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SUN GRO HORTICULTURE

THE SUN GRO'er

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SUN GRO HORTICULTURE

Welcome!

Welcome to another edition of the Sun Gro'er Technical Newsletter. This edition of the Sun Gro'er includes information on grower seminars developed by Sun Gro and also an article on vegetative propagation. There is also information on our upcoming Technical sales training.

In the future newsletters, we will also begin providing columns from those outside of our Tech team, including information from our sales and production teams.

If you have any questions or comments about the Sun Gro'er, please feel free to contact us. As always, we provide the contact information for each of our Tech Specialists here in the newsletter.

-Dan Jacques

Sun Gro to Provide Technical Training

Sun Gro strives to be the recognized technical leader in the industry. Having a sales team that is also well versed in the basics of horticulture is key to being the technical leader. To that end, it was decided that the Technical Specialists would conduct a training session for all of Sun Gro sales. We will be holding our first Technical Training series in Houston, TX on May 26 and 27.

This training series will include sessions on general product information, water quality and fertilizer selection, plant nutrition, plant diagnostics, crop issues, disease ID, and handling customer concerns. The training will also include hands-on experience with field testing equipment such as pH and EC meters.

The next logical step after this training will be to conduct distributor training sessions and these are in the planning stages for the second half of this year. These will be followed by grower training seminars.

This is all part of Sun Gro's striving to be the recognized technical leader in the industry.

Big News!

Sun Gro to Offer In-Depth Technical Training to Our Sales Team

Notes from Walden's Pond

The Basics of Vegetative Propagation

With spring just around the corner and the recent introduction of the Sunshine Ellepot Propagation System, it seems like a good time to review the basic cultural requirements for successful vegetative propagation. The use of unrooted cuttings to produce annuals and herbaceous perennials is on the increase, partly because desirable species and cultivars from offshore production facilities can be delivered faster and for lower cost than ever before. And while the phrase 'offshore production' may touch off heated debate among protectionists and free-trade advocates, in this case cuttings that originate in the Southern Hemisphere while we shiver up here in the Northern may actually have a quality advantage. And that leads us to our first consideration, what constitutes quality in an unrooted cutting?

Cutting Quality: The quality of unrooted cuttings depends largely on their size, age, and nutritional status. Generally, cuttings should be 1.5 to 3 inches long with 3-5 leaves, not too tall (with long internodes and reduced leaf area) and not too short (thick with too much leaf area). As Goldilocks said, they need to be 'just right'. Cuttings should have actively growing meristems (growing points). Cuttings that are too old or too young will not root quickly and old cuttings do not branch well. The base of the cutting should be softwood and needs to be recut if hard. And it's important that when the cutting is stuck, its leaves do not cover the apical (topmost) meristems of its neighbors. Tuck or cut leaves to avoid this occurring.

Much of the quality of an unrooted cutting goes back to the nutritional status of the stock plant from whence it came. Stock plants need enough nitrogen (N) to produce sufficient numbers of softwood cuttings but if too much N is supplied, carbohydrates (food) produced in the leaves during photosynthesis are utilized as fast as they are made to supply growth. The unrooted cutting needs a store of those carbohydrates to fuel root growth. This is where the aforementioned Southern Hemisphere advantage comes into play. The higher light levels there during our darker winter months allow production of cuttings with higher carbohydrate reserves. On the other hand, a cutting does need enough reserve N to sustain new growth through the initial period without roots. Adequate reserves of Ca and B are also important for the formation of new cell walls.

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Rooting Media: No matter what the components used to create it, the 'ideal' medium performs three functions well. It has the strength to hold cuttings upright, it retains moisture well enough to keep cuttings turgid, and it drains well enough to provide oxygen for rooting. The latter two requirements usually are met in media that have 25-35% air-filled porosity. Container depth also has a direct influence on air-filled porosity. Although the percentage of pore space in a given medium is the same regardless of container height, there is a higher ratio of water to air in that pore space in shorter containers owing to less distance (height) from the 'perched' water table at the bottom of containers. Rooting percentages can be improved by not sticking cuttings too deeply to avoid this water-saturated zone. Other media requirements are pH about 6.0 and EC less than 0.75 mS/cm.

Propagation Environment: The basic requirements for successful vegetative propagation include a well-drained and easily sanitized site, with systems to provide bottom heat and mist, shade, and perhaps supplemental light. How the grower uses these systems to manipulate water, temperature, and light is the real key to success, so let's examine each of these aspects more closely.

Water: The goal is to minimize moisture stress of the cutting by maintaining humidity around the leaf to minimize transpiration. Misting also keeps the rooting medium moist

(Continued on page 3)

Vegetative Propagation (from page 2)

but care must be taken to avoid overwatering. Too much water in the medium will reduce the level of oxygen supplied to roots. The level of misting should be the minimum needed to keep cuttings turgid. In early stages, mist 3-8 seconds every 5 minutes. Reduce misting as cuttings mature. If misting isn't sufficient to keep the rooting medium moist, handwater occasionally. One 'trick' that can be used to improve the turgidity of freshly stuck cuttings is to spray them with a wetting agent prior to placement under the mist. The wetting agent causes water to spread in a thin film over the leaf surface rather than bead up, thereby reducing transpiration. Try this out. The effect on freshly stuck cuttings can be quite startling when compared to the turgidity of cuttings left unsprayed.

Temperature: Bottom heat is essential because root medium temperature is more critical than air temperature for rooting. Optimum root medium temperature is generally 72 to 75F. Root temperatures can be reduced to as low as 60F after roots form. Air temperatures do affect rooting and should be maintained at 65 to 75F.

Light: High light is not needed for rooting. Shade is used to lower light levels and thereby reduce transpiration. Not enough light, though, reduces rooting, so supplemental light may be necessary in winter. Light level recommendations will follow when we consider cultural specifics for the different stages of propagation.

Fertilization: No fertilizer should be applied until a visible callus (new tissue due to cell division around the stem wound) has formed, usually 5 to 10 days after sticking. After the callus is visible, a weekly application of 50 to 75 ppm N as a complete fertilizer is sufficient. Once the root initials are formed, fertilization should be a weekly application of 100 ppm N. The low P and low NH4-N of Technigro 13-2-13 is ideal for this purpose. There is no need to apply fertilizer through the mist system. After rooted cuttings come off the mist but before they are transplanted is the time when plants are most susceptible to nutrient deficiencies, especially of N, Mg, and Fe. The nutrient status during this stage will have an effect on growth after transplant. During this stage, apply 125 to 250 ppm N as a complete fertilizer, and Epsom salts (Mg) and iron chelate as needed.

Propagation Requirements by Stage: Until now, I have referred to various stages of propagation without clearly defining them. Vegetative propagation, like plug propagation from seed, has well-defined stages that can be used in summarizing the specific cultural requirements for success. Jim Gibson of NCSU and Kim Williams of KSU provide the following recommendations.

Stage 1

- Description: sticking to swollen base
- Light: 500 to 1,500 footcandles
- Root-zone temperature: 68-80F
- Air temperature (night): 70-80F
- Mist: 3-8 secs every 5-10 min for 24 hrs; reduce to every 10 min after 3-4 days
- Media water status: keep moist
- Fertilization: none

Stage 2

- Description: callus to visible root initials
- Light: 1,300 to 1,800 footcandles
- Root-zone temperature: 68-73F
- Air temperature (night): 68-73F
- Mist: 3-5 secs every 10-20 min for 24 hrs; reduce to every 20-50 min close to Stage 3
- Media water status: moderate
- Fertilization: weekly 50-75 ppm N, low P, low NH4

Stage 3

- Description: visible roots to significant root and shoot growth
- Light: 1,500 to 2,300 footcandles
- Root-zone temperature: 65-68F
- Air temperature (night): 65-68F
- Mist: discontinue; syringe if needed
- Media water status: reduce
- Fertilization: weekly 50-100 ppm N, low P, low NH4

Stage 4

- Description: toning to transplant
- Light: 2,400 to 4,000 footcandles
- Root-zone temperature: 60-65F
- Air temperature (night): 58-65F
- Water: overhead or subirrigation
- Media water status: allow to dry between waterings
- Fertilization: weekly 125-250 ppm N, low P, low NH4, Epsom salts, iron chelate

Final thoughts: Two other areas very important to success with vegetative propagation but beyond the scope of this short article are disease control, where sanitation is the key (disinfect floors, benches, trays; eliminate algae that leads to shore flies) and growth regulation (stock plants and cuttings). Other considerations include the handling of unrooted cuttings upon receipt (open the boxes immediately; rehydrate cuttings under mist or in a cooler) and whether or not to use rooting hormones (woody plants show the most benefit). While whole books can be (and have been) written on the subject of vegetative propagation, my hope is that we've covered enough of the basic principles to ensure your success this spring.

~Ron Walden

Reddy-Set-Go!

Info Through Technical Seminars

"Think as the technical person does, but speak as the grower does"

Technical presentations or seminars are one way to inform customers about growing media and fertilizers and how to use them properly. Nowadays distributors and growers are dealing with not only numerous diverse products such as seeds, pots, tags, greenhouse coverings, chemicals, sprayers, irrigation pipes, etc., but also different brands in each category. They say they are seeking ways to learn more about the products and the latest in knowledge in a short time. Seminars are attractive in this context. Seminars also offer customers to put a face to one of the company services.

Because of the differences in audiences, technical seminars have taken various formats. Here are some situations where technical seminars have been done recently.

Seminars to distributor customer service and sales representatives. These are presented when distributor representatives gather for their own meetings. During these seminars, information is presented on how to recommend a product, for example how to suggest different Technigro formulas. The purpose is to make the distributor representatives comfortable about the products, so they can take care of initial requests from their customers promptly. For more complex questions, they would refer to Sun Gro's technical people.

Seminars to distributor's customers. These are done during distributor open houses. The seminar is part of presentations by multiple, complimentary vendors, such as choosing a fertilizer by a fertilizer vendor followed by using a fertilizer injector by an injector vendor. The purpose here is to inform the growers how they can meet their needs using the products showcased by the distributor as well as to answer the questions from current users.

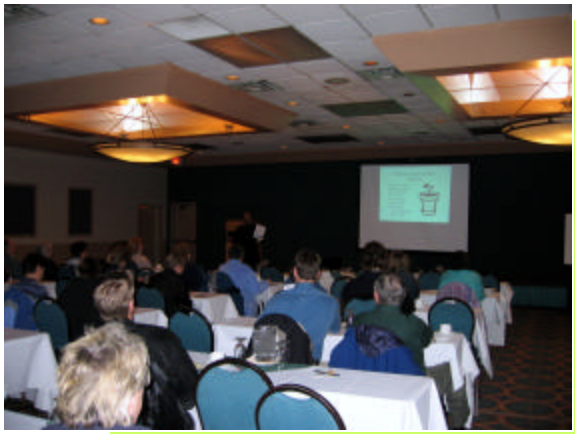
Seminars at a large grower facility. Sometimes owner or manager of a large greenhouse asks that their employees be trained. This may happen when there is a turnover of employees or a new product like a new mix is being introduced. The purpose is to help to reduce the fear some employees may have in using the product. In this situation, even hands-on training is included, like showing them how to sample and test the mix properly.

Seminars organized by university specialists. Sometimes university professors or extension specialists invite industry experts to share information on a particular topic during their educational programs. Generally no endorsement of products is allowed. Participation in such seminars creates goodwill for the company and helps in reaching potential customers.

The feedback from audiences regarding the technical seminars has been very good. It is especially gratifying when calls come, even quite a few days after the seminar, asking for more information on the products or when an unexpected Christmas card arrives thanking how the seminar was useful in solving a problem.

The purpose of this article is to let the wider readership of *THE SUN GRO'er* Newsletter aware of the availability of technical seminars from Sun Gro. Please contact your Sun Gro district manager to arrange one in your area.

~Shiv Reddy



Product information, not the presenter, is the highlight of any seminar, as this photo by Fred Wickens at a JVK session illustrates!

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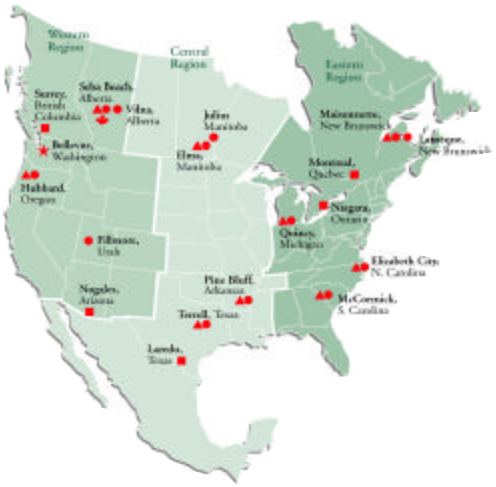

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