

Rootmaker[®] News

Things certainly have changed since the last edition of this newsletter. The atrocities committed on September 11 have altered the way we view the world and life in general. Hopefully, this was a reminder for the need to cherish the liberties that Americans enjoy and the resolve to forbid anyone, either an individual, a group, or nation, to deny these liberties that so many Americans have pledged their sacred honor and given their lives to protect.

We want to take this opportunity to express our gratitude for your support of Rootmaker[®] Products Company during the past year. And we trust that all of you had a joyous holiday season and are looking forward to a prosperous New Year.

Because of the constraints of time, our newsletter will be published biannually, winter and summer, instead of quarterly. Also, our readers are invited to submit their successes for publishing in upcoming issues.

Fastening lengths of Rootbuilder[®] material has been upgraded by adding a nylon washer to be used with the rivet. This provides a positive lock for the rivet to connect the end of the Rootbuilder[®] material.

24" tall Rootbuilder[®] is being discontinued, effective January 2, 2002. There is some inventory in stock and will be sold on a first come basis. 12" tall Rootbuilder[®] will become a special order item as of the same date. This will effect the lead time from order date to the ship date for customers that desire to use this size. There are no changes to 18" and 30" tall material.

The *Certified Grower Program* continues to grow. We have added a number of companies this year. The larger this program becomes the more beneficial it will be to everyone. If you are using either of our propagation containers for your production and the plants will never be grown in smooth wall container, please contact us about participation in this program. We are planning to add these names to our web site in the near future.

Thanks to the many growers that visited our booths at SNA, The Nursery / Landscape Expo, FNGA, and Western Expo. It was good to visit with old friends, to add faces with names, and to meet some for the first time. We have a busy trade show schedule for the coming year. The Mid-American Horticultural trade show in January was added to the schedule. I will be at all of the shows except Green & Growin'. Dr. Whitcomb will be in the booth at that one. We will both be at the SCHI 2002 and the Tampa Spring Expo.

Our booth will be in the following trade shows in January and February of 2002. Please come by for a visit.

January Shows

MANTS, Baltimore, Jan 8,9,10 Booth # 2455
Green & Growin', Winston-Salem, Jan 18-19, Booth #4306
Mid-American, Chicago, Jan 16-19, Booth # 932
CENTS, Columbus, Jan 21-23, Booth # 4021
Gulf States Horticultural Expo, Mobile, Jan 25-26, Booth # 1230

February Shows

SCHI 2002, Myrtle Beach, SC, Feb 7-9, Booth # 100
Tampa Spring Expo, Tampa, Feb 22-23, Booth # 346

Additional information about the trade shows can be found through our web site, www.rootmaker.com. We have links to most of the shows above.

For growers in the Virginia Beach area, Dr. Whitcomb will be conducting a workshop at the Professional Horticulture Conference of Virginia (PHCV 2002). The conference will be held January 21-24 at the Virginia Beach Pavilion Convention Center & DoubleTree Hotel. There are a number of different workshops at the conference.

Information can be obtained on line at www.phcv.org, by calling (757) 523-4734, by fax (757) 366-9604, or by writing PHCV, PO Box 64446, Virginia Beach, VA 23467.

Lacebark, Inc News

The new edition of the book, *Production of Landscape Plants II* is finally available. This has been an experience. Copies can be obtained by calling (405) 377-3539 or by fax at (405) 377-0131 or by email at sales@lacebarkinc.com.

At Lacebark Research Farm, the long, pleasant fall has allowed completion of several projects. An improved low water crossing of a stream, a new pump house and improved controls and new storage bins for pine bark and sand. All seeds for 2002 have been collected and are being cleaned in preparation for a busy growing season.

Two overwintering studies with container stock are in place. These are the kind of studies where if they work during several winters will be shared. If they do not work, the information gets put in the file drawer, but in either case useful information will result, either to use directly or to have in mind as part of the next technique to try.

I have a request and would appreciate a response if anyone knows the answer. I recall seeing old car tires turned inside-out and used as livestock feeders, etc. Does anyone know how this is done? †

Grower News

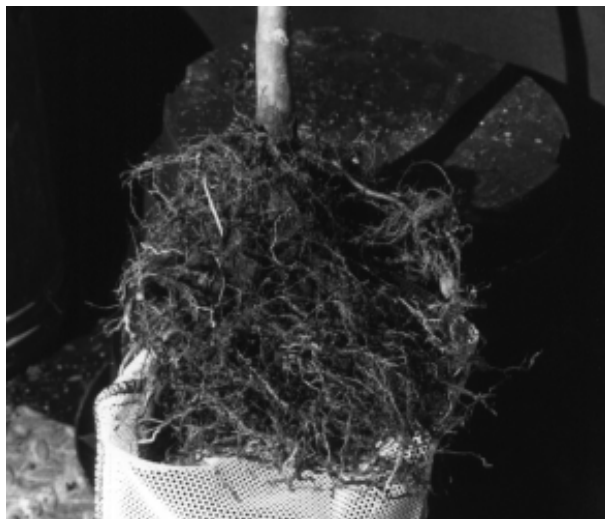
Before returning to Alabama after the Nursery / Landscape Expo in August, I visited with Gerald Senter, owner of Senter's Nursery, in Whitehouse, Texas. He wanted to show me the success he was having growing Shumard oak liners in the 5" Knit Fabric container in cinder blocks.

Seeds were germinated in the RMII-32 Propagation tray in early spring using standard growing practices. By late spring, there were a significant number of plants available. He put some in the 5" Knit Fabric container, some in the RMI-1R Rootmaker® 1-gallon container, and some in a smooth wall conventional container. By August the plants in the 5" Knit Fabric container had more caliper and were considerable taller than those grown in conventional smooth wall containers or even in the RMI-1R Rootmaker® 1-gallon containers.

All of the plants received the same water and fertilizer. The difference was the temperature of the roots. Those in the black containers were much hotter, 20-30 degrees F., than the roots in the bags in the cinder blocks.

Grower Tips: Plants are easier to remove from RMI-1P and RMII-32 propagation cells if the roots are more dry than wet.

Do NOT use any pre-emergent herbicide that has a water solubility greater than 1 PPM. Avoid herbicides that are ALS inhibitors and sulfonylureas. These are slow but subtle disrupters of the growth and flowering and root development of nearly all woody plants. Be aware that a number of these compounds are being sold under a variety of new and very benign names. Some of the active ingredients to look for are rimsulfuron, chlorsulfuron, and metsulfuron. **CHECK THE LABEL!**



Typical root system created by a 5" Knit Fabric Container.

PRE-NATAL CARE FOR TREES

By

Carl Whitcomb Ph.D.

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Yes, such care is important and can have a profound influence on seedlings, especially species with large seeds such as oaks or those that need moist pre-treatment such as magnolias. This information is presented as a reminder that care must be taken in storing seeds and planting into individual containers.

Fully dormant seeds can be stirred, mixed or shaken like a popcorn bowl with no adverse effects. BUT, once germination activity begins in the embryo and well before the emergence of the primary root, movement of the seed can cause kinks and deformities at the root – stem junction. These pronounced kinks render the seedling a cull, as the top cannot be properly supported, as it grows larger.

With my earliest efforts to pre-germinate seed to get a 'jump' on the growing season, the number of kinks at the root –stem junction increased. As the work with pre-germination continued the problem increased. There was a distinct tie between pre-germination efforts and the root-stem kink problem. But what was the actual cause? A clue came after a fall when oak acorns were abundant. Some acorns were floated and placed in quart zip lock bags for particular experiments while others were left in large plastic bags inside

a storage bin inside a refrigerator. Seeds stored in the small bags and planted early into small containers had no kinks. On the other hand, those removed from the large bags and especially those planted later in the spring when a few acorns were beginning to germinate in the cooler, had the greatest number of kinks.

As a result of these observations, the following fall we marked acorns with paint and kept them in the same position from time of collection and cleaning until germination. No kinks occurred. When acorns were marked with paint and rotated either 90 or 180 degrees at one-week intervals and planted at various times, the answer was found. Acorns rotated 90 or 180 degrees two weeks prior to germination were normal. Acorns rotated 180 degrees one week before germination produced primary roots that grew upward for one to two inches then arched and grew downward. Likewise, new shoots from these acorns first grew down, then arched and grew upward. Acorns that were rotated 90 degrees one week prior to germination produced nearly as many kinked roots, but some of the kinks were moderate and did not make the seedling a cull.

Consider what happens in nature. A seed falls to the ground and is often covered by falling leaves and debris or is buried by a squirrel. The seed remains in that position until germination when the primary root extends down and shortly thereafter the young seedling shoot upward. In our zeal to collect and store seed in controlled conditions prior to spring planting, we do not always duplicate nature's ways.

Points to remember:

1. Collecting and storing seed under controlled conditions is good.
2. Seeds should be planted when fully dormant or at least two to three weeks in advance of normal spring germination time.
3. Species that germinate with the seed remaining partially or completely covered by soil (epigeal) are sensitive to this problem. Seeds of nut trees are especially sensitive. Species that lift the seed above ground during germination (hypogeal) (pines and other conifers, maples and magnolias) are not affected.
4. Seeds of oak, pecan, hickory or walnut stored for late spring planting should be placed in shallow trays and spray painted on one side so their position can be duplicated at time of removal and planting.
5. Seeds of species with epigeal germination and that require cold / moist stratification are also subject to this problem. The problem is compounded where temperatures are allowed to increase and digging is required to locate the seeds among the damp peat.

Place seeds as they would lie on the ground in nature.

For example, oak acorns, dogwood, black gum and pecans and others that are elongated like a football should be planted on their side. |

APPLYING GRANULAR FERTILIZERS IN THE FIELD

By

Carl Whitcomb Ph.D., Lacebark Inc., Stillwater, OK.

The question often arises as to the best way to apply granular NITROGEN fertilizers in the field. After trying a variety of ways and considerable experimentation, here is what I do and why:

I use a rotary fertilizer spreader that fits the 3-point on the back of a small tractor. To this spreader I attach two pieces of metal when applying **nitrogen fertilizer** to trees in rows in the field. One is a strip of sheet metal to cause the discharge from the spreader to be in one direction versus the normal 170 to 180 degrees. The other piece of metal causes the discharge to be deflected downward. These two pieces of metal are both held onto the spreader by two small C-clamps. By adjusting the second deflector relative to the height of the spreader on the tractor, a band of fertilizer approx. 5 feet wide can be made down the row of trees.

I like banding NITROGEN fertilizer in order to avoid growing excess weeds or other vegetation between rows. I typically plant on 10-foot rows with roughly 4 feet between plants in the row, which gives roughly 1000 trees per acre. The band of fertilizer roughly 5 feet wide provides contact with most of the tree roots the first year following planting and still a good portion the second year. Roots grow where conditions are most favorable. If there is a zone of soil in which nutrients are more available, more roots will grow there compared to other soil areas. The same is true with moisture. By applying fertilizer in the row and drip irrigating in the row, a more compact root system can be created compared to planting trees without irrigation and broadcasting fertilizer over the entire field. The weed control procedure I like best is to try to keep most of the weeds from growing in the rows, in the band about 5 feet wide. If I fertilize the band that is also free of weeds, then the trees are getting the greatest benefit. Likewise, if the areas between the rows are planted to grasses or other vegetation and fertilized minimally, any nutrients that leach down slope or that in some way migrate from the rows of trees will be absorbed and retained in that area to decrease the likelihood of pollution. This may seem like a minor point now, but at some point in the future, such practices will likely become part of standard pollution prevention.

Over the years, there have been substantial improvements in sulfur-coated urea, SCU, 35-0-0 and 12% sulfur, in terms of uniformity of coating and consistency of release. As a nitrogen source for nursery stock in the field, it is now my favorite. Release of nitrogen is typically over 2 to 3 months and because of the coating, losses due to volatility are reduced. Therefore, my current practice is to

apply approx. 400 pounds per acre (140 pounds of actual nitrogen) once in early spring just before or after spring bud swell. Then another 200 pounds per acre in late spring and another 200 pounds per acre in early fall. This gives a total nitrogen application of 280 pounds per acre. BUT, I am only treating a 5-foot wide band down the rows of trees. With the soils on my farm, nutrient retention is good and leaching loss is minimal. If your soils are especially heavy, you may not need this rate of nitrogen fertilizer or if your soils are sandy, you may need slightly more. Only a series of soil tests over time will tell you for sure.

To calibrate the spreader for sulfur coated urea, I add 50 pounds to the hopper and make a 'guess' setting and select a practical engine rpm and gear selection. To apply 400 pounds of SCU per acre in a 5-foot band, the 50 pounds should cover about 1,100 feet of row. If the 50 pounds is discharged after 900 feet of row, you need to close the discharge gate slightly. If the 50 pounds is discharged after 1400 feet, you need to open the gate slightly. Once you work out the proper setting for your equipment, write it on the side of the hopper for future reference as well as record it in a reference file. ALWAYS write it down. Your memory is not as good as you think. To do the ½ rate in late spring and early fall, set the opening in the spreader to about one half the previous setting. It is best to check this for proper calibration also.

The reason for the fall application is the fact that study after study showed that plants going into the fall with very low nitrogen levels were MORE susceptible to winter injury. In addition, the trees that received some nitrogen fertilizer in the fall grew better in the spring compared to those getting fertilizer only in the spring. Here in north-central Oklahoma, I have tried repeatedly to apply excess nitrogen in the fall and cause the much talked of "soft succulent fall growth, subject to winter injury", and have not been successful, — WITH THE FOLLOWING EXCEPTIONS — crapemyrtle and Chinese pistache. Crapemyrtle and Chinese pistache are subject to extended fall growth due to nitrogen applications AND irrigation. For some reason, these two species are not receptive to the change in the length of the day that triggers other temperate zone species to slow growth in early fall and harden for winter.

REMEMBER that water / irrigation, is a significant growth regulator. Drip irrigating after early fall in NOT advised — except when fall planting of container grown stock and the soils are dry. Also, **remember that plants grown in containers MUST be watered thoroughly by hand before drip irrigation will provide any appreciable benefits.**

I do not like injecting nitrogen fertilizer into the drip irrigation system for several reasons: a) it is difficult to apply as much nitrogen as the plants need for good growth, b) the nitrogen is distributed only where the water goes and a much smaller portion of the roots are provided nitrogen compared to broadcasting nitrogen on the surface in a band, and c) nitrogen in the drip lines is a major contributor to algae growth and plugging of emitters. Injecting nitrogen into the drip lines for the first month may be beneficial to getting newly plants started under some circumstances, but it is not a practice I recommend once plants are established. Always, flush the drip lines well following adding any nitrogen.

NOTE: ALL fertilizers, except nitrogen, and as indicated by soil tests, should be added to the entire field and incorporated 4 to 6 inches deep BEFORE any trees are planted. †

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