



ROOTMAKER[®]
PRODUCTS COMPANY

newsletter

W I N T E R / S P R I N G 2 0 0 6

RootMaker[®] News

Product Announcements: The demand for plastic resins is causing us to increase prices on all our products. Please call us at 800-824-3941 or email us at sales@rootmaker.com to request a new price list. The prices will take effect January 1, 2006.

We have developed the tooling for a new 5-gallon above ground container. It is configured like our 3-gallon. The item number is 40416 and the name is RM15R. The price will be \$2.50 each.

We have added 24", 36" and 48" discs made from the RootTrapper[®] material for use under the 18" and 30" RootBuilder[®]. Tests have shown this to be an effective, reusable root-pruning method.

The field day at Lacebark, Inc. for September 2006 is taking shape. Invitation requests should be submitted early next year. Additional information about this event can be found on Page 4.

We are developing the tooling for a holding tray for the 18-cell and 32-cell individual containers. This holding tray will be available (if all goes well with tooling fabrication) in early spring of 2006 for the 18-cell and early summer for the 32-cell.

The packaging is going to be changed on all soft-sided containers. All the sizes will be sold in bundles. This was done to accommodate customer requirements and to facilitate our production and storage of inventory.

Other News: Gay and I are proud to announce the marriage of our daughter, Sara, to Bjoern Lanwer. They were married on October 29th. Also Sara is now working for us developing other markets for RootMaker[®] products.

If anyone would like to receive an e-newsletter instead of a printed copy, please forward your name and email address to Sara at slanwer@rootmaker.com. The advantage of an e-newsletter is it will be in color and anyone in your organization can receive a copy.

ANLA has taken a lead roll to find a solution to problems associated with immigrant workers. Please support their efforts to forge a reasonable resolution in Congress and bring some sense of stability for employees and employers. Complete information concerning this critical situation can be found at www.anla.org.

Please visit our web site, www.rootmaker.com regularly. We are updating it often. Anything new will be found there before it is featured in this newsletter.

We have added the Mid-States Horticultural Expo in Louisville, KY and the Pro-Green Expo in Denver, CO to the schedule for 2006. Direct links to all the shows can be found on our web site.

We have been working with DPM Inc. to devise a new product to mechanize the transport of the large RootTrapper[®] containers. They have modified their Nursery Jaws 2 to be more user friendly and versatile. The Next Generation Nursery Jaws boasts 4000 lb. capacity and 14" of parallel travel and is excellent for moving RootTrapper containers as well as B&B, plastic containers, boxes or boulders. For more information, call 800-669-4408 or visit www.nurseryjaws.com.

— Wayne Hinton

Winter Shows. We want to invite everyone to visit us at the up-coming winter shows. Direct links to the shows can be found on our web site, www.rootmaker.com.

January

Mid-States Horticultural Expo, Louisville, Jan 5-6, Booth # 534 & 536

Western 2006, Overland Park, KS, Jan 8-10, Booth # 927 & 929

MANTS, Baltimore, Jan 11-13, Booth # 743

Mid-American, Chicago, Jan 18-20, Booth # 648

Green & Growin', Greensboro, Jan 20-21, Booth # 1538

CENTS, Columbus, Jan 23-25, Booth # 5004 & 5006

ProGreen Expo, Denver, Jan 25-27, Booth # 370

New England Grows, Boston, Jan 31-Feb 2, Booth # 449

February

Gulf States Horticultural Expo, Mobile, Feb 3-4, Booth # 534 & 536

SCHI 2006, Myrtle Beach, Feb 3-4, Booth # 100

Tampa Spring Expo, Tampa, Feb 24-25, Booth # 346

Water Distribution in Containers

Carl E. Whitcomb, Lacebark Research Farm

Hand Watering. Hand watering of containers gives the most uniform distribution of water throughout the container volume. My preferred way is to water once with a moderate amount, then come back within a short time and make a second application. Hand watering is a must immediately following transplanting into larger size containers or when planting container grown stock into the field. The problem with hand watering beyond the initial transplant or field planting stage is time / labor / cost.

Overhead Sprinklers. Overhead sprinklers are terrible water wasters. Even with one or three gallon containers spaced relatively close together, 50% or more of the water pumped is wasted as it falls between containers, on roadways and aisles or is lost to evaporation. The one good thing about overhead sprinklers is the surface of nearly all containers is wetted and there are few dry spots in the growth medium.

Alternatives. I like the *concept* of watering individual containers. The water savings are huge. The wet mess everywhere is mostly gone as are most of the weeds that like the wet mess. But implementation with current products leaves a lot to be desired.

Here are my thoughts and suggestions on using the current individual container watering systems:

Spray Stakes. “I use them, but I hate them”, is a statement I frequently use when discussing spray stakes. Spray stakes are best suited to containers of three gallons or larger.

- + Water is applied to a limited area.
- + Low volume, low pressure system.
- + Relatively inexpensive to set up.
- + Easily automated with time clocks and solenoids.

- High maintenance due to plugging of individual orifices. If an orifice becomes plugged and is not noticed promptly, plants die.
- High maintenance due to rodents cutting feeder lines. This is a continuous problem, but severity may be up or down. No practical solution other than to shoot the rabbits.
- One dog running through the area after a rabbit can dislodge lots of spray stakes.
- Water spray patterns typically fit poorly on container surfaces; that is, some water may spray over the side and is wasted, some areas get excess water, while other areas get little or no water.
- If a portion of the container growth medium is not being wetted, 10, 30, 50% of the volume is not supporting plant growth and is wasted.

* One spray stake does a fair job of water distribution on three and five gallon containers.

* Water distribution over the surface is typically better when containers are not filled to the top, so a portion of the top of the container wall becomes a splatter surface, deflecting water back onto the mix.

* On larger containers it may require 2, 3, 4 or more spray stakes to get reasonable coverage of water across the surface. Remember, roots grow where conditions are favorable. If an area of the container is dry, roots do not grow there. Recently we were inspecting roots of trees in containers ranging from 40 to 100 gallons. It was clear that some areas of the growth medium had received insufficient water and few roots were present, while other areas were too wet. No mycorrhizae colonization was present in either the dry or overly wet areas. But, where moderate moisture had been consistently present, mycorrhizae were in abundance.

* Several applications of water from spray stakes per day is superior to one heavy application. This is particularly true if the surface of the growth medium is covered with a coarse mulch or RootCaps®. This is due to capillarity, or the attraction of water to other water and water to particle surfaces. Once an area of the mix dries, capillarity will not be reestablished until a rain or

hand watering uniformly wets the entire mix again. With programmable timers, it works well to apply a modest amount of water, then turn off the spray stakes for 10 to 20 minutes, which allows capillary movement, then make a second, heavier application.

Drip Emitters. I have tried repeatedly to use one drip emitter per three gallon container as an efficient means of watering. In one study I used one gallon per hour emitters and applied the same amount of water per day either in one, two, three or four applications. Clearly the three or four applications were better than one. But, even with three or four applications per day most of the plant roots developed in the bottom three or four inches of the container as that was where moisture conditions were most favorable. In essence, the plant was growing in about one gallon volume of mix, even though there were three gallons of mix in the container. This is very inefficient in terms of support for growth.

* Adding the thick RootCaps® to the surface of the growth medium clearly helps water distribution and reduces evaporation from the surface. The RootCaps® also leave the mix more receptive to the next application of moisture and allows that moisture to spread more uniformly through the container volume. But, beware, one water cycle missed can allow the surface inch or two of the mix to dry to the point where it will not be rewetted with the next application of water from the drip emitter.

In general, I have not found watering containers using typical one half or one gallon per hour drip emitters to be acceptable.

Drip Rings. Recently I purchased an assortment of sizes of drip rings made by Dramm Corp. Milwaukee, WI. These have been around for many years and consist of a ring of plastic tubing with holes drilled at intervals. The ring is fed from a main line by a spaghetti thin tube (read, rabbit and rat food). The feeder tubes were very difficult to insert into the main line and sometimes the 20 psi water pressure would dislodge them. The rings were too expensive to be practical, in my opinion. But, water distribution across the surface of the container growth medium was good and water distribution throughout the growth medium with two applications per day was good, particularly on containers fitted with a RootCap® either under or on top of the ring. Because of the nature and flexibility of the feeder tube, which is used to control flow volume, I found these impractical to insert and maintain.

Capillary Beds. Capillary watering is being used successfully in greenhouses where either benches or floors are level and can be flooded and drained at intervals. What can be done in a greenhouse and what is practical out of doors are quite different.

In my studies with capillary flood watering out of doors, I judged it a mess after about two months and tore it out.

In another case, we built capillary sand beds on which containers were placed. Dr. Murray Richards in New Zealand has been a big proponent of capillary sand beds as has Dr. Margaret Scott in England. But, conditions are very mild in both locations. In Oklahoma, we started out in the spring and all looked good. But, as the season warmed we increased and increased the amount of water applied per day until by early July we were applying as much water per container per day as with overhead sprinklers applying one inch per day. The reason – evaporation. With our wind and low humidity, the sand bed lost water at a high rate 24 hours per day, every day. When we could no longer apply enough water to keep the sand saturated, roots grew out the drain holes and into the moist sand. What a mess!!!!

Summary. At the present time we still use overhead sprinklers for liners, one-gallon and part of the three-gallon production. Part of the three gallon production is being watered by spray stakes as are all larger containers. Nearly every day a few minutes of thought are devoted to the problems and frustrations of watering and water distribution. Most new products are added to the list and given a try. Most are disappointments.

One item that has worked well for the past two growing seasons – Hunter Model SVC 100, solenoid valves and 9 volt battery powered, smart valve controllers. A battery lasts all growing season and there are lots of choices of settings for multiple times per day watering, skip a day, etc.

The one item that has consistently improved water distribution applied by spray stakes or other means has been RootCaps®. At this point in time, adding an insulating mat over the surface of the container to reduce evaporation and aid water distribution by capillarity works well.

NOTICE OF LACEBARK FIELD DAY

On Wednesday September 27, 2006, from 1:00 to 6:00 PM, Dr. Carl Whitcomb will provide demonstrations and a tour of parts of Lacebark Research Farm to selected guests.

Lacebark Inc. is a privately owned, 150 acre research facility near Stillwater, Oklahoma. Areas of research include all aspects of plant propagation and production in containers with emphasis on techniques to stimulate root branching and stopping root circling, and production of large trees in the field and containers as well as pot-in-pot. Since 1986, a plant breeding program has focused on developing superior cultivars of over 40 different species of trees and shrubs.

The field day activities will begin promptly at 1:00 PM, out of doors under shade trees. The event will be cancelled only in case of severe weather. The surface is a relatively smooth lawn suitable for sitting. No chairs will be provided; however, you are welcome to bring your own.

At this location a number of examples and demonstrations will be presented, particularly as related to propagation of cuttings and seedlings, root development in containers, techniques to prevent blow over of containers and winter protection without greenhouses, as well as a question and answer period.

At approximately 3:00 PM, we will move to a different location about 800 feet away. This area is partly covered by tree shade and the surface is mostly lawn grass. You will be required to walk that distance as no transportation will be provided.

At this location a number of example and demonstrations will be presented dealing with trees and shrubs in containers ranging from 20 to 100 gallons, as well as root development of trees grown in a variety of ways and the harvesting of trees grown in knit fabric containers in the field and pot-in-pot.

Plan on attending the Oklahoma Nursery and Landscape Association trade show and convention at the Payne County Fairgrounds a few miles away on Friday, September 28 and Saturday, September 29.

Persons who wish to attend the Lacebark Field Day must mail in a completed form by August 31, 2006 (no phone calls, faxes or e-mails, please) **in order to request an invitation.** Each and every person wishing to attend must have a confirmed invitation and be on the advance registration list. Attendance is limited to the first 300 applicants. If you wish to attend do not procrastinate.

For more information or to obtain a copy of the invitation request form, go to www.lacebark.com.

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