

## **Vermont Vegetable and Berry News April 9, 2008**

Compiled by Vern Grubinger, University of Vermont Extension  
(802) 257-7967 ext.13, [vernon.grubinger@uvm.edu](mailto:vernon.grubinger@uvm.edu)

[www.uvm.edu/vtvegandberry](http://www.uvm.edu/vtvegandberry)

### **UPCOMING FARM MEETINGS**

Details: [www.uvm.edu/vtvegandberry/meetings/meetlist.html](http://www.uvm.edu/vtvegandberry/meetings/meetlist.html)

April 16th, 4-7 pm. Organic Greenhouse Tomato Production.  
Old Athens Farm, Westminister VT. Info: UVM Extension 802-257-7967 x13

April 21<sup>st</sup>, 6:30-8:30 pm. Setting up Drip Irrigation and Growing Giant Pumpkins.  
Demers Garden Center, Manchester NH. Info: UNH Extension 603-641-6060

May 20<sup>th</sup>. Northern Vermont vegetable twilight meeting, location to be announced.

### **FROST PROTECTION IN STRAWBERRIES**

(adapted from Marvin Pritts, Dept. of Horticultural Sciences, Cornell University)

Strawberries often bloom before the last frost free date, and if a frost occurs during or just prior to bloom, significant losses can result. The strawberry flower opens toward the sky, and this configuration makes the flower particularly susceptible to frost damage from radiational cooling. A black (rather than yellow) flower center indicates that frost damage has occurred.

Strawberry growers occasionally delay the removal of straw mulch in spring to delay bloom and avoid frost. Research has demonstrated, however, that this practice also results in reduced yields. Also, applying straw between the rows just prior to bloom will insulate the soil from the air. This will increase the incidence of frost injury as solar radiation will not be absorbed by the soil and reradiated at night. If additional straw is to be applied between the rows in spring, delay its application for as long as possible before fruit set.

Overhead irrigation is frequently used for frost control because flowers must be kept wet during a freeze in order to provide protection. As long as liquid water is present on the flower, the temperature of the ice will remain at 32F because the transition from liquid to ice releases heat. Strawberry flowers are not injured until their temperature falls below 28F. This 4 degree margin allows the strawberry grower to completely cover a field with ice and yet receive no injury from frost. However, if insufficient water is applied to a field during a freeze event, more injury can occur than if no water was applied.

Several principles are responsible for the ability of ice to protect strawberry flowers from injury. First, although pure water freezes at 32F, the liquid in the strawberry plant is really a solution of sugar and salt. This depresses the freezing point to below 32F. The temperature of the applied water is usually greater than the temperature of the plants, so this serves to warm the flowers before heat is lost to the air. As long as liquid water is continually applied to the plants, the temperature under the ice will not fall below 32F. When one gallon of water freezes into ice, 1172 BTUs of heat are released.

Several factors affect the amount of water that is required to provide for frost protection, and the timing of application. At a minimum, apply water at 0.1 - 0.15 in/hr with a fast rotating head (1 cycle/min). Water must be applied continuously to be effective. A water source of 45 - 60 gal/min-acre is required to provide this amount of water. Choose nozzle sizes to deliver the amount of water required to provide protection under typical spring conditions in your location. Under windy conditions, heat is lost from the water at a faster rate, so more water is required to

your farm if you make contact. Farms are the first link to make this a successful program without your interest we would have nothing to work with. For more information contact Theresa Snow at the Vermont Foodbank 802-477-4114 or [tsnow@secondharvest.org](mailto:tsnow@secondharvest.org).

donor or food, to encourage donations to people in need. Theresa has the details.)

### **STILL TIME TO SEND IN YOUR CENSUS OF AGRICULTURE FORM**

Want funding for Extension, NRCS, and other agricultural service providers to remain strong in our region? One way to support that is to participate in the Census of Agriculture. Many allocations of federal dollars are based on the number of farms counted by the Census. The New