



# News & Views

*for New Hampshire's Green Industry*

**July-September, 2005**

## UNH Young Plant Research Center

The University of New Hampshire has established a new research program targeted to producers of vegetatively-propagated cuttings ("young plants"). The most exciting area of growth in floriculture and many of the new plant varieties are driven by vegetatively-propagated genetics. Most greenhouse growers either propagate cuttings themselves or buy in vegetative material to grow on as finished plants.

We have a great team of people working on the project, which has made UNH a center of excellence in young plant research. The project includes three Cooperative Extension Specialists (Dr. Paul Fisher, Dr. Alan Eaton, and Dr. Cheryl Smith), Dr. Rosanna Freyre, and several other staff and students including Dr. Jinsheng Huang (nutrition and soil chemistry), Kate Santos and Luke Hydock (technicians), David Goudreaux (greenhouse manager), Amy Bestic, Amy Douglas, and Andrea Quintana (graduate students). In the coming year, we will also be collaborating with several other universities who work in related topics.

The Young Plant Research Center was launched in 2004 as a partnership between the

University of New Hampshire Agricultural Research Station and leading greenhouse companies. Our partners include D.S. Cole Growers and Pleasant View Gardens, two leading greenhouse firms with national profiles. We are also working with greenhouses in Colorado and New Jersey, along with several media, fertilizer, propagation, and soil testing companies. These companies provide financial support, help us set priorities, and provide feedback so that our research focus is relevant to real industry problems.

Plant propagation is very exacting in its requirements for temperature, relative humidity, irrigation, light, and nutrient supply. In order to do good research, we have been undergoing considerable renovation of the green-house facility



### In this issue....

- Young Plant Research Center
- New Planting Depth Guidelines for Trees
- Disease-Resistant Crabapples
- Coming Events

at UNH. We now have glass greenhouses with computer-controlled temperature, humidity, high-pressure sodium lighting, underbench heating, irrigation, and CO<sub>2</sub> injection capability. Our

greenhouses are continually being upgraded for propagation and stock plant management.

### What will we work on for 2005-06?

We set our priorities in partnership with industry, and are currently discussing new projects. Topics we focused on in 2004-05 that we will continue to expand include:

- 1) Media and nutrition for stock plants and cuttings, including corrective actions, monitoring, propagation media, pH, and micronutrients.
- 2) Web-based technical support materials (initially nutrition and poinsettias) for customers of young plant producers.
- 3) Improving post-harvest quality and disease management of shipped cuttings and rooted liner trays.
- 4) Fungus gnat management for stock plants and liners.

Some specific examples of our research and how it can help industry:

- ◆ Home gardeners are always looking for new plant varieties to beautify the landscape. Rosanna Freyre's plant breeding program has resulted in several new *Anagallis monelli* flower cultivars, marketed through the Proven Selections brand (go to <http://www.provenwinners.com/main.cfm> and do a Quick Search for Anagallis). These include Wildcat Orange, Wildcat Blue, and new cultivars Wildcat Mandarin and Wildcat Pink for 2006. New *Browallia* and *Nolana* varieties are also in commercial and university trials.
- ◆ Greenhouse growers apply about ten times the amount of fertilizer per acre compared with field growers, and nutrient imbalances are common. Paul Fisher and graduate student Amy Douglas have been working on a new internet site to help greenhouse growers learn about crop nutrition and solve nutritional crop problems. The website, called FloraSoil, will be released to NH growers through UNH Cooperative Extension in January 2006 – check an upcoming News and Views for more information!
- ◆ Fungus gnat larvae feed on plant roots both during cutting propagation and plant finishing. Alan Eaton has devised a new monitoring

method to check for fungus gnat levels in growing media. This simple and practical technique involves incubating pots of moist media. A sticky card is placed on the surface of the growing medium to trap adult fungus gnats that emerge from the soil surface. The pot and sticky card are closed up in a paper bag for 3-4 weeks, after which the sticky card is checked to provide a fungus gnat count per pot. Sometimes, significant fungus gnat levels can arise even with unused growing media.

- ◆ Plant stress is common when rooted cuttings are placed in a box and shipped to customers, resulting in *Botrytis* and other plant diseases. Cheryl Smith and graduate student Kate Santos have developed a protocol to screen the effectiveness of different controls against *Botrytis* in shipping. Initial results have shown that pretreatments with Spectro™ or Decree™ applied before shipping reduced botrytis levels on *Bacopa* rooted liners.

*Paul Fisher*

## New Planting Depth Guidelines for Trees

The problem of planting trees too deeply has been observed and recognized as a national epidemic that results in the decline and death of thousands of urban trees each year. An industry working group formed in 2003, coordinated by Gary Watson of the Morton Arboretum, recently released guidelines to assist growers, landscapers, and arborists to recognize, prevent and (sometimes) correct root systems that are too deep. The guidelines, which apply primarily to 2-inch and larger caliper trees, will be revised as more research is completed.

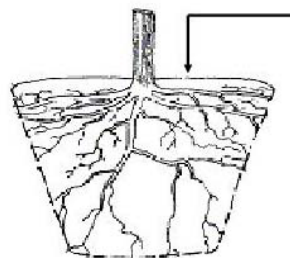


Figure 1: the structural roots should be no more than 3" below the soil surface, measured 3-4" out from the trunk.

1. **The uppermost structural roots should be within 1-3 inches of the soil surface,** measured 3-4 inches from the trunk (Fig. 1). As roots thicken on the top side, the amount of soil above structural roots will be reduced. Certain species will require modifications of this practice.
2. **On sites with poor drainage,** the roots may need to be planted at or even above-grade for survival.
3. **If the root flare is not visible in the root ball, probe the root ball nondestructively** with a surveyor's chaining pin or similar tool, to check for structural root depth. If the soil is too deep in the root ball, the tree can be rejected. If planting the tree anyway, adjust the planting depth (and hope that you have enough roots in the rootball for the tree to survive and grow).
4. **Exercise caution if removing excess soil** from the top of the rootball, since it may expose tissue to cold and sunscald injury.
5. **Mulch only 2" deep** on top of the rootball after planting.
6. **Recently planted trees which are too deep may be corrected by replanting properly.**
7. **For trees which are partially established (planted 1-3 years ago), assess the health of the tree.** If it is in good health and growing vigorously, do nothing. If struggling but in good enough health to withstand the disturbance, you may consider the benefit of replanting. A tree already in obvious decline from being planted too deeply is past the point where replanting will help.
8. **Established trees should not be replanted, but excess soil around the base of the trunk can be removed carefully.**

*Cathy Neal*



Symptoms of apple scab on leaves are olive green, velvety spots.

## Disease-Resistant Crabapples

Crabapples are a mainstay of our landscape palette in New England. Their beautiful bloom, small stature, and attractive fruit give them year-round interest...unless they are devastated by disease! Crabapples are susceptible to four major diseases which can cause early defoliation, disfigurement and weakening of trees. Apple scab is the most common and most serious of the diseases. It shows up on leaves as olive green spots with a velvety, grayish surface. In July leaves often turn yellow or orange and drop from the tree. Another serious disease, fire blight, causes the leaves to blacken, shrivel and hang down. Cedar apple rust shows up as conspicuous bright yellow to orange spots on the upper leaf surfaces. And powdery mildew appears in mid-summer as patches of grayish-white powder on leaves and fruit.

Your customers don't want plants that have to be sprayed in order to be attractive! Have you reviewed your choice of crabapples lately and "given the boot" to those older varieties that may look great in flower but then succumb to scab or other disease in mid-summer?

Some cultivars and hybrids that are readily available and have shown good resistance in many trials nationwide are listed below. All have single flowers and small fruit (less than 5/8" diameter). The temperatures at the end of each description are cold hardiness ratings from the Minnesota Landscape Arboretum.

**Adams:** A rounded, dense tree with clusters of purplish red buds and deep pink flowers. The red fruit stays on trees through late autumn. -35°F.

**Adirondack:** A columnar upright form with red buds and large white flowers, persistent red to orange fruit. -30°F.

**Donald Wyman:** A 20' tree rounded in habit and highly resistant to apple scab. It has pink buds, white flowers and abundant, glossy red fruits which hold on late into winter. -35°F.

**Harvest Gold:** An upright vase-shaped tree with gold fruit remaining into early winter. Flowers are white and bloom later than many crabapples. -30°F.

**Japanese (*Malus floribunda*):** A broad, rounded tree with dense branches. Flowers are pink to white in color and very fragrant. Buds are red

and yellow fruit are attractive to birds. Dates back to 1862 introduction from Japan.

Louisa: Umbrella-shaped, weeping habit; rose-colored buds and true pink flowers; fruit small, yellow to amber. -25°F.

Prarifire: New growth on this rounded tree emerges purple-red in color, eventually turning to reddish green. Flowers are a rich crimson and the persistent fruit a deep purple-red. -35°F.

Professor Sprenger: A tree with abundant pink buds and showy white flowers. The orange-red fruits last until Christmas. -30°F.

Purple Prince: Red buds and dark purplish flowers on a 15' rounded tree with attractive cherry-like bark. Many people are looking for a purple-leaved crabapple and this is probably the best one. -30°F.

Sargentii: A low, spreading species only 6-8' high but twice as wide. Reddish-pink buds open into white, single flowers followed by bright red fruit relished by wildlife. -25°F.

Sugar Tyme: Pale pink buds, fragrant white flowers. The tree reaches 18 feet in height and has abundant long-lasting deep red fruit. -30° F.

**Margaret Hagen and Cathy Neal**

## Events

- **NH Landscape Association (NHLA) Twilite Meetings**

- Morin's Landscape and Garden Center, Hollis, Aug 17 – 6:00 p.m.
- Hudson Quarry, Hudson, Sept 20 – 6:00 p.m.

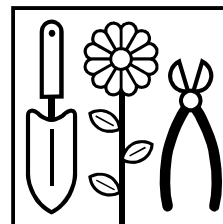
For directions and info, call NHLA at 800-639-5601.

- **NH Plant Growers Assn. (NHPGA) Golf Tournament to support the NH Horticultural Endowment** – Sept 14, Loudon Country Club. If you want to play or sponsor a hole, please call Brett Andrus at 244-8473.

- **Annual Garden Center Seminars** (co-sponsored by UNHCE and NHPGA) – Nov. 3. Open house at Lake Street Garden Center, Seminars nearby in Salem.

Program flyers will be mailed in September, featuring keynote speaker, Bridget Behe from Michigan State University.

- **NHPGA and NHLA Joint Winter Meeting** – Jan 24, 2006 – Concord. More details in the fall.... Call 603-292-5238 if interested in sponsorship or display opportunities.



This newsletter is a cooperative effort of the Ornamentals Extension Educators and Specialists at the University of New Hampshire. It is published quarterly. Its purpose is to inform and update industry members on issues and research relevant to the production, use and maintenance of ornamentals and turf in New Hampshire. Contributors for this issue:

Margaret Hagen, Director, Family, Home & Garden Education Center (603-629-9494, Ext. 100)

Cathy Neal, Extension Specialist, Ornamental Horticulture, (603-862-3208)

Paul Fisher, Extension Specialist, Greenhouse Floriculture (603-862-4525)

Comments and questions are welcome. Address corrections, additions and deletions should be phoned in to Cheryl Estabrooke at 603-862-3200 or email [cheryl.estabrooke@unh.edu](mailto:cheryl.estabrooke@unh.edu).

The use of trade names in this newsletter is for information purposes only and does not constitute endorsement of the product names or discrimination against products not specifically mentioned.