

# Penn State Extension

## NE PA Commercial Horticulture Newsletter

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Penn State Extension

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#### SPECIAL—NEW WEBSITES

We will be posting the PCHN online at <http://extension.psu.edu/greenindustry/landscaping> Also see <http://extension.psu.edu/greenindustry>

Our local county website—will continue to host local/regional news, events, programs. <http://extension.psu.edu/monroe>

#### Alternanthera – Purple Foliage Color for Landscapes

This versatile foliage plant has hundreds of cultivars, several of the new ones are especially useful in full sun or part shade for flower beds, containers and hanging baskets. An especially attractive cultivar having a low spreading mound and attractive burgundy/maroon red leaves, 'Little Ruby' scored 5.0 of 5 in 2010 trials. Other high scoring cultivars are: 'Brazilian Red Hots' 4.7/5.0, 'Burgundy Threadleaf' 4.3/5.0, 'Purple Knight' 4.7/5.0, 'Royal Tapestry' 4.5/5.0.

*Derived from January 4, 2011 Penn State Greenhouse News, Trial Results Part II, Alan H. Michael, Extension Educator and Trial Director To view all the photos see <http://trialgardenspsu.com>*



Little Ruby NEW, GroLink  
Penn State Variety Trials - 5.0



Photo: 'Pink Double Dandy' Univ. Tennessee, <http://agriculture.tennessee.edu/news/PlantofMonth/2011/05-POM.html>

#### Itoh Peonies—Best of 2 Worlds

While many are familiar with both herbaceous (*Paeonia spp.*) and tree peonies (*Paeonia suffruticosa*), the Itoh peony, which is an intersectional cross between the two, is less known.

It is named after Mr. Toichi Itoh of Japan who initially crossed the two types in 1948. They resemble the tree peony with domed growth, large double flowers and disease-resistant foliage. Established plants have an extended bloom season with up to 50 blooms/year due to secondary buds.

Come to 2011, and Monrovia introduced two new Itoh peonies, these are named Masaka and Takara. Masaka has orange flowers fading to peach-yellow, with Takara flowers are deep lavender maturing to white with dark burgundy centers. Both of these are in the new plantings at University of Kentucky [http://ces.ca.uky.edu/oldham-files/Horticulture/New\\_Plants\\_for\\_2011.pdf](http://ces.ca.uky.edu/oldham-files/Horticulture/New_Plants_for_2011.pdf) For more information see [www.monrovia.com](http://www.monrovia.com)

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## Chesapeake Bay & Pollution

The Clean Water Act's goal is that all US waters are "fishable" and "swimmable," requiring states to establish uses and standards to reach that goal. Any that do not meet those standards due to pollutants must have a TMDL, total maximum daily load, of pollutants set. December 29, 2010, EPA established the Chesapeake Bay Total Maximum Daily Load and a comprehensive program to restore the Chesapeake Bay.

Over 40,000 TDMLs have been completed in the US, but this is the largest and most complex, involving 7 states (Delaware, the District of Columbia, Maryland, New York, Pennsylvania, Virginia and West Virginia). The large mid-section of PA is in the Chesapeake Bay Watershed. It has been under 25 years of management aimed at improving water quality. This current effort is aimed at making more rapid progress throughout the watershed.

From a business standpoint, green industry businesses, schools, parks, turf and grounds managers will be directly impacted as part of what is being decided is how much and what kind of fertilizer can be used and when it can be applied. PA soils, climates and needs would differ from those in other states. A Fertilizer Advisory Board is providing comment and industry perspective.

*Adapted from information in the PLNA Legislative Update [www.plna.com](http://www.plna.com), Chesapeake Bay Program <http://www.chesapeakebay.net/>*

## Rain Gardens for Stormwater Mgmt.

Rain gardens can be very effective for stormwater management, especially when based on new research information. A five year study was conducted in Wisconsin comparing turf and prairie vegetation in a variety of soil types for rain gardens. Each rain garden collected 5 times their area of surrounding water to a depth of 1/2

## Rain Gardens (cont.)

foot. Under these parameters, each rain garden was able to store and infiltrate most of the run-off during the study. Even the turf area in clay soil was able to retain 96% of precipitation and snowmelt for that period.

The predicted accuracy of area needed for a rain garden to drain an area indicated that "by applying measurements of the appropriate soil properties to rain garden design, environmental managers and engineers may improve the tailoring of design specifications of rain gardens for new or retrofitted areas."

Soil structure and root systems in clay indicated that prairie plantings created a well-drained subsurface and roots throughout all soil horizons, while turf areas showed evidence of a perched water table, being limited to the upper A and Bt horizons there.

*Derived from and for more information: <http://pubs.usgs.gov/sir/2010/5077/pdf/sir20105077.pdf>*

## Alternative Soil Amendments

There are a wide range of soil additives beyond standard fertilizers that can improve soil quality.

Research from Iowa State University and Rodale Institute covers this in great detail. There is also information by state on sources of these amendments [http://attra.ncat.org/attra-pub/org\\_fert/](http://attra.ncat.org/attra-pub/org_fert/)

These sources include animal and plant by-products, conditioners, inoculants, rock powders, seaweed, and others.

Prior to adding amendments, its useful to manage other soil and management practices—slope, soil texture, water availability, rotation, soil organic matter, etc.

There is a nice review of the positive and negative aspects of each. Some products include fish meal, alfalfa meal, local manure & compost,

## Alternative Soil Amend. (cont.)

colloidal phosphate, bone meal, greensand (glauconite), biotite (black mica), basalt dust (mixed with manure).

*Adapted from ATTRA <http://attra.ncat.org/attra-pub/altsoilamend.html>*

## State & Local Climate Assist

The State and Local Climate and Energy Program website, <http://www.epa.gov/statelocalclimate/index.html>, is a central clearinghouse of information and resources related to climate change and clean energy. Resources include energy efficiency, renewable energy, waste management, workforce development, health, adaptation, and more, etc. While this is geared toward government bodies, it also has useful information for businesses and individuals.

## Update on US Pesticide Usage

EPA's report, **Pesticides Industry Sales and Usage: 2006 and 2007 Market Estimates**, is now available at <http://www.epa.gov/opp00001/pestsales/>. It provides historical trends over the past 2 decades. Some highlights are:

US pesticide levels are 22% of the world total in 2007.

Total usage decreased by 8% from 2000 to 2007.

Conventional pesticide use decreased by 11% from 1997 to 2007.

Organophosphate insecticide use decreased by 55% from 1997 to 2007.

80% of US pesticide use was in agriculture. Herbicides were the most widely used pesticides in agriculture

Herbicides were also the most widely used type of pesticide in the home & garden, industrial, commercial, and governmental market sectors; 2,4-D and glyphosate were the most widely used active ingredients.

## Update on US Pesticide Use (cont).

The last report on pesticides industry sales and usage was published in 2001. Previous reports are also available at <http://www.epa.gov/opp00001/pestsales/>

Courtesy of the Water Quality Discussion Listserv: [http://epa.gov/oppfeed1/cb/csb\\_page/updates/2011/sales-usage06-07.html](http://epa.gov/oppfeed1/cb/csb_page/updates/2011/sales-usage06-07.html), Pesticide News Story: EPA Releases Report Containing Latest Estimates of Pesticide Use in the United States, News Release February 17, 2011

## Fungicides & Amphibians

Some common fungicides are potent toxins of aquatic ecosystems, with amphibians severely impacted. Two fungicide groups, strobilurin and chlorothalonil, are well noted as highly toxic to both water flea and rainbow trout. In two academic journals, printed in 2010 and 2011:

Use of a strobilurin caused up to 100% mortality to tadpoles, 65% to young frogs.

Use of chlorothalonil caused tadpole mortality of several frog species to be very high even under concentrations much lower than found in overspray.

Derived from "Recent Research Raises Concerns on Toxicity of Fungicides to Amphibians," Paul Vincelli et al., Kentucky Pest Newsletter, 4/26/2011

## RNA Viruses in Many Pollinators

Our European Honey Bee that pollinates commercial crops and produces our honey is only one of many native wild bees and wasps affected by viral diseases that are transmitted via pollen. This PSU research was published December 22, 2010 in PLoS ONE an online journal.

According to Dr. Diana Cox-Foster, "RNA viruses are suspected as major contributors to Colony Collapse Disorder (CCD), ... [with discovery in other native pollinators] indicates a possible wider environmental spread of these viruses with potential broader impact."

Derived from source: The PA IPM News Winter 2011; <http://extension.psu.edu/ipm/news/newsletters/winter/Winter11-1.pdf/view>

## Coleus Cvs. & Downy Mildew

Both seed and vegetative *Coleus* cultivars are susceptible to downy mildew. Selection of less susceptible cultivars for use in landscapes can minimize problems. According to Michigan State, cultivars that have preliminary good results are:

'Giant Palisandra', 'Dark Chocolate', 'Versa Lime', 'Freckles', 'Beauty', 'Russet', 'Harlequin', 'Pegasus', 'Tapestry', 'Etna', 'Pineapple Beauty', 'Glory of Luxemborg'.

In trials of effective preventative fungicides, Stature® SC is labeled for use in PA and completely prevented infection.

Derived from source: <http://www.ipmnews.msu.edu/greenhouse/greenhouse/tabid/99/articleType/ArticleView/articleId/3240/Is-Coleus-Downy-Mildew-Here-to-Stay.aspx>  
<http://state.ceris.purdue.edu/doc/pa/statepa.html>



Photo *Verbena canadensis*: Univ. Arkansas Est.

## Mildew-Resistant *Verbena*

Both annual and perennial *Verbena* species and hybrids are potentially at risk from powdery mildew. Those showing resistance in years where powdery mildew was a problem for other verbena include:

Annuals - 'Aztek Plum Magic', 'Babylon Purple', 'Magalena Pink Swirl', 'Rapunzel Violet', 'Splash Deep Rose', 'Tapien Pink', 'Temari Blue', 'Temari Vanilla'

Perennials - *Aloysia triphylla*, *V. canadensis* 'Homestead Purple' (photo), *V. canadensis* 'Seabrook's Lavender', *V. canadensis* 'Claret', *V. corymbosa* 'Edith Eddleman' ('Betty Lee'), *V. macdougllii*

Derived from "Powdery Mildew on *Verbena*," by Dr. Malcolm A. Quigley and Gary W. Moorman, Penn State, in *Plant Disease Facts*



Photo: *V. carlesii* — Univ. Illinois Extension

## Viburnums Resistant to VLB

Information updated through March of 2011 by Cornell University indicates the following for **most resistant** to the viburnum leaf beetle.

*Viburnum bodnantense* —dawn viburnum

*V. carlesii* —Koreanspice viburnum (photo)

*V. davidii* —David viburnum

*V. x juddii* —Judd viburnum

*V. plicatum* —doublefile viburnum

*V. plicatum* var. *tomentosum*

*V. rhytidophyllum* —leatherleaf viburnum

*V. setigerum* —tea viburnum

*V. sieboldii* —Siebold viburnum

Derived from source: [www.hort.cornell.edu/vlb/suspect.html](http://www.hort.cornell.edu/vlb/suspect.html)

## Disease-Resistant Dogwoods

Dogwoods are one of our most beloved native trees, however *Cornus florida* is subject to increasing pressure from Anthracnose and Decline caused by *Discula destructiva*. Using *Cornus kousa*, or hybrids of *C. kousa* with *C. florida* will allow you to still include this flowering tree in landscapes successfully.

Another key disease of dogwoods is powdery mildew, caused by *Erysiphe pulchra* and *Phyllactinia guttata*. Mildew resistant species include *C. kousa*, *C. sericea*, *C. mas*, *C. alternifolia*, *C. alba*, and *C. controversa*. *C. florida* cultivars that are resistant include: 'Jean's Appalachian Snow', 'Kay's Appalachian Mist,' 'Karen's Appalachian Blush,' and 'Appalachian Joy.'

Derived from "Dogwood Diseases," by Gary W. Moorman, Penn State, in *Plant Disease Facts*

## Garlic Mustard Information

Garlic mustard (*Alliaria petiolata*) is already a major weed problem throughout PA, showing up along roadsides, in parks, forests, landscapes. It's a biennial that is a prolific seeder. In the first year of its growth cycle it acts as a groundcover, mingling with many other groundcovers.

The plants are currently flowering and producing seed in the NE PA area. Do NOT compost these as the seed is very tolerant of composting temperatures and conditions.

Some areas have initiated special community weeding sessions to remove garlic mustard.

It naturally occurs in areas with several desirable white-flowered native plants, notably toothworts (*Dentaria*), sweet cicely (*Osmorhiza claytonia*) and early saxifrage (*Saxifraga virginiana*) which may be mistaken for it. If in doubt break off a leaf and see if it has the characteristic garlic odor for garlic mustard.



Photo: <http://dnr.wi.gov/invasives/fact/garlic.htm>; for more information see <http://www.invasivespeciesinfo.gov/plants/garlicmustard.shtml>

## Asian Longhorned Beetle Movie

To explain the affects that this major invasive insect has and could have on the forest ecosystem and what is being done to stop it, Emily Driscoll produced and directed a new movie. The documentary "Bugged: The Race to Eradicate the Asian Longhorned Beetle."

If you would like to participate in a local viewing of this, please contact [lsw5@psu.edu](mailto:lsw5@psu.edu) To view the trailer see [www.vimeo.com/11846105](http://www.vimeo.com/11846105)

## Interesting Design Concepts

The International Garden Festival is a renowned review of many conceptual gardens submitted by architects, landscape architects, designers and artists worldwide. In 2011, it features 194 gardens from more than 500 people in over 33 countries. Entries are now online with details.

Many are more avant-garde than what one would normally find in a landscape, however, they provide interesting concepts that can be adapted. Much as designer goods often evolve into more widely used variations of themselves. As an example, Tiny Taxonomy focuses not on great vistas, but on individual plants that make up a forest ecosystem.

For more information and reference see: <http://www.refordgardens.com/english/festival/edition.php>

## USDA Publishes New National Organic Program Guide

The first edition of the U.S. Department of Agriculture's handbook for the organic sector was published on Sept. 2, 2010. Prepared by the National Organic Program (NOP), the handbook provides guidance about national organic regulations for those who own, manage, or certify organic operations. It is intended to serve as a resource for the organic sector to help participants comply with federal regulations. It is available online at [www.ams.usda.gov/NOPProgramHandbook](http://www.ams.usda.gov/NOPProgramHandbook).

From the September 2010 eOrganic Newsletter (<http://eorganic.info/>)



## Dandelions & Winter Annuals

Its that time of the year and we see turf dotted with the yellow blooms of dandelions and find many winter annuals completing their bloom.

Dandelions are **very persistent perennials**. Wait till the flowers change to "puff-ball" stage to use herbicides.

On the other hand, there are a number of **winter annuals** that you may be tempted to spray with herbicides, however, they'll be gone soon, till sprouting again in the fall-winter:

Italian ryegrass—*Lolium multiflorum*

Annual bluegrass—*Poa annua*

Cudweed—*Conyza canadensis*

Pineapple weed—*Matricaria matricarioides*

Yellow rocket (bittercress) - *Barbarea vulgaris*—[very abundant this year]

Shepherd's purse—*Capsella bursa-pastoris*

Field pepperweed—*Lepidium campestre*

Corn cockle—*Agrostemma githago*

Common chickweed—*Alsine media*

Redstem filaree—*Erodium cicutarium*

Henbit—*Lamium amplexicaule*

Corn speedwell—*Veronica arvensis*

Field violet—*Viola arvensis*

Remember these in fall, optimum control time is mid-October to mid-November, so right when fall-foliage is peaking. They are mainly a problem due to slowing soil warming and drying to allow for spring growth of desired herbaceous plants and turf, while also harboring insect problems overwinter.

See reference: *Weeds of the Northeast*, Richard Uva et al

## Native Grasses for Turf

Want to save on mowing, watering, weeding and feeding for lawns—maybe a mix of native grasses can provide the same look and function for your clientele or facility.

New research from the Lady Bird Johnson Wildflower Center at the University of Texas in Austin is in the second year of tests comparing standard turfgrasses with a mixed native turfgrass.

Early results indicate that the mixed native turf has a better rate of establishment, thicker stand (about twice as thick), fewer mowings, and greater weed resistance. Once the Texas mix is determined, they will be looking for alternative mixes for other regions of the US.

An example of one grass species that they have selected is the **blue grama**, *Bouteloua gracilis* (*diagram*). While this species is not reported in PA, it is native for many states in the NE and US.

Reference for more information: <http://www.wildflower.org/nativelawns/>

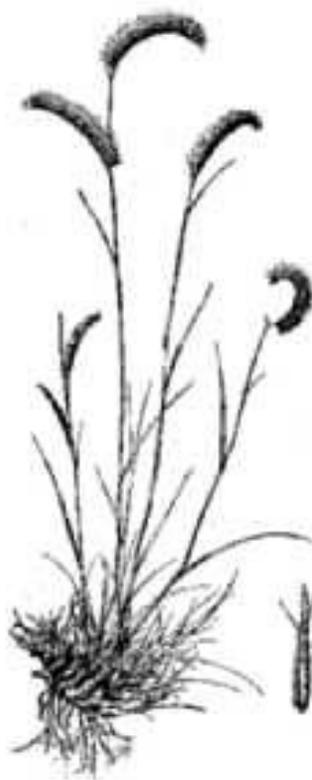
## Practical Math for Pros

The University of Arkansas, courtesy of Dr. Aaron Patton, has a wonderful, although long (104 pages!), manual that is available online. While geared towards turfgrass, many of these calculations are also common in other green industry segments. What is really nice is that it provides very good illustrations and practice problems, with answers at the back.

Here you'll review: how to calculate the area, volume, irrigation, amount of seed, fertilizer, pesticide, calibration. For example one shows a diagram of a home lawn, calculates total land area, then subtracts all non-turf areas to yield total area of turfgrass.

To access this manual—

<http://turf.uark.edu/publications/factsheets/Practical%20Math%20for%20the%20Turfgrass%20Professional%20CDHORT200.pdf>



Hitchcock, A.S. (rev. A. Chase). 1950. *Manual of grasses of the United States*. USDA Miscellaneous Pub. # 200.

## 2009 Census Results Horticulture

This 10 year census is the only comprehensive and detailed data source on US floriculture, nursery and specialty crop production with information at national and state levels. Complete results are online at [www.agcensus.usda.gov](http://www.agcensus.usda.gov). The information is used to improve production, marketing and development. Horticulture crop sales have only increased by 10% over this decade period, compared to 60% for all crops.

Nationally - Labor costs are the single largest expense, including salaries and benefits. Wholesale sales represented 85% of all sales in 2009.

Pennsylvania - Pennsylvania is 3<sup>rd</sup> nationally in horticulture, with 1,288 businesses, following Florida and California. It is also 4<sup>th</sup> nationally in retail sales and 10<sup>th</sup> nationally in the total value of horticulture crops.

Derived from source: Penn State Greenhouse News, 1/19/11

## Green Industry Certification

North American Horticulture is in need of certification, especially green certification, models.

Some that are currently used to certify plants as sustainably grown include:

Veriflora <http://www.my-mps.com/welkom+bij+mpe-ecas.aspx>

MPS <http://www.my-mps.com/welkom+bij+mpe-ecas.aspx>

USDA Organic <http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateA&navID=NationalOrganicProgram&leftNav=NationalOrganicProgram&page=NOPNationalOrganicProgramHome&acct=nop>

## Disease Clusters in PA

When a statistically larger number of a certain disease occurs in an area, it is known as a disease cluster. The Natural Resources Defense Council reported on 42 clusters in 13 states for their pilot study.

PA has four of these -

In Wilkes-Barre Lackawanna Co., a workplace hazard to trichloroethylene (TCE) with exposures 10,000 higher than EPA acceptable risk levels. Possible relation to high rates of Non-Hodgkins lymphoma and lupus.

In Schuylkill, Carbon and Luzerne Cos., a possible environmental hazard from a coal-fired plant and a recycling facility—for Polycythemia vera, a rare blood disorder.

It is important to keep in mind several points, re the Center for Disease Control (CDC) - cancer affects 1 out of 4 people, cancer is actually a number of different diseases, a cluster can be due to chance alone, it's more likely to be significant if it is the same type of a rare cancer.

Adapted from sources: <http://clusteralliance.org/wp-content/uploads/2011/03/Health-Alert-Report-Final-2.pdf>; [www.cdc.gov/nceh/clusters/faq.htm](http://www.cdc.gov/nceh/clusters/faq.htm)

## Defining New Landscape Technologies

New sustainable landscape technologies are available, and it is helpful to define what each is to determine the appropriate ones for use. Here are some working definitions of these technologies:

**Biofilter**— a mass of organic matter or gravel to about 10-18" deep that is used to filter odors or waste, depending on the needs of the system. Some incorporate microorganisms to assist with filtering.

**Bioswales**—a linear bioretention system that partially treats water quality, reducing flooding and removing stormwater from infrastructure. It's length to width dimensions are greater than the 2:1 for other bioretention cells.

**Created wetland**— a constructed ecosystem providing similar functions as a natural wetland. It would include the topographic features of a wetland, plants, animals and microorganisms naturally occurring in wetlands in the same ecoregion.

**Green corridor**—an area of parks, trails and open space which provides pathways through the area for transportation and recreation establishing a sense of community in the area.

**Green façade**— or a **green screen**, uses plants on south and west exterior walls to cool buildings. The plants are attached to a self-supporting structure a foot from the building.

**Green parking**—pervious paving used in parking area with high load-bearing capacity and the ability to mitigate vehicle pollution. It will often incorporate rain gardens.

**Greenroofs**—a vegetative layer on top of a building, to provide shade, remove heat, provide insulation and manage stormwater.

**Greenwalls**— an indoor or outdoor wall that is constructed to include vertically arranged vegetation in its structure.

**Living walls**— plants are rooted in some substrate attached to the wall itself.

**Porous paving**— or **permeable or pervious paving**, surfaces which allow water to remain at its source and recharge the groundwater below.

**Rain barrels**— any container, usually a large barrel, that is used to collect and store rainwater from rooftops for use in gardens.

**Rain gardens**—shallow (natural or man-made, about 6" deep) depressions with landscape shrubs and plants which collect rain and snow-melt and naturally recharge the groundwater. They collect about 30% more water than conventional lawns.

**Xeriscaping**—landscaping with the purpose of water conservation, using plants that thrive in, or tolerate, dry conditions in that locale.

## WaterSense® Draft Regulations

The U.S. Environmental Protection Agency (EPA) has released the WaterSense® Revised Draft Specification for Weather-Based Irrigation Controllers. The revised draft addresses stakeholder comments on the initial draft released in November 2009.

With more than 13.5 million irrigation systems currently installed in the United States, replacing existing standard clock timer controllers with WaterSense® labeled weather-based irrigation controllers could offer significant water savings for homeowners and organizations using irrigation systems. Weather-based controllers create or modify irrigation schedules based on the landscape needs and real-time weather data.

Manufacturers, retailers, and distributors that produce or sell these can join the program as partners once the final specifications are complete

Reference and for further information—<http://www.epa.gov/watersense/products/controltech.html>

## Educational & Pesticide Credits

To locate recertification meetings or find out about your current status online go to

[www.paplants.state.pa.us/Index.aspx](http://www.paplants.state.pa.us/Index.aspx)

### NE PA Educational Program Summer NE Turf, Ornamental & Grounds Program

**When: Thursday, July 28, 2011**

**8:00 am to 3:10 pm**

**Where: East Stroudsburg University,  
East Stroudsburg, PA**

**Contact Name: Linda Wiles**

**Contact Phone: 570-421-6430**

**For landscapers, turf professionals, grounds and athletic field managers—**

**Presentations by Dr. Gary Moorman, PSU, on plant diseases, Dr. Pete Landschoot, PSU, on turf nutrient regulations, Dr. Kerry Richards, PSU, on IPM for schools and public landscapes, Dr. Casey Sclar, Longwood Gardens, on compost operations, Linda Wiles, PSU, on local pests/diseases of concern.**

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College of Agricultural Sciences

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