



Blueberry Newsletter

A newsletter from Michigan State University for the Michigan blueberry industry

May 10, 2011

Volume 5, Issue 2

News you can use

Timely information for growers.

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Growing degree days

GDD are reported for the primary blueberry-producing regions of Michigan.

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News you can use

Crop development. In Van Buren County, Jersey in Covert is at late bud break/early pink, and Bluecrop and Blueray are at pink bud in Grand Junction. In Ottawa County, Bluecrop in West Olive is at late bud break/early pink.

June 1st Spotted Wing Drosophila workshop for scouts, consultants and growers. Register now for Hands-On Spotted Wing Drosophila (SWD) Workshop – June 1. See page 2 for details.

Insect management. The Hoplia flower feeding beetle is out at some farms. Check for early season feeding by spanworms and cutworms. Hang cherry fruitworm traps.

Disease management. Look for blossom and twig blights that may be promoted by cool, wet weather during bloom.



Bluecrop in West Olive



Bluecrop in Grand Junction

GROWING DEGREE DAYS

From March 1

	2011		Last Year	
	Base 42	Base 50	Base 42	Base 50
Grand Junction, MI				
5/2	301	131	598	320
5/9	385	174	686	367
Projected for 5/16	529	264	762	401
West Olive, MI				
5/2	211	81	511	250
5/9	281	118	582	283
Projected for 5/16	433	215	646	309

See <http://enviroweather.msu.edu> for more information.

A warm week causes a rapid green up as plants move quickly

Mark Longstroth

Michigan State University Extension

The last week was relatively warm and dry. Highs rose into the 70s, with lows in the 50s. A few rain showers caused a disease infection for mummy berry on Saturday. This week will be warmer with highs rising to 80 away from the Lake. Lows will rise from the 50s to the 60s. Thunderstorms are possible. Soils are drying rapidly so field work and planting are underway. Soil temperatures are in 50s. We are catching up with [growing degree days](#), but are still about [a week behind normal](#).

Blueberry fields are drying out, but water is still standing in many fields. Flower buds have burst and early varieties are showing early pink bud. Leaf buds are about a half inch long and leaves are unfolding. The last mummyberry infection period was Saturday evening. Mummy berry [trumpets are drying out](#) but some are still capable of releasing spores. Few new trumpets are emerging. Growers still need to [protect against mummy berry](#) shoot blight. Winter injury is becoming more visible as tip die-back, empty flower buds that open prematurely, or other flowers buds that stop growing after the initial bud swell. With the warm temperature forecast for this week, we may see bloom in early varieties by the weekend. Obliquebanded [leafroller](#) feeding has been reported in flower clusters.

Central region report

Carlos Garcia-Salazar

Michigan State University Extension

Environmental conditions in the Central Region remain conducive for slow plant development and small accumulation of Growing Degree Days (GDD). For the past week, in the Ottawa and Allegan region, high temperatures have been around the low 60's (61° F average) and the lows in the 40's (40°F average).

These conditions are an improvement in relationship to the previous week. Rain has been absent for the most part with little accumulation; less than 0.5 inches. So far, degree day accumulation in the area has reached 135-143 GDD (Base 50° F) and 318-338 GDD (Base 42° F).

Despite the low degree day accumulation, small fruit crops have moved along very well although their growth and development is more than one week behind in relationship with the previous year. For example, summer raspberries still are in the leaf unfolding stage and fall raspberries in the cane emerging stage. However, their growth is very healthy at this time.

Regarding blueberries, growth stages go from early pink bud in late season varieties (Elliott) to late pink in the most advanced varieties like Bluecrop. Winter damage is showing more intense in blueberry fields north of Ottawa County. In those fields, Bluecrop and other early varieties are presenting damage that is taking not only shoot tips but whole canes. These fields require extensive pruning of damaged tissues and fungicide treatment to prevent cankers.

Regarding blueberry diseases, mummy berry mushrooms are drying out. However, there are some new coming out of mummified fruits. The number is small and the size of the cup is only two or three millimeters in diameter.

With respect to insect pest problems in blueberries, there will be enough degree day accumulation during the rest of the week to start the emergence of the Cherry fruitworm (CFW), especially in the Allegan area. Traps for CFW need to go out in preparation for the fruitworm pest control season.

Also, at this time it is important that blueberry growers with fields showing extensive winter damage pay attention to the mummy berry control. This is very important in fields with a history of mummy berry or that had mummy berry problems at harvest during the past year. Winter damage is also a port of entry for phomopsis twig and shoot-canker. The combination of winter

damage and phomopsis is very destructive especially for small plants. In new planted field this might destroy up to 50% of the young plants. If you see dieback problems in your field and you are not sure if this is due to winter of phomopsis please call your County Extension office for assistance or take shoot samples and send them for identification to the MSU Lab. Products recommended for early season mummy berry and phomopsis control are Indar 2F (6 fl oz) or Indar 75 WSP (2 oz) or Orbit (6 fl oz). For a complete list of products and recommendations for mummy berry and phomopsis control please follow the 2011 MI Fruit Management Guide.

On June 1, we will be hosting a training workshop on Spotted Wing Drosophila (SWD). See more information below.

June 1st Spotted Wing Drosophila workshop

Rufus Isaacs

MSU Department of Entomology

Carlos Garcia-Salazar

Michigan State University Extension

Attend this classroom workshop and the follow-up field workshop for hands-on training on this new invasive insect by MSU experts. Participants will learn the latest on SWD biology and control information, and will experience hands-on training in how to identify this new insect, how to trap for it, and how to sample fruit for it. This program is designed to show attendees the necessary information for SWD management this season, so this can be integrated into IPM programs. The meeting will be held June 1 from 9 am to 12 noon in the classroom and will be followed from 1-3 pm with a field component of the training. This workshop will be held at the Trevor Nichols Research Center, 6237 124th Avenue Fennville, MI 49408. Call today...registration is limited! The fee for this workshop is only \$25, and you must pre-register by calling Judy Hanson at the Ottawa County Extension office in West Olive, MI. Telephone: (616) 994-4580.

Insect update

Keith Mason & Rufus Isaacs
 Department of Entomology
 Michigan State University

The recent warmer weather has moved bushes past bud break in the fields we scouted, and we are starting to see the activity of a few insects increase in these fields. Most notably we observed *Hoplia* flower beetles at the Covert farm (Fig. 1B), but there was no sign of feeding damage where the beetles were found. Likewise, we did not observe feeding (Fig. 1A) by [spanworms](#), [cutworms](#) or [leafrollers](#) at any of the farms we visited, however, we expect to see some feeding damage by these pests at some farms in the next week or so. Growers and scouts should continue to check fields for feeding damage by these early season pests during the next two weeks. To scout for these pests examine 10 shoots on 10 bushes on the field border and 10 shoots on 10 bushes in the field interior. Look for sections of flower or leaf buds that appear to have a piece missing. For leafrollers, look for leaf or flower clusters that have feeding holes and/or webbing in the cluster. These early season pests are generally not economically important in Michigan, and no treatment thresholds have been developed, but if 3 to 5% of buds have feeding damage, growers may want to consider a specific control targeting these insects.

No cherry fruitworm moths were caught at any of the farms we scouted, but the contaminant moth (Fig. 2) that is

Table 1. Insect scouting results.

Farm	Date	CFW moths per trap	CBFW moths per trap	BBA infested shoots (%)	BBM adults per trap	JB per 20 bushes
VAN BUREN COUNTY						
Covert	4/29	0	-	-	-	-
	5/9	0	-	-	-	-
Grand Junction	4/29	0	-	-	-	-
	5/9	0	-	-	-	-
OTTAWA COUNTY						
West Olive	4/29	0	-	-	-	-
	5/9	0	-	-	-	-

CFW=cherry fruitworm; CBFW=cranberry fruitworm; BBA=blueberry aphid; BBM=blueberry maggot; JB=Japanese beetle

common in cherry fruitworm traps (*Pseudexentera vaccinii*) is flying. This moth is ~ 1/2 inch in length which is much larger than cherry fruitworm (1/4 inch). Cherry fruitworm also have an iridescent banding pattern across the wings while the contaminant moth has darker markings on a light gray body. See the photos below to help with identification.



Fig 2. The contaminant moth found in cherry fruitworm traps, *Pseudexentera vaccinii*; Photo: P. Jenkins.

We expect the flight for cherry fruitworm to begin at some southern Michigan farms in the next 5 to 7 days (around 200 to 250 GDD₅₀ after March 1st). Growers and scouts should set cherry fruitworm traps in the next week if they have not done so already. This will ensure detection of the start of the flight for this pest. Traps should be hung in the top half of a bush on the perimeter of a field. Place traps in known "hot spots" where the pest has been seen in the past. These areas are generally adjacent to woodlots, so if you

are not sure if you have cherry fruitworm, these are the best areas to begin trapping. Put traps in the outer part of the canopy on a sturdy branch. Traps should be checked twice weekly until moths are caught consistently. This will not only identify fields with pressure from cherry fruitworm, but also enable the timing of the start (biofix) of the cherry fruitworm model on [enviroweather.msu](#). This model can be used for predicting optimal spray application dates for controlling cherry fruitworm.



Fig 1. Early season pests and damage: A. Spanworm feeding; B. *Hoplia* flower beetle adult; C. *Hoplia* feeding damage; Photos: K. Mason.

Pollinating highbush blueberries

Rufus Isaacs

Department of Entomology
Michigan State University

Highbush blueberries require pollination to ensure that flowers present at bloom turn into large, harvestable berries later in the season. Without good pollination, highbush blueberry bushes may provide some harvestable fruit but it will be much less than could have been produced. By planning ahead for how fields will be pollinated, growers can help ensure they receive the expected return on their investments in land, bushes and other management inputs.

Given the high per-acre input costs of blueberry production, spending money to ensure high levels of pollination makes sound business sense. All other things being equal, well-pollinated fields have larger berries, higher yields, and more even ripening than fields with sub-optimal pollination. This article focuses on pollination of northern highbush blueberry, *Vaccinium corymbosum*, which is the species grown in northern states and provinces.

Across Michigan's blueberry industry, most pollination is by honey bees that are brought to fields in hives. Bumble bee colonies can also be purchased for placement in fields, and there are many other wild native bee species that nest in and around crop fields. By combining these pollinators into an Integrated Pollination Management strategy, the risk of poor pollination may be minimized.

Pollen is moved by bees. For pollination to occur, sufficient blueberry pollen must be moved from the male part of flowers (anther) to the female part (stigma) while the flowers are receptive. Bees are responsible for this movement of pollen, so blueberry pollination depends on having enough bees active in the field during bloom to deliver pollen. Each flower must be visited once by bumble bees or most native bees or three times by honey bees to grow to maximum size. There can be 10 million flowers per acre, so there is a lot of work to do!

The pollen produced by blueberry flowers is relatively heavy and doesn't waft on the wind. It is held inside the flower by salt shaker-like structures called anthers until bees visit. They may

release the pollen by jiggling the flower with their legs, as is the case for honey bees. Bumble bees and some other native bees are better adapted to release the pollen using a vibration behavior. As the bees move from flower to flower, pollen grains are deposited on the tip of the stigma. Once compatible pollen is deposited on the stigma it germinates and fertilizes the ovules which produce the tiny seeds. Fertilized seeds stimulate berry growth, leading to larger berries.

Before planting: parthenocarpy, self-compatibility, and inter-planting. Northern highbush cultivars have some degree of parthenocarpy, producing berries even without pollen deposition. However, these berries will be small, slow to ripen, may drop off, and most would not be considered marketable. Many popular northern highbush blueberry cultivars are self-fruitful, meaning they can be fertilized by pollen of the same cultivar. This is one reason why solid blocks of Bluecrop are highly productive. In other cultivars, such as Nelson, cross pollination (from another cultivar) is essential for full pollination and yield, achieved by bees moving pollen between cultivars as they fly from row to row. In this situation, planting fields with alternating blocks of



Fig 3. Honey bee hives should be placed next to fields after bloom has started, and distributed in clusters through the farm; Photo: R. Isaacs.



Fig 4. The effect of bee-mediated pollination on blueberry yields, shown by comparing two clusters that were (left cluster) or were not (right cluster) exposed to pollinators during bloom; Photo: R. Isaacs.

co-blooming and compatible cultivars ensures cross-pollination. While alternate rows of two compatible cultivars would be the best for cross-pollination in this situation, alternating blocks of up to 10 rows will allow exchange of cross-compatible pollen. There is a range of dependence on cross-pollination across highbush blueberry cultivars, so before selecting cultivars and their planting arrangement growers should check the level of self-fruitfulness with the nursery.

Using honey bees. *Wait until bloom has started to bring in bees.* Flowers of blueberries are generally less attractive to honey bees than other flowers due to the relatively low nectar reward. Because of this, it is best to bring in bees once the crop has started to bloom so that bees forage more on blueberries than other flowers. If brought in too early, bees may learn to forage elsewhere reducing their focus on your crop fields. Under warm spring conditions, highbush blueberry flowers are viable for 3-4 days after the flowers open, so move bees into blueberry fields after 5% bloom but before 25% percent of full bloom.

Renting healthy colonies. If you are renting honey bee hives, you should expect to receive healthy and vigorous bees. A healthy colony contains around 30,000 worker honey bees and will have six frames of brood. Having weak hives will affect how much pollination the fields receive, so it is worth taking time to ensure you have strong hives. If you suspect weak colonies, talk to your beekeeper about getting additional hives or replacing them. One strong hive of 40,000 bees will provide better pollination than two 20,000 bee hives. One way for growers to ensure they receive strong colonies is to establish a pollination agreement that lays out the grower's expectations. This can include the strength of the colonies and how quickly the colonies will be taken out of the field after bloom.

Stocking densities. Feral colonies of honey bees and abundant native bee

populations used to contribute to blueberry pollination. However, mite pests have decimated the numbers of feral honey bee colonies, and many farms do not provide enough habitat for native bees to survive in high abundance. This makes fruit production more dependent than ever on managed



Fig 5. Bumble bees are highly adapted for working the blueberry flower, and can be encouraged around the farm or purchased for pollination from commercial suppliers; Photo: R. Isaacs.



Fig 6. Honey bees are a flexible pollinator that can be brought to fields when needed. Four to eight (4-8) honey bees per bush in the peak of pollination on a warm day should provide enough pollination for good berry size; Photo: R. Isaacs.

bees, so it is important to stock fields with sufficient bees to supply enough visits to flowers. Research and experience in blueberries has shown variation across northern highbush cultivars in their needs for bee pollination (Table 1). If fields are

managed for maximum production and have higher flower densities and yield, increased levels of honey bee stocking may be needed. While Table 1 shows 2.5 hives per acre for Jersey and Earliblue, some growers are using even greater stocking to ensure good pollination even if spring weather is cool and there are only a few good days for honey bee activity. A good rule of thumb is that you'll need 4 to 8 honey bees per bush in the warmest part of the day during bloom to get blueberries pollinated.

Using bumblebees. Bumble bees are very efficient at pollinating blueberry, with activity at lower temperatures than honey bees, faster visits to flowers, and higher rates of pollen transfer per flower visit. A bumble bee species native to eastern North America, *Bombus impatiens*, has been reared for use as a crop pollinator. Our recent evaluations with this species in commercial Jersey fields found they provided comparable yield and fruit set when compared with honey bees. These insects are available commercially and can be shipped directly to the farm. Koppert is one supplier based in Michigan that provides the bees in Quads, each containing four colonies housed within a weather-proof box. One Quad per acre is a good starting density if using bumblebees alone, but growers may also purchase bumble bees to integrate with honey bees, thereby diversifying pollination sources. This approach should help ensure movement of pollen between flowers during conditions that are unsuitable for honey bees. Rearing bumble bees takes time so orders should be made 14-16 weeks in advance to guarantee delivery. Place Quads through the farm and away from honey bee hives. A door on the box of the Quads can be used to collect the bees and move them during spraying, plus they can be moved to later blooming cultivars and crops providing greater flexibility than honey bee colonies.

Native pollinators. In our recent studies at MSU, over 150 native (wild) bee species were found in Michigan blueberry fields. About ten of these

were sufficiently abundant during bloom and carried enough blueberry pollen to be considered valuable crop pollinators. Most of these are solitary ground-nesting digger bees in which the female bee tunnels into the soil, lays an egg in a side tunnel then collects pollen that is placed in a ball next to the egg as food for the larva. This process is repeated multiple times for the many eggs that the female bee lays. These bees need undisturbed soil and have been seen nesting underneath blueberry bushes in the weed-free strip. Other native bees such as bumble bees are active through the whole season. These species also need undisturbed soil to nest in abandoned rodent burrows or grass tussocks, but they will also use old mattresses, compost piles, and other protected sites with small entrances.

In small blueberry fields surrounded by diverse landscapes, native bees can provide the majority of pollination. However, as blueberry farm size and intensity increase, the high abundance of flowers and the small amount of natural area results in too few native bees for full pollination, and so growers rent honey bees. Still, by creating bee habitat that includes a mix of plants that bloom before and after blueberries growers can help support native bees as part of an Integrated Pollination Management strategy. For more on native plants to support pollinators, visit www.nativeplants.msu.edu. Every little bit of habitat will help, so consider this a long-term process of building bee habitat back into the farm landscape. Currently, the Farm Service Agency is providing a generous cost share for growers in West Michigan counties interested in establishing pollinator habitat in their farms. See your local FSA or NRCS office for details of the SAFE Program for Pollinators. Other programs are available that can also help support improvement of habitat for bees on farmland.

Pest management during pollination.

To protect pollinators, do not apply broad-spectrum insecticides when blueberry flowers are open. By

monitoring for pest problems carefully before and during bloom, growers can help minimize the need for pest control. If an insecticide application is necessary during bloom, the compounds that are least toxic to bees should be used, with careful observation of the pollinator restrictions on the label. Two insecticides that can both be applied during bloom for control of moth larvae in blueberry are products containing *Bacillus thuringiensis* (Bt) (e.g. Dipel, Javelin), and the insect growth regulators Intrepid and Confirm. Inform the beekeeper 2-3 days before application so that precautions can be taken to minimize bee exposure. Make applications when bees are not foraging: late evening application is better than morning application because the insecticide has time to be absorbed and for the residue to dry before bees are active. Dust formulations should be avoided because particles can be picked up easily by the bees' hairy bodies. More information and a list of chemicals with their toxicity to bees is available from a recently-updated extension bulletin from Oregon State University at extension.oregonstate.edu/catalog/pdf/pnw/pnw591.pdf

Summary. Pollination is an essential component of growing blueberries, and high levels of fruit set and getting large evenly ripening berries requires bees to deposit enough pollen on stigmas during bloom. Most of this is done by honey bees currently, while there are other managed and wild bees that can contribute to pollination. As with pest management, reliance on one strategy may not be the most sustainable approach, so diversifying pollination sources can spread risk to ensure consistent pollination and profitable yields every year.

Time to fertilize blueberries

Eric Hanson

*Department of Horticulture
Michigan State University*

Most Michigan blueberry fields need annual applications of nitrogen (N). Too little N reduces growth and yields, but too much can have similar effects, as well as wasting money and possibly impacting water quality. To be effective, use the right fertilizer at the right rate and time.

Fertilizers. Use fertilizers supplying ammonium-N, such as ammonium sulfate or urea. Ammonium sulfate is more acidifying than urea, and is the best choice if you want to reduce pH slightly. If pH is sufficiently low (below 5.0), urea may be best since it has less effect on pH. The cost per pound of N is higher for ammonium sulfate than urea. Fertilizer blends work fine if most of the N is ammonium, but calculate the price you are paying per pound of N (not per bag of fertilizer).

Rates. General rates in pounds per acre are given in Table 1. These may be low for plants on very sand soil with low organic matter, since these soils supply relatively little N from organic matter breakdown. High organic soils and mucks may require lower rates than those in Table 1 because these soils naturally supply high amounts of available N. The best way to judge whether you are using proper rates for your fields is to submit leaf samples for nutrient analysis in the middle of the summer. This will not help this year, but will give you guidance for next season.

Timing. Blueberries absorb little N until after budbreak. Active uptake begins during bloom or petal fall, and rapid uptake and strong demand continues from this time until harvest. Apply N between bud break and bloom. This will allow N to move down into the root system by petal fall. If the soil is sandy, a split application is usually beneficial. Apply half between bud break and



Fig 7. Nitrogen deficiency symptoms in blueberry. The branch on the RIGHT is N deficient, the branch on the LEFT is sufficient; Photo: E. Hanson.

bloom and half in early to mid June. This will help maintain available N until harvest. On heavier soils or muck soils where N does not leach as readily, a single application just prior to bloom may be just as effective. Do not apply N to the soil after June because this may promote late flushes of growth that does not harden off adequately in the fall.

Monitoring. Collect leaf samples in the middle of the summer and have these analyzed for nutrient content. Leaf N levels will tell you whether rates for your specific fields need to be adjusted up or down. Leaf N below 1.7%

indicates rates should be increased and levels higher than 2.3% mean you are applying too much. Sample at least 50 leaves from different bushes in late July to early August. Select healthy leaves from the middle of this year's shoots. If the leaves are dusty, rinse them briefly in tap water, spread them on a table top until they are dry to the touch, package them in paper bags, and send these bags to a reputable laboratory. Leaf analysis is well worth the time and money.

Table 2. Nitrogen recommendations for Michigan blueberries (lbs/acre).

Age (years)	N	Urea	Ammonium sulfate
2	15	35	75
4	30	70	150
6	45	100	215
8	65	150	300

Beware of blossom blights in blueberries

Annemiek Schilder

Department of Plant Pathology
Michigan State University

Cool, wet weather during bloom may promote blossom and twig blight, particularly those caused by the fungi *Botrytis cinerea* and *Phomopsis vaccinii*. However, in some cases, blossom blight can also be caused by *Monilinia vaccinii-corymbosi* (mummy berry flower strikes) and *Colletotrichum acutatum* (anthracnose).

Botrytis blossom blight is promoted by cool, wet weather during bloom and is characterized by blighted blossoms covered with fluffy grayish brown



Fig 8. *Botrytis* blighted blossom covered with fluffy grayish brown spores; Photo: Bill Cline.



Fig 9. *Botrytis* blossom blight symptoms on leaves characterized lesions that are light to mid-brown in color; Photo: A. Schilder.

spores. Often, leaves and twigs are also showing spreading, blight symptoms that are light to mid-brown in color. *Phomopsis* twig blight is characterized by twigs with dark-brown lesions, which usually spread from the tip downwards. Since the fungus tends to enter the blossoms at the tip of the twig, these are usually the first casualties, followed by blossom clusters further down the twig.

To protect flowers from *Botrytis* blossom blight, the following fungicides are effective: Captevate, Elevate, Switch, and Pristine. *Phomopsis* twig blight infections are best controlled by Indar, Orbit, Pristine, and Cabrio. All of these fungicide are systemic. Adding a protectant like Ziram, Captan, or Bravo would increase the efficacy and spectrum of control. Of the protectants, Bravo probably has the best efficacy against these diseases if applied alone. Applications should be made during early bloom.

QuiltXcel: A new fungicide for blueberries

QuiltXcel is a new fungicide for blueberries and other berry crops. It has a cranberry label but this is only valid in Oregon, Washington, and Wisconsin. The fungicide is also labeled for use in stone fruit. Quilt Xcel has systemic and curative properties. This fungicide is a pre-mix of two known active ingredients, namely azoxystrobin (Abound: group 11 fungicides) and propiconazole (Orbit: group 3 fungicide). As a pre-mix, this fungicide will have a broader spectrum of activity than either fungicide alone. While we have not tested this product in Michigan, the active ingredients have been evaluated for many years and both have proved to be very effective against a number of diseases. The following diseases are listed on the label for blueberries: mummy berry, *Septoria* leaf spot, powdery mildew, *Phomopsis* twig blight, *Botryosphaeria* canker, and leaf rust. I would expect the product to work

well against all of these diseases in blueberries. Do not use QuiltXcel in nurseries, greenhouses or landscape plantings.

The application rate is 14-21 fl oz/acre and the application interval is 7-14 days, depending on the disease and environmental conditions. Thorough coverage is necessary to provide good disease control. Do not apply more than two consecutive sprays before switching to a fungicide with a different mode of action (not group 3 or 11 fungicides) and no more than three sprays total per season. The maximum application rate of QuiltXcel is 82 fl oz per acre per season. The restricted entry interval is 12 hours, and the pre-harvest interval is 30 days.

Quilt Xcel is extremely phytotoxic to certain apple varieties. Do not spray Quilt Xcel where spray drift may reach apple trees. Quilt Xcel Fungicide may have phytotoxic effects when mixed with products that are formulated as ECs. These effects are enhanced if applications are made under cool, cloudy conditions that remain for several days following application. In addition, adjuvants that contain some form of silicone can contribute to phytotoxicity.

Care must be taken when spraying QuiltXcel in sensitive watershed areas. Azoxystrobin may be persistent in the soil for several months or longer. Its degradation products can leach through soil to ground water under certain conditions; where the water table is shallow this may result in ground water contamination. Azoxystrobin and propiconazole are toxic to freshwater and estuarine/marine fish; and azoxystrobin is toxic to aquatic invertebrates. Do not apply directly to water except as specified on this label. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwater or rinsate. Notify state and/or Federal authorities and Syngenta immediately if you observe any adverse environmental effects due to use of this product.

2011 Grower Events

Spotted Wing Drosophila Workshop

June 1

9AM-12PM

Trevor Nichols Research Center

6237 124th Avenue, Fennville, MI

\$25

Please note: you must pre-register and registration is limited!

Register by calling Judy Hanson at (616) 994-4580.

June 9

6-8PM

True Blue Farms, Grand Junction

\$10, includes dinner.

RSVP required. RSVP by calling or emailing Mark Longstroth

(longstr7@msu.edu) or the Van Buren County Extension

office at (269) 657-8213 (msue80@msu.edu).

More information: Mark Longstroth, 269-330-2790

June 16

6-8PM

Location: Ottawa County, venue TBD

\$10, includes dinner.

RSVP required. RSVP for the meal count by contacting Judy

Hansen (616) 994-4548 (hanson26@msu.edu).

More information: Carlos Garcia, 616-260-0671.

June Weed Control Meeting

Date, location and time: TBD

More information: Mark Longstroth, 269-330-2790

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