

## BREEDING AND EVALUATION OF SAKATA'S NEW FLOWERS

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I consider it an honor and pleasure to be chosen as a speaker on flower seed breeding at this meeting today. I have worked as a flower seed breeder in Sakata's Flowering Breeding Station from 1966 for thirteen years, working on Petunias, Carnations, Dianthus, Brassica (Flowering Kales and Flowering Cabbages), Cinerarias, Stocks, Poppies, Lagerstroemia (Crape Myrtle) and other items and in 1979 became flower seed export manager of the International Division. I firmly believe we are one of the foremost flower breeding companies in the world today, working on at least fifty different species of flower seed items and at the same time maintaining two flower seed breeding stations, one in a warm location and the other in a cooler higher elevation. We have a total of ten flower seed breeders who coordinate their work and trials to offer to the horticultural trade the best in flower seed items.

Sakata is responsible for introducing to the world's horticultural trade a number of outstanding and important flower seed items, including 29 items which won awards from the famous All-America Selections. A few are:

1932 - The world's first 100% Double Flowering Petunia from seed.

1965 - Snapdragon F-1 Extra Dwarf floral Carpets

1966 - The world's first F-1 Hybrid Pansies, Majestic Giants

1971 - The world's first Giant Annual Flowering F-1 Hybrid Hibiscus  
from seed.

1972 - The world's first Picotee Petunia - Blue Picotee

1975 - The world's first F-1 Hybrid Carnation - Juliet

1981 - Dwarf Pot Gerbera "Happipot"

1982 - A new pace-making cutflower, F-1 Hybrid Lisianthus

1983 - The world's first Dwarf Growing F-1 Hybrid Ranunculus

These are only a few of our outstanding flower introductions. Since our establishment more than 70 years ago by the late Mr. Takeo Sakata, we have concentrated our efforts to breed, produce, market and supply top quality flower seed to the world market.

Now a brief summary of the more important varieties and their development procedures:

First are Pansies as they are one of the most colorful flowers for early spring bedding. We are probably today the largest Pansy breeder in the world. In 1966, introduced the world's first F-1 Hybrid Pansy

Majestic Giants. In 1955, seed of large flowering strains were obtained for both American and European sources and intensive breeding work began at about that time and after many years of breeding work finally succeeded in developing hybrids incorporating all important characteristics. In 1915, Mr. Roggli of Switzerland introduced "Roggli's Swiss Giants" which were dwarf growing, large flowered with round petalled flowers and for a number of years was considered the best selling Pansy. The only drawback was its late flowering habit. Later, Mrs. Ellis introduced the "Oregon Giants Strain" which were giant flowered, early, but colors were unclear and stems too long for bedding purposes. After intensive crossings we succeeded in making both strains large flowered, and in the Fall of 1960 the first F-1 Hybrid Pansies made their appearance in our trials grounds in several separate colors and in 1966 a new F-1 Hybrid Pansy named "Majestic Giants" the first F-1 Hybrid Pansies to receive awards in the All-America Selections and has continued to be a top-selling variety. These were followed by other strains, giant Flowering Super Majestic Giants, Large Flowering Crown Series, Medium sized Paramount Series and Medium-sized Non-Blotched Crystal Bowl Series. The genetic structure of Pansies is very complicated, consisting of *Viola tricolor* and three wild varieties each with a different composition,  $2n = 52$  Tetraploid. Unlike many other flower items the pansy is considered highly difficult to establish and maintain in pure parental lines.

Next to Pansies, came *Primula Polyantha* which are very important items as winter pot plants. These primulas are developed by intercrossing between three species, *Primula veris*, *Primula elatior* and *Primula acaulis*. The present *Primula Polyantha* originated after more than thirty years of work by Mr. Reinelt of the U.S.A. who introduced the Pacific Giant strains. When we first tried the Pacific Giants, people who came to see our trials were highly surprised to see the beautiful flowers. However, our task was to find the best method for growing the Pacific Giants for good seed production. After several years and many failures, we finally succeeded in harvesting commercial seed of the Pacific Giants and work immediately began to stabilize colors, plant height, etc. As a result we were able to offer several improved strains to the United States, and rapidly replaced the original Pacific Giant strains. Giant Flowered Super Giants and F-1 Hybrid Acaulis Pageant Series were among these new improved strains, and for 1987 we will be introducing a new bedding type *Primula* under the name of "Gallant Series."

Besides Pacific Giants are several other strains of our own origin. Miniature *Primula Acaulis* "Julian Hybrid Strains" is an excellent item for small pot culture and combination plantings which are very popular. In 1968, a species hybrid, between *Primula Polyantha* and *Primula Julie* was made. *Primula Julie* are dwarf miniatures, but their color was limited to a light or pale pink, flowers faced sideways, and stems were too long. Work immediately began to eliminate these defects which was not an easy task. However, about 1968 we were able to produce several separate colors and these were first offered on the domestic market. Since then with improved and advanced seed production methods and higher germinating seed these were introduced to the world market. From the original species hybrid other Miniature *Primula Julians* were introduced: Julian Bicolor, Cheerleader, Cherriette, Goldridge and more recently, Romeo Hybrid, all from the original crossings. We probably offer the

widest range of Primulas for varied uses, flower size, colors and plant height.

We have long been known for our breeding work on Petunias, being the first to introduce the 100% All Double Flowering Petunia from seed. Before this time, double Petunia seed produced only 50 to 60% all doubles. The introduction of 100% All Double Flowering Petunias made our name famous and caused a great deal of sensation. Probably about the late 1920's we found the secret of producing 100% Double Petunia seed, actually an F-1 Hybrid, by crossing a single female with a homogenous double male parent, a very complicated process. This secret lasted until the outbreak of World War II, monopolizing the world market on All Double Petunias.

Today's modern Petunias are improvements of Petunia violacea, P. axillaris and P. inflata. In the early 1970's, we began intensive breeding work to develop new Hybrid Petunias for the 1980's, and in the midst of this program came the first oil crisis in 1974. This was very timely as all growers became very conscious of rising heating costs. These new stains were tried, not only for outdoor performance but for pack and greenhouse performance as well, being very early flowering, dwarf and compact in habit with upfacing round flowers. They are all very uniform in flowering season and other habits. In 1978, the first Falcon Petunias were offered and are probably the top quality Petunias available today. New colors and other improvemants are being made to this series.

Next is the Picotee Petunia, bicolored strains. In our Petunia breeding material, we found an irregular blue and white Petunia and after more than ten years of intensive work, in 1972 introduced the first Picotee Petunia, Blue Picotee, followed by Velvet Picotee in 1979 and Rose Picotee in 1983 and finally the much awaited Red Picotee which won awards both in the All America Selections and Fleuroselect trials. Picotee Petunias are now among the most favorite Petunias.

Further development work was to produce from seed varieties normally produced by vegetative propagation. Ranunculus and Gerberas are among some of the items introduced.

Ranunculus is normally grown from claws (claw-shaped masses of tubers) and flowers early in the spring. We selected from a very large number of seedlings grown from claws and succeeded in developing stains suitable for pot plant culture. In 1965, we imported from Europe a large quantity of cutflower ranunculus claws for the domestic cutflower market and from these claws were able to raise seedlings. Out of several thousand seedlings, in 1970 we found two dwarf growing seedlings, about 5 inches high with pink flowers and compact plant habit. This was crossed with other important ranunculus colors and was used as parent line for F-1 Hybrids about after about six years of breeding. In 1977 the first F-1 Hybrids came to flower. These hybrids were carefully and repeatedly tried in our breeding stations and their quality was confirmed. In 1980, the first F-1 Hybrids were offered to the domestic market and their qualities were quickly recognized by growers and is now an important spring pot plant item. In 1983, after sufficient and stable seed supplies became available they were sold on the world market under the name of BLOOMINGDALES. Ranunculus formerly grown only from claws are now available as seed.

Cut flowers are also important and seed gerbera is another item of importance. Seed of florists' strain of gerberas imported from Holland

were bred to suit Japanese market standards, and after several years of work we were able to produce seedlings of uniform quality. In 1967, a mutation with small leaves, short stems and dark pink flowers was found among the breeding material, and from this single plant work immediately began to produce a pot type Gerbera. The color of this mutation was not attractive and crossings began with other bright colored Gerberas. During this work, many difficulties and problems were encountered, for instance, low seed production, low germination, lack of color uniformity and plant habit, etc. In 1975, as part of our domestic market research program this seed was offered on the local market, but for at least two years there was no interest in this new pot gerbera. However, after intensive promotional work to commercial growers, within a few years time pot gerbera became a very important pot item. In 1982, when seed production was firmly established they were released on the international market under the name of "Happipot," but being dissatisfied with the quality, we began work to produce an F-1 Hybrid. For 1986, a new Dwarf F-1 Hybrid Tempo Series has been introduced.

Our flower seed breeding program not only includes bedding and pot plants but cutflower items as well which play an important role. Among cutflower items, our recent introduction F-1 Hybrid Lisianthus (also called Eustoma) F-1 Hybrid Yodel Series has become a very important cutflower item. Lisianthus is not new as cutflower item, as it appeared in our 1934 flower export catalog and can be called a revival item. At that time only a blue was available, but commercial cutflowers all over Japan were able to produce a pink and white. From this material in 1977 we were successful in producing F-1 Hybrids and in 1982 we introduced these under the name of Yodel Series, available in four separate colors and a mixture.

We are devoted to the breeding, development, marketing and production of the highest quality flower seed for the world market. It is our aim and goal to pursue this program vigorously and aggressively to meet the requirements of the horticultural trade.

Thank you very much for your attention today!