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Linda S. Wiles, Penn State Coop. Extension

PLANTS TO SELL & USE

2009 Hosta of the Year

As for other annual plant selections, choice hostas are promoted to assist in selections where a large number of cultivars are available, and for hostas, the 2009 selection is 'Earth Angel'. This giant plant (30 x 68"+) has variegated blue-green leaved plants which also boast white flowers in June-July. It is good in both sun and shade and produces an impressive landscape specimen covering a lot of ground.

Dr. Leonard Perry of the University of Vermont, also reviewed the American Hosta Society selections (marked*) and noted specific winning characteristics. Previous winners include: 'So Sweet'*,

'Patriot'*, 'Fragrant Bouquet'*, 'Paul's Glory'*, 'Sage'*, 'June'*, 'Guacamole'*, 'Regal Splendor'*, 'Sum and Substance'*, 'Striptease'*, 'Stained Glass', 'Paradigm', 'Blue Mouse Ears'. One of the all time most popular hostas is 'Sum and Substance', which reaches 36" x 60", has glossy puckered golden-chartreuse leaves, good slug resistance and sun tolerance.

Adapted from sources and for further information: <http://pss.uvm.edu/ppp/articles/tentop.html>, http://www.hostagrowers.org/ahga_hosta.html

Groundcover Genera

Treadwell Perennials markets a line of plants for use as ground covers. These include species and cultivars of: *Acorus*, *Ajuga*, *Arabis*, *Armeria*, *Campanula*, *Chrysogonum*, *Delosperma*, *Dianthus*, *Euonymus*, *Fragaria*, *Galium*, *Houttuynia*, *Iberis*, *Isotoma*, *Krauss*, *Lamium*, *Liriope*, *Lysimachia*, *Mazus*, *Ophiopogon*, *Pachysandra*, *Phlox*, *Sagina*, *Sedum*, *Sempervivum*, *Stachys*, *Thymus*, *Verbena*, *Veronica*, *Vinca* and a number of ivies.

These plants have a wide range of toler-

ance to foot traffic, which is identified on their website. While some of the plants are well-known and commonly used, others are more unique. Some are natives, many are introduced. Some are grass-like, others are broad-leaved. Plan your selected plant's growth habit, clumping or spreading. Consider the options in terms of foliage textures, colors, seasonal variations, and also the flowers.

Reference for further information: <http://www.perennialfarm.com/whatdowegrow/treadwellperennials.html>

Limiting Invasive and Naturalized (non-native) Plants

It is easy to continually reuse familiar plants in farms and landscapes, however, this familiarity is also risky in terms of naturalization of non-native plants. The Agricultural Research Service (ARS) found that the risk increases with the length of time a given plant is grown and sold.

Non-native plants can be tremendously beneficial, however, they may also compete with desirable plants in nature once they start growing outside of where they were planted. Plants that displace native plants and alter existing ecosystems are considered invasive plants.

A review by ARS's Bob Pemberton and University of Florida's Hong Liu of nursery sales information from 1887 covering more than 1,900 plants in Florida revealed that "the

Limiting Invasive Plants (cont.)

marketing period--the number of years a plant was sold --has profound influence on naturalization and invasion. Seventy percent of plants sold in Florida for 30 years or longer naturalized, according to Pemberton, indicating that length of time sold is the most important factor contributing to naturalization.”

“Non-native plants will continue to naturalize and invade as long as they are sold. Therefore, according to Pemberton, risk assessments need to be developed for screening non-native horticultural plants to identify non-invasive forms and less-invasive alternatives.”

Adapted from source: Longer Marketing Time Increases the Risk of Naturalization by Horticultural Plants, by [Stephanie Yao](#), ARS News Service, February 24, 2009

About Basics—Soils, Fertilizers, Water

Water Quality Knowledge Center

There is a web-based knowledge center for water, nutrient management and crop health, <http://www.waternut.org/moodle/>, that has 26 in-depth learning modules to actively engage learners in the green industry. Topics covered include substrate, irrigation, management tools, surface water, nutrient management, and crop health. An outline of these resources follows.

- Substrate Management- Overview, Materials and Ecology, Physical Properties, Chemical Properties, Biological Properties
- Irrigation Management – Water Source Selection, Basic Hydraulics, Design & Components, Overhead Irrigation, Micro-irrigation
- Management Tools – System Audits, Water Use Modeling, Scheduling Tools & Technology, Containment Basin Design
- Surface Water Management – Basics, Capture & Recycling, Managing Surface Runoff
- Nutrient Management – Basics, Strategies, Use & Efficiency, Planning
- Crop Health Management – Fundamentals of Disease & Diagnosis, Disease Prevention & Control, Managing Pathogens in Irrigation Water

Reference from “A Knowledge Center for Water, Nutrient and Crop Health Management for the Nursery and Greenhouse Industry - Metrics, Motivation and Future Growth”, by John D. Lea-Cox, et al., University of Maryland, 2009 CSREES National Water Conference; St. Louis, MO, http://www.usawaterquality.org/conferences/2009/conf_themes.html

Moving to More Organic?

If you want to move towards a more organic landscape for edibles or non-edibles, you can review products listed, seed sources and further references at the Organic Materials Review Institute (OMRI) website. OMRI is a nonprofit organization whose OMRI product list is the basis for organic certification under USDA’s National Organic Program.

OMRI’s main source of funding is from fees for product reviews, publications, grants, donations and subscriptions. They very generously provide much of their material online for individual review at http://www.omri.org/OMRI_products_list.php

Well Water Protection and Testing

In the application of pesticides, there are specific requirements for protecting well water. Even with diligent protection from these, the well water may be contaminated from other sources.

While lead and nitrates in PA well-water have decreased substantially in the past 25 years, 40% of PA wells have unsafe drinking water. Many people with contaminated well-water are unaware of a problem as the pollutants tested for do not have taste, stain, or odor problems that would alert people to a problem.

Studies conducted by Penn State indicated that poor well construction was a major problem responsible for well-pollution. PA is one of only two states that do not have mandated well-construction standards. One construction feature that helps is a sanitary well cap with a cement-like grout seal around the well casing. This feature keeps bacteria associated with surface water, insects and animals from contaminating the well water.

Be aware of well-water contamination in managing landscapes and using pesticides. Encourage homeowners and businesses with wells to have their well water tested. Penn State has water quality testing available, see online at http://www.aasl.psu.edu/Water_drinking_main.html You can also contact a private water testing laboratory.

Adapted from source: “Statewide study of well owners reveals good news, bad news,” PSU Live, February 13, 2009

Additional information is available at www.ruralpa.org - click on “[Drinking Water Quality in Rural Pennsylvania and the Effect of Management Practices.](#)”

Marcellus Shale Gas Drilling & Water Quality

“Water Quality Impacts from Natural Gas Drilling” was presented by Bryan Swistock, Penn State Water Resources Extension Associate on February 23, to review what is needed to adequately treat and dispose of millions of gallons of water used in drilling for natural gas in PA. These “wastes typically contain high concentrations of salts, metals and organic materials which if not treated properly can contaminate water supplies,” Swistock noted.

The presentation also considers current state regulations for water quality protection. It is available for review online at http://www.eesi.psu.edu/news_events/EarthtalksSpring09.shtml. Other related topics in this colloquium series are also available online.

Pesticide Applicator Information

New National CORE Manual in 2009

Pennsylvania has implemented use of the National CORE Manual in their certification examination training packets beginning January 2009.

The new CORE manual was developed jointly by The Environmental Protection Agency (EPA), Pesticide Safety Education Specialists from many universities, and Specialists from State Departments of Agriculture. Dr. Winand Hock, former Director of the Penn State Pesticide Education Program, was one of five editors who helped put together the new manual.

This manual helps focus study with learning objectives at the beginning of each chapter. Examination questions relate directly to the learning objectives, as do the review questions following each chapter. To assist in preparation, a 50 question practice examination is included in the manual.

As a national manual, state-specific laws and regulations were not included. Each state has the option of including these in a separated publication, which PA has done, and this will be included in your new CORE Study Packet from the Penn State Publication Distribution Center (1-877-345-0691).

Since category study packets have chapters on insects, weeds, plant diseases, and vertebrate pests these are not included in the CORE packet. These sections are available as a supplement for private applicators to purchase.

Derived from: October 2008 PA Pesticide Highlights

IPM – Integrated Pest Management

Yes—2009 Pesticide Container Recycling

With the recent decision to postpone Chemsweep programs to 2010, some have thought that this also applied to the PDA’s Plastic Pesticide Container Recycling Program, which is to continue for 2009.

The Plastic Pesticide Container Recycling program of PDA “will accept and recycle your clean, plastic CPP containers through its PPCR program. This program is available to all pesticide users. In order to participate in the program, applicators must insure that all containers are free of all products, inside and outside. Pressure rinsing or triple rinsing is required. All label booklets, plastic sleeves and caps should be removed and discarded. Only #2 HDPE plastic containers from EPA registered agricultural, structural, turf, forestry, and specialty pest control products, as well as containers from crop oils, surfactants, and fertilizers will be accepted.”

For more information check online at <http://www.pested.psu.edu/pdaprog/ppcr/> where you can find the locations for recycling in your region, guidelines for participation, how to triple-rinse containers, how to pressure-rinse your containers.

This program benefits many – rinsing back into spray tanks maximizes pesticide use, landfill space is conserved, and recycling containers do not contaminate air and water from burning or burial.

Pesticide Environmental Stewardship

“The Pesticide Environmental Stewardship Program (PESP) is a voluntary program that forms partnerships with pesticide users to reduce the potential health and environmental risks associated with pesticide use and implement pollution prevention strategies.

While government regulation can reduce pesticide risk, PESP is guided by the principle that, even in the absence of additional regulatory mandates, the informed actions of pesticide users reduce risk even further. Based on this principle, membership in the program is completely voluntary.

By joining, organizations pledge that environmental stewardship is an integral part of pest control, and they commit to working toward pesticide practices that reduce risk to humans and the environment. Members take a strategic approach to risk reduction and undertake specific, measurable activities toward achieving their risk reduction goals.

EPA recognizes the need to protect public health and the food supply with efficient, cost-effective pest control. In our role as a partner, the Agency promotes the adoption of innovative, alternative pest control practices that reduce potential pesticide risk.”

Source: <http://www.epa.gov/pesp/>

Cancer Risk from Turf Fungicides

A database of fungicides with their relative risk of carcinogenicity was developed by Cornell University based on the U.S. Environmental Protection Agency's classification for this potential. The database can be found online at <http://envirocancer.cornell.edu/turf/>. The database only reports cancer risk for active ingredients, not for the proprietary inert ingredients of each product.

This database will help you make informed decisions as to which products to use in your turfgrass management program. It does not tell you definitively whether those using each product will develop cancer from it or not.

US-EPA Cancer Risk of Selected Turf Fungicides

Known/Likely carcinogen:

Chlorothalonil

(Daconil®, Echo®, Manicure®, Chlorostar®, Concorde SST®, Pegasus L®)

Likely human carcinogens:

Thiophanate methyl

(Cleary's 3336 Plus®, Allban®, Fungo®, Proturf Systemic Fungicide®, Systec 1998®, Cavalier®, Absorb TM®, T-Storm®, Tee-Off®)

Iprodione

(Chipco 26019, Chipco 26GT®, Proturf Fungicide X®, Iprodione Pro, Raven®)

Captan (Captan®):

Likely to be carcinogenic to humans following prolonged, high-level exposures causing cytotoxicity and regenerative cell hyperplasia in the proximal region of the small intestine (oral exposure) or the respiratory tract (inhalation exposure), but not likely to be a human carcinogen at dose levels that do not cause cytotoxicity and regenerative cell hyperplasia.

Group B2-Probable Human Carcinogen-Sufficient Evidence from Animal Studies:

Ethazole

(also known as etridiazole) (Koban®, Terrazole®):

Mancozeb

Fore®, Manzate 200®, Protect T/O®, Mancozeb®, Dithane®, Formec®, Pentathlon®)

Group C-Possible Human Carcinogen

PCNB

(Also known as pentachloronitrobenzene) (Defend®, Penstar®, Terraclor®, Turfcide®, Revere®):

Propiconazole

(Banner MAXX®, Propiconazole Pro®, Spectator®, Savvi®)

Triadimefon

(Bayleton®, Proturf Fungicide VII®)

Vinclozolin

(Curalan®, Touché®, Vorlan®)

- **Suggestive Evidence of Carcinogenicity** but not Sufficient to Assess Human Carcinogenic Potential

Boscalid

(also known as BAS 510) (Emerald®):

Adapted from source: "Database on Cancer Risks of Turf Fungicides", by Paul Vincelli, Kentucky Pest News, No. 1184, January 13, 2009

IPM—Integrated Pest Management

Exclude Black Root Rot

Black root rot disease, caused by *Thielaviopsis basicola*, is a common cause of poor growth and decline in woody and herbaceous plants. It kills rootlets and produces black lesions on their roots. The damaged root systems ability to uptake water and minerals is impaired and appears as growth reduction such as thinning foliage and branch dieback as well as poor color.

The best cure is prevention, inspect all bedding plants and woody plants before planting them in your garden landscape. Examine the roots for blackened root tips or black lesions and do not plant suspicious plants. Japanese hollies and inkberries are highly susceptible, as are lilac, locust, catalpa and elm. Herbaceous plants affected include begonia, geranium, pansy, petunia, phlox, snapdragon, and many others. Garden vegetables such as beans and onions are also susceptible.

Cultural conditions such as ideal temperatures, water, drainage and fertility may reduce or delay symptoms.

You can be proactive and protect healthy roots using a soil drench of thiophanate methyl, triflumizole, or thiophanate methyl + etridiazole.

If you have black root rot in your landscape, some shrubs that are more tolerant include boxwood, cotoneaster, euonymus, juniper, mountain laurel, Oregon grape holly, spiraea, viburnum, etc.

Adapted from sources: "Exclude Black Root Rot from the Landscape this Spring", by John Hartman in Kentucky Pest News, Number 1159, April 28, 2008; Woody Ornamental Insect, Mite, and Disease Management, Penn State University

Emerald Ash Borer Spreading in PA

Emerald Ash Borer (EAB) was discovered in Central PA near Lewistown in Mifflin County, as reported by PDA. Greg Hoover, Penn State Entomologist, visited the site and found it likely that the infestation was several years old. DCNR and PDA are coordinating efforts with the PA Emerald Ash Borer Task Force to deal with this new EAB infestation in Pennsylvania. The infestation was reported by a landowner who sent digital photos to the Pennsylvania bad-bug@state.pa.use-mail address. The infestation was confirmed in mid-February 2009 by PDA and DCNR.

According to Inside PDA, the ash quarantine now includes Allegheny, Beaver, Butler, Lawrence, Mercer, and Mifflin counties. This restricts the movement of ash nursery stock, green lumber and any other ash material, as well as all hardwood firewood from the quarantined area.

Consult Greg Hoover's web site <http://paemeraldashborer.psu.edu/> regarding any updates on the EAB in Pennsylvania.

Derived from sources: Greg Hoover, Ornamental Entomology, e-mail 2/26/09 and Your February 27th Issue of Inside PDA

Possible Control for Emerald Ash Borer

A 3 year Michigan State study of 12-15" dbh ash trees affected by emerald ash borer indicated several possible control treatments. Untreated control trees had 50 – 65% canopy thinning and dieback after 3 years.

"The most effective products were a "single TreeAge trunk injection in the fall of 2005 provided excellent protection for three years, with a canopy thinning rating of 19.3 percent in August 2008. Other treatments giving excellent protection of 12 inches dbh trees in East Lansing are ImaJet trunk injections once every two years (23.5 percent), and Merit basal soil drenches once per year (18.0 percent)."

For larger trees, of 15" dbh, control was more difficult and required Tree Age once every 2.5 years (12.3 percent), ImaJet trunk injection plus Merit basal soil drench once per year (13.5 percent), ImaJet alone in June 2007 (29.7 percent), Merit basal soil drench once per year (33.0 percent), and Merit Tree trunk injection in June 2007 (34.2 percent)."

["New insecticide products are providing excellent and affordable protection of ash trees from emerald ash borer"](#), Dave Smitley, *Entomology, in Michigan State Integrated Pest Management Resources Newsletter*, Vol. 23, No. 18, September 19, 2008

Better Culture, Better Plants

Spring-Summer Weather Predictions

Current long range predictions are for normal temperatures and precipitation for Pennsylvania in 2009, with ave. temperatures represented as 49.5 for Pittsburgh and 52.5 for Philadelphia in March through May and we can expect comparable temperatures to our local averages – varying with location and altitude. Initially precipitation was expected to be average throughout the state with 9.9 inches in Pittsburgh and 10.5 inches in Philadelphia.

The weakening La Nina and ENSO neutral conditions expected later this year may result in higher precipitation in the summer through fall in the Northeast.

http://www.cpc.ncep.noaa.gov/products/predictions/long_range/fxus05.html

Frost Damage

A late frost after plants have broken bud can damage the new shoots, resulting in malformed leaves, dead leaves or shoot dieback. If the shoot has died back, the dead portions can be removed to improve plant appearance, health and vigor. Young shoots and small branches without branch collars are most susceptible to damage, these can be pruned back to the branch they originate from, or to a lateral bud below the damage.

With some plants, notably hollies and euonymus, plants usually grow out of the damage in late spring and are better left unpruned.

Cambial tissue may be more easily damaged than the buds, so you may have lateral buds grow well briefly, then find dieback after its reserves are exhausted. This requires follow-up pruning later in the season.

Adapted from source "Pruning Frost Damaged Plants", by Tom Fernandez, Landscape Alert, Vol. 22, No. 2, April 13, 2007

Marketing & Business

2007 Census Key Points

- 51% of farmers have internet access
- PA ranks third nationally in direct marketing
- Includes 24% more direct marketing operations than 2002
- Direct sales were 41% higher than 2002
- PA ranks fifth nationally in organic sales
- PA nursery & greenhouse were one of the top sales categories with \$406 million in sales

For more information, see www.agcensus.usda.gov

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PENN STATE Making Life Better®

EDUCATIONAL & PESTICIDE CREDITS

To locate recertification meetings/find out about your current status see <http://www.paplants.state.pa.us/>
Penn State has developed an online guide for PDA's new web site at http://www.pested.psu.edu/applicators/arc_shtml
Many of the programs below may not be listed at this time, but will be as credits are assigned. You can call toll-free 1-800-736-6476.

CERTIFICATION EXAM SCHEDULE – PDA Region 3

If you are interested in becoming a certified pesticide applicator, you can take your test at any of the following locations, dates:

- PDA Region 3 Office in Tunkhannock – 6/22, 7/27**
- Monroe County Extension Office in Stroudsburg – 6/4, 7/2**
- Luzerne County Extension Office in West Pittston – 5/13, 6/10, 7/8**

PDA Region 3 (call 570-836-2181) covers: Bradford, Carbon, Lackawanna, Luzerne, Monroe, Pike, Sullivan, Susquehanna, Wayne and Wyoming Co.

Tioga Co. is in PDA Region 2, call 570-433-2640 for information in Region 2.

Source and reference: <https://www.paplants.state.pa.us/Index.aspx>

This publication is available in alternative media on request

Issued in furtherance of Cooperative Extension Works, Acts of Congress May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture and the Pennsylvania Legislature. D. Jackson, Director of Cooperative Extension, The Pennsylvania State University.

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We're on the web

<http://monroe.extension.psu.edu>

Health & Safety

Be Cautious When Buying Used Equipment

Purchasing used equipment can be either an opportunity to save money or, alternatively, a disaster waiting to happen. When equipment is transferred via auction or person-to-person sale, its condition should be a key part of the purchase decision.

The equipment sold through a dealer generally includes the warranty, directions for care and operation, warning signs, and other assurances that it conforms to voluntary or federal standards. You should always, regardless of who the seller is, check for safety shields/guards and signs of proper maintenance. Confirm that either the used equipment comes with the operating manual or that you can purchase one. "Remember: Safety is the Bottom Line."

To give you an idea of how common safety problems are, in a recent study of auctioned farm equipment, 85% of the implements offered for sale had defects. It is reasonable to consider that green industry equipment may be comparable to this.

Adapted from source: "Hand-me-down Hazards: Dangers of Used Equipment", by Carol J. Lehtola and Charles M. Brown, Univ. Florida, <http://edis.ifas.ufl.edu/AE182>

PA EDUCATIONAL PROGRAMS

Invasive Species Workshop

Wednesday, May 20, 2009 7:00 – 9:30 pm
Heritage Conservancy-Aldie Mansion, Doylestown
Contact: Mary Ellen Noonan, 215-345-7577, Ext. 101

Pest & Disease Walk/ Backyard Invasives

Friday, June 5, 2009
6:30 am/10:45 am
Millersville University
Millersville
Contact: Carolyn Reider, 610-845-2982

Alt. to Standard Turf/Pest & Disease Walk

Tuesday, June 9, 2009
9:30 am/1:00 pm
Chanticleer Gardens, Wayne
Contact: Mary Conklin 610-489-4315, Ext. 27

Tree Tenders Training

Thursday, June 11, 2009
8:00 am—4:00 pm
Mountainville Memorial Allentown,
Contact: Julianne Schieffer 610-489-4315

Hands-On Paver Walkway Installation

Saturday June 13 or 20
8:00 am—12:00 pm
Montgomery Co., 4-H Ctr. Creamery
Contact: Mary Conklin 610-489-4315

Pest & Disease Walk/NE Grounds & Landscape Workshop

Thursday, July 16, 2009
8:00 am—3:30 pm
East Stroudsburg Univ. East Stroudsburg
Contact: Linda Wiles 570-421-6430