



## Saratoga™

### NICOTIANA X ALATA

**Minimum Germination Rate:** 85%

**Seed Product Form:** Pelleted, raw

### FLOWERING

**Time frame when plants are receptive to flower initiation:** Days 26 – 30; 4 – 6 leaves present.

**Flowering Type:** Day-neutral plant – will flower regardless of daylength.

**Specific Flowering Mechanism:** Nicotiana is an irradiance plant. High light triggers flowering.

### PLUG CULTURE

**Germination:** Optimum conditions for seedling development that begins the day the crop is sown until cotyledon expansion. Expect radicle emergence in 3 – 5 days.

**Cover:** No covering over the seed is required.

**Media:** • pH: 5.5 – 5.8  
• EC: 0.75 – 1

**Light:** Light is necessary 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.

**Temperature:** 70° – 75°F (21° – 24°C) days 1 – 5 or until radicle emergence. Reduce to 65° – 68°F (18° – 20°C) until cotyledon expansion.

**Average Daily Temperature (ADT):** 67°F (19°C)

**Moisture:** Saturated (5) for days 1 – 5 or until radicle emergence. On days 6 – 10 reduce moisture to moist (3). Beginning day 11 begin alternating between moisture levels moist (3) and medium (2) until cotyledon expansion. Allow media to approach level (2) before re-saturating to level (3).

**Humidity:** 100% until radicle emergence then reduce to 40%

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

**Plug Bulking/Flower Initiation:** Optimum conditions during the vegetative period, beginning at cotyledon expansion, needed for the root to reach the edge of the plug cell AND to make the plant receptive to flower initiation.

**Media:** • pH: 5.5 – 5.8  
• EC: 1.5 – 2

**Light:** Provide 3,500 – 4,500 foot candles (15 – 20 total mols or 35,000 – 45,000 lux) to hasten flower induction. Supplemental lighting under low light conditions at 350 – 450 foot candles (35,000 – 45,000 lux) will enhance shoot and root growth.

**Temperature:** 65° – 68°F (18° – 20°C)

**Moisture:** Alternate between moisture levels wet (4) and dry (1) Allow media to approach level (1) before re-saturating to level (4). Do not let seedlings wilt.

**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:** Nicotiana is a moderate to heavy feeder. Feed at 100 – 150 ppm nitrogen. Under high light conditions, apply an ammonium-based feed (17-5-17). Under low light conditions, apply a calcium-based feed (14-4-14). Under high light and long or extended days, an ammonium-based feed (20-10-20) is preferred.

**Growth Regulators:** Established plug trays respond to B-Nine (daminozide) Bonzi (paclobutrazol), Sumagic (uniconazol) or Cycocel (chlormequat chloride).

### GROWING ON

**Transplant Ready:** 4 – 5 weeks from sow in a '288' tray.

**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:** • pH: 5.8 – 6.2  
• EC: 1 – 1.5

**Light:** Under low light conditions, supplemental lighting at 300 – 400 foot candles (3,000 – 4,000 lux) for an 18-hour day will induce early flowering.

**Temperature:** 65° – 68°F (18° – 20°C). Warmer temperatures will speed up flowering.

**Average Daily Temperature (ADT):** 67°F (19°C)

**Moisture:** Alternate between wet (4) and dry (1.5) Allow media to approach level (1.5) before re-saturating to level (4). Nicotiana prefers to be grown on the dry side without wilting. Cabbage-like leaves are indicative of overwatering.

**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:** Nicotiana is a moderate to heavy feeder. Feed at 100 – 150 ppm nitrogen. Under high light conditions, apply an ammonium-based feed (17-5-17). Under low light conditions, apply a calcium-based feed (14-4-14). Under high light and long or extended days, an ammonium-based feed (20-10-20) is preferred. Additional potash applications can be applied until first flower color appears.

**Growth Regulators:** Established transplants can be treated initially with B-Nine (daminozide) at 5,000 ppm. Subsequent applications can be made every 3 – 4 weeks at 2,500 ppm until buds are visible. Also responds to A-Rest (ancymidol), Bonzi (paclobutrazol), Sumagic (uniconazol) or B-Nine/Cycocel (chlormequat chloride) tank mix or negative DIF treatments.

**Common Diseases:** Downy Mildew

**Common Pests:** Aphids, Whitefly, Thrips, Cutworms

PRODUCT USE	GARDEN SPECIFICATIONS
Packs, pots, containers, mass plantings	<b>Light:</b> Partial shade to full sun <b>USDA Hardiness Zone:</b> 9 <b>AHS Heat Zone:</b> 12 – 1

	Garden Height	Garden Width
<b>Saratoga</b>	10 – 12" (25 – 30 cm)	10 – 12" (25 – 30 cm)

### NICOTIANA SCHEDULING IN WEEKS

	Saratoga
<b>Total crop time</b>	9 – 11
<b>'288' plug crop time</b>	4 – 5
<b>Transplant to finish crop time</b>	
<b>Packs</b>	5 – 6
<b>4" crop</b>	6 – 7
<b>6" crop</b>	7 – 8

*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.*