

Breeding Guidelines in the Genus *Aglaonema*

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Aglaonemas are an important group of foliage plants because they withstand interior growing conditions better than many other plants. Commercial cultivars of *Aglaonema* generally have green, bluish-green or grey foliage which may be marked with lighter grey or silver patterns. Petioles may be green, mottled green and ivory, or ivory colored. *Aglaonema commutatum* 'Tricolor' (*A. marantifolium* Tricolor) is a well known exception with its bright pink petioles. In general, *aglaonemas* are considered to be relatively slow growing and small to moderate in size.

Some of the objectives of the plant breeding program at the Agricultural Research Center-Apopka include development of new *Aglaonema* colors. Several important *Aglaonema* hybrids have been developed by nurserymen and hobbyists previously, including 'Silver King', 'Silver Queen', 'Fransher', 'Parrot Jungle', 'Manila' and 'Abidjan'. The purpose of this report is to describe the techniques of *Aglaonema* hybridization at ARC-Apopka and hopefully encourage other people to attempt crosses on their own. A list of *aglaonemas* useful for breeding is also included (Table 1).

Aglaonema stock plants are grown in a medium consisting of 2 parts Florida peat moss, 1 part cypress shavings and 1 part pine bark by volume. This basic medium is amended with 7 lbs. dolomite, 3 lbs Perk[®] and 10 lbs Osmocote[®] (19-6-12) per cubic yard. They are grown either in greenhouses or slat sheds with light intensities of 800-1500 foot-candles and temperatures ranging from 65-95°F. Under these conditions, *Aglaonema* tend to flower from April through July.

The *Aglaonema* inflorescence is made up of a spadix and a spathe. The spadix consists of an upright central axis covered with several minute petalless flowers. Staminate (male) flowers cover the upper half of the spadix and pistillate (female) flowers are located on the basal half. Female flowers consist of a stigma, style and ovary, while the male flowers are made up of the anther and filament and produce pollen. Pollination involves transfer of pollen from selected male flowers to stigmas of selected female flowers.

The spathe covers the spadix until anthesis (the day of flower opening) at which time it unfurls and exposes the male portion of the spadix. Whenever possible the inflorescence should be pollinated the same day as the spathe unfurls. Usually the spathe unfurls during the night, so flowering plants should be checked each morning for newly opened inflorescences; subsequent pollination may be made at any time during the day of anthesis.

It is desirable to use freshly collected pollen for use in pollination; indications are that *Aglaonema* pollen will survive only a few days in storage, even if held in a refrigerator.

When making a pollination, a camel hair brush may be used to pick up pollen and transfer it to the stigmatic surface of female flowers. The brush will pick up pollen easier if it is first brushed lightly across the moist, sticky surface of the stigma. The stigmatic surfaces of the female flowers may be identified by their golden yellow color. Following transfer of the pollen we routinely wrap the entire inflorescence with a wet paper towel and enclose it with a plastic bag to ensure 100% relative

humidity for 24 hours, after which the cover is removed. This technique is essential to obtain maximum seed set with *Dieffenbachia* (1). Data from *Aglaonema* indicate high humidity may not be absolutely essential for pollen germination on all cultivars, however, we still use this method as a precautionary measure.

Following a successful pollination the flowers (now actually fruit) will begin to enlarge and turn dark green. In 4-5 months following pollination, the fruits turn bright red and should be harvested. The fleshy red seed coat should be removed soon after harvest and the seed planted before it shows any signs of drying. As an extra precaution, cleaned seeds can be soaked in 10% Clorox for 10 minutes followed by a similar dip in a benomyl solution. Seeds are then placed in small plastic trays in a shallow depression made in a moistened medium consisting of 1 part peat moss and 1 part perlite, by volume, and amended with 3 lbs dolomite and 1 lb Perk per cubic yard. Each container is enclosed with a plastic bag to maintain the

high relative humidity around the seeds. The trays are placed under fluorescent lights which are on 12 hours daily in a growth room held at 80°F. Any environment which keeps the seeds warm and moist and provides some light should yield excellent germination. Once the seeds have germinated (after 4-8 weeks) and at least one leaf has matured, the plastic cover is removed and seedlings are transferred to the greenhouse. When seedlings have produced 4-5 leaves they are transplanted into 4-inch pots containing the same medium used for germination. Seedlings are finally repotted into 6-inch pots using our normal 2:1:1 medium.

Aglaonema hybrids display their mature foliar variegation pattern in the first leaf, which shortens the waiting period for the determining which hybrids are most interesting.

Literature Cited

1. Henny, R. J. and E. M. Rasmussen, 1980. Producing *Dieffenbachia* from seed. *Aroidiana* 3:94-95.

Table 1. A listing of *Aglaonema* species and cultivars that may be useful for breeding.

Species or cultivar ²	Desirable traits for breeding
<i>A. commutatum</i> var. <i>picturatum</i>	vigor, foliar color
<i>A. commutatum</i> 'Treubii'	vigor, suckering
<i>A. commutatum</i> 'Tricolor'	petiole color (pink)
<i>A. costatum</i>	foliar color
<i>A. crispum</i> 'Chartreuse Halo'	large leaf size, vigor
<i>A. modestum</i>	round leaf shape, compact growth
<i>A. rotundum</i>	red foliar color, round leaves
<i>A. pictum</i>	foliar color, dwarf
<i>A. pictum</i> 'Tricolor'	foliar color, dwarf
<i>A. nitidum</i> 'Curtisii'	foliar markings (stripes)
<i>A. X</i> 'Manila'	foliar color, vigor, suckering
<i>A. X</i> 'Abidjan'	foliar color, large size

²Nomenclature based on: *Aglaonema Grower's Notebook*, by R. N. Jervis, 1980. 64 pp.