



# Newsletter

Extension

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## Calendar

**September 21-23: Farm Science Review**, Molly Caren Agricultural Center, London, Ohio, Tuesday and Wednesday 8 a.m. to 5 p.m.; Thursday 8 a.m. to 4 p.m.. Tickets are now available at your county Extension office for \$4. (Or pay \$6 at the gate.) Children 5 and under are admitted free.

**September 27: Annual Pumpkin Twilight Meeting**, Hillsboro Research Site, Southern State Community College, Rte. 62 North, Hillsboro, 6:00 p.m. to 9:00 p.m. For more information contact Brad Bergefurd (800) 860-7232.

## Weather News

A broad upper air trough across eastern sections of North America brought a continuation of cool weather to Ohio during the past week. Temperature departures (from climatological normals) during the past 30 days fell to near or slightly below normal levels, the first long-term negative departures since early this year.

Forecast guidance for the upcoming one to two weeks suggests an active, early fall-like pattern setting up across the northern United States, including Ohio.

For late August and early September normal high/low temperatures range from the upper 70's to near 80 / upper 50's in northern sections of the state and lower 80's / near 60's in the south. Normal precipitation per week is 0.7 to 0.8 inches throughout the state.

## Drought Conditions Persist as of Aug. 21st

<u>Region</u>	<u>Category of Drought</u>
NW Ohio	Moderate
WCentral Ohio	Moderate
SW Ohio	Severe
SCentral Ohio	Severe
Central Ohio	Severe
NCentral Ohio	Moderate
NE Ohio	Moderate
Central Hills	Moderate
NE Hills	Moderate
SE Ohio	Severe

Source: [http://www.cpc.noaa.gov/products/analysis\\_monitoring/regional\\_monitoring/palmer.gif](http://www.cpc.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer.gif)

## Late Season Insect Activity

Source: Dr. Celeste Welty, OSU Extension Entomologist

In Columbus there has been a large increase in the number of codling moths caught in traps in the past week, which probably indicates we will have a third generation of larvae developing in the next few weeks. The first peak of moths was around June 2nd, and the second peak was around July 12th. In Ohio we do not always have a third generation, but when we do, there can be significant injury, especially to late-harvested varieties if insecticides are not used. Many growers put their sprayers away for the year in mid-August, but codling moth is one pest that should not be forgotten in late August and early September this year. The optimal time to spray for third generation codling moth larvae this year in Columbus is around August 26th, based on a flight that started August 13th and an accumulation of 250 degree-days (base 50 degrees F) since then. Growers who do not have their own temperature data can access the OARDC weather data for 12 locations at a web site: <http://www2.oardc.ohio-state.edu/centernet/weather.htm>

(Editor's note: Please be advised that data may not be current at some of the sites.)

San Jose scale is the other pest that has been abundant recently in our apple research orchard in Columbus. Large numbers of scales on fruit are being found. The first flight of adult scales was in early May with a peak of 1680 scales in the pheromone trap in one week. Then there was a 6-week period when no adult scales were detected. In late June, a second flight started and peaked at 1299 scales on July 21st. After that, numbers dropped off but picked up again in August with 4100 scales in the trap this past week. Insecticide is most effective if it is applied when the crawler stage of the scale is present. Crawlers emerge about 400 degree-days (base 51 degrees F) after adult male scales are detected by a pheromone trap. The ideal time to spray insecticide to target first generation crawlers in Columbus this year was around May 31st. Crawlers are not very well controlled by the usual cover sprays of Imidan or Guthion. Good materials to target scale crawlers are Penncap-M, Lorsban 50W, dimethoate, or diazinon.

Remember this is the last year that PennCap-M can be used.

## Secondary Scab

*Source: Dr. Michael Ellis, Dept. of Plant Pathology, OSU, IPM Disease Management Guidelines for Apples in Ohio 1994 and Dr. Dave Rosenberger, Plant Pathology, Cornell University, Highland Station*

If control of primary scab is not achieved and scab lesions develop, additional fungicide sprays are generally required on at least a 14-day interval throughout the remainder of the growing season, or until scab lesions are inactivated.

None of the currently registered fungicides are extremely effective in "burning out" or eradicating established scab lesions.

**Benzimidazoles** (Benlate or Topsin-M) are effective for this purpose, but problems associated with the development of fungicide resistance prevent their prolonged use. {Benlate preharvest interval (PHI) 14 days. Topsin-M PHI 0 days.}

**Dodine** (Syllit - PHI 7 days) is also effective for eradicating established scab lesions, but due to fruit finish problems is generally not used past petal fall.

**Captan** (PHI 0 days; check label for Restricted-Entry Interval) is only fair for "burning out" established scab lesions. Especially during hot weather, captan will aid in inactivating scab lesions. Mancozeb (PHI 77 days), Polyram (PHI 77 days), Thiram (PHI 0 days), Ziram (PHI 14 days), Ferbam (PHI 7 days), and sulfur (PHI 0 days) have very limited eradicant activity.

**SI fungicides** Nova, Procure (PHI 14 days); Rubigan (PHI 30 days) have good curative (pre-symptom) activity, but are not highly effective in killing secondary scab spores in established lesions. In addition, the use of SI fungicides for late season disease control (after primary scab) is discouraged in the east because of: 1) their lack of control for summer diseases; 2) expense; and 3) the potential for fungicide resistance development due to excessive (season long) use.

The best way to determine if orchards have active inoculum is to check the youngest terminal leaves, especially on water sprouts near the upper-center part of the canopy. Where scab has remained active through summer, these youngest terminal leaves are now showing active scab lesions on the upper and/or lower surfaces. Lesions on the lower surface of the leaves vary from pale, diffuse brown spots to very dark-colored brownish-black spots. Scab lesions usually have a fuzzy or velvety appearance with lesion margins that are somewhat indistinct.

Some orchards may have an abundance of other leaf spots that are of no concern at this time of year. Scab lesions can be distinguished from leaf spots caused by other fungi because the latter usually appear as round lesions with distinct margins and necrotic tissue that is visible on both the upper and lower leaf surfaces. Mites, including rust mites, can also cause the entire under-surface of leaves to appear brown or bronzed in some orchards. Mite damage on the underside of leaves should not be confused with the more distinctive spots caused by scab.

If left uncontrolled, secondary scab can develop into "pin-point" or "storage" scab. The latter name derives from the fact that scab lesions developing during storage are often quite small and can appear as

black "pin-points" on the apple skin. Storage scab poses an economic threat only when both of the following conditions are met:

1. Scab inoculum is abundant in the orchard prior to harvest.
2. Fruit in the orchard are exposed to a continuous wetting period of at least 48 hours duration at a time when fungicide residues from the last spray have been depleted.

Continuous wetting periods of at least 48 hours are required to initiate infections on fruit during the preharvest interval. Fruit gradually become more resistant to apple scab as they mature. With extremely high inoculum levels, a few fruit infections might occur with wetting periods as short as 30 hours, but economic damage is not likely unless wetting periods exceed 48 hours. Very severe infections could be expected if we should encounter continuous wetting periods of more than 96 hours. Drying periods as short as two hours in the middle of longer wetting periods will significantly reduce the amount of infection that occurs.

Infections occurring during the last week (and perhaps two weeks) prior to harvest may pose less threat than infections that occur slightly earlier during the preharvest interval. Apparently infections occurring during the last week before harvest are not sufficiently well-established to allow further development during cold storage. However, delays in cooling fruit after harvest could allow even those "last-week" infections to develop during storage.

The probability of getting weather conditions that favor severe storage scab are relatively low because the probability of having continuous wetting for 4 days during harvest is low. Furthermore, enough rain would be needed prior to the four-day wetting to remove all captan residues from the fruit. Should such conditions develop, however, losses could be very high in orchards with abundant inoculum. Therefore, an additional spray of captan may be necessary in high-inoculum orchards if weather predictions call for extended wetting periods.

If high-inoculum orchards are left unprotected through an extended wetting period, nothing can be done to stop symptom development after the fruit infections are initiated. Postharvest drenches are not effective for controlling storage scab. Field applications of benzimidazole fungicides immediately following a late-season infection period will be of no value because most strains of apple scab that persisted through summer are resistant to the benzimidazoles.

**The bottom line:** Risks of storage scab are relatively small even in a year when inoculum is relatively abundant. However, the consequences of storage scab can be severe since infection rates can reach 100% and the losses become evident only after storage costs have been incurred. Therefore, monitor orchards now to determine if scab is active. Follow weather forecasts carefully. Apply captan in high-risk blocks ahead of predicted extended-wetting periods.

## **Fruit Observations**

**Insect Key**

AM: Apple maggot  
CM: Codling moth  
DWB: Dogwood borer  
LPTB: Lesser peachtree borer  
OBLR: Oblique banded leafroller  
OFM: Oriental fruit moth  
PC: Plum curculio  
PTB: Peachtree borer  
RBLR: Redbanded leafroller  
SJS: San Jose scale  
STLM: Spotted tentiform leafminer  
TABM: Tufted apple budmoth  
VLR: Variegated leafroller

**Site: Waterman Farm, Columbus**

*Source: Dr. Celeste Welty, OSU Extension Entomologist*

*Traps Used: AM = red balls, SJS = tent traps, Others = wing traps*

**Apple: 8/18 - 8/25**

RBLR: 13 (up from 7)  
STLM: 2943 (up from 845)  
SJS: 4100 (up from 1033)  
CM (mean of 3 traps): 28.3 (up from 5.7)  
AM (mean of 3 traps ) 0 (unchanged)  
TABM: 10 (up from 3)  
VLR: 5 (down from 7)  
OBLR: 0 (unchanged)

**Peaches:**

OFM: 2 (down from 5)  
LPTB: 4 (down from 10)  
PTB: 12 (up from 4)

**Site: East District; Erie & Lorain Counties**

*Source: Jim Mutchler, IPM Scout*

*Traps: AM = red balls, SJS = tent traps, STLM = wing traps, Others = Multiplier traps*

**Apple: 8/18 - 8/24**

RBLR: 23.7 (up from 12.9)  
SJS: 0 (down from 1.1)  
CM (mean of 3 traps): 3.4 (up from 2.2)  
OBLR: 11.5 (up from 7.0)  
VLR: 1.0 (down from 2.5)  
AM (sum of 3 traps): 0.6 (down from 1.27)  
TABM: 36 (down from 41)

**Peach:**

OFM: 18.3 (up from 11.3)  
RBLR: 27.0 (up from 9.5)  
LPTB: 35.0 (down from 30.0)  
PTB: 0 (down from 0.8)

**Beneficials at work:** Lacewings everywhere, *Stethorus punctum* and other lady beetles

**Site: West District; Huron, Ottawa, & Sandusky Counties**

*Source: Gene Horner, IPM Scout*

*Traps Used:* AM = red balls, SJS = tent traps, STLM = wing traps, Others = Multiplier traps

**Apple:** 8/18 - 8/24

RBLR: 53.4 (up from 29.7)  
SJS: 0 (down from 1.0)  
CM (mean of 3 traps): 0.9 (down from 1.0)  
OBLR: 0.5 (up from 0)  
VLR: 14.5 (down from 22.5)  
AM (sum of 3 traps) 0.29 (down from 0.4)  
FTLR: 0 (unchanged)  
STLM: 749 (down from 847)

**Peach:**

OFM: 3.0 (up from 1.5)  
RBLR: 70 (up from 34.5)  
LPTB: 12.0 (down from 21.0)  
PTB: 0 (down from 1.0))

**Other pest activity:** two-spotted spider mite, apple rust mite, potato leafhopper

**Beneficials at work:** Lacewing eggs, predator mites, banded thrips, *Stethorus punctum*

**Site: Wayne County**

*Source: Ron Becker, Program Assistant, Agriculture and IPM, Ohio State University Extension*

**Apple:** 8/19 - 8/25

STLM: 126 (up from 71)  
CM (mean of 3 traps) 7.9 (up from 6.1)  
RBLR: 11.5 (up from 7.4)  
OBLR: 0 (down from 0.5)  
AM (mean of 3 traps) 0.04 (down from 0.2)

**Peach:**

OFM: 52 (up from 28)  
LPTB: 10 (down from 26)

PTB: 2 (down from 6)

Light spider mite eggs, few adults found. Light codling moth damage to fruit. In one block, WALH has come back to a level of .75 per leaf, with all nymphs and no adults being found.

## **Ohio Apple Scab, Fire Blight, and Sooty Blotch Activity- SkyBit Products**

### Central District

#### Apple Scab:

August 1, 8, 11, 13-17, 19-22, 24-26 possible infection & damage

August 2- 7, 9, 10, 12, 18, 23 active but no infection

**Based on Forecasts; August 27, 28 possible infection and damage**

**August 29-September 2 active but no infection**

#### Fire Blight:

August 1, 4, 7, 8, 10-15, 17, 19, 20, 24-26 possible infection and damage

August 2, 5, 18, 23 not active

August 3, 6, 9, 16, 21, 22 active but no infection

**Based on Forecasts; August 27-29, Sept. 2 possible infection and damage**

**August 30-September 1 not active**

#### Sooty Blotch:

August 1-26 possible infection and damage

**Based on Forecasts; August 27-September 2 possible infection and damage**

### Eastern Highlands

#### Apple Scab:

August 1, 5, 7, 8, 10, 11, 13-15, 18-26 possible infection & damage

August 2-4, 6, 9, 12, 16, 17 active but no infection

**Based on Forecasts; August 27, 28 possible infection and damage**

**August 29-September 2 active but no infection**

#### Fire Blight:

August 1, 4, 5, 7, 8, 10, 11, 13, 14, 17-21, 24-26 possible infection and damage

August 2, 9, 12 not active

August 3, 6, 15, 16, 22, 23 active but no infection

**Based on Forecasts; August 27-29, Sept. 2 possible infection and damage**

**August 30-September 1 not active**

#### Sooty Blotch:

August 1-10 active but no infection; August 11-26 Possible infection and damage

**Based on Forecasts; August 27-September 2 possible infection and damage**

### Northeast District

#### Apple Scab:

August 1, 4, 5, 7, 8, 13-15, 19-22, 24-26 possible infection & damage  
August 2, 3, 6, 9-12, 16-18, 23 active but no infection  
**Based on Forecasts; August 27, 28 possible infection and damage**  
**August 29-September 2 active but no infection**

Fire Blight:

August 1, 4 -8, 10, 11, 13-15, 19-21, 23-26 possible infection and damage;  
August 2, 3, 9, 12, 16-18 not active  
**Based on Forecasts; August 27, 28, Sept. 1, 2 possible infection and damage**  
**August 29-31 not active**

Sooty Blotch:

August 1-26 possible infection and damage  
**Based on Forecasts; August 27-September 2 possible infection and damage**

#### North Central District

Apple Scab:

August 1, 4 -8, 11, 13, 14, 19-22, 24-26 possible infection & damage  
August 2, 3, 9, 10, 12, 15-18, 23 active but no infection  
**Based on Forecasts; August 27, 28 possible infection and damage**  
**August 29-September 2 active but no infection**

Fire Blight:

August 1, 4 -8, 10-14, 19-21, 24-26 possible infection and damage  
August 2, 3, 9, 16-18, 23 not active  
**Based on Forecasts; August 27-28, Sept. 1, 2 possible infection and damage**  
**August 29-31 not active**

Sooty Blotch:

August 1-10 active but no infection; August 11-26 possible infection and damage  
**Based on Forecasts; August 27-September 2 possible infection and damage**

#### West District

Apple Scab:

August 1, 4 -8, 10, 11, 13, 14, 19, 23-26 possible infection & damage  
August 2, 3, 9, 12, 15-18, 20-22 active but no infection  
**Based on Forecasts; August 27-28 possible infection and damage**  
**August 29-September 2 active but no infection**

Fire Blight:

August 1, 4-8, 10, 11, 13, 14, 19, 23-26 possible infection and damage  
August 2, 3, 9, 12, 15-18, 21, 22 not active  
**Based on Forecasts; August 27-28, Sept. 1, 2 possible infection and damage**  
**August 29-31 not active**

Sooty Blotch:

August 1-26 possible infection and damage  
**Based on Forecasts; August 27-September 2 possible infection and damage**



## Degree Day Accumulations for Selected Ohio Sites January 1, 1999 to date indicated

Location	Actual DD Accumulations August 18, 1999		Forecasted Degree Day Accumulations August 25, 1999			
	Base 43° F	Base 50° F	Base 43° F	Normal	Base 50° F	Normal
Akron - Canton	3343	2323	3549	3348	2480	2306
Cincinnati	3916	2799	4136	4157	2970	2986
Cleveland	3369	2359	3571	3295	2513	2266
Columbus	4022	2935	4246	3677	3110	2583
Dayton	3847	2785	4061	3757	2951	2663
Elyria	3518	2511	3714	3453	2657	2411
Fremont	3186	2213	3397	3347	2375	2332
Mansfield	3212	2197	3403	3321	2340	2285
Norwalk	3384	2384	3577	3272	2528	2258
Toledo	3457	2455	3656	3267	2605	2256
Wooster	3438	2412	3633	3171	2557	2144
Youngstown	3102	2114	3297	3107	2260	2095

### Phenology

Coming Events	Range of Degree Day Accumulations	
	Base 43° F	Base 50° F
Spotted tentiform leafminer 3rd flight peak	2415-3142	1728-2231
San Jose scale 2nd flight subsides	2494-3257	1662-2303
Redbanded leafroller 3rd flight peak	2514-3225	1818-2625
Obliquebanded leafroller 2nd flight peak	2634-3267	1789-2231
Apple maggot flight subsides	2764-3656	1904-2573
Lesser peachtree borer flight subsiding	2782-3474	1796-2513
Codling moth 2nd flight subsides	2782-3693	1796-2635

Oriental fruit moth 3rd flight subsidies	2987-3522	2018-2377
Redbanded leafroller 3rd flight subsidies	3103-3433	2013-2359
Spotted tentiform leafminer 3rd flight subsidies	3235-3471	2228-2472

*Thanks to Scaffolds Fruit Journal (Art Agnello)*

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