

**The Vegetable & Small Fruit Gazette**  
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## Comments from the Editor

Elsa Sánchez, Department of Horticulture, Penn State University

Happy New Year! I want to thank everyone who contributed articles to this issue and I want to encourage others to join us in upcoming issues.

If you have an event that you would like to advertise, please send it to me. As always, the Vegetable and Small Fruit Gazette Team encourages your feedback so that we can better serve your needs and address your concerns.

## Quote for Thought from [Pete Ferretti](#)

*Speak to us of children  
They come through you but not from you  
And though they are with you they belong not to you  
You are the bows from which your children as living arrows are sent forth*

*-Kahlil Gibran, The Prophet*

## Schedule for Articles

January – Tim Elkner	February – Shelby Fleischer
March – Eric Oesterling	April – George Perry
May – Lee Young	June – Jeff Mizer
July – Tom Butzler	August – Steve Bogash
September – Cheryl Bjornson	October – Scott Guiser
November – John Esslinger	December – Andy Muza

## **Biodegradable Plastic Mulch Evaluation**

[Mike Orzolek](#) and [Bruce Dye](#), Department of Horticulture, The Pennsylvania State University

**Crops:** Cantaloupe – ‘Athena’  
Bell Pepper – ‘Encore’

**Plot size:** 25’ long x 18” wide raised bed.

**Plant spacing:** 2.0’ in-the-row for cantaloupe and 1.5’ for bell pepper - 4’ between rows.

**Design:** Randomized Complete Block with 3 Replications.

**Plastic Applicator:** Nolt’s Produce Supplies (Leola, PA) 4’ raised bed/mulch layer with drip tape dispenser.

**Fertilizer Application:** 80 lbs/A-N, 150 lbs/A-P, and 150 lbs/A-K broadcast and incorporated prior to making raised beds. Both cantaloupe and pepper plants were fertigated with 20-10-20 on July 15 (7.5 lbs./A) and July 29 (6.0 lbs./A), 2005. On July 22, potassium nitrate at 10 lbs./A was applied through the drip irrigation system.

**Herbicide Application:** None, hand weeding.

**Date Planted:** May 10, 2005.

**Dates Harvested:** Cantaloupe – August 2 through September 7, 2005.  
Bell Pepper – August 1 and September 7, 2005.

### **Treatments:**

- 1 – Control Black - Pliant
- 2 – Control Blue - Pliant
- 3 – Biodegradable Black - Novamont
- 4 – Biodegradable Brown - Novamont
- 5 – Biodegradable Green – Novamont

Table 1. The marketable fruit yield of cantaloupe (cv. Athena) from plants grown on non-degradable and biodegradable polyethylene mulch at the Horticulture Research Farm, Rock Springs, PA.- 2005.

Mulch type	Marketable Fruit Yield			
	No. of fruit	Wt. of fruit (lbs.)	Total no. of fruit	Avg. fruit Wt. (lbs.)
Black –ND	19.3	53.6	23.0	2.8
Blue – ND	20.0	64.6	25.0	3.2
Black – BD	20.0	68.3	21.3	3.4
Brown – BD	13.7	44.6	16.7	3.3
Green – BD	16.7	43.8	18.7	2.6

ND – Non degradable

BD – Biodegradable

Table 2. Marketable fruit yield of bell peppers (cv. Encore) from plants grown on different colored and type of polyethylene mulch at the Horticulture Research Farm, Rock Springs, PA.-2004

Mulch type	# of fruit	Wt. of fruit (lbs.)	Avg. fruit Wt. (oz.)	Avg. # plants	Avg. fruit #/plant
Black – ND	30.0	11.9	6.3	10.3	2.9
Blue – ND	9.0	2.6	4.6	10.7	0.8
Black – BD	39.7	12.8	5.2	11.3	3.5
Brown– BD	44.3	14.5	5.2	11.7	3.8
Green – BD	29.0	9.5	5.2	11.3	2.6

ND – Non degradable

BD – Biodegradable

PD – Photodegradable

**Comments:**

All mulch films were applied in the field with Nolt’s Produce Supply small raised bed/mulch layer (3 ft. wide film rolls) and drip tape dispenser without any problems. There were basically two types of mulch film used in this study: non-degradable (ND) and biodegradable (BD). The biodegradable black mulch film from Novamont did not start to degrade until 60 days after application in the field. The biodegradable mulch become brittle, broke-up into smaller pieces that adhered to the soil and did not move off the field application site (raised beds).

There was no difference in the yield of marketable cantaloupe harvested from plants growing on either black-ND, blue-ND or black-BD (Table 1). The lowest yield was harvested from plants grown on the brown-BD film and somewhat similar to fruit harvested from plants grown on the green – BD mulch film. Interestingly, similar average fruit weight was harvested from plants

grown on either the blue- ND, black – BD or brown –BD films. Fruit size from these treatments were larger compared to the black – ND control treatment and green – BD treatment. It was also observed that once the BD films started to degrade (towards the end of July), weed seed germination and plant development was rather intensive and would have required control measures in a commercial field.

Pepper plants that were grown on either the black – BD or brown – BD mulch film treatments produced higher marketable pepper fruit yields compared to the other mulch treatments (Table 2). Pepper plants grown on the blue – ND film in the third replication appeared stunted during the growing season which partially explains the low marketable fruit yield from this treatment. Both the black-ND and green – BD mulch treatments produced a marketable pepper yield in between the blue – ND and black and brown – BD. This is also true if the data is expressed as the number of fruit per plant harvested from plants growing on the different mulch types (Table 2).

After harvesting the crop in October, the non-degradable mulch films were retrieved from the field. However, the biodegradable mulch films were disced into the soil and the soil will be checked in the spring of 2006 for any mulch film residue.

**Conclusions:**

- 1 - Based on the crop yield of both cantaloupe and bell pepper, the black biodegradable mulch film performed as effectively as the non-degradable mulch films in 2005.
- 2 –If biodegradable plastic film degrades before crops growing on the mulch mature, weed competition may significantly reduce either yield or quality of the harvested crop.
- 3 – After harvesting the crop growing on the biodegradable plastic mulch, simply incorporating the remaining biodegradable plastic mulch into the soil by rototilling will enhance degradation of the mulch.

## Use of Poultry Manure for Vegetable Crop Production (Part 2)

[Mike Orzolek](#) and [Pete Ferretti](#), Department of Horticulture, Penn State University

*The first part of this article, including average nutrient contents of various sources of poultry manure, can be found in the Dec, 2005 issue of the Gazette.*

Most vegetable crops will not tolerate high soluble salt levels, therefore, poultry manure should either be applied in the fall and incorporated into the soil 30 days prior to planting a cover crop, or be applied 90 to 120 days prior to planting any vegetable crop in the spring.

### Precautions and considerations regarding the use of poultry manure.

1. Apply only enough poultry manure to supply the nitrogen requirement for the crop being grown. This can vary from 1.0 T/A of moist-crumblly to sticky (50% water) manure on those vegetable crops with the lowest nitrogen requirement to about 4.0 T/A for celery.
2. Use both a manure analysis and soil test to determine exactly how much poultry manure is needed to be applied per acre. **Do not exceed the crops nitrogen requirement.** Follow the soil test recommendations to obtain optimum pH and nutrient balance.
3. Do not apply fresh poultry manure within 30 days of planting a fall cover crop or 90 to 120 days for vegetable crops depending upon the time of maturity and position of the edible portion (see National Organic Standards for specific details).
4. Applications that provide nitrogen in excess of actual crop requirements can contribute to increased nitrate levels in surface and ground water supplies.
5. Generally, do not side-dress vegetable crops with poultry manure since “burns” from ammonia gases and soluble salts can occur and may cause health and safety concerns (see number 3 above).
6. If excessive vegetative growth of vegetable and small fruit crops has occurred in the previous season, poultry manure should not be used.
7. Poultry manure is not recommended for acid-loving plants (such as blueberries and brambles).
8. Any applications of poultry manure for strawberry production should take place well in advance (one year minimum) of planting.

Table 2. Application rates and time of application of poultry manure for vegetable crops.

<b>Crop</b>	<b>Condition of manure</b>	<b>Rate in tons/A</b>	<b>Time</b>
Celery	Dry	1.75	Fall on cover crop
	Moist-crumbly	3.50	
Cucumber, muskmelon, squash, pumpkin, peppers, eggplant, turnip greens and spinach	Dry	0.50	Fall on cover crop
	Moist-crumbly	1.25	
Cabbage, cauliflower, broccoli, Brussels sprouts, kale, collards, sweet corn	Dry	1.25	fall on cover crop
	Moist-crumbly	2.50	
Asparagus, tomato, onion, beets and watermelon	Dry	1.0	Asparagus - disk immediately after harvest season, or in fall after fern has died Others – fall on cover crop
	Moist-crumbly	2.0	
Snap beans, peas, radish, turnip roots, watermelon	Dry	0.25	Fall on cover crop
	Moist-crumbly	0.50	
Grapes, raspberries	Dry	0.50	Do not apply from May to Mid-November
	Moist-crumbly	1.00	
Apples, cherries, strawberries	Dry	0.50	Fall on cover crop the season before planting. In orchards - do not apply as mulch under trees
	Moist-crumbly	1.00	
Carrots and potatoes			Manure is thought to promote scab development. Therefore, use manure only on rotational crops after carrots and potatoes.

Conversion table

2 ton/A = 1 bushel per 500 sq. ft.

1 ton/A = 0.5 bushel per 500 sq. ft.

0.5 ton/A = 0.5 bushel per 1,000 sq. ft

This conversion table was calculated for moist-crumbly to sticky consistency or 50% moisture.

## Berry Crop Fungicide Groups

[Kathy Demchak](#), Department of Horticulture, Penn State University

This is the time of year when growers take inventory of what's in their pesticide storage sheds (well, OK, some growers...) and start ordering materials for the upcoming season. When deciding what materials to purchase, it's important to know which ones can be rotated with each other for resistance management purposes. Activity groups for fungicides labeled for berry crops are listed below. The group number and name is followed by the chemical and trade names of labeled berry fungicides within that group (I'll also include some previously labeled ones for reference), and information on whether the group is at low, medium, or high risk for resistance development. This information is from FRAC (Fungicide Resistance Action Committee) Code List 1, as updated Dec. 2005 at <http://www.frac.info>. These are the same group numbers that are included on labels from certain companies.

I realize that this may make your eyes glaze over, and I don't use this terminology in dinner conversations either. The important part is to note which fungicides are in the same group, and you also may wish to use the risk information in deciding how often you use certain fungicides. Also note that even when fungicides are at low risk for resistance development, precautions concerning resistance development still need to be taken. Groups not listed below currently do not contain any fungicides labeled for berry crops.

Group 1: MBC fungicides, aka methyl benzimidazole carbamates. Active ingredients in this group include thiophanate-methyl (Topsin-M), labeled for use on strawberries. Benomyl (Benlate), though no longer available, is also in this group. The group is at high risk for resistance development.

Group 2: Dicarboximades. This includes iprodione (Rovral), labeled for strawberries (prebloom only), brambles, and Ribes (gooseberries and currants). Rovral used to be labeled for blueberries, but this use was dropped from the label. Vinclozolin (Ronilan), no longer labeled for berry crops, is also in this group. The group is at medium to high risk for resistance development.

Group 3: DMI-fungicides, aka demethylation inhibitors, which include various chemical subgroups such as triazoles and imidazoles. Berry fungicides in this group myclobutanil (Nova) and triflumizole (Procure). Nova is labeled for strawberries, raspberries, blackberries, currants and gooseberries, while Procure is labeled for only strawberries. This group is at medium risk.

Group 4: PA-fungicides, aka phenylamides. This group includes mefenoxam (Ridomil Gold). Ridomil Gold is labeled for use on strawberries, raspberries and blueberries. The risk for resistance development to fungicides in this group is high.

Group 7: Carboxamides. This group includes boscalid, one of the active ingredients in Pristine, and is considered at medium risk. Pristine is labeled for strawberries and the berry crop group.

Group 9: AP-fungicides, aka aniline-pyrimidines. This group includes cyprodinil, one of the active ingredients in Switch, and pyrimethanil, the active ingredient in Scala. Switch is labeled for use on

strawberries and the berry crop group. Scala is labeled only for strawberries. The group is at medium risk.

Group 11: QoI-fungicides, aka Quinone outside inhibitors. This includes azoxystrobin (Abound, also labeled as Quadris for vegetable crops) and pyraclostobin, the active ingredient in Cabrio and one of the active ingredients in Pristine. This group is at high risk. Abound, Cabrio, and Pristine are all labeled for strawberries and the berry crop group.

Group 12: PP-fungicides, aka phenylpyrroles. This group contains fludioxonil, the second active ingredient in Switch. Switch is labeled for use on strawberries and the berry crop group. Group 12 is at low to medium risk.

Group 17: Hydroxyanilides. The only active ingredient in this group, so far, is fenhexamid (Elevate). This active ingredient is also contained in Captevate. Elevate is labeled for strawberries, caneberries, and bushberries, while only strawberries, raspberries, and blueberries appear on the Captevate label. Fenhexamid is at low to medium risk.

Group 33: Phosphonates. This group includes fosetyl-Al (Aliette) and phosphorous acids and salts (Phostrol, etc.). Aliette and Phostrol are labeled for strawberries, brambles, and blueberries. The group is at low risk.

Group M: Fungicides with multi-site contact activity. This group includes inorganic materials such as copper salts and sulfur, and the phthalimide chemical group, which includes captan (Captan, Captec). It also includes dithiocarbamates and their relatives, a chemical subgroup into which thiram (Thiram) and ziram (Ziram) fall, and guanadines, which includes dodine (Syllit). However, whether dodine should be included in this group is questioned. Captan is the second active ingredient in the fungicide Captevate, which, as noted above, is labeled for strawberries, raspberries, and blueberries. Strawberries, raspberries, blackberries, and blueberries appear on various Captan labels. Thiram and Syllit are labeled for strawberries, and Ziram is labeled for blueberries. This is considered a low risk group.

Group NC: The target site of action is not classified for materials in this group. The group includes mineral oils (such as Stylet oil), organic oils, and potassium bicarbonate (Milstop). No developed resistance to these materials is known. Stylet oil is labeled for strawberries, bushberries, and caneberries. Milstop is labeled for use on blueberries, caneberries, and strawberries.

## **The Organic Way – Weeds as Indicators of Soil Health**

[Elsa Sánchez](#), Department of Horticulture, Penn State University

Good soil health is the foundation of successful organic production. Several tools are available that can aid in managing for good soil health including soil, plant tissue, compost and nematode analysis, plant disease clinics, insect identification laboratories and crop production guides.

Weeds can also be used as indicators of soil health. Through research, scientists have determined that certain weed species are suppressed or proliferate in response changes in soil health. Monitoring for the presence of these weed species can be used as an indicator that one or more soil health parameter(s) is out of optimal range. This method is best when used in combination with other methods for monitoring soil health. Further testing, such as soil or plant tissue analysis, can be used to more precisely determine which soil parameter needs to be adjusted as well as recommendations for improving soil health.

The table below includes several weeds and their response to nutrient status, pH, bulk density and water logging. The table is from the Michigan State University Extension bulletin, Integrated Weed Management “One Year’s Seeding...”. The bulletin provides information on how changes in the environment, many which can be controlled, affect weeds. Information on ordering the bulletin (current cost \$10) is provided below the table.

### Soil Properties and Weed Growth

Soil Species	N	P	K	Ca	Mg	pH	Bulk density	Water logging
Velvetleaf	Blue	White	White	White	White	Blue	Blue	White
Foxtail	Blue	Blue	White	White	White	Blue	Blue	Yellow
Redroot pigweed	Blue	Blue	Blue	White	Blue	Blue	Blue	White
Common lambsquarters	Blue	Blue	Blue	Blue	Blue	White	Blue	White
Giant ragweed	Blue	Blue	Blue	White	White	White	White	White
Common ragweed	Yellow	Yellow	Yellow	White	White	White	White	White
Pennsylvania smartweed	Blue	Blue	White	White	White	Brown	White	White
Eastern black nightshade	Blue	Blue	Blue	White	White	White	White	White
Common chickweed	Blue	White	White	White	White	Blue	White	Blue
Quackgrass	Blue	Yellow	Yellow	White	White	White	Blue	Blue
Canada thistle	Yellow	Blue	White	Brown	White	Brown	White	White
Dandelion	Blue	Yellow	Blue	White	White	Blue	White	White

#### Legend



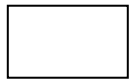
Increase in soil property promotes weed growth



Increase in soil property reduces weed growth



No effect on weed growth



No information available

Source: Davis, A., K. Renner, C. Sprague, L. Dyer and D. Mutch. 2005. Integrated Weed Management “One Year’s Seeding...”. Chapter 2, Figure 10, page 19. Michigan State University Extension Bulletin E-2931. To order visit [www.emdc.msue.msu.edu](http://www.emdc.msue.msu.edu).

## **New Concepts in Plasticulture for Tomato and Pepper**

[Michael D. Orzolek](#), Department of Horticulture, The Pennsylvania State University

Since Solanaceous crops in general and tomato and pepper specifically love warm temperatures, production of tomato and pepper in much of Pennsylvania is a challenge both from the standpoint of temperature and moisture. Tomato and pepper plants stop growing below 45°F and will have a difficult time maturing fruit when average night temperature drops below 50°F. Optimum growth of tomato and pepper plants is between 75° and 85°F daytime temperatures. For the average grower in Pennsylvania growing on bare soil, the planting date for tomato and pepper is generally between May 10 and June 10, assuming that there will be no extremes in day and night temperatures. While mature tomato and pepper plants are somewhat drought tolerant, they require consistent soil moisture levels (80% of available soil moisture) after transplanting and until they reach the initial flowering stage of growth. On the other hand, excess rainfall 2 weeks prior to fruit harvest will dramatically reduce fruit quality and increase the potential for fruit cracking and splitting. The use of plasticulture will help eliminate/prevent these environmental stresses on tomato and pepper plants during the growing season.

For the production of high quality tomato and pepper, the use of raised beds, plastic mulch, drip irrigation and row covers will insure successful and consistent marketable yields. The use of plasticulture in the production of tomato and pepper will: 1) increase soil temperature 8° to 12°F warmer than bare soil, 2) increase/maintain soil water holding capacity, 3) reduce/eliminate weeds, 4) maintain/increase soil tilth and 5) reduce/eliminate fertilizer and pesticide leaching under the bed. I will discuss the individual components of plasticulture in the following sections below.

**Raised Beds** – Making a 6 to 8 inch raised bed prior to applying plastic mulch in the field helps to; a) increase soil temperature, b) produce a tight fit of plastic on the soil surface, c) prevent plant/fruit damage from excessive water (heavy thundershowers), d) reduce soil erosion when beds follow soil contour and e) helps to produce a higher quality, cleaner fruit. Many equipment manufacturers sell a multi-function machine which will make a raised, pressed bed, lay the agricultural plastic film snugly on top of the bed and also place drip tape at a desired depth in the bed at one pass. In addition, a fertilizer applicator can be placed on top of the bed maker/mulch applicator to add nutrients into the bed.

**Plastic Mulch** – Since plastic mulch increases soil temperature, soil moisture and maintains soil tilth, transplanting tomato and pepper plants within 2 to 5 days after application of the plastic in the field is recommended. Plastic film can be purchased at a thickness of 0.3 to 1.5 mil, embossed or smooth and colors of clear, white, black, blue, IRT green, IRT brown, red, yellow and reflective or metalized silver. The plastic film you purchase can be tailored to your needs based on the crop being grown, number of crops to be grown on the film, length of time to be left in the field and pest elimination requirements. The thicker the film, the longer it can be left in the field; 1.5 mil plastic will last two years/multiple crops in the field. However, in general, the thicker the film, the higher the cost; unless the purchase is an ultra-thin plastic film 0.3 mil or less. Embossing imparts more elasticity/stretchability compared to the smooth plastic film. As to the color of plastic tomato plants will produce higher early and marketable yields on, studies have recommended red mulch compared to the standard black film. Pepper plants will produce higher early and marketable yields on IRT green or metalized silver mulch compared to the standard black film. The silver mulch also repels

aphids so that aphid vectored viruses are eliminated in the field. Some researchers have observed a reduction in early blight infection with the use of red mulch in the production of tomato.

**Drip Irrigation** – Water comprises 93% of tomato and pepper fruit which would attest to the importance of water in the growth and development of tomato and pepper plants and fruit. When transplanting tomato and pepper plants, application of water is extremely important to maintain soil capacity for the regeneration of root and shoot growth of the transplants and eliminate plant mortality of both tomato and pepper transplants. Drip irrigation is very efficient in; directing water to the crop and not the weeds, reducing/eliminating foliar diseases, and injection of fertilizers and/or pesticides. Since many soils in Pennsylvania are silt loams to clay loams and generally have between 1.5% to 2.5% organic matter, they tend to have relatively high cation exchange capacity (CEC), low to moderate water infiltration rates, and moderate to high water holding capacity. Because of these characteristics, growing tomato and pepper on these soils and raised beds/plastic mulch is more effective when at least 40% of the fertilizer requirement is added preplant rather than totally through the drip irrigation system. Fertigation of nitrogen (approx. 7 to 10 lbs/A) after crown set of fruit are pollinated does help to increase fruit production and maintain plant health and vigor. Scheduling water application on measurement of actual soil moisture levels (irrometer or tensiometer) will help to maintain active plant growth throughout the growing season and high quality fruit. Maintaining uniform soil moisture (minimizing fluctuations) will help reduce/eliminate blossom end rot in both tomato and pepper fruit.

**Row Covers** – Since tomato and pepper crops return a relatively high gross per acre and require warm temperatures both day and night, use of polypropylene row covers is both economical and productive. Applying row covers on the raised bed/plastic mulch after transplanting tomato and pepper will; increase both ambient and soil temperatures resulting in increased plant growth, reduce/eliminate plant desiccation, maintain higher soil moisture levels, and exclude insect feeding on young plants. However, once plants begin to flower, removal of the row cover is suggested to allow for pollination. While polyester row covers are available, the stiffness of the material compared to polypropylene will cause leaf abrasion and potential delays in fruit maturity.

**Low Tunnels** – In locations that are rather windy in the spring of the year and plant desiccation is a principle cause of plant mortality, use of low tunnels will help both establishment and early production of tomato and pepper. Low tunnels are usually 1-mil rolls of perforated (for ventilation) polyethylene stretched over metal hoops (no. 9 wire) placed every 6' to 8' over the row of tomato or pepper plants. The tunnels are immediately placed over the row after transplanting and left in place until the afternoon high temperatures exceeds 85°F for 3 successive days.

### **Tips for Successful Tomato and Pepper Production with Plasticulture**

- 1 - Use raised beds (4 to 6' high) when laying plastic in the field compared to flat beds to insure better water and nutrient management in the field.
- 2 - When laying plastic in the field, make sure the soil is at least 85% of water-holding capacity.
- 3 - Wait at least 2 to 3 days after laying plastic mulch in the field before transplanting tomato or pepper plants through the plastic.

4 - After transplanting tomato and pepper plants through the plastic mulch, monitor the soil moisture level underneath the plastic mulch and maintain the moisture level by the use of a drip irrigation system.

5 - Monitor tomato and pepper plants for both Colorado potato beetle and aphid populations since both insect species can rapidly reproduce and vector viral or bacterial organisms to young tomato or pepper transplants.

6 - Remove row covers or mulch from low tunnels when female flowers appear on the crown set of either tomato or pepper.

7 - Fertigate with low levels of nitrogen (5 to 7 lbs/A) throughout the growing season.

8 - Apply one pound per acre Boron at the pre-bloom stage either through the drip irrigation system or as a tank-mix with fungicide spray.

9 - Reduce water application to the tomato and pepper crop within 2 weeks of the bulk harvest of fruit in the field to improve soluble solid levels and higher fruit quality.

## **Mid-Atlantic Fruit and Vegetable Convention - Mid-Atlantic Fruit and Vegetable Growers “Adapting to Change”**

For further information, contact:

Maureen Irvin (fruit), 717-677-4184 or William Troxell (vegetable), 717-694-3596

“Adapting to Change – Sustainability for Your Land *and* Business” will be the theme of the 2006 Mid-Atlantic Fruit and Vegetable Convention. Jane Eckert, nationally known agrimarketing speaker and consultant, will make the Convention’s keynote presentation on the opening day, January 31. About 2,000 fruit and vegetable growers and other industry persons from throughout the mid-Atlantic region and beyond will be gathering at the Hershey Lodge and Convention Center in Hershey, Pennsylvania, for the Convention which will conclude on February 2.

The Convention has been jointly sponsored by the State Horticultural Association of Pennsylvania, the Pennsylvania Vegetable Growers Association, the Maryland State Horticultural Society and the New Jersey State Horticultural Society for the past 28 years. The Pennsylvania State University, University of Maryland and Rutgers University Cooperative Extensions all assist in organizing the three days of educational sessions as well. The Convention has become one of the premier grower meetings in the Northeast.

The Great American Hall at the Hershey Lodge and Convention Center will host the Trade Show with over 140 exhibitors. Specialized horticultural equipment, farm market merchandise, and packaging, will all be on display along with information on the latest seed varieties, fruit varieties, pesticides and other supplies and services for the commercial grower.

Many pesticide applicator update training credits are available to growers attending the sessions. The program covers nearly every aspect of fruit, vegetable, potato, wine grape and small fruit production. Commercial growers should not pass up this terrific educational opportunity.

Keynote speaker Jane Eckert was honored with the 2004 Outstanding Leadership Award from the North American Farmers Direct Marketing Association. Raised on her family's apple orchard outside of St. Louis, Jane earned a degree in business and went on to executive marketing positions for eighteen years before returning to her family’s farm business outside St. Louis. As the former Vice President of Marketing of Eckert's Country Store and Farms in Belleville, Illinois, she developed the property into one of the most successful retail and entertainment farms in America. Today it is a top tourist attraction that draws over 500,000 guests annually.

As testament to her expertise, the North American Farmers' Direct Marketing Association also honored her as Farm Marketer of the Year in 2001. Her professional approach to promotion, advertising, public relations and merchandising gave Eckert's a strong brand identity widely recognized and respected throughout the region. Jane is passionate about saving family farms and ranches.

Six or seven concurrent educational sessions will be offered on all three days of the Convention.

The Educational program can be viewed in its entirety at [www.pvga.org](http://www.pvga.org) or [gloucester.rce.rutgers.edu](http://gloucester.rce.rutgers.edu). Besides the plenary session for the keynote address, the opening day will feature sessions on Tree Fruits, Wine Grapes, Integrated Pest Management, Marketing, Featured Growers, Season Extension, Snap Beans, Vine Crops, Organic Vegetables, Asparagus and General Vegetables.

On the second day, full-day sessions on Peaches, Direct Marketing, Bedding Plants, Tomatoes (fresh market and processing), and Potatoes will be featured. Also scheduled are half-day sessions on Small Fruit, and Pumpkins.

The Convention will close on the third day with full-day sessions on: Tree Fruits, Small Fruit, and Cut Flowers. Half-day sessions on Fruit RAMP, Farm Management, Peppers and Eggplant, Nutrient Management, and Careers in Horticultural Production will also be offered.

On January 31, fruit and vegetable growers will be treated to a reception followed by the annual Fruit and Vegetable Growers Dinner. The Dinner will include awards and recognitions. On February 1, the Pennsylvania Apple Marketing Board and the Pennsylvania Vegetable Growers Association will each sponsor evening receptions for growers. The processing tomato growers with the highest yields for the 2005 season will be honored at the annual Tomato Awards Luncheon on February 1.

For more information on the fruit program and registration, contact: Maureen Irvin, State Horticultural Association of Pennsylvania - 717-677-4184 or [www.shaponline.org](http://www.shaponline.org); William Tietjen - 908-475-6505 or Jerome Frecon – 856-307-6450, New Jersey State Horticultural Society or [gloucester.rce.rutgers.edu](http://gloucester.rce.rutgers.edu); or Robert Black, Maryland State Horticultural Society - 301-271-7491

For more information on the vegetable, potato or flower programs and registration, contact William Troxell, Pennsylvania Vegetable Growers Association - 717-694-3596 or [www.pvga.org](http://www.pvga.org).

Persons registered for either the fruit or vegetable program can attend all the sessions offered (fruit, vegetable and small fruit sessions) plus the trade show. Registration either through the mail or at the door is required to attend both the trade show and educational sessions.

## Upcoming Meetings

If you have a meeting you would like to announce, please send the meeting title, date, location and contact information to [esanchez@psu.edu](mailto:esanchez@psu.edu).

### Local

- ✓ January 7 – 14, 2006. **Pennsylvania Farm Show**, Harrisburg, PA. For more information contact Dr. Pete Ferretti at (814) 863-2313 or [paf2@psu.edu](mailto:paf2@psu.edu).
- ✓ January 13, 2006. **Morrison Cove Vegetable Growers' Meeting**, Martinsburg, PA. For more information contact Tom Ford at (814) 940-5989 or [tgf2@psu.edu](mailto:tgf2@psu.edu).
- ✓ January 14, 2006. **Snyder County Produce Auction Meeting**, Port Treverton, PA. For more information contact Jeff Mizer at (570) 837-4252 or [jwm5@psu.edu](mailto:jwm5@psu.edu).
- ✓ January 16, 2006. **New Holland Vegetable Growers' Meeting**, New Holland, PA. For more information contact Tim Elkner at (717) 394-6851 or [tee2@psu.edu](mailto:tee2@psu.edu).
- ✓ January 18, 2006. **Northeast Regional Vegetable Growers' Meeting**, Clark Summit, PA. For more information contact John Esslinger at (570) 963-6842 or [cje2@psu.edu](mailto:cje2@psu.edu).
- ✓ January 19, 2006. **Buffalo Valley Produce Auction Meeting**, Mifflinburg, PA. For more information contact Jeff Mizer at (570) 837-4252 or [jwm5@psu.edu](mailto:jwm5@psu.edu).
- ✓ January 20, 2006. **Cambria County Winter Potato and Vegetable Meeting**, Ebensburg, PA. For more information contact Tom Ford at (814) 940-5989 or [tgf2@psu.edu](mailto:tgf2@psu.edu).
- ✓ February 11, 2006. **Central PA Crop Growers Meeting**, Penns Valley, PA. For more information contact Tom Butzler at (570) 726-0022 or [tmb124@psu.edu](mailto:tmb124@psu.edu).
- ✓ February 18, 2006. **Central PA Crop Growers Meeting**, Tyrone, PA. For more information contact Tom Butzler at (570) 726-0022 or [tmb124@psu.edu](mailto:tmb124@psu.edu).
- ✓ February 20, 2006. **Tri County Vegetable Growers' Meeting**, Shippensburg, PA. For more information contact Steve Bogash at (717) 263-9226 or [smb13@psu.edu](mailto:smb13@psu.edu).
- ✓ February 22, 2006. **Farm Family Day**, Lebanon, PA. For more information contact Ginger Pryor at (717) 270-4391 or [LebanonExt@psu.edu](mailto:LebanonExt@psu.edu).
- ✓ March 7, 2006. **Regional Vegetable Growers' Meeting**, Pottsville, PA. For more information contact George Perry at (570) 622-4225 or [gpp1@psu.edu](mailto:gpp1@psu.edu).
- ✓ March 15, 2006. **Erie County Vegetable Growers' Meeting**. For more information contact Andy Muza at (814) 725-4601 or [ajm4@psu.edu](mailto:ajm4@psu.edu).

## Regional

- ✓ January 10 – 12, 2006. **Annual Meeting and Trade Show of the NJ Vegetable Growers Association**, Atlantic City, New Jersey. Please call 609-426-1690 for more information and registration materials or log on to [www.njveggies.org](http://www.njveggies.org)
- ✓ January 31 – February 2, 2006. **Mid-Atlantic Fruit and Vegetable Convention**, Hershey, PA. For more information contact the Pennsylvania Vegetable Growers Association at [pvga@pvga.org](mailto:pvga@pvga.org) or visit [www.pvga.org](http://www.pvga.org).
- ✓ February 2 – 4, 2006. **PASA's 15<sup>th</sup> annual Farming for the Future Conference**, State College, PA. For more information contact PASA (Pennsylvania Association for Sustainable Agriculture) at (814) 349-9856 or [info@pasafarming.org](mailto:info@pasafarming.org). Registration materials can also be found online at [www.pasafarming.org](http://www.pasafarming.org).
- ✓ February 22 – 25, 2006. **Mid-Atlantic Direct Marketing Conference and Trade Show**, Reading PA. For additional information, registration materials, or to sign up as an exhibitor, contact John Berry at 610-391-9840, via FAX at 610-391-0683 or via e-mail at [jwb15@psu.edu](mailto:jwb15@psu.edu). Provide your name, address, phone and fax numbers, and e-mail address.

## National

- ✓ January 4-6, 2006. **North American Berry Conference**. The conference will be held at the Savannah International Trade and Convention Center in Savannah, GA. The conference date has been moved from its normal February date to make it easier for growers, researchers, educators and suppliers to also participate in the Southeast Regional Fruit and Vegetable Growers Conference being held January 6-8, immediately following the Berry Conference. NASGA is emphasizing the importance of registering early for the 2006 conference – because of the date change, and registration materials will be available on the NASGA website, [www.nasga.org](http://www.nasga.org) by mid August.

## International

- ✓ February 27 – March 3, 2006. **Advanced Permaculture Garden Design**, Nuevo Arenal, Costa Rica.  
Course Instructors: Daninne Egizio-Hughes and Darrell Frey. This course will focus on applying permaculture design to create gardens and functional landscaping for the Inn. Intensive tropical and forest gardens will be designed to supply fruits, herbs and vegetables for the Inn's visitors. Course Fee: \$1500. Registration includes course fee and lodging at the Red Sunset Inn. Nearby activities include recreation at Lake Arenal, eco-tours and the spectacular Arenal Volcano. For more information contact Darrell Frey at (724) 376-2797 or [defray@bioshelter.com](mailto:defray@bioshelter.com).

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The newsletter is also posted within three days on the Department of Horticulture Vegetable program website at: <http://hortweb.cas.psu.edu/extension/veg crops/newsletterlist.html>.

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