

Foliage Plants and Gibberellic Acid and its Effects on Dormancy of Caladium Tubers. Occasionally, the projects have been published and many of them have improved the OH teaching program and the landscape of the community. Individual advisors guide the students, however a co-ordinator keeps the projects on schedule.

A special problems course is also offered. The course is limited to advanced undergraduates and may only be taken with the permission of the Department Head. The course consists of individual investigation, research, studies or surveys of selected topics.

Laboratories are conducted on campus and in a student-operated commercial greenhouse range and nursery. The facilities were built 5 years ago and include 23,000 ft.<sup>2</sup> of glasshouses; 3,000 ft.<sup>2</sup> of lathouses, cold frames, and seed beds; an arboretum; an All-America test garden; and several acres devoted to cut flower, container ornamentals and sod production. Students actually built 5,000 ft.<sup>2</sup> of glasshouses and are currently erecting a 3,000 ft.<sup>2</sup> solar heated glasshouse. The campus is planted with many interesting and unusual ornamentals and serves as an outdoor laboratory. Students are certified to operate the very latest models of ornamental equipment. All Cal Poly OH students are also qualified in agricultural mechanics, tractors and equipment, and surveying. A disease and pest course applies most of the pest control materials throughout the teaching area. Field trips are taken to the ornamental producing areas in Santa Barbara, Salinas, Los Angeles and Lompoc. Nearby Hearst Castle offers a unique laboratory for ornamental study.

Cal Poly students participate in an internship program. Interns are registered as full-time students but spent an entire quarter as paid employees in commercial establishments working in production and managerial capacities. The internship is developed in advance by the University and the employer. The intern is visited on the job at least twice a quarter by his departmental advisor.

Service projects of the Department and the OH club provide the students with a different kind of experience. The Department sponsors workdays at the teaching facility. The Rose Bowl Parade float is a University and community project that receives strong departmental support. On Arbor Day, the OH club and the department planted trees at local schools and throughout the community and restored a 200-year-old mission fig tree. The OH club sponsored a forum on the farm labor referendum, an educational field trip between quarters, and a native plant symposium. An

entire day was spent on landscaping a home for the mentally retarded.

The practical experience provided a Cal Poly student is in stark contrast to that of a traditional land-grant university. While the latter stress theory, Cal Poly stresses modern commercial techniques and action. It is felt that a blend of the 2 systems is needed in teaching ornamental horticulture today. The criticisms of industry make it imperative that the land-grant institutions initiate practical experience programs such as the one instituted at the University of Florida (10). Cal Poly offers many other approaches. The high priority on teaching and teaching methods at Cal Poly should also be considered in land-grant institutions that have historically placed major emphasis on research. Request for graduates and observations of their successful performance in the industry makes criticisms of Cal Poly's program difficult. Nonetheless, it is apparent in the classroom that some Cal Poly students wish to be challenged in a different way. Evidence of the need for some basic theory is that Cal Poly is placing students in our most highly respected ornamental graduate schools. Also, it has been observed that some training on basic theory would facilitate the solution of production problems encountered by graduates in the industry.

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## COMMERCIAL PRODUCTION OF GESNERIADS IN SOUTH FLORIDA

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*Abstract.* Gesneriads are best known to the public for Gloxinias; lovely as they are, other representatives deserve to be well known. In particular, the trailing forms, so well

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suiited to the modern fashion of hanging baskets, are worthy of notice. Various of these are described, together with observations on the culture of Gesneriads in south Florida, their resistance to cold and their general cultural requirements.

The Gesneriad Family has contributed much to modern horticulture. *Saintpaulia*, the African Violet and *Sinningia*, the *Gloxinia* bring satisfaction to plant enthusiasts and to growers all around the world. Though these two genera account for the majority of plants sold within the family

many other Gesneriad genera are enjoying increased popularity and showing good sales potential.

Increasing demand for "new" hanging basket plants has brought many species of the family to new heights of popularity. *Aeschynanthus*, *Columnea*, *Episcia*, *Kohleria*, and *Nematanthus* all are beautiful trailing species.

"New" flowering pot plant subjects for indoor use under lights and temporary interior decoration have come from *Achimenes*, *Episcia*, *Kohleria*, *Nautilocalyx*, *Sinningia*, *Streptocarpus* and *Smithiantha*.

Active hybridization amount hobbyists, growers and horticultural institutions continue to bring new varieties into the trade. Hybridization potential within this group is fantastic with tremendous opportunities for flowering material that can be grown and maintained indoors.

The best growing conditions are to be found in wet pad plus fan cooled greenhouses, even in Florida. Many species are easily grown under 50% to 80% shade without any additional environmental controls. However, a collection or any wide variety of species would benefit from closer environmental control.

Bacterial and fungus diseases are prevalent and become the major reason for the need of close environmental controls in the culture of Gesneriad collections.

*Achimenes*—For central and southern Florida this is the summer Petunia. Spectacular flowers and ease of cultivation make this colorful genus well worth the gardeners acquaintance. Small scaly rhizomes are produced in profusion in winter as the plant fades. Spring sees the return of the persistent plant in the garden. The color show can start in spring and last until the onset of cooler weather in the early winter. Some varieties are well suited to baskets. The variety 'Tarantella' is excellent for this purpose. Rhizomes are available from some bulb dealers such as Park Seed Co. and from numerous European growers.

*Kohleria*—Both beautiful velvety foliage and clusters of tubular or bell shaped flowers adorn this group. This is an excellent late summer and early fall basket plant. It shows itself best during the least active part of the Florida garden shop marketing season and can help add interest to the shops offerings during this time. The plant looks 'ratty' during the coolest months of the year during which time many scaly rhizomes are formed in the soil. Active growth resumes with the return of warmer weather. *K. Amabilis* is most common; however *K. Eriantha* and many hybrids are available from time to time.

*Sinningia*—This genus now includes the old genus *Rechsteineria*. Most popular in this genus is the 'Florist Gloxinia.' Many hybrids have been developed after changing the basic slipper shape of the *Sinningia* to a very different almost round flower with no sign of the typical *Sinningia* 'lip.' Gaining rapidly in popularity are other species of this tuberous genus such as the 'Mini-Glox' or 'Dwarf *Sinningia*.' Many hybrids have been made with the very tiny species such as *S. Pusilla*. These tiny plants and some of their larger cousins do very well under artificial lights making these colorful little bloomers very popular for indoor gardening.

*Smithiantha*—Another group of Gesneriads that form underground structures are the 'Cathedral Bells.' Scaly rhizomes form during and after flowering. By late winter the tops have usually folded leaving no trace of the plant except when the soil is examined. Many long strands of fat scaly rhizomes can be found. These rhizomes should be broken up and replanted in early spring. Soft foliage characterized by tiny red hairs give this plant the look of

red velvet. Yellow, orange or red flowers of the various hybrids form spikes of 'Canterbury Bell' type flowers.

*Streptocarpus*—Perhaps the third most popular plant group in this family is this clustering slipper type flower. White, blue and shades of red are available. The soft foliage is similar to African Violets or Gloxinias requiring much the same care as do the other two more popular genera. The 'Nymph' series hybrids seem to do best as year round possibilities in South Florida. *Rexii* or other hybrids do better during cooler weather periods.

*Nautilocalyx*—A smaller group of Gesneriads with species that are grown most for their foliage. *N. Lynchii* is commonly known for its rich wine red foliage. Most *Nautilocalyx* have an upright habit of growth and need more light than do common houseplants such as the *Philodendron* and *Aglaeonema*. Yellow flowers are formed in the leaf axils of *N. Lynchii*, *N. Forgettii*, and *N. Bullatus*. *N. Forgettii* has green leaves with wine red markings on the veins. This plant is commonly called the 'Stained Glass Plant.' *N. Bullatus* has a brown leaf that is crinkled.

*Episcia*—During the warmer weather this genus blossoms into popularity. A stunning combination of colorful patterned leaves and striking red, pink, orange or yellow flowers would make this genus the most popular in the family if it were not for its complete intolerance of cold. A group represented by *E. Punctata* and *E. Dianthiflora*, the only cold tolerant *Episcias*, were recently transferred to another genus leaving all true *Episcia* cold sensitive. Dozens and dozens of *Episcia* varieties are available. *E. 'Pink Brocade'*, a variegated variety, is currently enjoying astounding popularity. The portions of the leaves without chlorophyll show bright pink and white against the green. The flower is red. Its lack of chlorophyll makes it a slow grower and very susceptible to diseases.

*Aeschynanthus*—The lipstick plant family contains species that are primarily epiphytic in nature and are similar to *Peperomia* in cultural requirements. Characteristics such as the ability to withstand drying out occasionally and frequent flowering have contributed to its popularity among house plant enthusiasts. Of the new hybrids a combination of the interesting striped foliage of *A. Marmorata* with the bright orange flower of *A. Speciosus* is named 'Black Pagoda.' This hybrid has the fine combination of both parents better qualities.

*Nematanthus*—The 'Candy Corn Plant.' Recent hybridization has produced several outstanding hanging basket plants in this genus such as 'Black Magic,' 'Green Magic,' 'Tropicana' and 'Stop Light.' These strong growing epiphytic plants are characterized by their waxy leaves with shades of red or maroon on one or both surfaces. Colorful flowers in orange, red or pink hang below the foliage on threads. Culture is simple if the epiphytic nature of the plant is catered to.

*Columnea*—The 'Goldfish Plant' gets its name from the shape and color of the flower of some species of *Columnea*. The flowers which resemble a fish with its mouth open are colorful in shades of red, yellow and orange. The *Columnea* species which are best known are softer growers than the other genera of epiphytic Gesneriads. They require closer cultural attention although they can withstand some drying of the soil media. They will suffer if left dry to long. Dozens of hybrids can be found, some with spectacular flowers and some with colorful foliage. This beautiful genus, like *Episcia*, would be more popular if it were more tolerant of a wider range of cultural environments.