

Alternanthera Trailing

(*Alternanthera species*)

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.
- 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 cuttings cannot be stuck immediately, store at 50-60°F (10-16°C) for 24 hours maximum.

STAGE 2 - Callus formation (5-7 days)

- Callus formation occurs in 4 steps:
 - 1. Swelling of the tissue, no color change
 - 2. Swollen area begins to turn white
 - 3. White area begin to crack open (epidermis ruptures)
 - 4. Rough callus area begins differentiating root initials
- Soil temperature 68-70°F (20-21°C).
- Air temperature 65-70°F (18-21°C) nights, 68-72°F (20-22°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 500-700 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 5.5-6.0 with an EC < 0.75.
- Maintain pH of media leachate at 5.5-6.0.
- 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 65-68°F (18-20°C)
- Air temperature 65-70°F (18-21°C) nights, 68-72°F (20-22°C) days
- Once the cuttings begin to form root initials, keep soil relatively moist, but drier than Stage 2.
- 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 700-1000 ftc as the cuttings begin to root out.
- 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 soil pH should be 5.5-6.0.
- Soil EC should be around 0.75 mmhos/cm.

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

- Air temperatures 65-70°F (18-21°C)
- Move the liners from the mist area into an area of lower RH, lower temperatures, and higher light intensity.
- Attempt to duplicate the RH levels found in the production area.
- Increase the light intensity to 1000-2000 ftc.
- Provide shade during the mid point of the day to reduce temperature stress on the crop.
- Maintain soil pH 5.5-6.0 and EC less than 1.0 mmhos/cm.
- Fertilize at 150-200 ppm nitrogen from 15-10-15

alternating with 20-10-20 twice per week.

Growing On to Finish

TEMPERATURE

Night - 65-68°F (18-20°C)

Day - 68-75°F (20-24°C)

- Plants will tolerate a wide range of temperatures from 40-80°F (4-27°C)
- Temperatures above 95°F are not recommended.
- Temperature determines the growth rate with temperatures above 65°F (16°C) promoting the most rapid growth while the best quality occurs at temperatures <60°F.

LIGHT

- Plants grow best in light shade.
- Optimum light is 1,000-2,000 ftc during the summer.
- Low light levels promote stem stretch.
- Full light will promote leaf rolling.
- Alternanthera are day neutral, but flower profusely as the light intensity improves. During winter when the sunlight is reduced, flowering is also reduced. However, flowers are inconspicuous and the leaves are the ornamental feature.

MEDIA

- The media should have good aeration, drainage and water holding capacity.
- Combinations of peat, bark or perlite are best.
- A pH of 5.5-6.0 with a high starting charge is desired.

WATER

Avoid over watering which results in root loss.

FERTILIZATION

- Alternanthera have moderate fertilizer requirement.
- Constant liquid feed fertilizers like 20-10-20 or 15-0-15 Peat-Lite at 200-250 ppm.
- Incorporation of slow release fertilizer is not recommended.

PINCHING

Plants are pinched by hedging the plants back once they are established in the final container.

GROWTH REGULATORS

Because of free branching compact habit, growth regulators are not necessary.

POST PRODUCTION CARE

TEMPERATURE

Night - 65-68°F (18-20°C)

Day - 68-75°F (20-24°C)

LIGHT

Plant Alternanthera in light shade. 1000-2000 ftc. is optimal

WATER

Keep soil medium/dry. Over watering promotes root loss.

COMMON INSECTS AND DISEASES

INSECTS: Whiteflies, Aphids, Fungus gnats, Leaf miners

DISEASES: Botrytis, Pythium, Rhizoctonia

COMMON PROBLEMS

PROBLEM: Plants collapse

CAUSE: WET media for an extended period; Pythium or Rhizoctonia; too deep planting

PROBLEM: Limited vegetative growth

CAUSE: Low temperature; Excessive nitrate nitrogen in the fertilizer; Limited fertilization under low light; Low light and over watering

PROBLEM: Stretching

CAUSE: Low light conditions

PROBLEM: Poor foliage color

CAUSE: Low light conditions; Over watering; Lack of nitrogen

PROBLEM: Poor branching

CAUSE: Low fertilization, lack of nitrogen; Low light conditions

