

**Accompanying Questions to the Online Workshop:
“Cranberries and a Changing Climate”**

**by Charles Armstrong, Cranberry Professional
University of Maine Cooperative Extension**

Workshop posted at:

<https://extension.umaine.edu/cranberries/grower-services/workshops-and-meetings/>

Instructions: You can email the information being asked on this form, as well as your quiz answers (or *photos* of the completed papers) to Charles Armstrong at charles.armstrong@maine.edu or, alternatively, you can print out this completed page and your quiz answers, and mail to the Umaine Extension Diagnostic and Research Laboratory, c/o Charles Armstrong, 17 Godfrey Drive, Orono, ME 04473.

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Date: _____

- 1) Cranberry plants in the northeastern US that have experienced less than 1500 hours during the winter months below 45°F would be expected to have which of the following conditions:
 - a. False Blossom Disease
 - b. Red Leaf Spot
 - c. Umbrella Bloom
 - d. Upright Dieback
- 2) When the 'chilling requirement' of cranberries during the winter has not been achieved, one has the 'potential' to suffer a yield reduction that season of as much as:
 - a. 10% to 25%
 - b. 25% to 33%
 - c. 33% to 50%
 - d. 50% or more
- 3) Which of these overwintering insect life stages is generally the least vulnerable to cold temperatures and/or the duration of cold temperatures?
 - a. Egg stage
 - b. Larval stage
 - c. Pupal stage
 - d. Adult stage
- 4) **True or False:** All species of spanworm in the US northeast overwinter as eggs.
- 5) Which of these cranberry pests in the northeast should benefit more than any of the others listed here from milder and shorter winters, presumably?
 - a. Cranberry tipworm
 - b. Blunt-nosed leafhopper
 - c. Gypsy moth
 - d. Cranberry fruitworm
 - e. Cranberry weevil
- 6) **True or False:** By the year 2050, if Boston were to experience 20 additional days above 90°F compared to now, climate change experts would not be terribly surprised.
- 7) **True or False:** Warmer temperatures in September would aid in the darkening of the cranberry fruit (by increasing the level of anthocyanin in the berries).
- 8) **True or False:** Warmer temperatures in the late part of the summer, when berries are present, could increase the risk of berry scald.
- 9) **True or False:** Temperatures of 90°F and above during bloom can reduce the number of honeybees that are out pollinating.

- 10) Which of the following insecticides appears to be the safest to bees?
- Admire®
 - Altacor®
 - Actara®
 - Lorsban®
 - Delegate®
- 11) Which of these cranberry pests in the Northeast overwinters as an adult?
- Blunt-nosed leafhopper
 - Redheaded flea beetle
 - False armyworm
 - Humped green fruitworm
 - Cranberry blossomworm
- 12) Which of the following is **not** true about the False armyworm?
- There is only a single generation per year.
 - The eggs are laid in masses.
 - The caterpillars do not cause much cranberry injury until very late in the season.
 - The 'traditional' Action Threshold (AT) is 4.5 larvae per 25 sweeps.
 - Once the caterpillars get to be large in size (~1" long or longer), they will begin to feed primarily if not exclusively at night.
- 13) **True or False:** False armyworm caterpillars will not feed on the cranberry blossoms.
- 14) **True or False:** The 'Late Water' flood, at least in Massachusetts, is effective enough to adequately control false armyworm.
- 15) **True or False:** Cranberry weevil spends the winter as a pupa.
- 16) Which one of the following statements is **false**?
- Eggs of cranberry weevil are deposited into the unopened cranberry flowers.
 - A heavy infestation of cranberry weevil has the potential of destroying "much of the prospective crop" for that season.
 - Female cranberry weevils—after depositing an egg inside the flower bud—will then generally chew on the stem of the flower bud, either severing it completely or at least weakening it such that the flower bud falls off later on.
 - Cranberry weevils, when disturbed, are experts at 'playing dead,' making them difficult to find or see.
 - Flower buds that are damaged by cranberry weevil will usually go on to produce a cranberry in spite of the damage.
 - Flooding is believed to be ineffective at controlling cranberry weevil.

- 17) **True or False:** Belay® may only be used post-bloom when targeting cranberry weevil because of its high bee toxicity.
- 18) When are cranberry weevils most likely to be active and therefore more likely to be captured in one's sweepnet when monitoring for them?
- Early in the morning, when it's not so hot
 - Right around sunset
 - Most anytime that it's windy
 - From around noontime to 2:00 pm or so, on warm, sunny days
 - When it's dark outside (when they're the safest from predators)
- 19) Which one of the following statements is true?
- Cranberry fruit rot fungi thrive in dry and hot conditions.
 - Fruit rot infection actually occurs or begins during the blossom stage, so warm and rainy weather during this time is likely to favor the fruit rot infection process.
 - Getting less than 3.2" of total rainfall during the month of June awards 3 points to one's total score with regards to the Keeping Quality Forecast Model.
 - An increase of 12 to 13% in the *intensity* of a summer rainfall event would be good for cranberries, even if it occurred during bloom.
- 20) **True or False:** Under a "business as usual" scenario, with more precipitation coming in the form of rain versus snow, winter for most of the northeast is expected to see a 25 to 50% reduction in the length of the snow season by the end of this century.

Answer Sheet for:
“Cranberries and a Changing Climate”
University of Maine Cooperative Extension

YOUR NAME: _____

A score of at least 80% correct will earn you one pesticide credit towards your pesticide license.

For ‘true/false’ questions, please write the entire word rather than just “T” or “F” so there is no confusion over which answer you mean.

1) _____

11)_____

2) _____

12)_____

3) _____

13)_____

4) _____

14)_____

5) _____

15)_____

6) _____

16)_____

7) _____

17)_____

8) _____

18)_____

9) _____

19)_____

10)_____

20)_____