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Ohio State University Extension Vegetable Crops

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#### Early Sweet Corn and The Cold

The record low temperatures have played havoc with early sweet corn from NJ to southern IL. The delightful mid April weather enticed many into the field in order to avoid the extremely wet and cold conditions experienced in May and June during the three previous springs. In OH, some early sweet corn fields got frosted out as well as some early planted field corn. Along the OH river, several plantings had severe yellowing but made it OK and will return to normal with good weather. Some bare ground corn in the 2 leaf stage escaped 27 degree temperatures with just some burnt leaf edges. More mature plastic corn got fried but in several cases it is still alive and will recover. Other plastic corn, with water for frost protection, had burn leaf edges and turned extremely yellow but should return to normal rapidly with warmer temperatures. Se corn, planted around Apr, 20, the beginning of the cold spell, is taking anywhere from 2-3 weeks for emergence. In several cases, the seed seems to be OK but there are some locations where the seed has rotted. Soil temperatures in South Charleston, OH went from 67 degrees down to 50-52 degrees in as little as 4 or 5 days in late April.

Growers should remember that sweet corn is safe from a complete kill by frost until the 5th or sixth leaf stage. It is at this stage when the growing point is at or above ground level and is susceptible to a killing frost.

Now that sh2 planting season is here, there is an excellent warning tag that some seed companies staple to their seed bags. It says, Plant sh2 varieties in soil that will maintain 65 degrees or higher to help assure adequate germination. This advice correlates well with 3 years of thermogradient table test results on the germination ability of high eating quality sh2 varieties.

Below is an excellent article on sweet corn and cold weather from the NJ Plant and Pest Advisory Newsletter

State of the Union in the Sweet Corn Fields by Raymond J. Samulis, Burlington County Agricultural Agent, Rutgers Cooperative Extension. From: Plant and Pest Advisory, May 11, 2005

This year, as in most years, weather conditions have been less than cooperative for early sweet corn growth. Some fields that are planted under plastic mulch are growing fairly well, although they exhibit some leaf burn and wind damage.

Fortunately, despite the unseasonably cold weather, the growing point of sweet corn is still below the soil line and somewhat protected. Sweet corn does have the ability to survive cold weather as was evidenced in some of my field plots about 15

years ago. After a 1 to 2 inch snow, the emerged plants not only survived, they went on to produce a crop. The problem for the most part is that although growth of the plants was slow to nonexistent for 2 to 3 weeks, the actual days to maturity remains the same. This resulted in shorter plants with smaller ears because the biological clock of the plant was still ticking, and slow growth days are still calculated into the estimated days to harvest. Fortunately, some varieties like Ice Queen and Sweet Ice to name a few, can grow under less than ideal conditions particularly when soil temperature hover around 50 to 55 degrees F.

Slower growth also creates other issues besides simply smaller ears and stalks. Weakened plants are definitely more susceptible to seedling diseases such as Fusarium, and although currently there are some very effective fungicides applied by the seed companies, under severe disease conditions they are never 100% effective. I think this scenario was evident last season in the case of phytophthora on pumpkins and tomatoes.

Slower growth predisposes the emerging seedling to particular insects like seed corn maggot and wireworms. Many fields I look at have skips that are often written off. Early season sweet corn under clear plastic as a planter problem or poor seed quality when the real cause is insects below ground. Problems are even more exaggerated for newer, super sweet varieties because the seedling strength is weaker due to the limited food reserves in the shriveled seed.

Two other problem areas I often see are low soil pH and not using the proper ratio fertilizers. Some growers have used a calendar basis for applying lime.

Unfortunately, this is not adequate because of the use of acidifying fertilizers and the natural weather related drop in pH. Fields that test in the mid 5s or below will never realize their full yield potentials regardless of how much nitrogen is added.

Remember that pH and the addition of lime is the overall regulator of nutrient availability in the soil. Soil tests are needed to evaluate the need for additional phosphorous after banded fertilizer at planting. Many soil tests show high P levels and thus require only marginal or no additions of phosphorous. The contrary is true with potassium or potash. The sandy nature of our soils can result in medium to low potassium, and thus, the usage of standard 1-1-1 ratio fertilizers do not address this shortage. Soil testing is the only way to determine the need for both of these elements.

Despite the trials and tribulations of insects, diseases, soil fertility and the weather, I still expect to see good sweet corn supplies due to the diligence and dedication of growers throughout New Jersey.

#### Growers Guide to Understanding the DMI or SBI Fungicides

Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology, Rutgers Cooperative Extension, From Plant and Pest Advisory, May 11, 2005

The DMI (DeMethylation Inhibitors) or Sterol Biosynthesis Inhibiting (SBIs) fungicides belong to FRAC group 3 which include the triazoles and imidazoles. Some of these fungicides are commonly known as Tilt (propiconazole), Nova (myclobutanil) and Procure (triflumizole). SBIs work by inhibiting the biosynthesis of ergosterol which is a major component of the plasma membrane of certain fungi and needed for

fungal growth.

Resistance by fungi to the SBI fungicides has been characterized and is generally known to be controlled by the accumulation of several independent mutations, or what is known as continuous selection or shifting, in the fungus. Such that in any given field population the sensitivity to the SBI fungicide by the fungus may range from extremely high (highly sensitive, i.e. will be controlled by fungicide) to moderate (partially sensitive) or low (mostly resistant to fungicide). This type of resistance is also known as quantitative resistance. With quantitative resistance there are different levels of resistance to the fungicide due to independent mutations, which is unlike the target mutations that occur in qualitative resistance associated with the QoI fungicides (Group 11) (Plant & Pest Advisory 5/4/05). Because different levels of resistance to the SBI fungicide may exist in the field, the fungal population may behave differently to different rates of the SBI fungicide being applied. Hence, it is suggested that using a higher rate of a SBI fungicide may improve control when lower rates have failed.

For example, let's say that a Powdery mildew population on pumpkin has 25% high, 50% moderate, and 25% low sensitivity to a SBI fungicide. If fungicide is applied at the low rate, only 25% of the population (highly sensitive) may be controlled.

Whereas, if the high rate was used, 75% of population may have been controlled.

The main point here is that if low rates of SBI fungicides have been used and control seems to be weakening, bumping to a higher rate may improve control.

Unfortunately, it is difficult to determine what proportion of the powdery mildew population is sensitive or not sensitive by looking at the field until you have begun spraying. The best advice, if you are using low rates and think those rates are not working like you feel they should, move up to the high rate the next time the fungicide is sprayed, and if the high rate doesn't work it may be safe to assume the fungal population has grown mostly resistant. Importantly, if the high rate fails, whether you bumped up to a high rate or started with one, and control does not seem adequate do not continue to use the fungicide. Recognizing if and when fungicide chemistries are failing and when fungicide resistance is developing is critical to producing successful crops and why scouting on a regular basis, at least before and after each fungicide application, is important. Regular scouting can help reduce unwarranted and ineffective fungicide costs. Remember to always tank mix SBI fungicides with protectant (M) fungicides (i.e. chlorothalonil) to help reduce the chances for fungicide resistance developing and never apply SBI fungicides in consecutive applications and always be aware of the fungicide rates you are applying.

Crop Reports South east Ohio, Hal Kneen

Fog from the Ohio river protected most plantings from frost over the past two weeks. The record low temperatures resulted in very yellow sweet corn and other crops barely growing. Finally, great growing weather for sweet corn and tomatoes finally arrived in Meigs County. Sunny, warmer temperatures, highs in mid- eighties and night temperatures between 50-60 degrees F. No rain, so farmers are irrigating and fertilizing tomato fields. First planting of tomatoes completed. Planting peppers, sweet corn and some vine crops. Tomatoes are starting to grow and bloom in older

field plantings. Have not seen much insect activity on vegetable plantings. Normally see Colorado potato beetle activity on tomatoes by this time of year.

SOUTHERN OHIO Brad Bergesford

Plasticulture Strawberry harvest has begun on early maturing varieties such as Sweet Charlie, Bish and Chandler. Planting of summer squash, cucumbers and peppers has begun. Sweet Corn that was 4 to 5 inches tall was damaged by the low temperatures of last week, 28 degrees on Tuesday May 3. Some growers lost early planted melons, cucumbers, and tomatoes to the freeze and frost of last week.

Planting of all vegetable crops continues strong. Plastic has been removed from early planted plastic corn due to high temps under the plastic. First clusters of High tunnel tomatoes are the size of tennis balls and harvest will begin in about 2 weeks. Soil crusting is leading to slow emergence of April 10-22 planted sweet corn and green beans. Cucumber beetles have come in heavy around the Cincinnati area on transplanted summer and winter squash. Growers are harvesting early lettuce, radishes and green onions for sale at Farmers Markets. Seeding of melons, tomato, pepper, watermelon continues in the greenhouse.