Cut flowers for farm production:

Marigolds

LSU AgCenter
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Cover photo: Stock photo of a single marigold bathed in dew.

Yellow and orange marigolds stand tall in this field located in Baton Rouge, Louisiana. Marigolds are a potential replacement for carnations in some flower arrangements. Photo by Kathryn Fontenot.

Introduction

Marigolds originated in the Americas but naturalized in portions of India, North Africa and Europe as early as the 16th century. The native growing range is from the southwestern United States through northern Argentina. It is thought that the greatest diversity of marigolds exists in south-central Mexico.

Marigold flowers have a deep history in many parts of the world. The flower heads are often used for wedding and religious ceremonies in India and Nepal. In Mexico, marigolds are used to decorate altars and graves of loved ones in the celebration of Dia de los Muertos (Day of the Dead). Throughout history, multiple cultures have used marigold petals as herbal medication for ailments related to bruising, fever, intestinal and stomach problems, kidney illnesses and more. More recently, marigolds have been studied for their potential fungicidal, bactericidal and insecticidal activities as natural pesticides.

These flowers are commonly grown in home and commercial landscapes blooming spring, summer and into early fall. *Tagetes*, the genus this flower belongs to, has 56 named species with many cultivars within each species. If you are interested in growing these flowers as a cut flower, select long-stemmed cultivars. When purchasing seeds look for language that denotes long stems, cut flower or upright to describe the cultivar.

Production

Marigolds are most often purchased as seeds. Always use reputable suppliers to ensure you are receiving the correct cultivar and seeds that have been stored correctly. If you do not use all the seeds in this season's planting, store the remaining supply in a paper envelope, properly labeled in the refrigerator or freezer. Marigolds will grow throughout the United States but only during warmer months. They thrive in warm climates, blooming longer in U.S. Department of Agriculture Zones 10 and higher but are a perfectly acceptable cut flower to grow in Louisiana's USDA Zones 8 through 10. Excessive rain, humidity and cold will damage the blooms. Marigolds are typically planted in the spring and summer months. If starting seed in a greenhouse, plant them four weeks before the last frost. In south Louisiana, this is typically March 15 and in North Louisiana, April 1. Seeds should be planted in a light potting soil covered with coarse vermiculite. A light weekly application of liquid fertilizer may be added after the first true leaves have unfolded. Prior to planting outdoors, harden seedlings off (bring the seedlings outdoors out of direct sunlight in their greenhouse trays for three to seven days) and then transplant them into the soil only after the danger of frost has passed.

White Swan marigolds have a creamy white to pale yellow color when they are ready to harvest. Trellising these taller plants is imperative. Photo by Kathryn Fontenot.

Cultural practices

Marigolds prefer well-drained soil and full sun. An initial preplant application of fertilizer with a balance of nitrogen, phosphorus and potassium is recommended, but further fertilizer applications are not always necessary.

Marigold varieties used for cut flowers grown in Louisiana State University AgCenter/ Mississippi State University trials include Bindi Orange, Bali Yellow and White Swan, all of which grow very quickly. Space transplants 18 inches apart along the row. Marigold seedlings can be double drilled. Cut flower marigolds have exceptionally long stems, sometimes up to 35 inches long. While these plants are bushy in form, they still require trellising. In demonstration plots at the LSU AgCenter and MSU, the Florida weave method was used to hold flowers upright. In demonstration plots where the marigolds were not trellised, heavy rains tended to beat down the plants and more stem breakage occurred.

TABLE 1. MARIGOLD CUT FLOWERS TRIALED IN LSU AGCENTER AND MISSISSIPPI STATE UNIVERSITY 2021-2022 TRIALS

Variety	Seed Source for this Trial	Transplant to First Flower	Average Number of Stems/ Plant	Average Number of Stems/ Plant	Average Stem Length	Average Stem Length	Average Flower Diameter	Average Flower Diameter	Color of Flower
			Pinched Plots	Control Plots	Pinched Plots (inches)	Control Plots (inches)	Pinched Plots (inches)	Control Plots (inches)	
Bindi Orange	GeoSeed	50-55 days	11.1	10.2	18.4	18.7	1.9	1.9	Orange
Bali Yellow	GeoSeed	50-55 days	8.5	8	18.2	17.1	1.5	1.5	Yellow
White Swan	AmeriSeed	55-60 days	13.2	14.5	19.4	19.2	1.6	1.7	Creamy white to pale yellow

Control plots — Plants were never pruned.
Pinched plots — Plants were pruned once removing everything above 12 inches from the top of the row prior to flowering.

Weed management is critical. Marigolds planted in the early spring can be planted on black plastic mulch, however, if planting later in the season, white plastic mulch is recommended. Cultivation and the use of weed cutting machinery around non-mulched plots may result in damaged or broken stems if not carefully conducted. Herbicides, such as Treflan, Poast and Fusillade, may be helpful in weed control if considered as acceptable farming practices for your farm. When applying pesticides, please follow all directions on the label.

Pests and diseases

Pests noted in the LSU AgCenter demonstration plots included slugs and snails. Products such as iron phosphate baits can be applied in the row middles. These baits attract snails and slugs with their smell. Applying baits early in the day and before rains are not recommended practices. Snails and slugs feed more heavily in the evening, so applications are more effective when done closer to dusk.

Diseases were not a problem in the 2021 and 2022 LSU AgCenter plots, even with high precipitation rates. However, the raindrops did cause browning and bruising of petals. Harvest heavily before hard rains and keep flowers in a cooler until sold or used in a design.

Harvest and postharvest handling

Marigolds can be harvested as the petals begin to open. Fully opened blooms should be harvested prior to rain events. Keep plenty of buckets of fresh flower food solution available to store flowers as you harvest. Since these flowers bloom in hot weather, multiple trips during the harvest to a cooler may be necessary to extend vase life. Ideal storage temperatures for marigolds are 36 F to 41 F. If cooler space is not available, bring flowers into an air-conditioned space as soon as possible. With proper care, marigolds can remain fresh in vases for up to two weeks. While preservatives are not necessary, they may reduce microbial growth in bucket and vase water.

Left: Jacob Fontenot volunteers to harvest flowers in the LSU marigold trial. Using sanitizers in harvest buckets can increase shelf life of the flowers. If properly handled after harvest, marigolds remain fresh in vases for several weeks. **Right:** Pictured above are samples of marigold flowers in a shelf-life study at LSU. Photos by Kathryn Fontenot.

Marigolds add bright pops of color and texture to mixed bouquets. Pictured above are zinnias and marigolds. Photos by Kathryn Fontenot.

Design applications

Marigolds maintain their vibrant color even after they are dried. While they are suitable for potpourri and other dried uses, marigolds are used more widely in fresh arrangements.

While vases full of marigolds are beautiful, many people use them as garlands, necklaces, shawls and more. When stringing marigolds, the larger, fully opened blooms are preferred.

Marigolds add texture and bright pops of color to bouquets. Photo by James DelPrince.

Step-by-Step Instructions for Creating a Marigold Flower Garland

Marigold garlands are used for many occasions. The fresh garlands add a pop of color to any festivity. Photo by Kaylee Deynzer.

Materials needed

- Fresh marigolds
- Sewing needle
- Fishing line (or any thin, sturdy string)
- Scissors
- Anti-transpirant spray (optional)

Step 1

Gather marigolds by cutting the flower just below the receptacle. If flower sizes vary, group into assorted sizes.

Step 2

Prepare your garland string.

- Cut a piece of string to desired length. Be sure to leave extra space on either side for tying knots for hanging. Approximately 4 to 5 feet is optimum for draping over doorways or wearing as a decorative shawl.
- Tie a knot on one end of the string.
- Thread the other end of the string through the sewing needle and secure it in place.
- Now that the string has been prepared, it is time to start threading the marigolds onto the string.

Step 3

Place the needle in the center of the flower.

Step 4

Apply pressure to move the needle to the back side of the flower and pull the needle through.

Use sharp, sterile scissors when making flower arrangements.

Here the needle is coming directly through the center portion of the flower head. Centering the string and needle is essential to keeping flowers intact on the garland.

As you thread the flowers onto your garland, the entry point for the needle should be the center of the petal side of the flower head. Photos by Kaylee Deynzer.

Left: The view of a single flower on the garland string. **Right:** Marigolds should all be centered on the garland string. As you continue to add more flowers, push the marigolds closer together. Photos by Kaylee Deynzer.

Step 5

Slide the flower to the end of the garland that has a knot.

Step 6

Repeat steps 3-5 until the garland is at its desired length.

Step 7

Cut the string at the base of the sewing needle to remove the needle. Tie another knot to secure the garland in place. Apply anti-transpirant spray according to manufacturer's recommendations to prolong the display.

Step 8

Enjoy your flower garland!

Useful tips:

- When using large flowers, always push the needle through the petals and pull it through the stem end.
- If using small flowers, rotate between sewing them through the petals and through the stem end. Thread the needle at a slight angle so that only the petals are visible.
- If your flowers vary in size, thread the flowers on the string according to their size. To create a crescendo effect, start with small flowers on one end of the garland, then gradually increase the size so that the largest flowers are in the center of the garland. For the second half, gradually decrease the size of the flowers being added to the string so that both ends of the garland have smaller flowers, allowing the center of the garland to dominate.
- Alternate marigold placements between different colored flowers to create patterns on the garland.

Marigold garlands are often associated with religious ceremonies. Photo by James DelPrince.

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