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Cornell University
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Cornell University Berry Team

Inside this issue:

Dealing With Flooded Berry Fields – *Steve Reiners and Marvin Pritts, Cornell University*

Record-breaking rains in New York State have left many berry growers with unmarketable crops. What had been shaping up to be a decent season has quickly turned into a bad situation.

FLOODS AND FOOD SAFETY

There are two types of flooding. The first is more typical and occurs after a heavy downpour when fields become saturated and water pools on the soil surface. This type of flooding can reduce yields and even kill plants but usually will not result in contamination of produce with human pathogens. The second type of flooding is more severe and unfortunately occurred with the recent storm. This occurs due to runoff from stream/river overflows will more likely be contaminated with human pathogens, as well as chemicals. Unless you are absolutely sure that flooding is not from streams and surface water, do not use berries that were covered with flood water.

PLANT SURVIVAL UNDER WATER

How long a crop can live once it is flooded and what may be the effect on yield? Berry crops can tolerate a great deal of flooding when they are dormant, but when actively growing in summer, flooding for any length of time can be detrimental. This time of year is particularly bad because plants are preparing to make flower buds for next year, and stress can compromise this process. If plant roots were under water for more than 48 hours, expect next year's crop to be compromised as well.

Plants previously flooded may develop an off-green or yellowish color. These plants are suffering from a complex of nutrient deficiencies, nitrogen, phosphorus, potassium and perhaps others, even though the soil contains adequate amounts. But the main deficient element is oxygen. Plant roots need oxygen to take up nutrients and water to utilize the photosynthate from the tops and to grow. With the heavy rains we have had, soils are saturated; that is, nearly all of the pore space is filled with water, leaving little room for air. Ideally, for good root growth 50 percent of the pore space should be filled with air. As soils drain, air is drawn into the soil, but when it rains, the water forces the air out of the pores. As is obvious to all, what is needed now is several rain-free days so the soils can drain and draw in air to stimulate root growth. Once the plant roots get adequate oxygen they will begin to grow and take up the nutrients present in the soil. Anything that can be done to remove surface water will be helpful.

Many plant diseases will be much worse following flooding rains (e.g. Phytophthora and Botrytis), so closely monitor crops and manage these diseases. Phytophthora spores are spread under flooded conditions, so chemical treatment may be warranted in susceptible crops (e.g. red raspberries and strawberries).

USDA, FDA Working to Provide Aid for Farmers with Flood-damaged Crops. Agencies Want Farmers to Know Flood-Damaged Crops Should Not Enter Food Supply

Washington D. C. September 12, 2011. The U.S. Department of Agriculture (USDA) and the U.S. Food and Drug Administration (FDA) announced today that assistance will be available to farmers whose crops were damaged by severe flooding from Tropical Storms Irene and Lee. USDA and FDA are working closely together to ensure that farmers with flood-damaged crops that cannot be marketed are compensated for their losses.

Upcoming Berry Events

October 4-7, 2011. *US Highbush Blueberry Council Fall Meeting,* Caesars, Atlantic City, NJ. For more information: http://www.blueberry.org/calendar.htm#Meetings

October 4, 2011. *Chautauqua County Fall 2011 Small Fruit Workshop and Tour*. For more information: Ginny Carlberg, 716-664-9502 or vec22@cornell.edu or http://www.fruit.cornell.edu/news_events/pdfs/Registration%20Flyer%202011.pdf.

October 11, 2011. *Southern Tier Commercial Berry Growers Workshop*, Belfast Fire Hall, Belfast, NY. For more information: Colleen Cavagna, 585-268-7644, or cc746@cornell.edu.

October 16-19, 2011. *ISHS Symposium on High Tunnel Horticultural Crop Production*, Ramada Inn and Conference Center, State College, PA. For more information contact Michael Orzolek at (814) 863-2251 or md01@psu.edu or visit http://horticulture.psu.edu/cms/ishs2011/.

November 6-8, 2011. *Southeast Strawberry Expo*. Sheraton Imperial Hotel, Durham, NC. Workshops, tour, educational sessions, trade show. For more information, email the NC Strawberry Association at info@ncstrawberry.com, call 919-542-4037, or visit www.ncstrawberry.com.

December 6-8, 2011. *Great Lakes Fruit, Vegetable & Farm Market EXPO,* DeVos Place Convention Center, Grand Rapids, Michigan. For more information: http://www.glexpo.com.

December 13- 15, 2011. *New England Vegetable and Fruit Conference*. Radisson Hotel, Manchester, NH. For more information: Kristen Castratoro, Phone: 401 874-2967, e-mail: kcas@uri.edu or http://www.newenglandvfc.org/.

January 16-18, 2012. *North American Raspberry & Blackberry Conference*, Kalahari Resort, Sandusky, OH, in association with the Ohio Produce Growers and Marketers Congress. For more information, call 919-542-4037, email info@raspberryblackberry.com, or visit www.raspberryblackberry.com.

January 24 - 26, 2012. *Empire State Fruit and Vegetable EXPO and Direct Marketing Conference. OnCenter,* Syracuse, NY. Berry session Thursday 1/26/12. More details forthcoming.

February 18 to 22, 2012. *7th International Strawberry Symposium*. Beijing, China. http://www.iss2012bjchina.org.cn.

February 29 to Mar 2, 2012. *US Highbush Blueberry Council Spring Meeting,* Sheraton Fisherman's Wharf, San Francisco, CA. For more information: http://www.blueberry.org/calendar.htm#Meetings

Dealing with Flooding (continued)

FDA considers ready-to-eat crops whose edible portion has been in contact with flood waters to be adulterated due to potential exposure to sewage, animal waste, heavy metals, pathogenic microorganisms, or other contaminants. Therefore, these crops should not enter the food or animal feed supply. Crops insured by federal crop insurance or by the Noninsured Disaster Assistance Program (NAP) are covered when floodwaters have rendered them valueless.

"We are working closely with FDA to protect people and livestock from damaged crops, while not penalizing the farmer whose crops are affected," said Michael Scuse, Acting Under Secretary for Farm and Foreign Agricultural Services. "I want to assure insured farmers that they are covered under the federal crop insurance program for crops not harvested due to flood damage. America's farmers and rural communities are vitally important to our nation's economy, producing the food, feed, fiber and fuel that continue to help us grow and out-compete the rest of the world."

"We empathize with the farmers who are dealing with the loss of crops due to recent flooding," said FDA Deputy Commissioner for Foods Michael R. Taylor. "We all share the goal of protecting the food supply. We are working directly with USDA on damage response and will consult with them on assistance for farmers following our guidance to keep damaged crops out of the food supply."

Additionally, disposition of crops in proximity to, or exposed to a lesser degree of flooding, where the edible portion of the crop has not come in contact with flood waters, may need to be evaluated on a case-by-case basis. FDA experts are available for these through local FDA district offices.

USDA encourages all farmers and ranchers to contact their crop insurance companies and local USDA Farm Service Agency Service Centers, as applicable, to report damages to crops or livestock loss. More information about federal crop insurance may be found at www.rma.usda.gov. Additional resources to help farmers and ranchers deal with flooding may be found at http://www.usda.gov/disaster.

Agricultural & Community Recovery Program

September 3, 2011. Albany, NY. Governor Andrew M. Cuomo today announced that he has created a $15 million Agricultural and Community Recovery Fund to help rebuild the agricultural industry in farming areas impacted by Hurricane Irene.

"I have seen first-hand the devastating damage to many New York farms as a result of Hurricane Irene and we must do all we can to help these farmers and our rural communities recover," Governor Cuomo said. "New York's agricultural industry is an important part of our state economy and the storm wreaked havoc on farms that many New Yorkers depend on for their livelihood. This fund will help New York's farming community rebuild and recover."

The money provided by the fund will be used for soil and water conservation districts to assist in rebuilding agricultural infrastructure, mitigation of stream banks, drainage and sewer rehabilitation, vineyard restoration and other projects necessary for rebuilding the agricultural industry in hard hit farming areas. Darrel Aubertine, Commissioner of the Department of Agriculture and Markets, and Matthew Driscoll, President and CEO of

Dealing with Flooding (continued)

the Environmental Facilities Corporation, will work with the New York Farm Bureau and local governments to prioritize projects that will have the greatest impact on restoring damaged communities.

The money will be provided from the Upstate Agricultural Economic Development Capital Fund and the Department of Homes and Community Renewal's Community Development Office.

The following information sheet was also released, intended for NYS farmers: Was your farm damaged by Hurricane Irene? Governor Cuomo has announced the Agricultural and Community Recovery Program (ACRP) to aid farmers with storm damage to agricultural infrastructure, stream banks, etc. for rebuilding the Ag industry in hard hit farming areas.

Emergency conservation practices that may qualify are:
Removal of flood debris
Alternative water supplies
Barnyard water management
Manure storage/treatment and transfer systems
Critical area protection
Silage leachate control
Stream bank stabilization
Erosion control practices
Filter areas
Processed wash water management
Cropland and pasture management
Petroleum, fertilizer and pesticide storage facilities
Conservation buffer

If you have significant damage caused by Irene, please arrange for a site visit by an SWCD representative. If the SWCD determines that you may qualify, a form will be submitted on your behalf to the NYS Soil & Water Conservation Committee in Albany. **Funds will be distributed on a weekly basis until gone. Call 692-9940, ext. 3 for a site visit. CALL ASAP—money will be gone quickly.** Note: Actual crop damage does not qualify under this program.

Governor Cuomo Directs Emergency Response to Recent Flooding in Upstate New York

Requests Federal Emergency and Major Disaster Declarations for Albany, Broome, Chenango, Chemung, Delaware, Greene, Herkimer, Montgomery, Oneida, Otsego, Rensselaer, Schenectady Schoharie, Sullivan and Tioga Counties Deploys State Resources to Hard-Hit Areas for Emergency Response Efforts

September 8, 2011. Albany, NY. Governor Andrew M. Cuomo today directed state emergency resources to the Southern Tier and surrounding counties and requested emergency and major disaster declarations from the federal government, in response to the severe flash flooding and major flood conditions that have developed in portions of the Southern Tier, Southern Finger Lakes, Hudson Valley, Capital Region, Central New York and Southwestern Regions of the State, and many areas previously affected by Hurricane Irene.

"With the recent heavy rains and severe flash flooding, we are on the verge of a crisis and federal assistance is urgently needed to help protect New Yorkers," Governor Cuomo said. "I have directed state resources to areas that are currently experiencing widespread flooding to assist with emergency procedures."

In the last 24 hours, New York has experienced another round of severe weather that rivals – and may even exceed – the devastation seen in previous flooding events, including the floods of 2006. Communities in eastern and central New York, from the southern Adirondacks to the Pennsylvania border, who were struggling to clean up and rebuild after Irene, are facing another onslaught of devastation. Since yesterday, Tropical Storm Lee has produced in excess of ten inches of rain in some places. This, on top of the rains dumped on New York State last week from Hurricane Irene, is causing major havoc in many places across the State today. To make matters worse, additional heavy rainfall is likely in some of these same locations today.

Many areas across the State, from the Finger Lakes to the Hudson Valley, have experienced significant flooding, declared States of

Dealing with Flooding (continued)

Emergency, and have implemented mandatory evacuations. Broome County has experienced some of the worst impacts, prompting mandatory evacuations in the Village of Johnson City, the Town of West Corners, the Town of Vestal, Town of Union and the Town of Conklin. The City of Binghamton has ordered the mandatory evacuation of approximately 20,000 people. Evacuations have also taken place in the Village of Margaretville in Delaware County and the Village of Middleburgh in Schoharie County.

Major flooding is occurring and will continue for many locations late into this evening. The Susquehanna River at Binghamton reached major flood stage on Wednesday morning and surpassed its record flood stage of 25 feet on Thursday morning. The river is now at 25.3 feet and expected to crest at 26.2 feet by Thursday evening. At Owego, the Susquehanna River's record flood stage was 32 feet – it is already at 38 feet and expected to crest at near 40 feet later this evening. Also of major concern at this time are the Chenango River, the Unadilla River, and the Oneida Creek, as well as many other areas where major flooding is also forecasted.

An emergency declaration would enable the federal government to provide assistance and resources to New York State and local governments to support activities related to evacuation, sheltering, and other protective measures. The declaration would provide New York with technical assistance at no cost from any federal agency in support of the state's response to the flooding. This includes areas such as debris management, logistics management and electric power generation.

A federal disaster declaration would provide aid to cover emergency procedures and recovery aid. Public Assistance would reimburse communities for the costs incurred for emergency protective actions and the Individual Assistance program would provide the following aid to homeowners, renters and small businesses: the Individuals and Households Program, Crisis Counseling, Disaster Unemployment Assistance, USDA food coupons and distribution, USDA food commodities, Disaster Legal Services, the Disaster Supplemental Nutrition Assistance Program, and Small Business Administration disaster loans.

Governor Cuomo today continued to deploy the State's emergency response resources as heavy rains caused flood levels at the Susquehanna River and other Southern Tier creeks and tributaries. The following is a summary of state resources responding to the flooding:

- Senior state mangers and members of Governor Cuomo's Cabinet have been deployed to Binghamton in a command team, including Adjutant General Patrick Murphy, Director of State Office of Emergency Management Andrew X. Feeney, Department of Transportation Commissioner Joan McDonald, President and CEO of Environmental Facilities Corporation Matthew Driscoll, and Superintendent of State Police Joseph D'Amico.
- The State Office of Emergency Management has deployed staff to the following locations: the Town of Conklin, and the Counties of Greene, Broome, and Schoharie. OEM is also deploying sand bagging equipment to the area.
- The New York National Guard has directed more than 350 troops and 44 vehicles towards flooded areas in the Southern Tier and troops are involved engaged in variety of assignments including water rescues and large scale evacuations of residents.
- 130 Soldiers with 33 high-axle trucks and Humvees from Western New York's 2nd Squadron 101st Cavalry are currently on the ground in Binghamton.
- Additional troops from the 204th Engineer Battalion and the 101st Signal Battalion, are heading to Binghamton to assist in evacuation operations and recovery at the direction of local emergency officials.
- New York Army and Air National Guard helicopters are also responding to the flooding:
    - Two New York Air National Guard HH-60 Pavehawk Search and Rescue helicopters based at Gabreski Air National Guard Base at Westhampton Beach on Long Island have been moved to Binghamton to conduct operations if necessary.
    - In Rochester two New York Army National Guard UH-60 Blackhawks, equipped with hoists for medical evacuation, are on site to assist in operations.
    - A CH-47 Chinook heavy lift helicopter and crew have been deployed to Binghamton from Rochester. Flight crews in Albany are prepared to send a UH-60 Blackhawk to Binghamton to assist in operations there.
- The State radio communications vehicle has been deployed to the Broome County EOC to augment communications capabilities for state and local response agencies.
- The Office of Fire Prevention and Control has assigned multiple fire protection specialists and 2 Swift Water Rescue Teams to Brome County. 12 Storm Emergency Fire Units (SEFUs) and NY Task Force 2 (Urban Search and Rescue Team) are mobilizing to operate in the area as well.
- 10 shelters have been established and are being supported by 2 State/ARC shelter management teams.
- NYS Department of Environmental Conservation has deployed multiple staff to the area and mobilized 3 swift water rescue boats and personnel in the Town of Conklin.
- The Division of State Police (DSP) has approximately 600 personnel operating in the impacted area. DSP is deploying 4 aircraft and flight crews to the Broome County airport and have mobilized 2 airboats each with 3-person scuba teams.
- The Office of Park, Recreation and Historic Preservation is deploying a swift water rescue boat with a crew of 4.
- OEM is requisitioning an 18-person Incident Management Team; assistance to provide shelter to 300 animals; 8 tractor trailers

Dealing with Flooding (continued)

of bottled water and 4 trailers of food.

Power Update:
At this time there are approximately 25,000 customers without service due to the persistent heavy rain, 21,600 of which are in NYSEG's Binghamton Division where flooding has become a major problem. There are substations five substations out at this time for safety reasons serving approximately 7,500 electric distribution customers in the Binghamton area. This area received over 10" of rain yesterday and many of the rivers and creeks in the area are expected to reach historic levels.

Governor Cuomo Announces Federal Disaster Aid Approved for Additional Counties

Individual Assistance for Bronx, Kings, Queens and Richmond counties; Public Assistance for Otsego and Saratoga Counties

September 10, 2011. Albany, NY. Governor Andrew M. Cuomo today announced that federal disaster assistance is now available for homeowners, renters and small businesses in additional counties as a result of damages incurred by Hurricane Irene.

"I thank FEMA for swiftly assessing the damages and needs of the New Yorkers affected by Hurricane Irene," Governor Cuomo said. "I also thank the federal government for allocating additional funds to these counties that will aid in the speedy recovery of those impacted by the storm. All residents and small businesses who have suffered losses should call FEMA's registration number – 1-800-621-3362, or register on online as soon as possible."

Today's additions include:

* Individual Assistance (already designated for Public Assistance, including direct federal assistance): Bronx, Kings, Queens, and Richmond counties
* Public Assistance and direct federal assistance (already designated for Individual Assistance): Otsego and Saratoga counties.

Residents and small businesses in a total of 27 counties are now eligible to apply for the following assistance: the Individuals and Households Program, Crisis Counseling, Disaster Unemployment Assistance, USDA food coupons and distribution, USDA food commodities, Disaster Legal Services, the Disaster Supplemental Nutrition Assistance Program, and Small Business Administration disaster loans.

The counties currently eligible for assistance are as follows:

* Individual Assistance (Assistance to individuals and households): Albany, Bronx, Columbia, Clinton, Delaware, Dutchess, Essex, Greene, Kings, Montgomery, Nassau, Orange, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington and Westchester counties.

* Public Assistance (Assistance for debris removal, emergency protective actions and the repair or replacement of disaster-damaged facilities): Albany, Bronx, Clinton, Columbia, Delaware, Dutchess, Essex, Greene, Kings, Montgomery, Nassau, New York, Orange, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington and Westchester counties. Direct federal assistance is authorized.

* Hazard Mitigation Grant Program: (Assistance for actions taken to prevent or reduce long term risk to life and property from natural hazards): All counties in the State of New York are eligible to apply for assistance under the Hazard Mitigation Grant Program.

Residents and business owners who sustained losses in the designated counties can begin applying for assistance by registering online at http://www.DisasterAssistance.gov or by calling 1-800-621-3362. Disaster assistance applicants, who have a speech disability or hearing loss and use TTY, should call 1-800-462-7585 directly; for those who use 711 or Video Relay Service (VRS), call 1-800-621-3362. The toll-free telephone numbers will operate from 7:00 AM to 10:00 PM (local time) seven days a week until further notice.

Additional counties may be made eligible for federal assistance as ongoing damage assessments are completed.

NYS DHSES UPDATE: Federal Aid Programs For New York Disaster Recovery

August 31, 2011. Following is a summary of key federal disaster aid programs that can be made available as needed and warranted under President Obama's major disaster declaration issued for the State of New York.

Residents and business owners who sustained losses in the designated counties can begin applying for assistance tomorrow by registering online at http://www.DisasterAssistance.gov or by calling 1-800-621-FEMA (3362). Disaster assistance applicants, who have a speech disability or hearing loss and use TTY, should call 1-800-462-7585 directly; for those who use 711 or Video Relay Service (VRS), call 1-800-621-3362. The toll-free telephone numbers will operate from 7 a.m. to 10 p.m. (local time) seven days a week until further notice

Dealing with Flooding (continued)

Assistance for Affected Individuals and Families Can Include as Required:

Rental payments for temporary housing for those whose homes are unlivable. Initial assistance may be provided for two months for homeowners and renters. Assistance may be extended if requested after the initial period based on a review of individual applicant requirements. (Source: FEMA funded and administered.)

Grants for home repairs and replacement of essential household items not covered by insurance to make damaged dwellings safe, sanitary and functional. (Source: FEMA funded and administered.)

Grants to replace personal property and help meet medical, dental, funeral, transportation and other serious disaster-related needs not covered by insurance or other federal, state and charitable aid programs. (Source: FEMA funded at 75 percent of total eligible costs; 25 percent funded by the state.)

Unemployment payments up to 26 weeks from the date of the disaster declaration for workers who temporarily lost jobs because of the disaster and who do not qualify for state benefits, such as self-employed individuals. (Source: FEMA funded; state administered.)

Low-interest loans to cover residential losses not fully compensated by insurance. Loans available up to $200,000 for primary residence; $40,000 for personal property, including renter losses. Loans available up to $2 million for business property losses not fully compensated by insurance. (Source: U.S. Small Business Administration.)

Loans up to $2 million for small businesses, small agricultural cooperatives and most private, non-profit organizations of all sizes that have suffered disaster-related cash flow problems and need funds for working capital to recover from the disaster's adverse economic impact. This loan in combination with a property loss loan cannot exceed a total of $2 million. (Source: U.S. Small Business Administration.)

Loans up to $500,000 for farmers, ranchers and aquaculture operators to cover production and property losses, excluding primary residence. (Source: Farm Service Agency, U.S. Dept. of Agriculture.)

Other relief programs: Crisis counseling for those traumatized by the disaster; income tax assistance for filing casualty losses; advisory assistance for legal, veteran's benefits and social security matters.

Assistance for the State and Affected Tribal and Local Governments Can Include:

Payment of not less than 75 percent of the eligible costs for repairing or replacing damaged public facilities, such as roads, bridges, utilities, buildings, schools, recreational areas and similar publicly owned property, as well as certain private non-profit organizations that provide essential governmental services. (Source of funding: FEMA funded, state administered.)

Payment of not less than 75 percent of the eligible costs for removing debris and for emergency measures taken to save lives and protect property and public health. (Source of funding: FEMA funded, state administered.)

Payment of not more than 75 percent of the approved costs for hazard mitigation projects undertaken by state and local governments to prevent or reduce long-term risk to life and property from natural or technological disasters. (Source of funding: FEMA funded, state administered.)

How to Apply for Assistance:

Those in the counties designated for assistance to affected residents and business owners can begin the disaster application process by registering online at www.DisasterAssistance.gov or by calling 1-800-621-FEMA (3362). Disaster assistance applicants, who have a speech disability or hearing loss and use TTY, should call 1-800-462-7585 directly; for those who use 711 or Video Relay Service (VRS), call 1-800-621-3362.

The toll-free telephone numbers are available from 7 a.m. to 10 p.m. (local time) Monday through Sunday until further notice. Applicants registering for aid should be prepared to provide basic information about themselves (name, permanent address, and phone number), insurance coverage and any other information to help substantiate losses.

Application procedures for local governments will be explained at a series of applicant briefings with locations to be announced in the affected area by State recovery officials. Approved public repair projects are paid through the state from funding provided by FEMA.

Agriculture Commissioner Initiates Recovery Fund Helping Farmers Rehabilitate Damaged Farmland

September 8, 2011. New York State Agriculture Commissioner Darrel J. Aubertine today enlisted the assistance of Soil and Water Conservation Districts to begin assessing damage in agricultural disaster areas and to begin identifying projects to restore farms and farmland. Initiating the Governor's $15 million Agricultural and Community Recovery Fund (ACRF), the first allocation of $5 million, the conservation component, will provide funding for farmers to restore farmland damaged by Hurricane Irene and prevent fur-

Dealing with Flooding (continued)

ther damage in the future.

The Governor's ACRF will also include three other components:

Farm Operations Match Program: This will match farmers' dollars for the purchase of feed for animals and produce from other New York producers to allow the farms operations to continue;

On Farm Capital Needs Program: This will provide grants and deferred and low/interest loans to meet the immediate and long-term needs of farmers devastated by Hurricane Irene; and

Main Street Business Assistance Program: This will provide a combination of grants and low interest loans to help Main Street Businesses get back in operation in eligible counties.

The land is a farmer's greatest resource. The conservation component released today will help farmers who have had their land devastated by Hurricane Irene recover," said Darrel J. Aubertine, Commissioner of Agriculture and Markets.

The Conservation Program will be administered by the New York State Department of Agriculture and Markets in consultation with the New York State Soil and Water Conservation Committee. Applications for funding will be accepted from County Soil and Water Conservation Districts within the eligible counties.

The Soil and Water Districts will determine land eligibility based on site inspections of damage. For land to be eligible, the Hurricane must have created a new conservation problem that, if left untreated, would: degrade the State's natural resources; impact public drinking water supplies, present ongoing pollution risks to surface and groundwater; pose threats to production facilities, impair farm safety; affect the land's productive capacity; or present challenges to farm production that are too costly to implement without state assistance.

Farmers in eligible counties should contact their local Soil and Water District. A list of county offices can be found here: http://www.nys-soilandwater.org/contacts/county_offices.html.

Eligible emergency conservation practices include, but are not limited to: debris removal; restoring fences and conservation structures; crop removal; land shaping and grading; and installation of vegetative practice including cover crop.

Eligible costs include: architectural and/or engineering services; consultant services; construction and other direct expenses related to implementation.

Project selection will be based on identified need, degree of loss and in consideration of the available funding for eligible counties. Recovery funds requested will be reviewed and approved by the Commissioner of Agriculture and Markets. The Commissioner may consult with the State Soil and Water Conservation Committee, the agency that oversees policy and programs for New York's 58 County Soil and Water Conservation Districts.

Project sponsors within eligible counties may submit applications on a weekly basis. Applications will be taken until all available funds are awarded.

USDA Assisting Growers, Livestock and Milk Producers Damaged by Hurricane Irene

*September 8, 2011. Washington D. C., T*he U.S. Department of Agriculture continues to offer services to farmers whose livestock and crops were damaged in the devastation brought on last week by Hurricane Irene. Agriculture Secretary Tom Vilsack says USDA is deploying personnel and resources to assist the efforts by federal, state and local authorities in response to the hurricane.

"We continue to closely coordinate with many partners to meet the immediate and plan for the long-term needs of those affected by Hurricane Irene," said Vilsack. "Our thoughts and prayers go out to all who have suffered losses caused by this massive storm. USDA is ready to provide food, emergency assistance and other resources to the affected areas."

Hurricane Irene affected the ability of some dairy cooperatives and handlers in the Northeast to pick up milk at local farms particularly in Southern Vermont and Eastern New York. In some instances milk was dumped on the farm when it was unable to be picked up on a timely basis or where loss of power impacted milk quality, rendering such milk as non-Grade A. Due to the impact of this natural disaster on dairy farmers in the Northeast, USDA is taking administrative action to include this milk as part of the Federal milk marketing order pool for the months of August and September as needed, although it was never delivered to a plant for processing. This decision will enable cooperatives and handlers to pay the Federal order blend price to affected producers on all the volume that they produced including any milk dumped due to Hurricane Irene.

USDA encourages all farmers, ranchers, producers, landowners and rural communities to contact their local USDA Farm Service Agency Service Center to report damages to crops or livestock loss; their local Rural Development office for housing, business or community assistance information and/or their local Natural Resources Conservation Service office for help with debris removal. Below are some

Dealing with Flooding (continued)

programs that offer assistance:

Noninsured Crop Disaster Assistance Program (NAP) - NAP provides financial assistance to eligible producers affected by drought, flood, hurricane, or other natural disasters. NAP covers non-insurable crop losses and planting prevented by disasters. Landowners, tenants, or sharecroppers who share in the risk of producing an eligible crop are eligible. Eligible crops include commercial crops and other agricultural commodities produced for food, including livestock feed or fiber for which the catastrophic level of crop insurance is unavailable. Also eligible for NAP coverage are controlled-environment crops (mushroom and floriculture), specialty crops (honey and maple sap), and value loss crops (aquaculture, Christmas trees, ginseng, ornamental nursery, and turf grass sod).

Supplemental Revenue Assistance Payments Program (SURE) - SURE was authorized by the 2008 Farm Bill and covers crop revenue losses from quantity or quality deficiencies only in those counties and contiguous counties declared disaster areas by the Agriculture Secretary or in cases where the overall production loss exceeds 50 percent. Approved crop insurance or noninsured crop disaster assistance must be in place to qualify.

Emergency Assistance for Livestock, Honeybees, and Farm Raised Fish (ELAP) – ELAP was authorized by the 2008 Farm Bill to provide emergency relief to producers of livestock, honeybees, and farm-raised fish and covers losses from disaster such as adverse weather or other conditions, such as blizzards and wildfires not adequately covered by any other disaster program.

Livestock Indemnity Program (LIP) - LIP was authorized by the 2008 Farm Bill to provide assistance to livestock producers for livestock deaths from disaster events, in excess of normal mortality.

USDA Designates 14 Counties in New York as Primary Natural Disaster Areas

WASHINGTON, September 2, 2011. The U.S. Department of Agriculture has designated 14 counties in New York as primary natural disaster areas due to losses caused by excessive rain, flash flooding, flooding and cooler than normal temperatures that occurred from March 1 – June 1, 2011.

Those counties are: Albany, Chautauqua, Columbia, Essex, Franklin, Greene, Jefferson, Monroe, Rensselaer, Saratoga, Schenectady, Schoharie, Steuben, and Washington.

“New York producers can continue to count on USDA to provide emergency assistance during these difficult times,” said Agriculture Secretary Tom Vilsack. “President Obama and I are committed to reducing the impact of this disaster for New York producers and we will commit all available resources to help in recovery.”

Farmers and ranchers in the following counties in New York also qualify for natural disaster assistance because their counties are contiguous: Allegany, Cattaraugus, Chemung, Clinton, Delaware, Dutchess, Erie, Fulton, Genesee, Hamilton, Lewis, Livingston, Montgomery, Ontario, Orleans, Oswego, Otsego, Schuyler, St. Lawrence, Ulster, Warren, Wayne, Yates.

Farmers and ranchers in the following counties in **Massachusetts**, **Pennsylvania** and **Vermont** also qualify for natural disaster assistance because their counties are contiguous:

Massachusetts: Berkshire
Pennsylvania: Erie, Potter, Tioga and Warren
Vermont: Addison, Bennington, Chittenden and Rutland

All counties listed above were designated natural disaster areas Aug. 25, 2011, making all qualified farm operators in the designated areas eligible for low interest emergency (EM) loans from USDA’s Farm Service Agency (FSA), provided eligibility requirements are met. Farmers in eligible counties have eight months from the date of the declaration to apply for loans to help cover part of their actual losses. FSA will consider each loan application on its own merits, taking into account the extent of losses, security available and repayment ability. FSA has a variety of programs, in addition to the EM loan program, to help eligible farmers recover from adversity.

USDA also has made other programs available to assist farmers and ranchers, including the Supplemental Revenue Assistance Program (SURE), which was approved as part of the Food, Conservation, and Energy Act of 2008; the Emergency Conservation Program; Federal Crop Insurance; and the Noninsured Crop Disaster Assistance Program. Interested farmers may contact their local USDA Service Centers for further information on eligibility requirements and application procedures for these and other programs. Additional information is also available online at http://disaster.fsa.usda.gov.

FSA Reminds Producers of Disaster Assistance Deadlines

September 1, 2011 . Washington D.C.– The U.S. Department of Agriculture's (USDA) Farm Service Agency (FSA) Administrator Bruce Nelson reminded producers today about upcoming deadlines for disaster assistance. Nelson emphasized that losses must

Dealing with Flooding (continued)

be the result of a weather event occurring on or before Sept. 30, 2011.

"This year brought a host of extreme weather challenges for America's farmers, ranchers and producers," said Nelson. "USDA is committed to use the resources at our disposal to reduce the impact of these conditions and help producers get back on their feet. And this year, especially, it's important for producers to be aware of program deadlines and to have their records in order so that they get the assistance they need."

The 2008 Farm Bill authorizes coverage of disaster losses through these five programs:
Supplemental Revenue Assistance Payments Program (SURE); Livestock Indemnity Program (LIP); Emergency Assistance for Livestock, Honey Bees, and Farm-Raised Fish (ELAP); Livestock Forage Disaster Program (LFP); and the Tree Assistance Program (TAP).

SURE applications for 2010 crop losses will be accepted later this fall. SURE applications for 2011 crop losses will be accepted in the fall of 2012, when the 2011 farm revenue data required by statute becomes available.

FSA is required to determine that the claimed loss was because of a disaster occurring on or before Sept. 30, 2011. FSA must determine if a qualifying loss meets the established disaster relief criteria for at least one crop.

At the time the SURE application for payment is filed, the producer will be required to identify and certify a crop of economic significance that suffered a qualifying loss of 10 percent or more. At least one such crop with 10-percent losses on or before Sept. 30, 2011, is required by SURE.

"We encourage all producers to read the applicable disaster program fact sheets and visit their local FSA county office. The staff can provide additional information such as the deadline for filing a program application or the initial requirement for filing a notice of loss," Nelson said.

Important dates for the five disaster programs are summarized in the table below.

Program	Deadline to File a Notice of Loss	Application Period
SURE*	No deadline for SURE, but check with your crop insurance or Noninsured Crop Disaster Program (NAP)	2009: closed2010: begins fall 20112011: begins fall 2012
LFP*	Not applicable	Now through Jan. 30, 2012
LIP/ELAP*	Within 30 days of when the loss is apparent, but not	Now through Jan. 30, 2012
TAP*	Not applicable when loss is apparent	Within 90 days of when loss is apparent

* **Losses must be due to a weather even that occurs on or before Sept. 30, 2011**

Fact sheets for these programs can be found at www.fsa.usda.gov; click on Newsroom, then Fact Sheets. Additional information regarding the programs is at http://disaster.fsa.usda.gov.

NASGA News

.**NASGA 2012 Annual Meeting and Conference: Las Vegas, February 6th -8th at Harrah's.**
The organizing committee is planning for some great sessions which will include the latest in strawberry research, a focus on feature farms and interactive discussions on marketing and the use of social media.

We have negotiated a great rate of $39.00 for a Classic Room and $69.00 for a deluxe room.

Visit our website for more information: **http://www.nasga.org/**

Contact Information:

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Email: info@nasga.org

http://www.nasga.org/

NARBA News

North American Raspberry & Blackberry Conference 2012
The North American Raspberry & Blackberry Conference will be held January 16-18, 2012 in Sandusky, Ohio, in association with the Ohio Produce Growers and Marketers Association Congress.

Full information will soon be available at www.raspberryblackberry.com and at www.opgma.org.

The Location
Sandusky is in northern Ohio on the edge of Lake Erie about an hour's drive from Toledo (to the west) and Cleveland (to the east). Cleveland has the larger airport.

The host hotel for this joint conference is the Kalahari Resort, a few miles from downtown. This African-themed resort combines a large convention center with an indoor waterpark – they say it is "American's largest indoor waterpark". Ohio folks have found it's a great place to take the kids for a winter vacation!

The $112 per night rate for the conference includes four waterpark passes. Room reservations can be made by calling **877-525-2427** (mention the OPGMA Congress). For information about the hotel, visit www.kalahariresorts.com/oh/.

According to websites about Sandusky, the town was founded in 1818 and its population grew quickly throughout the 19th century. During this time German and Irish stonecutters were attracted to the area to fill the city's building needs. Most of the earliest buildings in Sandusky were carved from limestone (which can be found just a little more than a foot below the ground in most sections of town). The historic downtown includes architecturally unique buildings; over thirty of them are listed on the National Register of Historic Places. Its protected harbor helped make the city an important coal port and the center of other industries, in addition to being a locale for sailing and fishing.

Conference Schedule
The conference will officially open early morning Monday, January 16 (the Martin Luther King Holiday).

Monday will feature a full day of NARBA sessions, with NARBA's annual meeting during lunch. After a shared plenary session, "Food Safety – It's Our Responsibility & Our Opportunity" the OPGMA educational sessions start in the afternoon with tracks on Tree Fruit, Vegetables, and Food Safety. In the evening, NARBA will sponsor its traditional "Bramble Growers Dutch Treat Dinner" at a local restaurant.

Tuesday, January 17th offers a full day of NARBA educational sessions as well as a concurrent morning workshop on Bramble Fundamentals (preregistration required) and an afternoon workshop on red raspberry cultivar development. Attendees can also choose to attend OPGMA sessions on Pest Issues and Research, Farm Management and Marketing, or Soil, Water, and Nutrition. The trade show will be open all day. A reception will be held in the evening.

On Wednesday, January 18th, no raspberry/blackberry sessions are scheduled – NARB conference participants can stick around and catch the trade show if they were too busy on Tuesday or attend sessions on pest and disease control, strawberries, pollinators, farm management, and marketing.

MONDAY, JANUARY 16
Grower Spotlight: Moreland Fruit Farm – *Fred Finney.* Moreland Fruit Farm in Wooster, OH, has been

NARBA News

raising fruit since the 1930s, and the Finneys have been there since the 1970s. The farm raises raspberries, blueberries, strawberries, and many kinds of tree fruit and vegetables, selling wholesale, retail, and PYO.

Health Benefits Research with Bramble Fruit – *Joe Scheerens, Tong Chen, OSU.* Ohio State University has been a leader in nutriceutical research and treatment, especially with black raspberries for oral cancers. Learn more about the progress and possibilities of this research.

A Blackberry Breeder's Thoughts on How to Grow the Fresh Blackberry Industry – *John R. Clark, University of Arkansas.* Blackberries have greatly expanded in fresh market production in the last 10 years but make up only a tiny proportion of the fruits consumers purchase. The possibilities for growth are huge. A leading blackberry breeder shares his insights on how fresh market blackberries might be expanded in production and marketing.

Maintaining Fruit Quality: Post-harvest chilling for small growers – *Joe Scheerens, OSU; John Wilhoit, University of Kentucky; Bruce Smith, High Hopes Farm*. There's no point in growing beautiful berries if you can't maintain their quality after you pick them. Learn about simple, practical, and inexpensive ways that small growers can chill and store their berries and other produce.

Bramble Plant Nutrition – *Eric Hanson, Michigan State University.* Feeding raspberry/blackberry plants properly is not an exact science but is crucial to success. Learn basic recommendations, how to recognize nutritional problems, and how to assess and manage nutritional needs through the life of the planting.

Solving the Labor Dilemma – *Frank Gasperini, National Association of Agricultural Employers*. How will changes on the state and national level affect growers? What can growers do to solve their labor needs – and what *are* they doing?

In the evening: Bramble Growers Dutch Treat Dinner

TUESDAY, JANUARY 16
Growing Blackberries in Colder Areas – *Fumi Takeda, USDA-ARS; Brett Rhoads, Rhoads Farm Market; Gary Bardenhagen, Bardenhagen Berries.* As recent winters have demonstrated, colder climates present challenges to blackberry growers. Learn about research and experiences with management systems that can help solve these challenges.

Facing the Challenges of Raising Brambles: Panel Discussion – *Mike Pullins, Champaign Berry Farm; others TBA.* What are the challenges growers face, and how are they dealing with them? What makes success more reliable or frequent, and are there ways that growers can work together to improve success for everyone?

Trends and Progress in Raspberry and Blackberry Breeding – *Courtney Weber, Cornell; John R. Clark, University of Arkansas*. Breeding and development of new cultivars of raspberry and blackberry play a key role in industry expansion. Learn about progress in Weber's raspberry breeding in New York and Clark's blackberry breeding in Arkansas.

Extending Your Season with Moveable Tunnels – *Bryan Butler, University of Maryland.* Learn about research and experience with moveable tunnels and discuss the economic viability of moveable/stationary high tunnels and other season extension techniques.

Bramble Pest & Disease Hot Topics – *Bryan Butler, University of Maryland; Mike Ellis, Ohio State University*. Learn from experiences in Maryland, which is on the front lines with BMSB. Botrytis fruit rot remains an important problem for bramble producers worldwide. Hear current control recommendations and updates on other important disease topics.

WORKSHOP (9 am-12 noon) Bramble Fundamentals – *Pam Fisher, Ontario Extension; Cathy Heidenreich, Cornell* For new growers, prospective growers, or more experienced growers who want a refresher in the basics. Covers bramble botany and physiology, planning and variety choices, planting, basic care and nutrition, trellising and pruning and more. All participants will receive a copy of the *Raspberry & Blackberry Production Guide for the Northeast, Midwest, and Eastern* Canada. Workshop cost: $40/NARBA members, $50/non-members. Preregistration required; registration limited.

WORKSHOP (1 pm -5 pm)

Contact Information:

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http://www.raspberryblackberry.com

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Mark Villata

Executive Director

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USHBC News

BLUEBERRIES GO BACK TO SCHOOL WITH FOODSERVICE PROMOTIONS

This year the USHBC has conducted week-long blueberry promotions at college foodservice facilities at the University of Massachusetts, Penn State, the University of Eastern Carolina and at San Diego State University. Another round of promotions are scheduled for this month at the University of California- San Diego (27,400 students), University of California- Berkeley (35,800 students) and Smith College (2,700 students).

USHBC efforts have also focused on private and parochial schools on the east coast by participating in the 2011 Flik Independent School District Culinary Summit held this past June in Englewood, New Jersey.

A total of 88 chefs and managers from east coast schools attended the educational conference. Blueberry graphics were featured on posters, name tags, binder covers and on a screen in the conference room where meetings were held. Summit attendees received copies of the USHBC "Add Blueberries...Add Value" foodservice CD along with an hour long

blueberry presentation which included background on the history of cultivated blueberries, the "Blueberries: From Farm to Table" video and numerous suggestions and ideas for child friendly ways to include fresh and frozen blueberries in breakfast and lunch menus.

In addition to school related foodservice promotions, the USHBC has also completed month long employee dining promotions with a number of foodservice providers this year. Blueberry promotions were held at 30 government and corporate employee dining accounts served by Guest Services in the Washington D.C. area including the offices of the FBI, U.S. Department of Energy and the U.S. Department of State. Promotions have also been conducted with Creative Dining at their Michigan based corporate accounts including Abbott Nutrition, Interactive Intelligence and the Stryker Corporation.

The USHBC has teamed up with Culinart with promotions at 125 of their corporate accounts in the northeast including Intuit, Qualcomm and Chadbourne & Parke LLP. Promotions have also been conducted with Whitson s at their accounts in New York, New Jersey and Connecticut including Estee Lauder, L'Oreal and the Princeton Plasma Physics Laboratory.

USHBC TRADE ADS ENCOURAGE REAL BLUEBERRY USE

A total of 26 trade advertisements are being placed in major food manufacturer publications this year encouraging the use of real blueberries in food products.

The half page ad, titled "Real Blueberries" encourages those manufacturers using real highbush blueberries in their products to draw attention to the fact by featuring the Made With Real Blueberries seal on their pack.

The ads appear in Snack Foods & Wholesale Bakery; Food Technology; Food Product Design; Food Processing; Prepared Foods; Dairy Foods; Food in Canada and Food Marketing and Technology. The remaining nine of the total of 26 ad placements will be appearing in publications this October and November.

ATTENTION BLUEBERRY INDUSTRY MEMBERS- SIGN UP NOW FOR THE BLUEBERRY ALERT SYSTEM

To take part in the blueberry alert system send your email address to JoDee Gowan at the USHBC office: (jgowan@blueberry.org); or sign up directly on the alert system website at the following address: http://blueberrycouncil.org/members/amerilerttools/?type=signup. Please call the USHBC office at (916) 983-0111 with any questions on the blueberry alert system or signup steps.

On the Organic Side

Good News About Ground Covers for Organic Gardeners - *Ann Perry, Public Affairs Specialist, Agricultural Research Service Information Staff, Room 1-2214-B, 5601 Sunnyside Ave. Beltsville, MD 20705-5129*

Conventional and organic farmers know that plastic or fabric ground covers can help suppress weeds and retain soil moisture. But using these ground covers as a chemical-free weed control can be complicated for organic farmers who need to till composted manure into their crop fields after planting.

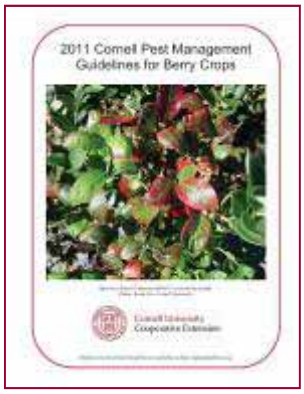
Agricultural Research Service soil scientist Larry Zibilske, who works at the Integrated Farming and Natural Resources Research Unit in Weslaco, Texas, set out to see how these ground covers limit water penetration and affect carbon and nutrient levels in soils. He conducted a soil chamber study using two types of commercial ground covers: One was a needle-punched, double-layer fabric, and the other was a tightly woven material made of flat polypropylene strands. Two types of compost—poultry litter pellets or a compost mix of cattle manure and other organic materials—were used in the research. *Right: Organic farmers can use ground covers to control weeds and still apply fertilizing compost and water to their crops, according to a new ARS study. Photo courtesy of Donald Makus, ARS.*

Zibilske monitored the movement of nutrients from the two types of composted materials through the two types of ground covers for 30 days. Water was able to pass freely through the fabric cover, but the polypropylene cover limited the movement of water for the first 2 weeks. However, water was able to pass through the polypropylene cover much more easily by the end of the study, perhaps because the cover was becoming coated with organic molecules from the compost.

Levels of beta-glucosidase are sometimes used as a soil quality index to assess how the influx of soluble carbon affects soil microbial activity. Zibilske found that beta-glucosidase levels were essentially the same in soils protected by fabric covers, soils protected by polypropylene covers, and control soil samples without a ground cover. This similarity suggests that these ground covers did not significantly alter or limit biological activities in the soil.

But Zibilske did note links between fabric covers and reduced soil levels of carbon and nutrients. For instance, soil covered by fabric contained only 84 percent of the carbon that the control sample contained, and the soil protected by the polypropylene material contained only 80 percent as much of the carbon as the control sample. Soil samples from the covered columns also had somewhat lower nitrogen and phosphorus levels than the controls.

These results, which were published in 2010 in the *International Journal of Fruit Science,* show that some organic farmers who need to periodically amend their soils with composts after planting can still control weeds—and costs—by using fabric ground covers. *Larry Zibilske is in the USDA-ARS Integrated Farming and Natural Resources Research Unit, 2413 E. Highway 83, Weslaco, TX 78596-8344; (956) 969-4832.*



PIMS

Product, Ingredient, and Manufacturer System:

http://pims.psur.cornell.edu/

OMRI

http://www.omri.org/omri-lists

Berry Diagnostic Tool

http://www.fruit.cornell.edu/berrytool/

Focus on Pest Management

Pest Management Update

Scientists Point to Precarious State of U.S. Pesticide Safety Education Program

September 12, 2011 – Today scientists with the Weed Science Society of America (WSSA), the American Phytopathological Society (APS) and the Entomological Society of America (ESA) expressed concern about the precarious state of the U.S. Pesticide Safety Education Program (PSEP). Funding for the program has plummeted in recent years and is now in danger of evaporating completely.

As the nation's primary pesticide applicator training and education program, PSEP is responsible for ensuring the safety of applicators, other workers and the public, for protecting the environment and for providing guidance in the proper use and security of pesticides.

"In addition to certifying applicators and delivering education on the safe use of pesticides, the program today is tasked to provide guidance on a wide range of pesticide-related topics – from avoiding spray drift and minimizing development of pest resistance to protecting endangered species," says Lee Van Wychen, science policy director for WSSA.

Collectively, the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Agriculture (USDA) are responsible for ensuring that the nation's pesticide training needs are met. Since 1965, federal funds to support PSEP and its coordinators have been provided annually by EPA through USDA's Cooperative Extension System. In fiscal year 2000, for example, EPA provided $1.9 million for PSEP, but in fiscal year 2011, EPA funding has been eliminated

The only remaining source of federal funding for PSEP is $500,000 mandated by the Pesticide Registration Improvement Renewal Act (PRIA II), which translates to only $10,000 per state. However, this funding will end in fiscal year 2012 when the statutory authority of PRIA II expires. To compound the problem, most states have significantly reduced their funding for the personnel and basic services needed to support pesticide education through the Cooperative Extension System.

Statistics show close to 900,000 private and commercial applicators holding PSEP certification in 2010, including more than 100,000 new certifications and more than 225,000 applicators pursuing recertification. In addition, the program has educated more than a million other pesticide users.

"With nearly a 75 percent reduction in federal support for PSEP over the past decade, there is no question that states will not be able to deliver the same quality of PSEP training or to certify the same number of individuals," says Carol Ishimaru, APS president. Earlier today, WSSA released a technical paper on PSEP that addresses its history, goals and funding. The paper also discusses proposed ideas for ensuring more stable financial resources for PSEP in the future. Examples include:

- Allocating additional dollars from federal and state pesticide product registration fees to cover education on the proper use of pesticides.
- Pursuing grants from pesticide companies, commodity groups, conservation groups and others with an interest in pesticide safety education.

Changing policies, regulations and statutes to better support funding. For example, most states direct fines for improper use of pesticides into their general funds. These dollars would be an especially appropriate source of support for pesticide safety education.

"There is no one solution to the increasingly precarious state of the Pesticide Safety Education Program," Van Wychen says. "A grassroots effort is needed by stakeholders at the state and national level to overcome policy and regulatory impediments and to ensure the program's sustainability and focus."

The WSSA technical paper on pesticide safety education is available on the WSSA website: View the technical paper.

Editor's note: The New York State PSEP program at Cornell University provides educational opportunities and re-certification credit education for growers:

http://psep.cce.cornell.edu/

Focus on Pest Management *(continued)*

Washing Pesticide Contaminated Clothing - Emelie Swackhamer, Pennsylvania State University

Farmers know how important it is to be careful when using pesticides. We all strive to use the least toxic, effective option, read the label and follow the directions, calibrate, measure carefully and wear the required personal protective equipment.

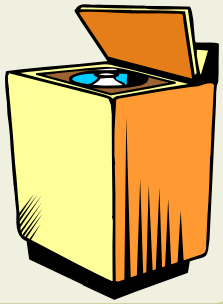
But after you finish making a pesticide application, it is also important to be careful with the clothing you were wearing. If you throw contaminated clothing in with the rest of the family's laundry, you risk exposing your family to that pesticide. Also, if you do not clean your clothing properly, you risk exposing yourself the next time you wear it.

Here is a list of tips that should help you be safe. You might want to clip this list out and hang it by your washing machine.

- Discard clothing if it becomes soaked with a highly toxic pesticide.
- Do not wear contaminated clothing or boots into the house to avoid bringing pesticide residue into your living space.
- Take protective clothing off inside out as you remove them to keep most of the pesticide inside, and away from the surface that will be handled by the person doing the laundry.
- Pre-rinse clothing and boots outside using a hose or a designated and marked washtub.
- Wash goggles, respirator (remove the charcoal filter first), gloves and boots in hot, soapy water after each use. Store clean protective equipment away from where pesticides are stored.
- Designate a separate hamper to identify contaminated clothing so the person who does the wash knows it needs special attention.
- Make sure the person who does the laundry knows what pesticide was used, and reads the label for any special instructions for cleaning.
- Keep unlined rubber gloves in the wash room to handle the pesticide-soiled clothing. Carefully wash the outside of the gloves after every use and only use them for this purpose.
- Launder pesticide contaminated clothing the same day to avoid having it sit around where family members could come into contact with it.
- Wash contaminated clothing separately from the rest of the family laundry.
- Use hot water.
- Use heavy-duty liquid detergent to remove oil-based pesticides. (Emulsifiable concentrates are oil-based.)
- Do not overfill the washing machine. Wash only a few garments at a time.

About the Author:

Emelie Swackhamer has been working as a Horticulture Educator with Penn State Extension in Lehigh and Northampton Counties for 16 years. She has a M>S> in Plant Pathology from North Carolina State , helps on her family 's farm, and is a licensed pesticide applicator in PA.



Focus on Pest Management *(continued)*

Disease Snapshot - *Kerik Cox, Cornell University*

Disease Name: *Verticillium* wilt of strawberries

Cause: *Verticillium albo-atrum* & *dahliae*

When to watch for it: Spring to Fall

First line of defense: Avoid planting after vegetables or any other crop with a history of wilt disease. Use disease-free planting stock.

Summary: *Verticillium* wilt is caused by a soilborne pathogen that affects many agronomically important hosts ranging from fruit trees to vegetables. The pathogen infects the roots and spreads through the vascular tissue causing the plant to become stunted and wilt. The wilt begins with the outmost more developed leaves while the younger inner leaves often appear healthy, but stunted. Decline due to *Verticillium* wilt can be slower than other plant pathogens, but the disease can still devastate a planting. In severe infections, it's not uncommon to find diagnostic bluish streaks on the petioles and runners, and in the vascular tissues of the crown. Since *Verticillium* can survive in the soil for many years it's important to avoid planting after vegetables or any other crop with a history of wilt disease. Be specifically mindful of tomato, eggplant, peppers, pigweed, horse nettle, and stone fruit, as they are common hosts of *Verticillium*.

Focus on Pest Management (continued)

Take Advantage of Fall Weed Management in Blueberries - Eric Hansen, MSU

Fall can be an important time to control weeds. Here are a few tasks that should pay off in the future.

Scout your fields

Spend some time after harvest walking fields and recording weed pressure and determine how successful your spring preemergent herbicides were. Note where control was good and poor and which weeds are present, particularly where perennial weeds have become established. Birds drop seeds of many noxious perennials (Virginia creeper vine, grapevine, poison ivy) in blueberry fields, so even clean fields need to be monitored for new weeds. Is weed pressure related to the soil type or herbicides used last spring? This information will help in formulating a weed management program for next spring. Are rows completely devoid of weeds in the fall? This might indicate too much herbicide was used the previous spring. Some annual weeds should begin establishing in the fall if rates are optimum.

Treat tough perennial weeds

Late summer and fall is a good time to work on tough-to-control perennial weeds such as Virginia creeper vine, grapevine, milkweed, goldenrod, poison ivy and brambles. These perennials generally do not respond to soil applied herbicides, but can be managed by careful applications of glyphosate (Roundup) late in the summer. Glyphosate is effective on these weeds, but can also kill blueberries. Perennial weeds are killed because the chemical moves to below-ground plant parts. Treat before weed leaves senesce. Virginia creeper vine, for example, drops leaves early in the fall. For spot spraying perennials:

- Use 2 percent glyphosate solutions.
- Add ammonium sulfate to improve absorption.
- Avoid all green blueberry tissues.
- Apply when weeds are still green.
- Spray at low pressure to limit drift.

Some perennial vines that warrant extra time to control include grapevine (top left), Virginia creeper (right) and poison ivy (bottom left).

Fall Weed Management in Blueberries *(continued)*

Use extreme care not to contact green blueberry tissues (stems and leaves) with glyphosate. Glyphosate absorbed by blueberry leaves and green bark moves within the bush and can kill whole canes or bushes. Weeds such as blackberry, Virginia creeper and grapevine may need to be pulled out of bushes so they can be treated safely. This may seem too slow to be practical, but consider what these weeds cost in lost income. Bushes covered by Virginia creeper vine may yield just 20 percent of their potential. This easily equates to a $5 to $10 loss per bush. The loss is incurred each year and increases as the vines spread to neighboring bushes. Investing 15 minutes to carefully pull vines out of that bush and safely treat them on the ground is money well spent.

Fall application of preemergent herbicides

October and November is often an effective time to apply preemergent herbicides. Fall is less busy than spring for most growers and often we have periods of good conditions in the fall. In recent years, rainy periods in the spring have hampered herbicide applications and sometimes delayed applications until after weeds have established, so control is poor. Over the last three years, we have compared spring and fall applications of several standard herbicides. Most provided comparable control in both seasons. Fall may be better than the spring for control of some weeds. Marestail, for example, can emerge in the fall, so spring applications are too late for control.

Consider experimenting with fall applications. Chateau and Solicam are good candidates for the fall, particularly in combination with older materials such as Karmex or Princep. Results of a trial this year (Table 1) showed that fall applications of Solicam plus Princep or Chateau alone provided good weed control through early August. The primary weeds present in this study were red sorrel, common crabgrass, common chickweed, Pennsylvania smartweed and horsenettle. Other trials indicate that fall applications of Karmex, Princep and Solicam are as effective as spring applications.

Table 1. Effect of herbicides applied in fall 2010 and spring 2011 on weed cover in summer 2011. 'Duke' field, South Haven.

Product	Rate lb. ai/acre	Date	Weed cover (%)	
			15 June	1 Aug
Control			98	100
Princep 90 Sinbar 80W	2 1	Nov 11	52	100
Princep 90 Solicam 80DF	2 2	Nov 11	3	27
Chateau 51%	0.38	Nov 11	6	16
Princep 90 Sinbar 80W	2 1	April 1	87	100
Princep 90 Solicam 80DF	2 2	April 1	83	90
Chateau 51%	0.38	April 1	2	13
Callisto 4SC	0.188	May 10	42	90
Callisto 4SC Sinbar 80W	0.094 1	May 10	2	10
Callisto 4SC Solicam 80W	0.094 2	May 10	6	33
Sandea 75WDG	0.047	May 10	37	98
Sandea 75WDG Sinbar 80W	0.047 1	May 10	1	17

Editor's Note: *Products listed below have a current NYS registration for use on blueberries.* Sandea (EPA No. 81880-18-10163) new supplemental label for use on blueberries in NYS from 6/14/2011; Callisto (EPA No. 100-1131); Princep 90 (EPA No. 100-603); Sinbar (EPA No. 352-317); Solicam DF (EPA No. 100-849); Chateau WDG (EPA No. 59639-119) supplemental label for blueberries; Chateau SW (EPA

Fall Weed Management in Blueberries *(continued)*

No. 59639-99) supplemental label for blueberries.

This article was adapted for NY from the MSU Extension News for Agriculture, August 29, 2011. Dr. Hanson's work is funded in part by MSU's AgBioResearch.

Choosing Fall Weed Management Options for Strawberries

— Eric Hanson & Bernard Zandstra, MSU

Fall is a crucial time for post-emergence control of several strawberry weeds. Know how to identify weed species so you can choose the most effective herbicide for your field.

September 9, 2011. Weeds can be a difficult and season-long problem in years with too much or too little rainfall. Delayed herbicide application in the spring because of wet soils often results in establishment of weeds that are difficult to control during the rest of the season. Fall is an important time for post-emergence control of several strawberry weeds. Late fall is a good time to apply residual herbicides for preemergence control the next spring. Fall application avoids the potential of strawberries greening up before mulch can be removed (because of wet soil) and spring herbicides applied. Most herbicide labels for strawberries require spring or fall application to dormant plants, and application on new growth can stunt or injure the plants.

Row Middle Management
Weeds emerging in row middles can be managed by cultivation or application of pre- and post-emergence herbicides. **Gramoxone Inteon** (paraquat) or **Aim** (carfentrazone) can be used as directed, shielded sprays to burn down weeds in the row middles in the fall. Gramoxone is more effective on larger weeds and grasses than Aim.

Post-emergence grass herbicides such as **Poast** (sethoxydim) or **Select Max, Select 2EC** (clethodim) are effective against actively growing grasses. Most grasses are past this stage in September, but late applications may be effective against grasses germinating after frost. **Roundup** (glyphosate) can also be applied to row middles as a directed, shielded spray. Roundup is very damaging to strawberries and should be applied only with a shielded sprayer to control perennials or other hard-to-kill weeds.

Chateau (flumioxazin) is a preemergence herbicide that can be applied to row middles in the fall or spring. Chateau can injure strawberry plants, so only apply as a directed band in row middles. A fall application of Chateau should control weeds for about eight weeks the next season.

In-row Management
Choices of post-emergence herbicides for use in fall are limited. One option for early fall application is **Stinger** (clopyralid), which controls most weeds in the composite, legume and nightshade families. These include troublesome strawberry weeds such as thistles, clovers, dandelions, common groundsels, oxeye daisies, mayweeds and curly docks. Stinger is effective if applied directly to weeds in the fall when they are still green before a killing frost.

Sinbar (terbacil), **Devrinol** (napropamide), and **Prowl H2O** (pendimethalin) can be very effective the following year when applied after plants have become dormant in late November or December. Strawberries are more tolerant of these herbicides after they are dormant. An excellent timing is just before mulch is applied. Each product controls a different spectrum of weeds; make choices based on the weeds present.

Generally, Devrinol is active against annual grasses. It has a short residual life of four to six weeks. Sinbar controls most annual grasses and broadleaf weeds. It has fair to good control of quackgrass. It is weak on common groundsel and most pigweeds. Prowl H2O may be applied anytime strawberries are dormant. In the fall, apply Prowl just before mulching. It gives good control of most annual grasses and annual broadleaves for about eight weeks the next spring. Prowl does not control yellow rocket or other winter annual mustards. It is weak on most composites.

Choosing Fall Weed Management Options for Strawberries *(continued)*

An effective strawberry weed control program includes fall dormant and early spring applications of residual herbicides, post-emergence grass herbicides during the growing season, post-emergence broadleaf and residual applications at renovation, and fall post -emergence applications. Cultivation at renovation also contributes to the weed control program. Some large annuals and persistent perennials will need to be removed by hand. With some combination of these treatments, growers should be able to maintain their fields with minimal weed infestation for the three- to five-year life of a typical matted row planting.

Learn to identify weed species in order to choose the most effective herbicides for your fields. Excellent books on weed identification are "Weeds of the Northeast" by Uva, Neal, and DiTomaso (Cornell University Press, 1997) and "Weeds of the Midwestern United States and Central Canada" by Bryson and DeFelice (University of Georgia Press, 2010). Current recommendations for herbicides and other pesticides are summarized in MSU Bulletin E-154, Michigan Fruit Management Guide. *Editor's note: Many of these weeds can be viewed online at MSU's Identifying weeds in field crops.*

Herbicide efficacy on some strawberry weeds (x indicates control).

WEED	DEVRINOL (pre)	SINBAR (pre)	STINGER (post)
BROADLEAVES			
Buckwheat, Wild			X
Chickweed, Common	X	X	
Clover		X	X
Cocklebur, Common			X
Daisy, Oxeye			X
Dock, Curly			X
Dandelion		X	X
Dogfennel		X	
Groundsel, Common			X
Horseweed		X	X
Knapweed, Spotted			X
Knotweed	X	X	
Lambsquarters, Com.		X	
Mustard		X	
Nightshade, Black		X	X
Pigweeds	X		
Pineappleweed	X		X
Purslane, Common	X	X	
Ragweed, Common	X	X	X
Sorrel, Red			X
Rocket, Yellow		X	
Shepherds purse		X	
Smartweed		X	
Sowthistle, Annual		X	X

Choosing Fall Weed Management Options for Strawberries (continued)

WEED	DEVRINOL (pre)	SINBAR (pre)	STINGER (post)
Sowthistle, Annual		X	X
Thistle, Canada			X
Thistle, Bull			X
Vetch, Common			X
GRASSES			
Barnyardgrass	X	X	
Bluegrass, Annual	X	X	
Brome, Downy	X	X	
Crabgrass, Large	X	X	
Foxtail	X	X	
Oat, Wild	X		
Orchardgrass		X	
Panicum, Fall	X	X	
Ryegrass, Italian	X	X	
Sandbur	X		
Stinkgrass	X		
Witchgrass	X		

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Spotted Wing Drosophila—More You Should Know – *Kathy Demchak, Penn State University*

Given that spotted wing drosophila (SWD) has been found in PA, many growers are scrutinizing their berries a little more closely. The main concern is that there could be SWD larvae in the fruit. Blackberries and raspberries are two favorite foods of SWD, and fall-harvested cultivars are the most at risk since SWD populations increase throughout the growing season. However, there are other types of larvae that could be in fruit, including those of fruit fly species that lay eggs in overripe fruit. With raspberries, some folks have noticed that if they see juice on the inside of the cap, and then pull apart or squish these fruit, they find larvae (not necessarily SWD larvae). They keep an eye out for red staining on the receptacle from the juice as they harvest. No juice inside the cap = white receptacle = no larvae. I don't know if that's always the case, but it held true with berries I've checked. With blackberries, finding suspicious fruit is trickier, as you need to find the oviposition hole and damaged flesh around it. You can also check suspicious fruit by squishing it in a plastic zip-lock bag, adding a 1:16 solution of salt to water (1/4 cup salt to 4 cups water), and looking for larvae floating at the surface of the water after about 15 minutes. Earlier recipes used sugar, but apparently salt makes the larvae exit the fruit faster. Here are a few other questions people seem to be wondering about.

If I find larvae in the fruit, does this mean my farm has SWD present? While larvae could be SWD larvae, they also could be larvae of common fruit flies especially if the fruit was very ripe or overripe. SWD larvae are very tiny white maggots - they do not have a visible head. The larvae are actually in the flesh of the fruit – not on the surface, though they do extend their breathing apparatus to the surface. It's essentially impossible to tell types of maggots apart, unfortunately, without raising them to adulthood and then identifying the adults. If the larvae in your fruit flesh have a discernable head, you probably are looking at larvae of sap beetles or picnic beetles. If the larvae you find have a discernable head and are inside the cap, but not actually in the fruit flesh itself, you may have raspberry fruitworm.

How do I know whether the fruit flies I am seeing are SWD? First, it's important to note that the vast majority of fruit flies you see are *not* SWD. The identifying characteristic on the SWD males is a large black spot on the outside edge of each wing near the tip, but not right at the very tip. If you see fruit flies with a small spot on each wing at the very tip, they may belong to a different genus of fruit flies that includes organic matter decomposers and a type of pea leafminer. Females are much more difficult to tell apart from other fruit flies. Another tiny insect I've noticed on raspberry fruit that could potentially be mistaken for SWD is a predatory insect of thrips that, when magnified, is obviously not a fruit fly. It is about the size of a fruit fly though, and without magnification, its markings give it the appearance of having black spots towards the outside edge of its wings. You can set out vinegar traps to trap adults – this is especially important if you are finding larvae in order to determine whether SWD may be present. A good set of directions for making traps with excellent photos is at http://www.ipm.msu.edu/SWD/SWD-monitor.htm.

What should I do next if I think my farm has SWD? It's important to correctly determine whether you have SWD. You can contact your county extension office to ask for help. The folks there can contact me if needed. If it looks likely that you have SWD, we will contact PDA as the personnel there will need to confirm the ID and presence of SWD.

What cultural steps can I take to minimize problems? Note that most of these steps are the very same steps we recommend for minimizing problems with sap beetles and diseases.

1) Pick fruit as soon as possible. With raspberries, this means harvesting as soon as you can pull the fruit from the plant, and with blackberries, harvesting when the fruit is fully colored. If you notice any raspberry fruit with juice inside the caps, discard these berries, preferably after checking for larvae.

2) Harvest thoroughly. Even if you need to pay someone to pull off old fruit, keeping the planting clean will be worthwhile for a number of reasons in addition to this one.

3) Dispose of unwanted fruit in a way that will keep fruit flies from using it as a food source or from hatching from it.

What insecticides work if they become necessary? Effective insecticides for which 2(ee) labels specific for spotted wing drosophila have been issued that are registered on raspberries and blackberries are: Delegate (spinetoram); Entrust (spinosad); and AzaSol (azadirachtins). Other materials registered on caneberries for other pests are also effective on SWD. Our big concern is development of SWD populations that are resistant to certain insecticides. This pest has a very short life cycle, so please be sure to use materials from different activity groups for subsequent sprays.

Here is a listing of insecticides registered for use on caneberries in NY that have a PHI of 3 days or less, grouped by activity group. Ratings and length of expected residual activity are from information found at http://www.berriesnw.com/SFU/2011/SFUdocs11/SWD-Caneberry-MngtPlan.pdf . It should be noted that the residual activity has sometimes been reported to be shorter than what is listed here, so close watch for return of adults will be needed.

B

Spotted Wing Drosophila—More You Should Know– *(continued)*

Trade name	Active Ingredient	PHI (days)	Activity Group*	Effectiveness	Residual Activity
Brigade	bifenthrin	3	3A	Excellent	10-14 days
PyGanic	pyrethrins	0	3A	Good	0 days
Assail	acetamiprid	1	4A	Fair	1-3 days
Provado	imidacloprid	3	4A	Fair	1-3 days
Actara	thiamethoxam	3	4A	Fair	1-3 days
Delegate	spinetoram	1	5	Excellent	5-7 days
Entrust, Spintor, Success	spinosad	1	5	Excellent	5-7 days

*1B = organophosphates; 3A = pyrethroids and pyrethrins; 4A = neonicotinoids; 5 = spinosyns

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Raspberry Variety Review — *Dr. Courtney Weber, Cornell University*

Raspberry varieties are classified as floricane (summer) or primocane (fall) bearing. (A few primocane bearing types are described as everbearing, which produce a small to intermediate fall crop and can be managed in a double cropping system.) Raspberries are naturally biennial with a perennial crown. Primocanes grow the first year, go dormant in fall, get chilled in winter, and fruit the following summer (the primocanes are now called floricanes, which die after fruiting). New primocanes are growing as the floricanes fruit. Floricane varieties must be pruned in the spring to thin the fruiting canes and remove dead canes for better disease management and fruit size. There are red (Rubus idaeus), black (*Rubus occidentalis*), and purple (red x black hybrid) raspberry varieties suitable for production in temperate states.

Primocane varieties fruit on the first year's growth in the fall of the year. Currently, only red varieties (and some a few yellow) are available of this type although developments in black and purple raspberries include primocane fruiting. The strength of fruiting in primocane types varies widely from tips only on some floricane varieties to nearly the whole cane in varieties such as 'Autumn Britten' and 'Himbo Top'. Later primocane varieties such as 'Ruby' and 'Heritage' can have yield reductions from early frosts in more northern growing regions. Pruning in primocane varieties is done by mowing spent canes to the ground before primocanes emerge in early spring.

Currently available black and purple raspberry varieties are floricane bearing with most developed in New York or derived from germplasm from the region.

New raspberry varieties are actively being developed in about 11 public breeding programs around the world with the majority suitable for production in the temperate regions of the U.S. coming from Cornell University ('Heritage', 'Encore', 'Prelude', 'Titan', 'Ruby', 'Taylor'), University of Maryland ('Caroline', 'Anne', 'Jaclyn') and Ag Canada in Nova Scotia ('Nova', K81-6). Increasingly, new varieties from European programs are being introduced in to the U.S. ('Autumn Bliss', 'Autumn Britten', 'Polana', 'Polka', 'Himbo Top' and others). No variety will work well in all locations, soil types, and productions systems, but many have proven to be useful in many different situations. By planting a series of varieties, it is now possible to have fruit from mid to late June until fall frost (or longer with protection) in much of the temperate U.S. with only a short late-summer lag in production. Cornell's newest variety, 'Crimson Giant', released in 2011, extends the season in the fall to the end of October and beyond with large, high quality, bright red fruit.

PRIMOCANE RED RASPBERRIES

Autumn Bliss (Great Britain, Plant Patent #6597) is an early ripening raspberry with large, highly flavored fruit. It ripens 10 to 14 days before Heritage. Much of the crop is produced within the first two weeks of harvest, which is an advantage in northern climates. It produces short canes with few spines. The fruit is dark red and darkens with storage and is fairly soft. It is susceptible to raspberry bushy dwarf virus.

Autumn Britten (Great Britain) is early ripening with large, firm, good flavored fruit. The fruit tends to be dark and darken in storage. It is taller than 'Autumn Bliss' with better fruit quality but lower yields. It produces sparse cane numbers.

Caroline (University of Maryland, Plant patent #10,412) is a large, good flavored, conical fruit. The fruit will darken with storage. It produces tall upright canes. The short fruiting laterals can be challenging to pick, but yields are very good for the fall. It has moderate to good resistance to Phytophthora root rot.

Crimson Giant (Cornell University-NYSAES, Plant patent applied for) is the latest release from the Cornell program and has large, bright red fruit with a conical shape. The berries are firm and flavorful. It ripens after 'Heritage' and extends the season until late October or later with high tunnels. There is a significant risk to the crop from early frost with outdoor production.

Heritage (Cornell University-NYSAES) is considered the standard for fall bearing varieties. These tall, rugged canes have prominent thorns and can very high yielding if the complete crop can be harvested. The primocane crop ripens relatively late. Fruit is medium-sized and has good color and flavor, firmness, and good freezing quality. It is resistant to most diseases. Due to its late ripening, this variety is not recommended for regions with cool summers or a short growing season with frost before September 30 unless high tunnels or other cold protection is used.

Himbo Top (variety 'Rafzaqu') (Switzerland) produces good quality, large fruit. The fruit is bright red with good flavor. Plants are vig-

Raspberry Variety Review (continued)

orous and upright and medium in height with very long fruiting laterals that require trellising. Sucker production is somewhat sparse leading to moderate yields.
Jaclyn (University of Maryland, Plant Patent #15647) is an early season variety with large firm berries ripening 2 weeks before Heritage. The fruit is dark red with superior flavor and will darken with storage. The fruit is very long conical and adheres tightly until fully ripe. Plants are vigorous and erect but susceptible to yellow leaf rust. Potato leaf hoppers show a strong preference for this variety and can cause significant damage.

Joan J (Great Britain) is an early season variety with very firm fruit with a thick texture. The fruit is conic and dark red and will darken with storage. The canes are vigorous, upright and spineless making picking easy. Yield and fruit size is very good. The fruit skin is thin and can be damaged easily, especially in high temperatures.

Josephine (University of Maryland, Plant Patent #12,173) fruit is large with very good flavor ripening in the late season. Berries are firm and cohesive. The color is dark red. Plants are upright and vigorous needing little containment trellising. It is resistant to leaf hopper and Phytophthora root rot. This variety will extend the season in a high tunnel system.
Polka (Poland) has medium large primocane fruit that ripen in the mid-fall season. The fruit is somewhat soft with good quality and a shiny red appearance. It is a vigorous variety with good sucker production. Potato leaf hoppers so a strong preference for this variety and can cause significant damage.

PRIMOCANE YELLOW RASPERRIES
Anne (University of Maryland, Plant patent #10,411) produces large, conic, pale yellow fruit that ripen mid- to late season. It has very good flavor and texture. Tall upright canes sucker sparsely requiring higher planting density. It is resistant to Phytophthora root rot but susceptible to leaf hoppers and rust.

Kiwigold (New Zealand, Plant patent #11,313) and **Goldie** (cv. Graton Gold) (California, Plant Patent #7,625) are amber sports of Heritage, similar in all characteristics except fruit color. Fruit blushes pink when overripe with Goldie slightly darker. The fruit is medium-sized and has good flavor and firmness and ripens relatively late. They are resistant to most diseases.
FLORICANE RED RASPBERRIES

Early Season
Boyne and **Killarney** (sibling varieties from Manitoba) perform very similarly. Both have are early season with small to medium sized fruit with good eating and freezing quality but can be somewhat dark and soft. The plants are spiny and produce many suckers. They have excellent winter hardiness but are susceptible to anthracnose. Boyne is moderately resistant to late yellow rust and tolerant to Phytophthora root rot and crown gall, but is susceptible to raspberry fireblight. Killarney is moderately resistant to Phytophthora root rot and is susceptible to mildew.

Prelude (Cornell University-NYSAES, Plant Patent #11,747) is the earliest summer fruiting variety available. The fruit is medium sized, round, and firm with good flavor. It is very resistant to Phytophthora root rot and has good cold hardiness. A moderate fall crop is large enough to warrant double cropping. It is the best early season variety available for the northeast.

Mid Season
Canby (Oregon) canes are tall, nearly spineless, and moderately productive. The fruit ripens mid-season, is medium to large in size, firm, and bright red with excellent flavor. It has moderate to poor cold hardiness, and buds may winter kill in cold climates. It is susceptible to Phytophthora root rot. It is also susceptible to powdery mildew making it unsuitable for tunnel production.

Moutere (New Zealand) is large fruited variety with very firm fruit. The canes are vigorous and tend to weep with the heavy fruit load. The fruit is light red with a waxy, dull appearance. The yields are very high but the flavor is poor. Hardiness in NY has been good.
Nova (Nova Scotia) is vigorous and upright with long, fruiting laterals. The canes have very few spines. The fruit ripens in mid-season and is medium sized, bright red, firm, and somewhat acidic in taste. It is considered to have better than average shelf life. The plants are very hardy and appear to resist most common cane diseases, including rust. It will set a late fall crop.

Titan (Cornell University-NYSAES, Plant patent # 5404) produces large canes with very few spines with suckers that emerge mostly from the crown, so it is slow to spread. It is susceptible to crown gall and Phytophthora root rot but is extremely productive. Fruits ripen mid to late season and are extremely large and dull red, with mild flavor. Berries are difficult to pick unless fully ripe. With only fair hardiness, Titan is for moderate climates. It is resistant to the raspberry aphid vector of mosaic virus complex.

Raspberry Variety Review– (continued)

Late Season

Encore (Cornell University-NYSAES, Plant patent # 11,746) is one of the latest summer fruiting raspberry varieties available. It produces large, firm, slightly conical berries with very good, sweet flavor. The fruit quality is considered very good. It is moderately susceptible to Phytophthora root rot and has good cold hardiness.

K81-6 (Nova Scotia) produces canes that are medium tall with spines only at the base. The fruit is very large with good flavor that ripens very late summer with average firmness. It is resistant to late yellow rust but is susceptible to leaf curl virus and raspberry fire blight. It has shown good cold hardiness in NY trials.

Octavia (Great Britain) is a new late season variety that promises to close the summer gap before primocane varieties begin. The fruit is large and generally round shaped and light red. The flavor is poor to average with adequate sun. The canes are semi-spineless with good resistance to aphids and cane botrytis. It is susceptible to spur blight, raspberry bushy dwarf virus and Phytophthora root rot.

BLACK RASPBERRIES

Black Hawk (Iowa State University) fruit is small and glossy with good firmness. Plants are vigorous, similar to wild types. The canes are relatively hardy, and resistant to anthracnose. Yields are moderate. This variety is generally falling out of favor due to its small fruit and wild growth habit.

Bristol (Cornell University-NYSAES) fruit is medium to large and firm, with excellent flavor. Plants are vigorous, high yielding for black raspberry and hardy. It is susceptible to anthracnose and tolerant to powdery mildew.

Haut (USDA-ARS, Maryland) fruit is large sized but soft. The dark shiny black color makes them very attractive. It ripens over a long period producing good yields. The plants are vigorous and upright with good productivity.

Jewel (Cornell University-NYSAES) fruit is large, firm, glossy, and flavorful. Plants are vigorous, erect, hardy, and productive. This variety appears to be more disease resistant than others including resistance to anthracnose.

Mac Black (Michigan) ripens medium large berries 7-10 days later than most varieties. The fruit is large, moderately firm and flavorful. The canes are vigorous, erect, and hardy.

PURPLE RASPBERRIES

Brandywine (Cornell University-NYSAES) ripens later than most red varieties and are large, reddish-purple, and quite tart. Berries are best used for processing. This is a high yielding variety. Canes are very tall with prominent thorns, and suckers grow only from the crown so the plant will not spread. It is susceptible to crown gall but partially resistant to many other diseases.

Royalty (Cornell University-NYSAES, Plant patent # 5405) is the most widely planted purple variety. Fruit ripen late and are large and reddish-purple to dull purple when fully ripe. Berries tend to be soft but sweet and flavorful when eaten fresh. It is excellent for processing and can be harvested when fruit is red for fresh eating. Canes are tall and vigorous, with thorns, and are extremely productive. Royalty is immune to the large raspberry aphid, which decreases the probability of mosaic virus infection, but is susceptible to crown gall. *(Below left: "Polka"; below right "Autumn Britten")*

Raspberry High Tunnel Open House

Raspberry High Tunnel Trial Report —Dr. Courtney Weber, Cornell University

Raspberry Trial Specifications

Primocane Varieties

Autumn Britten, Caroline, Canby, Heritage, Himbo Top, Encore, Jaclyn, Joan J, Polka

Floricane Varieties

K81-6, Prelude, Moutere, Killarney, Titan

Selections from the breeding program tested in additional plots. Planted May 20, 2008.

Field Plan

Haygrove multibay high tunnels

- -24 ft. wide, 12 ft. peak height
- -8 ft. row center spacing
- -3 ft. between plants initially (2 ft, spacing for black raspberry)
- -initial beds 18 in. wide, 6 in. high
- -plastic covering applied July 6, 2009; April 23, 2010; May 17, 2011

Trellis

V-trellis

- -4 in. pressure treated lumber posts sunk 48 inches for anchors.
- -V formed by opposing steel T-posts
  - -18 inch bottom spacing
  - -2 ft. at 5 ft. high
- -3 wires with cross members at row ends
- -monofilament line 2.5 mm (approx. 12 gauge) 496 lb. test

Irrigation

- -heavy wall dripper tubing, 17 mm, 4GPH
- -24 in. emitter spacing (12 in. spacing recommended)
- -target of 1 in. per week during vegetative development
- -target of 1.5 to 2 in. per week during fruit development and harvest

Pest Control

- -beneficial insect release
  - -for 2 spotted spider mites released *Phytoseiulus persimilis* predator mites every 1-2 weeks since early June.
  - -for aphids *Hippodamia convergens* lady bugs can be effective
- -manual weed control with hoe, push mower and string trimmer
- -spot treatment with glyphosate to supplement weed control

Pollination

-quad of bumble bees from Koppert Biological Systems www.abetterbee.com.

Wind Break

Willows (*pictured right)*

Raspberry High Tunnel Trial Report *(continued)*

Table 1: Yield statistics for 7 primocane raspberry varieties grown under high tunnels in 2009 and 2010. Yield based on harvest of 2m in each of 3 plots in a randomized complete block design.

Variety	Harvest Year	Yield/acre (lbs.)	1st Harvest Date	Last Harvest Date	Peak Harvest Date	Harvest Season Length (days)	Number of harvests
Autumn Britten	2009 2010	6,790 6,450	Aug 11 Jul 23	Sept 28 Sept 1	Sept 1 Aug 9	49 41	25 18
Caroline	2009 2010	10,360 10,950	Aug 25 Aug 9	Oct 16 Sept 24	Sept 17 Aug 20	53 47	22 18
Heritage	2009 2010	7,510 9,630	Aug 28 Aug 16	Oct 16 Oct 2	Sept 18 Aug 27	50 48	19 17
Himbo Top	2009 2010	8,730 9,520	Aug 18 Jul 30	Oct 16 Sept 17	Sept 4 Aug 25	60 53	28 19
Jaclyn	2009 2010	10,400 4,290	Aug 17 Jul 30	Oct 12 Sept 20	Sept 9 Aug 13	57 53	29 21
Joan J	2009 2010	13,270 13,920	Aug 17 Jul 26	Oct 16 Sept 20	Sept 9 Aug 18	61 56	30 22
Polka	2009 2010	10,360 8,410	Aug 18 Jul 23	Oct 8 Sept 20	Sept 16 Aug 18	52 60	27 23
Whole Planting	2009 2010 2011		Aug 11 Jul 23 Aug 3	Oct 16 Oct 2		67 72	40 26
Open field comparison from 1995 (extrapolated from 10 ft. row centers)							
Caroline		4480	Sept 1	Oct 20	Sept 26	50	21
Heritage		6660	Aug 29	Oct 20	Sept 27	53	21

Raspberry High Tunnel Trial Report *(continued)*

Table 2: Mean, maximum, and minimum fruit weight for 7 raspberry primocane varieties grown under high tunnels in 2009 and 2010. Yield based on harvest of 2m in each of 3 plots in a randomized complete block design.

Variety	Harvest Year	Full Season Mean Fruit Weight (g)	Maximum 10 Fruit Mean Weight (g)	Minimum 10 Fruit Mean Weight (g)
Autumn Britten	2009	3.1	4.4	2.1
	2010	3.0	3.9	2.0
Caroline	2009	2.5	3.5	1.8
	2010	2.5	4.0	1.7
Heritage	2009	2.1	3.1	1.2
	2010	1.7	2.8	0.9
Himbo Top	2009	3.0	4.7	2.1
	2010	2.9	3.9	2.2
Jaclyn	2009	3.1	4.1	2.2
	2010	2.7	3.8	2.5
Joan J	2009	2.9	6.5	1.9
	2010	2.9	4.0	2.2
Polka	2009	2.6	3.7	1.8
	2010	2.8	4.0	2.2
Open field comparison from 1995				
Caroline		1.7		
Heritage		1.7		

Raspberry High Tunnel Trial Report *(continued)*

Table 3: Yield statistics for 7 floricane raspberry varieties grown under high tunnels in 2010 and 2011. Yield based on harvest of 2m in each of 3 plots in a randomized complete block design.

Variety	Harvest Year	Yield/acre (lbs.)	1st Harvest Date	Last Harvest Date	Peak Harvest Date	Harvest Season Length (days)	Number of harvests
Canby	2010 2011	7,610 9,300	Jun 21 Jul 1	Jul 19 Jul 28	Jun 28 Jul 12	29 28	14 10
Encore	2010 2011	8,450 9,350	Jun 24 Jul 5	Jul 26 Aug 2	Jul 4 Jul 19	35 29	16 11
K81-6	2010 2011	8,670 11,635	Jun 25 Jul 7	Jul 26 Aug 1	Jul 12 Jul 18	34 26	15 11
Killarney	2010 2011	9,920 8,670	Jun 21 Jun 29	Jul 19 Jul 29	Jun 28 Jul 11	29 31	14 12
Moutere	2010 2011	10,240 9,070	Jun 22 Jul 5	Jul 26 Jul 27	Jul 8 Jul 13	35 23	16 9
Prelude	2010 2011	7,570 5,830	Jun 14 Jun 27	Jun 30 Jul 11	Jun 23 Jun 29	17 15	9 6
Titan	2010 2011	6,800 7,090	Jun 24 Jul 5	Jul 26 Jul 29	Jul 12 Jul 15	35 25	16 10
Whole Planting	2010 2011		Jun 14 Jun 27	Jul 26 Aug 2		43 37	20 20
Open field comparison from 1996 (extrapolated from 10 ft. row centers)							
Canby		9,510	Jul 8	Aug 5	Jul 16	43	
Encore		6,475	Jul 11	Aug 8	Jul 24	29	
Killarney		13,760	Jul 8	Aug 8	Jul 16	32	
Prelude		4,750	Jun 30	Aug 8	Jul 10	40	
Titan		12,080	Jul 11	Aug 8	Jul 22	29	

Raspberry High Tunnel Trial Report *(continued)*

Table 4: Mean, maximum, and minimum fruit weight for 7 floricane raspberry varieties grown under high tunnels in 2010 and 2011. Yield based on harvest of 2m in each of 3 plots in a randomized complete block design.

Variety	Harvest Year	Full Season Mean Fruit Weight (g)	Maximum 10 Fruit Mean Weight (g)	Minimum 10 Fruit Mean Weight (g)
Canby	2010	2.9	3.8	2.2
	2011	2.5	3.4	2.0
Encore	2010	3.7	4.8	2.7
	2011	3.3	5.2	2.8
K81-6	2010	4.1	5.5	2.7
	2011	4.0	5.8	2.1
Killarney	2010	2.6	3.4	1.9
	2011	2.5	4.1	2.1
Moutere	2010	2.9	5.1	1.9
	2011	2.8	4.2	1.9
Prelude	2010	2.4	3.1	1.9
	2011	1.9	2.5	1.6
Titan	2010	3.9	4.9	3.1
	2011	3.4	4.5	2.4
Open field comparison from 1996				
Canby		2.1		
Encore		3.0		
Killarney		2.6		
Prelude		2.4		
Titan		3.1		

Focus on Value-Added Products *Steven McKay, Hudson Valley Fruit Program*

Demand for Primary Fruit Processing Growing in New York

The demand for locally grown and processed food has been growing as the public becomes aware of the energy costs involved in shipping food, and interest increases in food security and supporting local economies. Green markets and CSA=s have been growing in popularity as well as growing at least a portion of one's own food in the home garden. Workshops regarding production of value-added products are abundant, and folks are beginning to develop a good quantity of new products. As product lines are established and expanded, the demand for fresh and partially processed produce is increasing. In this article, I would like to explain what is involved in the primary processing of produce, and in what form entrepreneurs can use the products to make retail consumable value-added products.

Most producers of value-added food products are accustomed to receiving a cleaned fresh, frozen, or otherwise partially processed product. These are the raw materials that can be used to make their final retail products. Having these input products saves time and processing space for the producer. It can be more efficient for the value-added industry as a whole to have these partially processed ingredients because the producers don=t each have to invest in and duplicate the machinery necessary to do initial cleaning and partial processing. Many times the same partially processed product can be used by a number of different processors to make different products. We can define this initial stage of cleaning and partial processing as **primary processing**. This converts raw product from the field into **primary processed product**.

So let's look in more detail at the different processes that can be involved in primary processing, and what is needed to accomplish the process. The first and easiest form of primary processing would be to produce a cleaned, refrigerated or frozen product packaged in plastic bags and boxes. Soil and foreign objects are removed, spoiled product is cut away, and stems and peels can be removed. The product is then rapidly cooled to and stored at the optimum temperature recommended for the product, or frozen. If frozen, it can be individually quick frozen (IQF), meaning that each piece of produce is separate, making it easier to dispense, or the product is frozen in a solid block. IQF is often easier to handle because it can be measured in batches or used in recipes that require separate pieces of produce. Package size for both solid and IQF forms is usually about 30 pounds.

Produce can also be freeze-dried to remove all water, and become shelf-stable for years. This is accomplished by taking IQF produce and putting it into a freeze-dry machine that maintains the produce frozen and under vacuum until it is dried. The process is expensive. With water removed, the produce retains only about 1/10 of its original weight which makes it easy to transport and work with.

Finally, other forms of primary processed product include puree, juice, and concentrate. These products are normally stored and sold in five to 55 gallon buckets which are convenient for the secondary processor. Puree is made by grinding fresh or frozen produce in a food mill. Juice is normally extracted by pressing, and sometimes an enzyme and heat pre-treatment is necessary to increase yield and efficiency. Concentrates are made when a percentage of water is removed from the juice.

Demand for all these primary processed products is increasing here in the Hudson Valley. This is an opportunity that is wide open. With a few primary processing facilities, mechanized plantings of fruits and vegetables could be developed and expanded, and the local market could benefit by replacing imports from the west coast and out of the country with local product.

Opportunities in New York for Value-Added Products

In the previous article I described the opportunity existing for production of primary processed products using locally produced fruits, vegetables, and animal products. You may remember that these are raw agricultural products that have received a first stage of processing, be it as simple as washing, or more detailed such as peeling, dicing, pureeing, concentrating, or freezing. The primary products can easily be turned into value-added products with varying amounts of additional processing. The value-added products can then be marketed on a wholesale or retail basis, ready for purchase by retail customers. In this article, I will describe some of the types of value-added products that can be made, and considerations for their production.

Before making a product, one must design the recipe and features of packaging to give it a competitive edge. Many similar products will exist, and one must be able to market the new item with some competitive advantage. Examples of ways to make the product worth more and possibly different from existing products include producing with no sugar or healthy sugar alternatives, including ingredients with research demonstrated health benefits, developing raw processing recipes, using local, organic or eco-certified ingredients, and implementing kosher certification.

Packaging should be green, or as environmentally compatible as possible. Artistic style including color, font, and illustrations that appeal to the target audience, as well as information being strategically placed on the label are important. Endorsements, product development and origin stories, and information about the benefits of the product are all appropriate.

Jams and beverages are the first categories I'd like to mention. These are made from fruits, and sometimes vegetables. When formulating these products, one can think of processing techniques or ingredients that can give a marketing edge. A distinct and highly flavor-

Focus on Value-Added Products *(continued)*

ful product is essential. High antioxidant or other nutritionally beneficial ingredients and reduced or no sugar recipes are in demand.

Baked goods provide a way to incorporate fruits and vegetables into desserts and breads. They are perishable, but can be held frozen, or sold as dry, ready to mix ingredients. Pies can be made frozen, ready to bake and provide an opportunity to use fruits, while quiche can be a good way to use vegetables and animal products.

Dairy products such as flavored milk, yogurt, ice cream and cheeses, can be used to incorporate fruits and vegetables. Many specialty flavors such as rhubarb, currant, gooseberry, elderberry, or even black raspberry are not widely manufactured, but can be used to make luscious yogurts and ice creams. Fresh herb and cheese combinations, possibly with dried peppers, tomatoes, or other vegetables, make good small-scale specialty products.

Confections, especially considering chocolate, is an easy class of food to combine with dried, freeze-dried, or infused fruit. Bars can be molded with unique designs including those which have a business logo or seasonal themes. The Philadelphia Candy Show held in Atlantic City in September and January each year is a good place to get ideas and meet suppliers.

Fermented foods including alcoholic beverages and vinegars provide a great way to add value to fruits not suitable for fresh market sales. This is also a good way to use excess production that has low prices or is difficult to sell. The fragrance of fermented products is intense and unique, and the color is attractive. Fruit wines and vinegars made with high-antioxidant berries are popular and becoming more widely accepted by the general public.

Frozen fruits and vegetables made from local products, and in attractive packages are in demand. Two of our local farmers have bagged and frozen raspberries, blackberries, and strawberries, and have received higher prices for frozen than for fresh.

As you can see, many options exist, and this article has only presented an overview of the possibilities. If you would like to explore some of these options and other ideas of your own, Cornell can help you to develop the products. You could start by calling our office at 518-828-3346. We will help you get started and can connect you with our Food Venture Center in Geneva to get you into production.

Pulping Machine is Promising for Primary Processing-

As discussed in previous articles, there is a tremendous potential for production and marketing of primary processed products. Primary processed products are those used to make retail value-added products. These products include cleaned, cut produce; frozen produce; pulps; single strength juices; and concentrates. One machine called a pulper is useful in making pulp and juices because it separates the seeds and stems from the flesh of the produce leaving the edible pulp.

Pulpers have been expensive and hard to find in the US. If one does a search on line, machines from India and Italy are the easiest to find. They tend to be costly, upwards of $10,000 plus freight. I have located two companies in Guatemala that are producing different sized machines ranging from $2,500 to $6,000. The $6,000 machine has a capacity of 250 kg of produce per hour. It has a 3 hp motor that runs on single phase, 220 volt power. It comes with three different sized screens to adapt to any kind of fruit or vegetable. The machine works with two beaters that spin rapidly and rub the produce against the screens. I have run trials with fruit as small as elderberries and as large as peaches, and the machine handles the produce well.

Many people in our area have been freezing produce they have not been able to sell in five gallon buckets for later sale. The entire fruit with stems and leaves are frozen together. This machine makes it possible to remove seeds, leaves, and stems, thus reducing space needed to store the produce before sale.

The buckets can be frozen, or the product can be heat-treated and made shelf- stable to be stored out of the freezer. This simple processing reduces storage costs are reduced, and increases the value of the product because the pulp is ready to use in various retail products.

For more information on how to use pulpers, you can contact the Cornell Food Venture Center at 315- 787-2273 or Steven McKay at 518 -828-3346.

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September Berry Barometer – Cathy Heidenreich, Cornell University

It's time to start looking forward to 2012. Review your notes and records for concerns that may need addressing next year. Begin gathering needed information and making plans over the late fall and winter months on how best to address them. Have plans and products in place before the 2012 season begins.

ALL BERRY CROPS:

Weeds – Start organizing those fall applications. Review weed problems and available products for their control. Purchase product and adjuvants as needed. Check labels to review timing and application requirements indicated (temperature, adjuvants, need for watering in after application etc.). Calibrate application equipment to be sure you are getting the most bang for your buck out of the products you apply! Note: Preceding articles by Eric Hansen and Bernie Zandstra discuss blueberry and strawberry fall weed management.

Site Preparation – Hopefully your site preparation for new plantings, including preplant weed management, is well underway for all 2012 berry plantings. September is the month for seeding cover crops such as rye or oats – be sure to get cover crops planted in a timely fashion and at a high enough seeding rate to get good stand establishment. Also get those plant orders in to be sure of getting sufficient quantities of the varieties you have selected. Need help finding small fruit nurseries that carry the variety you may be interested in? Check out the Cornell Small Fruit Nursery Guide: http://www.fruit.cornell.edu/berry/nurseries/. Have on hand sufficient irrigation supplies to be able to water immediately after planting next spring to get those new plants off to a good start.

Wildlife Management – Watch for deer browse. Take immediate steps to deter feeding. Problems with voles last season? Now is the time to take preventative action. For an in-depth look at vole management see the article that follows.

Sod alley ways - Fall is a good time to plant grass alleyways. Consider using hard fescues for this purpose. They are very durable and slow growing – lessening the need for frequent mowing. Spartan, Aurora, SR3000, SR3100 and Reliant as well as sheep fescues are low growing and grow readily in a wide range of soil pH. Unlike other grasses, hard fescues do not propagate from rhizomes but are bunch grasses, not encroaching into the crop plant area. Their dense sod with extensive root systems protects soil structure. Use higher seeding rates for a more rapid establishment and full cover. While hard fescue seed is relatively expensive, the cost is most often off set by the reduced need for mowing.

STRAWBERRIES:

Established plantings:

Fertilizer – Fall is the time for your final nitrogen application for the season. Apply 30 lb actual N per acre in early September. Your seasonal total of N should be around 120 lbs N/acre for bearing fields. If you did not apply fertilizer at renovation, you cannot make it all up during this time, but you could up the levels slightly (the same for soils that have a very low OM content). If you took some leaf samples following renovation, now would be a good time to take a look at those results. Magnesium and Boron are sometimes deficient – if that's your case consider applying Epsom salts (15 lbs/100gal/acre) for magnesium and Solubor (3 lbs/100gal/ acre) for boron. Just be careful of applying these nutrients on a hot humid day, because they can cause significant leaf burn.

Diseases –If **Red stele** *(right)* has been identified in your planting, use a soil applied fungicide like Ridomil Gold EC or a foliar application of Alliette or Phostrol. All of these fungicides should be applied in late September or early October as the soils cool.

Winter mulch – Are you ready? Are you set? Grain mulches are the most common; the best include wheat, rye, or Sudan grass straws. Apply after several frosts and leaves flatten in late fall early winter. Apply 2-3 tons/A (2-3" layer) on average; 4-5 tons/A in cold windy climates or on raised beds.

New plantings:

Fertilizer – Fall is the time for your final nitrogen application for the season; apply 30 lbs/acre to promote root growth and improve flower bud initiation.

Diseases – Foliar diseases remain a concern while leaves are actively growing. Severe epidemics may result in weakened plants that are more susceptible to winter injury; fruit bud set may also be reduced. Several products are labeled for foliar disease management – see the berry guidelines for details.

Focus on Value-Added Products *(continued)*

Winter mulch – same as above for new plantings.

BLUEBERRIES:

Established plantings:

1. **Fertilizer** – Avoid adding nitrogen during the fall. Apply 200 lb/A sulfur in plantings where pH is still above desired levels. Amendments like sulfur should be added *before* you add the next layer of mulch.

2. **Diseases** - Check for weak plants and try to determine what the damage is caused by. Check for rodent damage to the roots, but also look for flagging caused by canker.

3. **Insects** – look for insect stem galls after leaves have fallen- cut out and burn any galls to reduce overwintering populations.

Mulch - Remember to not cheat on the mulch – you should have 6" of mulch on those berries at all times. If you have a deep and consistent mulch layer you can save on weed control and irrigation. If you are having a hard time spreading the mulch, consider the implement pictured above right – this is a mini-manure spreader offered by Mill-Creek that has made mulch application much easier.

New plantings:

1. **Fertilizer** – Avoid adding nitrogen during the fall. Apply 200 lb/A sulfur in plantings where pH is still above desired levels.

2. **Insects** – Look for **insect stem galls** after leaves have fallen- cut out and burn any galls to reduce overwintering populations.

Weeds – Low rate of Princep in October. One more shot at it in late November with Kerb for grass control (before ground freezes) and/or Casoron for grasses or broadleaves- apply uniformly in late fall when daily temperatures hold below 45°F.All have different application requirements – check labels for details.

RASPBERRIES AND BLACKBERRIES:

Established plantings:

1. **Fertilizer** – Avoid adding nitrogen during the fall.

2. **Diseases** – Recent heavy rainfalls may have set the stage for problems with **Phytophthora root rots** on sites with a history of the disease. Infected plants often wilt and collapse just before harvest or during warm dry weather. Infected plants usually occur in groups and are most often found in the lowest or wettest parts of the field. Look for signs of Phytophthora – wilting and a brick-red color under the bark at the crown of the plant. Treatment options include fall applications of Ridomil Gold (Note: DO NOT apply within 45 days of harvest), Alliette 80 WP, Prophyt, or Phostrol. See berry pest management guidelines (http://ipmguidelines.org/BerryCrops/) for more information. **Late leaf rust** may be another concern in raspberries. Look for small yellow spots on the undersides of leaves. Heavily infected leaves may drop prematurely, leaving canes bare by September. Flowers, petioles and fruit may also be infected *(right)*. Cabrio or Pristine may provide some disease suppression. Cultural practices to reduce disease next season include removal of the alternate host (white spruce) and cane thinning, maintaining narrow rows and good weed control to increase air circulation and reduce leaf drying time.

3. **Insects** – Check for **Cane borer/girdler** damage (red-necked cane borer, flat-headed cane borer). These consist of swellings 1-3 inches long and a few inches to several feet above the ground. Some infested canes may wither and die; in

B

September Berry Barometer – Cathy Heidenreich, Cornell University

other cases the infected cane breaks off in the region of the swelling. With other borer species (Raspberry cane borer) no swelling is evident but the tips of new canes may wilt and blacken. Cut out and burn all infested canes. **Crown borer** will also cause wilting. Several canes of a bush may be weakened by activity of a single larva in the crown; the entire plant may be killed. Crown borer adults are active now as they lay eggs. The adults look like a large yellowjacket, but they are actually a moth. Prune out dying canes; remove infested crowns. If you did not make a spring application you may apply Capture 2EC as a postharvest drench directed at the crown (minimum 200 gal water/A).Another potential fall insect pest is **tree crickets**. Adults lay eggs in canes, leaving long rows of punctures that greatly weaken the cane above. Remove and burn infested canes as they appear. Late August to mid- September applications of insecticides such as carbaryl may also be effective.

4. **Weeds** – September into October – Sinbar, Devrinol, Surflan, Solicam (if not applied in spring). Check labels for timings, application rates and methods. Princep at high rate if not applied in spring. Remember total product application/ season restrictions apply for most products. See labels for details. You have one more shot at it with Casoron for broadleaves and grasses in November if needed - apply uniformly in late fall when daily temperatures hold below 45°F.

New plantings:

1. **Fertilizer** – Avoid adding nitrogen during the fall.

Weeds – Limited options the planting year. October – low rate of Princep (Note: Not to be used on tissue culture plants). Late November, Casoron as above.

(This is the last Berry Barometer for the season. Hope you have found this monthly feature timely and helpful. Please send any suggestions or comments to Cathy Heidenreich, mcm4@cornell.edu. Thanks!)

NEW YORK CROP WEATHER SERVICE NOTES

Week ending August 21st: A slow moving low pressure tapped into a deep plume of tropical moisture and brought heavy rainfall from the Hudson Valley eastward into New York Sunday into Monday. Record breaking rainfalls were noted from New York City north to Albany with some localities close to New York City reporting close to 10 inches of rainfall! Lesser, but still more significant amounts were noted northward, more in the two to five inch range. Drier weather returned Tuesday into Wednesday. Then another weaker but slow moving disturbance brought scattered showers and thunderstorms on Thursday into Friday, some with locally heavy rainfall especially in sections of the Mid-Hudson Valley where Doppler estimated up to 4 inches of rain fell in central Dutchess County. Most places received less than an inch of rainfall through the two-day period. Dry weather returned to close out the week on Saturday. Overall temperatures were close to normal, slightly above for overnight lows but afternoon highs averaged slightly below normal.

Week ending August 28th: A cold front brought showers and strong to severe thunderstorms to New York on Sunday. Some very heavy rainfall occurred with the thunderstorms over portions of central and eastern New York. High pressure moved over state on Monday through Wednesday with cooler and drier weather. Another cold front moved across the state with showers and thunderstorms on Thursday. High pressure briefly crested over the northeast Friday into early Saturday. The outer bands of Hurricane Irene brought some moderate to heavy rainfall into Long Island and southern New York late on Saturday. Temperatures were near normal across the state this week. Rainfall was above normal over portions of Long Island, the lower to Mid-Hudson Valley, the eastern Catskills and parts of the Capital District. Precipitation was near normal or slightly below normal in most other locations.

Week ending September 4th: Hurricane Irene impacted all but the western part of the state with torrential rain producing widespread major and record breaking flooding over the eastern third of the state. The rest of the week was dry as high pressure settled over the region. Rainfall amounts were anywhere from 3 to 14 inches over the eastern part of the state due to Irene and the rainfall tapered off to only a tenth to half an inch over western New York. Temperatures began below normal as Hurricane Irene affected the region on Sunday and temperatures continued below normal into the middle of the week. As the high pressure moved offshore later in the week temperatures returned to near normal levels on Thursday and Friday and above normal by Saturday. Fruit damage was still being assessed in most eastern New York areas.

Week ending September 11th: The weather during the past week was extremely active across New York State. At the start of the week, strong to severe thunderstorms moved across upstate areas on Sunday. Damaging winds, hail and a tornado affected central,

Weather Data for Week Ending Sunday, August 21, 2011

Station	Temperature (°F)				Growing Degree Days Base 50° 1/			Precipitation (Inches) 1/			
	High	Low	Avg	Dep. from Norm	Week	Season	Dep. from Norm	Week	Dep. from Norm	Season	Dep. from Norm
Hudson Valley											
Albany	86	58	71	+2	149	2316	+420	3.10	+2.27	21.18	+5.61
Glens Falls	84	55	69	+3	135	2013	+351	3.35	+2.51	20.67	+5.50
Poughkeepsie	85	58	72	+2	152	2421	+440	1.62	+0.84	21.93	+3.90
Mohawk Valley											
Boonville	79	55	66	+2	112	1524	+215	0.97	-0.16	26.95	+6.13
Champlain Valley											
Plattsburgh	87	52	69	+3	133	1875	+186	0.61	-0.37	20.62	+6.03
St. Lawrence Valley											
Canton	83	52	68	+3	131	1862	+351	1.43	+0.45	23.03	+7.77
Massena	86	49	71	+5	146	2031	+435	0.24	-0.60	16.82	+2.86
Great Lakes											
Buffalo	85	63	73	+4	159	2200	+391	0.35	-0.63	22.17	+6.75
Wales	84	57	68	+3	129	1808	+336	0.27	-0.67	18.82	+1.07
Niagara Falls	86	61	73	+5	164	2140	+322	0.14	-0.77	17.31	+2.41
Rochester	86	60	72	+5	155	2180	+429	1.36	+0.58	17.45	+4.14
Watertown	83	55	71	+5	145	1930	+403	1.36	+0.59	19.76	+7.84
Central Lakes											
Dansville	87	58	72	+4	155	2399	+638	1.08	+0.34	16.47	+1.79
Geneva	84	60	71	+3	146	2117	+371	3.15	+2.45	18.69	+4.11
Honeoye	87	56	70	+2	144	2022	+205	1.04	+0.28	21.01	+6.58
Ithaca	84	53	69	+3	133	1958	+375	1.84	+1.07	21.13	+5.38
Penn Yan	86	60	72	+5	157	2249	+503	2.03	+1.33	14.47	-0.11
Syracuse	88	60	73	+6	162	2447	+670	0.75	-0.02	23.21	+6.68
Warsaw	82	57	67	+3	123	1749	+380	2.21	+1.31	22.50	+5.39
Western Plateau											
Hornell Almond Dam	85	51	67	+3	125	1846	+365	2.25	+1.69	21.50	+7.29
Elmira	86	52	70	+3	142	2127	+451	2.01	+1.32	17.71	+2.64
Franklinville	83	51	67	+5	120	1739	+504	1.97	+1.06	25.88	+8.56
Jamestown	84	53	68	+4	129	1920	+533	1.43	+0.40	23.82	+4.54
Eastern Plateau											
Binghamton	82	55	68	+2	129	1999	+371	1.53	+0.76	27.06	+11.21
Cobleskill	83	55	67	+2	124	1836	+322	3.53	+2.76	23.37	+6.42
Morrisville	83	54	68	+4	131	1812	+369	1.32	+0.51	20.17	+3.39
Norwich	84	54	68	+3	127	1856	+340	0.54	-0.23	25.35	+8.53
Oneonta	85	55	68	+4	129	1851	+451	1.05	+0.21	26.50	+8.08
Coastal											
Bridgehamton	85	58	72	+1	153	2208	+393	1.66	+0.89	17.56	+0.93
New York	85	65	75	-1	179	2803	+352	3.79	+2.95	26.14	+8.34

1/ Season accumulations are for April 1st to date. Weekly accumulations are through 7:00 AM Sunday Morning. Data courtesy NY NASS.

Weather Data for Week Ending Sunday, August 28, 2011

Station	Temperature (°F)				Growing Degree Days Base 50° 1/			Precipitation (Inches) 1/			
	High	Low	Avg	Dep. from Norm	Week	Season	Dep. from Norm	Week	Dep. from Norm	Season	Dep. from Norm
Hudson Valley											
Albany	83	52	71	+3	145	2461	+440	3.34	+2.57	24.52	+8.18
Glens Falls	81	49	68	+3	131	2144	+373	2.00	+1.16	22.67	+6.66
Poughkeepsie	85	51	71	+3	151	2572	+458	5.36	+4.58	22.29	+8.48
Mohawk Valley											
Boonville	75	47	62	-1	89	1613	+217	1.82	+0.62	28.77	+6.75
Champlain Valley											
Plattsburgh	79	50	67	+2	120	1995	+198	0.48	-0.46	21.10	+5.57
St. Lawrence Valley											
Canton	79	49	65	+2	107	1969	+357	1.19	+0.21	24.22	+7.98
Massena	83	50	68	+4	124	2155	+457	1.09	+0.21	17.91	+3.07
Great Lakes											
Buffalo	81	56	70	+3	139	2339	+408	1.78	+0.80	23.95	+7.55
Wales	78	51	65	0	106	1914	+340	2.16	+1.15	20.98	+2.22
Niagara Falls	82	55	70	+3	140	2280	+340	1.34	+0.41	18.65	+2.82
Rochester	80	53	69	+3	131	2311	+444	1.92	+1.12	19.37	+5.26
Watertown	80	49	67	+2	120	2050	+417	0.71	-0.12	20.47	+7.72
Central Lakes											
Dansville	83	54	70	+3	139	2538	+658	1.28	+0.51	17.75	+2.30
Geneva	80	54	67	0	122	2239	+375	1.13	+0.37	19.82	+4.48
Honeoye	80	52	68	-1	125	2147	+204	1.32	+0.55	22.33	+7.13
Ithaca	80	48	66	+1	115	2072	+381	1.18	+0.41	22.07	+5.55
Penn Yan	82	53	69	+3	135	2384	+520	0.90	+0.14	15.37	+0.03
Syracuse	83	56	71	+4	147	2594	+700	1.72	+0.89	24.93	+7.57
Warsaw	76	50	64	+1	97	1846	+385	1.89	+0.98	24.39	+6.37
Western Plateau											
Hornell Almond Dam	81	47	65	+1	107	1953	+372	0.96	+0.36	22.46	+7.65
Elmira	83	47	67	+2	123	2250	+462	1.21	+0.51	18.92	+3.15
Franklinville	80	48	64	+3	101	1840	+519	1.50	+0.59	27.38	+9.15
Jamestown	82	50	66	+3	112	2032	+550	1.39	+0.34	25.21	+4.88
Eastern Plateau											
Binghamton	78	51	67	+2	121	2120	+383	1.85	+1.08	28.91	+12.29
Cobleskill	80	52	67	+2	118	1954	+338	3.28	+2.45	26.65	+8.87
Morrisville	81	47	67	+4	119	1931	+391	1.48	+0.64	21.65	+4.03
Norwich	83	48	66	+2	115	1971	+353	2.14	+1.34	27.49	+9.87
Oneonta	80	46	66	+3	111	1962	+468	2.79	+1.95	29.29	+10.03
Coastal											
Bridgehamton	86	55	73	+3	160	2368	+415	3.12	+2.28	20.68	+3.21
New York	86	65	75	+2	178	2981	+362	6.66	+5.82	32.80	+14.16

1/ Season accumulations are for April 1st to date. Weekly accumulations are through 7:00 AM Sunday Morning. Data courtesy NY NASS.

Weather Data for Week Ending Sunday, September 4, 2011

Station	Temperature (°F)				Growing Degree Days Base 50° 1/			Precipitation (Inches) 1/			
	High	Low	Avg	Dep. from Norm	Week	Season	Dep. from Norm	Week	Dep. from Norm	Season	Dep. from Norm
Hudson Valley											
Albany	82	50	69	+3	132	2593	+462	2.95	+2.18	27.47	+10.36
Glens Falls	80	50	67	+4	116	2260	+395	2.28	+1.48	24.95	+8.14
Poughkeepsie	84	52	69	+3	136	2708	+475	2.66	+1.82	29.95	+10.30
Mohawk Valley											
Boonville	79	44	63	+2	90	1703	+234	1.62	+0.36	30.39	+7.11
Champlain Valley											
Plattsburgh	79	50	66	+3	115	2110	+219	4.10	+3.23	25.20	+8.80
St. Lawrence Valley											
Canton	83	50	66	+4	111	2080	+382	1.92	+0.94	26.14	+8.92
Massena	86	51	68	+6	125	2280	+495	1.09	+0.19	19.00	+3.26
Great Lakes											
Buffalo	89	52	72	+7	157	2496	+454	0.54	-0.39	24.49	+7.16
Wales	87	45	67	+5	123	2037	+373	0.19	-0.89	21.17	+1.33
Niagara Falls	90	50	72	+7	152	2432	+383	0.52	-0.40	19.17	+2.42
Rochester	89	49	71	+4	147	2458	+484	0.08	-0.69	19.45	+4.57
Watertown	84	46	69	+6	137	2187	+461	0.50	-0.34	20.97	+7.38
Central Lakes											
Dansville	93	47	71	+4	149	2687	+699	0.19	-0.59	17.94	+1.71
Geneva	89	51	69	+4	132	2371	+399	0.03	-0.74	19.85	+3.74
Honeoye	91	45	69	+3	136	2283	+225	0.03	-0.74	22.36	+6.39
Ithaca	88	47	67	+3	117	2189	+402	0.81	-0.03	22.88	+5.52
Penn Yan	92	51	71	+6	147	2531	+559	0.07	-0.70	15.44	-0.67
Syracuse	90	51	71	+7	150	2744	+742	0.86	+0.00	25.79	+7.57
Warsaw	89	47	67	+6	122	1968	+427	0.18	-0.79	24.57	+5.58
Western Plateau											
Hornell Almond Dam	90	43	67	+4	118	2069	+401	0.03	-0.64	22.49	+7.01
Elmira	91	46	67	+3	121	2371	+482	0.24	-0.46	19.16	+2.69
Franklinville	89	42	66	+6	111	1951	+557	0.32	-0.65	27.70	+8.50
Jamestown	90	45	68	+6	127	2159	+592	0.51	-0.61	25.72	+4.27
Eastern Plateau											
Binghamton	85	48	66	+3	115	2235	+402	1.32	+0.55	30.23	+12.84
Cobleskill	84	47	65	+3	110	2064	+358	2.57	+1.72	29.22	+10.59
Morrisville	87	47	66	+5	115	2046	+421	2.05	+1.14	23.70	+5.17
Norwich	85	46	65	+2	105	2076	+368	3.61	+2.77	31.10	+12.65
Oneonta	85	45	64	+3	100	2062	+487	1.77	+0.93	31.06	+10.96
Coastal											
Bridgehamton	84	54	67	-2	122	2490	+410	0.00	-0.84	20.68	+2.37
New York	84	62	74	+2	168	3149	+373	0.41	-0.43	33.21	+13.73

1/ Season accumulations are for April 1st to date. Weekly accumulations are through 7:00 AM Sunday Morning. Data courtesy NY NASS.

Weather Data for Week Ending Sunday, September 11, 2011

Station	Temperature (°F)				Growing Degree Days Base 50° 1/			Precipitation (Inches) 1/			
	High	Low	Avg	Dep. from Norm	Week	Season	Dep. from Norm	Week	Dep. from Norm	Season	Dep. from Norm
Hudson Valley											
Albany	82	54	67	+4	120	2713	+486	4.01	+3.30	31.48	+13.66
Glens Falls	81	48	65	+4	105	2365	+421	3.33	+2.56	28.28	+10.70
Poughkeepsie	84	57	69	+5	134	2842	+504	5.55	+4.71	35.50	+15.01
Mohawk Valley											
Boonville	84	44	61	+3	79	1782	+254	3.28	+1.95	33.67	+9.06
Champlain Valley											
Plattsburgh	84	41	63	+3	94	2204	+234	1.65	+0.86	26.85	+9.66
St. Lawrence Valley											
Canton	81	43	62	+2	85	2165	+394	1.96	+1.02	28.10	+9.94
Massena	83	40	64	+4	96	2376	+519	1.43	+0.59	20.43	+3.85
Great Lakes											
Buffalo	80	55	66	+2	113	2609	+469	0.67	-0.20	25.16	+6.96
Wales	78	50	62	+1	87	2124	+383	0.71	-0.41	21.88	+0.92
Niagara Falls	80	52	64	0	102	2534	+388	0.38	-0.53	19.55	+1.89
Rochester	82	50	64	+1	101	2559	+490	1.25	+0.51	20.70	+5.08
Watertown	82	43	64	+3	98	2285	+480	0.98	+0.18	21.95	+7.56
Central Lakes											
Dansville	85	51	66	+3	113	2800	+717	0.79	-0.05	18.73	+1.66
Geneva	83	48	63	-1	96	2467	+401	3.12	+2.35	22.97	+6.09
Honeoye	85	46	63	-2	96	2379	+219	1.12	+0.35	23.48	+6.74
Ithaca	85	47	63	+2	94	2285	+415	5.97	+5.13	28.85	+10.65
Penn Yan	86	50	65	+2	107	2638	+572	2.33	+1.56	17.77	+0.89
Syracuse	88	50	66	+3	114	2858	+761	3.59	+2.68	29.38	+10.25
Warsaw	82	51	60	-1	69	2037	+429	0.84	-0.14	25.41	+5.44
Western Plateau											
Hornell Almond Dam	84	47	62	+2	87	2156	+414	1.50	+0.76	23.99	+7.77
Elmira	87	46	66	+3	111	2482	+506	5.75	+5.01	24.91	+7.70
Franklinville	80	50	62	+4	90	2041	+585	0.95	-0.03	28.65	+8.47
Jamestown	80	54	64	+4	99	2258	+618	1.20	+0.08	26.92	+4.35
Eastern Plateau											
Binghamton	84	49	63	+2	96	2331	+415	10.08	+9.26	40.31	+22.10
Cobleskill	85	47	63	+3	97	2161	+378	4.83	+3.92	34.05	+14.51
Morrisville	85	48	63	+4	95	2141	+443	6.22	+5.29	29.92	+10.46
Norwich	86	52	65	+4	106	2182	+397	7.91	+7.00	39.01	+19.64
Oneonta	84	51	64	+5	101	2163	+521	7.42	+6.58	38.48	+17.54
Coastal											
Bridgehamton	81	58	68	+2	127	2617	+423	3.23	+2.39	23.91	+4.76
New York	86	62	72	+2	154	3303	+383	4.19	+3.35	37.40	+17.08

1/ Season accumulations are for April 1st to date. Weekly accumulations are through 7:00 AM Sunday Morning. Data courtesy NY NASS.

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New York Berry News is a monthly commercial berry production newsletter provided by Cornell Berry Team members.

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Weather (continued from page 37)

northern and eastern portions of the state along with locally heavy rainfall. A slow moving frontal boundary brought additional rainfall to the area for Monday into Tuesday. As this frontal boundary stalled just south of the region moisture from the remnants of Tropical Storm Lee arrived across the state for Wednesday into Thursday. Heavy rainfall occurred across central and eastern portions of the state. With the ground being saturated from recent rainfall from Hurricane Irene, major flooding occurred across the Susquehanna River Basin as well as many other rivers across the Hudson and Mohawk River drainage basins of eastern New York. High pressure moved into the region for Friday into Saturday allowing for mainly dry weather, although rivers remained above flood stage in many areas through the remainder of the week. Temperatures were quite warm ahead of the frontal boundary to start the week on Sunday especially across central and southern New York. Temperatures remained warm across the New York City and Long Island area into Monday, although they dropped down to near normal for upstate on Monday. With the cloud cover and precipitation, temperatures were near to slightly below normal for the middle of the week across the entire state. Friday and Saturday featured temperatures running close to seasonal averages across the entire state.

NARBA NEWS (continued from page 11)

Creating New Links Between Red Raspberry Cultivar Development and Crop Markets – *Catherine Daniels, Patrick Moore, Washington State University; J.D. Swanson, Salve Regina University; Chad Finn, USDA/ARS, others TBD.* This workshop will cover current and future activities related to red raspberry cultivar development with a focus on flavor, field vigor, heat tolerance and pest resistance traits. Perspectives from breeding programs and the nursery industry will be shared. A major topic of discussion will be use of molecular markers in early screening of new and existing raspberry cultivars. Which traits are most valuable to growers and consumers? Which activities would allow faster development of cultivars? Audience participation is encouraged. A separate Work Planning Session, based on workshop comments, will run from 7 - 8:30 pm. This session will be limited to 30 participants; pre-registration is required.

In the evening: OPGMA Reception, Dinner on your own, Raspberry Planning Session (see above)

CONCURRENT SESSIONS
OPGMA Congress educational sessions run Monday through Wednesday afternoon; the trade show is Tuesday and Wednesday. All are open to NARBA conference registrants..