

UMass
Cranberry
Station

Research
& Extension



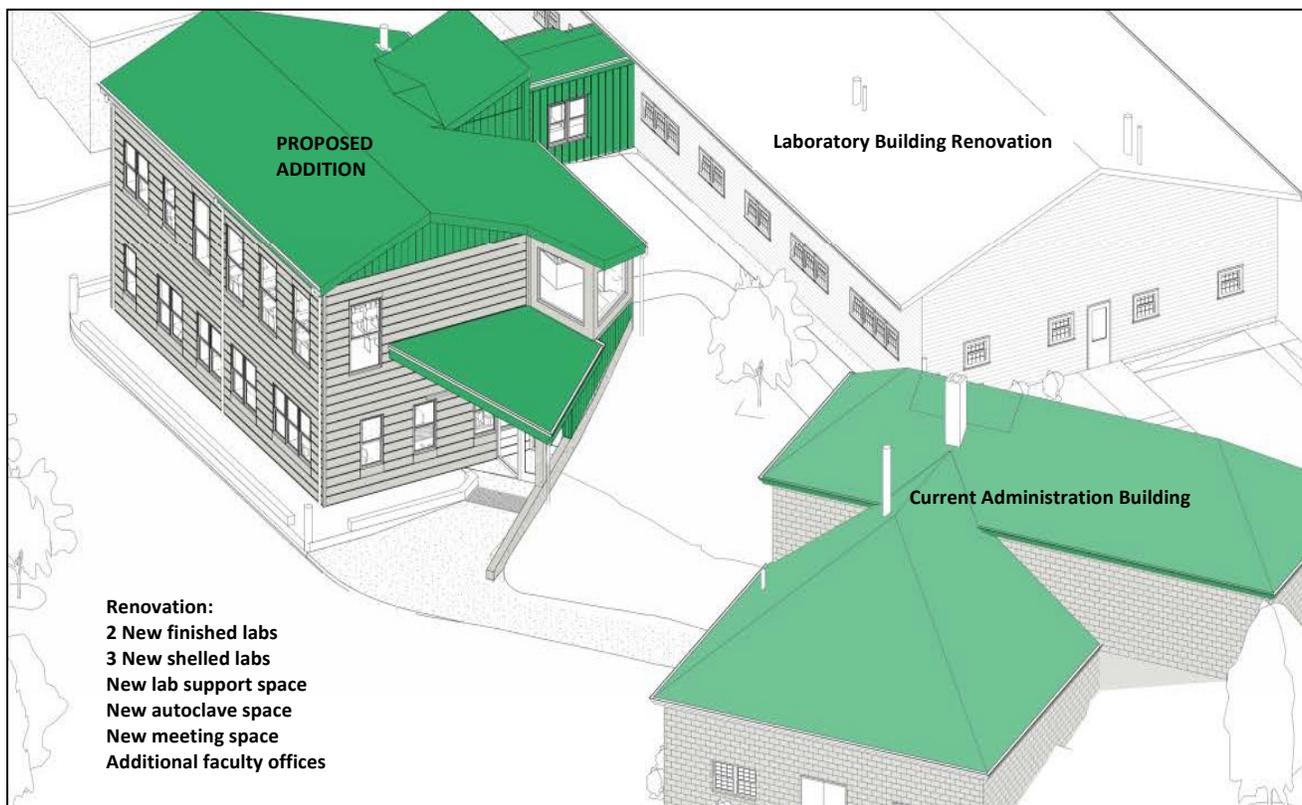
CRANBERRY STATION NEWSLETTER

September 17, 2020

1 State Bog Road
PO Box 569
East Wareham, MA 02538

508-295-2212
ag.umass.edu/cranberry
Vol. 21:6

UMass Amherst Cranberry Research Center to Receive \$5.75 Million to upgrade Laboratory



The University of Massachusetts Cranberry Station in East Wareham will receive \$5.75 million in new state support to fund Laboratory improvements to its facilities. Funding for renovations to the facility have also come from \$2 million committed by UMass Amherst in 2018.

“Cranberries are one of Massachusetts’ signature agricultural products, and this funding will support vital research that ensures the cranberry industry will remain a thriving and sustainable sector in the Commonwealth for generations to come,” said Gov. Charlie Baker in a statement.

“The research made possible through these important upgrades to the Cranberry Station’s lab capacity will provide significant benefits to this historic sector of Massachusetts’ agricultural economy,” said Lt. Gov. Karyn Polito. “As the cranberry industry continues to work to increase the sustainability of production while adjusting to a changing climate, this research will lead to important strategies for water conservation and pest control.”

The new funding, which includes \$5 million in capital spending authorized in the 2018 Environmental Bond Bill and a \$750,000 grant from the Division of Capital Asset Management and Maintenance (DCAMM), will be used by the Cranberry Station to modernize and expand its research facilities, improved the environmental profile of the facility, and provided the research tools needed to support vigorous research programs in cranberry, water, pest, and nutrient management.

The Cranberry Station is an outreach and research center charged with the mission of maintaining and enhancing the economic viability of the Massachusetts cranberry industry along with protection of the environment. The center works on issues related to cranberries such as weed management, plant nutrition and physiology, and integrated pest management (IPM) practices. The project will include renovation of existing laboratory space, the addition of two new finished laboratories and three future laboratories, the addition of a meeting space, and faculty offices.

UMass Amherst Chancellor Kumble R. Subbaswamy credited Sen. Michael Rodrigues (D-Westport) and Rep. Bill Straus (D-Mattapoissett) with spearheading the funding request with Baker’s administration. In 2016, the Massachusetts Cranberry Revitalization Task Force was created to assess the state of the industry, of which Massachusetts Sen. Rodrigues and Rep. Straus were members. The two legislators are also co-chairs of the Governor-appointed UMass Cranberry Station Oversight Board. They helped to identify innovation in crop production as one of its key recommendations for sustaining growers in southeastern Massachusetts. The task force specifically cited the need for funding infrastructure upgrades to the Cranberry Station, which has been a leader in cranberry research since 1910, to support research and outreach focused on the industry’s barriers to sustainability. The project is expected to break ground in the winter of 2020 with completion expected by the summer of 2022.

“As the flagship university of the Commonwealth, UMass Amherst is proud to play a pivotal research and development role in this essential agricultural industry, which harkens back to our roots as a land grant college,” said UMass Amherst Chancellor Kumble R. Subbaswamy. “We are excited that this work will continue and will thrive in a state-of-the-art facility for decades to come.”

For more information on research at the UMass Cranberry Station, click on the link: <https://ag.umass.edu/cranberry/research-extension>.

Managing Sun Scald on Large-Fruited Cultivars

Peter Jeranyama

'Classic' Scald: the New Jersey model. Temperature and sunlight, along with soil and air moisture can play a role in the development of heat scald. Scald is not caused by damage from water droplets left on the fruit following irrigation during daylight hours.

Scald Forecast Checklist for New Jersey

adapted from Croft (1992)

Meteorological Predictors:

- Dew points of 55°F or less during midday hours.
- High ambient air temperatures of 80°F or more (sheltered).
- Clear or scattered sky conditions.
- Recent development of high pressure moving in behind a low, often associated with a strong storm, that is pulling away to the north.

Contributing factors:

- Low moisture in the bog soil.
- Wind speed of more than 11 mph.
- No rainfall or irrigation in the past 48 hours.

Plant water loss is controlled by two major factors and these are (i) boundary layer resistance (weather factors) and (ii) leaf stomatal resistance (plant factors).

The boundary layer is the layer of undisturbed air next to the leaf surface through which water vapor must pass, after it exits the stomata, to reach the air. If the vapor exiting the stomata cannot readily mix with the air, evaporative cooling will not occur. The thickness of the boundary layer is determined by wind speed and leaf size. If the boundary layer is not impeding transpiration, the plant can cool itself, if water in the soil is adequate. However, if the boundary layer is thick, it will hamper water vapor movement from the leaf into the air. As a result, the plant becomes inefficient in cooling itself. Therefore, other mechanisms of cooling, such as in-day sprinkling, can be valuable.

Plant factors that affect water loss includes the behavior of the guard cells in regulating the stomatal openings. In general, it appears that stomatal control in cranberry adjusts poorly and is very erratic to changing light, temperature, and moisture conditions. As a result, cranberry has poor control over plant water loss and cooling by evaporation. Therefore, additional cooling from in-day sprinkling may be especially useful.

Typical conditions for high-temperature scald are sunny and still days with high humidity and air temperatures greater than 85°F. Such days are also associated with a thick boundary layer, decreasing the ability for the plant to cool the fruit. An 85°F air temperature translates to

approximately 105°F on the bog measured with an exposed frost monitoring temperature probe. Anecdotal evidence has shown that starting in-day sprinkling before 105°F based on an exposed sensor might be too soon. From a plant disease standpoint, keep in mind that most fungi prefer hot and humid environmental conditions. So, beware of setting your temperature threshold too low, especially in bogs that have not been sanded or pruned recently and may have a thick canopy. Otherwise, triggering cooling-off periods too frequently may result in the perfect conditions for fruit rot development.

When scald conditions, like high heat, high relative humidity, and still air occur, the plant canopy becomes important in providing shade to the growing fruit. Consequently, cultivars that produce large fruits or a heavy fruit load (newer hybrids) and beds with a thin canopy (new plantings) are at greater risk to scald in these conditions. We do not have any evidence showing that the small-fruited cultivars such as Early Black and Howes are prone to scald with the exception of 'classic' low humidity condition.

Some growers use pre-dawn irrigation in anticipation of a high heat day or raise the water in the ditches hoping that the plant's evaporative cooling will be adequate to protect the maturing fruit from sun scald. Although berries have stomata, they are few and are found only around the calyx of the fruit. This further justifies the need for brief intermittent sprinkling to help the cooling process.

NOTICE: ORAL RABIES VACCINE DISTRIBUTION

The Cape Cod & Southeast MA Rabies Task Force is set to begin their fall round of bait distribution on September 21st. However, there is a major change (in a good way) to the program. This fall they will be switching much of their bait distribution to helicopter! This will allow them to access areas not reachable by road, potentially increasing raccoon vaccination rates while reducing the number of baits that are found by people and their pets. They are trying to alert the public as much as possible that there will be a low-flying helicopter (red aircraft, at 500-ft) distributing baits the week of September 21 in portions of Bourne, Wareham, Plymouth, Carver, Kingston, Middleborough, Lakeville, Rochester, and Marion. In the past many of the bog properties were baited by vehicle - use of a helicopter will be far more efficient!

For more information on the Cape Cod & Southeast MA Vaccination Program please call: **508-476-2956**. You can also stop by your Town Board of Health or visit www.mass.gov/dph/rabies or www.barnstablecountyhealth.org/cape-cod-rabies-task-force, or find them on Facebook.

Cranberry Station News

- Although the Station is still currently closed to the public to reduce person-to-person exposure, **we are working remotely, and we are here for you.** Please email or call us!! You can find our individual contact information at: <https://ag.umass.edu/cranberry/faculty-staff> and you can reach any of us by phone by calling the Station **508-295-2212**:

Here is an extension list: Anne Averill x23

Casey Kennedy x22

Dawna Gauvin x12

Giverson Mupambi x24

Hilary Sandler x21

Katie Ghantous x47

Leela Uppala x18

Marty Sylvia x20

Peter Jeranyama x29

Rick Leibe x14

Robyn Hardy x10

- Looking for a workshop or meeting presentation? You can find all of our meeting presentations and recent workshops (via Zoom) on Scholarworks @ UMass Amherst by following this link: https://scholarworks.umass.edu/cranberry_extension/
- The Fall Frost Tolerances Fact Sheet (2019) is available on our website: <https://ag.umass.edu/cranberry>. If you would like one mailed to you, please contact Robyn Hardy 508-295-2212x 10 or rmhardy@umass.edu.
- The Station no longer has a post office box.** Please send all correspondence to:

UMass Cranberry Station
1 State Bog Road
East Wareham, MA 02358

Stay safe and good luck with your harvest,



Hilary A. Sandler, Station Director



**CRANBERRY STATION
NEWSLETTER**

Inside this issue:

- **Renovation funding
Announcement**
- **Managing Sun Scald**
- **Station News**

UMass Cranberry Station
1 State Bog Road
East Wareham, MA 02358
OFFICIAL BUSINESS