Weekly Update

Warm Weather Alerts: Early Season Berry Concerns, Garlic Fertility, and High Tunnel Sanitation

This weather is yet another curve ball thrown by Mother Nature. Below are some answers to questions that have come my way. Remember to look at your plants before doing anything. So many of our pest control chemicals are helpful if applied at the correct phenological stage, and if misapplied they can cause damage. We are 4-6 weeks ahead of the calendar. Additionally, remember that the soil is very dry for this time of year, and the plants may be stressed, so use caution when applying herbicides. Do not alter your fertility program in regards to timing and/or nutrients applied. If your question is not addressed, please call.

Strawberries: Remove mulch now.
The temperatures have simply been too high for too long to hold those plants back any longer. They are respiring under the straw and should probably have had the mulch pulled back a week ago, depending upon your location. I doubt that any plants are still dormant, so do not consider a dormant plant application of Chateau. You should consider applying Poast or Select when the perennial grasses reach 6-8”. Stinger should go on before bud set in order to control dandelions and thistle. Gramaxone Inteon can be applied using a shielded sprayer between the rows as can Firestorm, Aim EC, and Chateau, but none of these should be applied after fruit set including Prowl H2O which can be banded between the rows but needs to be watered in. Some of these materials will not work well if the straw mulch in the alleys is preventing soil contact.

I’m concerned about two-spotted spider mites as they love this kind of weather. You should be scouting for them and keeping an eye on flower bud development. Typically you would spray for mites when you see 5 mites/leaf on at least 15 of 60 leaves sampled. Organic JMS Stylet Oil is the only organic product available but other effective materials are Brigade, Portal, Acramite and others. Please be aware that many of these materials may cause burn if applied in these super warm conditions - read labels carefully. Bud weevil or clipper is another pest that should be controlled early in the season – typically when temperatures approach 65 degrees F. As fruit buds develop, start looking for 1 cut bud (primary or secondary buds only) per linear foot. Molt-X, Lorsban, Brigade and Danitol are labeled.

Blueberries:
If you haven’t finished pruning, don’t worry about it. Move on to pest control issues that may be more important and have a very small window. You can do minor pruning later in the season. Don’t start fertilizing until late April at the earliest. The plants don’t need to be pushed any faster than they are!

Many herbicides are appropriate for dormant applications, but that is no longer an option. Other herbicides should not be applied after the onset of bloom including Chateau and Callisto. Again, read the label as this spring is very different than other years.

Most locations are beyond a dormant spray for botrytis, canker or scale. If you missed
Spring garlic—it’s time to fertilize

The warm (hot) weather we have seen is pushing soil temperatures up and really moving the garlic along. We are well over a month ahead of last year. This means that fertilizing needs to start significantly earlier as well. Your first application of nitrogen should occur shortly after plant emergence, and certainly by the time plants are six inches tall. Rates and additional application timing is included in the table below. Ideally, before planting, you used a soil test to amend your phosphorus and potassium levels. Even if you didn’t, the nitrogen recommendations provided are still accurate. Remember to adjust for leguminous cover crops, which supply some slower-released nitrogen.

<table>
<thead>
<tr>
<th>Soil Test Results</th>
<th>Nitrogen (N) Lbs/A</th>
<th>Phosphorus (P2O5) Lbs/A</th>
<th>Potassium (K2O) Lbs/A</th>
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<tbody>
<tr>
<td>Incorporate at planting</td>
<td>0</td>
<td>200</td>
<td>150</td>
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<tr>
<td>Sidedress before emergence-6”</td>
<td>25-50</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sidedress 2-3 times, 3-4 weeks apart</td>
<td>25-50 divided among sidedress-ings</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>50-100</td>
<td>200</td>
<td>150</td>
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Source: Cornell Recommendations for garlic, used by Agro-One Soil Lab. Based on use of a Morgan extract.

Sprout weed control recommendations for garlic

If you are considering using herbicides for weed control in your garlic, now is also the time to order your products and get ready to spray. Many products should not be put on too early, but we are quickly approaching being past the lower size limits for the garlic. If the soil continues to warm up as fast as it has been, we may see weeds germinating very early, which will close the window for products like Prowl and Outlook. However, if the weather goes back to normal these weeds might not germinate for a month! Weed control is a bit of a guessing game right now.

Many growers are asking if they should take their straw mulch off now. There are pros and cons either way. If you take it off because it will get tangled in your equipment later, now is a good time because the garlic is growing fast enough that it will only get harder to remove it. However, if you are thinking about leaving the mulch on until harvest this might be a good year to do so. The ground is drying pretty fast in many areas, and the mulch will help prevent that, which will reduce the stress on the garlic. The mulch will also help reduce weed seed germination. –CLS
it you are in good company. If you have scale, try to prune it out, but for the other problems let’s try to get a green tip spray on. **Botrytis** is not an issue in this weather, but if it turns cool and rainy consider Serenade Max, Oxidate or Actinovate AG for organic control, and Capta or CaptEvate. For **Phomopsis canker** control use Abound, Indar or Cabrio at green tip. Do not allow Abound to drift near apple trees. For plantings that had **mummyberry**, ¼” green tip is when you should apply your first spray. Try Indar 2F alternating with Pristine on a 8-14 day interval. Many of these fungicides have limits on number of applications and total amount for a season, and as we are starting so early this year, make sure you know those limits. Organic control products for mummyberry include Serenade Max and Actinovate AG.

**Brambles**

If your planting has a history of canker diseases, applications of lime sulfur or copper are in order.

**Using sprinklers to protect strawberry plants from spring freezes**

*By Mark Longstroth, Michigan State University Extension.* Many Michigan blueberry and strawberry growers use sprinkler systems to protect their crops spring freezes. The system is also used by some apple and grape growers. Sprinklers are very effective under certain circumstances, but can actually increase injury if used at the wrong time. Sprinklers used for irrigation do not protect below 23-24°F. If the system fails due to cold or wind, the blueberries will get much colder than in areas where you are not sprinkling.

When you use sprinklers to prevent freezing injury, you are using the energy that water releases when it freezes, and changes from a liquid to a solid, to keep the temperature in the ice right at the freezing point – 32°F. As long as you keep the ice wet, the ice temperature will stay at 32°F. If the ice dries out and water starts to evaporate from the ice, the ice will get colder than the air temperature as it evaporates.

**Protection with sprinklers**

If you understand that you need to keep the ice wet, and when your system will fail to keep the ice wet, you will understand how to use your sprinklers to prevent freeze injury. The freeze protection from sprinkler systems is limited by the irrigation rate. Most sprinkler systems in Michigan are designed to provide about 0.12 to 0.15 inches of water per hour. This volume protects plants to about 22°F with no wind or 24 to 25°F with a light wind. More water is needed to protect at lower temperatures and higher wind speeds (see Table 1).

Most irrigation systems cannot easily be changed to deliver more water and protect to lower temperatures. Increasing the operating pressure is not advisable because the volume is not increased substantially (you need to increase the pressure four times to double the output). Higher pressure can break lines and reduces the uniformity of application. Larger nozzles can be installed in some systems, but only if the capacity of the system, mainlines, well and pump can handle the added volume. For example, 9/64-inch nozzles that deliver 0.12 inches water per hour require 60 gallons per minute per acre of blueberries. Switching to

Remember these applications need to be on BEFORE the buds reach ½ inch green. Thorough coverage of the canes is important for effective control. This application is typically not needed for fall bearing raspberries, as long as canes are removed from the planting or shredded after mowing. If you’re already at ½” green or beyond, then choose a material that will not be as phytotoxic like Abound, Cabrio or Pristine. All of these fungicides are excellent for control of anthracnose and spur blight but do not help with cane blight. For early prebloom control of Anthracnose and spur blight on raspberries, use CaptEvate and to control anthracnose and/or cane blight on blackberries or raspberries use lime sulfur. Be careful of the material you choose as Sulfurix is labeled for both raspberries and blackberries, but Miller’s Lime Sulfur is only labeled for blackberries. *-LGM*

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**Table 1. Irrigation rate (inches/hour) needed to protect fruit buds under different wind and temperature conditions (U of Florida Ext. Circ. 287)**

<table>
<thead>
<tr>
<th>Temp (°F)</th>
<th>Wind speed (mph)</th>
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<tr>
<td></td>
<td>0-1</td>
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<tr>
<td>27</td>
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<tr>
<td>26</td>
<td>0.10</td>
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<tr>
<td>22</td>
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<tr>
<td>20</td>
<td>0.16</td>
</tr>
<tr>
<td>18</td>
<td>0.20</td>
</tr>
<tr>
<td>15</td>
<td>0.26</td>
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5/32-inch nozzles would deliver 0.15 inches per hour but requires 68 gallons per minute per acre. Irrigation systems are not designed to apply enough volume to protect from temperatures in the low 20s and teens.

**Critical temperatures**

Growers should only use sprinklers to protect a crop from freezing, when the temperature range for protecting the crop is relatively narrow, from 24 to 32°F. This narrow temperature range is the range that we can protect. If the temperature gets a little colder than predicted, we could cause more damage than if we had not turned on the system. Once we turn on the system, we need to keep it on until the temperatures are above freezing or you will cause a lot of damage as the temperature of the ice goes down colder than outside the irrigated area.

It is because of this narrow margin of error that I recommend that growers only try to protect when the temperature range that will cause damage is well inside the range that we can protect to with an irrigation system.

Do not use sprinklers if you think they might not work. If it gets colder than you can protect, you will cause more damage, not reduce damage. I would not turn on the system if the temperature were forecast to fall below 24°F. If windy conditions (more than 10 mph) were forecast, I would not turn on the system at all.

**When to turn on the system**

Once you decide you are going to turn on the system, you need to decide when to turn it on. At the beginning of the irrigation cycle, the air temperature will fall in the field. This is because the water is evaporating (absorbing heat from the air) and cooling the air. The dryer the air, the greater the temperature fall when you start to irrigate. How dry the air is dictates when you turn the system on. This can be calculated from the dew point, which is measured with a wet bulb thermometer or a sling psychrometer.

Once you start the system, it is necessary to keep it running until the ice starts to melt on its own. If your system fails and the ice dries out, evaporation from the ice will be an effective refrigeration system that can significantly reduce your crop. As long as water drips from the ice the system is working. If the ice is clear, this indicates the system is working properly and the water is freezing uniformly.

**When can I stop irrigating?**

Generally, you will need to irrigate until after the sun comes up and begins to warm the ground. Stop irrigating when the ice is melting and temperatures are above freezing and rising. Ice breaking free from branches indicates water is forming under the ice and it is likely safe to quit. Normally this is when temperatures are above freezing and rising. Beware of sudden dips in the temperature soon after sunrise.

Looking for more information on berries? The NY Berry News is publishing an expanded edition. Find that information here:  [http://www.fruit.cornell.edu/nybn/](http://www.fruit.cornell.edu/nybn/)

**Early Season Berry Field Meetings: Understanding Berry Fertility and Pest Issues for the Growing Season**

March 28, 2012, 2:00 pm – 4:00 pm, Green Lake Berries, 359 Ross Ruland Road, South Cairo, NY 12482 and March 29, 2012, 10:00 am – 12:00 pm, Hand Melon Farm, 533 Wilbur Ave., Greenwich, NY 12834.

Additional topics will vary according to location. Green Lake Berry location will feature a discussion about berry crop site establishment, and bird exclusion using the Smart Net system will be discussed at Hand Melon Farm. Presented by the Capital District Vegetable and Small Fruit Program and supported by the Northeast SARE Program. Free for CDVSFP enrollees, $10.00 for non-enrollees. For more information contact Laura McDermott or to register contact Marcie Vohnoutka at (518) 272-4210 or mmp74 @cornell.edu. Please register so that we can get an accurate count!
Many of you have not had an outbreak of Bacterial Canker, Speck or Spot on your farms and hopefully you never will. Those of you that have been battling these bacterial pathogens know how devastating they can be if the right conditions persist during the growing season. It is difficult to tell prior to setting out your plants if you might have a problem. You could have one tomato that is infected out of a thousand in the greenhouse which can spread the bacteria very quickly. Sanitation is one of our best management practices that we can do. If you are reusing the plastic tray inserts and bottoms, they also need to be sanitized before seeding or repotting tomato plants into them. So often I have seen inserts and bottoms not cleaned prior to reusing them for tomatoes and have seen problems with bacterial pathogens.

Sanitation of the greenhouse is also important, not only from a bacterial infection, but many of the other diseases that can affect our small seedlings including damping off diseases. If you have had to purchase plants from other growers in the past because you either didn’t have enough plants or you lost them to frost or something it is very important that you sanitize the greenhouse where your tomatoes are going to be. I have seen contaminated transplants brought in from outside sources that have caused a lot of problems. For both trays and greenhouse benches, Clorox or other household chlorine bleach (5.25% sodium hypochlorite) can be used. Green-Shield (quaternary ammonium chloride salt) or ZeroTol (hydrogen peroxide) can be used. Green-Shield is recommended at 1 tablespoon per gallon of water. The other interesting fact about Green-Shield is that 1 gallon of Green-Shield is equal to 28 gallons of Clorox. Please refer to the label for recommended rates.

For Clorox, a typical drench solution is 0.5% or 1 part bleach to 9 parts water. **However, the key to any of these products working most efficiently is to make sure that you get rid of any plant or soil debris on the benches, inserts or bottoms!** Organic matter binds very tightly to the bleach molecules and renders them useless. Therefore, it is important to sweep or rinse benches, flats etc. with clean water prior to sanitizing.

The same holds true for our tomato stakes to. It is important to remove as much of the organic matter possible before we sanitize them. There are lots of ways to do this but I think the most effective is to use a power washer or a hose and scrub brush. Yes, it is time consuming, but well worth it otherwise the rest of the sanitation could be worthless! See the rest of the article below for more directions on disinfecting tomato stakes from Cornell Vegetable Pathologist Meg McGrath.- CB

**Disinfecting Used Tomato Stakes:** Wooden stakes are a place where the bacterial pathogens that plague tomatoes can survive between crops. In fact, stakes from a tomato planting where research was conducted on bacterial diseases have been used as a source of the pathogen for subsequent experiments! Therefore, it is prudent for growers to disinfect stakes that were in a field where a bacterial disease occurred last year. This step is worthwhile even if there is uncertainty about occurrence considering how difficult bacterial diseases are to manage. There are three bacterial diseases of concern on tomato: speck, spot and canker. Bacterial canker is sufficiently destructive that discarding stakes is recommended after an outbreak. Before the field season is in full swing often presents an opportunity to find time for disinfecting stakes.

Step one in disinfecting anything is removing as much dirt and debris as possible because this can protect pathogens and de-activate disinfectant. Therefore start by hosing down used tomato stakes.

Clorox or other household chlorine bleach (5.25% sodium hypochlorite) is commonly used as an agricultural disinfectant, but it is not the best choice. Use bleach at a rate of 0.5% (= 1 part bleach + 9 parts water). And use in a well ventilated area. **Soak stakes for 30 minutes.**

While bleach is highly effective, it is short-lived after mixing in water, with a half-life of only 2 hours, and it is especially prone to being inactivated by organic matter, thus pre-cleaning is critical. A disinfectant containing quaternary ammonium chloride salts like Green-Shield is more stable than bleach after diluting with water. Use at 1 Tablespoon (= 0.5 fl oz) of Green-Shield in 1 gallon water. While this disinfecting solution will be more stable than bleach, it should not be used more than 24 hours after preparation. **The other key is that you still need to soak stakes for at least 10 minutes.**
Asparagus Weed Control Options

The warm weather has many of us scrambling to make sure we stay ahead of some of our crops such as asparagus. The window for pre-emergent weed control is going to be short to say the least. This is not a complete list, but more of the effective materials. There are also several post-emergent grass control materials that are labeled for asparagus that are not mentioned below. Please consult the labels for rates.

**Dual Magnum (pre spear emergence)** - annual grasses, yellow nutsedge, hairy galinsoga, suppression of other broadleaf weeds. A single application may be made to dormant, established beds in the spring prior to crop emergence. Choose rates based upon soil type. Because this label is a New York State’s multi-crop 24(c) Special Local Need (SLN) supplemental label, you must acquire an indemnification from Syngenta in order to use this product. Syngenta has created a new means of acquiring this indemnification - The required product label and indemnification can only be obtained through the “special labels” link found at [www.farmassist.com](http://www.farmassist.com) and must be obtained by the ‘end-user’. If difficulties are encountered in using the website call the Syngenta Customer Resource Center at 866-796-4368. Be sure to use the Dual Magnum formulation as that is the product that is labeled for asparagus (do not use Dual II Magnum).

**Clarity 2.5 EC (pre and post spear emergence)** - sowthistle, mustard spp., redroot pigweed, Russian thistle, common chickweed, field bindweed. Apply Clarity to emerged and actively growing weeds immediately after cutting the field but 24 hr before the next cutting. Multiple applications may be made per season but may not exceed a maximum of 16 fl oz per acre per year. If spray contacts emerged spears, twisting may result. Label recommends 40 – 60 gallons of water/acre be used.

**Prowl H2O (pre-spear emergence)**. Application must be made prior to spear emergence or remove emerged spears prior to making the application, however there is a 14 day PHI. Do not apply post emergent or injury will likely occur. Do not apply more than 2.4 pints if grown on sandy soils.

**Lorox 50DF (pre and post)** Broadleaves and grasses. **Lorox may be applied preemergence (minimum of 15 gallons/acre)** and post emergence **(minimum of 25 gallons/acre)** on newly planted crowns or established beds. See label for recommended use of activated carbon with applications to new crowns. Three applications of 1-4 lbs can be made annually with a maximum use of 4 lb/yr.

**Sandea (pre and post)** - **Pre-emergence applications**: galinsoga, lamb-squares, mustard/radish species, redroot pigweed, ragweed, velvet-leaf. **Post-emergence applications**: yellow nutsedge, galinsoga, redroot pigweed, mustard/radish species, ragweed, velvetleaf. Apply post emergence to established beds. May be applied during harvest season (1 day PHI) May be applied at the end of the harvest season but it is recommended to use a non-ionic surfactant or COC with drop nozzles to maximize coverage of weeds while minimizing fern contact and injury to the asparagus. Do not exceed 2 oz/A/season.

**Callisto (pre spear and post harvest)** - annual broadleaf weeds. Callisto controls largely broadleaf weeds and has soil residual as well as postemergence activity on sensitive species. Use 3.0 fl. oz. for postemergence control and 6.0-7.7 fl. oz. for preemergence control. **May be applied twice per season but may not exceed a total of 7.7 fl. oz, so be sure to take into account any pre-emergence applications.** See the label for adjuvant instructions.

**Chateau WDG (pre spear and post harvest)** — annual broadleaf weeds Chateau SW should be applied at least 2 weeks prior to spear emergence or to dormant asparagus after harvest. There is the possibility of injury if Chateau is applied less than two weeks before spear emergence. Chateau may be used for residual weed control as well as to assist in postemergence burndown of some annual and perennial weeds in dormant asparagus. To control weeds postemergence use 0.25% v/v non-ionic surfactant and a spray grade nitrogen source.

**Karmex DF (pre spear and post harvest)** - annual broadleaves and grasses. **For use on established beds.** Apply early spring before spear emergence. Repeat after harvest if annual weeds persist. Since Karmex is not active on emerged weeds, they must be killed by tillage before or after application. Do not exceed 3 lb per season. Moisture after application will improve control. Switch from Karmex to Lorox the last 2 years a field is in production to reduce herbicide carryover and increase follow crop options.—CDB