

The Vegetable and Small Fruit Gazette

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Horticulture Department
The Pennsylvania State University

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Tip for the Month: : "May the road rise to meet you. May the wind be always at your back.
May the sun shine warm upon your face. The rains fall soft upon your fields. And, until be meet
again, May God hold you in the palm of His hand" - A Gaelic Blessing

Comments from the Editor

Bill Lamont, Department of Horticulture

The month of April begins the planting season. It is a time of renewal of the landscape and the beginning of another growing season. I want to thank Greg Burns for his excellent article "**Results of 2001 Fruit and Vegetable Variety Trials**" in this issue of the Vegetable and Small Fruit Gazette. We have Tom Butzler on deck for an article for the May issue. As always, the Vegetable and Small Fruit Gazette Team encourages your feedback so that we can better serve your needs and address your concerns.

Schedule for Agent Articles

Bill Lamont, Department of Horticulture

May	Tom Butzler
June	Laura McNutt
July	Steve Bogash
August	Mary Conklin
September	Eric Oesterling
October	Cheryl Bjornson
November	John Esslinger
December	Andy Muza

Results of 2001 Fruit and Vegetable Variety Trials

Greg Burns, CED, Elk and Cameron County

Starting in 1991, Extension's Integrated Crop Management Demonstration Site continued to be utilized this year as an education/research tool for fruit and vegetable producers and Master Gardeners in the six county area. Like the past ten years, fruit and vegetable variety trials were conducted; the results of which are outlined below. Each variety was given an overall rating of excellent, good, fair or poor relative to harvest quality and quantity. Comments particular to each are also listed. Remember these ratings are subjective and pertain only to this past growing season and site conditions. It is hoped that as these varieties are tested over multiple seasons a pattern will be established through which we can determine suitability for our area (soils, climate, etc.). Grower recommendations will be based upon the outcomes.

Like much of the state the north central counties experienced one of the worst droughts in recent memory. Hot and dry conditions existed throughout the summer but were particularly bad during the late July and August period making any kind of agricultural production extremely difficult. Most areas received little or no precipitation from usual summer thunderstorm activity and even the early spring, while cool, was excessively

dry.

The result of these conditions was that most non-irrigated horticultural crop yields were approximately two weeks late and reduced to about half of normal. The dry, hot conditions coupled with a colder and longer winter caused insect, disease and weed pressures to be lower than in many years. Insect exceptions to this included early season root maggots on many crops and common cabbage moth as well as Two Spotted and European Red Mites on both edible and ornamental plants. Diseases of significance were black rot on cucurbits, powdery mildew and possibly early blight on tomatoes.

While pest pressures were lessened the physiological impacts of the drought were greatly increased. Blossom End Rot of tomatoes and peppers was widespread as was cracking, splitting and sunscald on many crops. Pollination was affected as demonstrated by low sweet corn yields and general poor quality as well as severe catfacing in tomatoes. Keep these environmental conditions in mind as you look over the results. It is hoped these local trials will help you make better variety selection decisions for future years.

CROP	VARIETY	DAYS TO HARVEST	COMPANY	PLANTING DATE	HARVEST DATE	COMMENTS
Lettuce	Two Star		Johnny's	3/14CF 4/23 5/31 7/9		Excellent
Broccoli	Windsor	56	Johnny's		7/6 9/1	Excellent
	Arcadia	63	Johnny's		7/13	Excellent
Cabbage	Stonehead	67	Stokes		7/14	Excellent
	Augusta	80	Stokes		7/27	Excellent
Cauliflower	Fremont	62	Johnny's		7/6 10/20	Good
Brussel Sprouts	Jade Cross	95	Stokes			Good, tight packed, hard to harvest
	Tasty Nuggets			3/19GH 4/27HT	9/22	Excellent
Tomato	Monroe	67	Johnny's	3/10GH 4/20HT	7/11	Good, smaller

	Early Goliath	58	Totally Tomatoes	3/10GH 4/20HT	7/26	Good, much Blossom End Rot
	Goliath	65	Totally Tomatoes	3/10GH 4/20HT	7/22	Good, much BER
	Bush Early Girl	54	Totally Tomatoes	3/10GH 4/20HT	7/19	Excellent
	Mountain Delight	70	Totally Tomatoes	3/10GH 4/20HT	7/23	Good, lower Yield, much Early Blight
Paste Tomato	San Marzano	80	Stokes	4/19GH 5/31	8/28	Poor, low yield, Splitting, BER, EB
	Viva Italia	72	Totally Tomatoes	4/19GH 5/31	8/22	Poor, low yields, Splitting, BER, EB
	Halley	78	Johnny's	4/19GH 5/31	8/31	Excellent, large size, no EB
	Sweet Million	60	Totally Tomatoes	4/19GH 5/31	8/10	Good, good flavor, prolific
Pepper	Goliath Hybrid	71	Totally Tomatoes	3/31GH 5/27		Fair, BER, late, Low yield
	Fat & Sassy	61	Totally Tomatoes	3/31GH 5/27	8/6	Fair, BER, late, Low yield
	Rainbow Mix	65-70	Totally Tomatoes	3/31GH 5/27	8/6	Fair, BER, late low yield
	Lido Lamuyo		Harris	3/31GH 5/27	8/6	Fair, BER, late Low yield
Hot Peppers	Hungarian Wax		Harris	3/31GH 4/21GH 5/27 6/8	8/6	Good, late
Eggplant	Blacknite	61	Stokes	3/19GH 5/27	8/4	Excellent

Spinach	Indian Summer	39	Johnny's	4/23CF		Excellent
Peas	Progress #9		Stokes	4/23	7/6	Fair, poor taste
	Olympia	62	Stokes	4/23	6/25	Excellent
Beets	Scarlet Supreme	52	Stokes	4/23 6/4	7/6	Excellent
	Red Ace	53	Stokes	4/23 6/4	7/6	Excellent
Carrot	Bolero	75	Johnny's	4/23 6/4	8/6	Good
	Sugarsnax	68	Johnny's	4/23 6/4	8/6	Exc. Nice shape
Melon	Earligold	72	Johnny's	4/28GH 5/27	8/28	Fair, very late
	Primo	79	Stokes	4/28GH 5/27	8/22	Fair, splitting
	Superstar	86	Harris	4/28GH 5/27	8/15	Exc., great flavor
Watermelon	Sweet Favorite	79	Johnny's	4/28GH 5/27	8/17	Excellent
	Golden Crown	78	Jung	4/28GH 5/27	8/6	Excellent
	Judo (seedless)	82	Johnny's	5/5GH		Poor, low vigor, poor germination, low yield
Zucchini	Revenue	48	Johnny's	5/30		Good
Yellow Squash	Sunray	40	Stokes	5/30		Excellent prolific
Beans	Grenoble	52	Johnny's	5/26 6/15 6/30 7/9		Excellent prolific
	Early Contender	49	Johnny's	5/26 6/15 6/30 7/9		Good short harvest
	Espada	56	Johnny's	5/26 6/15		Good
Wax Beans	Rocdor		Johnny's	5/26 6/30		Good

Cucumber	Supersett	52	Johnny's	5/7GH 5/29	7/10	Excellent
	Speedway	54	Stokes	5/7GH 5/29	7/13	Poor, short
	Straight 8			5/7GH 5/29	7/13	Excellent
Sweet Corn	King Arthur	66/73	Stokes	5/8 5/24 6/15	8/10 8/18	Fair, short
	Mystique	75	Stokes	5/8 5/24 6/15	8/14 8/20	Good
	Argent	83	Stokes	5/24 6/15	8/20	Good
	Seneca Dancer		Harris		5/27	Excellent
Butternut Squash	Butternut Supreme	87	Stokes	5/28	9/7	Poor, Black Rot
	Waltham			5/28	9/7	Poor, Black Rot
Pumpkin	Rock Star	98	Johnny's	5/28	9/7	Excellent
	New England Pie	105	Johnny's	5/28	9/7	Good, small
Swiss Chard	Bright Lights		Johnny's	4/23		Excellent
Spaghetti Squash			Johnny's	5/30	9/7	Poor, low yield
Gourds	Mixed Small	95	Jung	5/28	9/7	Excellent
	Crown of Thorns	95	Jung	5/28	9/7	Excellent
	Jack Be Little		Johnny's	5/28	9/7	Excellent
White Potatoes	Superior		Agway	4/23	7/7	Good, small
Onions	Yellow Globe		Agway	4/23	7/7	Good, some rotting
	Dutch Long		Agway	4/23	7/7	Good

	Keeper					
Red Currants	Wilder		Miller's		6/18	Good
Gooseberries	Welcome		Miller's		7/13	Good
			FULL BLOOM			
Pears	Seckel		Adam's County	5/5	10/2	Excellent
	Clapps Favorite		Adam's County	5/2	8/27	Excellent
	Bartlett			5/3		
	Kieffer			5/2		
Apples	Redfree		Adam's County	5/5	8/9	Good, smaller
	Wolfe River			5/13		
	Empire		Adam's County	5/6	9/19	Good, Apple Scab smaller
	Golden Delicious		Adam's County	5/6	10/13	Fair, Apple Scab, Smaller
	Liberty		Adam's County	5/5	9/19	Excellent
	Freedom		Adam's County	5/6	9/25	Excellent, large
	Jonafree		Adam's County	5/6	9/21	Excellent
	Northern Spy			5/13		Fair, small crop
Cherries	Montmorenci		Adam's	4/30		

			County			
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Abbreviations Used:

- GH - Greenhouse
- HT - High Tunnel
- CF - Cold Frame
- BER - Blossom End Rot
- EB - Early Blight

Managing Used Agricultural Plastics

James W. Garthe, PE, Dept of Agricultural and Biological Engineering

Your Options Today...

Option 1. Open Burn On-site

This option is unacceptable. However, state law does allow farmers to burn waste products from the production of agricultural commodities, which includes used plastics. Municipalities are adopting open burning ordinances that override state laws and prohibit burning of plastics by farmers. Burning plastics results in high concentrations of various air pollutants, especially when allowed to smolder. If you feel you must burn, at least ensure that your fire is as clean as possible by following these guidelines:

- **Remove ash from previous burn.** Wet ashes and plugged air inlets create poor conditions for complete combustion to occur.
- **Burn it as hot as you can.** Add sticks or scrap lumber to promote combustion. Smoldering fires have flame temperatures that are 400-600 °F or less, releasing many products of incomplete combustion.
- **Give it plenty of air.** If you're using a barrel, make sure there are plenty of air holes. Better than a barrel, use a burner with a grate for good aeration.
- **Do not let it smolder.** Pollution increases when a fire smolders.

Option 2. Bury or Dump On-site

This option is unacceptable. Farm dumps are becoming liabilities, especially when transferring title to the farm. Banks, realties, and various lending agencies are looking critically at the farm dump as an environmental concern. Environmental professionals conducting environmental site assessments (ESA's) on farmland during title transfers may uncover more liability than the seller can afford. Costs can exceed \$10,000 for laboratory tests alone.

Option 3. Haul to Recycling Facility

Recyclers or reprocessors have certain requirements before accepting your plastics:

1. **Keep plastic types separate.** Most plastics don't mix when they're melted during recycling. If you don't know the type plastic you're working with, ask your supplier.

2. **Ship large quantities.** Reprocessing centers only accept truckload quantities of 30,000 - 40,000 pounds.
3. **Must be baled or palletted.** Plastic should be baled or pallet-wrapped to fill a semi-trailer for shipment. Bale sizes vary, but are typically 800-1200 pounds.
4. **Keep items clean and dry.** Reprocessors typically allow 1-4 percent contamination by weight. Loads are often rejected if they're dirty. Suggestions are to:
 - store bales indoors off the floor
 - remove debris from inside bales, such as crop material, rags, tape, moisture, mud / soil, paper, cardboard, or paperboard
 - discard other plastics like polystyrene (Styrofoam) or polyurethane (foam rubber)
 - wipe off any oil or grease
 - band with plastic strapping, not steel banding, twine or rope

Currently, **polystyrene trays and flats** are being accepted from Pennsylvania for recycling in Canada. Truckload quantities (about 26 pallets, shrink-wrapped) will be picked up free of charge and you will receive \$80 per ton of resin recycled. Contact:

Canadian Polystyrene Recycling Association, 7595 Tranmere Drive, Mississauga, Ontario L5S 1L4 Ph: 905.612.8290 Fax: 905.612.8024

Option 4. Haul to Waste-to-Energy Facility

This is a great way to manage plastic wastes. Waste-to-energy (WTE) facilities convert the high heat energy of plastics to steam, which in turn generates electricity. This is a great way to gain a second life from your wastes. The high burn temperatures in these facilities achieve over 99.9 percent complete combustion. Their popularity has been hampered by negative public perceptions associated with stinky smokestacks from old, obsolete incinerators. Today, emissions have been regulated to the point that they are hardly perceptible, and certainly not in concentrations that are toxic downwind from the facility. WTE's are safe.

This table compares the energy value of different materials when burned. Btu is British Thermal Units.

(By comparison, one paper match gives off about 1 Btu.)

<u>Waste Material</u>	<u>Btu/lb</u>
Fuel Oil	20,900
Polyethylene plastic	19,900
Polypropylene plastic	19,850
Polystyrene plastic	17,800
Wyoming coal	9,600
Newspaper	8,000

Textiles	6,900
Wood	6,700
Yard wastes	3,000
Food waste	2,600
Average for Municipal Solid Waste	4,500

Option 5. Hire Waste Hauler

Farmers are hesitant to pay a private waste hauler to remove trash. However, this is often the option that might best suit your situation. Most of this material is landfilled. To minimize pollution, all landfills today are sealed top and bottom, and many have leachate and gas collection systems. Landfill gas is used to supply energy needs in the area.

Your Options Tomorrow...

Option 1. Produce Fuel Nuggets

Penn State has developed a process to densify dirty plastics into fuel nuggets. The nuggets are designed to be co-fired with coal in existing boilers. The end-use can be for agricultural boilers or for small community boilers designed to burn coal. The nuggets can be made either on the farm or in small industrial settings, thus consuming the energy close to the plastic supply. The benefit of the system is that it converts an annoying waste into a valuable fuel, with a minimum of energy expended in the process.

Option 2. Haul to Waste-to-Energy Facility

As mentioned earlier, these facilities are very efficient at converting wastes to energy. As coal and petroleum reserves dwindle, these facilities will inevitably become more commonplace.

Questions may be directed to: Mr. James W. Garthe, PE, Dept. of Agricultural and Biological Engineering Penn State University, 246 Agricultural Engineering Building, University Park, PA 16802 Ph: (814) 865-7154 Fax: (814) 863-1031 Em: jwg10@psu.edu

Dual Magnum Section 18 For Pennsylvania in 2002

M.D. Orzolek, Department of Horticulture

I have been notified that EPA has approved Section 18's for the use of Dual Magnum on tomato and spinach in Pennsylvania for 2002. The Section 18 Emergency Exemption label for the use of Dual Magnum on tomato contains the following provisions: 1)

Effective date - April 15 to July 15, 2002, 2) A single ppi, pre-transplant, post directed, or post-over-the-top of transplants (after 1st rain or irrigation) application can be made at the rate of 0.8 to 1.6 pts/A depending on soil organic matter content, 3) A 90-day pre harvest interval must be observed, and 4) a maximum of 2,000 acres of tomato may be treated in Pennsylvania in 2002.

The Section 18 Emergency Exemption label for the use of Dual Magnum on spinach contains the following provisions: 1) a single pre-emergence application can be made at the rate of 0.50 to 0.67 pts./A between May 1 and August 30, 2002, 2) A 24-hour re-entry interval must be observed, 3) a maximum of 800 acres of spinach may be treated in Pennsylvania in 2002.

Sources of Colored Plastic Mulch

M.D. Orzolek, Department of Horticulture

Use of plasticulture production systems for horticultural crops has increased dramatically in the last 5 years. One common question we receive from many growers is where can I purchase plastic mulch and what colors are available? This is a current list of polyethylene manufactures and the colors they produce.

Clarke Ag Plastics - P.O. Box 238, Greenwood, VA 22943. Ph: 540/456-4578 Fax: 540/456-6403. Low density, highly reflective (metalized) silver/black or clear - smooth or embossed

Website: <http://www.cstone.net/~agmulch/about.html>

Climagro Mulch Film, 3235 Sartelon, St-Laurent, Quebec H4R 1E9. Toll free: (800) 561-8029 Fax: (514) 332-0406. PST Thermal green, white/silver on black and black. All films are embossed.

Website: <http://www.climagro.com/>

Ken-Bar, Inc., 25 Walkers Brook Drive, Reading, MA 01867-0704. Toll free: 800/336-8882. All films are high density, embossed polyethylene. Black, silver/black, white/black, SRM-olive (IRT-Green), SRM red and black paper mulch.

Website: <http://www.ken-bar.com/>

Mulch Film. Com - John Weiswasser. Phone: 610/909-7594. All colors are offered as embossed or taffeta films. Black, reflective white, IRT green, IRT brown, co-extruded white/black, blue, red, clear, co-extruded 20" black strip on Super Brite aluminum.

Website: <http://www.mulchfilm.com/>

Pliant Corp., 1515 Woodfield Rd. Suite 600, Schaumburg, IL 60173. Phone: 866/878-6188. All films are embossed. Black, black/white. white, clear, blue, thermic olive, and olive green.

Website: <http://www.pliantcorp.com/>

Reflectek Foils Inc., 1075 Brush Hill Lane, Lake Zurich, IL 60047. Toll free: 888-439-6121. Metalized UV reflective - silver/black, silver/white, black and white. Both embossed and smooth film offered.

Website: <http://www.repelgro.com>

Rochelle Plastic Film, P. O. Box 606, Rochelle, IL 61068. Phone: 815/562-7848. Offer either high density or low density embossed films. Black and IRT green.

Bug vs. Bug - Monitoring Insects on Sticky Traps

Cathy Thomas, Integrated Pest Management Program
Pennsylvania Department of Agriculture

Sticky traps are an important tool in an Integrated Pest Management Program and alert growers to pests that are present. Adult stages of pests such as whiteflies, western flower thrips, fungus gnats, shoreflies and winged aphids may be detected on sticky cards. Adult trapping alone may not always be a good indicator of damage being caused by immature life stages, therefore, weekly plant inspection should be used in combination with sticky card monitoring. The information obtained from sticky card monitoring can be used to determine if a treatment is needed, the proper timing of a treatment (biological or chemical), and helps in evaluating the effectiveness of the control actions.

Types of Traps

Rectangular 3 x 5 inch traps are typically used in greenhouse crops. Sticky tapes and ribbons can be used, however these are primarily used for control of insects. Bright yellow is the color most commonly used to trap most species of insects. Keep traps in good condition and change them at least every other week, or weekly if needed. This will vary with insect population levels.

Blue traps are most attractive to western flower thrips and other thrips species. This color is useful in crops that are sensitive to thrips damage and require close monitoring.

Interpreting Trap Information

To identify insects on sticky traps a 10x to 15x power hand lens will be necessary. Traps should be checked once a week or every 2 - 3 days if you suspect a problem. Examining traps weekly will give you idea of population trends. Record the number and type of pests caught on each card. Keep this information for future use. A guide to identifying insects on sticky traps can be obtained through IPM Laboratories, Locke, NY, (315) 497-2063, ipmlabs@ipmlabs.com or explore these web site for more information: <http://www.ipm.ucdavis.edu/PMG/selectnewpest.floriculture.html>.

Fungus gnats and shoreflies - Fungus gnat adults have long legs and antennae. There is "Y" shaped vein on the tip of their wing. Horizontal placement of cards just above the soil surface is more effective that vertical placement. Shoreflies have five clear spots on

their wings with shorter antennae than a fungus gnat. Hang cards vertically for shorefly monitoring.

Thrips - Usually the tiniest insect found on traps. The slender abdomen appears pointed at the rear and hairs line the edges of the wings. Female thrips are dark brown compared to the yellow - brown males. Thrips are attracted to both blue and yellow traps.

Whiteflies - Slightly larger than a thrips. White wings become less visible the longer they are entrapped. Monitor at vents and doors for migrating whiteflies. In the fall, the bandedwinged whitefly appears on the cards as the outside plant hosts die. This species appears gray from the black bands across their wings.

Winged Aphids - Yellow sticky cards will detect winged aphids but not the nymphal stages. Winged aphids may indicate a serious aphid infestation in the crop. Aphids have two distinct black spots on their wings and two "tailpipes" or cornicles at the rear of their abdomen.

Suggestions on using sticky cards

- Use at least 1 card per 1,000 square feet. Additional cards may be placed near doors, vents and in areas of insect-susceptible plant species.
- Reduce the number of cards if you are using beneficial insects such as parasites or other winged species.
- Replace cards weekly if insect populations are high or if there is debris on cards.
- Place cards in houses before introducing crop to monitor for overwintering pests. A card placed just above the floor level can detect thrips or fungus gnats.
- Place cards 1 -2 inches above plant canopy and move the cards as the plant grows.
- Place cards near plants that are favored hosts for certain pests. (i.e. thrips on african violets, impatiens, and chrysanthemums)
- Reduce or eliminate blue traps if you are using bumble bees for pollination. Bumble bees are attracted to blue.

Please phone or email me if there are specific issues you would like me address in this column.

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That's a Berry Good Question

Kathy Demchak, Department of Horticulture

Q. How can I get the NRAES Production Guides? My county Extension office doesn't have them. (Anon.)

A. I'm not sure whether this is the state in all county Extension offices yet, but eventually NRAES (Natural Resource, Agriculture, and Engineering Service) publications will not be available through PSU Cooperative Extension offices. For those of you wondering what I'm talking about, NRAES has large production guides in 3-ring binders on strawberry, bramble, and blueberry production. There is also much information available on other subjects as well. You can obtain information on ordering these publications by visiting <http://www.nraes.org>, or by phoning the NRAES office at 607-255-7654. NRAES' email address is nraes@cornell.edu, and their ground mail address is NRAES, Cooperative Extension, 152 Riley-Robb Hall, Ithaca, New York, 14853-5701.

Got a question? Send it to Kathy Demchak, at 102 Tyson Bldg., University Park, PA 16802. You will be credited with the question, or can remain anonymous, as you wish.

Another Miticide for Strawberries

Kathy Demchak, Dept. of Horticulture, and Greg Krawczyk, Dept. of Entomology

Acramite-50WS (active ingredient - bifenazate) from Crompton Uniroyal is now labeled for use on strawberries, among other fruit crops. It has a unique chemistry (meaning there's no cross-resistance with other miticides), and is quite safe for beneficial insects and predatory mites. Acramite is not systemic in the plant, so good coverage of foliage is needed, with application in 100 gallons of water/acre stated for strawberries on the label. It is effective on adults and nymphs, and has some activity on the eggs of spider mites only. It has a 1-day PHI on strawberries, and a 12-hour reentry interval. The rate for use is 0.75-1.0 lb/acre, with a limit of one application per year. According to information from Celeste Welty at Ohio State in an article in the Ohio Fruit ICM News (Vol. 6, Issue 4, March 4, 2002) "Evaluation of mite control by Acramite should be delayed until 4 days after application because the mites are slow to die from this pesticide."

Commercial Berry Production Guide Update

Kathy Demchak, Dept. of Horticulture

PSU's Commercial Berry Production and Pest Management Guide, 2002-2004, should be available by the middle of April. There are a number of changes in this version. One is that the guide, as you may have noticed, is a 3-year version this time around. This will put it on a production schedule that will make future versions available earlier in the year, with the intention of having them available for sale in time for winter meetings. Additions to the current version are a table of small fruit pesticide chemical and trade

names with information on preharvest and reentry intervals of each one. Brief overviews of protected (high tunnel and greenhouse) culture are included in the strawberry and bramble chapters. The pesticide table that covers fungicides used on strawberries includes information on the chemical class of each fungicide so that growers can tell which ones have different modes of action for purposes of resistance management. Information on production, pesticides labeled for each crop and rates, and cultivars has been updated. Information on nurseries and other sources of production supplies has been updated and expanded to include sources of biocontrol supplies, promotional supplies, high tunnels, and more in addition to the information on irrigation, fumigation, row covers and plastic mulch, specialized equipment, and packaging that was already there.

Potato Musings

Bill Lamont, Department of Horticulture

Physiological Age of Potato Seed

Bill Lamont, Department of Horticulture

Selection of good seed is a critical decision faced by every potato grower. A good crop starts with good seed. The same amount of fertilizer, pesticide and effort is put into a crop from poor seed as into a crop from good seed. Choosing seed that is both physiologically as well as physically healthy is important. Disease-free seed is essential to a good crop. Seed that is physiologically young has been handled gently and stored carefully is also important. In this article we will discuss the physiological age of the seed.

The physiological age of seed is an important factor in choosing potato seed. Factors affecting the physiological age of tubers include growing season stress, storage temperature and time. Temperature is very important because warmer storage temperatures will speed the aging process of the tubers. Since precutting seed also ages the seed physiologically, it helps to understand the stages of aging.

To determine the physiological age of seed potatoes, gather a sample, place them indoors and allow them to sprout. Observe the sprouts that come from the sample to determine the physiological age of the seed. There are distinct stages through which potato seed passes.

Dormant Seed:

If the potatoes do not sprout at all, they may still be in a period of dormancy. Most potatoes undergo a dormant or resting period. The length of dormancy varies with the variety. There are chemical and nonchemical means to break or greatly reduce the dormancy period.

Young Seed:

Young seed is characterized by apical dominance. Young seed will have one or just a few sprouts. These sprouts emerge from eyes on the apical or bud end of the tuber. There is a strong, internal inhibitor that keeps eyes on the center and stem end of the tuber from sprouting. Eyes distant from the apical end may never sprout. Young seed will produce a plant with few stems. A low stem number leads to a low tuber set. Larger, but fewer, tubers would be expected from young seed.

Middle-aged Seed:

Middle-aged seed will have multiple sprouts. All the eyes on the potato could sprout. There is no clear apical dominance; eyes from the bud end, the middle and the stem end will sprout. Middle-aged seed produces plants with multiple stems that lead to high tuber sets.

Old Seed:

Old seed will have branched sprouts that can appear hairy. These sprouts are weak, and they will not produce a vigorous plant. Typically, plants from old seed will produce high tuber sets, but the plants lack the vigor to bulk the tubers to a desirable size.

Potato No Top:

Seed can be so old that small tubers form on the sprouts once they emerge from the eyes. "Potato No Top" is the name given to this disorder of extremely old seed. Seed with "Potato No Top" disorder should not be used. Any stress during the growing season produces potatoes that are physiologically older than those grown without stresses. (Article excerpted from Dr. Steven Johnson, Potato Facts- Selecting, Cutting and Handling Potato Seed. University of Maine Cooperative Extension, Bulletin 2412)

Upcoming Meetings

Bill Lamont, Department of Horticulture

Local

Regional

National

August 11-17, 2002. International Horticultural Congress; Metropolitan Toronto Convention Centre, Toronto: Call (416) 504-4500 or visit www.ihc2002.org

August 11-17, 2002. Potato Association of America Annual Meeting; Metropolitan Toronto Convention Centre, Toronto: Contact Leslie Copp at (519) 824-4120 or icopp@uoguelph.ca

August 11-17, 2002. American Society for Horticultural Science; Metropolitan Toronto Convention Centre, Toronto: www.ihc2002.org or contact ASHS at (703) 836-4606.