



UMASS
EXTENSION



Vegetable Notes

For Vegetable Farmers in Massachusetts

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CROP CONDITIONS

Soils have been constantly wet since mid August – 6 weeks. Whether crops are on the ground, in the ground, or above the ground, all have suffered significant losses from disease. Growers have worked hard to bring in squash in a timely fashion, cure it well, and store it carefully, but plenty has had to be abandoned in the field due to fruit rots, and more is breaking down after harvest. Phytophthora has been joined by other diseases such as Fusarium and black rot. Large pumpkins are even worse off than winter squash. Losses have occurred on a regional basis which will likely affect supply and price. Potato harvest is ongoing and generally in good shape except for extremely wet fields.

Foliar diseases such as Cercospora leaf spot on beets and chard, Alternaria on Brassicas, purple blotch on leeks are widespread; some crops require more washing and sorting at harvest while some become unmarketable. Cabbage root maggot larvae have been observed in fall turnips; there may not be additional flights but maggots are still actively feeding.

It looks like most of Mass will reach October without a killing frost. Most summer fruiting crops have succumbed to disease, although some continue to pump out modest harvests. Growers are busy harvesting fall crops such as leeks, lettuce, carrots, cabbage, turnips, bok choy, broccoli. It has been too warm to pull in the root crops that require temperatures below 40F, so those are still out in the field putting on more growth and may remain till late October or November – especially for farmers who depend on outdoor air for cooling. Disease issues may be higher due to continuous wet conditions. It has been difficult to keep adequate nutrients available for fall crops; sidedressing has been needed to replace leached N and provide Nitrogen that waterlogged anaerobic soils have been unable to produce through mineralized organic matter.

More growers are experimenting with season extension using high tunnels as well as the simpler low tunnels and floating row covers. Some are interested in lengthening the season for warmth-loving crops such as tomatoes, others are pushing harvests of cold-hardy greens into late fall, winter or next spring. Markets for locally grown crops that can be purchased during the winter months are increasing. As I stood in a hoop house today and watched the rain pour down the sides, I appreciated the protection that the house offered. Come to the October 13 Twilight meeting to learn more about high tunnels!

Cover crops are getting a good amount of growth. It's not too late to get in fall cover crops – there is still time for germination and growth.

Many growers whose fields flooded after Irene (or after Lee) gave up on those crops immediately after the hurricane came through. If anyone still has any questions about whether crops from flooded fields can be harvested, the answer from the U.S. Food and Drug Administration (FDA) is a very firm 'no'. Because of the microbial and chemical contaminants in floodwater, the FDA considers crops where the edible portion has come in contact with flood waters to be 'adulterated' and not to be sold for human consumption. Following FDA guidelines, growers must discard all crops that have edible portions that have come in contact with flood water. If someone got sick from eating food that had been flooded, the grower would be considered criminally liable by FDA.

Many growers face sizable losses of crops this season, not to mention soils, buildings and livestock that were washed away in flooding or damaged by winds or hail or salt. Some farms have shut down early. Disaster relief, even if it gets funded at the federal level, is not going to make up for the full cost of lost crop and damaged fields. That said, there are also still plenty of farms with a reasonably full platter of fall crops coming in. Location has made a big difference this season – but who could have predicted what weather events would hit which fields?

FRUIT ROTTS OF PUMPKINS

Many growers are experiencing increased losses in their pumpkin and squash crops in the wake of the flooding and excessive rain we experienced in September. Many pathogens- fungi, bacteria, and viruses- cause fruit rot, fruit spotting, and other fruit abnormalities in pumpkins that render them unmarketable. The vast majority of fruit rotting organisms are fungal, although several bacteria can also cause soft rots. The list of fungi that can cause fruit rots is long and includes Alternaria Rot (*Alternaria alternata*), Anthracnose (*Colletotrichum orbiculare*), Blue Mold (*Penicillium species*), Crater Rot (*Myrothecium roridum*), Pythium Cottony Leak (*Pythium species*), and Rhizopus Soft Rot (*Rhizopus stolonifera*) as well as the pathogens discussed below. Viruses lead to fruit deformities and wild discolorations. Successful management of pumpkin fruit rots depends on accurate identification of the causal organism so that the appropriate control measures can be employed. Many of these diseases show up in storage, and it is important to know which disease is present and dispose of the infected fruit properly. Dumping rotting fruit in your fields or compost pile may result in higher inoculum and more disease the following year, and in the case of *Phytophthora capsici* it could be devastating for years to come. Find out more about identification & management of cucurbit diseases with our field guide; and electronic copy is available at www.umassvegetable.org/publications/cucurbit-disease-scouting-management-guide.

Phytophthora Fruit Rot (*Phytophthora capsici*)



Late Stage Phytophthora Rot

Perhaps the most serious fruit rot in wet years, *Phytophthora* fruit rot begins as a water-soaked or depressed spot, most often on fruit undersides which are in contact with the soil. The pathogen produces a white, yeast-like growth that contains many fruiting bodies (sporangia) and affected fruit may be completely covered. The disease can develop and spread rapidly with the correct environmental conditions and entire fields may be lost. *Phytophthora* persists in the soil for many years; no effective crop rotation interval



Early Stage Phytophthora Rot

has been determined. Saturated soil conditions are conducive to disease initiation and development. Manage soil moisture by sub-soiling, avoiding over irrigating, selecting well-drained fields, and avoiding areas of fields that do not drain well. Destroying diseased areas at the start of disease development can be effective. Planting pumpkins into cover crop mulch has shown promise in research trials. Chemical treatment options include seed treatments with metalaxyl or mefenoxam) and fruit/foliar sprays with copper sulfate), cymoxanil (Curzate 60 DF), dimethomorph (Forum 4.18 SC), potassium salts of phosphorous acid, or famoxadone plus cymoxanil (Tanos). It should be noted that chemical treatments alone can not be relied on to give adequate control of this disease, especially in wet years.

Fusarium Fruit Rot (*Fusarium solani f.sp. cucurbitae*)



Fusarium Fruit Rot

Pumpkin fruits are attacked by *Fusarium* at the soil line and the severity of infection varies with soil moisture and the age of the rind when infection occurs. The pathogen can be seed-borne. It does not survive for more than 1-2 years in seed and does not affect the germination or viability of the seed. *Fusarium* produces abundant resting spores (chlamydospores) in the soil, but only persists there for 2-3 years. Cultivars vary in their resistance with larger pumpkins being generally more susceptible. Wounding is not necessary for infection to occur. A four year rotation out of pumpkins will eliminate soil propagules and fungicide treated seed will reduce initial inoculum. Culling of unmarketable fruit can reduce the risk of spread during the post harvest period.

Black Rot (*Didymella bryoniae*)



Black Rot

Also called Gummy stem blight when it occurs on other plant parts, Black Rot produces a distinctive black decay. Initially, a brown to pink, water-soaked area develops in which numerous, conspicuous black fruiting bodies are embedded. The pathogen is soil and seed borne and can overwinter in infected crop debris as dormant mycelium or chlamydospores. Both temperature and moisture influence disease development, but high relative humidity, rainfall and wetness duration are most critical. Wounding is not required for disease initiation, but wounding by striped cucumber beetles, aphid feeding, and powdery mildew infection enhance susceptibility. Control of Black fruit rot starts with control of gummy stem blight. Start with certified, disease-free seed.

A two year rotation out of cucurbits can reduce field

inoculum. Crop debris should be plowed under promptly after harvest. Control of Powdery mildew can significantly reduce black rot infection of pumpkins. Fungicides registered for Powdery mildew on pumpkins include myclobutanil, triflumizole, and pyraclostrobin plus boscalid (Pristine). Powdery mildew populations rapidly develop resistance to fungicides; be sure to alternate fungicide treatments among chemical class and to include a broad spectrum protectant (chlorothalonil, copper) in your program. Nova and Procure have a narrow spectrum of activity; control of Black Rot requires different fungicides such as azoxystrobin (Quadris, Armistar), thiram, or Pristine.



Later Stage Black Rot

Scab (*Cladosporium cucumerinum*)



Scab

This pathogen attacks all parts of the plants, but is most serious because of the disfiguring scab lesions that develop on fruit. The disease is widespread in North America and can occur annually if rainfall is abundant and temperatures cool. The spores (conidia) are borne in long chains, are easily dislodged, and spread long distances on wind. On foliage, the first sign of the disease is pale-green, water-soaked lesions which turn gray and become angular. On fruit, spots first appear as small sunken areas which can be mistaken for insect injury. The spots may ooze a sticky liquid and become crater-like as they darken with age. Dark green, velvety layers of spores may appear in the cavities and secondary soft-rotting bacteria can invade. Severity of symptoms varies with the age of fruit when it becomes infected. *C. cucumerinum* overwinters in infected squash and pumpkins vines, soil, and may also be seedborne. Spores produced in the spring can

infect in as little as 9 hours, produce spots by 3 days, and produces a new crop of spores by 4 days. The disease is favored by heavy fog, heavy dews, light rains, and temperatures at or below 70° F. Start with disease-free seed or treat with a seed fungicide. Do not save your own seed if the disease is present. Select well-drained fields with good air circulation to promote rapid drying of foliage and fruit. Rotate out of cucurbits for 2 or more years as the pathogen overseasons very well. During cool, wet weather fungicide sprays may not be entirely effective because of the rapid disease cycle. Spray intervals may need to be shortened to 5 days under these conditions. Fungicides registered on pumpkins for scab control include maneb and chlorothalonil (Bravo).

Plectosporium Blight (*Plectosporium tabacinum*)

Like Scab, Plectosporium Blight is most damaging when it appears on the fruit. Pumpkins, yellow squash, and zucchini are the most susceptible of the cucurbits. Lens to diamond shaped, white to tan, lesions occur on stems, leaf veins, petioles, peduncles, and fruit. Severe stem and petiole infections can result in death of leaves and defoliation. Infected stems are dry and brittle. On fruit, the pathogen causes white, tan, to silvery russetting; individual lesions can coalesce to form a continuous scabby layer. Plectosporium survives in crop debris and is favored by warm, wet weather. No resistant culti-

var of pumpkins has been reported. Rotation with non cucurbit crops can reduce disease. The fungus is readily controlled with protectant fungicides such as chlorothalonil (Bravo), maneb, and trifloxystrobin (Flint).

Bacterial Fruit Rot (*Xanthomonas campestris* pv. *cucurbitae*)

Disease outbreaks of Bacterial leaf spot have been sporadic and occur mainly in warm, humid seasons. Symptoms appear similar to those caused by Angular Leaf Spot, (*Pseudomonas syringae* pv. *lachrymans*), although this bacterium fails to produce the milky exudates that characterize Angular Leaf Spot. Initial lesions on fruit are small, slightly sunken, circular spots with a tan center and dark brown border. The appearance of fruit symptoms varies with the



Bacterial Fruit Rot

age of the rind and amount of moisture present. The epidermis may split; the spots enlarge, and become sunken. The bacteria can penetrate into the flesh causing fruit rot and other secondary bacteria may invade. The pathogen is seedborne, but there is no evidence of survival in soil. The disease is common in the summer when temperatures are high and occurs frequently after heavy rainfall. Seed treatments with hot water (50° C for twenty minutes) or 10 % Chlorox reduces the number of bacteria, but does not completely eliminate them. Avoid overhead irrigation and working the fields when they are wet. Rotate out of cucurbits for two years. Repeated applications of copper as a protectant may be helpful; however, it is generally ineffective once an epidemic has begun.



Plectosporium Blight

Viruses

Viruses affecting cucurbits include cucumber mosaic (CMV), squash mosaic (SqMV), watermelon mosaic 1 (WMV-1), watermelon mosaic 2 (WMV-2), and zucchini yellow mosaic (ZYMV). All these viruses, except SqMV are transmitted by aphids in a non-persistent manner. SqMV is seedborne and is spread primarily by spotted and striped cucumber beetles. The virus within the seed can not be eliminated with hot water or chemical treatments. Control consists of pathogen-free seed and controlling cucumber beetles. Virus diseases cause reductions in plant growth and yield and mottling, distortion, and fruit abnormalities that make the pumpkins unmarketable. There are no chemical treatments and control of aphids will not reduce, but may actually increase, transmission of the other cucurbit viruses. Rogue infected plants and destroy them away from cucurbit fields. Eliminate weed hosts.



Virus Symptoms on Fruit

- Prepared by M. Bess Dicklow, UMass Plant Diagnostic Lab, University of Massachusetts, mbdicklo@umext.umass.edu. Special thanks to Dr. Thomas Zitter and Dr. Meg McGrath for photos. Updated 9/29/2011

SPOTTED WING DROSOPHILA (*DROSOPHILA SUZUKII*) REACHES NEW ENGLAND

Spotted Wing Drosophila (*Drosophila suzukii*), SWD, is a recently introduced new species of fruit fly in the United States. It was first found on the west coast in 2008, but has rapidly colonized many fruit producing regions of the country. Until now, we hadn't seen it in New England, but in the last few weeks it has been detected in Connecticut, Rhode Island, New Hampshire and Massachusetts. While fruit flies (or vinegar flies) are nothing new in the US, this species is different in it's ability to infest healthy fruit. Other species typically infest over-ripe or damaged fruit. Females of this species have serrated ovipositors that can cut into healthy fruit to insert eggs. This can lead to problems when customers find multitudes of larvae in otherwise sound-looking fruit after a couple of days.



Photo: Martin Hauser

Male Spotted Wing Drosophila

This insect is primarily a pest of small fruit and berry crops, but we have reports of the fly being found in high tunnel tomato crops this fall. The information below was compiled by Sonia Schloemann and is geared toward berry crops, but much of the information is applicable to tomatoes as well. If you think you have this pest in your tomato greenhouse, please call the UMass Vegetable Program at 413-577-3976 or email us.

The first step in dealing with this new pest is identification. Simple traps are used to capture fruit flies that can then be checked to determine if SWD are present. Trap designs vary in detail but generally consist of a covered plastic cup with holes punched in the sides, filled with a small amount of cider

vinegar as a lure and with a sticky card hung from the cup lid to capture the flies that enter the trap. Home-made traps that use this design are effective. Sticky cards are available from several sources, such as Gemplers (<http://www.gemplers.com/product/RSTRIP/Olson-Yellow-Sticky-Traps-3x5-Pkg-of-25>).

Traps should be checked frequently and viewed with a magnifier to see details of the flies caught. If you're not sure if you have SWD, try to take a close up photo and send it to Sonia Schloemann (413-545-4347 or sgs@umext.umass.edu), who will help with identification. As for recommendations, the first thing is to harvest frequently to avoid build-up of ripe or over-ripe fruit. Try to eliminate fruit on the ground as much as possible. Both of these measures are easier in small plantings or high tunnels, but are important to do if possible. Also, try to remove wild hosts for this pest such as wild blueberries, brambles, grapes, etc. Again, this will be easier for some than others but is recommended to the extent that it is possible.

Spray recommendations for small fruit have been developed in states where this pest was established last year or earlier. The summary of these recommendations is to a) use an effective material that has a short PHI, b) use an effective material with at least some residual control (SWD can lay eggs one day after adult emergence!), and c) rotate resistance classes of materials so that effective materials remain effective. In reviewing recommended materials from Michigan, it looks like Malathion, Mustang Max and Delegate have the shortest phi and all have 5-7 day residual control. The are all in different resistance classed, too, so using them in a rotation would be good. The options for insecticides that can be used in hoop houses are more limited.



Monitoring trap for SWD. A plastic container with holes, containing apple cider vinegar as a bait, and a sticky trap to catch flies. Photo: Rufus Isaacs.

We will continue monitoring this situation but feel it is important to alert growers to the possibility that this pest may be present in their late season fruiting fields or high tunnel tomatoes this year, and may then be present earlier in the season next year. Implementing a sound IPM approach of monitoring and executing good cultural and spray practices (including organic options) can keep this pest in check.

Fact sheets online:

<http://www.ipm.msu.edu/SWD/ManagementRecommendations-Raspberry-BlackberryAug2011.pdf>

<http://www.ipm.msu.edu/SWD/E-3140.pdf>

http://www.oregon.gov/ODA/PLANT/docs/pdf/ippm_d_suzukii_id_guide10.pdf?ga=t

--Sonia Schloemann, UMass Extension Small Fruit Specialist, and Andrew Cavanagh, Vegetable Specialist

CERCOSPORA LEAF SPOT ON BEETS AND SWISS CHARD

Symptoms of what has been described as the most destructive foliar disease of beet are widespread in the region at this time. Cercospora leaf spot may be more severe than usual due to especially favorable conditions with all the rain that has occurred this month. Pathogen spores are moved by wind and rain, which also provides leaf wetness for infection. In addition to frequent rain, other favorable conditions include relative humidity of at least 90% and temperature above 75 F. It is especially destructive in Swiss chard and beets grown for greens as affected leaves are unmarketable.

The fungal pathogen also can infect spinach. Symptoms are small, light tan to brown, round to sometimes angular spots whose border is often purple to red. The spots were lighter in color on the beets than the Swiss chard, and only the beets had the distinctive border. Spots were so numerous on some young Swiss chard leaves that they had coalesced and caused distortion. Sources of the pathogen include contaminated seed, infested debris from previous crops and the related Chenopodium weeds that are also susceptible. The pathogen produces specialized survival structures (sclerotia) in infected leaves that enable it to survive in soil up to 2 years. Thus it is important to know where Cercospora leaf spot occurs to plan rotations. Fungicides labeled for this disease include copper and the strobilurins (FRAC Group 11) Quadris and Cabrio. Disease development will slow as temperatures decline, especially when below 60 F. Images will be posted at <http://www.longislandhort.cornell.edu/vegpath/photos/index.htm>.

Cercospora Leaf Spot On Celeriac and Parsley:

Symptoms were observed this week of Cercospora leaf spot (aka blight) on other crops (see previous paragraph). Carrot, celery, dill and fennel are also susceptible, as are some related weeds. The pathogens affecting these different crops are also typically different, thus there is limited concern about disease occurring in one being the source of the pathogen for another. Parsley, dill and fennel are affected by the same pathogen.

There are important similarities about all these related diseases which are relevant to know for management. These pathogens can survive on affected plant debris and seed. Thus use clean seed, rotate land, and incorporate crop debris as soon as possible after harvest. The strobilurin fungicides (FRAC Group 11) Quadris and Cabrio are labeled on all of these crops for Cercospora leaf spot as well as another important foliar disease, Alternaria leaf spot (aka blight).

--Meg McGrath, Cornell Cooperative Extension - Suffolk County. From LI Fruit & Vegetable Update 9/22/11.

NEW ENGLAND VEGETABLE AND FRUIT CONFERENCE IS COMING SOON!

The New England Vegetable and Fruit Conference will be held this December 13, 14, and 15, 2011 at the Radisson Hotel in Manchester, NH and will include thirty-six educational sessions over 3 days, covering major vegetable, berry and tree fruit crops as well as various special topics. A Farmer-to-Farmer meeting after each morning and afternoon session will bring speakers and farmers together for informal, in-depth discussions on certain issues.

The Conference is convened with close collaboration between growers and Extension from across the region. The steering committee gathers the best speakers from within our region and across the country to let you know about the latest innovations and advances in local fruit and vegetable production and sales.

Educational sessions over three days will mix the best theory and practice regarding major fruit, berry and vegetable crops. Virtually every session – from “Winter Growing and Marketing” on Tuesday morning to “Organic Tree Fruit” on Thursday afternoon will include the perspective of farmers, Extension staff and researchers.

Farmer-to-Farmer session will be held after each morning and afternoon to allow speakers and farmers the opportunity for informal, in-depth discussion of the issues found to be most critical.

There is also an extensive Trade Show with over 100 exhibitors. We hope that you will enjoy your time here, and meet with fellow growers, advisors, researchers, and industry representatives. We want you to leave with new ideas and new information that will have a positive impact on your farm.

The event is sponsored by the New England Vegetable & Berry Growers Association and the Massachusetts Fruit Growers' Association in conjunction with the Universities of Connecticut, Massachusetts, New Hampshire, Rhode Island, Vermont

and Maine, as well Cornell University and the Connecticut Agricultural Experiment Station – in cooperation with the U.S. Department of Agriculture.

The 3-day educational program offers 6 concurrent sessions each morning and afternoon: Tuesday, December 13 features sessions on winter growing and marketing, reduced tillage, pumpkins, strawberries, soil quality, tunnel innovations, stone fruit, and more; Wednesday, December 14 sessions are on tree fruit, brambles, eggplant and peppers, postharvest and storage, and more; sessions on Thursday, December 15 include blueberry, cut flowers, tomato, viticulture, farm business management, specialty fruit, and more.

Pre-registration to attend any part or all of the conference or trade show is \$95 for the first member of the farm or business and \$65 for each additional member (family or employee) when pre-registered with first member. The pre-registration fee for students (high school or college) is \$45 each when pre-registered by the instructor. Pre-registration must be received by November 30, 2011. Register on-line at <http://www.newenglandvfc.org>. There is an additional fee of \$30 per person for late registration or walk-ins.

Additional information on the New England Vegetable and Fruit Conference, including downloadable registration material, may be found at <http://www.newenglandvfc.org/>.

UPCOMING MEETINGS

Flooding and Organic Certification

Jim Riddle, University of Minnesota - Organic Outreach Coordinator

October 13th Webinar: 1:00 - 3:15

What happens when certified land gets inundated with flood waters? Can food crops still be harvested and sold as “organic”? What about pastures and livestock feed? During this webinar, Jim Riddle, Organic Outreach Coordinator, University of Minnesota, will discuss the impacts of flooding on certified organic crop and livestock operations.

See <http://www.extension.org/pages/60874/flooding-and-organic-certification-webinar> for details and registration. Pre-registration required. Space is limited.

Plant Nutrition for Greenhouse Crops

November 1, 2011, 9:30am - 4:00pm

Sturbridge Host Hotel

Plant nutrition is an important part of growing a quality crop. Many problems we see in greenhouses are due to incorrect plant nutrition. This program is for growers of all greenhouse crops...whether you grow ornamentals or greenhouse tomatoes, use organic fertilizers or chemical-based fertilizers.

Sponsored by UMass Extension Greenhouse Crops and Floriculture Program

Program Details and Registration: <http://extension.umass.edu/floriculture/>

New England Vegetable & Fruit Conference & Trade Show

December 13-15 2011

Center of New Hampshire Radisson Hotel, Manchester, NH

www.newenglandvfc.org

The premier fruit and vegetable conference in New England will once again offer three full days with over twenty educational sessions that cover all of the major vegetable, berry, and tree fruit crops, as well as various special topics.

More details including registration materials will be posted at www.newenglandvfc.org.

For more information contact Jon Clements, (413)478-7219, clements@umext.umass.edu.

BROOKFIELD FARM TWILIGHT MEETING, THURSDAY OCTOBER 13, 3-7PM

Brookfield Farm, 24 Hulst Rd, Amherst, MA 01002

www.brookfieldfarm.org

Join us for our last 2011 vegetable twilight meeting, hosted by the Brookfield Farm in Amherst MA and sponsored by the UMass Vegetable Program. Brookfield Farm is a 30 acre farm that uses environmentally sustainable, biodynamic growing techniques and hosts a 20 year old 500 member CSA with distribution sites throughout Massachusetts. Come see some of the innovative production practices used by farm manager Dan Kaplan and the rest of the crew at Brookfield Farm.

The full program will include:

- **Using biological controls;** Brookfield Farm has used *Trichogramma ostrinea* for control of European corn borer in sweet corn and *Pediobius foveolatus* for control of Mexican Bean Beetle in their bean crop.
- **Late-season crops in high tunnels;** come see the late season tomato crop and cold hardy winter greens in Brookfield's high tunnels. Learn about suitable crops and the best production practices for high tunnels.
- **Winter storage of fall crops;** hear the post-harvest techniques Brookfield Farm uses to optimize storage life and quality of their late season crops. Their specially designed storage room in the basements of the barn holds root crops all winter.
 - **Winter CSA shares;** Farm manager Dan Kaplan will talk about Brookfield Farm's bi-weekly self-serve winter CSA offering classic New England storage crops such as potatoes, cabbage, carrots, squash, onions, leeks, beets, turnips, rutabagas, celeriac, kale, and collards straight from their root cellar.

Directions

Street address for the farm is 24 Hulst Rd, Amherst, MA 01002. See their website for more details <http://www.brookfield-farm.org/Directions.cfm>.

Refreshments will be served. Preregistration is encouraged but walk-ins are welcome. Attendance is free. For more information contact Amanda Brown at 413-687-1158 or brown@umext.umass.edu.

Vegetable Notes. Ruth Hazzard, editor and Amanda Brown and Andrew Cavanagh, assistant editors. Vegetable Notes is published weekly from May to September and at intervals during the off-season, and includes contributions from the faculty and staff of the UMass Extension Vegetable Program, other universities and USDA agencies, growers, and private IPM consultants. Authors of articles are noted; author and photographer is R. Hazzard if none is cited.

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