

NGB's Annual of the Year 2013: Gerbera



Gerbera daisies in many colors.

Each year the National Garden Bureau (NGB) selects one flower, one vegetable, and one perennial to be showcased. These crops are chosen because they are popular, easy-to-grow, widely adaptable, genetically diverse, and versatile. For their annual of the year 2013, the NGB chose *Gerbera*.

Gerbera daisies are an irresistible plant for gardeners, with the familiar daisy shape combined with bright luminous colors. *Gerbera* is an extensive genus and a member of the sunflower family (Asteraceae). There are approximately 30 species in the wild, extending to South America, Africa and tropical Asia.

HISTORY

Gerbera, as we know it today, is probably originating from crossings between *Gerbera jamesonii* and *Gerbera viridifolia*. Both of these species are native to the southern part of Africa, in particular South Africa. The *Gerbera* genus was classified in 1737 by Gronovius and named after the German botanist, Traugott Gerber, who traveled extensively in Russia and was a friend of Carolus Linnaeus. In 1884 a



Gerbera viridifolia flower.

rich gold deposit was discovered near Barberton, South Africa. Robert Jameson, a Scottish businessman, formed a mining company to search for gold in the Barberton area in the Kaap Valley. Near the mining operation wild *Gerbera* plants grew in profusion.



Gerbera jamesonii

Mr. Jameson, an amateur botanist, took interest in the wild *Gerbera* plants and brought some plants back with him when he returned to his residence in Durban, South Africa. These plants would later become known as the Transvaal or Barberton Daisy. The plants were initially given to the local Botanic Garden in Durban and then in 1888 sent to Kew Gardens in England. Only one plant survived

the journey but fortunately another botanist, Harry Bolus, had previously sent a large number of plants to Kew in 1886 and suggested naming the species after Robert Jameson. The lead botanist at Kew, Joseph T. Hooker, agreed and soon work began in England on the development of the modern gerbera.

BREEDING

In the beginning of the 20th century, the breeding of *Gerbera* accelerated when a large range of crosses were made by Adnet in France and Lynch in England. However, during the two world wars, not much breeding was done but in the early 1970's the breeding of gerberas accelerated again. Cut gerbera were the main interest but gerbera for bedding use were developed. Then in the late 1970's breeding of potted plants began.



Gerbera daisies for sale as annuals.



Gerbera 'Grand Diva'

The first gerbera for potted plant usage began with the release of *Gerbera jamesonii* 'Happipot', an open pollinated series bred by Sakata Seed Corporation, in Yokohama, Japan. 'Happipot' was available in five colors and was a big hit with consumers who had never seen daisy-type flowers in colors other than white. In the early 1990's Sakata improved on the 'Happipot' series with the introduction of the world's first F1 hybrid pot gerbera series, 'Skipper' and 'Tempo'. 'Skipper', was a mini type for 4-inch/10 cm. pots and 'Tempo' was bred for slightly larger pots.

In the late 1980's Daehnfeltd Seed Company, based in Odense, Denmark, raised the bar with the introduction of gerbera 'Festival' series. 'Festival' offered bright colors and in an expanded color range. Initially, all gerbera were available with green centers but in the mid-1990's Daehnfeltd released varieties with dark centers which added a new dimension gerbera, which increased appeal. Additional flower forms, such as semi-double and spider types, were later introduced to pique the consumer's interest and offer her more beautiful flower forms.



Gerbera with yellow flowers.

FLOWER FORMS



Gerbera flowers come in many forms.

Gerbera species bear a large flower head with rayed petals in pink, orange, yellow, gold, white, red, cream and bi-colors. The center of the flower is either green or black. The flower head has the appearance of a single flower but is actually composed of hundreds of individual flowers. Gerbera flowers are diverse and their flower heads range from 2.5 to 8 inches/6–20 cm. in diameter.



Gerbera 'Corazon'

Semi-double flowers: The semi-doubles are often seen in cut flower types and some series of pot types. Semi-double flowers have extra rows of mini petals around the center eye, giving the blooms added bulk and interest.



Gerbera 'Friday'

Double flowers: Unique full flowers have 5-7 layers of flower petals that completely cover the flower head.

Spider flowers: Featuring a unique flower form with thinner and more pointed flower petals resembling sea urchins.



Gerbera 'Venezia'

CUT FLOWERS

Many consumers have their first encounter with gerbera as cut flowers since gerbera is the fifth most used cut flower in the world (after rose, carnation, chrysanthemum, and tulip). Gerberas as cut flowers offer a rich color palette and beautiful flower forms from single to semi-double.

VEGETATIVE INTRODUCTIONS

Originally, pot type gerberas were grown from seed. This changed when an outdoor patio type from tissue culture called *Gerbera jamesonii* 'Giant Spinner' was introduced. It offers enormous pink & white flowers (8-inches/20 cm.) with a vigorous plant habit suitable for 10-inch/25 cm. pots. Additional vegetative lines from tissue culture soon followed. Florist de Kwakel B.V. introduced the 'Landscape' Series, a cross between potted gerbera and cut flower types, with large flowers targeted for patio pots and large tubs. These larger flowers met a consumer need for home grown gerbera cut flowers. The 'Garvinea' series is another recent introduction that has a more botanical-look with an abundance of smaller flowers on disease resistant plants.

HOME GROWING

It is not surprising that consumers would want to enjoy gerberas in mixed containers throughout the summer growing season. Gerberas do well outdoors if given the proper care and conditions.

Media: Plant the crown slightly raised in well-drained media that is slightly acidic pH 5.5 – 6.5. A high pH results in iron chlorosis characterized by yellow striping of the upper foliage. A pH below 5.5 causes excess manganese to accumulate in the lower foliage characterized by black spotting or patches.



Gerberas are easily grown in containers.

Flowering: Gerberas flower based on the amount of light the plant receives into its center. Remove excess foliage from the center throughout the season to maximize light penetration and flower production.



A greenhouse full of gerbera daisies for cut flowers.



Gerbera daisies for sale as cut flowers.

Exposure: Gerberas require morning sun in warmer southern climates and full sun in cooler northern locations. Do not plant them against a brick wall or near surfaces that reflect intense heat.

Moisture: Water early in the morning to allow rapid drying of foliage. Allowing moisture to remain on the leaf surface overnight invites diseases like powdery mildew.

Fertilizer: Incorporate a slow release fertilizer into the media and supplement with a liquid fertilizer every 2 weeks.



Salmon pink gerbera blooms.



Flower buds shortly before opening.

Diseases: Gerberas are subject to various root rots so allowing the media to dry slightly in between watering aids in keeping the root system healthy. However, do not allow the plants to wilt severely as it damages the root system making it more susceptible to fungal pathogens.

Powdery Mildew appears as whitish spots that quickly spread until the entire leaf surface is covered. The white powdery growth is a fungus that over time becomes gray to tan/brown felt like patches. Leaves may become stunted, curled, chlorotic and eventually wither and dry up.

Conditions of moderate temperatures and high humidity (>80%) help develop the disease. Under warm days and cool nights water condenses on the leaves allowing spores to germinate. Mildew pathogens are host specific and the mildew that attacks gerbera daisies will not spread to melons or zucchini.

Prevention and control

The use of baking soda is a kitchen-remedy that helps control powdery mildew but will not eliminate it.

Mix 1 tablespoon each of baking soda and horticultural oil (dormant oil/vegetable oil) or a few drops of liquid soap to 1 gallon of water. Spray weekly making a new mix each time. It will not eliminate the disease but helps to control it. Be sure to water the plants the day before and do not apply in full sun. As always testing the plant's sensitivity by applying to a small area first is best.

Neem Oil is also effective in controlling infections of powdery mildew. Mix 1 oz (2 tablespoons) of Neem oil and an approved spreader sticker or a few drops of dishwashing soap to one gallon of water. The spreader sticker causes the solution to form a film on the leaf surface as opposed to droplets. Spray once a week for two weeks. A rotation of Neem oil and baking soda is the safest control method.



A healthy gerbera with pink flowers.



A fuchsia, semi-double gerbera flower.

If using commercially available fungicide sprays, always follow label directions to make sure the product is approved for specific plants. Early detection works best. Once the disease takes hold, it is difficult to control.

Cultural preventatives for healthy and floriferous plants:

- remove the infected leaves
- deadhead frequently
- do not crowd the plants
- provide good air circulation
- keep plants stress free and well watered but not over watered
- grow resistant plants when available

Insects: There are several insects that attack gerberas including aphids, whiteflies, thrips, spider mites and leaf miners.

Aphids are insects that eat the sap from gerbera daisy leaves, which causes the leaves to turn yellow. Ladybugs and spiders are the aphid's natural predators. You can spray a soap solution on the leaves of the gerbera daisy to keep aphids away, or apply an insecticide for aphids from your local garden supply store.



Gerbera 'Cross Road'



Healthy orange gerbera daisies.

Whiteflies also eat plant juices and saps, and lay eggs on the underside of the leaves. The best way to control whiteflies is spraying insecticide not only on the top, but on the underside of each leaf of your gerbera daisies. You should also avoid planting healthy plants next to infected ones.

Thrips cause damage by eating leaves and also act as vectors bringing diseases from other plants they have previously eaten. Thrip infestation can also cause the flowers of the gerbera daisy to have a distorted shape. Green lacewings are a natural predator, or you can use a soap shield to get rid of thrips.

Spider mites damage gerbera daisies by sucking the sap from their leaves to the point where the leaf yellows or even drops off. Like many other gerbera daisy pests, the predators for spider mites include lady bugs and pirate bugs.

GROWING GERBERAS FROM SEED

Most gardeners find it easy and convenient to purchase finished plants at the garden center. However, growing gerberas from seed is a fun exercise for the entire family and allows the hobbyist to order some unique varieties not readily available at garden centers. Below are some basic tips to consider when deciding if this is worth doing.

- Select a lightweight, sterile and well-drained media consisting of peat moss, perlite and vermiculite. The soil should retain sufficient moisture to germinate the seed but not be saturated. Optimum pH is 5.8-6.2.
- Place the media in flats or pots that have drainage holes. Make shallow rows in the flats about twice the depth of the seed's diameter and cover lightly with extra media or coarse vermiculite. Another option is to use peat blocks or Jiffy pots but be sure to guard against planting too deep.
- Moisten the media thoroughly but do not oversaturate so that water does not ooze when pressed with your thumb.
- Cover the flats with a clear plastic germination dome or clear plastic wrap and place about 18 inches/46 cm. under fluorescent lights.
- Check the flats daily to ensure that there is sufficient moisture and do not allow the media to become dry, especially when gerbera seeds are beginning to germinate.
- Once seedlings emerge and the cotyledons are up and lying flat,



Gerbera 'Mooniva'

allow the media to dry down in between watering. A lack of oxygen at the root level results in gnarled and stunted seedlings. Transplant as seedlings begin to touch to avoid stretched and spindly plants.

- Gerberas do best with a calcium nitrate-based fertilizer that also contains some magnesium. Formulations such as 15-5-15 Cal/Mag at 150-200 ppm Nitrogen are ideal. Alternate as needed with an acidic formulation such as 20-10-20 to control the pH. A pH above 6.2 results in microelement deficiencies, especially iron and boron. A pH below 5.5 increases uptake of manganese with black spotting beginning on the lower foliage. Supplemental applications of magnesium applied every



A scarlet-flowered gerbera.

14 days promote healthy

green plants. Dissolve 1 teaspoon of Epsom Salts (magnesium sulfate) into 1 gallon of water or combined with a gallon of fertilizer solution. Professional fertilizer formulations are available at some garden centers or may be purchased on line.

- Provide light up to 14 hours per day. Lighting longer than 14 hours causes excessive plant stretching.
- Gerberas flower based on the amount of light received into the plant crown. Depending on conditions, flowering occurs in 18-20 weeks from sowing. A hobby greenhouse or sunny windowsill that provides higher light levels will hasten plant development and flowering.



A young gerbera grown from seed.

— From the National Garden Bureau. The National Garden Bureau recognizes Sakata Ornamentals as the author of this information.

Additional Information:

- National Garden Bureau at www.ngb.org/index.cfm
- *Gerbera jamesonii* – on the Missouri Botanic Garden's Kemper Center for Home Gardening website at www.missouribotanicalgarden.org/gardens-gardening/your-garden/plant-finder/plant-details/kc/a518/gerbera-jamesonii.aspx
- *Gerbera jamesonii* – on the Floridata website at www.floridata.com/Plants/Asteraceae/Gerbera%20Jamesonii/172