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Ranunculus (*R. asiaticus*)

You have received dry, dormant ranunculus in the form of tuberous roots (although often referred to as corms). If you are not planting right away, you can store the corms in a dry, cool environment for up to several months.

TUBEROUS ROOTS

Ranunculus is a tuberous-rooted plant. New shoots develop off old stem tissue attached to enlarged tuberous roots, which store and provide energy to the new plants. While not technically corms, ranunculus are often referred to as corms across the industry and will be referred to as corms for the purposes of this tech sheet.

Romance™ and Butterfly™ Series corms are not graded or sized and vary somewhat depending on variety. Generally, Romance corms are around 2.5–4 cm in width and length. Butterfly corms are much larger, 2.5–4 cm width and 5–6.5 cm in length.

Unauthorized reproduction and sale of corms is prohibited by the breeder.

LIFE CYCLE

Ranunculus is most typically grown as an annual in a protected cropping environment such as a tunnel or greenhouse, especially when grown for cut-flower production. In USDA hardiness zones 7 and greater, however, ranunculus can perennialize and be grown outdoors as a garden flower, given care and attention. While established plants can tolerate light frosts, exposure to freezing temperatures is not recommended and unsprouted corms should never be allowed to freeze.

SITE SELECTION & PREPARATION

From sprouting to flowering, ranunculus thrive under cool growing conditions; optimal performance occurs in temperatures of 40–65°F (5–18°C). **Persistent warmer temperatures cause the plants to cease productivity and enter a dormancy cycle.**

To provide a cool growing season, ranunculus is often fall, winter or early-spring planted (depending on your location) and grown under a protective structure such as a greenhouse or low tunnel. Plant your ranunculus in whatever season and structure allows you to provide the cool growing conditions needed for the lifecycle of the crop. Growing inside a structure also serves to protect this high-value, high-cost crop from the elements. For high-quality cut-flower production, growing under some sort of protective structure is highly encouraged.

CULTURE

There are a few key steps to producing ranunculus, outlined in this chart and explained in detail below.

Step	Recommended Temperature		Duration	Notes
1. Soaking	77°F (25°C)	Water temp.	8–12 hours	
2. Chilling	*40–50°F (5–10°C)	Air or soil temp.	3 weeks	Can be chilled in soil or by cold storage method.
3. Sprouting	*55–60°F (12–16°C)	Soil temp.	2–4 weeks	59°F (15°C) is the ideal sprouting temperature; lower temperatures will slow sprouting and delay the crop.
4. Growing on	40–65°F (5–18°C)	Air temp.	11–14 weeks	Plants should be grown as cool as possible and can be grown as low as 35°F (2°C).

* Warmer soil temperatures during chilling or sprouting can result in loss of germination.

1. **Soaking:** The first step in the planting process is to soak your corms. This process is essential for deeply hydrating the dry, dormant root material and initiating a growth cycle.

   Soak corms (you can keep varieties separated by placing them inside net bags) for 8–12 hours (depending on variety, see below) in water at a temperature of 77°F (25°C). Make sure that all the corms stay submerged under water for the entire soaking period.

   Soaking duration:
   - Romance Ranunculus: 8–12 hours
   - Butterfly Ranunculus: 12 hours

   For Advanced Growers:
   Use of Gibberellic Acid (GA_3) during the soaking stage can improve your crop's vigor, productivity, and uniformity. Add Gibberellic Acid at a ratio of 5 grams GA_3 per 100 liters (25 gallons) water or 50 ppm. Maintain a temperature of, or close to, 77°F (25°C) during this 12-hour period, otherwise the GA_3 will not work properly.

2. **Chilling treatment:** After soaking, a chilling treatment is beneficial for earlier flowering and optimal performance.

   Chill by holding corms at 40–50°F (5–10°C) for 3 weeks after soaking. These cool temperatures can be achieved either by holding corms in cold storage or by planting directly into garden beds while soil temperatures are within the desired range. Corms chilled in cold storage can either be stored loose in peat or vermiculite or in soil in seedling trays.

   - **Chill by planting out:** this is a good option if the soil is less than 50°F(10°C) and above freezing. See step #3 below for spacing and planting depth.

   - **Chill in containers:** place the soaked corms into containers filled with peat or vermiculite, which will help retain moisture during the chilling treatment. Bulb or lily crates work well for this stage. Add water as needed to ensure corms do not dry out. After chilling, loose corms can be immediately planted into prepared beds.

   - **Chill in seedling trays:** select a large growing container such as an open flat or large, deep-cell trays. Corms can be quite large; generally, 50-Cell Plug Flats work well for Romance varieties, and 50-Cell Deep Plug Flats work well for Butterfly varieties. Fill cells loosely to the top with growing media. Press corms (roots/fingers pointed down) into cells and cover with 1/8–1/4" growing media. The crown of the corm should be just beneath the soil line. Water in well. Hold corms in a cool, dark, humid environment. Add water as needed to ensure corms do not dry out.

   It is very important that the corms do not dry out at any point during chilling. Drying out of corms during this process will result in loss of germination.

When planting, orient the corm as pictured above, with the fingers/roots facing downward.

3. **Planting and sprouting**
   After soaking and chilling, corms can be planted directly into soil or as transplants. Choose whichever method best fits your growing operation. Whether in soil or in trays, this stage of sprouting and shoot development should take about 2–4 weeks in temperatures 55–60°F (12–16°C).

   - **Planting Loose Corms:** To plant corms directly into the soil, place corms with the center of the corm facing up and fingers/roots facing down into the soil. Take care not to damage the roots during the planting process. Cover the corms with soil; the top/crown of the

corm should be just beneath (1/8–1/4" deep) the soil surface.

- **Planting Corms as Transplants:** after having been chilled in their seedling trays (step #2 above), grow corms in a greenhouse or propagation space at 55–60°F (12–16°C) until roots and shoots develop and plants are ready to transplant. Water trays well. Soil should remain moist but not saturated.

Soil requirements: Cool, moist, well-drained soil. Ideal soil pH: 5.8–6.3; ideal EC (electrical conductivity): 1.3 to 1.5.

Bed preparation: Beds should be weed-free and amended according to needs determined by a soil test. Beds should be watered well in advance of planting to ensure they are adequately moist and to help keep the soil cool. Overhead watering can be used until the foliage begins to develop, after which, drip irrigation should be used to help prevent foliar disease and flower damage.

Spacing:

- Butterfly ranunculus: 10–12" apart within the row, with 12–14" between the rows. Butterfly ranunculus has a taller and wider plant architecture than Romance ranunculus, with a densely branching habit which requires more space for optimal performance.

- Romance ranunculus: 6–8" apart within rows and 8–10" apart between rows.

Support such as Hortonova netting can be used but is not typically required. Depending on your location, shade cloth can be used to help keep a crop cool. White plastic mulch can be used as weed barrier in addition to helping to keep the soil evenly moist and cool.

4. **Growing on:** Once plants are established and growing in beds, you will get the best quality ranunculus when growing in cool, but not freezing temperatures. Daytime temperatures should be kept below 65°F (18°C) and nighttime temperatures around 40°F (5°C). You can grow as cool as 35°F (2°C). If possible, keep the sides of the greenhouse open. Keep well enough ventilated during the night to prevent mildew.

HARVEST

Harvest flowers only early in the morning, if possible. Use a knife or snippers to cut the stem at ground level. Do not pull the stems from the bulb; this can result in pulling up or damaging the plant. Place cut stems into cold water and store in a cooler at 34–40°F (1–4°C). Vase life is approximately 10 days.

Harvest window is 2–4 weeks, depending on conditions. The harvest window can vary depending on temperature. If temperatures remain moderate 40–65°F (4–18°C), flowering window will be longer. Ranunculus is a cool-season crop and undergoes a dormant period during the warm summer growing months. Temperatures consistently above 70°F (21°C) may trigger dormancy in the plants resulting in a shorter harvest window and a decline in bloom quality.

Stage of harvest

- Butterfly ranunculus: Once 2–3 flowers on the stem are showing color and 1 flower is open.

- Romance ranunculus: For ease of handling and storage, cut blooms at the "marshmallow stage," once the blooms color-up and feel springy like a marshmallow and before they fully open. For maximum bloom size and showy flowers, allow the flowers to open and close for 3 days before harvest.

PESTS & DISEASES

- Both corms and plants are attractive to rodents. Protect the crop from rodent damage throughout the crop's lifecycle.

- Ranunculus is susceptible to root rot pathogens. Use of fungicide treatment during the growing process, but especially during the sprouting process, can greatly reduce your chances of crop loss.

For additional pest & disease information from Cornell University research, visit**:**

https://gpnmag.com/wp-content/uploads/05_P&D_GPN0712%20FINAL.pdf

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