

# VARIEGATED FOLIAGE IN AFRICAN VIOLETS



## History

Introduced in 1957 by Mrs. Tommie Louise Oden, the first variegated leaf African Violet was the result of a heredity mishap of "White Pride" (then one of the best double white bloomers available). Mrs. Oden grew this white edged foliage plant via nine generations and then introduced it. It was subsequently named "Tommie Lou" in her honor. For the next 11 years, hybridizers tried unsuccessfully to create other variegated leaf hybrids. Finally Harold Reinhardt and Lyndon Lyons understood the dynamics of variegated foliage violets and produced the second generations, which included hybrids such as "Top Dollar", "Nancy Reagan", "Happy Harold", and "Lyndy Lou". Nowadays these plants are so popular that some hybridizers (such as such as Yvon Decelles and Michel Tremblay) specialize on creating variegated foliage African Violets exclusively.

## What causes the Variegated Foliage?

The most common culprit for the cream, white, pink, bronze, yellow, peach, silver markings on the leaves of these African violet is simply a recessive cytoplasmic mutation. However, in the case of mosaic variegation it stems from a serious genetic mutation which is quite difficult to reproduce and very rare. In the wild these specimens are viewed as recessive and therefore don't survive. In our homes we cater to them and propagate the longevity of this trait.

So what is a cytoplasmic mutation? Well, the plant cell is composed of a nucleus which possess the genetic codes and a cytoplasm which is the liquid surrounding the nucleus. In the cytoplasm we find the chloroplasts that are responsible for the creation of chlorophyll. In these plants the level of chloroplast is deficient and therefore not as much chlorophyll is created to make the leaf all green. The variegated parts of the leaf are inert and rely on the

green parts to survive. Because of this, variegated foliage plants grow slower than their green leaf counterparts and are more susceptible to shock, diseases, and stress.

## Types of Variegated Foliage

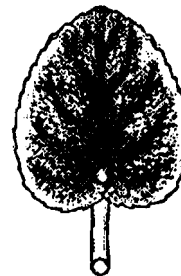
In most cases when ordering from catalogs or verifying the registered listings of an African Violet it will state that the plant is variegated but won't go any further. To understand and recognize the type of variegation does give us some insight in the care and culture of a specific hybrid.

### *Sport Mutations – Spontaneous*

This is the least stable kind of variegation found. It may be caused by virus or by some defectives cells that will have temporary impacts. It may be only found on only new leaves or on only one leaf out of the whole plant. The plant may eventually return to its natural green foliage or may continue to exhibit variegation but it will be nearly impossible to reproduce in subsequent propagations. These plants are highly unstable and may or may not be impacted by high temperatures and high nitrogen fertilizers.

### *Crown – Champion*

Called either Crown or Champion variegation, this pattern of variegation is passed via cytoplasmic heredity. It is believed to originate from a shock or genetic error in some recessive cytoplasmic heredity trait and has been successfully propagated by dedicated African Violet growers. It is for the most part permanent and very stable, although these cultivars must be under constant supervision since they will die if they fail to produce enough chlorophyll to sustain the plant. They require special care and cannot be fed fertilizer with high nitrogen and/or be placed



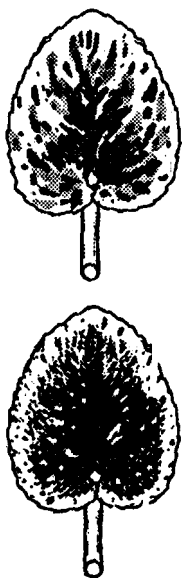
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under temperature over 80 F or they will lose the variegation pattern. Most growers will fertilize plantlets exhibiting this form of variegation with high nitrogen fertilizers to give them a good start and aid the mature plantlets in replacement of used chlorophyll. The variegation in this type of plant occurs mostly at the crown of the plant where the new leaves may show very little green and must rely on older foliage for subsistence. The edges of the leaves and the veins will usually remain green.

### ***Tommie Lou***

More and more this type of variegation becomes the most common as it is easily hybridized into new cultivars. It is also passed via cytoplasmic heredity and is very stable. High nitrogen and high temperatures less affect it than crown variegation. This pattern may simply consist of a white edge surrounding the leaf or may extend more into the leaf margins. These plants are usually green in the midrib but will eventually change to various colors towards the edges of the leaf.



### ***Mosaic - Jarrett***

Only very few African Violet exhibits this form of variegation. It is the result of a deep genetic (found in the nucleus genes) defect or mutation and very few plantlets reach maturity when used in a hybridizing crossing. It is therefore considered a sterile specimen and is usually very hard to grow. However



few specimens are available and the pattern of variegation is very stable and not at all affected by temperature

changes or nitrogen fertilizers. The mosaic pattern covers the whole leaf with small flecks of variegation markings.

### **Of Special Concern...**

For the most part variegated foliage African Violets require the same care and culture as the standard green foliage African Violets, however some special attention to these topics should be taken into consideration:

#### ***Birthmarks***

This isn't a form of variegation in foliage but simply a birthmark. It's a genetic condition that can be found on the underside of leaves. An easy example is to notice that the underside of silver under sided leaf exhibits red staining or markings. This is often found in multi-colored blooming varieties. By nature it states genetically instability, hybridizers usually set these plants apart for future hybridizations programs. It usually makes the prettiest plant (but may not always bloom or grow to specifications) as more color in the leaves usually means more color in the blooms also.

#### ***Variation Reverting Back to Green Foliage***

In some rare occasions some variegated leaf African violets have been known to revert (all other growth condition set apart) to totally green leaves plants. In these cases, the variegation trait will not reappear in future propagations of the plant. This may be explained by the high instability of this mutation and some hybrids may be more prone to this than others.

#### ***Brown Spotting on Leaves***

The leaves of Variegated African Violets have a deficient level of chlorophyll. The chlorophyll in the leaves can only be found in the green parts and the variegated colored parts are fed through these chlorophyll areas are not able to assimilate nutrients and light and cannot survive on their own. These variegated parts (non green parts) of the leaf will therefore not be able to sustain any

form of injury or bruise resulting in dark brown spots. Variegated foliage African violets should be handled more carefully than others and not be overcrowded where the leaves may touch other plants. They are more susceptible to abrupt changes in temperature either in ambient temperature and/or the temperature of their watering water. Plants that are left with a soggy and wet soil will not recover as easily as a solid green foliage plant and may show signs of distress by drying out (brown spots) on the variegated edges.

#### ***Fertilizers***

Much debate is centered on this topic. Many growers argue that variegated foliage African violets should obey to a strict regiment of low nitrogen fertilizers such as 5-55-7 or 5-50-17. While others argue that this impacts on the plant overall growth, contributes to tight centers, low and sterile blooms, and an overall weakness in the health of the plant. Fertilizing with a well balance fertilizer (20-20-20 or 15-30-15) should provide good results for most hybrids however monitoring of your variegated leaf African violets will dictate their fertilizer diets. Light and temperature variables set apart some hybrids may need depleted nitrogen fertilizers from time to time to enhance their variegation traits.

#### ***Lights***

Variegated foliage African Violets grow slower than their solid green foliage counterparts and are more sensitive to poor growing conditions. Their ability to process light is therefore slower. In order to provide good growth and blooms the plants will require a full 12 to 14 hours of light and a good 8 hours of darkness.

#### ***Temperature***

The supposed ideal temperature for variegated foliage hybrids ranges from 58F(night) and 68F(day), however most plant will do well with temperature averaging 70F. Most growers agree that

temperature over 80F have some impact on soil bacteria that activates the plant's ability to produce higher levels of chlorophyll. This phenomenon increases the plant's capacity to absorb higher levels of nitrogen and therefore rendering foliage uniformly green (a temporary condition which most times will revert back to normal once the plant is grown in cooler conditions). At the other end of the spectrum, plants grown in too cold conditions will exhibit higher deprivation of chlorophyll and may revert to and all white foliage which may be fatal to the plant. Bottom shelf of the light stand is often favored, as it does not suffer from light fixture emanating heat as much as other shelves.

### **Propagation**

In order to propagate by leaf cutting you must choose a leaf containing as much chlorophyll (green parts) as possible. Older mature leaves are therefore favored, second row from the bottom often seen as best. Since the level of chlorophyll in variegated leaves is more intense during the summer months (or when temperature is at the warmest) it is also advise to put those leaves down to root in late spring/summer and/or place the plant to propagate under warmer temperatures for about one month prior to leaf cutting and keeping the rooting leaves at higher temperature.

The plantlets should exhibit a good amount of green; all variegated plantlets will not survive on their own. Many growers argue that plantlets should be encouraged to grow totally green (with fertilizer intake, warmer temperature, and a little less light) until they are old enough to be completely established and then should be encouraged to exhibit their variegated traits. The young immature green foliage will have to be removed as the plant grows and should not impact the overall look of the plant once it reaches maturity.

For many variegated leaf hybrids (especially the Crown variegated specimens)

crown propagation (putting the crown of the plant to root) offers poor results since it often lacks the adequate levels of chlorophyll needed for plant tissue growth. Generally, all variegated leaf hybrids will take more time to propagate than their Green leaf hybrids counterparts.

### **Hybridization**

The Variegated trait being a cytoplasmic mutation (and therefore not being transmitted via the genes) it is therefore very difficult to recreate. In order to be able to create new cultivars of variegated foliage the mother plant must possess the variegated qualities since she will transmit the plant tissue. However, the color of the variegation is transmitted genetically and therefore leaf under color of the parent plants will predict the colors of the variegation (i.e. pink under color produces pink variegation, silver produces white, green produces cream, etc)

### **Show Requirements**

Variegated African Violets are, for the most part, exhibited in their own designated variegated class. They are required to meet the same standards of Standard foliage plants in their appointed section (i.e. Double flowered standards variegated, Single flowered Standards variegated, etc), Specimens displayed in the Variegated Class should exhibit some level of variegation and to some extent these levels of variegation in the leaves may have some impact on the overall rating of a plant, as per discretion of the Judge.

### **Conclusion**

What else can be added, Denis Croteau in his literature states that if African Violets are known as the "Queen of the Indoor Gardening" then the variegated African Violets can be considered the "Jewels of the Queen". The array of colors that paints the foliage of Variegated African Violets is in itself a portrait, adding the multiple possibilities of flowering colors and

patterns this certainly makes up for the little extra care and slower growth of what is after all a wonderful heredity mistake.

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