



2022 Special Garden Project Rubenza Cosmos

Cosmos Communication

- The word cosmos comes from the Greek word for harmony or ordered universe.
- There are over 20 species of Cosmos, but only 2 are familiar to gardeners.
- Cosmos are the birth flower for people born in October.
- Chocolate cosmos flowers smell just like chocolate.

A Touch of History

Many plants were found growing here when Columbus discovered North America. We call these native plants.



Cosmos are native to North, Central, and South America.

Cosmos's Family

Plants are grouped into families. Cosmos, bachelor buttons, daisies, and sunflowers are all related. They are in the same plant family called *Asteraceae*.

It's important to know which plants are related because they sometimes have the same disease and insect problems.

Cosmos Planting Basics

Cosmos are a warm season crop. They are planted directly in the ground after the last frost date and when soils are warm, usually in mid to late May.

Warm soils allows the seeds and plants to grow rapidly. Cold, wet soils will cause seeds to rot.

Photoperiod, the number of hours of sunlight in a day, can affect the flowering of cosmos. Cosmos are short-day plants, which means they will bloom best when day length is less than 14 hours.

Where to plant?

Cosmos plants will produce the best when placed in full sun. This is an area that will receive 6-8 hours or more of direct sunlight a day. It will tolerate partial sunlight conditions, but it won't produce as well. Also make sure they have plenty of wind protection.



Cosmos will do best in fertile, well-drained soil. Make sure to leave enough room for the plants to grow. The more crowded the plants are, the taller they get as they reach for sunlight.

To prepare the soil, spade 6 to 8 inches deep; then work in about a two inch layer of organic matter. Organic matter is good for all soil types. It helps sandy soils hold water better. In clay soils, it improves drainage so excess water drains away quicker and oxygen is then available to roots. Roots need oxygen to grow and function. Organic matter also adds nutrients to soil as it decomposes.

Compost and manure are examples of organic matter. Do not use fresh manure in spring. It can burn seedlings or cause some plants to grow lots of leaves or stems.

Manure is best added in the fall.



How to Plant Cosmos

Direct Seeding:

After the average last frost, plant the seeds in rows, spacing the seeds about 1" apart. Cover lightly with ¼" or less of soil. Keep the soil moist. When the first set of true leaves appear, thin to 9-12" in-between plants. The spacing between the seedlings allows the plants to receive enough sunlight for the plant and will result in thicker stems.

Succession plantings, or planting again every 2-3 weeks, may be needed to ensure a continuous supply of cosmos flowers.

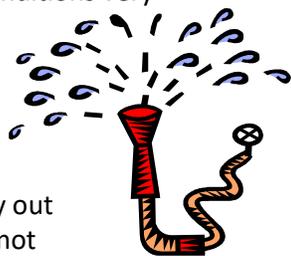
The average last spring frost dates in Nebraska are: eastern Nebraska, April 24; central Nebraska, May 1; and May 10 in western Nebraska. Check with your local Nebraska Extension Office for the frost-free date in your area.

If you don't have room to plant in a traditional garden setting, cosmos can be grown in containers. Plant seeds in a 10 inch container or one of similar size. Garden soil is not recommended for containers. A good potting mix will work well for growing plants in containers.

Cosmos Care

Watering:

Cosmos can tolerate dry, hot conditions very well. Do not overwater. Plants will need about 1 inch of water a week. Try to keep the soil just moist. At each watering, moisten the soil about 6-8" deep. Let the soil dry out slightly between waterings. Do not overwater. This decreases the soil oxygen, which roots need to grow steadily.



If you use a sprinkler to water the garden, try to water in the morning. This will allow the leaves to dry off throughout the day and decrease the possibility of disease.

Fertilizing:

Cosmos don't require much fertilizer. Additional fertilizer may not be needed if they were planted in soils that had added organic matter. If you do fertilize, use a well-rounded, water-based fertilizer once when the plants are established.

Mulching:

After the seeds begin to emerge, place a 2-3" layer of mulch around cosmos to conserve moisture, keep soil temperatures cooler, and reduce weeds. This will help roots to grow quickly and steadily.

Mulch should not touch plant stems or leaves. Use dried *brown* grass clippings or shredded wood. Do not use green grass clippings as they can "heat up" and damage plants. Too deep of mulch can make soils water logged and lack oxygen, or attract insects and slugs.



Weeding:

Weeds steal water and nutrients from plants, causing them to grow slower.

Control weeds when they're small by hoeing, hand-pulling or mulching. Do not hoe too close near cosmos stems or too deep near the roots, because this may cause damage to the plants.



Pinching:

To encourage more flowers, pinch back the terminal or central bud in young plants. This can be done when the plants are small with several sets of true leaves, or you can wait until they reach 18" tall. Pinching the plant helps to improve the branching habit and results in longer side stems. This also helps to keep them from growing excessively tall and prevents lodging or flopping.

Deadheading:

In order to keep a continuous supply of fresh flowers, deadheading, or removing old, faded flowers, might be needed. This will also help to keep the flowers from seeding themselves.



Fill out the Special Garden Project Evaluation at: <https://go.unl.edu/2022cosmoeval>

Common Cosmos Troubles

Aphids- are tiny insects that have piercing-sucking mouthparts. They come in a wide range of colors from green, to yellow, and even a reddish color.

Some aphids have wings and/or a set of little 'tail pipes' called cornicles out their back end. They suck out the plant juices and leave a mottled,



blotchy appearance to the leaves. If the infestation is large enough, they can also cause the leaves to look puckered or ruffled.

Flopping or Lodging- plants that are grown in the ground may grow so tall and top heavy that they will require some support or staking to keep the plants upright and not leaned over on the ground. Make sure there is enough space between the plants, avoid excessive nitrogen fertilization, and overwatering.

Japanese Beetles- are copper colored beetles that devour certain plants, including cosmos. The leaves will have a lacey appearance to them when eaten by Japanese Beetles. Squish the adult beetles when they are seen or consider using an insecticide labeled for use in the garden to prevent damage from happening. Pay close attention to when pesticides are applied to decrease the risk to pollinators like bees.



Harvest & Using Cosmos

Harvesting Cosmos

Harvest flowers often, maybe even daily, to minimize the risk of deadheading. Harvest fresh flowers when the petals on the first flower are just opening.

Storing Cosmos

Cosmos have a short vase life (4-6 days in water). It can be extended by using floral preservatives. To try to stretch the vase life, cosmos can be stored in a refrigerator set at 36-40 degrees. Never store flowers in a refrigerator with fresh fruits or vegetables; they release ethylene gas which will reduce the vase life of the flowers.



*Photo courtesy of Johnny's Select Seeds

The flowers of the Rubenza are unique, the petals change color as they age. Pollinators and beneficial insects are attracted to the blooms all summer long. These cosmos make great cut flowers. Be sure to enjoy a bouquet of Rubenza indoors.

Exhibiting Tips

State Fair Special Garden Project Educational Exhibit

Class G-775-001. Youth must be enrolled in the Rubenza Cosmos 2022 Special Garden Project to exhibit. The educational exhibit is based on what was learned from the project. Present information on a poster 14" X 22" or in a clear plastic report cover. The 4-H member's name, age, full address, and county must be on the back of the poster or report cover.

State Fair Special Garden Project Fresh Cut Flowers or Harvested Flowers Class G-775-002

Youth must be enrolled in the Rubenza Cosmos 2022 Special Garden Project to exhibit. The current years' Special Garden Project fresh cut flowers or harvested vegetable should be entered in this class.

Bring 5 stems following the guidelines in the publication 'Preparing Cut Flowers for Exhibits at County Fair & Nebraska State Fair' 4H227 (<https://go.unl.edu/sgpresources>). The desirable traits the judge is looking for are 5 flowers that are at the same maturity and uniform in size. Cut flowers when fully developed (when the outer petals fold out). Avoid overly mature flowers where the center is visible or outer petals have begun to shrivel, fade or curl.

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Careers

Horticulture is the science and art of growing and using fruits, flowers, vegetables, ornamental plants and grasses to enhance our living environment. A horticulturist is a person who works with plants. They can have many different jobs from plant breeding, to growing the crops, to even processing and moving of plants.

A degree in horticulture can offer the following career opportunities:

- Educator
- Field or Lab Researcher
- Floral Designer
- Greenhouse Manager
- Horticulture Entrepreneur
- Landscape Designer
- Landscape Contractor
- Nursery Manager
- Plant Breeder
- Plant Propagator
- Grower
- Vineyard Manager

Floral Designer

Floral designers, also called florists, cut and arrange live, dried, and silk flowers and greenery to make decorative displays. They also help customers select flowers, containers, ribbons, and other accessories.

Floral designers typically do the following:

- Grow or order flowers from wholesalers to ensure an adequate supply to meet customers' needs
- Determine the type of arrangement desired, the occasion, and the date, time, and location that each arrangement is needed
- Recommend flowers and greenery for each arrangement
- Consider the customer's budget when making recommendations
- Design floral displays that evoke a particular sentiment or style
- Answer telephones, take orders, wrap arrangements

Education and Training

Most floral designers have a high school diploma or the equivalent and learn their skills on the job over the course of a few months.

Education

There are postsecondary programs that are useful for florists who want to start their own businesses. Programs in design and caring techniques for flowers are available through private floral schools, vocational schools, and community colleges. Most offer a certificate or diploma. Classes in flower and plant identification, floral design concepts, advertising and other business courses, plus experience working in a greenhouse are part of many certificate and diploma programs.

Some community colleges and universities offer an associate's or bachelor's degree in floral design.

Want to find out more about careers like this in horticulture? Visit UNL Agronomy and Horticulture Department at <http://agronomy.unl.edu/>

**Don't forget to fill out the
Special Garden Project Evaluation at:**
<https://go.unl.edu/2022cosmoeval>



Filling out the evaluation will register you for a gardening prize as well as a certificate good toward the 2023 Nebraska Extension Special Garden Project.

Information compiled by Elizabeth Exstrom, Extension Educator

Cosmos information:

<https://aggie-horticulture.tamu.edu/plantanswers/flowers/cosmos/cosmos.html>

<https://www.johnnyseeds.com/growers-library/flowers/cosmos/cosmos-tech-sheet.html>

<https://www.atozflowers.com/flower/cosmos/>

<https://www.purdue.edu/hla/sites/yardandgarden/wp-content/uploads/sites/2/2013/07/SweetWilliamPinched.jpg>

Career information: <http://www.truity.com/career-profile/floral-designer>

Rubenza Cosmos photo courtesy of Johnny's Select Seeds, Johnnyseeds.com, 1-877-564-6697.

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