GrowerFacts

Pentas Ruby Glow

(*Pentas lanceolata*)

Propagation

STAGE 1 - Harvesting of cuttings to sticking

- Harvest uniform diameter cuttings to ensure uniform rooting.
- Make multiple passes over the stock to collect uniform diameter cuttings.
- Harvest cuttings at the correct stage of maturity- be certain stem cuttings are not woody.
- Harvest cuttings in the early morning or late afternoon when ambient temperatures are below 90°F (32°C).
- Place cuttings in carriers either base up or base down.
- Avoid crushing the cuttings when harvesting to decrease botrytis problems.
- Cover the carrier with a damp towel to prevent desiccation of the cuttings.
- Store the cuttings for at least 2 hours at 48°F (9°C) to reduce cutting temperature.
- Maintain 75-90% RH in the cooler to prevent desiccation of the cuttings.
- If planting is going to be delayed, store the cuttings at 50-60°F (10-16°C) for 24 hours maximum.
- Stick in sand or perlite mixture. Air space and dry media is important for root formation. A callus will prevent rooting.

STAGE 2 - Root initiation-AVOID CALLUS FORMATION

- Soil temperature 68-72°F (20-22°C)
- Air temperature 68-70°F (20-21°C) nights, 75-80°F (24-26°C) days.
- To guarantee uniform rooting, the media should be sufficiently moist so that water is easily squeezed out of rooting media.
- Keep RH 75-90% at the base of the cutting.
- Use tempered water, 70°F (21°C), in the mist lines since cold water will lower the soil temperature during the day.
- Maintain high relative humidity in the air surrounding the cutting, 75-90%, to minimize evapotranspiration.
- Prevent leaf wilting by applying overhead mist or fog.
- The mist frequency should increase and decrease as the light and ambient temperatures change during the course of the day.
- During the first 3-5 days frequent night misting may be required.
- Each wilting episode during stage 2 adds at least one day to the rooting program.
- Light intensity should be 500-1000 foot-candles.
- Light intensity above 1000 will increase plant stress due to plant warming.
- Use retractable shade so that the light intensity can be increased as the cuttings mature.
- Begin foliar feeding with 50-75 ppm of 20-10-20 as soon as there is any loss in foliage color.
- Soil pH should be 6.5-7.0 with an EC < 0.5.
- Maintain pH of media leachate at 6.0-6.2.
- If growth regulators were used during stock plant growth, no growth regulators are used during stage 2.
- If growth regulators were not used during stock plant growth then start applying appropriate growth regulators as soon as cuttings are turgid.
- Once 50% of the cuttings begin differentiating root initials, the cuttings are ready to transfer to stage 3.

STAGE 3 - Root development (7-14 days)

- Soil temperature 68-72°F (20-22°C).
- Air temperature 68-70°F (20-21°C) nights, 75-80°F (24-26°C) days.
- Once the cuttings begin to form root initials, it is critical to begin drying out the soil.
- Avoid drying out the air since this will increase evapotranspiration which will reduce root zone temperature.
- To reduce soil moisture:
- Reduce the mist application during the dark period.
- Reduce the duration and frequency of the mist.
- Reduce the amount of water applied per day by delaying the start of the mist period until 9:30 to 11:00 AM and end the mist period earlier than 4:00-5:00 PM.
- Begin increasing light intensity to 1000-2000 ftc as the cuttings begin to root out.
- Apply growth regulators as needed.
- Foliar feed at 100 ppm nitrogen from 15-0-15 alternating with 20-10-20 then increase rapidly to 200 ppm. Increase the frequency and rate at each application to prevent salt problems.
- The majority of fertilizer should be in the nitrate form (15-0-15).
- The soil pH should be 6.5-7.0.
- Soil EC should be below 0.5.
- Monitor the pH and EC of the leachate on a daily basis. The pH should be 6.0 and the EC should stay between 0.5-1.0.

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

- Air temperatures 62-68°F (16-20°C) nights, 75-80° F (24-26°C) days.

- Move the liners from the mist area into an area of lower RH, lower temperatures, and higher light intensity.
- A zero DIF is desired.
- Use growth regulators if DIF is positive.
- Increase the light intensity to 2000-4000 ftc.
- Provide shade during the mid point of the day to reduce temperature stress on the crop.
- Maintain soil pH 6.5-7.0 and EC less than 1.0 mmhos/cm.
- Fertilize at 150-200 ppm nitrogen from 15-0-15 alternating with 20-10-20 once per week.

Growing On to Finish

TEMPERATURE

Night: 62-65°F (16-18°C)

Day: 72-75°F (22-24°C)

LIGHT

- Keep light intensities at 4000-7000 while maintaining moderate temperatures.
- Pentas are long day plants and will flower earlier under long days. Flowering is accelerated by increasing the intensity. During the winter when sunlight is reduced, crops take longer to finish.
- When photoperiod is less than 10 hours, flowering is inhibited.
- Low light levels promote stem stretch.

WATER

Keep media evenly moist to avoid water stress.

MEDIA

- Use a well-drained, disease-free soil-less medium with a high initial nutrient charge and a pH 6.5-7.0
- Avoid over watering or water stress as this will cause leaf edge damage.
- Pentas can decrease the soil pH therefore additional limestone is sometimes required to control pH.
- If leaves roll, increase the pH.
- Combinations of peat, bark, or perlite are best.

FERTILIZATION

- Pentas have a moderate fertilizer requirement.
- Fertilize with 15-0-15 alternating with 20-10-20 leaching every 5th irrigation.
- As the plants mature the rate can be increased to 200-300 ppm.
- Water with clear water every third watering if high soluble salts problems occur.
- Maintain medium electrical conductivity around 1.0 mmhos/cm (using 1:2 extraction).
- Do not add iron to fertilizer solution.
- Excessive ammonia fertilizers (20-20-20) may drop pH and promote iron uptake.

PINCHING

- Once liners are established, pinch plants back.
- Pinch plants above the 5th-6th leaves about 1-1.5 “above the soil.

CONTROLLING HEIGHT

- Height can be controlled by withholding fertilizer, especially phosphorous and ammonium-form nitrogen.
- Pentas respond well to Cycocel. A one time spray of 2000 ppm or 2 sprays of 1000 ppm 2-3 weeks apart are beneficial to keep compact. Bonzi and Sumagic have been shown to control height of Pentas.

POST PRODUCTION CARE

TEMPERATURE

Night: 62-65°F (16-18°C)

Day: 68-75°F (20-24°C)

LIGHT

- Pentas does best in full sun.
- Optimum light levels are 4500+ ftc.

WATER

Avoid water stress.

COMMON DISEASES AND INSECTS

Insects: Aphids,Thrips, Whitefly, Spider mites, Fungus gnats

Diseases: Botrytis, Rhizoctonia, Pythium, Powdery Mildew

COMMON PROBLEMS AND CAUSES

Problem: Plants collapse

Causes: Wet media for an extended period; Botrytis; Iron toxicity due to low p

Problem: Excessive vegetative growth

Causes: High ammonia concentration in the soil; Over fertilization under low light; Low light and over watering, wet media

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Problem: Poor branching

Causes: Low fertilization during early stages

Problem: Foliage Necrosis

Causes: Drying out the plant between irrigations; High soluble salts in the soil; Iron toxicity; Low soil pH

Problem: Leaf Curl

Causes: Low soil pH; Iron toxicity

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