general

Rooting Requirements

Receiving Unrooted / Callused Cuttings

Open the boxes upon arrival. Cuttings should be stuck as soon as possible. When receiving a wide range of cutting varieties in one shipment, a sticking priority should be followed. Generally, geraniums should be at the top of the priority list, with zonals being stuck first followed by ivies. Other species which should be stuck quickly are, dahlia. Some species that have small leaves and can dehydrate quickly, such as lobelia, and diascia, should be stuck next. Most other species in the Syngenta line can be grouped into a secondary sticking priority after all other high priority items have been stuck. Cuttings may be temporarily stored overnight in open boxes at 5-10 C with relative humidity above 75%. Try not to store cuttings more than 24 hours. Some species, such as lantana, all impatiens (including New Guinea impatiens) and vinca, do not like to be stored under cold temperatures. These items should be stored above 10 C.

Rooting Unrooted Cuttings

Most species begin to callus and form initial roots about 10-14 days after sticking Rooting time will vary somewhat between different species. Fast rooting species (3-3.5 weeks) include, bacopa, coreopsis, impatiens (all, including New Guinea impatiens), and verbena. It is especially important for some of these faster rooting items, such as double impatiens and trailing impatiens, to be transplanted on time to prevent stretched cuttings. Slow rooting species (4.5-5 weeks) include bracteantha, calibrachoa, ivy geraniums, osteospermum, penstemon, and scaevola. Some of these items, may require even more time to develop sufficient rooting before transplant. Most other species within the Syngenta vegetative line will do well with about 4 week rooting time.

Clean and disinfect propagation area. Place rooting media on bench shortly before arrival of cuttings. Preservation of cutting quality is dependent upon how quickly cuttings are stuck. Most vegetative cuttings can be rooted in 72-105 size plug trays using a welldrained plug mix. There are many types of rooting media, such as peat based plugs (loose filled plug trays and PaperTec) and Coir base Jiffy 7C's. that work fine also. Geraniums generally require a larger plug size to allow for adequate air movement around the cuttings (ex. 26 double-strip).

Rooting hormones will encourage early and uniform rooting, especially during the winter and early spring season when light and temperature are lower. Many of the slower rooting items listed above benefit the most from rooting hormones.

However, proper temperature and environmental conditions are more important in getting cuttings to propagate successfully. Most of the Syngenta rooting stations do not use rooting hormone because it slows down the sticking process.

If using rooting hormones, be conservative and experiment to determine proper concentrations. A 0.1% (1000 ppm) IBA concentration is a good starting point.

Misting

Mist schedules vary depending on light and temperature conditions. Apply just enough moisture to re-hydrate the cuttings and keep them from wilting. Cuttings should be hydrated and in a non-wilted stage within 24 hours after sticking. Capsil (spray adjuvant) can be sprayed on the cuttings 1-2 days after sticking to help in water re-hydration of the cuttings. Many growers combine the Capsil with an early fungicide application. Misting should be significantly reduced after roots begin to form on the cuttings. Avoid over-saturated media and over-misting. This will delay rooting significantly. Try to group cuttings based on their rooting speed and mist requirements.

Disease Control:

A preventative fungicide spray a few days after sticking will help prevent Botrytis infections. A follow-up spray can be given about 5-7 days after the first application depending upon disease pressure. Plants can be given a fungicide drench after roots develop to prevent fungal root rot. Broad spectrum drenches work well to control a range of pathogens.

Moisture:

Avoid over-saturated media and over-misting, especially under dark, cloudy conditions. Choose a propagation media that is well-drained and offers adequate aeration.

Ventilation:

Avoid heavy drafts in the propagation area that can cause edges of benches to dry more quickly than the centers, especially early in the rooting process. After roots develop, air movement can be increased to reduce Botrytis infections.

Air Temperature:

Can vary between 20-24 C depending upon how much top (shoot) growth is desired. As rooting increases, air temperature generally should be reduced to control top growth and tone the cuttings.

Bottom Heat:

The first three weeks bottom temperatures should be between 21-23C.

Temperature:

After roots are well developed, temperatures can be lowered to hold and tone the cuttings.

pH:

5.8-6.2

Media EC:

Between 0.7-0.8 mS/cm (low nutrient charge)

Pinching:

Some species are best pinched in the liner stage, while others may need pinching after transplant. Check the specific culture guide for each variety to see the recommended pinching guidelines.

Light:

Maintain light levels between 1,000-1,200 f.c. for the first two weeks after stickin or until root development occurs. Light levels can be increased up to 3,000 f.c as rooting increases and the cutting matures. A retractable shade system i highly desirable when rooting vegetative cuttings, especially for growers in the south. Supplemental HID lighting is desirable for growers in the far north where photoperiod and intensity are greatly reduced in the winter and early spring. Nightbreak interruption or using daylength extension lighting greater than 13 hours is needed for some crops, such as dahlia, to prevent tuber formation and premature bud set under naturally shorter daylengths.

Fertilizer:

Begin fertilization at 100 ppm N when roots become visible. Rates can be increased up to 200 ppm after roots become well developed. Use primarily Cal- Mag (calcium nitrate + magnesium nitrate) fertilizers in propagation to prevent unwanted stretch.

When using powders or liquid dips, be careful not to coat the leaves or entire cutting --- only apply to the lower portion of the stem. Excess application of rooting hormones can cause burning and damage to the cutting.

Reference:

Syngenta Flowers Vegetative Cuttings