The Vegetable and Small Fruit Gazette

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Horticulture Department
The Pennsylvania State University

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Comments from the Editor

Elsa Sánchez, Department of Horticulture

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I want to thank Tim Elkner, Eric Oesterling and Lee Young for their excellent article, **Mildew Tolerant Pumpkin Variety Evaluations In Pennsylvania** and look forward to Steve Bogash's article for the March issue. I also 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

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Schedule for Agent Articles

Elsa Sánchez, Department of Horticulture

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Mildew Tolerant Pumpkin Variety Evaluations in Pennsylvania

Timothy E. Elkner, Horticulture Extension Educator, Lancaster County
Eric Oesterling, Horticulture Extension Educator, Westmoreland County
Lee Young, Horticulture Extension Educator, Washington County

Key words: pumpkin, varieties, mildew

Pumpkins are a very important crop in the mid-Atlantic region. In Pennsylvania, pumpkin acreage is second only to sweet corn. PA ranked first in fresh market pumpkin production in 2002 with 7,376 acres harvested for 9% of the total US acreage (non-processing). One of the major diseases limiting pumpkin yields is powdery mildew (PM). While there are fungicides available to control PM, it is still a problem for many growers. The purpose of this study was to evaluate PM tolerant and resistant pumpkin varieties under PA growing conditions.

Seven varieties of small pumpkins (<5 lbs), 9 varieties of medium pumpkins (7-24 lbs.) and 7 varieties of large pumpkins (25+ lbs) were grown in Lancaster and Westmoreland counties in 2004. The pumpkins were grown using raised beds with black plastic row covers and drip irrigation. Spacing of the plants was as follows: small – 2 ft in row (Lancaster) or 2.5 ft (Westmoreland) X 8 ft between rows, medium – 4 ft in row X 8 ft between rows and large – 6 ft X 8 ft (Westmoreland), 5 ft X 9 ft (Lancaster). Transplants were set June 21 in Westmoreland and June 24 in Lancaster with the plants receiving a pre-plant drench of Admire. Recommended fertility, weed control and disease and insect control practices were used. There were two 10 plant replicates per variety at each location. Percent leaf surface and undersides infected with powdery mildew were rated on 10 plants per replicate on August 25 in Lancaster and September 3 in

Westmoreland. Fruit were harvested and weighed on September 13 in Westmoreland and September 20 in Lancaster.

Overall, at both locations, the large pumpkins had a greater percent PM leaf coverage than the medium and small pumpkins (Tables 1, 2). The percent PM on the upper leaf surfaces was low this year probably because of the excessively wet season. However, there did appear to be a relationship between the percent PM coverage on the upper and lower leaf surfaces of each variety so relative susceptibility to PM can be estimated from the data.

Pumpkin varieties listed as mildew tolerant had as much (or more) powdery mildew coverage on their leaf surfaces as those without tolerance in the small varieties at both locations (Tables 1, 2). Varieties with mildew tolerance and resistance had less mildew in the medium and large pumpkin groups at Westmoreland and in the medium group at Lancaster. Aladdin had the lowest mildew coverage on the lower leaf surfaces at Lancaster but the highest coverage on the upper leaf surfaces. There did not seem to be a relationship between mildew tolerance/resistance and yield in our trials.

MSX 6075 was more productive and had larger fruit at Westmoreland than Lancaster, otherwise the data on size and yields for the small-fruited varieties were similar (Tables 1, 2). The smaller pumpkins tended to have a smooth texture and good handles in quality evaluations at the Lancaster site (Table 3). In the texture ratings a 1 is very smooth while a 5 has deep ribbing. In the handle ratings, 1 is poor (too small for fruit size, weak, etc.) while a 5 is large, dark green and strong. A good variety will have a rating of around 3 or better. Color on the medium and large pumpkins should be orange or dark orange. A yellow-orange fruit will not sell well when displayed with darker colored fruit.

Estimated yields were higher for both medium- and large-fruited varieties at the Westmoreland site. Estimated yield was calculated using yield/ft² in the experimental plots without allowing for spray/drive rows. We have no explanation for the higher yields at the western location. However, the top yielding variety was the same (RPX 1003) and Magic Lantern and Gold Bullion did well at both sites. Gold Bullion was somewhat variable in size. Magic Lantern is the current 'standard' for medium-fruited pumpkins in eastern PA because of its dark-orange color and good handles. RPX-1003 had yellow-orange color and acceptable handles while Gold Bullion and Magic Lantern had good color and better handles. The MSX selections and Magician had good color and handles.

Golden Condor and Autumn King were the most productive large-fruited varieties at both locations. These varieties were similar in size and appearance. Aladdin was the third most productive variety at Westmoreland while it was fourth at Lancaster. Fruit quality on these top performers was similar with all having good color and handles.

Additional data and photographs from all varieties grown at Lancaster can be viewed at: http://lancaster.extension.psu.edu . Select “Horticulture/Gardening” and then “Research Results” under County Links.

Table 1: Yield and powdery mildew infection ratings for 23 varieties of small, medium, and large pumpkins grown in Lancaster County, PA in 2004.

Variety	8/25 % PM Upper	% PM Lower	# fruit/ Plant	Avg. wt. Fruit	Est. yield (tons/A)	Source
Small						
Apprentice	0	26.0	7.8	1.1	12	HM*

Bumpkin	0	3.0	8.8	0.7	8	Meyer
Gold Dust	0	0.5	8.6	0.6	7	Rupp
Harvest Princess (PMT)**	0	7.5	7.0	2.1	20	Meyer
Iron Man (PMT)	0.3	6.3	3.3	4.0	18	HM
MSX 6075 (Pure Gold)(PMT)	0	4.0	2.5	4.1	14	Meyer
Munchkin	0	8.8	8.0	0.5	5	HM

Medium

Gold Bullion (PMT)	0	7.8	2.0	17.9	24	Rupp
Gold Gem	1.3	43.8	1.5	19.8	20	Rupp
Magic Lantern (PMT)	1.0	11.3	1.9	18.7	24	HM
Magician (PMR)	1.0	3.0	2.1	13.7	20	HM
MSX 6009 (Scarecrow)(PMT)	1.0	11.8	2.1	17.7	25	Meyer
MSX 6074	0.3	26.0	2.2	11.8	18	Meyer
MSX 6078	0.3	17.3	2.0	11.9	16	Meyer
RPX 1003	1.8	26.0	1.8	21.7	27	Rupp
RPX 1006	0.8	43.5	1.4	17.8	17	Rupp

Large

Aladdin (PMT)	3.8	23.8	1.8	24.5	21	HM
Autumn King	2.8	46.0	1.9	24.3	22	Rupp
Gold Medal	1.0	29.8	1.5	23.4	17	Rupp

Golden Condor (PMT)	1.3	40.3	2.0	23.6	23	Meyer
Harvest King	3.3	43.3	1.3	23.2	15	Meyer
MSX 6077	2.3	37.8	1.7	26.3	22	Meyer
RPX 1002	1.8	26.3	1.5	24.2	18	Rupp

* Harris-Moran

**PMT= powdery mildew tolerant, PMR= powdery mildew resistant

Table 2: Yield and powdery mildew infection ratings for 23 varieties of small, medium, and large pumpkins grown in Westmoreland County, PA in 2004.

Variety	9/03 % PM Upper	% PM Lower	# fruit/ Plant	Avg. wt. Fruit	Est. yield (tons/A)	Source
Small						
Apprentice	5.1	42.0	7.2	1.1	8	HM*
Bumpkin	1.8	5.8	8.1	0.8	7	Meyer
Gold Dust	0	2.9	6.6	0.7	5	Rupp
Harvest Princess (PMT)**	2.6	29.6	8.5	2.0	19	Meyer
Iron Man (PMT)	1.5	16.2	4.5	4.4	22	HM
MSX 6075 (Pure Gold)(PMT)	5.9	23.2	4.9	5.2	28	Meyer
Munchkin	0.8	7.5	7.0	0.6	4	HM
Medium						
Gold Bullion (PMT)	1.6	9.2	3.4	18.0	42	Rupp
Gold Gem	14.0	44.7	2.2	22.5	34	Rupp
Magic Lantern (PMT)	0	7.0	2.8	18.4	35	HM

Magician (PMR)	0.3	1.4	2.9	13.9	28	HM
MSX 6009 (Scarecrow)(PMT)	1.9	11.9	2.4	17.1	28	Meyer
MSX 6074	0.9	14.7	2.85	20.8	39	Meyer
MSX 6078	7.9	21.8	3.4	15.8	33	Meyer
RPX 1003	6.7	47.3	2.5	27.0	46	Rupp
RPX 1006	10.5	29.3	2.7	17.8	20	Rupp
Large						
Aladdin (PMT)	2.0	14.0	3.1	26.5	38	HM
Autumn King	10.9	49.0	3.6	26.2	43	Rupp
Gold Medal	11.9	43.3	2.6	30.8	36	Rupp
Golden Condor (PMT)	3.6	35.0	3.4	29.2	45	Meyer
Harvest King	12.6	52.3	3.4	25.2	36	Meyer
MSX 6077	9.5	30.6	2.6	29.7	35	Meyer
RPX 1002	15.5	47.8	2.5	25.3	29	Rupp

*Harris-Moran

** PMT= powdery mildew tolerant, PMR= powedery mildew resistant

Table 3. Evaluation of color, shape, texture, and handle quantityfor 23 pumpkin varieties grown in Lancaster County, PA in 2004. Texture and handle quantity are measured on a scale of 1-5 with 5 being the most desirable

Variety	Color	Shape	Texture	Handle
Small				
Apprentice	Orange	Round	1.0	4.0
Bumpkin	Yellow Orange	Flattened Oval	1.5	4.0

Gold Dust	Yellow Orange	Flattened Oval	2.0	3.3
Harvest Princess	Orange	Flattened Oval	2.3	2.8
Iron Man	Dark Orange	Round	1.5	3.5
MSX 6075	Dark Orange	Round	1.8	4.0
Munchkin	Yellow Orange	Flattened Oval	3.3	2.8

Medium

Gold Bullion	Orange	Variable	2.5	3.5
Gold Gem	Orange	Upright Oval	3.8	2.8
Magic Lantern	Dark Orange	Upright Round	3.0	3.5
Magician	Orange	Upright Round	3.0	3.5
MSX 6009	Dark Orange	Upright Round	2.5	3.0
MSX 6074	Orange	Upright	2.3	3.3
MSX 6078	Dark Orange	Variable	2.8	3.3
RPX 1003	Yellow Orange	Upright Oval	2.3	2.8
RPX 1006	Orange	Upright Round	3.0	4.0

Large

Aladdin	Orange	Upright	2.3	3.5
Autumn King	Orange	Upright Oval	2.8	3.0
Gold Medal	Dark Orange	Upright Oval	2.5	4.0
Golden Condor	Orange	Upright Oval	2.8	3.8
Harvest King	Dark Orange	Upright Oval	3.3	4.0
MSX 6077	Dark Orange	Upright Round	3.5	2.8

RPX 1002	Dark Orange	Upright Oval	3.0	3.5

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Direct Marketing Pennsylvania Grown Edamame to Professional Chefs in Metro-Philadelphia: The Sensory Evaluation

Dru Montri, Kathleen Kelley and Elsa Sánchez, Department of Horticulture

Key words: Edamame, direct marketing, chefs

This is the second of four articles in the series on direct marketing edamame to professional chefs.

Direct marketing to professional chefs can have its advantages, but before meeting with a potential buyer it is important to fully understand the market potential and demands. This article focuses on results from the sensory evaluation that was conducted to investigate chef preference for edamame cultivars. It is a supplement to the first article of this series that discussed the attributes chefs value when making a purchasing decision and the primary reasons chefs buy from local sources.

A sensory evaluation is simply a method used by researchers to determine how characteristics of food items such as taste, fragrance, texture and visual appeal are perceived by the senses. During the evaluation, participants are given samples of selected food items and asked to rate the sample as to how well they liked it. It is a great tool that can be used to assist in cultivar selection and the development of value-added products. For those who are working on a smaller scale, providing chefs with free samples and asking for feedback may work just as well.

In the fall of 2003, eighteen professional chefs in Metro-Philadelphia completed a sensory evaluation during which they rated each of the edamame cultivars ‘Early Hakucho,’ ‘Green Legend’ and ‘Kenko’ on overall appeal (visual appeal, mouth feel and flavor). The objective of the evaluation was to determine whether chefs liked the edamame and to eliminate cultivars that would not be acceptable to professional chefs. Each participant was provided with the following basic preparation instructions:

EDAMAME PREPARATION INSTRUCTIONS

Edamame pods are not edible. Please take special care to remove the beans from the pod prior to using them in a dish. Beans can be easily removed from the shell by pushing them from the pod with your thumb and forefinger.

CONVENTIONAL STOVE TOP PREPARATION:

Bring a kettle of salted water to a brisk boil and add the edamame. Cook for five to six minutes. Avoid overcooking. The beans can then be served hot or cold.

Chefs rated each cultivar on a scale of one to nine (one being dislike extremely, five being neutral and nine being like extremely). To evaluate responses, ratings were combined to create the three categories dislike (one to four), neutral (five) and like (six to nine). Sensory evaluation results show that the majority of chefs liked each cultivar overall (Table 1).

Table 1. Professional Chef Ratings for Overall Appeal of Edamame Cultivars

Rating for Overall Appeal	Number of Chef Responses		
	'Early Hakucho'	'Green Legend'	'Kenko'
Like[1]	12	11	14
Neutral	3	3	1
Dislike[2]	3	4	3

[1] Combined Responses for: Like Extremely, Like Very Much, Like Moderately and Like Slightly
[2] Combined Responses for: Dislike Extremely, Dislike Very Much, Dislike Moderately and Dislike Slightly

These sensory evaluation ratings support the idea that these three cultivars are acceptable for use by professional chefs. Since chefs do like edamame, it may be worthwhile for a grower to produce and direct market this specialty crop. Detailed chef preferences as determined by a follow-up survey will be addressed in the forthcoming article of this series.

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The Organic Way- Fresh Market Tomato Cultivars

Elsa Sánchez[1], Pete Ferretti[1], Tim Elkner[2] and Adam Montri[3]
[1]Department of Horticulture Assistant Professor and Professor, respectively
[2] Extension Educator, Lancaster County Cooperative Extension
[3]Department of Horticulture, Master's student

Key words: organic, tomato, cultivar

Cultivar selection is an important step in producing tomatoes and requires careful evaluation regardless of management system. However, because in organic production pests are managed primarily using preventative strategies, the importance of cultivar selection is amplified. After selecting a type of tomato based on the market it will be sold in, select cultivars with resistance or tolerance to pests that are potential problems. In Pennsylvania verticillium wilt, fusarium wilt and root knot nematodes are generally the greatest potential pests in tomato production.

Drs. Pete Ferretti and Tim Elkner are co-authors of the publication *Culture and Varieties for the Home Gardener, Bedding Plant Grower and Nursery Garden Center Operator: Growing Tomatoes and Eggplants* (you can get this publication through this website http://pubs.cas.psu.edu/Publications.asp or by calling the Publication Distribution Center at Penn State University at 814-865-6713). They have evaluated numerous tomato cultivars and found the cultivars in the table below to be suitable for direct markets and sustainable agriculture based on high yields and quality and disease resistance. Future revisions of this publication will have this symbol  after any cultivar that they determine has enough pest resistance and high yield and quality to warrant growing by direct-marketers and sustainable growers. These cultivars have not been evaluated for organic production. However, you may consider trialing these on a limited basis and directly compare them to your standard cultivars.

Cultivar	Type	Disease Resistance*	Comments
Bush Early Girl [H]	Early	V, F2, N, MR	Earliest, largest fruited, very flavorful, 30-inch tall bush, determinate
Big Beef [H]	Early/Mid	V, F2, MR, N, STEM, ASC, LS	10- to 12-oz glossy globe, quick-freezes as 3/8-inch thick slices, indeterminate, AAS**
Carolina Gold OP	Gold-fruited	V, F2, Gt	Light tangerine color throughout
Juliet [H]	Paste or Saladette	LB, STEM	Giant grape saladette, cut in half for nice presentation, no cracking, glossy, AAS
Sweet Chelsa [H]	Paste or Saladette	V, F, N, MR, CLM	Redder, sweeter, glossier, round saladette
Italian Gold [H]	Paste or Saladette	V, F	For canning, freezing, fresh for novelty sauces and salsa, easy to peel
Viva Italia [H]	Paste or Saladette	V, F2, N, STEM, BS, ALS	Very high-yielding sauce and paste type
Puebla [H]	Paste or Saladette	V, F2, N, BS, ASC, STEM	Paste, saladette or sauce
Sun Sugar [H]	Cherry	F1, TMV	Golden yellow; early and crack resistant; high sugars
Super Sweet 100 [H]	Cherry	V, F	Extra sweet, crack tolerant

Mini Charm [OP]	Grape	V, F2, MR	Grape size and shape, extra sweet

[H] = hybrid cultivar,
[OP] = open pollinated or non-hybrid cultivar.
* F = fusarium resistant or tolerant to race 1; F2 = reisistant or tolerant to both Fusarium races; V = verticillium tolerant; LB = late blight tolerant; LS = leaf spot resistant/tolerant; ASC = alternaria stem canker; STEM = stemphylium, MR = tomato mosaic resistant; TMV = tobacco mosaic virus; Gt = highly graywall tolerant; BS = resistant or tolerant to bacterial spec; CLM = resistant or tolerant to Cladosporium Leaf Mold (some races); ALS = alternaria leaf spot reisistance or tolerance; N = root knot nematode resistant/tolerant.
** AAS = All America Selections award winner.

During the 2004 growing season we grew ‘Big Beef’, ‘Plum Crimson’, ‘Mountain Fresh’ and ‘Pink Beauty’ tomatoes in organically managed high tunnels.

‘Big Beef’ is an early to mid season cultivar and an All American Selection. Fruit are large (between 10 to 12 oz), red and globe-shaped. ‘Big Beef’ is an indeterminate cultivar with resistance or tolerance to verticillium wilt, fusarium wilt, root knot nematodes, tobacco mosaic virus, stemphylium wilt, alternaria stem canker and leaf spot.

‘Plum Crimson’ is a plum or saladette cultivar. Fruit are red, medium sized and pear- or plum-shaped. This is a determinate cultivar with resistance or tolerance to verticillium wilt and fusarium wilt.

‘Mountain Fresh’ is a late summer slicing cultivar. Fruit are red and large. This is a determinate cultivar with resistance or tolerance to verticillium wilt and fusarium wilt.

‘Pink Beauty’ is an early to mid season specialty cultivar with medium sized (6 to 8 oz) globe-shaped pink fruit. This is an indeterminate cultivar.

All of the cultivars preformed well in the high tunnels. Tomatoes were direct-marketed after harvesting and ‘Big Beef’, ‘Plum Crimson’ and ‘Mountain Fresh’ sold well. ‘Pink Beauty’ also sold well; however, because it is pink when mature, consumers often thought it was unripe and the salesperson had to explain this. This may be a limitation in direct marketing ‘Pink Beauty’.

****Let us know your experiences with these cultivars and give us suggestions as to whether we should make additions, deletions or corrections to our list. Contact Elsa Sánchez, Department of Horticulture, 102 Tyson Building, Penn State University, University Park, PA 16802 or elsa-sanchez@psu.edu.

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Where's the Darn Berry Guide?

Kathy Demchak, Department of Horticulture

No, that's not the official title of the guide, though it's a tempting thought.... As I mentioned in an article last year, Penn State's Commercial Berry Production and Pest Management Guide is being replaced by the Mid-Atlantic Berry Guide, a cooperative effort of personnel in 6 states (PA, NJ, MD, VA, WV, and DE). Why did we go this route, rather than just continuing to update the old guide? Well, as you might know, funding has fallen way short of needs the past few years, and there have been many losses in staffing in

the berry production area at Universities. There simply are no longer people working in berry production in each discipline (horticulture, plant pathology, and entomology) in each state, and sometimes, as with Penn State, there haven't been for years. So, in order to provide current information for this type of guide, especially in the pest control area, we needed to join forces with surrounding states. We'll have a great guide (it's true - I know what's in it!!), but doing this has meant coordinating pieces of information from 30+ people, most of whom have primary responsibilities outside of the berry production area such as in tree fruit or vegetable production, rather than from 4 or 5 people within a state who work with berries. This has been a huge effort, and there just aren't enough hours in a day….even including evenings and weekends, to get this done quickly. So, it will be late spring before the guide is available. Those of you who are still using the 1993-94 version (and you know who you are…) may not mind, but those of you looking for the most up-to-date information might. So, in next month's newsletter article, I'll give you Web site addresses where you can get time-dependent information, updated pesticide tables, etc., etc., to supplement the 2002-04 version until the new guide is available. If you don't have Web access, your local Extension office will be able to help

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New Greenhouse IPM Publicatiuons from Penn State University

Mike Orzolek, Department of Horticulture

Key Words: greenhouse, IPM, biocontrols

"Greenhouse IPM with an Emphasis on Biocontrols", produced by the Pennsylvania Integrated Pest Management Program is available for $15. It can be order through the publication distribution center. Contact information is below.

Publication Distribution Center
The Pennsylvania State University
112 Agricultural Administration Building
University Park, PA 16802-2602
Telephone: 814-865-6713
FAX: 814-863-5560
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http://pubs.cas.psu.edu/Publications.asp

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New Plasticulture Book

Bill Lamont, Department of Horticulture

Key words: plasticulture, plastic, vegetables

New Plasticulture Book Can Help Growers Extend Production, Maximize Yields

Plasticulture – a crop growing system that uses plastic components, such as mulch, high tunnels and drip irrigation systems – can help growers achieve earlier production, higher yields per acre, cleaner and higher-quality crops and more efficient use of resources. A new book, “Production of Vegetables,

Strawberries and Cut Flowers Using Plasticulture", covers all aspects of the growing system, including plastic mulch, drip irrigation, fertigation, season extension, windbreaks, crops establishment, weed management, soil sanitation and managing used plastics. Production systems for strawberries and cut flowers are described in depth. Over 85 photos and 18 figures supplement the text. The book is intended for new and experienced growers, serious gardeners and educators.

"Production of Vegetables, Strawberries and Cut Flowers Using Plasticulture, NRAES-133 (Natural Resource, Agriculture and Engineering Service), costs $24 plus $6 S&H (within the continental US). To purchase contact NRAES, Cooperative Extension, PO Box 4557, Ithaca, NY 14852; phone (607) 255-7654; fax (607) 254-8770; email NRAES@cornell.edu; website www.nraes.org.

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Potato Musings- High Tunnel Production of Specialty Potatoes

Bill Lamont, Department of Horticulture

Key words: potato, high tunnels, specialty

High tunnels are part of plasticulture technology and are used worldwide for the production of a wide array of horticultural crops. In Pennsylvania the use of high tunnels permits the earlier production of a number of vegetable crops such as tomatoes, peppers, eggplant, and leafy greens. The use of high tunnels allows the production of early potatoes and is especially profitable if grown/marketed in conjunction with fresh garden peas and pearl onions which are used together for a tasty spring dish. The use of high tunnels can provide growers the opportunity to market early red potatoes or red, white and blue for the 4th of July holiday. The system of production is very similar to field production, except the equipment size is smaller. Plastic mulch, drip irrigation and row covers are use inside the high tunnels. In a 17-foot wide high tunnel, 3-foot wide plastic mulch is used to make four small raised beds 18 inches wide and 3 inches high which are spaced 44 inches apart. A small 21 HP tractor and plastic laying machine is used to apply the 3-foot wide plastic mulch and drip irrigation tape. Application of the plastic mulch and drip irrigation tape is similar to field production. In the high tunnel black or red plastic mulch are good choices, since we want to really warm the soil up. If the plastic mulch and drip irrigation tape could be applied in the preceeding fall, it could then be ready for an early spring planting. A note of caution, rodents may be a problem if plastic mulch and drip irrigation are applied in the fall. If fall application is not possible, then the plastic mulch and drip irrigation tape can be applied as soon as it is possible to enter the high tunnel in the early spring.

Fertilizer can be broadcast in the high tunnel and pulled into the row or some can be broadcast and then fertigated. The rates would be similar to the field situation, although lesser amounts can be used since in a high tunnel a grower has complete control over soil moisture and fertilizer. Potato varieties used in the high tunnels have been Red Pearl (W8475-R), a red-skin/white flesh that makes 71% B size potatoes from the Wisconsin Potato Breeding Program; Eva- a white skin/white flesh from the Cornell Potato Breeding Program; and Michigan Purple- a purple skin/white flesh from Michigan State Potato Breeding Program. These were chosen in order to have some red, white and blue skinned potatoes for our "Patriot Potato Salad" for the 4th of July or the famous "Potato Flag". Plant the potatoes in late March or early April, depending on the soil temperature in the high tunnel, on double-rows 13 inches apart, with the potatoes spaced 8 inches apart in the row.

The row cover is placed over the plastic covered beds and the soil temperature is monitored until it reaches 50o F and then the potatoes were planted which for us in State College, PA in mid-March to early April. Note: the row cover will provide some protection from an unexpected freeze event but it is recommended that some source of portable backup heat is available to prevent the tops of the potatoes from being killed off.

Potatoes will need to drip irrigated as needed and no pesticides have been needed thus far in the high tunnel potatoes. The potatoes are dug by hand in early to mid June to be ready for the 4th of July market. The soil temperature at time of digging was 79o F. Red Pearl yielded 120 lbs. of potatoes, the Eva yielded 100 lbs. of potatoes and Michigan Purple yielded 139 lbs. of potatoes. There were less than 10 tubers in the entire tunnel that had any defects. Red Pearl yielded 375 tubers/30 plants or 12.5 tubers per plant. Eva yielded 112 tubers/30 plants or 4 tubers per plant and Michigan Purple yielded 90 tubers/30 plants or 3 tubers per plant.

The skin colors were excellent on all varieties. To take advantage of the skin colors of the potatoes and the 4th of July holiday, an American flag (3' wide by 5' long) made of the potatoes was constructed to show how they could be promoted in a retail market. You will need approximately 112 red potatoes (Red Pearl or Dark Red Norland), 90 large white potatoes (EVA) and (50 small whites for the stars) and 50 large blue (Michigan Purple). If we were to figure the number of seed pieces required it would work out to 24 for red, 18 for white and 12 for blue. These potatoes lend themselves to marketing in small woven baskets, in attractive displays, in polybags, or plastic clamshells and can command a high price.

If a grower had a 17' by 96' high tunnel and grew four rows at the 13" double-row, 8-inch in-row spacing, the yields for Red Pearl would be 1,104 lbs. of potatoes, Eva- 920 lbs. of potatoes and Michigan Purple- 1,278 lbs. of potatoes. The price of specialty potatoes at the food stores, according to a chart presented by the National Potato Promotion Board is .86/lb. If advertised and promoted at local retail markets, $1.50 for 1.5lbs. should be reasonable price to expect. If we use $1.50 for 1.5 lb. then the gross return for each of the varieties would be Red Pearl- $1,104, Eva- $920 and Michigan Purple- $1,278. This is for an area of production that is only 0.037 of an acre.

Once the potatoes are harvested then a cucumber crop could be planted, followed by a fall broccoli crop. One could even do a late season crop of potatoes in the high tunnels.

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Upcoming Meetings

Elsa Sánchez, Department of Horticulture

Local

February 10, 2005: Northeast Vegetable Growers Meeting, Thompson's Dairy Bar, Clarks Summit, PA. Contact: John Esslinger (570) 963-4761

February 21, 2005: Tri-County Vegetable, Small Fruit and Greenhouse Meeting, Shippensburg, PA. Contact: Steve Bogash (717) 263-9226

February 22, 2005: Schuylkill County Regional Vegetable Growers Meeting, Extension Office, Pottsville, PA. Contact: George Perry (570) 622-4225

March 3, 2005: Lehigh/Schuylkill County Potato Growers Meeting, Schnecksville Grange in Neffs PA. Contact: Bob Leiby (610) 391-9840

March 4-5, 2005. Passive Solar Greenhouse Workshop, 1522 Lefever Lane, Spring Grove, PA 17362. Contact: Steve and Carol Moore (717) 225-2489 or sandcmoore@juno.com.

March 12, 2005: North Central PA Vegetable Growers Meeting, Penns Valley Area High School. Contact: Tom Butzler (570) 726-0022. (Tentative Date).

March 15 or 16, 2005. Erie Vegetable Growers Meeting, Erie, PA. Contact: Andy Muza (814) 825-0900. (Tentative Date).

October 14-15, 2005. Passive Solar Greenhouse Workshop, 1522 Lefever Lane, Spring Grove, PA 17362. Contact: Steve and Carol Moore (717) 225-2489 or sandcmoore@juno.com.

Regional

Februrary1-3, 2005. Mid-Atlantic Fruit and Vegetable Conference, Hershey, PA. Contact: Bill Troxell (717)-694-3596 or e-mail: wt.pvga@tricountyi.net

February 14-17, 2005. Empire State Fruit and Vegetable Expo, Omni Center, Syracuse, N.Y.

National

February 15-17, 2005. Wisconsin Potato and Vegetable Growers Association Annual Meeting, Holiday Inn, Stevens Point, Wis.

February 16 – 19, 2005. 2005 North American Berry Conference, Doubletree Nashville Hotel, Nashville, Tennessee
A joint conference of the North American Strawberry Growers Association and the North American Bramble Growers Association.
For More Information: http://www.nasga.org/meetings/2005/berry_conference/reg_brochure.htm

March 2-5, 2005. 2005 Chip Seminar, Adams Mark Hotel, Jacksonville, FL. Contact: (303) 873-2334.

March 5-8, 2005. National Agricultural Plastics Congress. The Francis Marion Hotel, Charleston, SC. Contact: www.plasticulture.org/conginfo2005.htm.

International

September 5-9, 2005. Potato 2005. Emmeloord, the Netherlands. Contact: www.potato2005.com.