Late Summer Tunnel Tomato Fertility

Judson Reid, CCE Cornell Vegetable Program

High tunnel tomatoes experience higher nutritional demand than field tomatoes as they yield more and earlier during longer, warmer days. These conditions are stressful for the crop as fruit is maturing while more shoots and flowers are being produced. The result is often deficiencies in nitrogen, phosphorus and or potassium which leads to flower loss. This effect is more pronounced in high yielding determinate varieties and heirlooms than hybrid indeterminates.

Wholesale prices for tomatoes can see a late season rebound, particularly in wet years. So how do we prevent this late-season nutritional stall and increase our profitability? Soil testing is the first step, particularly to understand our season-long phosphorus and potassium needs. If our soil tests show greater than 20 lbs P/ac, we don’t need to add more. Our current estimated nitrogen budget for high tunnel tomatoes is around 150 lbs/ac. This can be delivered at a rate of 5-10 lbs N/ac/wk with a soluble source such as potassium nitrate (13-0-44). For organic nitrogen approaches see previous

High yielding high tunnel heirloom tomatoes are particularly susceptible to N, P and K deficiencies.

Photo: J. Reid, CVP
The amount of potassium needed is a little more difficult to predict than the other macronutrients. We know that the plant will uptake K at a ratio of 1:3 compared to nitrogen. An excellent source of K is sulfate of potash (0-0-52) for both conventional and organic growers. If it fits with other nutrient demands Sul-Po-Mag is a possibility (0-22-22(S)-11(Mg)). However, potassium uptake is often limited by excess soil magnesium, calcium, phosphorus or pH. This is where late season foliar tests are very important. We need to know how well the plant is taking-up potassium and then correct through drip-fertilization as needed. Remember, that as days shorten and nights cool, nitrogen demand will decrease significantly. In our research we have found that farmers commonly increased profitability by decreasing unnecessary amendments.

Potassium deficiency in the upper canopy. Foliar testing can alert us to deficiencies before visual symptoms present themselves. Thus, corrections can be made before yield loss occurs.

Photo: J. Reid, CVP

**Pumpkin Problems**

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The cool nights and heavy dews or rain has provided the perfect environment for many plant and fruit diseases. Despite it being only the middle of August, I have had several pumpkin problems turn up this week. Actually, along with the disease problems, early ripening also seems to be not uncommon. This could pose problems with trying to hold them through October.

The University of Massachusetts had a great article that included the two diseases of pumpkins we don’t regularly see. Except this year. I am seeing it quite often. They are Scab and Plectosporium. The cultural management options are listed below. From the chemical tool box, these diseases share Bravo and Dithane. As far as overlap with a disease like Powdery mildew, Plectosporium can be treated with Inspire or Bravo. Flint or Cabrio are also used for Plectosporium but not for Powdery mildew.


**Scab (Cladosporium cucumerinum):** Scab can affect all parts of cucurbit plants, but is most serious because of the disfiguring lesions that develop on fruit. The disease is favored by heavy fog, heavy dews, or light rains, and temperatures at or below 70F. The spores (conidia) are borne in

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