

Floral Notes Newsletter

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In This Issue

<i>Growing Edible Greens</i>	2
<i>Permaculture Gardens: An Emerging Trend</i>	5
<i>Social Media</i>	8

Giant Fleeceflower

This summer I came across a “new” (to me anyway!) and very interesting herbaceous perennial called Giant Fleeceflower (*Persicaria polymorpha*) planted at a local greenhouse and also by a local landscaper in a rural home landscape. “Giant” is an understatement considering that the accompanying photos were taken on June 4 and the plant is about 4’ tall and 6’ in diameter. The plant forms a clump with white flowers that look something like large Astilbe flowers. It’s hardy in zones 4-9. An odd feature of this plant is the subtle and somewhat unpleasant and strange scent of “wet fur”, so it’s probably not a good choice for planting near open windows and patios! However, Giant Fleeceflower is a spectacular plant which flowers all summer. I did a web search on this plant, where I paid most attention to reputable commercial sites and botanical gardens. Most of the sites commented on the fact that this plant is not widely planted ... yet. Perhaps its rarity is due to the fact that Giant Fleeceflower is related to Japanese Knotweed (*Polygonum cuspidatum*), the difficult-to-control, bamboo-like weed we all hate that spreads rapidly by rhizomes. However, there is general agreement that the plant does not spread and become weedy. Comments? Doug Cox



Greenhouse Production

Growing Edible Greens

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While it may not be for everyone, growers of ornamental greenhouse crops that close down their greenhouses for the winter, may consider utilizing an empty greenhouse to grow an alternative crop such as greens during the winter months.

Production systems for growing greens range from high tech hydroponic systems for growing lettuce to growing mixed greens in ground beds using minimal or no heat. The Dept. of Plant Science, Cobleskill, NY is using existing ebb and flow benching for short-term hydroponic raft lettuce production. One thing common to most (not all) green production systems is the use of a greenhouse structure.

Since many greenhouses used to grow spring ornamentals are unused between November and February, greens may be an alternative crop. When growing a crop for the first time, especially if new to vegetable production, begin on a small scale. Growers are advised to research the markets including demands for certain types of greens, harvesting techniques and post harvest handling, storage and packaging. Areas with winter farmers markets have seen a great marketing demand for winter greens, though in some cases the market is getting saturated and competition is high.

Resources are available on growing greens in high tunnels that can be adapted to greenhouse production. It may take some experimentation to develop a production system that works for your operation.

Minimum Heat Production

Growers of ornamental crops tend to grow greens in soilless mixes or compost in containers on benches since greenhouses are set up for container ornamental production. In crop production using minimal heat, plants are seeded from early September through the first week of October and harvested in November and December.

Scheduling

Early seeding is necessary because crops will accomplish most of their growth before short days and cold temperatures. The growth rate slows during the winter months due to cold temperatures, and low light (cloudy weather and short day length). There is very little or no plant growth when the day length drops below 10 hours per day (end of November - beginning of February in MA). Using minimum heat, winter production of greens relies on plants making their growth throughout the fall. Recent research conducted



Andy Cavanaugh, UMass Extension

at University of New Hampshire suggests that some species are more sensitive to temperature than to light whereas others such as lettuce are more sensitive to light than to temperature.

One of the keys to success is to plant enough of a crop early in the season for harvesting through the cold season. For example, spinach may take several months to grow in colder months and should be planted in September and October, so it is nearly full-sized in December and can be picked through February. As planting times are perhaps one of the most critical parts of winter harvesting, successful growers develop planting schedules including expected harvest dates and record yields for future use.

Types of Greens



There are several types of greens that are grown for winter production including, but not limited to: Asian greens such as mizuna and tasoi, kale, lettuce (red and green leaf lettuces, oakleaf, romaine), mustards, gourmet cabbages, Swiss chard, spinach, arugula and claytonia.

If you are not familiar with some of these greens, eat them yourself first and check out some recipes for greens that are new to you, to help with marketing. Lettuces are not as cold hardy as some other greens and some varieties are better adapted to cold weather and short days, so study seed catalog descriptions. Spinach is very cold hardy. However, during the darkest part of winter, the spinach will grow very, very slow. As days

get longer, spinach will regrow rapidly and some varieties will bolt before the end of winter (Feb. or later). Crucifers, including mustards, raab, Oriental greens such as pak choi and tatsoi, are good candidates for cold-weather growing. Swiss chard (*Beta vulgaris*) grown for its large tender leaves and rapid re-growth is cold hardy and productive.

Growers have found it best to plant varieties in different blocks rather than mixed together, since growth rates and times of maturity are different. Also, try several cultivars because some may grow better than others under various light and temperature regimes, and some are quicker to bolt than others. The mixture of greens can be created after harvest.

Cultural methods

Containers. Greens can be direct-seeded in a variety of containers. Open seed flats are popular and fit well on benches. Some growers cover the benches with landscape fabric and fill with media to create one large bed.

Media and fertilization. Soilless media or composts are used for planting. Organic production will require organic media that has been approved by a certifying agent or OMRI certified. Plants will need less fertilizer as growth slows. Avoid over-fertilizing which leads to soft growth and aphid infestations.

Irrigation. Automatic sprinklers or hand watering can be used. Irrigate in the morning, to give plant foliage time to dry before temperatures drop at night, especially as days get shorter. As days get shorter

and growth slows, less water is used. Avoid overwatering, which makes soft growth. Plants will be less able to withstand cold, and less flavorful.

Temperature. There are many options when it comes to temperature. Temperature will affect the growth rate and also flavor of the greens. For example arugula will become strong flavored when grown at warm temperatures. Some growers produce a succession of greens harvesting every 14-21 days (micro-greens) at 50F nights, 55F days. Other growers provide minimal heat to maintain night temperatures of 37F. On warm or sunny days, greenhouses are ventilated or sides rolled up to let the air in, depending on the structure.

Some growers grow in ground beds without supplemental heat. A good book on the subject is “The Winter Harvest Manual” by Eliot Coleman. Some crops such as lettuce and arugula do not grow well without supplemental heat. Growers that are growing in high tunnels without heat tend to use row covers over crops on cold nights. Greens cannot be harvested frozen and must wait until thawed before harvesting. Also, covers must be removed during the day to allow light.

Light. Light affects growth and flavor of greens. Decreased daylight will result in slower growth and increasing the temperatures cannot compensate for the reduction in daylight. Also green tend to have milder flavor in lower light. Mesclun grown in lower light is lighter colored than when grown under high light conditions.

Pests: Some of the pests encountered when growing greens include, Downy Mildew on lettuce and spinach (two different species). Some newer varieties of spinach are promoted to have resistance to many races of Downy Mildew, however it may not be resistant to all races. Powdery Mildew is a problem on lettuce under conditions of low light and high humidity. Voles love greens and can be also be a problem when growing greens.

Harvesting and marketing. Growers use a sharp knife, scissors, or hand pick with no tools, one leaf at a time. Some growers prefer a short knife while others prefer a longer one. Greens can be harvested by either removing outer, larger leaves at regular intervals or by cutting the entire plant back to within an inch or so above the soil so the growing point still remains. Leafy crops then re-grow to be harvested again.

Once harvested, some growers will move the crop to storage to sale bag. If the crop is dirty, then it will need to be rinsed (double rinsed) and spun (to remove excess moisture). Spinach tends to grow close to the ground and may need washing. Growing in soilless mix or compost in containers on benches eliminates this step for most growers.

Two popular markets for greens are winter farmers markets and restaurants. Many community supported agriculture (CSA) farms are offering winter shares and some may be interested in buying in greens to add to the winter and storage crops they offer.

References and Resources

Summer Flowers, Winter Greens (UNH research project) <http://www.growingmagazine.com/print-7190.aspx>

Summary of a 2010 grower meeting at Paul Lorrain’s Sunset Farm Organics in Lyman, Maine. Growing Winter Crops in Maine.

The Winter Harvest Handbook by Eliot Coleman <http://www.fourseasonfarm.com/books/index.html>

Cornell High Tunnels

Cold Hardy Greens: http://www.hort.cornell.edu/hightunnel/crops/vegetables/salad_greens.htm

The Michigan State University Hoop House website <http://hoophouse.msu.edu/>

Permaculture Gardens: An Emerging Trend

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UMass permaculture garden wins first-place

In March 2012, the UMass permaculture garden on the Amherst campus won first-place in the White House Campus Champions of Change Challenge from over 1400 applications.

The UMass Permaculture Initiative was originally proposed by a group of UMass students in 2009 to Director of UMass Auxiliary Enterprises, Ken Toong. They proposed to convert areas of campus, beginning with a lawn in front of the Franklin Dining Commons, to edible and ecological landscapes or permaculture landscapes and to use the food that would be produced in the dining commons. Their idea was to create service and learning opportunities to students and volunteers. Toong fully embraced the idea, and in 2010 hired Ryan Harb to oversee UMass Amherst's first permaculture project.



Since 2009, the UMass Permaculture Initiative has grown to include 3 full-time staff members, a revolving 12-member student committee, several student garden leaders and interns, and over 1,000 volunteers from the local community.

Permaculture has become a very popular movement with young people on college campuses throughout the region. According to the UMass permaculture background webpage, permaculture landscapes are perfect for a campus setting because they:

- Are replicable, scalable, and adaptable to anyone, on virtually any budget
- Provide nutritious foods to the dining commons;
- Improve the quality of the environment;
- Create service-learning opportunities to students and volunteers.

The UMass Permaculture Initiative held a conference in June for other colleges and institutions to replicate their efforts.

What is permaculture?

I guess you could say we are back to the “back to the earth movement” of the 1970s. According to Wikipedia, the term “permaculture” originated by Australians Bill Mollison and David

Holmgren in the early 1970s as it offered skills, tools, solutions and strategies for healing social and ecological systems and wrote a book, *Permaculture One* in 1978.

Looking at the larger picture, permaculture has been described as a framework for working toward greater sustainability that uses ecological principles to integrate food and energy production, structures, and community. The goal has been described as the creation of sustainable human settlements that are harmoniously woven into the environment and that promote the diversity, stability, and resilience of natural ecosystems.

Permaculture has been described as combining such things as natural building, green architecture, renewable energy, appropriate technology, land and nature stewardship, alternative waste management, nature-based education, wilderness awareness, renewable transportation, alternative economies, agroforestry, organic agriculture, community living, social justice, biodynamics, edible forest gardening, and more into a complete system for designing sustainable homes, businesses, and communities. Some sources add that it is a survival way of thinking, by providing promise for people looking to survive and thrive in our quickly shifting world of climate change, peak oil, and global conflict.

On a smaller or narrower scale with an agricultural focus, one could describe a permaculture garden as achieving whole-systems sustainability by being diverse, environmentally regenerative, aesthetically-pleasing, and producing a variety of edible plants, including berries, nuts, fruits, roots, herbs, medicinals, flowers, and vegetables. It might be thought of, using a term many growers and landscapers are already familiar with, edible landscapes.

Growers and garden retailers are already familiar with terms like “edible landscapes”, “sustainable”, “organic” and “native plants” for home gardening and landscapes. A permaculture garden ties those terms together with minimally disturbing the natural environment. An important permaculture practice is building the soil using low maintenance/energy methods for soil preparation for starting a new garden like sheet mulching or layering.

Sheet mulching, popular in permaculture gardens is a no-dig gardening technique that attempts to mimic natural forests processes. For example, the grass area is cut short, the soil is tested and pH adjusted if needed. Before layering, the soil is watered if needed. Then the layering begins. First, a thin layer of decomposing material (weed barrier) such as cardboard or wet newspapers is layed on the grass. This suppresses the weeds by blocking sunlight and adds nutrients to the soil as weeds/grass decays under the barrier. Next a layer (around 4” thick) of weed-free soil rich in nutrients is added, in an attempt to mimic the A horizon of the soil profile. Next a layer (at most 6” thick) of weed-free, woody and leafy matter is added in an attempt to mimic the forest floor.

Ties to the green industry

Many growers of greenhouse crops and retailers throughout the state are already offering plant material used in permaculture gardens and supporting local is another permaculture goal.

Quoting part of an article published June 15 in the Daily Hampshire Gazette (newspaper in western MA), “After White House nod, UMass permaculture garden aims to inspire”

“Our exciting perennial vegetables come from exciting nurseries,” Nathan Aldrich, another sustainability coordinator, wrote in an email. Jonathan Bates, doing business as

Food Forest Farm in Holyoke, provided many of the vegetable starts. Other sources were Triple Brook Farm in Southampton, Andrew's Greenhouse in South Amherst and the Hadley Garden Center.

The article described the UMass permaculture garden this way, “The garden is beautiful as well as practical. Purple coneflower is a healing herb with long-lasting purple daisy flowers. The white clover interspersed in the garden is a great nitrogen-fixer, building the soil. Pinks have edible flowers. Last week the blueberries were ripening, and their foliage will turn red in the fall adding to the color display. Lettuces fill one bed, their heads alternating purple and green with a variety of textures. Egyptian walking onions, holding their clusters of bulbs high on the stems, were maturing well. Garlic is thriving in another bed.”

A new generation of customers, advocates, farmers andemployees?

How does this relate to green industry professionals? A new generation is learning to garden on campuses. Students may make mistakes and have big goals along the way. However, these same students may become lifelong gardeners, customers, advocates for agriculture and possibly, farmers themselves or employees in the industry.

Growers and retailers are already offering edible plant material such as herbs, vegetables, small fruits, tree fruits, native edible plants, and edible ornamentals. Perhaps some additional signage using new terms like “permaculture” that young adults can relate to and grouping plants for permaculture gardens that include edible flowers, herbs, perennial vegetables and woodies will help customers have success with their own permaculture garden and maybe attract a new generation of gardeners.

