Wonder Wave® Series Spreading Petunias: Plug & Liner Production

New Tips for the Best Germination Rates & Highest Number of Usable Seedlings

Plug Production

NOTE: Because their spreading habit begins after transplanting, **Wonder Wave** plugs can be produced like other petunia plugs.

Media

Use a well-drained, disease-free seedling medium with a pH of 5.5 to 6.0 and EC about 0.75 mS/cm (1:2 extraction).

Sowing

Water thoroughly after sowing to make sure the pellet cracks before the tray is moved to chamber or bench. Do not cover with vermiculite due to physical barriers caused by vermiculite.

Stage 1 (Germination takes 3 to 4 days.)
Soil temperature: 72 to 76°F (22 to 24°C)
Light: Lighting is beneficial. See below for detail.
Moisture: Keep soil very wet (level 5) during Stage 1 for optimal germination.
Humidity: Maintain 100% relative humidity (RH) until radicles emerge.

NOTE: Saturated moisture (level 5) and constant environmental conditions are the key issues for **Wonder Wave** germination. The best germination conditions are in a lighted chamber where the light level is about 10 f.c. (100 Lux) or higher, with 72 to 76°F (22 to 24°C).

If a light chamber is not available, either of the following conditions can be substituted for successful germination:

1) Dark chamber for the first 24 to 48 hours at 72 to 76°F (22 to 24°C). Once the trays are moved out of chamber, maintain saturated moisture (level 5) for the rest of Stage 1 at the same temperature.
2) If germinating on the bench, provide high media temperature from 72 to 76°F (22 to 24°C) and saturated moisture (level 5) by covering with Remay or plastic (Vermiculite is not recommended) until radicles emerge. If not covered, pay close attention to media moisture and maintain saturated condition (level 5) until the end of Stage 1.

Stage 2
Soil temperature: 68 to 75°F (20 to 24°C)
Light: Up to 2,500 f.c. (26,900 Lux)
Moisture: Start to slightly reduce soil moisture (level 4) to allow root to penetrate into the media.
Fertilizer: Apply fertilizer at rate 1 (less than 100 ppm N/less than 0.7 mS/cm EC) from nitrate-form fertilizers with low phosphorous.

Stage 3
Soil temperature: 65 to 70°F (18 to 21°C)
Light: Up to 2,500 f.c. (26,900 Lux)
Moisture: Allow media to further dry until the surface becomes light brown (level 2) before watering. Keep the moisture to wet-dry cycle (moisture level 4 to 2).
Fertilizer: Increase fertilizer to rate 2 (100 to 175 ppm N/0.7 to 1.2 mS/cm EC). If growth is slow, apply a balanced ammonium and nitrate-form fertilizer with every other fertilization. Maintain medium pH of 5.8 to 6.2 and EC between 1.0 and 1.5 mS/cm (1:2 extraction).

Growth Regulators: Control **Wonder Wave** plug growth first by environment, nutrition and irrigation management, then with chemical plant growth regulators if needed. Minimize ammonium-form nitrogen fertilizer to avoid seedling elongation. Temperature differential (DIF) can also be used to minimize height. Test all chemical plant regulators first.

In Northern European conditions: 1 to 3 applications of B-Nine/Alar (daminozide) at 1,250 ppm (1.5 g/l 85% formulation or 2.0 g/l 64% formulation) spray has been tested and shown effective if needed.

Stage 4
Soil temperature: 60 to 65°F (16 to 18°C)
Light: Up to 5,000 f.c. (53,800 Lux) if temperature can be controlled.
Moisture: Same as Stage 3.
Fertilizer: Same as Stage 3.

Large Liner Production

For finished plant growers who do not have supplemental lighting and wish to finish **Wonder Wave** spreading petunias with the same PGRs as regular petunias, the best choice is to use larger, pre-lit liners. The following program produces **Wonder Wave** liners which have flower buds induced and all the heavy PGR applications already taken care of.

Liner Size

72-cell or larger.

Sowing

Direct sow into liner or transplant from 512 or 406-plug into liner. **Note**: If direct sowing, follow all germination requirements.

Photoperiod

Start long-day conditions (daylength extension to 14 hours or 4-hour night interruption) at 5-leaf count or earlier. Continue long-days until plant leaf number reaches 12 (about 6 to 7 weeks from sowing depending on soil temperature, or up to 9 weeks if transplanted from small plugs).

Be aware that if plant material is moved from a 14-hour environment to less than 12 hours of light, there is a possibility of bud abortion occurring.

Growth Regulators

To achieve May flowering with a liner production time of 6 weeks, use the following schedule:
Week 3: B-Nine/Alar (daminozide) at 5,000 ppm (6.0 g/l 85% formulation or 7.8 g/l 64% formulation)
Week 4: Repeat B-Nine/Alar spray
Week 5: Bonzi (paclobutrazol) spray at 15 ppm (3.8 ml/l, 0.4% formulation) to 60 ppm (15.0 ml/l, 0.4% formulation) spray
Week 6: Repeat Bonzi spray, if necessary

If liner production is taking place during periods of cool temperatures and low light, the liner production period is about 1 week longer (about 7 weeks). Therefore, all PGR applications can be postponed 1 week (postpone 2 weeks if transplanted).

All other environmental conditions follow normal plug production regimes.

Note: Do not overgrow **Wonder Wave** plugs. If plugs become rootbound, the plant slows/stops growing. Rootbound plugs are more susceptible to disease. It takes about 1 to 2 weeks for plants to recover after transplanting from rootbound plugs. Make sure roots have optimum room for fastest crop timing.

Growing On to Finish

Refer to the separate **Wonder Wave Spreading Petunias: Growing On to Finish** Grower Facts for complete details.

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