



## William T. Kemper Center for Home Gardening

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### African Violets

#### History

Many plants grown indoors flower continuously including begonias and African violets. African violets are the most popular of the continuously flowering houseplants. African violets are really not violets at all but members of the larger Gesneriad family, which includes gloxinias (*Sinningia speciosa*) and the lipstick plants (*Aeschyanthus* spp.).

African violets were first discovered by European colonists in Africa in 1892. Baron von Saint Paul was serving as the imperial district governor of Tanganyika, a small country in east Africa, when he discovered and collected two of the plants now called African violets. He sent seeds of this plant to his father in Germany. His father was impressed with their delicate beauty, and took them to Hermann Wendland, botanist and director of the Royal Botanical Garden. It was Wendland who gave the plants their botanical name: *Saintpaulia ionantha*. The genus name *Saintpaulia* was named after the Baron. The species name, *ionantha*, Greek for “resembling a violet,” is in reference to the flower.

African violets were introduced to the United States by a New York florist in 1894. In the drafty homes of the late-eighteenth-century, the plants often took a chill and died. African violets soon earned a reputation as being finicky and difficult to grow.

It is probably not a coincidence that the popularity of African violets increased with the introduction of the fluorescent light bulb in 1938. The ability of African violets to bloom almost continuously under such conditions, along with the wide variety of color, foliage, and flower-type, created a boom in gardening under lights.

The first national African violet show was held in Atlanta, Georgia in 1946. The show was so popular that Atlanta police were called in to control the crowds and traffic! The African Violet Society of America was founded shortly after this time. Today, affiliated clubs of the African Violet Society can be found in all major cities as well as many towns across the country.

#### Modern African Violets

Many modern African violets are the result of the hybridization of two species. Most often the parent plants are *Saintpaulia ionantha* and *Saintpaulia confusa*. Modern African violets come in a rainbow of colors. They are available in a wide range of foliage types and sizes as well as a variety of blossom choices.

#### Foliage Types

**Boy:** standard plain green leaf; named for ‘Blue Boy’; the most famous of the earlier varieties.

**Girl:** green leaf with wavy edges and a white spot at the base of the leaf blade; named for the ‘Blue Girl’.

**Variegated:** green leaf which is blotched, edged or spotted with yellow, cream or white.

**Red reverse:** leaf reddening that is especially visible from the back and very dark on top, often nearly black.

**Oak leaf:** cultivars of this variety tend to grow very large and have indented leaf margins.

**Quilted:** leaves of this large cultivar exhibit marked raised areas between the veins.

**Fringed:** leaves overall are extremely wavy and serrated giving the foliage a lacy appearance. These plants are difficult to grow so that the foliage forms a perfect wagon wheel; the leaves tend to twist and fold.

**Trailing:** plants produce variable foliage; crowns cover the top and hang down the sides of the pot in a trailing manner.

### Flower Types

**Single:** single (pansy-shaped) blossom with the top two petals smaller than the bottom three.

**Semi-double:** plants with more than five petals; yellow stamens visible.

**Double:** plants with at least ten petals; yellow stamens covered.

**Star:** plants with five equal-sized and evenly-spaced petals.

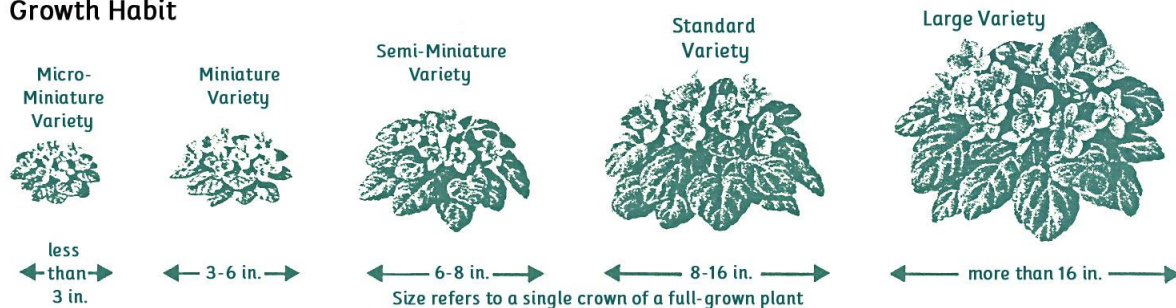
**Frilled/Ruffled:** plants with wavy petal edges. Ruffled means slightly wavy and frilled means very wavy petal edges.

**Bicolor:** plants with petals which are two or more shades of the same color.

**Multi-colored/Fantasy:** plants with petals consisting of two or more different colors called fantasy when petal colors are splashed, speckled, or striped.

**Picotee:** plants whose petals are white or pastel shades with contrasting dark edges; some varieties have slightly ruffled edges.

### Growth Habit



### Cultural conditions

**Potting mix:** A potting mix provides four basic needs: nutrition, moisture, aeration, and physical support. The texture and structure of the mix will control water retention, aeration, and drainage. African violets grow best in soil which is loose, porous, and well-draining.

The first consideration in choosing an appropriate potting mix is your home growing conditions—heat, humidity, and light. If your home is lacking in humidity, choose a mix high in organic matter. This mix will hold more water and will not dry out quickly. If watering with a continuous water delivery system (wicking technique),

choose a light mix with large particles that permit air spaces to increase air exchange around the roots. Choice of container is an important consideration when choosing a potting mixture. Clay pots are porous and tend to lose water to evaporation; plastic pots tend to retain water.

African violets can be grown in commercially produced soil mixes or you may choose to make your own African violet mix. Commercial mixes are convenient, economical, and contain the proper balance of nutrient elements necessary for growth. Commercial African violet mixes are generally more porous and have better drainage than house-plant potting mixes. African violet mixes also are slightly more acid than regular house-plant potting soil.

Many growers use soilless mixes. They do not contain natural soil from outdoors. Soilless mixes usually contain sphagnum peat moss and sand, or horticultural vermiculite or perlite and a small amount of African violet fertilizer. Regular applications of a weak fertilizer solution are recommended.

Some African violet growers prefer to make their own soil mix. If you choose to make your own soil mix, pasteurize all the ingredients. To pasteurize a soil mixture to reduce soil-born pests and diseases, fill a large roasting pan with moist soil mix. Cover with aluminum foil and insert a meat thermometer into the center of the soil mix. Place in the oven and set temperature to 180F; bake the mixture for one hour. Or you may choose to use the barbeque technique; let temperature rise to 160F for 30 minutes. Do not allow the temperature to go over 180F or beneficial soil bacteria will be killed. Remove the cover and allow the mix to aerate for at least four days. To increase aeration, stir several times each day.

The following potting mixes may be used as is or modified to meet specific cultural requirements.

#### **Cornell Modified Peat Lite Soilless Mix**

- 2 1/4 quarts peat moss
- 1 1/4 quarts vermiculite
- 1 1/4 quarts perlite
- 2 1/2 tablespoons limestone
- 1 1/4 teaspoons superphosphate

#### **Soil Mix**

- 1 part peat moss, humus, or leaf mold
- 1 part garden soil
- 1 part perlite, vermiculite, or sand

#### **Light Requirements:**

The biggest challenge you will face as you attempt to bring your plants into bloom indoors is to provide them with enough light. With any given plant, flowering generally requires more light than is needed for growth of the plant's foliage. The challenge goes beyond providing the quantity of light needed; the light must be of the right quality and of proper duration.

African violets flower in significantly less light than most other kinds of flowering plants. In the United States and Canada, normal daylight hours provide sufficient light to bring African violets into bloom, provided you select the right exposure for your situation. Place plants in bright, indirect light from a south-, east-, or west-facing window. Generally, place African violets in a south-facing window only during midwinter. Plants that are grown in daylight need to be turned a quarter-turn weekly to maintain their symmetrical rosette form.

While you can expect reasonable success if you grow African violets in natural light, artificial light provides more consistent results. Because the duration and intensity of the light can be controlled, plants grow larger, more vigorously, more symmetrical, and bloom regularly.

Use a combination of cool-white and warm-white fluorescent tubes or grow lights specially designed for indoor gardening. Supply plants with 12 to 14 hours of light each day. An inexpensive timer may be used to insure plants receive the proper duration of light daily. Place standard-sized plants 8 to 10 inches and miniatures about 6 inches below the light source. Elevate miniatures on a pot if they are grown with standard plants under the same light fixture.

Light quality varies with the location of the plant under the fluorescent tube. Light from fluorescent tubes is most intense in the middle of the bulb. African violets with dark-green foliage and dark blooms usually absorb more light. Place these plants toward the middle of the fixture where light is strongest. Plants with light- green leaves and white or pink flowers require and absorb less light. Place these plants near the end of the tubes where the light is weaker.

### **Watering:**

Proper watering is one of the most important requirements for growing beautiful African violets. African violets grow best when watered thoroughly, and then allowed to dry slightly between watering. Plants may be watered from the top, bottom, or by wicking.

When watering plants from the top, make sure to water with tepid water and continue until water runs out the bottom of the pot. If a saucer or tray is used to catch the drain water, empty it so problems do not develop due to the “waterlogging” of the roots. African violets are especially susceptible to leaf-spotting, which is caused by cold water splashed on the leaves. Leafspotting can be avoided by watering carefully with tepid water.

To bottom water, fill tray or saucer below the pot with tepid water. Water will be drawn up into the soil by capillary action. After about one hour, pour off the excess water in the tray. As with top watering, do not let plants sit in standing water as root damage may occur. Plants that are bottom watered should be flushed through with tap water every few months to remove excess mineral salt build-up.

An easy way to water is by using a wick and a water reservoir. Reservoirs may be purchased from a commercial supplier or can be constructed from plastic margarine tubs or whipped cream containers. Any container with a flat bottom and fitted lid can serve as a reservoir. Wicks may be constructed out of any synthetic material such as nylon stockings, nylon yarn or cotton string.

To construct a wick system, cut a 1 inch hole in the center of the reservoir lid. Cut a second larger hole in the lid for adding water to fill the reservoir. Pre-wet the wick and string it through the hole in the bottom of the pot. Leave the wick 1 to 1 1/2 inches in length and tie a knot on the inside of the pot. Unfray the strands of the wick and evenly distribute them around the inside of the pot. Insert the other end of the wick into the centered hole in the reservoir so that the wick reaches the bottom.



The capillary action of wick watering will supply as much water as the plant requires. The size of the reservoir can be adjusted to meet the needs of the plant. When the surface of the soil is moist the wick is operating properly. If the soil seems excessively wet, use a smaller diameter wick. If the soil stays too dry, use a larger wick or increase the number of wicks per pot (2-3).

Approximately once every six weeks, water the plant from the top to flush fertilizer salts from the pot. At this time, clean the reservoir and put in fresh water. In addition to adding water, plants can be constantly feed a dilute solution of fertilizer (see below). An algicide such as Physan 20 may also be added at a rate of 1/4 to 1/8 teaspoon per gallon of water.

### **Fertilizing:**

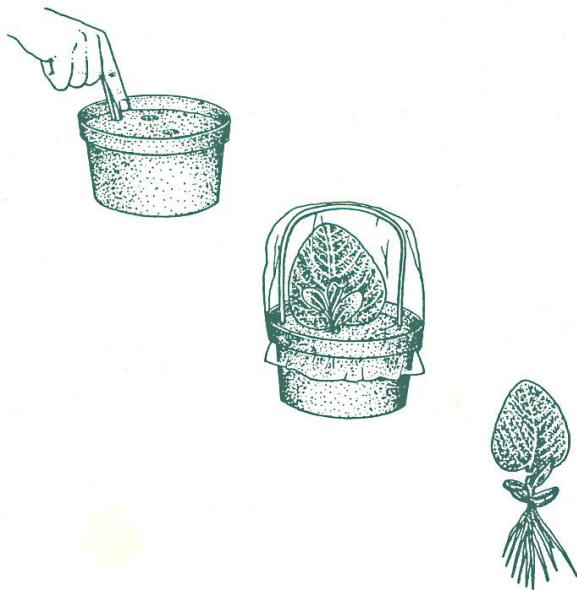
Most African violet growers recommend feeding plants with a dilute fertilizer solution at each watering. A standard chemically balanced formula (such as 20-20-20) is adequate for most growing conditions. African violets grown under artificial lighting should be feed 1/4 teaspoon fertilizer/gallon of water. When growing under natural light conditions, use 1/8 teaspoon per gallon of water. During periods of heavy bloom, African violets benefit from a high phosphate-potash fertilizer. Remember plants are more efficient users of fertilizer during active growth periods (late spring, summer, to early fall) and will require less water and fertilizer during other periods, frequently referred to as the resting period.

**Propagation:** African violets are easily propagated from leaf cuttings. Choose a well-developed mature, but not old, leaf. Remove the leaf with a clean break at the main stalk. To protect the mother plant from rotting, do not leave any part of the leaf attached.

With a sharp knife or razor blade, shorten the petiole (leaf stem) to 1 inch long. If desired, the cut may be dusted with a rooting hormone powder. Although plants will develop roots in water, stronger plants are developed when planted directly in a rooting medium. One of the simplest of these is vermiculite. Other choices include sphagnum moss, perlite, sand or a combination of these materials.

Fill a suitable container with rooting medium. Make a hole and plant the petiole near the surface of the rooting medium about 1/2 inch deep. Firm the rooting medium around the petiole and make sure that the leaf blade is in contact with the rooting medium. Plantlet will develop from the junction of the stem and the leaf blade; not from the petiole alone. The leaf may need some bracing until roots form to anchor the plant. Some suggestions for braces include the back of a plastic fork or a plastic plant label. The leaf may also be braced by propping against the rim of the container. (Do not use a wooden brace as wood tends to develop mold and mildew.) Keep the plant damp, but not wet. One way to retain moisture is to cover with a plastic bag. This maintains high humidity and keeps the plant from drying out. Place the leaf in a bright, but not hot, spot.

When the plantlets develop 4 to 6 leaves or are about two inches high (approximately 2 months), gently separate their roots from the mother leaf roots. Discard the mother leaf and pot the plantlets in a mixture of half rooting medium and half regular potting mix. When propagating, always remember to label the plant or container.



Some maintenance may be required to keep African violets in a vigorous condition and ever-blooming. To maintain the shape of the plant, suckers must be removed as soon as they form. Remove any old leaves that are yellow and bleached. Occasionally, some leaves may need to be removed to maintain the symmetry of the plant.

Small plastic doilies may be used for keeping leaves upright - Cut a hole in the center of the doily large enough for the stalk. Make a straight cut to the outer edge and manipulate under the leaves. The cut may be laced back together with twist ties. Besides holding up leaves, the doilies look attractive and help in judging plant size. Doilies may be purchased from nurseries specializing in African violet culture.

African violets need repotting on occasion to keep them growing well and in good proportion to their pot size. Generally it is time to repot your African violet when the plant becomes rootbound and begins to develop an extended crown. Most African violets prefer to be somewhat rootbound which encourages blooming.

### **Bloom Failure:**

The most common cause of bloom failure is insufficient light. Light intensity may be increased by placing the plant closer to the window or light source. Make the change gradually. A quick change to higher light intensity may burn the foliage.

When growing African violets under artificial lighting conditions, plants may respond by blooming concurrent with a change in light duration. If lights are usually on for 12 hours, adjust day length to 10 hours for a few weeks, then go back to 12 hours. If this does not work, try a few weeks at 14 hours of light each day to induce bloom.

Another technique to stimulate blooming involves pruning the outside leaves of African violets to give the inside row a chance to produce flowers. Each row of African violet leaves will produce flowers only once. When the plant has more than 5 rows of leaves, the number and size of blossoms will decline until the plant fails to bloom.

Also note that transplanting may disrupt the plants normal growing routine and inhibit blooming. Recently transplanted plants are not likely to flower until roots are well established in new soil.

## **Insects and Diseases**

**Botrytis blight and gray mold blight:** Mold thrives in conditions of high humidity and poor air circulation. Gray mold first appears on buds and blooms, causing them to turn brown and become soft. Isolate the infected plant and remove the diseased leaves and blooms. Increase air circulation by spacing plants at least 1 foot apart. A fungicide may be applied if the disease cannot be controlled by sanitation of infected parts.

**Crown rot:** Crown rot is caused by a fungus that infects the roots of plants. Symptoms include leaves in the center of the plant turning dark green and then black. Plant may begin to wilt. To treat crown rot, remove plants from their pot and gently shake the soil from the roots. Trim off the dead roots or soft stems to promote healthy growth. Repot in sterile soil. Water the plant from below keeping water away from the crown.

**Petiole rot:** Petiole rot is caused when leaf and leaf stalks come in contact with fertilizer salts on the rim of the pot or container. This typically is a sign of overfertilization. Plants grown in clay pots are particularly susceptible to petiole rot as fertilizer salts tend to collect around the rim. To prevent petiole rot, line the rim of your pot with tin foil or seal the rim with paraffin wax; or you may choose to use doilies. To treat petiole rot, cut back the afflicted leaves to expose healthy growth. Leach out excess fertilizer salts by rinsing pots through three times with plain tap or distilled water. Do not fertilize until the plant recovers.

**Powdery mildew:** Powdery mildew is a fungal disease. It typically appears as white or gray powdery patches on the leaves, stems, buds and flowers. To prevent powdery mildew, provide better air circulation around the plant; remove infected plant parts and consider applying a fungicide.

**Cyclamen mites:** Cyclamen mites are spiderlike pests less than 1/100 inch long. Infested plants exhibit stunted growth. The leaves become brittle, and cupped or curled. Flower buds fail to develop properly and wither. To treat for cyclamen mites, remove infested leaves and then spray with a miticide labeled for African violets or houseplants.

**Leaf mealy bugs:** Mealy bugs appear as white cottony fluffs on underside of leaves, stem, leaf axils and in crotch areas. Mealy bugs suck plant juices from the plant tissue resulting in stunted growth. For light infestations of mealy bugs, dab individual insects with a cotton swab dipped in alcohol. Spray heavy infestations with an insecticide containing malathion, resmethrin or a horticultural oil.

**Soil mealy bugs:** Soil mealy bugs are creamy white insects that resemble grains of rice and attack feeder roots - tiny, white roots near the soil surface. Plants suffering from infestations of soil mealy bug will appear wilted. Plants should be sprayed with malathion every 7 to 10 days until the pest problem is eliminated.

**Thrips:** Thrips are tiny insects that appear as gray or black dots. Symptoms of thrips damage appears as silvery streaks on leaves with blotches and brown areas at the margins. Flowers may also be affected. Pollen may appear on flower petals as thrips are pollinators of African violet flowers. Plants suffering from thrips may be treated with diazinon. For severe infestations, spray or immerse plants in a malathion solution according to label directions.

### ***For more information contact:***

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