

BASIL

Sanitation and good cultural practices are critical for control of basil downy mildew (BDM; caused by *Peronospora belbahrii*).

- The spores of BDM can move rapidly within the greenhouse so barriers between crops can reduce airborne spore movement within the greenhouse.
- Isolate production blocks to prevent mechanical spread by personnel or equipment.
- Thoroughly clean all equipment and production areas between production cycles.
- Refer to 'Sanitation for @Risk Crops' for additional tips to make sure you have reduced the risk of spreading this disease within your production.
- **Growers are responsible for preventing the spread of BDM in their operations.**

Basil @ Risk Crop

*Basil Downy Mildew is a seed and airborne disease that, if not managed throughout the production cycle, will cause serious plant losses. Ball has worked diligently to minimize the risk, BUT growers are **solely responsible** for growing plants under clean cultural conditions and applying correct fungicides to suppress the disease.*

SUGGESTED FUNGICIDE PROGRAM FOR BASIL DOWNY MILDEW MANAGEMENT

- ⇒ Day 0-1 Sow seed and **sprenc** Subdue MAXX (mefenoxam) + K-Phite (phosphonate) within one day of sowing.
- ⇒ Day 14 Spray with Segway O (cyazofamid) + Capsil (non-ionic surfactant) **OR** Cease (*B. Subtilis*)
- ⇒ Day 28-30 Spray plugs with Segovis (oxathiapiprolin) + K-Phite 1-2 days before transplant.
- ⇒ Day 35-37 Spray with Cease
- ⇒ Day 42-44 Spray with Segway O (cyazofamid) + Capsil (non-ionic surfactant) **OR** Cease
- ⇒ Day 49-51 Spray with Subdue MAXX (mefenoxam) + K-Phite
- ⇒ Day 56-58 Spray with Cease
- ⇒ Day before shipping spray with Heritage SC (azoxystrobin)

Many fungicides are labeled for use on greenhouse-grown basil that will be sold as transplants. There are multiple market channels for basil, and it is the grower's responsibility to check the label and apply products to crops as required for appropriate market channel.

PLUG CULTURE

STAGE 1 – Time of radicle emergence (2–4 days)

- Soil temperature 65–70°F (18–21°C).
- Keep media very moist, near saturation.
- Seed may be left covered or uncovered.
- Soil pH 5.5–5.8 and soluble salts (EC) less than 0.75 mmhos/cm (2:1 extraction).

STAGE 2 – Stem and cotyledon emergence (7 days)

- Soil temperature 65–70°F (18–21°C).
- Reduce moisture levels once radicle emergence occurs! Allow the soil to dry out slightly before watering for best germination and rooting.
- Keep soil pH 5.5–5.8 and EC less than 0.75 mmhos/cm.
- Keep ammonium levels less than 10 ppm.

- Begin fertilizing with 50–75 ppm N once cotyledons are fully expanded.
- Alternate feed with clear water.
- Irrigate early in the day so foliage is dry by nightfall to prevent diseases.

STAGE 3 – Growth and development of true leaves (7–10 days)

- Soil temperature 62–65°F (17–18°C).
- Allow the soil to dry sufficiently between irrigations but avoid permanent wilting to promote root growth and control shoot growth.
- Maintain soil pH 5.5–5.8 and EC less than 1.0 mmhos/cm.
- Increase feed to 50–75 ppm N every 2–3 irrigations.
- Supplement with magnesium sulfate (16 oz/100 gal). Do not mix magnesium sulfate with calcium nitrate as precipitate will form!
- Long Day treatments starting at sunset for at least 6 hours (dark period <7 hours) effectively prevent BDM spore germination. This is most effective during early development.
- Use DIF whenever possible, especially the first 2 hours after sunrise, to control plant height.

STAGE 4 – Plants ready for transplanting or shipping (7 days)

- Soil temperature 62–65°F (17–18°C).
- Allow soil to dry thoroughly between irrigations.
- Fertilize with 14–0–14 or calcium/potassium nitrate feed at 50–75 ppm N as needed.

FINISHED CULTURE

TEMPERATURE

- Night: 62–65°F (17–18°C) Day: 65–70°F (18–21°C)

LIGHT

- Long Day treatments starting at sunset for at least 6 hours (dark period <7 hours) inhibit BDM spore germination. This is most effective during early development.
- Maintain light levels as high as possible while maintaining moderate temperatures.

MEDIA

- Use well-drained, disease-free soilless media with a mid-level initial nutrient charge and a pH of 5.5–6.2.

FERTILIZATION

- Fertilize every irrigation with 50-75 ppm.
- Maintain medium electrical conductivity around 1.0 mmhos/cm (using 1:2 extraction).

CONTROLLING HEIGHT

- Once plants are rooted to the sides of the containers allow the plants to slightly wilt prior to irrigation to provide some height control.
- Basil is responsive to day/night temperature differential (DIF), and plants will be more compact when grown using a negative DIF.

**Be sure to read pesticide labels before use and follow all label instructions.*

For more information on this disease: [Cornell Resources on Basil Downy Mildew Management](#)

Find more resources: <https://www.ballseed.com/QuickCulture/ProductionGuides/>
Tech On Demand Podcast: <https://www.growertalks.com/TechOnDemand/>