Crop Advisory Team
Alert
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Vegetable Crop Advisory Team Alert

In this issue

Last issue for 2009

This is the final issue for the 2009 season of the *Vegetable CAT Alert* newsletter. Included in this issue is an index of articles to help guide readers through the topics covered this year. Educators and specialists have worked hard to inform readers about current issues and crop production throughout the last few months.

We will continue to publish timely articles at the *Vegetable CAT Alert* web site: http://ipmnews.msu.edu/vegetable. Interested in staying informed via email notification? Send an email to catalert@msu.edu with your full name and note that you wish to subscribe to the vegetable edition. At the *Vegetable CAT Alert* web site, you can also sign up to received RSS feeds when new articles are posted. (See image.)

Look for a bright orange RSS feed logo on the right side of the web page.

We love to hear feedback from our readers. Do you have a comment or suggestion? Please send it to catalert@msu.edu or mail it to the address on the back of this newsletter. Indicate whether you are referring to our fruit, vegetable, field crop or landscape edition.

Thank you. - Joy Landis, editor and Andrea Buchholz, asst. editor

The tomato hornworm and the tobacco hornworm

Dan Pavuk, Southeast Region Extension Educator

There are a number of caterpillar pests of tomatoes in Michigan, but certainly the most well known and largest in size are two species of hornworms: the tomato hornworm, *Manduca quinquemaculata*, and the tobacco hornworm, *Manduca sexta*. The caterpillars, or larvae, of these two species are called **hornworms** because they possess a prominent "horn" on the hind end (see Images 1 and 2 on page 2). These two species of caterpillars are exceptionally large when full grown; both develop to a length of three to four inches in approximately four weeks. Most of the time, both of these hornworm species are green. However, the tomato hornworm also occasionally occurs as a "black" or dark form. Besides tomato, these species also feed on pepper, potato, eggplant and some weeds of the nightshade family.

Image 1. Tomato hornworm on tomato plant.

The caterpillars of tomato and

Image 2. Tobacco hornworm on tomato plant.

Image 3. Tomato hornworm, adult female.

Image 4. Tobacco hornworm parasitized by Cotesia congregatus.

tobacco hornworms both have five pairs of prolegs (note the large, fleshy prolegs on the tobacco hornworm in Image 2 being used to grip the leaf and stem of a tomato plant) and a horn on the last segment of the body. There are seven diagonal stripes on the sides of the tobacco hornworm, and its horn is usually red (Image 2). The tomato hornworm has V-shaped white markings on its sides, and the horn is frequently black (Image 1). The full grown caterpillars that develop in mid- to late summer pupate and overwinter as pupae in a chamber located between four to six inches below the soil surface. The adult moths emerge in mid- to late spring. The moths of both species are very large with wingspans of up to five inches (Image 3), and are capable of flying long distances. After mating, females lay small, pearl-like eggs individually on tomato foliage and leaves of other hosts. The caterpillars hatch and usually pass through five larval stages, or instars, in about one month. Fully grown larvae pupate in the soil. There are usually two generations produced each summer; larvae of the second generation overwinter as pupae.

Damage to tomato and related plants by hornworms

The hornworm adults are nectar feeders and do not harm tomato and other related plants. The caterpillars constitute the damaging stage of these insects. They initially feed on the upper portions of leaves and leave behind dark green or black droppings. The larvae are well camouflaged and blend in so well with the plant canopy that they often go undetected until damage to a plant is severe. Each large, late instar larva is capable of consuming several leaves, and larvae will also sometimes feed on green fruits.

Control of tomato and tobacco hornworms

In smaller plantings, handpicking the hornworms from the plants is a safe and effective control method. Roto-tilling the soil after fruit harvest is very effective, and tillage has been shown to destroy up to 90 percent of the caterpillars pupating in the soil.

The action threshold for hornworms is 0.5 small larvae per plant. If this caterpillar density is exceeded, an insecticide treatment is recommended. A large number of insecticides, including synthetic pyrethroids, carbaryl, spinosad, and formulations of *Bacillus thuringiensis* (Bt) are effective in controlling *small hornworms*. It is important to scout plantings to find the caterpillars when they are small; the larger the caterpillars, the more difficult it is to control the infestation. See **MSU Extension's Bulletin 312, "Insect, Disease and Nematode Control for Commercial Vegetables"** for the current insecticide recommendations for hornworm control in commercial plantings.

Numerous natural factors help control populations of hornworms. Eggs and small larvae are often eaten by predatory insects, such as ladybeetles and green lacewings, and predatory wasps, such as paper wasps and yellowjackets, will kill hornworms and feed them to their larvae. The caterpillars are also attacked by small parasitic wasps, such as the wasp *Cotesia congregatus*. Larvae that hatch from the wasp eggs consume the internal organs and fluids of the caterpillar. When the wasp larvae complete their development, they form white, silken cocoons on the outside of the caterpillar's body (Image 4). When the adult wasps emerge from the cocoons, the caterpillar will die. If these parasitized hornworms are seen in a garden or larger planting, they should be left to conserve the beneficial wasps. The wasps that emerge will find other hornworms to parasitize. **IPM**

Problem avoidance: Potato early-dying disease

Fred Warner, MSU Diagnostic Services

Potato early-dying disease (PED) is a complex with the lesion nematode, *Pratylenchus penetrans* and the wilt causing fungus, *Verticillium dahliae*, usually implicated as the causal agents. Both

organisms are pathogens of potato but when present together, they often interact to produce more significant yield losses than they would cause individually. Yield losses of 100 cwt/A are not uncommon in Michigan and because of this yield loss potential, it is highly recommended growers sample fields going into potato production in 2010 for nematodes and vert. This is an important activity in attempts to minimize the risk of potato early-dying disease.

To best assess population densities of lesion nematodes, it is necessary to collect soil and root samples. If a cover crop will be grown, wait to collect root samples until about a month after the crop has been sown. Lesion nematodes feed within root tissue, so if roots are not collected the population density will inevitably be underestimated. If a cover crop will not be sown, still plan to collect roots of the previous crop (e.g., corn stubble) because these nematodes use the roots as overwintering sites. The bottom line is, regardless of the condition of the roots, it is always advisable to include them in a sample. The cost of the analysis (MSU Diagnostic Services assesses a fee of $25 for a standard nematode analysis) is the same for roots and soil as it would be for only a soil sample. For lesion nematodes, always include roots. OK, enough on that emphasis.

When sampling for nematodes and *Verticillium dahliae*, the more soil probes collected, the better the sample. Both of these organisms are clumped in their distributions, so multiple soil cores are necessary to insure sampling within these "hot spots" where the pathogens are present. Soil should be homogenized as well as possible in a large pail or plastic bag and a pint to a quart ultimately submitted to the lab for analysis. Be sure to place the roots you've collected (a handful is a good estimate) in the smaller plastic bag with the soil.

Typically, nematode samples will be completed in seven to 14 days after they arrive in the laboratory. However, a minimum of 21 days are required for vert assays as a small quantity of soil is air-dried for seven days (to eliminate organisms that are susceptible to desiccation) and the fungus is provided time to grow on a selective medium in Petri plates for its subsequent identification. Please keep this time requirement in mind when submitting samples.

The results of the nematode samples and the assays for *V. dahliae* will be used to assess the risk of loss to next year's potato crops. If, based on the population densities of lesion nematodes and *V. dahliae*, the risk of loss to next year's potatoes is high or severe, another year out of potatoes or soil fumigation will typically be recommended. If most of the risk is solely from high to severe counts of lesion nematodes, re-sampling for nematodes in the spring will be advised to determine if non-fumigant nematicide use is warranted at planting. It is impossible to predict the amount of nematode mortality that will occur over the winter, so collection of another nematode sample is advised to provide additional information.

Fumigation, usually with metam-sodium, is often used to control potato early-dying disease. In Michigan, for optimal results, fumigation should be done in the fall rather than the spring. Therefore, it is important to collect samples early enough in the fall to allow time for completion of the vert assays and still fumigate, if necessary, before the onset of winter. However, keep in mind, that unlike some other soil fumigants, such as 1,3-dichloropropene, metam sodium is very effective at soil temperatures between 40 to 50°F. It is my opinion, soil fumigation is more likely to fail in Michigan when using Vapam, if the product is applied when soil and air temperatures are warm rather than cold.

At the time of this writing, we have already received over 150 samples for nematode and *V. dahliae* analyses into MSU Diagnostic Services. Approximately, 10,000-20,000 acres of land are sampled annually to avoid potato early-dying disease. For this reason, we are extremely busy in the lab in the fall. You know, most citizens of Michigan would consider the arrival of fall with the changing of color of the leaves of our deciduous trees. Not me. I know fall has arrived when I have 500 or so Petri plates sitting next to my microscope waiting for me to count colonies of *V. dahliae*.

If you have questions about proper sampling for nematodes and *V. dahliae* please don't hesitate to call me at 517-432-1333, or Angela Tenney at 517-353-8563 or Dr. George Bird at 517-353-3890. You can also check our web site, www.pestid.msu.edu. Presently, there is a $25 fee for a nematode analysis and an additional $25 charge for a vert assay if the wet-sieving method is chosen. Routine sampling in the fall for these causal agents of potato early-dying disease is highly recommended. **IPM**

Fall soil management practices

Darryl Warncke, Crop and Soil Sciences

Fall is the time of year when harvesting activities are beginning to wind down, but it should also be the time to reflect on the past year and begin planning for next year. The following is a brief listing of items to

consider.

Soil sample. Many of the vegetable crops utilize large amounts of nutrients, especially potassium. Soil sampling and testing in the fall provides the opportunity to apply lime where needed and to determine fertilizer needs for the next year, and possibly fertilizer purchases prior to the end of the year. Liming where needed provides an excellent return on investment.

Remember and locate those areas in fields where plant growth was not as good as the rest of the field. Soil sample and test those areas separate from the rest of the field. This will let you know if the poor plant growth was related to an improper soil pH or lack of one of the nutrients. Special application to these areas may be necessary.

Chisel or subsoil fields or areas of fields where compaction may be suspected. There is no benefit from subsoiling more than two inches below the zone of compaction. The zone of compaction frequently occurs in the top 12 inches. The zone or depth of compaction may be identified by using a tile rod or soil probe when there is good soil moisture. Compaction is indicated by resistance in pushing the rod into the ground. Probe the soil in several different spots in a field to determine whether not compaction is a concern or the depth of compaction. Also, check the soil moisture at the depth of subsoiling. The soil should break apart when handled and not stick together in a clump when squeezed. If the soil is too wet, subsoiling will not be of benefit. The shanks should shatter the soil and not create a smeared channel.

Seed a winter cover crop. At this time of year seeding the winter cereal grains, barley, wheat or rye, will give good vegetative growth to sequester residual nutrients, especially nitrogen, and vegetative cover to minimize wind and water erosion during the winter and early spring months.

Fall nutrient application. Some farmers apply nutrients in the fall in preparation for next year's crops, but care needs to be exercised in making this decision. Fall application of potassium is satisfactory on loam and clay loam soils, but on sandy soils with a cation exchange capacity (CEC) less than 6 me/100 gram significant loss of potassium by leaching can occur. Therefore, on soils with a CEC of less than 6 fall potassium application is discouraged. Fall application of nitrogen (N) is generally not encouraged. If fall N is applied, it should be done after the soil temperature at two inches is below 50°F and a nitrification inhibitor should be added to the N fertilizer. Anhydrous ammonia is the preferred material to apply in the fall. Fall N application on sandy soils with a CEC less than 6 is definitely discouraged because of the greater risk of N leaching loss. Much of the K and N leaching loss occurs in late winter and early spring when saturated soils are draining from snow melt and spring rains. **IPM**

2 – Grand Rapids Area

Bill Steenwyk

Weather

The various vegetable crops have, of course, responded differently to this season's particular environmental conditions. One common element to nearly all vegetable producers, however, has been the very low level on insect infestation. After an unusually cool summer, September has been kind to many West Michigan vegetable producers. The dry, warm weather has helped some crops catch up on maturity and kept many potential disease problems at bay.

Crop report

On the muck, celery harvest is 75 percent complete. The quality and quantity of yield varies, depending on rain accumulation in August. Areas hit with heavy rains during that time have seen reduced yield and quality; some severely so (see photo). In other areas, reports are average or better. Onion harvest reports are variable. Harvest progress ranges from complete to 50 percent to just beginning. Taken as a whole, I estimate two-thirds complete. Many are reporting good quality and size. Where downy mildew was more severe, the story is less optimistic. Lettuce and bok-choy harvest is nearly complete with positive reports. Radish is three-quarters finished. Again, yield and quality has been average or better. Planting was finished about a week ago. Carrots are 50 percent harvested with good yields.

50 percent stunted celery.

Most reports regarding sweet corn are positive with the crop being 90 percent harvested. There is an occasional field that will not ripen due to the abnormally cool summer. Cabbage harvest is at least 75 percent complete with favorable

yields and quality. Summer squash growers have completed their harvest with reports of average production. Hard squash and pumpkins are being harvested with at least average results. Melons have not faired as well with diseases such as fusarium, phytopthora and powdery mildew being problematic. With some exceptions, pepper fields have produced well. Tomatoes are a very mixed story. Late blight has devastated many fields where the grower had not implemented a pre-planned program of fungicide applications. Where the crop was protected, the plants still look good (with a few exceptions). Slow maturation continues to be a challenge. **IPM**

6 - SE Michigan: Monroe, Washtenaw, Wayne, and Lenawee counties

Dan Pavuk

Weather

This has been an interesting season for vegetable production in Southeast Michigan! In terms of weather, this was one of the coolest summers on record. The cooler temperatures slowed development of vine crops, sweet corn, and tomatoes, but more typical temperatures and higher humidity levels in August helped these crops mature. As I write this report, tomatoes are still being harvested on many farms, which is a bit behind a more typical year. Rainfall was also lacking in many areas for extended periods of time, and this resulted in extensive use of irrigation by commercial growers.

Downy mildew infection in a cucumber planting.

Crop report season summary

As in recent years, cucurbit downy mildew once again appeared in Monroe County before any other location in the state. Unfortunately, this disease will likely continue to be an issue for both commercial growers as well as smaller operations in the coming years.

Other vegetable diseases also made appearances, too. Leaf blight of tomato became problematic, mostly in home gardens and smaller production operations, as did Septoria leaf spot of tomato. Effective preventative fungicides are available for control of late blight, early blight, and Septoria leaf spot of tomato, and few problems were observed in commercial operations where these fungicides were utilized. Powdery mildew always attacks squash and pumpkin each year, and it seemed as if this disease was showing up a little earlier than usual this season.

Septoria leaf spot of tomato.

Septoria leaf spot of tomato.

What about insect pests of vegetables? European corn borer numbers recorded in pheromone traps were consistently low this year. Small populations of this pest may be due to the widespread use of Bt field corn, which has decreased the abundance of the corn borer. Corn earworm was slow to arrive, but large numbers did occur in August at several locations. This insect will inevitably become a problem in sweet corn late in the season unless it is controlled by insecticides every three to seven days, depending on how many are captured per week in pheromone traps. Japanese beetle did not seem to be as abundant this year as in past years. Other pests, such as diamondback moth and imported cabbageworm on crucifers, had to be controlled on some farms. Variegated cutworm did not become a significant pest on tomatoes, and squash vine borer populations remained low during the season. Cucumber beetles were locally abundant on some farms, and since these vector the bacterium that causes bacterial wilt of muskmelon and cucumbers, they had to be controlled.

In spite of the unusual summer

Corn earworm.

with regards to the weather, yields of all vegetable crops appeared to be very good in the southeastern Michigan region. Farmers' markets, roadside stands, CSAs, and large commercial growers all seemed to have good harvests. There is nothing quite like fresh, locally grown vegetables in the summer!

I want to take this opportunity to thank all of the vegetable growers who allowed me to operate insect monitoring traps on their farms this summer. This is an important contribution to our understanding of the life histories of these pests, and such understanding allows for the development of more effective control.

Have a great fall season! **IPM**

Weather news

Jeff Andresen, Agricultural Meteorology and Geography

This past Monday (September 21), showers and thunderstorms associated with the weather disturbance that recently brought extended heavy rain and flooding to much of the south and Ohio Valley ended an extended period of mostly sunny, dry weather across Michigan. Many areas had been dry since August 30. Forecast guidance is now suggesting some major upper air changes during the upcoming week leading to a cooler, more unsettled weather pattern.

In the short term, an upper "cut-off" low spinning counterclockwise across the central Great Plains is forecast to slowly move towards and through the Great Lakes region by the end of the weekend. While this feature remains to our west, high pressure across eastern Canada will bring fair, cooler, and less humid weather to the state Thursday and Friday. The cut-off low is forecast to move through the region this weekend with a good chance for showers and a few thundershowers beginning early Saturday continuing through Sunday. Rainfall totals in the 0.25-0.50 inch are generally expected with this system with some locally higher totals possible, especially across southern sections of the state. High temperatures the next few days will fall back to the mid- to upper 60's north to the mid-70's south through Sunday. Low temperatures will generally range from the upper 40's or low 50's north to the upper 50's south.

Further ahead, most recent guidance suggests a period of northwesterly flow aloft and much cooler than normal temperatures across much of the state next week following the passage of a strong cold front through the state late Sunday and Monday. The threat of showers will continue Monday and Tuesday with temperatures falling back to highs from the 50's north to 60's south and lows in the 40's. As high pressure settles over the region Wednesday and Thursday next week (with clearing skies and relatively calm nighttime conditions), there may be the potential for a frost or freeze event either of those mornings over large areas of the state. Stay tuned to latest forecasts.

In the medium range forecast period (one to two weeks ahead), the forecast guidance is having problems converging on a projected upper air pattern. As it stands right now, the NOAA Climate Prediction Center **6-10 day** and **8-14 day outlooks** for September 28 to October 2 and September 30 to October 6, call for below normal precipitation totals statewide. Mean temperatures are forecast to remain at below normal levels across the state during the 6-10 day period, moderating to near normal during the 8-14 day period. It is important to note that forecaster confidence in these outlooks is considered below normal due to the recent inconsistencies in the model guidance. **IPM**

ACTUAL AND PREDICTED DEGREE-DAY
ACCUMULATIONS SINCE MARCH 1 2009 (*)

STATION OR DISTRICT	BASE 42 BE DEGREE-DAYS AS OF 09/22 2008	2009	BY 09/27	BY 10/02	BASE 50 BE DEGREE-DAYS AS OF 09/22 2008	2009	BY 09/27	BY 10/02
WEST UP NORMS**		2886	2938	2990		1808	1833	1857
MARQUETTE	2653	2545	2592	2645	1588	1492	1514	1537
STEPHENSON	3065	2920	2974	3034	1936	1805	1831	1859
EAST UP NORMS		2648	2700	2748		1582	1604	1626
CHATHAM	2482	2505	2555	2606	1502	1462	1486	1504
SSMARIE	2762	2636	2689	2742	1644	1530	1555	1574
N.W. LP NORMS		3200	3264	3326		2061	2095	2128
PELLSTON	2986	2667	2719	2781	1870	1608	1634	1663
N.E. LP NORMS		3128	3189	3248		1991	2022	2053
ALPENA	3159	2916	2975	3042	2001	1784	1815	1847
HAWKS	3055	2820	2877	2942	1927	1724	1754	1785
ROGERCITY	3193	2910	2969	3036	2021	1759	1789	1822
W. CENT. LP NORMS		3483	3554	3623		2288	2328	2366
FREMONT	3496	3373	3451	3531	2271	2121	2168	2207
HART	3370	3214	3288	3364	2165	1989	2033	2070
LUDINGTON	3187	3007	3076	3148	2002	1810	1850	1883
MUSKEGON	3613	3664	3749	3835	2360	2376	2428	2472
CENT. LP NORMS		3569	3640	3708		2362	2402	2441
ENTRICAN	3480	3301	3374	3451	2255	2059	2102	2141
E. CENT. LP NORMS		3609	3687	3759		2397	2441	2482
SAGINAW	3739	3551	3637	3728	2488	2275	2327	2375
STANDISH	3256	3099	3174	3254	2099	1918	1962	2002
S.W. LP NORMS		3936	4025	4109		2667	2719	2769
ALLENDALE	3491	3396	3468	3556	2260	2129	2170	2215
BHARBOR	3810	3780	3860	3959	2549	2459	2506	2559
FENNVILLE	3590	3516	3590	3682	2354	2237	2280	2328
GRAPIDS	3997	3848	3929	4030	2718	2527	2576	2630
HUDSNVLLE	3683	3760	3839	3938	2425	2448	2495	2547
NUNICA	3601	3484	3557	3649	2363	2228	2271	2318
SOUTHBEND	4140	4044	4129	4235	2836	2697	2749	2807
S. CENT. LP NORMS		3848	3932	4010		2601	2650	2696
COLDWATER	3839	3836	3919	4014	2566	2524	2574	2626
ELANSING	3747	3658	3737	3828	2501	2355	2402	2450
S.E. LP NORMS		3872	3960	4038		2614	2666	2712
DETROIT	4269	4105	4197	4301	2940	2736	2795	2848
FLINT	3895	3566	3646	3736	2625	2283	2332	2376
HELL	3777	3659	3741	3834	2523	2363	2414	2459
LAPEER	3658	3447	3525	3611	2411	2199	2246	2289
ROMEO	3744	3578	3659	3749	2487	2300	2349	2394
SALINE	3879	3665	3748	3840	2611	2377	2428	2474
TOLEDO	4202	4108	4200	4304	2900	2744	2803	2856

* Since weather data for some agricultural stations are not available prior to April 1st, GDD values for those stations during February and March are estimated with closest available station data.
** District normals were calculated as the mean of daily GDD totals at several stations within each district for the period 1951-1980.
Report generated at 09:26, 09/23/09

Michigan State University Cooperative Agricultural Weather Service
Cumulative Precipitation Summary For 09/22/2009

STATION	DIST	PRECIPITATION TOTALS SINCE 09/16/2009 (last week) Actual	09/09/2009 (last 2 weeks) Actual	Dev. Norm.	08/26/2009 (last 4 weeks) Actual	Dev. Norm.	04/01/09 (since Apr.1) Actual	Dev. Norm.
MARQUETTE	WU	0.33	0.33	-1.52	1.49	-2.14	13.13	-5.98
STEPHENSON	WU	0.89	0.89	-0.96	1.76	-1.87	14.05	-5.06
CHATHAM	EU	0.20	0.20	-1.67	0.87	-2.59	15.07	-3.00
SSMARIE	EU	0.18	0.18	-1.69	1.27	-2.19	13.39	-4.68
PELLSTON	NWL	0.37	0.37	-1.51	1.43	-1.98	12.76	-4.30
ALPENA	NEL	2.13	2.13	0.32	4.47	1.17	21.15	4.11
HAWKS	NEL	0.45	0.47	-1.34	1.44	-1.86	17.98	0.94
ROGERCITY	NEL	1.37	1.37	-0.44	2.23	-1.07	22.12	5.08
FREMONT	WCL	1.20	1.20	-0.52	1.38	-1.79	16.14	-1.09
HART	WCL	0.12	0.17	-1.55	0.77	-2.40	16.99	-0.24
LUDINGTON	WCL	0.20	0.20	-1.52	0.59	-2.58	15.29	-1.94
LUDINGTON	WCL	0.20	0.20	-1.52	0.59	-2.58	15.29	-1.94
MUSKEGON	WCL	0.58	0.58	-1.14	0.85	-2.32	15.16	-2.07
ENTRICAN	CL	0.57	0.57	-1.12	0.94	-2.17	16.07	-2.03
SAGINAW	ECL	0.34	0.34	-1.21	0.61	-2.04	16.26	0.10
STANDISH	ECL	0.65	0.65	-0.90	1.47	-1.18	15.88	-0.28
ALLENDALE	SWL	0.23	0.23	-1.53	0.45	-2.48	19.18	0.66
BHARBOR	SWL	0.29	0.30	-1.46	2.12	-0.81	15.86	-2.66
FENNVILLE	SWL	0.31	0.31	-1.45	2.12	-0.81	19.23	0.71
GRAPIDS	SWL	0.41	0.45	-1.31	0.86	-2.07	21.72	3.20
HUDSNVLLE	SWL	0.00	0.00	-1.76	0.00	-2.93	6.68	-11.84
NUNICA	SWL	1.38	1.38	-0.38	1.96	-0.97	23.50	4.98
SOUTHBEND	SWL	0.22	0.22	-1.54	2.16	-0.77	21.95	3.43
BATH	SCL	0.31	0.32	-1.17	1.80	-0.83	25.68	7.42
COLDWATER	SCL	0.22	0.23	-1.26	1.24	-1.39	18.02	-0.24
ELANSING	SCL	0.46	0.47	-1.02	1.92	-0.71	21.28	3.02
DETROIT	SEL	0.45	0.45	-0.94	1.71	-0.65	19.50	2.05
FLINT	SEL	0.32	0.34	-1.05	0.76	-1.60	22.48	5.03
HELL	SEL	0.41	1.39	0.00	3.16	0.80	22.33	4.88
LAPEER	SEL	0.84	0.84	-0.55	1.19	-1.17	18.16	0.71
ROMEO	SEL	0.79	0.79	-0.60	2.55	0.19	18.82	1.37
SALINE	SEL	0.18	0.18	-1.21	1.86	-0.50	18.43	0.98
TOLEDO	SEL	1.19	1.19	-0.20	3.76	1.40	19.62	2.17

Report generated at 09:26, 09/23/09

Crop Advisory Team Alerts
Integrated Pest Management Program
Michigan State University
B 18 Food Safety & Toxicology Building
East Lansing, Michigan 48824 -1302

The *Vegetable Crop Advisory Team (CAT) Alert* is brought to you by:

MSU Extension and Agricultural Experiment Station Field Staff

Dr. Ron Goldy, Southwest Michigan Research Extension Center, Distr. Extn. Educator
Norman Myers, Oceana County Extension Director
Hannah Stevens, Macomb/St. Clair/Lapeer Co. Ag & Natural Res Educator
Dan Pavuk, Southeast Region
William Steenwyk, West Michigan District Extension Educator

MSU Extension Campus Specialists

Dr. Bernard Zandstra, Horticulture
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Dr. Mathieu Ngouajio, Horticulture
Dr. Daniel Brainard, Horticulture
Dr. Darryl Warncke, Crop & Soil Sciences
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Dr. Mary Hausbeck, Plant Pathology
Dr. Walter Pett, Entomology
Dr. Jeff Andresen, Geography/Agric. Meterology

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Joy Neumann Landis, editor
Andrea Buchholz, assistant editor

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