zonal or common bedding geraniums (*Pelargonium hortorum*). These are the best and most commonly used geraniums for general decorative purposes, either in garden beds or in containers. They bloom continuously from spring through fall in gardens in the Midwest. This group includes plants with various flower forms and colors as well as distinct leaf sizes, shapes, colors, and markings.

Ivy-leaved geraniums (*Pelargonium peltatum*) are characterized by their trailing or vinelike growth habits. They are commonly grown in hanging baskets, window boxes, or similar containers for elevated culture. Usually the flowers of these geraniums are not as brilliant or conspicuous as those of the zonal or common bedding types, and the plants are used mainly for their trailing growth and shiny, attractive leaves.

Lady Washington or show geraniums (*Pelargonium domesticum*) are not recommended for midwestern gardens because they stop flowering during the heat of summer. They are more suitable for the cooler areas of the country. The flowers are characteristically multicolored, in some cases resembling pansies. Geraniums in this showy class are often offered by florists as gift plants during the spring months.

Scented-leaved geraniums. These include many species and hybrids grown mainly for their varied fragrances and the exotic shapes of their leaves. The flowers of this class of geraniums are normally rather inconspicuous. There are over 200 varieties in cul-

tivation, with lemon, rose, cinnamon, apple, orange, walnut, nutmeg, and many other scents. Some are used as house plants; others are used as culinary herbs.

Some Common Geranium Varieties

Pink:	White:	Red:	Novelties:
Apple Blossom	Mme. Buchner	Cardinal	Ivy (green, variegated)
Cotton Candy	Madonna	Charlotte	Frosty
Enchantress	Snowball	Dark Red Irene	Happy Thoughts
Cameo	Salmon:	Improved Ricard	Miss Burdette
Enchantress Fiat	Mme. Landry	Irene	Coutts
Genie Irene	Penny	Pride of Camden	Mme. Languth
Pink Bouquet	Salmon Irene	Mamie	Scented varieties
Pink Cloud	Salmon Supreme	Jacqueline	Skies of Italy

Pointers for Plant Selection

Most homeowners purchase their geraniums as blooming plants during the late spring and early summer months from florists, garden centers, or garden supply stores. There are a number of things to consider, and a little planning before purchasing the plants for your garden will help assure the desired effects.

Geraniums are offered in various stages of growth and in many different types of containers. The most popular sized plants, in 4-inch pots, are usually 8 to 12 inches high, with two or three branches and



Examples of potted geraniums at different stages of growth.

several flower heads. Smaller sizes, in containers that hold several plants, are also becoming quite popular for early spring sales. They usually develop rapidly if grown under favorable garden conditions. Larger plants, in 5- and 6-inch pots, are available for those who want the desired effect immediately in their planter boxes or patio displays.

Many commercial growers even offer some of their stock plants for sale during the spring and early summer. These large specimens, which are usually set out in tubs or other large containers, will provide a mass of flowers throughout the summer months.

Considering the various sizes available, it would be difficult to recommend any one size to purchase. The choice depends on the preferences of the individual gardener and on his budget.

As a general rule, it's best to select plants that have relatively large, dark green leaves, and one or two open flowers (which reveal the color), as well as some developing flower buds. For outdoor use in large containers, select good-sized plants that have several branches. They are less apt to be broken in the wind, and usually develop quickly into specimen plants.

There is a wide range of colors from which to choose. The most popular are white, pink, rose, scarlet, red, rose-lavender, and cerise. Select your color or colors to go with the scheme of your garden and accessories. The fact that geraniums present masses of color makes a careful choice important.

The geranium flowerhead or cluster is made up of many showy and colorful smaller flowers, called florets. The individual florets

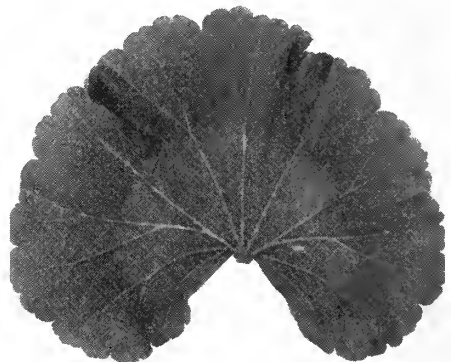
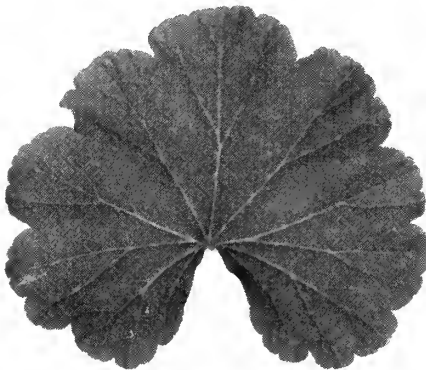
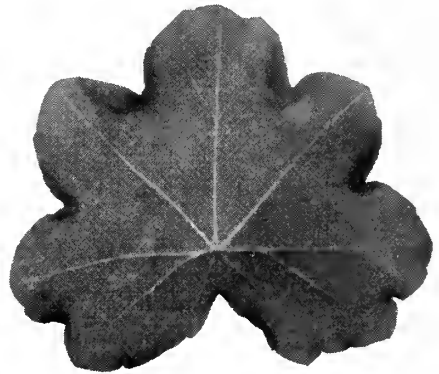


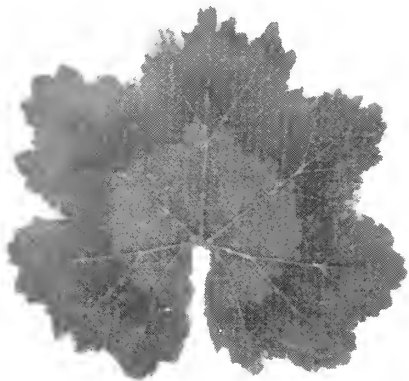
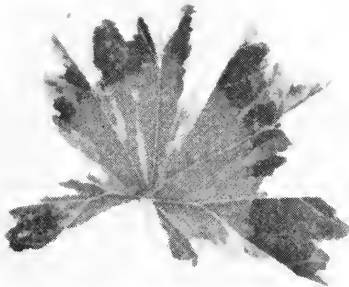
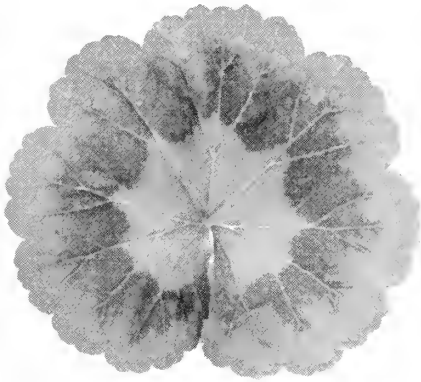
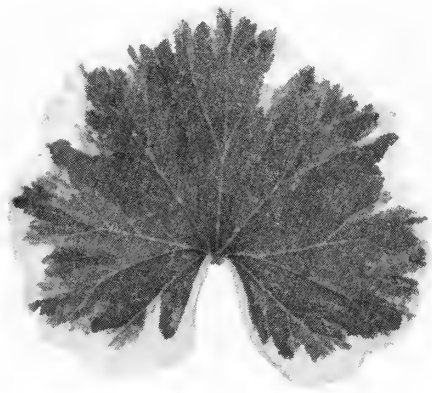
Individual geranium florets and complete flower cluster.

have five large petals, while the semi-doubles usually have the five large petals plus several smaller ones in the center. A few fully double floret forms are also offered. Depending on the variety, time of year, and other factors, the flower cluster may contain from 10 to 25 florets, and vary in diameter from 3 to 6 inches.

While the flower color is usually the first consideration in selecting a geranium for a garden location, it is also important to consider the color pattern, shape, and size of the leaves. Several novelty varieties have variegated leaves (zoned or mottled with different colors). The variegation is usually dark reddish-green and light green, but it may be white, yellow, or pink and green. The ivy-leaved geranium received its name from the shape of its leaves as well as its trailing habit of growth. Scented-leaved geraniums usually have lobed,

Examples of different leaf shapes and patterns, including several variegations, as found in commonly grown geraniums.





scalloped, cuspid, or even fernlike foliage. These variegated, ivy, and scented types of geraniums can add special interest to your garden or patio plantings.

Experience in growing several varieties of geraniums will help you in the selection of plants that have the desired growth habits, color, and other characteristics for your garden or patio location.

How to Prepare the Soil

Most experienced gardeners know that good soil preparation is one of their most important duties.

Many of the soils in Illinois are quite heavy and require the addition of liberal amounts of organic matter. Materials such as leaf mold, compost, well-rotted manure, or coarse sphagnum peat moss are good sources of organic matter. Put the material on the flower bed in early spring before planting time, and spade or fork it into the soil. The amount to use will depend on how the soil has been handled and how much organic matter was previously added. Generally a 2- to 3-inch layer is recommended.

Many gardeners believe that such organic materials also serve as fertilizers, adding the necessary nutrient elements to maintain good plant growth. Actually, the fertilizer values gained from most forms of organic matter are negligible, and it is usually necessary to apply a complete fertilizer such as 4-12-4, 4-12-8, 5-10-5, or 10-6-4. The recommended application rate for most soils is 2 to 4 pounds for 100 square feet of garden area.

When to Plant

Wait to plant geraniums outdoors until after the danger of frost is past. The frost-free date is difficult to predict; heavy frosts have occurred in Illinois as late as early June. In general, the reasonably safe planting dates are about May 1 in the southern area, May 15 in the central area, and June 1 in the northern area.

If your garden is in a well-protected location, light frosts may not injure newly planted geraniums. It is recommended, however, that you loosely cover the plants with a sheet of plastic film, newspapers, or similar protective material if frost is predicted. This suggestion would also hold true for early frosts in the fall. Such a covering, or misting with water, will often protect the plants against severe injury from the first killing frosts, making it possible to enjoy your planting for several additional weeks.

Where to Plant

Light conditions. Although six to eight hours of sunlight per day are usually sufficient, most varieties of geraniums will grow and flower best in areas of full sunlight. They can be planted in locations having light to moderate shade, but the flowering may be somewhat reduced. You may want to make use of ivy-leaved geraniums in shaded or partially shaded spots, where they are particularly suited.

Drainage. A fairly light, well-prepared soil with good drainage encourages a profusion of healthy roots. Many of the older reference books recommended that geraniums be grown in a heavy soil and with limited moisture. However, more recent studies have proven beyond doubt that if the plants are kept growing actively with ample moisture and nutrients, in a well-drained soil, they will produce more and larger flowers.

Wind protection. If possible, plant your geraniums where they have some protection from the wind. In a windy location the plants may be broken, and the flowers tend to wilt quickly. It is also difficult to keep a good supply of moisture in the soil in such a location, resulting in poor root development and top growth.

Suggestions for Summer Care

Watering. Geraniums usually require large amounts of water to grow and flower well. Apply the water to the soil, and avoid sprinkling or splashing on the foliage or flowers. This is especially important during hot and humid weather, because a combination of heat and moisture favors development of certain flower diseases. Watering with a soaker hose is ideal; it supplies water to the soil slowly and without wetting the plants. It is also important to avoid frequent and light waterings. Give the area a good soaking, applying enough water to moisten the soil to a depth of at least 6 inches.

Watch soil moisture conditions carefully during hot, dry weather and when there are heavy winds which cause rapid water loss. Also keep in mind that plants will need additional waterings throughout the growing season if they are under an overhanging roof.

Fertilizing. It may be necessary to apply additional fertilizer from time to time during the summer months. The size and color of the foliage are generally good indicators of fertilizer or water deficiencies. The leaves of most geraniums should be 4 to 6 inches in diameter, and medium to dark green in color. If you notice that the

leaves are small, or light green or yellow, it is likely that the plants are not getting enough water or fertilizer.

Apply one of the fertilizers mentioned in the previous section on soil preparation at least once during the summer months. Remember that the soil should be moist when you add fertilizer materials. If any of the fertilizer falls on the plants, wash it off immediately to prevent leaf damage.

Mulching. A summer mulch is usually desirable for most bedding plants, including geraniums. Following are several pointers for using mulches with good success.

1. Do not apply the mulch until the soil has warmed up in late spring or early summer. Early mulching tends to keep the soil cool too long and affects root growth and uptake of nutrients.

2. Apply the mulch when the soil is moist. Some mulches tend to extract moisture from the soil when first applied, causing wilting or burning of the plants. It's also a good idea to thoroughly moisten the mulch material either before or immediately after application.

3. For best results, apply the mulch 2 to 3 inches deep. A good layer of mulch acts as insulation and helps to retain moisture in the soil. And if the mulch is deep enough it helps control weeds. When seeds germinate under the mulch, the weed seedlings do not have enough energy to push through it. The mulch also prevents the sprouting of certain weed seeds that require light for germination.

4. Remember that when using an organic mulch it is often necessary to fertilize more frequently throughout the growing season, to replace the nutrients lost during the breakdown of the mulch.

Among the more common organic mulch materials available are peat moss, ground or crushed corncobs, shredded bark, rotted sawdust, buckwheat hulls, peanut hulls, cocoa bean hulls, pecan shells, crushed sugar cane stalks, and rotted wood chips.

Flower removal. Remove all dried or faded flower clusters as soon as possible. Leaving them on the plant will reduce the development of flower buds and new plant growth.

Care of Container-Grown Plants

Here are a few suggestions for the care of geraniums used as decorative plants in window boxes, tubs, or other large containers.

Soil and drainage. Use a soil medium similar to that used by florists — usually a well-drained mixture high in organic material, such as equal parts of soil, sphagnum peat moss, and perlite or coarse

sand. Root development is usually better when the soil mixture used to fill the planting containers is similar to that in the purchased pots.

Be sure to have one or more drainage holes in each container, and place some type of drainage material (such as broken pieces of clay pots, coarse gravel, or sphagnum moss) at the bottom. A 2- to 3-inch layer is the usual recommendation for large containers. Be careful not to plug the drainage holes.

Watering and fertilizing. Daily inspection is necessary to be sure that your plants have ample moisture. Apply enough water so that some drains from the bottom of the container. This helps insure penetration of the roots throughout the entire soil mass. Water only as needed, checking the soil for dryness to a depth of 4 or 6 inches. The soil near the base of the container should not be continually water-soaked.

Soluble fertilizers are considered best for container-grown plants. Many brands are available at florist shops or garden supply stores. Use them according to directions, and make sure that the soil is moist when adding any fertilizer material.

Transplanting. If a purchased plant has a very dense, compacted root system, it is usually beneficial to gently loosen it at the time of planting and cut or break some of the roots from the tight ball. If the plants are in peat pots or fiber containers, it's a good idea to thoroughly soak them before planting. It is also recommended that the bottoms of peat or fiber pots be removed to facilitate root penetration into the surrounding soil.

How to Propagate Plants

Success and satisfaction in increasing the number of geranium plants you have, or maintaining plants from the garden over the winter, will depend on careful attention to a few simple practices.

Geraniums are usually propagated by rooting tip cuttings or "slips." The seed of most common varieties does not come true to form, flower color, and other growth characteristics. Recently several hybridizers have made good progress in the production of seed-grown geranium lines, and these promise to become important in the future. However, most commercial propagators continue to rely upon vegetative propagation, the recommended method for the average home gardener.

Cuttings are usually taken from the garden plants during late summer or early fall, before killing frosts. Simply break off the desired number of shoot tips 4 to 6 inches in length. Remove the



New cutting (left) with lower leaves removed. Rooted cutting (right) a month after being set in rooting medium.

lower two or three leaves (on about $1\frac{1}{4}$ inches of the stem), and keep the cuttings from wilting until they can be placed into a rooting medium. There are several types of satisfactory rooting media available. Many gardeners have excellent success with coarse sand, perlite, or vermiculite. Others like to use a mixture of sand or perlite with shredded sphagnum peat moss — one-half sand or perlite, and one-half peat moss.

The use of a hormone powder which stimulates the rooting process is recommended. This powder is available at most garden supply centers. Simply dust the bottom half inch of the cutting stem or dip it into the hormone powder, then shake off all excess powder.

Almost any shallow wooden or plastic box, low flower pot, pan, or similar container which drains well and will hold 3 or 4 inches of the rooting medium can be used. Firm the medium into the container, moisten, and then insert the cuttings to a depth of about $1\frac{1}{4}$ to $1\frac{1}{2}$ inches. Try to avoid crowding the cuttings too closely together. It is best to have some air movement around the cuttings, as this will help prevent the spread of disease from one to another. After all of the cuttings are in place, water thoroughly to firm the medium around the base of the cuttings.



Plastic pot with cuttings inserted at 1½-inch depth and proper spacing. Note wire framework to support covering, and water reservoir (clay pot with drainage holes plugged) in center.

The next step is to cover the container with a sheet of clear polyethylene plastic to help prevent excessive loss of moisture from the cuttings and the rooting medium. This plastic covering will prevent wilting and thus eventually increase rooting.

Place the container in a warm, bright place. It is important that the cuttings receive light, but if the container is in direct sunlight excess heat will accumulate under the plastic.

Clear plastic covering—held away from the cuttings with wire frames—keeps moisture around the cuttings and in the rooting medium without restricting light.



Be sure to check the rooting medium for moisture content every few days, and water when necessary. It will usually stay fairly moist for a week or longer if thoroughly watered at the beginning.

After four or five weeks most of the cuttings will have roots $\frac{1}{2}$ to 1 inch long. This is the time to plant them into small individual containers filled with a good potting soil mixture. They may also be put into larger containers which hold several plants, then potted individually later. *Caution:* Pot at the same depth as cuttings were placed in the rooting medium. After potting, cover the containers for a few days with plastic sheets, or shade them with other material, to help maintain high humidity and prevent wilting. When the plants are well established they can be moved into more direct light.

Geraniums grown indoors in the winter often develop long, weak stems. To prevent this, keep the plants in a sunny south window, and pinch them back from time to time to encourage bushy growth.

Some gardeners take cuttings from their winter plants in February or March and root them for planting out during the spring or early summer. These young plants are usually in better condition to place in the garden than those which were grown through the winter in the home.

Another method of carrying plants from the garden over winter is to dig them before frost and place them in containers in a cool, *light* basement. By severely cutting back the tops, you may be able to hold them over winter until time for spring planting. Water the plants very sparingly, if at all. This method will only be successful under suitable conditions. It is not feasible in many modern homes.

Dealing With Pest Problems

There are a number of insects, other pests, and diseases that attack geraniums. Among the most common insect pests in the Midwest are the mealy bug, whitefly, leaf roller, and red spider mite. The geranium plume moth is also becoming quite common. Insects can usually be kept under control by following a regular spray program with an all-purpose garden spray. The plume moth is somewhat more difficult to control, because it is found inside the growing stem tips and in the flower buds.

A number of geranium diseases and disorders are caused by bacteria, fungi, viruses, and unfavorable environmental conditions in the garden. One of the most common diseases, Botrytis, often shows up in the form of blossom blight. It may also cause leaf spot and stem disorders. Common blossom blight is characterized by premature fading and drying of the petals. This disease is most likely to occur on geraniums that are watered from the top and have too much moisture on the petals, or when plants are located in an area of high humidity and poor air circulation.

To keep the disease from spreading, it is very important to remove the diseased blossoms and leaves as soon as they appear. A fungicidal spray containing captan or Botran is recommended, applied according to directions on the container.

Another geranium disease, bacterial leaf spot and stem rot, usually produces round leaf spots or large, angular, dead areas on the foliage. Severe wilting of the leaves commonly occurs, followed by some leaf drop. Sometimes the leaves hang on the plant after they have dried. The stem rot symptom is characterized by a "black rot." The stem blackens and shrivels into a dry mass at the later stages of development. An occasional branch on the plant will show symptoms

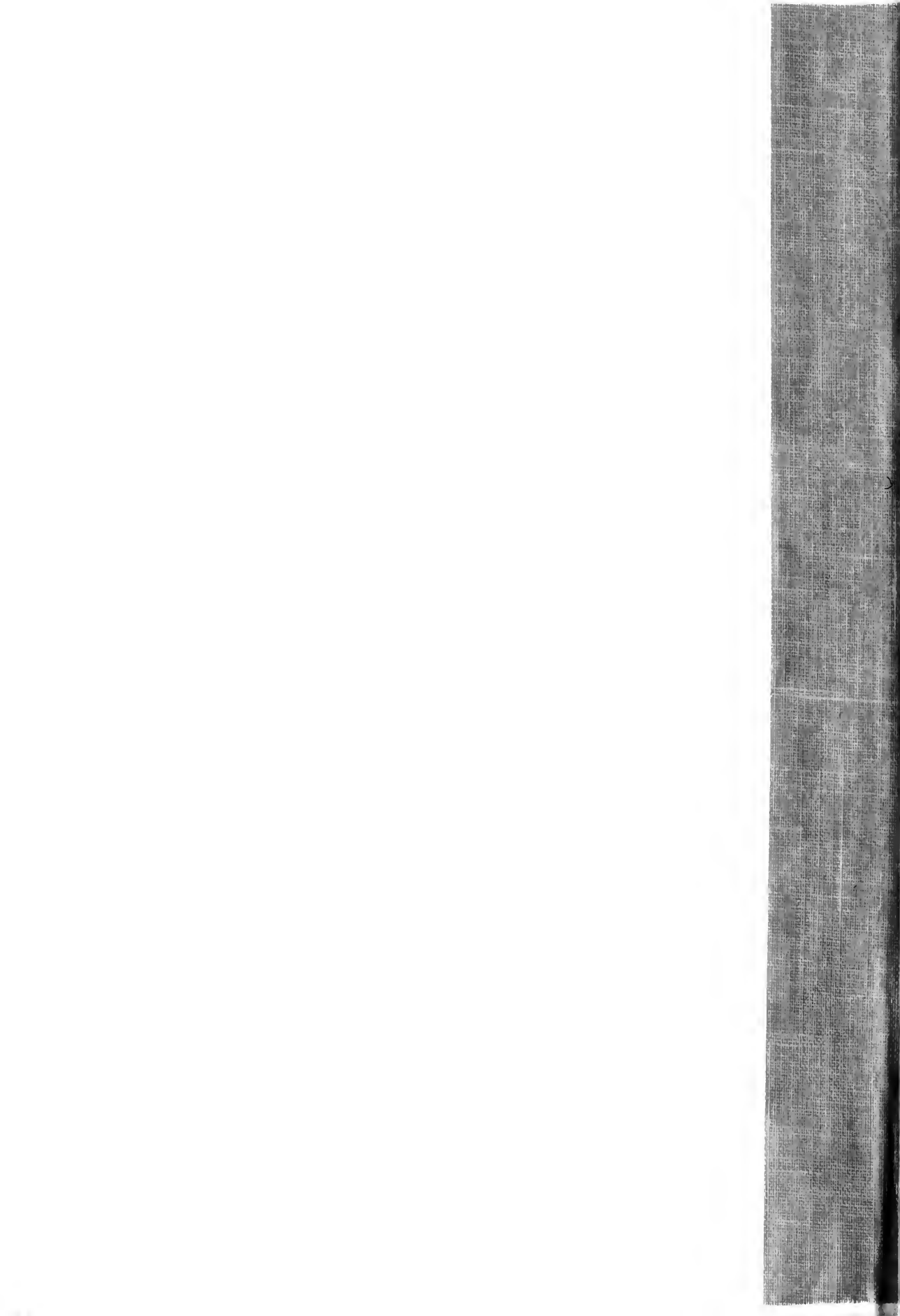
of the disease, and within a short time the whole plant becomes severely infected. When this disease shows up in a planting, the best control is to remove any plants that have an unhealthy or otherwise suspicious appearance, as the disease can be transmitted from one plant to another.

Blackleg, also commonly found in geraniums, generally appears on cuttings and young plants in the form of blackened and shriveled petioles and stems. The rot starts at the base of the stem and the affected plant soon wilts and dies. The spread and development of this disease is very often encouraged by overwatering the plants right after they are put out in the garden, or by having poorly drained soil.

Among the several virus diseases of geraniums, leaf "breaking" is one of the more common problems. This disease, which is most evident during the winter and early spring months, causes a reduction in leaf size and a slight loss of green coloring. The foliage appears stunted, and there is yellowing between the veins.

Another virus disease, crinkle or leaf curl, causes wrinkled and deformed foliage. It also is more severe during the winter and early spring months. Numerous yellow or light-colored spots appear on the leaves, and these may become brown during the later stages of development. Severely affected plants look disfigured and dwarfed.

The best control for these virus diseases is to try to obtain virus-free plants. Spray materials are ineffective against virus disorders, and the diseased plants never recover.





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