GrowerFacts

Sunflower Miss Sunshine

(*Helianthus annuus*)

Germination

Media
Use a well-drained, disease-free media with a pH range of 5.5 to 6.0, and EC less than 0.75mS/cm (2:1 extraction).

Sowing
Plug Tray Size: Can be produced in a 200-cell, 128-cell or a similar size plug tray with 1 seed per cell. Cover with media, vermiculite or sand.

Germination takes approximately 3 to 5 days.
Germination temperature: 68 to 72°F (20 to 22°C)

Light: Lighting is not required.

Media Moisture: Keep the substrate at a medium to medium-wet level (level 3 to 4) during germination.

Relative Humidity: Maintain 95 to 97% relative humidity until cotyledons emerge.

Plug Production

Media
Use a well-drained, disease-free media with a pH range of 5.5 to 6.0, and EC less than 0.75mS/cm (2:1 extraction).

Sowing
Plug Tray Size: Can be produced in a 200-cell, 128-cell or a similar size plug tray with 1 seed per cell. Cover with media, vermiculite or sand.

Stage 1 – Germination takes approximately 3 to 5 days.

Germination temperature: 68 to 72°F (20 to 22°C)

Light: Lighting is not required.

Media Moisture: Keep the substrate at a medium to medium-wet level (level 3 to 4) during germination.

Relative Humidity: Maintain 95 to 97% relative humidity until cotyledons emerge.

Stage 2
Temperature: 68 to 72°F (20 to 22°C) days; 64 to 68° F (18 to 20°C) nights.

Light: Can be up to 2,500 f.c. (26,900 Lux) during Stage 2.

Media Moisture: Keep the media medium (level 3) to medium wet (level 4) during Stage 2.

Fertilizer: Apply fertilizer at rate 1 (less than 100 ppm N/less than 0.7 mS/cm EC) with a nitrate-form fertilizer with low phosphorous. Maintain a media pH of 5.8 to 6.2 and EC at 0.5 to 0.7 mS/cm (1:2 extraction).

Stage 3
Temperature: 64 to 72°F (18 to 22°C) days; 61 to 64° F (16 to 18°C) nights.

Light: Can be up to 5,000 f.c. (54,000 Lux) during Stages 3 and 4.

Media Moisture: Moisture level can be reduced to medium dry (level 2). Do not allow seedlings to wilt.

Fertilizer: Increase the fertilizer rate to 2 (100 to 175 ppm N/ 0.7 to 1.2 mS/cm EC). Maintain a media pH of 5.8 to 6.2 and EC at 0.7 to 1.0 mS/cm (1:2 extraction).

Stage 4
Temperature: 61 to 72°F (16 to 22°C) days; 57 to 64° F (14 to 18°C) nights.

Light: Can be up to 5,000 f.c. (54,000 Lux) during Stages 3 and 4.

Media Moisture: Moisture level can be reduced to medium dry (level 2). Do not allow seedlings to wilt.

Fertilizer: Increase the fertilizer rate to 2 (100 to 175 ppm N/ 0.7 to 1.2 mS/cm EC). Maintain a media pH of 5.8 to 6.2 and EC at 0.7 to 1.0 mS/cm (1:2 extraction).

Plant Growth Regulators
Generally not required. Under some circumstances the young plants can benefit from 1 to 3 foliar applications of B-Nine/Alar (daminozide) at 1,280 ppm (1.5 g/l 85% formulation or 2 g/l of 64% formulation).

Growing On to Finish

Container Size
5-in. (13-cm) pot: 1 plant per pot. For Winter production, a smaller container (4 to 4.5-in./10 to 11 cm) can be used since plants do not grow as big under short days and low light.

Gallon containers: 3 plants per pot. Containers with multiple plants will have smaller flowers than the same size container with only 1 plant.

It is also possible to grow Miss Sunshine in a 2.5 to 3.5-in. (6 to 9-cm) pot. The pot size will reduce the total growth, plant size and flower size to a balanced plant.

Media
Use a well-drained, disease-free media with a pH of 5.8 to 6.5, and an EC of 0.75 mmhos/cm.

Temperature
Night: 61 to 64°F (16 to 18°C)

Day: 64 to 72°F (18 to 22°C)
The warmer the temperature, the faster crop time is under the same growing season. The actual crop time depends not only on the temperature but also on daylength.

Miss Sunshine can be grown at lower temperatures towards the end of the culture (59°F or 15°C),

Light
Keep light levels as high as possible while maintaining appropriate temperatures. High light gives a stronger stem, larger primary flowers and more secondary buds.

Daylength
Miss Sunshine can be produced year-round. Photoperiod trials have shown that Miss Sunshine flowers 1 week faster at 10-hour days compared to 14-hour days, and 2 weeks faster at 10-hour days compared to 16-hour days. However, cooler temperatures associated with short days can result in longer crop time.

Crops grown during the Summer can be black clothed to create 12-hour days.

Irrigation
Do not overwater. Allow the medium to moderately dry, then water thoroughly. Avoid watering in the late afternoon as the foliage will stay wet during the night and create an environment favorable for powdery mildew.

Fertilizer
Apply fertilizer at rate 3 (175 to 225 ppm N/1.2 to1.5 mS/cm EC) once a week from a nitrate-form fertilizer with low phosphorus. A balanced ammonium and nitrate-form fertilizer may be applied as needed. Maintain the media EC at 1.5 to 2.0 mS/cm and pH at 5.8 to 6.2.

For constant fertilizer program, fertilizer can be applied at rate 2 (100 to 175 ppm N/0.7 to 1.2 mS/cm) while maintaining the above recommended EC and pH ranges.

Plant Growth Regulators
PGRs are generally not required under short-day conditions. Under short days and cooler growing conditions, plants will grow 6 to 8 in. (15 to 20 cm).

Under long days and warmer growing conditions, plants will grow up to 10 to 12 in. (25 to 30 cm) tall. If it is necessary to control height, spray with B-Nine/Alar (daminozide) at 1,250 to 2,500 ppm (1.5 to 3 g/l 85% formulation or 2 to 4 g/l of 64% formulation). Usually 1 application at the end of the crop time is enough.

PGR treatments can delay flowering a few days.

Crop Scheduling
Sow to transplant (200-cell plug tray): 2 to 3 weeks. Add 1 more week for larger liners (128-cell).

Transplant to flower: Summer/Fall: 6 to 7 weeks, Winter/early Spring: 7 to 8 weeks.

For northern Europe: Summer/Fall: 7 to 8 weeks, Winter/early Spring 9 to 11 weeks.

Common Problems
Insects: Aphids

Diseases: Powdery mildew; however, Miss Sunshine is more resistant to powdery mildew than other commercial varieties.

Note: Growers should use the information presented here as a starting point. Crop times will vary depending on the climate, location, time of year, and greenhouse environmental conditions. Chemical and PGR recommendations are only guidelines. It is the responsibility of the applicator to read and follow all the current label directions for the specific chemical being used in accordance with all regulations.

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