



***IPM News*** May 2002

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## **Jessica Reardon Receives a Master of Science Degree**

Jessica Reardon received her Master's degree in Plant & Soil Science on Sunday, May 19th at UVM. Jess had been a member of the UVM Apple Team for a number of years. Her thesis research was entitled: "Field Validation of a New Sequential Sampling Technique for Determining the 'Risk' of Apple Scab in Vermont Apple Orchards." The research showed that the sequential sampling technique, which may involve as few as 10 trees in the autumn, provided 'scab risk' orchard ratings for the following spring consistent with the original assessment procedure which involved 60 trees, and it took significantly less time. Also, following the 'delayed-spray' strategy in the following spring in 'low risk' orchards did not result in significant differences in fruit scab at harvest compared to spraying from the green-tip bud stage.

More details of research results will be presented as we get closer to harvest but for now —

***Congratulations, Jessica !! We wish you the very best !!***



## Disease Management Update

### *Apple Scab*

The table below shows the approximate % ascospore maturity based on estimated degree day accumulation from green tip. Note that we enter the ‘final phase’ of ascospore maturity at 700 DD. Once 900 DD are reached, one can expect the final release of ascospores when we get a daytime rain of at least 0.1 inch, with temperatures of at least 50 F during the wetting period.

Remember — you will have to wait 9—17 days (depending on temperatures) after the final release of ascospores to see if any scab lesions develop. The New England Apple Pest Management Guide has a table that lists the “Days Until First Lesions “ for different tem-

**2002 Estimated Degree-Day Accumulation (Base 32F, from McIntosh Green Tip) and Cumulative % Ascospore Maturity for Selected Vermont Sites<sup>1</sup>**

<b>Date 5/20</b>	<b>South Burlington (GT=4/13) Elev. 71 M</b>	<b>Shoreham (GT=4/12) Elev. 107 M</b>	<b>South Hero (GT=4/14) Elev. 54M</b>	<b>Bennington (GT=4/10) Elev. 370 M</b>	<b>Dummerston (GT=4/13) Elev. 171 M</b>
<b>DD</b>	<b>640</b>	<b>678</b>	<b>615</b>	<b>676</b>	<b>692</b>
<b>Maturity</b>	<b>75-90%</b>	<b>75-90%</b>	<b>75-90%</b>	<b>75-90%</b>	<b>90-95%</b>
<small>Degree Days received from Skybit E-Weather Service: <a href="http://www.skybit.com/">http://www.skybit.com/</a></small>					

peratures (Table 4, page 8). Only after the days indicated will you be able to determine how successful your scab program has been. So, in other words, we still have some time to go before we can ease up on scab management.

The earliest that lesions will appear from last week’s infection period that started on Sunday, May 12, would be the middle or end of next week. If you had any previous primary infection periods in your orchard, you should be checking the leaves (both sides) to see if any lesions have developed yet. If so, the focus shifts to include the potential of further infection by conidia and ascospores. Hopefully, this is not the case.

**Fire Blight** - [The following was sent out as an *IPM Alert* on May 20 via email; it is included here for those who are not on our email list. ] At the 5 sites we have been monitoring ( i.e., Bennington, Dummerston, Shoreham, So. Burlington, So. Hero) with the Maryblyt program using Skybit weather data, none of the sites had more than 2 of the 4 factors necessary for infection up through May 19th. [See *IPM Alert*, May 10, for the 4 factors.] Projecting ahead with the predicted warmer temperatures and predicted rain through May 26, if blossoms are still present, the greatest risk for infection would occur in the Dummerston area and in So. Hero on May 25 and 26, respectively. At the other sites, it is estimated that the threshold of 198 degree hours >65F will not have accumulated. If it is warmer and wetter than predicted - infection is still possible at all locations if blossoms are present.

**Powdery Mildew** - If a SI fungicide or a strobilurin has been used for apple scab, it will provide activity against powdery mildew. Of these two groups of fungicides, the SI fungicides are considered the most effective against powdery mildew. Sulfur and Topsin M also have activity against the fungus that causes this disease. Leaves remain susceptible to infection until they are mature. Usually, once the apical bud sets on terminals, powdery mildew is no longer of concern.

**Cedar Apple Rust** - Rust spores are released when galls on cedars swell during rainy periods through the early part of the growing season, with peak release from early pink through full bloom. EBDC and SI fungicides are very effective against this fungus, with the SI providing post-infection activity. The strobilurin fungicides only are considered to have “fair” activity. The following table is from the 2002 Pest Management Guidelines for Commercial Fruit Production, Cornell Cooperative Extension. It shows that infection by this fungus occurs in less time than the apple scab fungus.

**TABLE 10. Approximate number of hours of leaf wetness required for cedar apple rust infections to occur on leaves of susceptible cultivars.**

Average Temp [°F]	Degree of Infection [1]	
	Light	Severe
36	24	—
40	12	24
43	8	10
46	6	7
50	5	6
54	4	5
58	3	5
61	3	4
64	3	4
68–76	2	4
79+	—	—

[1] Based on the data of Aldwinckle, Pearson, & Seem, Cornell University. Assumes that cedar apple rust inoculum (orange, swollen galls) is available at the start of the rain. If inoculum is not already present (dry period prior to the rain), add 4 hr at temps above 50°F and 6 hr at temps of 46–50°F. Infection is unlikely at temps below 46°F if inoculum is not already present.

**2002 Estimated Degree-Day Accumulation (Base 50F, from Jan. 1)  
for Selected Vermont Sites <sup>1</sup>**

Date	So. Burlington	Shoreham	South Hero	Bennington	Dummerston
05/20	192	207	175	198	235

<sup>1</sup>Degree Days received from Skybit E-Weather Service: <http://www.skybit.com/>

## Arthropod Situation:

### *Arthropod 'events' associated with degree-day accumulation, base 50F, from Jan 1:*

San Jose Scale— 1st adult catch	181-321
STLM—1st sap-feeding mines observed	165-317
Plum Curculio—1st oviposition scars observed	249-323
OBLR—1st adult catch, 1st summer brood	479-607

**Plum Curculio** - As of Monday, May 20th, we had not observed any PC damage on non-sprayed trees at the UVM HRC but expect activity to increase when the warmer weather arrives this week. Depending on the temperature, adults will remain active for 2-6 weeks after petal fall. To assist in determining when to stop spraying for this insect, a degree day model was developed by Cornell researchers. Similar to previous years, we will be inputting temperatures into the model from the 5 locations listed in the table above starting at 95% petal fall. At 340 DD (base 50F), it is estimated that 40% of PC oviposition is complete and it is no longer necessary to maintain insecticide residue on the trees. It is thought that once at 40% of PC oviposition, adults are no longer migrating into the orchard and those already inside have been killed by the insecticide residue.

**European Apple Sawfly** - Traps were checked at the UVM Hort. Res. Center on Monday, May 20th and the cumulative average was 3.5 adults/trap. Thresholds at petal fall are: 5 adults/trap in blocks that did not receive any pre-bloom insecticide and 9 adults/trap in blocks that had received a pre-bloom insecticide. In Massachusetts, it was reported that migration was late there this year so if the temperatures warm up this week, we may see more flight activity in Vermont.

**Leafminers** - All the rain, wind and cold temperatures have not be advantageous to leafminer flight. Red visual trunk traps at the UVM Hort.Res.Center have caught very few moths (e.g., cumulative average is about 2 moths/trap). We examined a total of 200 cluster leaves in non-sprayed trees and only saw 6 early sap-feeding mines. The standard action threshold has been 7 mines/ 100 McIntosh leaves and 14 mines/ 100 Non-McIntosh leaves. To determine the level in your orchard, examine 5 mid-cluster leaves on each of 20 trees per block. Sampled leaves should be taken within 3 feet from the trunk, about shoulder level, and from different quadrants of the tree. If treatment is warranted, it should be made while 90% of the mines are

still in the sap-feeding stage (before you can see the mine on the top surface).

**Codling Moth** - Pheromone traps should be up in the orchard if you were planning on monitoring this insect. As mentioned in a previous **IPM Alert**, we captured the first CM adult at the UVM Hort.Res.Center on May 7 and are tracking degree days, base 50 F, from that date. As of Monday, May 20, we had only accumulated approx. 28 DD. When a single treatment per generation is sufficient, optimum timing is at 360 DD for the first generation; if two treatments are deemed needed for the first generation, the first spray should be applied at 250 DD, with the second application 3 weeks later.

**White Apple Leafhoppers** - The following is an excerpt on WALH from a CT Pest Message written by Lorraine Los: "Usually the best time to treat for WALH is a week or two after Petal Fall when most eggs have hatched, but, before the nymphs get too large. To monitor for WALH, check 10 leaves per tree on 10 trees per block. The provisional treatment threshold for New England is 25 WALH per 100 leaves. Pesticide options include Thiodan, Provado (both relatively easy on predators), and Lannate (harsh on predators). Also, according to label, Lannate cannot be used in pick-your-own blocks. If Sevin is used as a fruit thinner, it should also control WALH if used at the 1 lb. rate."

**Green Pug Moth** - For the first time, we are noticing damage in non-sprayed McIntosh trees at the UVM Hort.Res.Center that we believe is caused by the Green Pug Moth (GPM). [Note: We have not positively identified the insect but the larvae and damage we have observed closely resembles that of the GPM.]. The GPM is a geometrid moth, *Chloroclystis rectangulata*, which has been introduced to North America from Europe. It is common in Nova Scotia and has been found in other New England states, New York, and New Jersey. The New England Apple Pest Management Guide includes the following description: "The yellow-green larvae are inchworms that bore into blossom buds to feed, preferring flower anthers. One larva can damage several flowers and where numerous can significantly reduce fruit set. Most larvae finish feeding by petal fall, by which time they usually have a dark red-brown stripe along the back. The moths fly in June and July. Nova Scotia recommends organophosphate insecticide at tight cluster or early pink if there are 6 or more GPM larvae per 100 fruit clusters." At the UVM HRC, the larvae are also associated with apical vegetative buds where they feed on the expanding leaves.



## **Contact Information**

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If you have any questions or want to arrange for an orchard visit regarding your concerns, please call or write.

For horticulture questions contact:

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