

March 25 Webinar Quiz

The March 25, 2020 Maine Tree Fruit Webinar recording is online at

<https://tinyurl.com/METFwebinar-2020-03-25>

(link is not active in PDF file, you will need to type it into browser)

Name _____ Email address _____

State that issued your pesticide applicator license _____

Pesticide Applicator License number _____

You must choose the correct answer for 8 or more of the 10 quiz questions to qualify for two pesticide applicator recertification credits.

Send the completed quiz as an email attachment to: John.T.Pietroski@maine.gov, or mail a paper copy to: Maine Board of Pesticides Control, 28 State House Sta., Augusta, ME 04333-0028. Quizzes should be sent within two weeks of the training date.

For license holders in other states who send in a quiz with a passing grade, the Maine Board of Pesticides Control will send confirmation that recertification credit was earned to their state agency if that state shares reciprocity for recognizing pesticide applicator credits.

Quiz After each statement 1-10, circle whether the statement is TRUE or FALSE.

1. Removing fallen apple leaves from the previous season reduces the amount of scab inoculum and greatly reduces scab infection pressure the following spring. TRUE FALSE
2. The number of scab spores in the orchard has more influence on scab infection pressure than how long or how warm an infection period is. TRUE FALSE
3. New research found that the very first released and fastest germinating scab ascospore can initiate infection in five hours after the start of an infection period. But this number is not that important for spray timing because most spores a) take longer to release, and b) take longer to cause infection. TRUE FALSE

4. Captan has no effect as protective fungicide coverage applied before an infection period starts. TRUE FALSE

5. Using the full dose for single-site fungicides (DMI/SI, Qol strobilurin, AP, SDHI) helps to prevent resistance. Using cut rate dosage increases the risk of resistance.
TRUE FALSE

6. Spraying in the rain after an infection period has started (i.e. beginning of rain) but before scab ascospores have had enough time to cause infections can be an effective scab control method. But these applications must be completed within a narrow time window and do not provide residual protection after the spray. TRUE FALSE

7. The post-infection fungicides

- * DMI-Sterol inhibitors (FRAC 3, Inspire Super, Indar, Rally, Vintage);
- * Qol strobilurins (FRAC 11, Sovran, Flint);
- * SDHIs (FRAC 7, Aprovia, Merivon, Fontelis, Sercadis, Luna.), and
- * AP anilinopyrimidines (FRAC 9, Vangard, Scala)

all share a weakness: apple scab can become resistant to them. TRUE FALSE

8. Recent research found that new leaves that emerged after an earlier protective fungicide spray had excellent protection from scab infection by redistribution of fungicide residue.
TRUE FALSE

9. The apple cultivar MN1980 has excellent fruit firmness, and is resistant to apple scab.
TRUE FALSE

10. In order to increase Calcium availability to fruit, applications on Honeycrisp should begin at Petal fall. Optimum calcium level in a soil test does not ensure that fruit will have enough calcium to prevent bitter pit because soil calcium level is not well correlated with the amount of calcium in the fruit/ TRUE FALSE

Other key points from the March 25 webinar presentations.

Vincent Phillion presentation

Apple scab

TRUE - Recent research found that after 1-inch of rain, previously applied captan or mancozeb fungicide residue was still able to prevent infection on leaves that were present at time of the application. But residual protection began to break down with 2 inches of rain. A higher initial fungicide dose did partially compensate for rain wash-off.

TRUE – Redistribution of previously applied fungicide residue was not enhanced by hard rain. Gentle rain also did not result in fungicide residue redistribution or protection of newly emerged leaves.

TRUE – In Vincent’s opinion, Aprovia is the most effective SDHI fungicide. Because the label dosage is on the low side, the Luna SDHI products are less effective than other SDHI products.

TRUE – Combining two single site fungicides in a tankmix reduces the chance of resistant scab developing, but such combinations increase the expense of a scab management program.

TRUE - In Quebec, where Nectria fungus is a problem, urea application to hasten decay of overwintered leaves is NOT recommended.

TRUE - Quebec researchers and apple growers have combined flail mowers, brooms, and blowers to augment fallen leaf chopping and decay.

TRUE – Research in Quebec found that repairing orchard ruts also helped reduce overwintering scab inoculum.

TRUE - Protone is labeled to defoliate trees in the fall to facilitate leaf shredding.

TRUE – In Quebec, captan use restrictions have been proposed to limit the number of applications to twice per growing season.

TRUE – The lag time between beginning of an infection period rain and when a significant portion of spores can begin infections is estimated at about 200 degree hours.

“Degree hours” = “Temperature in Celsius” times the “Number of Hours” since the start of an infection period ($DH = T \times H$). Examples: Apple scab ascospores require about 20 hours to cause infections at 10C (=50F); about 13 hours at 15C (=59F); and about 10 hours at 20C (=68F).

Fungicide application soon after the start of an infection period (i.e. within the first 200 degree hours) allows use of less effective fungicides such as potassium bicarbonate + sulfur because the precise timing kills the scab spores before they can initiate infection. But this approach requires precise timing. If the application is made later than 200-300 degree hours after the start of the infections period, efficacy will be much reduced. For a large orchard, the requirement for completing fungicide application within a narrow time window would require additional sprayers and labor compared to a protective fungicide program.

Renae Moran presentation

Bitter pit

TRUE – Bitter pit is a serious problem for Honeycrisp, especially for Honeycrisp kept in storage.

TRUE – In addition to the calcium level in fruit, the balance between calcium and nitrogen affects bitter pit susceptibility.

TRUE – Foliar applied calcium products for bitter pit prevention should be low in nitrogen content and high in calcium concentration of at least 10%.

TRUE – A foliar test for nitrogen is useful information for managing bitter pit.

TRUE – $CaCl_2$ (calcium chloride) is the most effective source of calcium for bitter pit prevention.

TRUE – Soil testing for pH and calcium is recommended so you know what amendments are needed to optimize these soil characteristics.

TRUE – In addition to affecting bitter pit susceptibility, extensive shoot growth reduces the calcium level in fruit.

Peach bud cold hardiness

TRUE - Three days of midwinter warmth (room temperature) reduced Starfire peach bud cold tolerance from -14F to -5F.

TRUE - Three days of midwinter warmth (room temperature) reduced Reliance peach bud cold tolerance by 8 degrees Fahrenheit. A six-day warm period caused a 13 degrees Fahrenheit in Reliance peach bud cold hardiness.

TRUE - Reliance peach buds regained 5F in cold hardiness with 3 cold days AFTER the three days of midwinter warming.

Elevation above sea level seems to favor peach bud survival. Perhaps this is because at higher elevation, temperatures stay colder, and thus midwinter warming events are less common or extreme.

Proximity to the ocean slows down springtime warmup in Maine. This delays early season apple bud development, which helps prevent apple buds being at a sensitive stage for late spring frosts.

MN1980 apple cultivar

TRUE – MN1980 ripens in late September. It hangs onto the tree well through a 4-week harvest period.

TRUE – At first harvest, MN1980 has Intense flavor that is sweet and sour. Like Honeycrisp, most of the flavor is from sugars and acids, not aroma.

TRUE – MN1980 taste gets sweeter with later harvest.

TRUE – At Highmoor Farm in 2019, MN1980 size increased with delayed harvest from 100 count on September 24, to 88 count on October 8, and 80 count on October 21.

TRUE – MN1980 has excellent fruit firmness of at least 20 lbs. at harvest, and even after 5 months in cold storage.

TRUE – MN1980 is resistant to apple scab due to its Liberty and Honeycrisp parentage.