How to Grow Glorious Gladiolus

Chapter Thirteen
THE SPECIES

The Gladiolus wild species as we know them today are far different plants than the standard gladiolus grown at the present time. The species, which probably number more than 150 including the variants, are found primarily in Africa, Asia and part of Europe. With this great number to work with, it seems that we would have developed far greater diversity in our present day gladiolus. The problem hasn't been lack of hybridizing as they have recorded this effort going back to the 1700's. In my experience, it's the species that is far more complex than one would expect. Growing and breeding over a period extending from 1930 to present, and quite extensively the last twenty five years, I have found the Southern California climate favorable for species. They class the climate here as Mediterranean type, wet winters and warm dry summers, very much like Africa.

There is a treasure chest of traits in the species if we could utilize them in our present cultivars. Example, over thirty species have scent or fragrance from mild to intense. There are all sized flowers and shapes some like miniature orchids, and a tremendous color variation with different markings. Do they look like modem gladiolus? The fact is, there is something for everyone.

There are two major problems in lack of success in breeding species. First is the chromosome problem, most of the species have thirty chromosomes while the standard gladiolus have sixty. The results are, all seedlings in the cross are sterile. Second, are growth traits, when you are trying to grow for summer flowers. Modem gladiolus are bred to be planted in the spring, flower in summer then harvested and stored for extended periods. Most of the winter species refuse to cooperate when handled this way. When the weather turns cool, they start growing again because it's the end of their dormant cycle. Most of the summer blooming species perform like our standard cultivars. Following is a description and some background on a few species, demonstrating some of the variations.

1. G. Tristus: This is one of the easier to grow species. They are very fragrant but only at night. I think this is the strongest scented of all the species. It has been used extensively in breeding.

2. G. Carmineus: (classed as Hysteranthous type) performs the opposite in growth habits to standard gladiolus. It blooms from the dormant corm, then the plant makes its growth cycle. When in bloom it doesn't need any food or water, in fact it will bloom in a box or sack. G. Carmineus has been crossed on G. Cardinals and other species. In my crosses I haven't detected this growth trait. There are about ten or eleven Hysteranthous type species.

3. G. Caryophyllaceus: Very fragrant and also very hard to grow. This was naturalized in the Perth area of Australia. I have had seed from Australia and collected seed in South Africa. They offer the same but some color variants which is common in South Africa.

4. G. Cameus: Very pretty flower colors in shades of pink with lower floret marking as if hand painted. They call this Painted Lady in South Africa rather than the species name. Produces very pretty hybrid seedlings.

5. G. Bullatus: Pale to deeper blue on lower petals. Beautiful but very difficult to grow. On my latest trip to Africa I observed beautiful plants in areas that had burned over two years

previous.

6. G. Dalenii: Very easy grower and grows wild in many places in the world. A Variant Hookerii has been popular. Has very large cormels extending on roots up to a foot from parent corm.

7. G. Calianthus: Sold in the past as Acidanthera but it is a gladiolus species. Very easy to grow with nice fragrance. Has been used in quite a bit of breeding work.

8. G. Orchidaflorus: One of my favorite, quite fragrant and has individual florets like small orchids on the spike. Beautiful three branch spike on the mature plants are very artistic.

9. G. Alatus: Beautiful color for a gladiolus, brick orange with chartreuse green throat markings. It was used in a corsage arrangement in Africa. I observed a variant of this species at the Wild Flower Show at Caladon, South Africa, white with a pretty green throat marking.

10. G. Liliaceus: Shades of brown, not too attractive but fragrant at night. Supposed to change color at night but I haven't observed this trait in my corms.

Often asked about the health of the various species, my experience has been that they are less susceptible to disease than the standard cultivars. However, they are affected by the Transverse Rust disease in Africa, which has spread to many countries. We have no reports so far of its spread to the United States or Canada. The species types are more resistant to this disease than standard cultivars. At the present time we are doing research in South Africa on whether any standard cultivars have any resistance. We are trying to introduce resistance using a few of the resistant species.

I haven't formed an opinion yet on virus resistance in any glad, but I plan on doing farther field studies on this. Dr. Mitch Jenkins and his staff, if I recall, did research on the East Coast with about one-third of the known species in the 1970's. They didn't find any resistance in any of those tested.

I haven't had to treat corms or spray foliage for any of the diseases common to standard gladiolus. Nevertheless, this may not be the case in other areas. The species growers in Great Britain and Europe who have had extensive experience with the species might have information on this.

In regard to culture, I would recommend that growers start with hybridizing and growing the standard cultivars before graduating to the species and species hybrids. Then start out with the summer blooming species. A source supply of corms and seed of the species has always been a problem but this has improved recently.

At the present time, the University of California Arboretum in Irvine, California has one of the largest collections of Gladiolus and other related corm plants. They have been collecting and propagating since 1976. They have sales of seeds and corms in the spring and then in August each year for the benefit of Friends of the Arboretum but include the general public. There is a charge to become a member. Regular is $25.00 with Seniors and students at $15.00. The mailing address is UCI Arboretum Gene Bank, Irvine, California 92715-9788.

The Kirstenbosch Botanical Gardens in the Cape Town area of South Africa is one of the leading botanical gardens in the world. They have one of the largest collections of Gladiolus species and related corms.

They have a seed bank and book store and they are a major source for species seed. In addition, they furnish cultural information pamphlets for the various plants. They cannot ship corms to the United States and Canada at the present time from South Africa. Their address is Rhodes Ave. Claremont 7700, Union of South Africa. We are collecting information on the

various collectors and seed suppliers for listing in the NAGC Bulletin for the future.

In regards to literature, the most comprehensive is the South Africa Species of Gladiolus by Lewis, Obermeyer and Barnard. This is pretty much a collector's item as it has been out of print for about twenty years. There is a definite need for new and updated material. Dr. Peter Goldblatt, Curator of African Botany at the Missouri Botanical Garden and an authority on Gladiolus species is in the process of publishing two books. The first is Gladiolus in Central or Tropical Africa. This should cover up to 81 species some of them new. This book will be followed by Gladiolus in South Africa. These are scientific, but he is also orienting to individual and general horticulture.

Looking to the future, we now have Kathy Kamo on genetic engineering, working on Gladiolus and gene transfer. Kathy is a Physiologist at the U.S. Department of Agriculture, Floral and Nursery Plants, Beltsville, Maryland 20705-2350. Dr. Gail Littlejohn, Plant Geneticist, Vegetable and Ornamental Plant Institute, Private Bog 7607, Elsenburg, South Africa, has a hybridizing program using the species to cross for disease resistance. There is quite a bit of work being done world wide, but space limits listing all of them.

By: John Cook

SPECIES CHROMOSOME COUNTS

Known species chromosome count from NAGC Bulletin 204. We are including this information in this book for those interested in hybridizing. Cross hybridizing may tend to make some cultivars sterile.

G. primulinus Baker	30/60
var. LaMeurthe	30
var. Priority	14
var. Souvenir	30
G. quartinianus A. Rich	14
G. quartinianus var Halloween	14
G. tristisL.	15/30
G. tristis L. var. concolor Sails	15/30
G. cardinalis Curt	30
G. ramosusPaxt	46
G. cuspidatus Jaco	15
G. byzantinus Mill	30/90
G. gandavensis Van Houtte	
var. Pompee	30
var. Alexandre	60
var. Red Canna	60
G. Lemoinei Hort	
var. Catharina	30
var. Don Salluste	60
var. Mrs. Frank Pendleton	60
G. nanceianus Hort var. desde mone	30
G. communis L. Variet	138
G. segetum Ker	120
G. atroviolaceous	45/90
G. anatolicus Van Tub	120
G. grandis Thumb	30
G. recurvus L.	30
G. recurvis hybrid	30
G. gracilis Jacq	30
G. angustus L	30
G. cuspidatus Jacq	15/30
G. trichonemifolius Ker	30
G. brevifolius Jacq	30
G. debilis Ker	30
G. pappei Baker	30
G. villosus Ker	30

Parviflori:	
G. crassifolius Baker	30
G. papilio Baker hybrid Blandi:	75
G. blandusAiton	30
G. hirsustus Jacq	30
G. oppositiflorus Herb	30
G. undalatus Jacq	15/30
G. odoratusL. Bolus	30
G. callistusF. Bolus	30
Cardinales:	
G. cardinalis Curt	30
G. splendeus Baker	30
G. carmineus Wright	30
Dracocephali:	
G. dracocephalus Hook	90
G. dracocephalus hybrid	75
G. psisttacinus Hook	45/90
G. platyphyllus Baker	60
G. quartinianus A. Rich hybrid	75
G. saundersii Hook	30
G. saundersii hybrid	45
G alatus L.	15/30
G. alatus hybrid	45
G. orchidiflorus Andr. hybrid	45
G. formosus Klatt hybrid	45
G. permeabilis De La Roche	30
Commercial cultivars. Winter flowering types	
G. colvilleiHort	30
G. TuberginiiHort	45
G. nanus	30/45/60
Herald gladiolus	45/60
Commercial cultivars.	
Summer flowering types	60

The above information was compiled from Ronald Bamford's article.