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STOCK (*Matthiola incana*)

Stock is a favorite crop among growers due to its fast maturity time. When day length is at least 13 hours, a harvestable crop can be achieved within 10–12 weeks; one of the earliest cut flowers for cooler times of the year. The ability to withstand cooler temperatures — down to 10–20°F (-12– -7°C) — allows for season extension and holiday sales. Florists also appreciate stock for their broad range of colors and easily recognized clove-like fragrance.

SITE SELECTION

Stock is a cool weather crop and grows best in a well-drained, moderately rich soil with a pH of 6.0–7.0 in full sun. Drip irrigation is recommended to prevent spotting on the flower petals and reduce the occurrence of disease. Using white-on-black plastic mulch keeps the soil cool, retains moisture, and reduces weed pressure around drip irrigation. Stock can be either field or greenhouse grown.

Successful spring crop of 'Quartet' series stock planted in an unheated tunnel, using white-on-black plastic mulch in the bed and landscape fabric between rows.

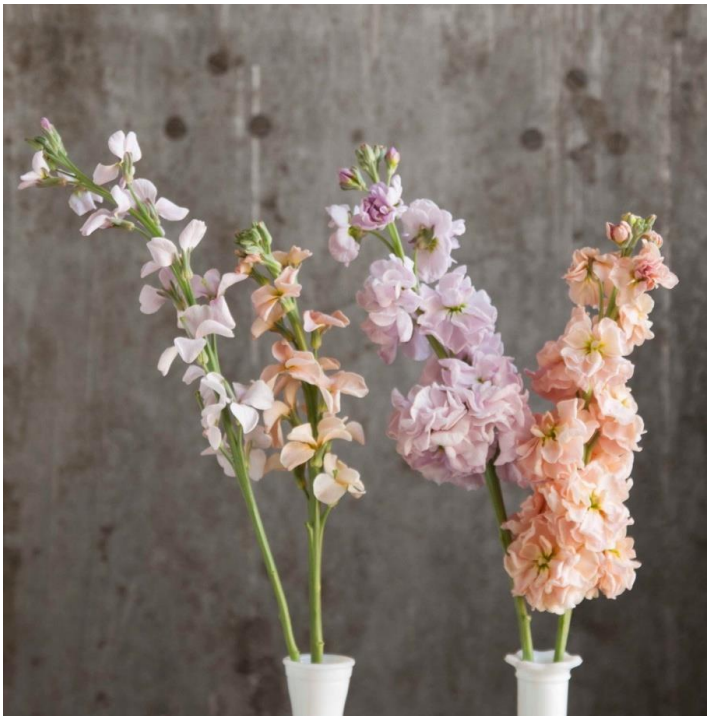
CULTURE:

Direct seeding is not recommended unless water levels can be perfectly maintained; transplanting is the preferred method for starting Stock, particularly if you intend to select for double-flowered blooms.

In cool areas, start plants in late winter for an early spring harvest or in midsummer for a fall harvest. In warmer climates start in the fall for an early winter harvest. Succession planting is recommended to achieve multiple harvests. For an early spring harvest, start Stock seeds 8–10 weeks before the last frost. Earlier plantings can be very successful in heated and unheated protected structures, such as high tunnels. Experiment with multiple planting dates to find the ideal planting time for your desired harvest in your region.

Sow 2 seeds per cell, ¼ inch deep in 128-cell plug trays or larger, up to 72-cell plug trays. Cover seeds lightly with fine vermiculite to help retain moisture. Keep seed evenly moist until emergence. Seeds will germinate within 7–14 days when kept at a temperature of 65–75°F/18–24°C. Thin to one seedling per cell. Maintain good air circulation and do not let the seedlings dry out or become too wet while growing.

SELECTING FOR DOUBLE-FLOWERED BLOOMS



Left: Single-flowered blooms.

Right: Double-flowered blooms.

Stock produce single or double flowers based on their genetics. Most modern varieties produce at least 50% double-flowered blooms with the remainder being single-flowered blooms. Certain varieties are known as "selectable," meaning that shortly after germination it is possible to cull out specific seedlings and only retain those that produce double flowers. Double-flowered stems are more desirable and of higher value, so growers often choose to discard the single-flowered seedlings during selection. Selection can be a difficult and time-consuming process, so growers may skip the selection process and use the single-flowered stems as well.

Preparing seedlings for selection: After germination, while seedlings are still in the cotyledon stage, expose the seedlings to temperatures of 40–45°F/4–7°C for 3–4 days. A room designated for cold storage is an ideal location for chilling seedlings. If you do not have a cold storage room, placing the trays in a refrigerator is sufficient. Water seedlings beforehand to prevent the seedlings from completely drying out. Limit or eliminate watering while the seedlings are being chilled. Chilling the seedlings in this manner will cause visual differences between single and double-flowered plants to be expressed.

Characteristics of Double-Flowered Seedlings

There are a few factors that identify the differences between singles and doubles. Below are the characteristics for seedlings that produce double-flowered stock.

- Light green in color
- Large, oval cotyledons
- Taller seedlings
- Fast germinating and growing

Left: When selecting for double-flowered blooms, remove seedlings that are darker in color.

Right: Example of a seedling with fused cotyledons. Remove these.

Characteristics of Single-Flowered Seedlings

Seedlings that produce single-flowered stock also have specific identifying characteristics.

- Dark green in color
- Deformed or fused cotyledons
- Shorter plants and smaller cotyledons

Even with the ability to select for one morphology over the other, it can be difficult to ascertain the selections. It is best to grow varieties that have a high percentage of naturally-occurring doubles; our Quartet series will produce 55% doubles without selection. If you rely on such varieties for doubles without selecting, plan to sow 45% more seed than is usually required in order to make up the difference of the percentage doubles.

TRANSPLANTING

Transplant to the field or greenhouse once seedlings have 4–5 true leaves. Space seedlings 6 inches apart, in rows 6 inches apart, as shown below. Do not allow the seedlings to become root bound prior to transplanting as this can cause the plants to become stressed and bloom on short stems.

Avoid allowing the soil to dry out for the first week until they are established. Drip irrigation is the best method to ensure adequate soil moisture. Prevent conditions that are too wet or dry — as they can cause disease — by allowing the soil to dry slightly between waterings.

Seedlings transplanted through plastic at a 6” x 6” spacing.

PINCHING

Stock varieties are divided into two habit types, spray and column. Column varieties have only one central stem. A spray type produces multiple stems per plant and the whole plant can be harvested at one time.

Our Quartet series is a spray type and will branch naturally without pinching. To achieve uniform height in the spray, it is necessary to pinch the plants when the first bud develops. When the seedlings are approximately 8–9 weeks old the first bud will develop. Timing will vary depending on temperature, with lower temperatures slowing growth and delaying when pinching can occur. The quickest and easiest way to pinch the first bud is to take your thumb and index finger and pinch the stem. Small scissors can also be used to snip off the main growing point.

INSECT PESTS

As a member of the Brassicaceae family, stock are affected by many of the same insect pests as other brassicas.

Aphids are one of the most prevalent insects affecting stock. A quick blast of water will remove them, or, you can apply an insecticide, such as the OMRI-listed Safer® Insect Soap. Sticky Yellow Traps distributed throughout the plantings will lure and trap aphids, in addition to whiteflies and other pests. As an alternative to Safer®, pests can be controlled biologically with parasitic wasps or insect predators, such as the aphid midge, *Aphidoletes aphidimyza*.

Thrip damage can cause unsightly foliage and, on rare occasion, reduced yields. Young plants can succumb to thrip damage if populations aren’t properly controlled. Pyganic®, which removes and kills thrips, is Johnny’s preferred OMRI-listed control.

Flea beetles can be identified by evidence of small holes in the leaves. Flea beetles primarily affect the seedling stage, when they can decimate young, tender leaves. Use row cover to protect field plantings by preventing the insects’ access to the plants. Prevent flea beetles from damaging young seedlings by the use of a trap crop, or control by applying Safer® Insect Soap or Pyganic®.

DISEASES

Stock are less susceptible to disease than many other garden plants. Preventative measures can discourage problems before they have a chance to start. Provide good air circulation and, if over-head watering, avoid watering late in the day, making sure leaves are dry by nightfall. Proper sanitation of all greenhouse surfaces, seed starting supplies, and other crop-care tools is also a critical preventative measure.

Downy mildew (*Peronospora spp.*) is characterized by a slight yellowing on the upper side of leaves, often in bands somewhat resembling a nutritional deficiency. Yellow/green spores develop on the lower leaf surface, producing white “fuzz” on the underside of leaves. Minimize the conditions favoring disease development — high humidity and extended leaf wetness — by improving air flow in protected growing structures, using drip irrigation, and spacing plants farther apart. Some effectiveness has been shown with preventive applications of Oxidate® and Actinovate®, both OMRI-listed products.

Root rot and damping off (*Rhizoctonia solani*; *Pythium* spp.) are recognized by sudden wilting and plant collapse. Both problems are intensified by high humidity and poor air circulation. In a greenhouse environment, the use of sterile soil and clean pots can reduce these problems. A root disease prevention product such as Activate® is another method of control.

Gray mold (*Botrytis cinerea*) is identified by characteristic brown-to-gray fungal growth that appears on stems cut for harvest or on plant debris that may be near the growing area. Poor air circulation and high humidity along with moderately cool temperatures create an environment for the disease to spread. It is important to keep the growing area clean to prevent disease. Actinovate® will offer some control with a foliar application.

HARVEST

Harvest when ⅓–½ of the florets on the stem are open. When properly cared for, Stock can last up to a week in a vase. The flowers are also edible, with a peppery, clove-like flavor that lends itself well to use as a garnish on salads, desserts, and drinks. Flowers can be eaten whole, as the base does not impart bitter or other off-flavors; nor is it tough. Petals can be prepared for use by pulling them away from the base, as shown bellow.

In addition to their fresh uses, stock can be dried. Air dry by hanging in a dry location out of the direct sun. The deeper shades hold their color best. The fragrance also endures through the process of drying.

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ACCESSIBLITY 02/10/22 LD, ms