GrowerFacts

Viola Sunkiss Mix

(*Viola x hybrida*)

Germination

Light is not necessary for germination.

Plug Production

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 Lower pH levels will discourage Thielaviopsis outbreaks and boron deficiencies which may cause tip abortion and stunted growth.

EC: <0.75

Light:
Light is not necessary for germination. If utilizing a chamber, providing a light source of 10 – 100 foot candles (100 – 1000 lux) will improve germination dramatically compared to seed germinated in the dark.

Temperature:
68° – 70°F (20° – 21°C) until radicle emergence. Reduce to 65° – 68°F (18° – 20°C) until cotyledon expansion.

Moisture:
Saturated (5) on day 1. On days 2 – 3 reduce moisture to wet (4) until radicle emergence. On day 7, reduce further to moist (3). Non-uniformgermination may result if media conditions are too dry.

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.

Fertilizers:
Fertigation water should not be greater than an EC of 0.5.

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: <1.0 Violas are sensitive to high salts, avoid EC levels exceeding 1.5.

Light:
Provide 2000 – 3000 foot candles (20,000 – 30,000 lux) maximum. Violas should not be given night interruption as premature flowering may occur.

Temperature:
65°F (18°C) nights; 65° – 68°F (18° – 20°C) days. Cool nights will prevent seedling stretch. After several sets of true leaves have appeared, drop night temperatures to 59°F (15°C) to initiate early flowering.

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

Moisture:
Alternate between moisture levels wet (4) and moist (3). Allow media to approach level (3) before re-saturating to level (4). Alternating moisture levels encourages root development. Do not allow seedlings to wilt. Continuously saturated media will limit oxygen availability, discourages optimal root development and promotes seedling stretch.

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 established seedlings at 75 ppm Nitrogen with a calcium-based fertilizer (14-4-14). As seedling matures, increase rate to 100 ppm Nitrogen. An ammonium concentration >5 ppm will cause seedling stretch. Upward cupping of leaves may indicate calcium deficiency.

Growth Regulators:
If necessary, apply B-Nine (daminozide) at 2500 ppm to
tone the finished plug tray.

Growing On to Finish

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: 5.5 – 5.8
At pH levels >6.5, Thielaviopsis may develop as black lesions on the roots. Symptoms also include yellowing of lower leaves and die back of the plant. Stressed plants under high temperatures are most likely to be affected.

EC:
1.0 Viola roots are sensitive to high salts.

Light:
Provide full sun.

Temperature:
During the cool season, a night temperature of 59°F (15°C) will promote early flowering. Temperatures below 59°F (15°C) will promote a hardier plant, but will increase crop time and delay flowering. Keep days below 68°F (20°C) or as cool as possible during warm weather conditions.

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

Moisture:
Alternate between moisture levels wet (4) and medium (2). Allow media to approach level (2) before re-saturating to level (4). Saturated media for extended periods will induce stretching. When growing under warm temperatures and high light conditions, do not allow the plants to 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:
Feed every 2 – 3 waterings at 100 – 150 ppm Nitrogen with a calcium based fertilizer (13-2-13). If desired, an application of ammonium nitrate (17-5-17) will help expand leaves. During cool weather production, ammonium-based feeds may encourage root rot problems. High Nitrogen concentrations may promote stretching.

Nutrition:
Malformed, puckered and upward cupped leaves indicate calcium deficiencies. To prevent this, fertilize with calcium nitrate or add calcium sulfate to the growing media before transplant. Boron deficiencies can be distinguished by tip abortion, upper leaf stunting, puckering and thickening of leaves, along with shortened internodes and/or a gnarled mass of lateral shoots. Violas tend to be more sensitive to boron deficiencies than pansies. Boron deficiency is moreprevalent during warm weather with frequent watering. pH levels <6.0 will ensure boron is more readily available to the plant. A one-time application or Solubor will help overcome these problems.

NOTE: An overdose of Bonzi (paclobutrazol) may also produce symptoms similar to boron or calcium deficiencies.

Growth Regulators:
Violas respond to DIF treatments, B-Nine (daminozide) and A-Rest (ancymidol). NOTE: Malformed leaves and leathery growth may occur if B-Nine is applied at 5000 + ppm when temperatures exceed 90°F (32°C).

Common Diseases: Alternaria Leaf Spot, Downy Mildew, Thielaviopsis Root Rot, Cercospora Leaf Spot
Common Pests: Aphids

SCHEDULING

Total crop time: 9 – 10 weeks for Fall market
11 – 13 weeks for Spring market.

288 Plug crop time: 4 – 5 weeks

Transplant to finish crop time:
Timing will vary for production depending on whether the crop is grown under warm or cool conditions. Crop time for Spring sales is longer due to cooler temperatures during the winter months in which it is grown.

Packs: 4 – 5 weeks

4" crop: 5 – 6 weeks

6" crop: 6 – 7 weeks

Ball

Ball Horticultural Company
622 Town Road, West Chicago, Illinois, USA, 60185
630 879-BALL www.ballseed.com