Opus III/IV™, Overture II™

ANTIRRHINUM MAJUS / CUT FLOWER

Cut flower Snapdragons are extremely daylength sensitive. Variety selection is critical to success. The proper Snapdragon grouping must be planted in the appropriate time slot to have a high-quality crop. Overture (Group II) is typically produced to flower under short, cool days. Opus (Group III/IV) is generally produced to flower under long, warm days.

Minimum Germination Rate: 85%

Seed Product Form: Raw

FLOWERING

Time frame when plants are receptive to flower initiation: 5 – 10 pairs of leaves.

Flowering Type: Opus is a facultative long-day plant – long days enhance flowering. Overture is a facultative short-day plant – short days enhance flowering.

Specific Flowering Mechanism: Daylength, light intensity and temperature trigger flowering in cut flower Snapdragons.

PLUG CULTURE

Germination: Optimum conditions for seedling development that begins the day the crop is sown until cotyledon expansion. Expect radicle emergence in 3 – 4 days.

Cover: Seeds may be covered with a thin layer of coarse vermiculite to maintain moisture levels.

Media: • pH: 5.5 – 5.8

• EC: <0.75

Light: Light is not required for germination. If utilizing a chamber, providing a light source of 10 – 100 foot candles (100 – 1,000 lux) will improve germination and reduce stretch compared to seed germinated in the dark.

Moisture: Saturated (5) for days 0 – 5 or until radicle emergence. On days 6 – 18 reduce moisture to moist (3). Beginning day 19 reduce further to medium (2).

Humidity: 100% until radicle emergence then reduce to 40 – 70%.

Dehumidify: Provide horizontal airflow to aid in drying down the media through evapotranspiration, allowing better penetration of oxygen to the roots.

Temperature: 72° – 75°F (22° – 24°C) until radicle emergence. Higher temperatures can decrease the speed of germination. Reduce to 65° – 68°F (16° – 18°C) until cotyledon expansion.

Fertilizers: Fertigation water should not be greater than 0.5.

Plug Bulking: Optimum conditions during the vegetative period, beginning at cotyledon expansion, needed for the root to reach the edge of the plug cell.

Media: • pH: 5.5 – 5.8. High pH levels may promote iron deficiency in Snapdragons resulting in chlorotic young shoot growth.

• EC: 0.5 – <1. High EC levels may encourage shoot tip abortion.

Light: Provide 2,000 – 3,000 foot candles (20,000 – 30,000 lux). Do not exceed 3,000 foot candles (30,000 lux).

Temperature: 65° – 68°F (18° – 20°C). Gradually decrease to 62° – 65°F (17° – 18°C) as the seedlings mature.

Moisture: Alternate between moisture levels wet (4) and medium (2). Allow media to approach level (2) before re-saturating to level (4).

Humidity: 40 – 70%

Dehumidify: Provide horizontal airflow to aid in drying down the media through evapotranspiration, allowing better penetration of oxygen to the roots.

Fertilizers: As needed, begin feeding established seedlings at 25 – 50 ppm nitrogen with a calcium-based fertilizer (13-2-13- or 14-4-14). Mature seedlings can be fed at 100 ppm nitrogen. If additional shoot growth is needed, alternate between calcium nitrate and ammonium phosphate-based (17-5-17) fertilizers. Chlorosis of lower leaves may indicate ammonium levels are too high.

GROWING ON

Cut flower Snapdragons are typically transplanted directly into the ground. Raised beds are preferred. Provide support to the growing stems to produce high-quality stems.

Transplant Ready: 4 – 5 weeks from sow in a '288' tray. Transplant plugs before seedlings become root bound. Delayed flowering and reduced quality will occur if plugs are held too long prior to transplant.

Spacing: In high light conditions, transplant plugs on a spacing of 10 – 12 plants per square foot. Under low light conditions, decrease spacing to 8 plants per square foot.

Finish Bulking/Flower Initiation: Optimum conditions during the vegetative period, beginning at transplant, needed for the root to reach the edge of the container AND to make the plant receptive to flower initiation.

Media: Amend soils as needed to provide adequate aeration to the roots, yet retain enough water to provide a steady supply of moisture without staying saturated.

• pH: 5.5 – 5.8. Low pH may allow sodium to become toxic. High pH may lead to iron deficiencies.

• EC: 1 – 1.5 Snapdragons are salt sensitive. If necessary, leach beds occasionally to reduce EC levels.

Light: The two biggest factors influencing flower initiation are daylength and light quality. High light levels are necessary to initiate optimum flowering. Initiation generally occurs when plants have developed 5 – 10 pairs of leaves. Overcast weather during this time frame may affect the outcome of the crop. If necessary, provide supplemental lighting of 350 – 400 foot candles (3,500 – 4,500 lux) to ensure adequate light levels. Altering natural day length will impact flowering and stem length.

Temperature: Temperature directly affects the rate of growth and quality of cut flower Snapdragons. The winter blooming Overture (Group II), prefers night temperatures of 50° – 55°F (10° – 14°C) and cool days. The summer blooming Opus (Group III/IV), prefers slightly higher night temperatures of 55° – 60°F (13° – 16°C) with cool days.

Moisture: Alternate between moisture levels moist (3) and medium (2). Allow media to approach level (2) before re-saturating to level (3).

Humidity: 40 – 70%

Dehumidify: Provide horizontal airflow to aid in drying down the media through evapotranspiration, allowing better penetration of oxygen to the roots.

Fertilizers: Feed at 100 – 300 ppm nitrogen with calcium nitrate and/or potassium nitrate fertilizers. When the buds begin to show color, irrigate with clear water only. Avoid fertilizers high in ammonium under cool conditions. Under high light and warm temperatures, an ammonium feed may be beneficial. Excessive side shoots may be indicative of high fertility levels or excessive moisture.

Common Diseases: Botrytis Blight, Downy Mildew, Powdery Mildew, Pythium, Rust,Tomato Spotted Wilt Virus, and Impatiens Necrotic Spot Virus

Common Pests: Aphids,Thrips, and Spider Mite

PRODUCT USE

Commercial cut flower production

Vase life: 6 – 7 days

SNAPDRAGON SCHEDULING IN WEEKS

	Overture II	Opus III/IV
'288' plug crop time	4 – 5	4 – 5
Transplant to finish crop time		
Cut flower	Use Overture for winter flowering: 8 – 13, depending upon conditions	Use Opus for summer flowering: 6 – 10, depending upon conditions

Note: These suggestions are only guidelines and may have to be altered to meet individual grower's needs. Check all chemical labels to verify registration for use in your region.