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DECEMBER 1996  
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# What's New?

## How New Plants Originate

Carol Lorenz

“What’s new?” In sales, that question is heard frequently. Garden centers and growers want to keep up with new introductions in order to keep their customer base supplied with diversity and to remain one step ahead of the competition. But where do these new varieties/selections originate?

At Bailey Nurseries, Inc., new introductions have been identified through several channels. Our long-term relationships with other wholesale growers, universities, research stations, arboraeta, and botanical gardens have always provided us with new selections. We have our own rose breeding program which is so new that most choices are still being evaluated. Plus we are blessed with some very observant employees who have made numerous selections from our seedling and production blocks.

Essentially, new plants/selections originate through three methods: (1) formal hybridizing/breeding programs, (2) seedling selection, and (3) genetic mutation/plant sports.

### FORMAL HYBRIDIZING/BREEDING PROGRAMS

Breeding programs usually have their own list of criteria upon which selections are made. The choices seem endless and include goals such as exceptional cold hardiness, heat tolerance, fragrance, repeat or everblooming ability, disease resistance, unusual forms, variations in foliage type or color, growth rate, etc..

Working with the University of Minnesota Landscape Arboretum provided some excellent introductions. The popular Northern Lights series of azaleas is an on-going program. These deciduous azaleas can withstand bitterly cold temperature as low as -35F to -45F without significant damage. The series includes ‘Golden Lights,’ ‘Northern Hi-lights,’ ‘Northern Lights,’ ‘Orchid Lights,’ ‘Rosy Lights,’ ‘Spicy Lights,’ and ‘White Lights.’ These varieties provide outstanding color and extreme hardiness; some are fragrant. All are rated to zone four.

The university also has a fruit breeding program and one of their recent releases was Honeycrisp (PP7197) apple. This variety resulted from a cross between Macoun and Honeygold and exhibits exceptional crispness and juiciness and is very sweet. Its ability to store

well for up to five months has made this variety an excellent choice for both commercial growers and home owners. Fruit ripens late September to early October. It is rated zone four. Another successful release from the fruit program is Summercrisp pear. Considered to be the hardiest pear at the University of Minnesota Research Station, this pear bears fruit annually that measures 2 1/2" diameter by 3-3 1/2" long. Fruit harvested mid-August, when it is crisp and green, can be stored up to two months. Summercrisp is rated zone four.

Blueberries referred to as “half-highs” are also being released by the University of Minnesota Research Station. These are taller than the Maine low-bush blueberries, staying between 1 1/2-4' tall by 2-4' wide. Varieties include ‘Chippewa,’ ‘Northblue,’ ‘Polaris,’ ‘North Country,’ and ‘St. Cloud.’ These make wonderful landscape plants, due to their flowering/fruiting/fall color and compact habit. All are hardy for zone four.

Bailey Nurseries, Inc., has worked closely with the Morden Research Station at Morden, Manitoba, and the L’Assomption Experimental Station at L’Assomption, Quebec (now closed). This alliance has allowed us to introduce many new varieties of hardy shrub roses. In particular, the Explorer series. This series, well adapted to New England weather conditions, consists of ground covers, climbers, and shrub types, many hardy through zone three. Many of the early Explorer roses were *rugosa* hybrids that were repeat bloomers, salt-tolerant, and extremely hardy. The more recent releases are complex hybrids which combine disease resistance with good cold-hardiness. Ground cover selections are ‘Charles Albanel’ (magenta) and ‘Henry Hudson’ (white). Shrub types include ‘David Thompson’ (deep pink), ‘J P Connell’ (pale yellow), ‘Jens Munk’ (pink), ‘Champlain’ (red), and ‘Martin Frobisher’ (soft pink). Climbers are generally a complex hybrid with *Rosa kordesii* and include ‘Henry Kelsey’ (red), ‘John Cabot’ (magenta), ‘John Davis’ (soft pink), and ‘William Baffin’ (deep pink).

Lake County Nursery (Perry, Ohio), another wholesale grower, has been selecting crabapples for natural genetic compactness. Their Round Table Series™ of flowering crabapples is the result. The varieties are ‘Camzam’

Camelot®, 'Guinzam' Guinevere® and 'Lanzam' Lance-lot® (PP8056). These crabs generally mature around 10' tall by 8' spread. Flower color ranges from white to vivid pink and fruit color can be red or yellow. Resistance to foliar diseases was also part of their selection process.

#### SEEDLING SELECTION

This type of selection can be intentional or stumbled upon simply through keen observation. In any case, plants propagated by seed often exhibit variations within the seedling blocks. Rates of growth, leaf size, leaf color, branching habit, and fall color are just a few of the possible differences. Once an interesting seedling is chosen, a period of evaluation follows. At Bailey Nurseries, we maintain a two-acre farm where selections are planted for extended observation.

Examples of plants introduced this way are our Carousel series of barberries. The Burgundy Carousel™ and Ruby Carousel™ varieties were the result of selection from *Berberis thunbergii atropurpurea* seedlings. Seedling-grown red-leaf barberry can show many variations. Burgundy Carousel™ foliage is quite dark purple, somewhat flat with respect to leaf luster, and matures to 3' tall with a spread of 4'-5'. Ruby Carousel™ foliage, by contrast, is a brighter red and has a luster to the leaf surface. It is slightly more compact, with mature plants measuring 3'-3 1/2' tall by 3 1/2' wide. Both varieties are hardy to zone four. Emerald Carousel™ resulted from observing a seedling that exhibited characteristics of both *Berberis koreana* (Korean barberry) and *B. thunbergii* (Japanese green-leafed barberry). The preferred flowering and fruiting of the Korean barberry combined well with the form of Japanese green-leafed. The seedling was evaluated for form, fall color, hardiness, and resistance to wheat rust. A mature plant will reach 4'-5' tall with an equal spread. Fall color is outstanding. It is rated to zone four.

*Acer platanoides* 'Pond' Emerald Lustre® maple (PP4837), in the marketplace for several years, is also the result of a superior seedling. It was chosen for commercial introduction because of its vigorous growth rate, glossy foliage, excellent branching habit, and consistent hardiness in zone four.

A more recent introduction is *Tilia americana* 'Bailyard' Frontyard™ linden. This selection of our native American linden or basswood was based on its symmetrical branching habit and overall height and spread. Although still a large tree, it will mature around 60'-75' with a 40' spread, which is shorter and more compact than the species.

#### GENETIC MUTATION/PLANT SPORTS

Observation is the operative word for this method! At Bailey's, our employees are encouraged to identify any plants with unusual features that may appear in the fields. These plants would then be moved to an area

where they would be watched and evaluated. Plants could exhibit variegated foliage, contorted/dwarfed or weeping form, dissected leaves, single vs. double flowers, etc. This list can include many characteristics and many of our more unusual plants came about through someone's keen observation of a genetic mutation.

*Cornus alba* 'Bailhalo,' or Ivory Halo® dogwood (PP8722), resulted from genetic mutation of *Cornus alba* 'Argenteo-marginata.' The Ivory Halo dogwood has a variegated leaf (green-and-white), the same as variegated European dogwood, but its internodes are very closely spaced, resulting in a fuller, more compact plant. Overall size is 5'-6' tall by 8'-9' wide.

Hosta varieties are very popular these days and new selections keep appearing. Many hostas result from breeding programs, but an unusual phenomenon called "tissue culture sports" (genetic mutations occurring on tissue cultured plants) is accounting for some new introductions. This type of irregularity is fairly common with hosta and some breeders look forward to the process as a way to find sports. Once these sports are identified, they must be grown out for a period of time to determine how they differ from existing cultivars and to assure stability of the new feature. A tissue culture plantlet could be grown out for three years and then observed for perhaps an additional five to ten before being commercially introduced. Hosta 'Northern Exposure' and H. 'Northern Halo'™ both resulted from tissue culture sports of H. *sieboldiana* 'Elegans.' H. 'Patriot' is the result of a naturally occurring field sport of H. 'Francee.' 'Patriot' differs from 'Francee' by having a much wider leaf margin that is a very striking white.

Witches' brooms have provided many wonderful opportunities for new selections, especially with evergreens. *Pinus strobus* (Eastern white pine) and *Picea abies* (Norway spruce) are two evergreens that experience considerable variation. Our landscapes have been rewarded with dwarf, contorted, weeping, or upright forms and needles that can be extra long, very short, variegated, twisted, blue, green, yellow, and so on. New selections continue to appear.

New plants can be very exciting and rewarding. Landscape architects can use selections/cultivars with confidence, knowing that the expected form, color, texture etc. will be consistent through a specific design. Home owners can buy any number of new varieties and look forward to reduced spraying (improved disease resistance), less pruning (more compact habit), or longer lasting color in the landscape. Plant diversity is incredible!

Carol Lorenz, Northeast sales representative for Bailey Nurseries, Inc., of St. Paul, Minnesota, lives in Center Ossipee, New Hampshire. You can contact her (via voice mail) at 1-800-829-8898, extension 357.

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## RIFF FLOWER SHOP & GREENHOUSE

### *New Vistas*

**R**IFF FLOWER SHOP has been around a long time. Dave and Linda Hutchins bought the building from its owner when they moved here in 1977, but the name comes from a previous owner—a man named Riff who'd bought the block in 1947. And there'd been a flower shop there before that.

Dave and Linda had co-owned with Dave's sister three flower shops in the Boston area, but Dave's originally from upstate New York and Linda, from Concord and "we just never got used to city life." They'd been looking throughout northern New England for an appropriate business when the mortgage officer (who'd married a florist also looking for a business to buy) at their bank told them about a place up in Lancaster he and his wife had seen and rejected. For Dave and Linda, it seemed ideal.

The property was a package—a house and three greenhouses on North Road and the Riff Block on Main Street at the corner of Elm, just beyond the bridge over the Israel River. The river bisects the business district—but most of the businesses are on the north side; only the Riff Block and City Hall are south.

**BUILT AROUND 1900,** The block is a flat-roofed three-story clapboarded cube topped with a wide wooden cornice.

In the top two stories are apartments; the ground floor—with bay show windows and recessed doorways, is designed to hold three shops. Riff Flower Shop has always been on the corner; the two other

spaces were rented out. But, although the store front hasn't changed, businesses do: "Some would last six months, some a year...it was very unstable, more trouble than it was worth. We're on the wrong side of the bridge."

This year, the Hutchins made major changes. They took over the other two areas themselves, doubling the size of Riff Flower Shop to about 3000 square feet.

They also bought an abandoned 2 1/2-story 30'x50' wooden building on the river side of the Riff Block. This was to be torn down to create parking for twenty cars. When this was done, they saw that their view of the river and the small park beside it was "about the best view in town."

Partly to add interest to the austere, nearly windowless north wall and partly to utilize the view, a ten-foot-wide deck will be built along this side of the building. A bed of shrubs (and annuals in the summer) will run along the front of the deck; a brick walk will separate the bed and the parking. An access ramp will be built ("we don't have many handicapped, but we do have a lot of people with strollers") from the parking area onto the deck.

The main entrance will be from the deck: a new door is being cut through the north wall. Customers can still enter from the sidewalk through the entrances (side-by-side up a small flight of broad steps) of the two previously rented spaces, but the old corner entrance to Riff will no longer be used. (A small potted tree will probably stand in front of the recess.)

Not just an inviting place to pause and look over displays before

entering the shop, the deck will be used in other ways. The new shop plans include a small food preparation area and another of tables and chairs where customers can sit and enjoy coffee and desserts ("home-made, but not made here"). The deck is high enough to allow people to look past parked cars onto the river and, on warm days, people will sit on the deck as well. Trees (white ash and crabapple) planted next to the walk will offer color and shade.

**INSIDE,** the walls between the three commercial spaces are being taken down. Some things can't be removed; the chimney's still there (a pot-bellied stove will be beside it), as well as an enclosed area containing the stairs to the apartments, and these will be used to define areas within the larger space. Obviously, some of the basic structure needs to remain: exposed vertical supports will be covered by lattice-work, but, where walls once were, customers will move through broadly arched openings. White walls and ceilings ("the displays will be the decoration") and the wood floors, painted probably teal, throughout will help unify the once-separate units.

Although the changes being made in the basic structure were precisely planned, the uses of new areas still are not. These will evolve, but some aspects are set. Along with the new coffee shop, there will be expanded product lines and a larger, more private wedding consultation center ("with a couch").

In the building torn down, they found a workable walk-in cooler and

this has been incorporated in the enlarged work area at the rear of the new shop; the present cooler will remain where it is and be used for customers to choose their own cut flowers.

The official grand opening won't be until a year from now, when everything's done, but the Hutchinses hope to have the expanded shop ready for their traditional Christmas open house—always the Saturday after Thanksgiving ("we transform the shop from fall to winter in one night"). There are poinsettias and homemade cookies and a giveaway—and this year, "Rudolph's Workshop," an area for do-it-yourself swag and wreath decorating—but attendance "is often the same people" and the new shop could give numbers a boost.

THE PRESENT SHOP is a big high room, its height softened by branches painted white and fastened to the wooden ceiling and strung with tiny lights. A broad "L"-shaped counter separates a generous work area from the rest of the space.

Products and services are traditional: flowers have always been central. Riff belongs to FTDA, Telaflora, and Carik—"weddings are big;" arrangements are full, "very country;" arrangements using a mix of dried and artificial material also sell well; baskets are popular. There are house plants, but Linda keeps only a few on hand and orders on a weekly basis.

The North Country seems less affected by trends: "There's a lot of wood and antiques up here and the chrome-and-glass and black-and-white that were so fashionable down south never made it through the notch." But some do arrive—it takes about five years. Right now, the decorative banners that people hang from their houses are beginning to sell.

Behind—and attached to—the

shop is a 28'x48' double-poly New Englander, put up five years ago. The setup is simple—benches along the four sides, four wood/wire/cement block benches in the center, weed mat on crushed stone. Plants are watered by hand and fed with a hozon. The Hutchinses buy in most of their holiday plants (Easter lilies, cyclamen), but right now Dave has a nice house of poinsettias growing from cuttings potted up in July. ("Customers like this—they like to see how the crop is doing.")

A car and a van deliver within a 35-mile radius. Distance is rela-

tive—"Up here, people drive two hours to shop at a mall (Concord or Conway); I buy from Clausen's (Colchester, Vermont); my wholesaler comes out from Portland. Long distances are part of the way of life."

Another part of the life here is working several trades in order to make a living. This is true with the Hutchinses. Back at their home on North Road, three homemade double-poly greenhouses with a combined growing space of about 8500 square feet are used to produce a spring bedding crop. Dave starts seed in mid-January; this year,



**T**he oncoming cool temperatures and low light are reminiscent of last spring's growing conditions. We wrestled with a whole host of problems then, and one that continues to crop up is botrytis. I've talked about this problem before, but last year was a test case on control. Nurseries and perennial growers are confronted with the same problem that greenhouse growers confront in mid-winter.

We are dealing with excessive moisture at just enough temperature to allow the organism to germinate. Infection can take place at temperatures as low as 50F. In conjunction with low-light conditions, the plants never seem to dry out. Not only foliage—but soil surface moisture as well—can contribute to the problem. Wet soil can easily cause botrytis to form at the base of the plant. It will appear in its more developed stage as a grey fuzzy mass known as mycelium. (If you've kept strawberries too long in your refrigerator, you'll know what it looks like.) Cuttings and seedlings are most vulnerable.

If you have a problem, take a sample and put it in a plastic bag along with a wet paper towel. Don't seal the bag. Leave it on a counter where the temperature will be about 70F for three or four days. The disease will grow on virtually any plant or fruit and, if the spores are there, the classic symptoms will develop.

Letting the soil and foliage dry out some will usually prevent the problem. You can do this in two ways—one: you can increase air circulation, preferably with outside air (outside air usually will have less free moisture or relative humidity than the air of an enclosed growing house in which you water; or two: you can install horizontal fans. Ornalin will eradicate the disease and fungicides (eg: Fungo) with thiophanate methyl will help prevent the disease from forming.

*Jim Zablocki, Territory Manager, The Scotts Company, Northeast, can be reached at 603-224-5583.*

he began the seeds in the New Englander attached to the florist shop—the catch was good—and it saved heat at North Road, but next year he'll use plugs—he'll be more sure of germination and save both time and space.

Crops are traditional—geraniums and impatiens sell well. Dave grows 1000 hangers—impatiens, ivy geraniums, and fuchsia are customers' favorites. He wholesales to two other outlets and supply their own shop; people can also buy directly from the farm from May first through the middle of July.

Ten additional employees (there are three full-time year-round staff members) help out during the spring and summer season.

There's a small nursery on the farm as well and Dave designs and installs landscape plantings. Most are done for summer residents;

"people who live here year-round seem happy enough with just a lilac by the door."

LANCASTER is more upbeat about itself these days. Yes, there are empty buildings downtown (a major fire this summer destroyed an entire block), but it is the county seat of Coos County: the legal functions of Berlin and Lancaster (the Winter Court was held in Berlin; the Summer, in Lancaster) have been consolidated and a new court house (which seems to be the first major public building here—other than schools—since the library was built in 1906) is rising—in a direct line with the bandstand—behind the park in the center of town.

And east of town, on the road toward Gorham, a new Cabot Motor Inn has been built. The complex contains a lap pool and a function

room that accommodates three hundred. This has attracted new people.

Lancaster's changing—"more people are building in the hills and you never know where the deliveries will take you," and its center—with many turn-of-the-century buildings still intact—will probably be less of a place of commerce in basics.

Many town centers throughout the state are becoming places to go for the extras: to eat out, to buy unusual gifts, to see a movie or hear live music.

Some trends *do* make it through the notches. This one has arrived. And Riff Flower Shop, with its unique mix of flowers, food, history, and vista, has prepared itself well. (B.P.)

Riff Flower Shop is at 22 Main Street, Lancaster, NH 03584. The phone number is 603-788-4681.



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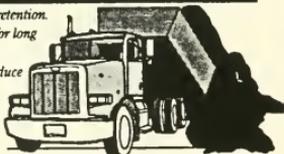
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# Environmental Control Systems

## CHOOSING WHAT'S BEST

Paul Fisher

Being able to monitor the greenhouse environment (temperature, light, humidity, etc.) and to control these factors to provide optimum growing conditions is a key to growing high-quality plants in a timely manner. Approaches for monitoring and control range from completely manual operation through to automated computer systems. These options vary widely in cost and complexity and should be matched to the needs of your business. In this article, I will describe some of the equipment that is available, and discuss factors you should consider in choosing what's best for you.

### Greenhouse Monitoring and Control Options

**1. MANUAL CONTROL** The simplest approach to controlling the greenhouse is through a manual system: for example, when vents are opened and closed by hand. A manual system is fine for small operations with crops that do not require precise environmental control and where there is limited equipment for heating, cooling, and lighting. Clearly, the cost of a manual system is in labor—the decision on whether to upgrade to thermostats, motor-controlled vents, etc., should be made based on whether reliable and trained labor is available to operate your equipment and whether the cost of that labor will, in the long-run, exceed the cost of the upgrade.

It is important in whatever control system you use that there is a manual backup—that you can control all of your equipment in a manual mode if a thermostat breaks down or your computer 'dies' during a power failure.

**2. TIME CLOCKS** A low-cost improvement over a manual control system is to add time-clocks (around \$50 and upward each) that could turn lights or heating on and off at set times of day or night. Time clocks will rapidly pay for themselves in labor-saving, but do not dynamically respond to changing greenhouse conditions: for example, an unusually cool day in which heat is needed.

**3. SENSORS** Even in a manual system, it is important to monitor the greenhouse environment, especially temperature. The cheapest option is to install a maximum-minimum thermometer in each greenhouse area for a cost of around \$20 per zone. You can check and reset the max-min thermometer either once a day or in the

morning and evening to ensure that your greenhouse temperatures are in an acceptable range and that your heating and cooling equipment is working as intended.

Digital temperature sensors or weather stations are also available for around \$300 upward. These are either linked with a thermostat or environmental computer for control or are stand-alone and purely for monitoring. Some sensors have a unit which will measure light and humidity in addition to temperature. Digital sensors can typically provide information on current, average, and (sometimes) day-and-night temperatures that allow you to calculate DIF (day minus night) temperature. This additional information can help you predict elongation of plants and when crops will bloom.

Where you position the temperature sensor in the greenhouse is important, regardless of the type. Place the sensor near the center of the greenhouse away from the heating and cooling units to get a representative reading. Temperatures generally increase by 1F for every one foot above the floor level. Therefore, place the sensor near plant canopy height so that you are measuring the air temperature experienced by the plant—the temperature six feet above a bench is not the temperature affecting plant growth. Shield the sensor from direct or indirect rays of sunlight—sunlight on the sensor will give a falsely high reading. The shield should be painted white or with some other reflective surface to reduce heat buildup. A fan can be mounted to blow air over the sensor; this makes the temperature reading more representative of air throughout the greenhouse. Sensors have a limited life and need to be checked and either calibrated or replaced each year—a faulty instrument is worth less than no instrument at all.

**4. INDIVIDUAL THERMOSTATS** The next level in control is to have each piece of equipment (e.g., the hot water supply valve or the ridge vent) controlled by its own thermostat. Individual thermostats are cheap (\$200 and upward) and work reasonably well if there is simple heating and cooling equipment. Once you have more than one thermostat in the greenhouse, you have the potential problem of thermostats working against each other (e.g., vents open while the heating is on). It is very important to have thermostats calibrated at least

once a year to ensure that you are achieving the desired set points and that heating and cooling equipment work together. Position the temperature sensors from all thermostats in one place so that calibration is easier.

More sophisticated thermostats are able to work in stages. An example is a cooling fan that works at a low speed when the air is 3F above the desired temperature and at a high speed when it is 6F too warm. Staging allows more precise control, keeping temperatures close to the set point target without large swings as the greenhouse is overheated, then overcooled.

#### 5. INTEGRATED TEMPERATURE CONTROLLERS

An option that ensures that individual components work together is an integrated temperature controller that can control multiple pieces of heating and cooling equipment (e.g. ridge vents, side vents, fans, and multiple heating valves). These units cost from \$400 to \$2500. Cost depends on the number of heating and cooling stages, the number of environmental factors that are monitored (typically, at least light and temperature), the number of greenhouse zones that can be controlled, and special features (e.g., an exhaust/dehumidify function that can dehumidify the greenhouse on command by raising temperature and then opening vents).

Integrated controllers allow multiple staging: the first stage of cooling might be opening the ridge vent; the second, opening the side and ridge vents; the third stage is side and ridge vents open and exhaust fans on. More sophisticated controllers allow programming of separate set points for day and for night; at least one also allows a dip of temperature near dawn. Many units also display 24-hour, day, and night temperature averages.

#### 6. ENVIRONMENTAL CONTROL COMPUTERS

Environmental control computers provide the highest level of control and integration of multiple pieces of equipment. In these systems, sensors (e.g., light and temperature sensors) and equipment (e.g., vent controls) are linked to a central computer. Environmental control computers generally cost \$10,000 upward, but are designed in a modular fashion that allows you to purchase only the equipment you need for the number of zones in your greenhouse and also allows easy expansion to new zones. With some systems, temperature control, misting, lighting, carbon dioxide, irrigation, and fertilization can all be controlled by the same computer.

Environmental control computers have several advantages in addition to precise control and equipment integration. They have a built-in ability to display temperature or other factors on the computer screen, and to store historical data so that you can have a complete crop record. All environmental control systems have the ability to activate alarms when temperatures are too high or low and most can automatically inform you over a modem and telephone line. With some systems, you can also change control settings (e.g., vent temperature) remotely from your home or office via a modem.

#### Factors to Consider When Choosing Between Options

The decision of which control and monitoring system is best for your business should be made on the basis of many factors, and not just on up-front price.

First, you need to list all of the heating, cooling, and other greenhouse equipment you need to control (e.g., heating valves, vents, fans, pads, curtains, HID lamps, carbon dioxide supply). As the list per greenhouse zone increases, this argues in favor of a more sophisticated system. As the number of greenhouse zones increases, this argues in favor of a centralized system rather than separate units for each house. Consider not just the current stage of your business, but also future plans.

Decide how precise a level of control is necessary for the crops you grow and for your need to have sophisticated regimes, such as DIF temperature with a dip near dawn for height control. More precision and complexity again argues in favor of a sophisticated control system.

When choosing between companies and products, try to see the systems in action either at a trade show or in a neighboring greenhouse. It is especially important to talk with growers who are using the system because products vary considerably in their ease-of-use. Your new system will also need a trained employee (perhaps you) to operate it. You need to assess how much new employment or training will be necessary and to find out how much training the company will provide. If the intended operator is not comfortable with the technology or is not willing to work through the inevitable initial problems, you may have a top-of-the-line system that is underutilized. Workers may even ignore the system in favor of manual operation. If possible, involve the intended operators in the process of choosing the system so that they have a sense of ownership.

If you are buying a sophisticated system, have more than one environmental control company visit your operation and provide them in advance with a list of your needs. Find out about up-front costs, installation fees, their level of technical support, and costs of updates. Once installed, some companies can diagnose and solve problems in your environmental control computer via a modem and telephone without needing to actually visit your operation. Ask other growers about response times to problems and attitudes to service.

Finally, as Don Josko said in a recent *Greenhouse Business* article, after buying a new system, use it! If you buy a sophisticated system, set the unit to automatic and learn to use it as just another piece of equipment. Do not buy a system that is more complex than you need or want to deal with because it will not pay for itself in improved crop quality and productivity.

*Paul Fisher is assistant professor in the Department of Plant Biology, University of New Hampshire, Durham. He can be reached by phone at 603-862-4525 or fax at 603-862-4757; his e-mail address is prf@hopper.unh.edu*

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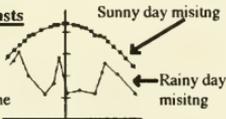
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## "There's no such thing as a little garlic."

—Arthur Baer, 1886

Most of us think of garlic as coming from California or other warm places, but New York State has an abundance of successful garlic growers. In September, we visited the Hudson Valley Garlic Festival in Saugerties, New York. You never saw (or smelled) so much garlic in your life!

New York is best known for the "hardneck" varieties, such as Italian red, Spanish Roja, and Rocambole, although some farmers grow "softneck" types as well.

Grace Reynolds of Hillside Organic Farms in Troy, New York, describes "softneck" as the kind available in grocery stores: the bulb has larger cloves around the outside and smaller ones inside.

"Hardneck" cloves are larger and form a single circle around the neck. The flavor, although it varies from variety to variety, is generally more pungent. Hardneck types are also more reliable as a crop in colder areas such as New York and New Hampshire.

Sowing takes place during the first two weeks of October. At first, New York growers planted as late as possible in the fall, so that the cloves would not "lose their strength." They've since learned that cloves planted earlier do well and that most grow even bigger with the head start.

Tom Maiello of Saugerties grows his for home use. Separate the cloves from the bulb, Tom says, and choose the plump outer ones for planting. The smaller, skinny ones—toss those into soup. Plant the cloves—pointed end up—four inches apart in three-to-four-inch-deep trenches in well-cultivated,

well-drained soil. He incorporates his own compost and insists that "organic" is absolutely essential. Tom puts leaves over the rows for extra protection and burlap over the leaves as well.

The coverings are removed in early spring. By mid-June, the garlic will begin to send out a flower stalk (or "scape.") As it grows, it will start to "pigtail." Once it has curled over and made a complete circle, cut it or the bulb's energy will go into creating an unnecessary flower.

Up until now, the focus of the growth has been in the plant. But from now until harvest, it is the bulb that will do most of the growing. If the weather is dry, water, but garlic does not really like much moisture.

Actually, near harvest, close-to-drought conditions are best. The leaves will start to dry from the bottom up and when 60% are brown, the time is right.

Dig around each plant, being careful not to damage the bulb; you may have to dig under the bulb with your hand. A good yield is six-to-eight times the cloves sown: in other words, 75 pounds planted should yield 500 pounds of crop.

Be warned that a damaged bulb may not keep and that bulbs put in the direct sun to dry will cook. Place them on screens in a cool airy place and let them cure for at least three weeks. Once cured, they can be bound or braided together. Well-cured garlic stored in a dry airy 55-70F place will last easily into the next spring.

Several people I spoke to at

the festival felt that New Hampshire is similar in growing zone and weather and that, with the right choice of soil (avoid clay), garlic could be grown successfully. The few growers already established in New Hampshire are doing just that. I recently read that Wake Robin Farm in Stratham grows spring garlic exclusively for Jim Stott and Jonathan King, owners of Stonewall Kitchen. This is a very creative pair and their business of herbal vinegars, jams, jellies, and preserves continues to grow. They use these spring garlics—immature, soft, sweet cloves—for their vinegars, which they sell in distinctive imported bottles.

At 190 South Road in Salisbury, New Hampshire, Claudio Serra is growing three-and-one-half acres of garlic, which he sells at his farm stand. He also supplies local restaurants. His hardneck garlic seed comes from Italy and his softneck from Spain. This garlic, he says, is very different from that found in our grocery stores. This is REAL garlic, stronger in flavor, as preferred in Europe. He grows it pretty much as described above, never planting later than early October. He saves his best-formed bulbs for seed and gathers the rest into net bags for sale as culinary garlic. In spring he sells asparagus, then concentrates on garlic. He'd also sell you some seed if you want to try growing this healthy and, yes, trendy, crop yourself.

*Tanya Jackson, a well-known local herbalist, can be reached at 603-431-6774.*



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It certainly looks like the saying "when it rains, it pours" held true for the month of October (particularly for those of us in the Seacoast area)! The greatest threat to plant health due to flooding will probably be root asphyxiation. Luckily, the flooding occurred at a time of year when the temperatures are cooler (root asphyxiation occurs more rapidly with higher temperatures) and most of the plants are entering dormancy. Several conifer species (including eastern white pine, hemlock and spruce) are fairly intolerant of waterlogged soil conditions for prolonged periods. We can expect to see some decline or possible mortality if these species remain in flooded soils for several weeks.

During the last two months, there have been only a few problems worthy of note from samples submitted to the UNH-PDL. BOTRYTIS CANKER on poinsettia has been causing problems for a few growers and PHYTOPHTHORA root and crown rot was diagnosed on *Lamium*. Diseases and symptoms associated with drought stress continued to appear on woody plant hosts. Relatively speaking, however, things have been fairly quiet.

There are several common problems we should watch for during the next few months. PYTHIUM ROOT ROT is a common problem occurring on a wide range of plant material, including geraniums and bedding plants. The initial symptoms may include yellowing or symptoms usually associated with nutrient deficiencies: stunting, marginal browning of the leaves, and—eventually—wilting. Remove symptomatic plants from the containers and check the roots. Roots infected with *Pythium* appear brown and/or water-soaked. The cortex of the root is easily pulled off, leaving the stringy stele.

Severely infected plants should be discarded. The remaining plants should be treated with a fungicide drench. The potting mix should not be reused, and the containers should be disinfected before reusing. Wet conditions favor the development and spread of *pythium*, so avoid over-watering during extended cloudy periods and avoid splashing the mix from plant to plant when watering. Preventative fungicide drenches such as Banrot are often recommended for geraniums and chrysanthemums. Care should also be taken to keep the ends of hoses off the greenhouse floors.

BOTRYTIS BLIGHT is another disease that is prevalent on greenhouse crops during the winter months. High relative humidity favors the disease, thus techniques aimed at lowering humidity levels (e.g., venting) and improving air circulation (e.g., plant spacing) are usually effective in reducing the damage caused by botrytis. Strict sanitation, particularly removing senescent plant tissues, can also help to reduce botrytis blight.

IMPATIENS NECROTIC SPOT VIRUS (INSV) is always a threat to greenhouse crops, especially impatiens, New Guinea impatiens, gloxinia, and cyclamen. Vegetables transplants, particularly tomatoes and peppers, are also hosts for the virus. INSV is thrips-transmitted, most commonly by western flower thrips (WFT). Inspect new stock carefully for thrips and use blue or yellow sticky cards to monitor for thrips (more than 5-10 WFT per card per week seems to be a useful threshold). If insecticides are necessary for thrips control, be sure to rotate between chemical classes every 3-4 weeks to reduce the chance of resistance building up in the thrips population. Plants infected with INSV can-

not be cured, and should be destroyed. Suspicious plants should be isolated from the rest of the crop and sample plants should be submitted to the UNH-PDL (or another lab) for testing, since several other controllable diseases can mimic INSV symptoms.

Geraniums should be monitored for BACTERIAL BLIGHT. The most common symptom is wilting of one or more leaves even though the soil is moist. Leaf spots may develop when the bacterium is splashed from one plant to another or drips from hanging baskets onto plants below. Yellowing, often in a V-shaped pattern, is also a common symptom. The symptoms on ivy geraniums are not as obvious as those on seed and zonal types. On ivy geraniums, the symptoms are easily confused with edema. If bacterial blight is suspected, a laboratory diagnosis is necessary to confirm the presence of the bacterium. If confirmed, (1) plants cannot be cured by fungicide sprays or drenches, (2) infected plants should be destroyed and soil should not be reused, (3) suspicious plants should be isolated, and (4) tools, pots, flats, and bench tops should be sterilized with 10% bleach solution.

I hope all of you have a happy, prosperous, and plant-healthy holiday season!

*If you wish to submit plant material to the UNH-PDL for diagnosis, send samples (with a check for \$12.00) to: The UNH Plant Diagnostic Lab, C/O Dr. Cheryl Smith, Plant Biology Department, 241 Spaulding Hall, UNH, Durham, NH 03824. Samples should be accompanied by an identification form (available from your county Cooperative Extension office). Cheryl Smith is the UNH Cooperative Extension Specialist in Plant Health and can be reached at (603) 862-3841.*

## January

JANUARY 8-10 *Erna's Expo 97*, The Meadowlands Exposition Center, Secaucus, NJ; to register: 1-800-376-2463.

JANUARY 13-15 *The 66th Massachusetts TurfGrass Conference & Trade Show*, Hynes Convention Center, Boston, MA; James Conant at 508-362-1136.

JANUARY 14-15 *Connecticut Nurserymen's Association Annual Meeting*, Trade Show, & Seminars, Aqua Turf, Southington, CT; 860-872-2095.

JANUARY 15 *Maine Landscape and Nursery Association (MeLNA) Annual Meeting* at the Augusta Trade Show, Augusta Civic Center, Augusta, ME; 207-225-3998.

JANUARY 17 *Pesticide Compliance Assistance Presentation*, North Country Resources Building, Route 3, Lancaster, NH; 603-271-3550.

JANUARY 21 *MeLNA Annual Trade Show*, Sheraton Tara, South Portland, ME; 207-225-3998.

JANUARY 22 *FTDA District 1-C Meeting*, 6:30 pm at Carbone's, Bedford, NH; details: Betty Covey at 603-893-4578.

🌱🌱🌱 TUESDAY, JANUARY 21 *New Hampshire Plant Growers Association/New Hampshire Landscape Association Joint Winter Meeting*, Old Mill Restaurant, Epsom; Peter van Berkum at 603-463-7663.

JANUARY 21-22 *RINA Education Day and Trade Show*, Doubletree Inn, Newport, RI; 508-761-9260.

JANUARY 30-FEBRUARY 1 *New England Grows*, Hynes Convention Center, Boston, MA; call 508-653-3009 or fax 508-653-4112.

## February

FEBRUARY 7 *Pesticide Compliance Assistance Presentation* (in conjunction with Farm & Forest), Center of New Hampshire Holiday Inn, Manchester, NH; 603-271-3550.

FEBRUARY 7-8 *New England Christmas Tree Conference* (sponsored by the NE Christmas Tree Alliance), Sheraton Tara, Nashua, NH; Frank Crandall at 401-364-3387.

FEBRUARY 7-8 *Farm and Forest Exposition*, Center of New Hampshire Holiday Inn and Convention Center, Manchester, NH, 603-271-3788.

FEBRUARY 19 *The Vermont Association of Professional Horticulturalists (VAPH) Annual Meeting*, Holiday Inn, Rutland, VT; Connie Gardner at 802-253-8565.

FEBRUARY 20-23 *The Rhode Island Spring Flower & Garden Show*, Rhode Island Convention Center, Providence, RI; Nancy Syme at 1-800-766-1670.

FEBRUARY 20-23 *The Sixteenth Annual Connecticut Flower and Garden Show*, Hartford Civic Center, Hartford, CT; 860-529-2123.

FEBRUARY 26-MARCH 12 1997 *Advanced Green School*, Royal Plaza, Marlboro, MA; Kathleen Carroll (413-545-0895) or Mary Owen (508-892-0382)

FEBRUARY 28-March 2 *Vermont Flower Show*, Burlington Sheraton, Burlington, VT; Connie Gardner at 802-253-8565.

## March

🌱🌱 WEDNESDAY, MARCH 5 *Seminar: "Cultivating your Best Assets—Personnel Management Issues for Ornamentals Firms,"* Fish & Game Building, Concord, NH; Mike Sciabarrasi at 603-862-1700.

MARCH 8-16 *New England Flower Show* ("Secrets of the Garden"), Bayside Exposition Center, Boston, MA; 617-536-9280.

MARCH 18 *New Hampshire Landscape Association Spring Conference*, Barton/Cole Hall, UNH, Durham, NH; Guy Hodgdon at 1-800-639-5601.

MARCH 21-23 *"The Breath of Spring" Flower & Garden Show*, Best Western Hotel, Keene, NH; Steve Curtin at 603-355-6335, ext. 161.

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For further information, please contact the editor: Robert Parker at the UNH Research Greenhouses, Durham, NH 03824, 603-862-2061; or PO Box 5, Newfields, NH 03856, 603-778-8353.

The photographs on the front and back covers are views from Riff Flower Shop, downtown Lancaster, taken on November 3, 1996, by Richard Raymond.

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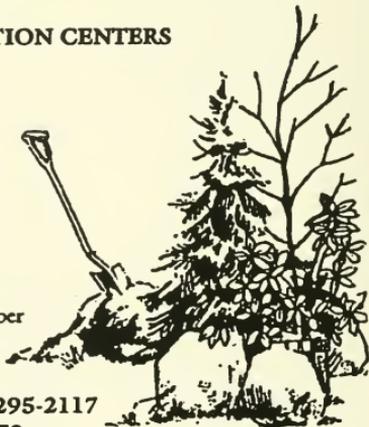
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## Introducing Myself

Dr. Paul R. Fisher

I would like to take this opportunity, as the new faculty member in ornamental horticulture at the University of New Hampshire, to introduce myself. I am very much oriented toward production floriculture, doing applied research that ends up in tools used by growers. My teaching tries to give students practical and problem-solving skills.

I am originally from New Zealand, where I worked for the Ministry of Agriculture and Fisheries in a sustainable agriculture program. I have a PhD from Michigan State University (MSU) where I worked with Dr. Royal Heins on a computer program designed to help growers monitor and control the height of poinsettias, Easter lilies, and chrysanthemums. I also spent three years doing floriculture research and teaching at the University of California at Davis.

My responsibilities at UNH are in teaching and research. The teaching work will include several courses in introductory and advanced floricultural production. My research will focus on production floriculture and the environmental issues associated with ornamental production. I am very open to specific research projects and am currently meeting with New Hampshire growers to learn about the industry and its priorities. UNH is very supportive of improving our greenhouses and strengthening the ornamental horticulture program in the Department of Plant Biology.

Several points about my program may be of interest to you. I would like my students to gain practical hands-on experience through internships (short-term work experiences). Providing internships would be a way for you to support their education—and some of these students may work out to be long-term employees. The advanced floricultural course will be first taught during the

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**FOR SALE:** 188,000 Btu wood, coal, oil Newmac forced hot air furnace. Good for greenhouse or home. Never used. Still in original packing crate. \$2750.00. Tanglewood Gardens, Bedford, NH. 603-472-3737.

**WANTED:** Professional Plant Pathologist for Woody Ornamentals (Extension Educator) at UMass Extension's Urban Forestry Diagnostic Lab, UMass, Amherst. The person in this position will provide timely and accurate diagnosis of woody plant health problems, staff and maintain operations of the lab, and organize and present workshops and training sessions for field staff and clientele.

**BABBS** in plant pathology or related field and one-five years related professional experience required. MS/MA in plant pathology and commercial experience preferred. Ability to maintain diverse schedule of local, regional, and statewide activities; excellent interpersonal skills; knowledge and demonstrated ability to implement adult education theories and practices with diverse audiences—all are required. Starting salary—\$30,400.00.

By January 10, 1997, send letter of application, resume, and names, phone numbers, and addresses of three current references to Search 38044, Employment Office, 167 Whitmore Administration Building, University of Massachusetts, Amherst, MA 01003.

spring of 1998. A major requirement for that course will be that students will each work with a local grower on a short research project of interest to the grower. I will provide more information on that course to you next year. Although my position does not contain any Extension component, I do intend to work with the Cooperative Extension personnel and the New Hampshire Plant Growers Association to help pass research information along to you. Finally, I am excited about the opportunity to develop a teaching and research program in our important industry and I look forward to the opportunity to meet with you.

Paul can be reached at 603-862-4525.

## The Final Version

This is the final version of the bill that has now been sent to legislative services. They will rewrite the bill and put it into a legislative format. We will then review it one more time to make sure there are no changes to be made. The bill is being sponsored by Derek Owen (D-Hopkinton), William Phinney (RD-Bristol), and Leighton Pratt (R-Lancaster).

**72:12-d Exemption.** Temporary, demountable, plastic covered greenhouses with no permanent under structure shall be exempt from taxation as real estate if all of the following qualifications are met:

## Horticulture Courses at the Thompson School

This is a partial listing of courses offered this winter at the UNH Thompson School. The winter/spring semester runs from January 21 through May 13. [PPT (Half-term I) runs January 21-March 14. Half-term II: March 24-May 13.]

- HT204 *Plant Propagation 3* cr. MW 9-10 & T 10-12  
 HT217 *Horticultural Facilities Management 1* cr. M 8-9, 2 hr. lab arranged  
 HT234 *Pest Management: Diseases (Half-term II)* 2 cr. T TH 5:30-7 and T 7-8 or TH 7-8  
 HT236 *Pest Management: Insects (Half-term II)* 2 cr. MWF 10-11 and TH 10-12 or TH 2-4  
 HT244 *Floral Design: Weddings (Half-term II)* 2 cr. T TH 2-5  
 HT245 *New Directions in Floral Design (Half-term II)* 2 cr. T TH 2-5  
 HT256 *Horticultural Pruning 1* cr. F 2-5  
 HT258 *Herbaceous Ornamental Plants 1* cr. TH 10-12  
 HT266 *Garden Design and Culture 2* cr. (Half-term II) W 10-12, 1-4  
 HT268 *Sustainable Planting Design 1* cr. T 2-5  
 HT274 *Seedling Plant Production (Half-term II)* 2 cr. W 10-12, 1-4  
 HT284 *Nursery Production and Management (Half-term III)* 2 cr. M 10-12, 1-4  
 HT286 *Garden Center Management (Half-term III)* 10-12, 1-4  
 HT288 *Horticultural Business Management 4* cr. MW 8-9

You can enroll by phoning the Division of Continuing Education at 603-862-2015. For information on course content, the part-time associate's degree program, or the diploma in landscape horticulture, call 603-862-1035. Additional horticulture courses are offered at UNH in the Plant Biology Department.

It is used or useful in the production or storage of either plant material or livestock including framework, coverings, heating and cooling equipment, irrigation, benches and electrical apparatus.

It is not permanently affixed to the real estate upon which it is located with a continuous concrete footing.

It is capable of being removed from the real estate without any permanent damage to the greenhouse.

Thank you everyone for your time and efforts and I will keep you posted on the progress of the bill.

Brit Rams, 603-425-6563

### Thank you, Murray Farms.

A Fall NHPGA Twilight Meeting was

held at Murray Farms Greenhouse in Penacook on September 11.

A feature of the meeting was a chance to see their new wood chip gasification heating system. The system begins with a tractor trailer load of hardwood chips (25 ton) bucket-loaded into the hopper. Chips augered into the gasification chamber—an oxygen-deprived atmosphere, but with enough to allow flame to get the firebrick top and sides red-hot (the chambers temperature is 2000F).

In this system, 40% of the wood (53% of wood is actually water) is converted to gas. This moves into the firebox of a conventional American Standard 3-million btu cast-iron boiler. Air coming through slots combines with the gas to create a nine-foot flame which heats the water.

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### End Wall Growing— A New Niche in the Marketplace

We've used the floor, the benches, the parlins and the trusses as places to grow a crop. How about the end walls?

By growing a crop in wall pots or in the new flower bags, the container can be simply hung on the end wall from an eight-penny nail. In the case of the flower bag (or pouch, as some are called), the crop is started on the bench and in two-to-four weeks, is ready to be moved. It can be hung directly on the wall or on extension hangers back-to-back (two for the price of one).

If you're concerned about the plants having enough soil, the flower bag's capacity is a bit more than the wall pot—which has served the purpose for many years.

This may be just the niche you can fill.

with very little solid matter, the boiler runs clean") and an amazingly small amount of ash ("an entire tractor trailer-load of clean chips will produce only a five-gallon pail of ash"). All this inside a tidy end-gabled clapboard structure.

Other points of interest included poinsettias, mums, and mum irrigation systems, but this seemed a highlight.

Twilight meetings are excellent opportunities to talk to other growers and see other operations and we thank Kevin Bragg, Don Murray and the Murray Farms crew for their fine hospitality.

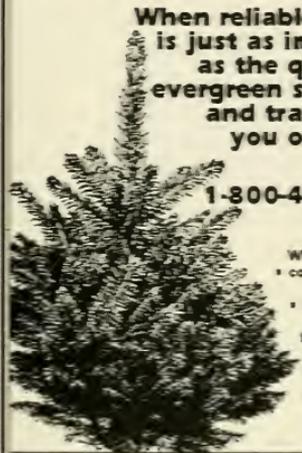
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## Coming Up:

### Cultivating Your Best,

"Cultivating Your Best Assets—Personal Management for Ornamentals Firms" is the focus of a day-long seminar sponsored by UNH Cooperative Extension, the New Hampshire Plant Growers Association, and the New Hampshire Landscape Association.

To be held on Wednesday, March 5, at the Fish & Game Facility in Concord, topics addressed in the morning include developing an employee manual, understanding labor laws, and employee safety; the afternoon program will deal with "motivating employees and dealing with family members—getting everyone excited and involved"—something worth thinking about before the start of the spring season.

Speakers include Bob Farquhar (head grower, Pleasant View Gardens, Loudon), Norman Roux (Norman Roux Landscaping, Concord), and M.L. Hannay (M.L. Hannay Associates, Portsmouth). Ms. Hannay—who's described as a "leadership consultant, motivational speaker, and management & staff development trainer who's provided customized programs and services throughout the United States since 1978"—is providing the afternoon's program.

The day was specifically designed for persons operating a greenhouse, nursery, or landscaping firm and who've hired or are about to hire employees for the first time, but any Green Industry supervisor who wants to improve management skills would find the day useful.

Fliers with more details and registration information will be sent out at the beginning of the year. For other information, contact Mike Sciabarrasi at 603-862-1700.

### Farm & Forest,

It's for two days—February 7-8, at the Center of New Hampshire Holiday Inn & Convention Center in

Manchester.

The Food Festival will be there—and the Petting Farm (provided by Charmingfare Farm of Candia). A wood product fair (Woods Goods) is being put together. And FARMO—a game involving the matching of facts and interaction with exhibitors—will return.

Demonstrations include ones on putting up electric fencing, caning a chair, pruning a lilac, sharpening your chain saw, and healing with herbs—something for everyone.

Commodity groups meeting include those of New Hampshire fruit growers, vegetable growers, beekeepers (topic: "Honeybee Pollination of Commercial Crops"), pork producers ("Raising a Back Yard Pig"), sheep and wool producers, and the dairy goat association. Other groups meeting include NOFA, Granite State FFA, Ag in the Classroom, the Northern New England Deer Farmers Association ("The Deer Farming Alternative"), and the Timber/ Agriculture/ Tourism Coalition.

The awards ceremony is on Friday evening at 7pm; a reception follows from 8-10. (Reservations are needed—the cost is \$2 per person; there will be a cash bar and food.) The traditional auction will be on Saturday.

Times are 9am-8pm on Friday and on Saturday, 9-5; admission's free. There's more than what's listed here: for a complete program, contact Susan Rice at 603-271-3788.

### and Some Compliance Assistance.

The New Hampshire Division of Pesticide Control is offering three pesticide compliance seminars. Their purpose is to present certain areas in which it is sometimes difficult to adhere to the rules. Topics include certification, groundwater protection, storage, record-keeping, worker protection, and personal protective equipment. Questions are encouraged.

The first was in Concord on De-

ember 5; the second will be in Lancaster (10:30 a.m.-2 p.m. at the North Country Resources Building) on January 17; the third (2-5pm, February 7) will be held in conjunction with the Farm & Forest Exposition in Manchester.

Three credits toward recertification will be offered to those who attend.

For information or to register, contact the Division of Pesticide Control at 603-271-3550.

## FFA—a Big Day

Over 100 students from nine schools—Alvirne (Hudson), Coe-Brown (Northwood), Dover, Fall Mountain Regional (Alstead), Kennett (Conway), Region Nine Vocational Center (Wolf-boro), Seacoast School of Technology (Exeter), White Mountain Regional (Whitefield), and Winnisquam (Tilton) attended the FFA Invitational Career Development Event held at the UNH Thompson School in Durham on October 19.

Events included Dairy Judging, Dairy Showmanship, Forages, Tool ID, Welding, Forestry, and Horticulture.

In the horticulture event, four schools competed and Winnisquam received the high score to take first place. Dover was second and the Seacoast School of Technology, third. Jon Howe (Winnisquam) was individual high scorer; William Storey (Seacoast School of Technology) was second, and Wendi Lee (Dover), third.

Congratulations go to all participants; thanks go to all those who worked to make the event a success.

## Moving Forward:

### In Alton,

Sunflower Industries now has two locations—both on Route 28 in Alton. In September, Bruce and Linda Holmes moved from their Wolfboro home to a farmhouse one mile south of their original Alton location.

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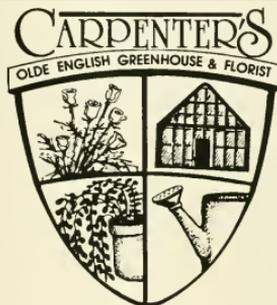
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The original location has four plastic greenhouses with about 8000 square feet of growing space. Since September, four houses with approximately the same square footage have been put up at the farm site.

Now, crops and functions are being organized within the two places. The original site still does some retail business, but the wholesale aspect is growing: in November, its houses were being used to grow Christmas cactus, cyclamen, and azaleas. The farm site is strictly wholesale, with two houses of foliage plants (for re-wholesaling) and a crop of poinsettias. Post-Christmas crops now planned include primroses, cineraria, kalanchoe, and hibiscus.

Spring plans include four-inch

dahlias and more "vine crops"—two-pacs, each cell 3 1/2 inches square and three seeds per cell, of squash, cucumbers, pumpkins... "people basically buy just two hills and this allows them to choose more than one variety for the limited space in their gardens."

Future plans include a new work area/office at the farm site. A sign for the original site is at the Alton traffic circle (the farm site is a mile beyond that), but "call before you visit." The new phone number is 603-875-4444; the fax, 603-875-4446.

#### New Durham,

Merrymeeting Garden Center—formerly on the corner of Route 11 and Depot Road in New Durham—has a new name and a new location. Merrymeeting Gardens is now one mile

south on Route 11.

The changes were ones of consolidation. Les and Nathalie Turner decided to stop renting their business location. To buy the spot was too costly, so they sold their old home and bought a house on 3 3/4 acres of land one mile south on Route 11. Consolidating the locations of their home and business was the first step; the second was to specialize—he'll concentrate on a broad range of perennials. The trees on the land also suggests emphasis on shade material and wildflowers.

Merrymeeting Garden Center closed on Labor Day. The show greenhouse was moved to the new location; the tomato greenhouse was moved and made into two smaller houses; the first 1000 perennials are already in the ground. Work will

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## Using Fringe Benefits to Tax-Plan

**T**ax planning is a method to manage income tax liability in your business. Planning for retirement and having a medical plan are, of course, necessary facts of life, but—at the same time—they can provide you with attractive tax benefits. Here's an example:

Assume a grower is in the 31% tax bracket. His spouse is the bookkeeper, but is not on the payroll. The grower pays for medical insurance and a retirement plan for his employees. By adding his spouse to the payroll, the grower can deduct the medical insurance premiums for his spouse's family coverage as well as a contribution to a retirement plan—such as a SEP (Simplified Employee Pension)—for the both of them. These deductions can provide real tax savings.

If, for example, the medical insurance were \$4,000 annually, the savings would be \$1,240 (\$4,000 x 31%); if the SEP contribution was \$10,000, the savings would be \$3,100. The total tax savings the grower could realize is \$4,340.

Proper tax planning is often overlooked, usually because of unfamiliarity with agricultural tax laws and the benefits to which growers are entitled. Keep in mind that it is sometimes impossible to escape/eliminate Uncle Sam's tax bill if your business is beyond a start-up phase and is achieving healthy growth and profits each year. However, there are ways—such as the above—to minimize and manage your tax liability. (S.W.)

*First Pioneer has an experienced tax staff knowledgeable in farm tax law. Our staff can help meet your tax needs regardless of how your business is organized or the type of returns required. For information, contact the Bedford office at 1-800-825-3252.*

continue all winter and Merrymetting Gardens will be open next spring. For more: Les and Nathalie Turner at 603-859-3030.

**And Manchester.**

The New Hampshire Orchid Society now meets at a new spot—the Manchester City Library on Pine Street. With members attending on a regular basis increasing, they needed more room and now have use of both a 75-seat meeting hall and a 100-seat auditorium; other factors deciding the move were better audio/video facilities, more parking, and better public exposure.

The Society still meets on the second Saturday of each month. Meetings usually include a workshop

and a speaker. On January 11, the speaker will be Fred Hillerman from Angraecum House of California, who'll be speaking on angraec-cums. On February 8, the speaker's Robert Fuchs, from RF Orchids of Homestead, Florida; his topic is "the Vanda Family."

For more information, contact Joanna Eckstrom at 603-456-5070.

**Proven Winners**

It's not unusual to see NHPGA bisomeses featured in various publications. Demers Garden Center, D.S. Cole Growers, Rye Ridge Greenery, and Spring Ledge Farm all come to mind. But it is special to be part of a cover story of a na-

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Deerfield, NH 03087  
463-7663

tional magazine and Henry and Jeff Huntington's appearance on the cover of October's *Greenhouse Grower* in relation to an article on Proven Winners should be duly noted. It should also be noted that Henry will be speaking about Proven Winners at the NHPGA Winter Meeting on January 21 and that he may more fully discuss some of the new marketing and expansion plans touched upon in the article.

## Publications:

### On Mums,

A recent publication of the Ohio Florists Association (OFA) "can provide you with the most comprehensive and up-to-date information available on the production and marketing of garden mums." *Tips on Growing and Marketing Garden Mums* is an 84-page text with 101 color figures, 31 tables, and ten black-and-white illustrations designed to help both novice and experienced growers.

The book was compiled through the combined efforts of 20 floriculture academicians and industry professionals; and it was planned and edited by Peter Konjoian, Konjoian's Floriculture Education Services, Andover, MA, and Michelle Gaston, Stephen Carver, and Cheryl Irwin of the Ohio Florists' Association.

For a copy, send \$25.00 (for OFA members, \$20) to OFA Services, Inc., 2130 Stella Court, Suite 200, Columbus, OH 43215-1033.

### Native Plants,

The 15th edition of the UMass Extension Garden Calendar is now available and the theme for 1997 is "Using Native Plants in Managed Landscapes." Each month features original color illustrations along with plant information. Written and researched by UMass Extension staff specifically for southern New England growing conditions, it makes both a fine gift and useful tool for the home gardener.

Cost is \$8.00 per calendar (this includes handling and shipping). Make checks payable to UMass and send to Bulletin Distribution Center, Draper Hall, Box 32010, University of Massachusetts, Amherst, MA 01003-2010. For more: 413-545-2717.

### and Turf...

*Turf IPM Facts* is a packet of over 50 fact sheets written by turf specialists from the University of Massachu-

setts. Sheets cover such topics as white grubs, grass choices, and annual grassy weed control. Basically they cover general turf maintenance and pest management based on integrated pest management (IPM) strategies. Sheet sizes vary from one to four pages. A 13-page turf monitoring calendar is also included.

The price is \$25.00. Make checks payable to the University of Massachusetts and send to the Bulletin Distribution Center in Draper Hall.

### Plus a New Pest Guide from Vermont

(from *The Dirt*, Fall, 1996)

The Vermont Department of Forests, Parks, and Recreation has recently released *A Field Guide to Common Insect Pests of Urban Trees in the Northeast*. Written by Dr. Trish Harrison of the Vermont Forest Biology Lab and illustrated with full-color photographs by E. Bradford Walker, this 86-page guide, designed to be a convenient reference for field foresters and arborists, is "just the right size to slip into the inside pocket of your field vest or carry in the glove box of your vehicle."

The price is \$15, postage paid. For a copy, send a check payable to the State of Vermont to VT Dept. of Forests, Parks, and Recreation, 103 South Main Street, Waterbury, VT 05671-0603, Attn: Tess Greaves. The phone number is 802-241-3678.

## Two Pluses and a Minus:

### A Donation

(*Greenhouse Grower*, October, 1996)

The New England Florist Credit Association donated \$44,000 to the University of Massachusetts Foundation to establish a Floriculture Research Endowment Fund at the school. The goal of the endowment is to support UMass Extension programs that provide education and research in the commercial applica-

tions of new technologies for the greenhouse floriculture industry in Massachusetts.

### A Beetle

(*Country Folks Grower*, November, 1996)

Cornell scientists have confirmed what they believe is the first known report outside Asia of a longhorned beetle, *Anoplophora glabripennis*, that is currently attacking Brooklyn's Norway maple and horse chestnut tree populations.

The beetle, with coal-black wing covers sprinkled with white spots and long black-and-white antennae, isn't harmful to humans. It is, however, devastating trees in Brooklyn's Greenpoint neighborhood. Three-quarter-inch circular holes in the Brooklyn trees first led authorities to think that teenage pranksters were, for some reason, drilling, but adult beetles turned out to be the culprits.

There is apparently little to be done to curb the infestation as the beetle has no known natural enemies.

### and a Breakthrough

(*Greenhouse Grower*, October, 1996)

A team of researchers at The Pennsylvania State University (Penn State) and Brookhaven National Laboratory have identified a geranium gene that is linked with a mechanism that makes plants resistant to insect pests. The breakthrough is the culmination of years of interdisciplinary studies at Penn State, beginning with research looking at the susceptibility of garden geraniums to spider mites and aphids. The resistant plants produce a sticky liquid that traps insects and mites or kills them by inhibiting the ability of the females to lay eggs.

The discovery could have significant implications for agriculture as well as other industries that use specialized oils. Penn State is in the process of patenting the use of this gene.

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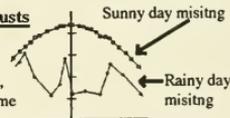


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Dr. Peter Konjoian

**M**ake no mistake about it, crop scheduling is one of the most important tasks you and I have to perform in our greenhouses. One can not play this game without properly scheduling and timing our crops. Learning how to schedule successive plantings to provide uninterrupted, uniform material from the first day of the selling season to the last is a challenge every one of us must face.

In my family's 55,000-square foot greenhouse range in Andover, Massachusetts, one of my responsibilities is crop scheduling. All of our production is marketed at the retail level right out of our greenhouses. During the spring season, we need to have fresh, perfect plant material available from the last week of April to the last week of July. Because this season of the year brings in over eighty percent of our annual revenue, careful attention to detail is an absolute must, not only for me in the scheduling department, but also for every other family member who is involved with production in any way.

During my brief stay in academia as an assistant professor of horticulture at the University of Maryland, I assigned a special project to my greenhouse-management-and-crop-production students. I required them to simulate a year's operation of a greenhouse business. They chose whether to market at the wholesale or retail level or operate seasonally or year round. They made crop selection decisions, cultivars decisions, culture and management decisions, and many others.

I still remember the comments of one student after having gone through this rigorous exercise. His words were, "it's all in the scheduling." It has been thirteen years since I graded those projects and thirteen years since I left academia for commercial production. After going through the procedure this many times, I find my former student's words still ring loud and clear.

There's a list of important pieces of information that should be kept in a crop schedule. And keeping schedules from year to year is also important. I often refer back to previous years' schedules to adjust and fine-tune my current or upcoming cycle. Let me use a page in my scheduling notebook for annuals as an example.

The table has several rows and many columns. There is one row for each cultivar in production. At the

bottom are a few extra rows for last-minute additions or trials that my seed salesman drop off. These rows come in handy also in late July when notes and cultivar changes are recorded for next year's production. The next two columns are used for seed-ordering information. First, I code the seed company's name, using "B" for Ball, "V" for Vaughn, "M" for Michelle, "J" for JVK, etc. I use this information for cataloging the source of each seed packet. And, if I have any germination problems, it is easy for me to look up the seed source and contact the right company.

Next to this column is one for seed amount. It is very important to me to order seed wisely and not let the bill get out of hand. This can happen easily with all the exciting new cultivars available. I hate having a lot of seed left over after my last sowing. Wasted seed just cuts into the profit as far as I'm concerned. Be careful though, because cheating on seed can cut into profits even more. Running out of seed for a July sowing of petunia or snapdragon costs me plenty in terms of lost revenue. Each 1020 tray of annuals I am short at transplant costs me \$14.99 in revenue that would have been generated by growing and selling that tray.

I have a ritual of getting down on my hands and knees whenever my seed salesman drop by and begging them to convince the home office to accelerate their shift from selling seed by weight to selling by count. My life is so much easier when ordering and handling seed count instead of weight. My rule is to order 1000 seeds for every three 288 plug trays that need to be sown. This gives me a little cushion, yet trims the fat in terms of wasted seed.

The next series of columns is used for sowing information. One column is used for each sow-date and contains the number of 288 plug trays for each cultivar. Often I sow less than a full plug tray and am able to keep track of partial trays here as well. Totalling each column lets me know how much propagation space I will need from sow-date to sow-date.

Another series of columns follows and is used for transplanting- and finishing-container numbers. Most of my bedding plants are produced in 606 packs and are accounted for in terms of 1020 flats. There is one column

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to correspond with each column of sowing. Each plant date column is wide enough to record how many plug trays of seedlings were left over or whether there were not enough. If we consistently have extra plug trays, I can trim the number for the next year and save some money.

Lastly, there is a series of columns for miscellaneous sizes, containers, etc. We offer some bedding plants in 4 1/2-inch pots, hanging baskets, color bowls, and odd cell pack configurations. Each column is headed by the particular sow-date that provides the seedlings.

As I proceed through the growing season, everything gets recorded in this table or on this crop's page. Any deviations in plug trays sown, 1020's transplanted, or any other container size discrepancy is recorded in red ink in the appropriate cell of the table. Blue ink is used as the original table color. Immediately after the season ends, in late July, pencil is used to make changes for the next year. Later in the fall, usually in November before I get too busy with poinsettias and Christmas, I spend a week at my desk making tables in a new notebook for the upcoming year. Every pencil note finds its way into the new table. If there is one thing I hate it is making an adjustment to solve a problem and not seeing the adjustment find its way into the next cycle's production.

In conclusion, I can not underestimate the importance of a scheduling notebook. Someday I will find the time to computerize the procedure and make life a bit easier. But for now, if I am on an airplane and the pilot tells me that we are about to crash and there are not enough parachutes for both me and my notebook, my notebook gets the parachute and not me. That's how important I consider scheduling to be in my business.

Dr. Peter Konjoian is part-owner of Konjoian's Greenhouses in Andover, MA. Peter is also president of Konjoian Floriculture Education Services, Inc., 48 Brundrett Avenue, Andover 01810. He can be reached via phone at 508-683-0692 or fax at 508-683-6962.

## THE GREEN SPOT



### A Narrative with a Lesson

**THE SITUATION.** "This apple," the woman said, showing the produce manager an apple from the display, "has a spot on it."

It had been a long day and manager wondered how many more "bad" apples—and complaints—were in the pile. They all had to be perfect, he thought; from pile to carriage, from pile to carriage—that's how it's supposed to work. He made a note to call the distributor.

The distributor really didn't see the harm of a spot on one apple, but he needed the supermarket's business and, after the call from the manager, he decided to call the grower.

The grower didn't want to spray more—it was expensive; it took time, but he needed the distributor to move his product into the stores and after the phone call, he decided to increase pesticide applications.

**THE MORAL.** Growers, wholesalers—educate your customers! The spot wasn't bad. The woman just didn't know.

Natural growing techniques will often produce crops of superior health. Many though, will produce less than perfect plants—perfect by nature's standards, but not the consumers' and these consumers are often the people demanding less pesticides.

Some of Nature's imperfections are already in our lives. Are you bald? Do you wear glasses? Is an apple with a spot on it on your kitchen table?

Don't be easy; aim for quality. But help your customers to lighten up and put things in perspective.

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# Winter Meeting, 1997

The 1997 New Hampshire Plant Growers Association/New Hampshire Landscape Association Winter Meeting will be held on Tuesday, January 21, at the Old Mill Restaurant in Epsom, New Hampshire.

In the morning, after coffee and muffins and the annual business meeting, Henry Huntington, Pleasant View Gardens, Loudon, will be speaking on "Proven Winners"—both the introductions themselves and the ongoing program to locate and trademark unusual and appropriate annuals for North American gardens.

Following this, Leslie van Berkum, co-owner of van Berkum Nursery in Deerfield, will give a talk—illustrated—on color, the rules of color theory, and ways in which to break these rules to best reflect the light of each season and the mood of the gardener.

After a short break, Paul Fisher, new member of the UNH Plant Biology Department (and who introduces himself in this issue's Forum), will talk on "Upgrading Greenhouses." One of his first projects at UNH is the upgrading the research greenhouses; he will talk about the specifics of that project as well as general principles applicable to any greenhouse upgrade.



In the afternoon after lunch ("Herb-and-Lemon-Marinated Chicken Kabob on Brown Rice"—a more plant-oriented dish especially created for this plant-oriented group), the featured speaker will be Phil Nilsson, Nilsson Associates—Green Industry Consultants, of Southington, Connecticut. Phil has had extensive experience as an accountant, has spent 15 years as a landscape and landscape management contractor, and the last seven as author, speaker, and consultant to the Green Industry. Phil, "known to give a rousing presentation," will speak on advertising and marketing.

It's a full day. Worthwhile too. For members who preregister, the price is \$29.00 and \$20.00 for each guest from the same business. For non-member pre-registrants, the price is \$35.00. Registrations should be sent to Guy Hodgdon, NHLA Business Manager, 18 Debbie Lane, Eliot, Maine 03903; or you can register over the phone (1-800-639-5601).

So circle the 21st on your calendars. See you there.



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