## Sweet Corn IPM Workshop

**Thursday afternoon 1:00 pm**

**Where:** Grand Gallery (lower level) Room A-B

**Recertification credits:** 1 (1B, PRIV CORE)  
CCA Credits: PM(0.5) CM(1.5)

**Moderator:** Jim Jasinski, The Ohio State Univ. Extension

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00 p.m.</td>
<td>Sweet Corn Genetics: History, Current and Future</td>
<td>Derrill Kregel, Rispens Seeds, Inc., Beecher, IL</td>
</tr>
<tr>
<td>1:20 p.m.</td>
<td>Sweet Corn Quality Management Preplanting to Delivery (or Keeping Customers Happy)</td>
<td>Matt Kleinhenz, Horticulture &amp; Crop Science Dept., The Ohio State Univ.</td>
</tr>
<tr>
<td>1:50 p.m.</td>
<td>Variety Performance 2008</td>
<td>Liz Maynard, Northwest Commercial Hort Program, Purdue Univ.</td>
</tr>
<tr>
<td>2:20 p.m.</td>
<td>Weed Control and Herbicide Injury</td>
<td>Mark Van Gessel, Plant Science Dept., Univ. of Delaware</td>
</tr>
<tr>
<td>2:50 p.m.</td>
<td>Nutrient Management, Plasticulture, Seed Treatment</td>
<td>Stephen Reiners, Horticultural Science Dept., Cornell Univ.</td>
</tr>
</tbody>
</table>
Sweet Corn Quality Management
Preplanting to Delivery

Matt Kleinhenz
Extension Vegetable Specialist

Plants can thrive when conditions suit their genetics.

sweet corn needs
breeder's job

growing conditions
grower's job

Sweet corn was our family's weakness. We were prepared to resist atheistic communism, immoral Hollywood, hard liquor, gambling and dancing, smoking, fornication, but if Satan had come around with sweet corn we at least would have listened to what he had to sell.

-- Garrison Keillor in Leaving Home

Corn Genetics
• corn classified by storage carbohydrates (sugar, starch) in kernel
Sweet Corn Genetics
• "sweet" based on three major platforms …
  … su long-standing, naturally-occurring changes
  … se recent, created change

Sweet Corn Genetics
• newest varieties …
  … combine two or more major platforms
  … blur traditional distinctions
  … compromise grower, eater traits
  … can require more preparation

Sweet Corn Markets and Sectors
Processing    Fresh

image courtesy mealsinthemaking.com
image courtesy loudounextra.com
The Perfect Ear
From an Average Consumer’s Standpoint

In most U.S. markets, consumers of fresh market sweet corn prefer an 8-9 inch ear with a dark green husk, long and dark green flag leaf, and 16 straight rows of small, deep, and sweet kernels filled to the tip of the ear.


How Buyers Rate Quality
• way it looks
  initial purchase
• way it eats
  repeat purchase

Fresh Market Sweet Corn
Buyer Rating … Before Purchase
• husk and flag leaf color and length
• tip fill
• row number and configuration
  • ear uniformity
  • silk color

(Fresh Market) Sweet Corn
Buyer Rating … After Purchase/Eating
✓ flavor
✓ texture
✓ aroma
Shown in order of importance. Components known.

Sweet Corn Eating Quality
Components of Flavor

Sweetness!
  dominant component

Based primarily on levels of sucrose.

How do your growing, handling practices affect the quality of your crop as buyers rate it?
**Major Sweet Corn Production Steps**
- prepare land
- cultivate
- irrigate
- harvest
- deliver-ship
- plant
- spray
- fertilize
- pack
- market

*others: install plastic, thin*

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**Managing Sweet Corn Crop Quality**

**Genotype Isolation**
- time ... days to flower (tassel-silk)
- space ... separate from
  - A. *se* ... field corn
  - B. *sh2* ... field and other types of sweet corn
  - C. new "mixed" endosperm ... variable, consult seed dealer

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**Managing Sweet Corn Crop Quality**

**Variety Selection and Management**
... see Liz M., Derrill K., seed company people, other farmers, extension reports and other sources of information!

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**Mixed Plantings of Sweet Corn of Varying Endosperm Genetics**

*image courtesy L. Maynard, Purdue Univ.*
Managing Sweet Corn Crop Quality

Seed and Sowing

Special care with seed placement, seedling protection may be needed.

Weed Control

Sweet Corn Weed Control Programs

- soil type
- rotation
- sweet corn variety
- weeds present
- season

courtesy B. Zandstra, MSU
Sweet Corn Weed Control Programs

- **sweet corn variety**
  ... differ in herbicide tolerance, especially among sh2-type varieties
  ... sulfonylurea materials problematic
  ... sensitive hybrids sometimes on label
  ... new materials possibly more challenging to use
  ... growers to accept responsibility

Univ. Wisconsin Integrated Pest and Crop Management
http://ipcm.wisc.edu/

Managing Sweet Corn Crop Quality Fertilizer Program

- fertilizer (makeup, analysis)
- rate
- timing
- placement
  market, variety, irrigation, soil type, rotation

![Image of corn field](image courtesy D. Doohan, The OSU)

![Image of field analysis](image courtesy Univ. FL)
Managing Sweet Corn Crop Quality

Water Use / Irrigation

... may use 4-6 inches less total water than field corn in a season, but similar amounts under same conditions
... daily ET greatest tassel-harvest
... need for 0.25 inch per day x many days common

V. Fritz, C.B. Tong, C.J. Roses, J.A. Wright; UMN

Typical Corn Water Use Per Day

Vegetative Phase
- Planting
- Emergence
- End of photoperiod insensitive (Juvenile) phase

Reproductive Phase
- Tassel Initiation
- Last leaf appearance
- Tassel emergence
- Silking

Physiological Maturity

Fig. 4-1. Amount of water used per day by a growing corn crop planted on April 1 at a plant population of 35,000 plants per acre.

Drip irrigation

center-pivot, low-pressure, drop-nozzle irrigation
Regardless of irrigation method, amount, location and quality of water supply key.

- reports vary with regard to the influence of soil moisture on sweet corn crop quality
- deficits can reduce tipfill and ear length, at minimum

Managing Sweet Corn Crop Quality
Water Use / Irrigation

European Corn Borer

Fall Armyworm
improper harvest and handling can ruin a crop
proper harvest and handling cannot repair a crop

harvest on-time

cooling maintains quality

hydrocooling key to many sweet corn growers

harvest in AM and/or remove field heat

Kernel Sugar Levels and Age

Sweet Corn Eating Quality

From Tracy 2001/Creech 1968

image courtesy Open Grounds Farm

image courtesy R. Bessin, Univ. KY

image courtesy Jackson Citizen Patriot

image courtesy NCSU
Quality Pays

SUMMARY

Quality pays at each stage. Management at each stage affects quality.

Sweet Corn Eating Quality Kernel Sugar Levels and Storage Conditions

<table>
<thead>
<tr>
<th>Hours after Harvest</th>
<th>Storage Temp (F)</th>
<th>percent dry weight</th>
<th>sucrose</th>
<th>WSP</th>
<th>starch</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>37</td>
<td>0.9</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>39</td>
<td>33</td>
<td>0.7</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>39</td>
<td>31</td>
<td>0.7</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>81</td>
<td>39</td>
<td>34</td>
<td>0.8</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>39</td>
<td>34</td>
<td>0.6</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Dr. Matt Kleinhenz
Assoc. Professor, Extension Vegetable Specialist
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E-mail: kleinhenz.1@osu.edu
Web: http://www.oardc.ohio-state.edu/kleinhenz/

THANK-YOU and GOOD LUCK!
Sweet Corn Varieties
Report on 2008 Trials in Northern Indiana
Presented at Sweet Corn IPM Workshop
Great Lakes Fruit and Vegetable Expo
Dec. 11, 2008

Liz Maynard
NW Commercial Horticulture Program
Purdue University, Westville, IN 46391
emaynard@purdue.edu

Se and Synergistic Varieties
2008 Trial at PPAC, Wanatah, Indiana

- Tracy Sandy Loam soil
- Fertilizer: 20 lb./A N and 18 lb./A P₂O₅ at planting
  70 lb./A N sidedressed
- Weed control with atrazine and Dual II Magnum, cultivation, hand-weeding
- Irrigation as needed, Insecticide at planting.
- Single-row plots 30 ft. long, 3 replications, randomized block
- Planted May 16, 2008
- Emergence determined 13 and 21 DAP, thinned to 20,328/acre.
- Each plot harvested when marketable.
- Marketable ear number and weight, length, width and shank length (inches) of 3 husked ears, ratings for husk cover, husk tightness, tip fill, overall ear quality, flavor, ear height, tillering, seedling vigor, plant vigor, lodging

PPAC Weather Summary 2008

<table>
<thead>
<tr>
<th>Temp °F</th>
<th>GDD</th>
<th>Prec (in.)</th>
<th>Days</th>
</tr>
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<tbody>
<tr>
<td>May 16-31</td>
<td>56.2</td>
<td>141</td>
<td>1.03</td>
</tr>
<tr>
<td>June</td>
<td>70.1</td>
<td>583</td>
<td>2.83</td>
</tr>
<tr>
<td>July</td>
<td>70.3</td>
<td>647</td>
<td>2.51</td>
</tr>
<tr>
<td>Aug</td>
<td>68.0</td>
<td>562</td>
<td>5.76</td>
</tr>
</tbody>
</table>

Source: PPAC NWS Co-op weather data from iclimate.org

Husk Cover:
Length of Husk Beyond Ear

Tip Fill:
Length of Cob not Filled

5= 0 in. 4= 0 to 1/2 in. 3= 1/2 to 1 in. 2= > 1 in. 1= > 2 in.
Great Lakes Expo 2008 - Sweet Corn IPM Workshop - Dec. 11, 2008

**Ambrosia**
- Doz./A: 1581
- T/A: 7.3
- Lgth: 7.9
- Dia: 2.1
- HC: 3.8
- TF: 2.4
- EVig: 7

**Kristine**
- Doz./A: 1468
- T/A: 6.8
- Lgth: 7.4
- Dia: 2.0
- HC: 4.9
- TF: 3.9
- EVig: 7

**Cameo**
- Doz./A: 1436
- T/A: 7.9
- Lgth: 7.9
- Dia: 2.0
- HC: 4.1
- TF: 3.3
- EVig: 7.3

**BC 0805**
- Doz./A: 1646
- T/A: 8.0
- Lgth: 8.1
- Dia: 1.9
- HC: 5.0
- TF: 4.3
- EVig: 7.3

**GH 0851**
- Doz./A: 1694
- T/A: 8.5
- Lgth: 7.9
- Dia: 1.8
- HC: 5.0
- TF: 4.6
- EVig: 7.7

**Supersweet Varieties**
2008 Trial at PPAC, Wanatah, Indiana
Planted May 23, 2008
<table>
<thead>
<tr>
<th>Variety</th>
<th>Doz./A</th>
<th>T/A</th>
<th>Lgth</th>
<th>Dia</th>
<th>HC</th>
<th>TF</th>
<th>EVig</th>
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</thead>
<tbody>
<tr>
<td>274A</td>
<td>1549</td>
<td>8.5</td>
<td>8.4</td>
<td>2.0</td>
<td>3.9</td>
<td>3.4</td>
<td>8.3</td>
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<tr>
<td>Awesome</td>
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<td>8.0</td>
<td>7.4</td>
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<td>Fantastic</td>
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<td>2.0</td>
<td>3.9</td>
<td>4.9</td>
<td>8.3</td>
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<tr>
<td>Sweet</td>
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<td>8.4</td>
<td>7.6</td>
<td>2.0</td>
<td>3.9</td>
<td>5.0</td>
<td>8.7</td>
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<tr>
<td>Mirai 308BC</td>
<td>1420</td>
<td>6.5</td>
<td>7.5</td>
<td>2.0</td>
<td>3.9</td>
<td>4.7</td>
<td>6.3</td>
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<tr>
<td>277A</td>
<td>1178</td>
<td>5.2</td>
<td>7.3</td>
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<td>3.1</td>
<td>4.8</td>
<td>4.3</td>
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<tr>
<td>Variety</td>
<td>Doz./A</td>
<td>T/A</td>
<td>Lgth</td>
<td>Dia</td>
<td>HC</td>
<td>TF</td>
<td>EVig</td>
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<tr>
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<tr>
<td>Optimum</td>
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<td>5.3</td>
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<tr>
<td>BSS 0982</td>
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<td>Mirai 350BC</td>
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<td>4.3</td>
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<td>7.9</td>
<td>1.9</td>
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<td>4.9</td>
<td>7.0</td>
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<td>Holiday</td>
<td>1517</td>
<td>7.2</td>
<td>8.2</td>
<td>1.9</td>
<td>3.4</td>
<td>4.7</td>
<td>4.7</td>
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</tbody>
</table>
### Garrison

<table>
<thead>
<tr>
<th>Doz./A</th>
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<th>Lgth</th>
<th>Dia</th>
<th>HC</th>
<th>TF</th>
<th>EVig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1549</td>
<td>7.0</td>
<td>7.5</td>
<td>1.8</td>
<td>3.9</td>
<td>4.8</td>
<td>6.3</td>
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</table>

### Mirai 130Y

<table>
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<th>Dia</th>
<th>HC</th>
<th>TF</th>
<th>EVig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1049</td>
<td>5.1</td>
<td>8.1</td>
<td>2.0</td>
<td>4.0</td>
<td>4.2</td>
<td>3.7</td>
</tr>
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**Liz Maynard, Ph.D.**

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www.hort.purdue.edu/fruitveg

Full trial report available under 'Reports and Presentations' link at this site.

**With thanks to:**

J. Leuck, M. O’Neal, D. Eichelberger at PPAC; N. Braden, J. Sheets, R. Shay, B. Rhoda, A. Hodge, NWCH; Master Gardeners, Seed Companies

**Trial supported by donations from:**

- Centest
- Crookham
- Harris Moran
- Rispens
- Rupp
- Syngenta
- Stokes

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Great Lakes Expo 2008 - Sweet Corn IPM
Workshop - Dec. 11, 2008
Nutrient Management

High quality sweet corn begins with a soil test, something that should be done on all fields every three years. Growing any crop without reliable soil test results is risky and just not worth it. For under $20 a soil test can give you the pH, organic matter content, cation exchange capacity, and the levels of most of the nutrients needed for plants.

Let’s start with the pH. Sweet corn, like most vegetable crops, does best in a slightly acid soil, from 6.0 to 6.7. If the pH is below 5.5, it’s best to apply limestone in the fall so that it has time to react with the entire plow layer (at least two plowings). If a fall application is not possible or more than four tons per acre need to be added, a split application is recommended. Plow down half and apply the rest to the surface and disk in. This will provide a pH favorable for seedling development.

Once you have the pH adjusted, it’s time to plan your fertilizer program. In New York, we recommend the following;

<table>
<thead>
<tr>
<th>Soil Test Level</th>
<th>Soil Test Level</th>
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<tbody>
<tr>
<td>low</td>
<td>low</td>
</tr>
<tr>
<td>med.</td>
<td>med.</td>
</tr>
<tr>
<td>high</td>
<td>high</td>
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</table>

**Table 1. Recommended rate of nutrients to apply to sweet corn based on soil tests.**

<table>
<thead>
<tr>
<th>N pounds/Acre</th>
<th>P₂O₅ pounds/acre</th>
<th>K₂O pounds/acre</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>low 120-140</td>
<td>120</td>
<td>80</td>
<td>40</td>
</tr>
<tr>
<td>med. 120-140</td>
<td>80</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>high 120-140</td>
<td>40</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
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</table>
| 1A second sidedressing could replace the preplant, broadcast application of nitrogen if applied when corn is 12” to 18” tall. This is preferable on leachable soils.

Cool soils will tie-up some of the nutrients needed for plant growth. Nitrogen, normally slowly released from soil organic matter, becomes available only as the soil warms up. Phosphorus too is bound in the soil at temperatures 60F and below. Only about 1/3 is available at 60F compared to 70F. We can see early season P deficiencies even in soils that are very high in P.
To get corn off to a good start, a starter fertilizer is recommended. Typically, a banded fertilizer is placed no closer than two inches to the side and two inches below the seed furrow as it is planted. The fertilizer should stay far enough from the seed to avoid burning but close enough to provide nutrients. Never apply more than 100 pounds of the combined N and potassium (K) in the band or you risk burning the seedlings. The level of P in the band is not as critical as P is normally less likely to burn.

Because nutrients in liquids are in solution when applied to the soil, people sometimes assume that the nutrients will be more available and less of a salt hazard, especially under dry conditions. The amount of extra liquid, however, is inconsequential on an acre basis, far below the amount that would affect availability or toxicity in a dry soil.

Another option for starter is using a pop-up fertilizer. Pop-up are fertilizers used in very low amounts that are placed in the seed furrow. Of concern with pop-ups is the potential for burning and significant stand reduction since the fertilizer is so close to the seed. To reduce this risk, no more than 5 to 8 pounds of N and K per acre should ever be applied (5 lbs/A on lighter soils and 8 lbs/A on heavier soils).

I have not seen any reliable information that indicates that pop-ups provide advantages to the traditional 2x2 placement. I have seen several studies that show that in some years, usually when soils are dry and fertilizer salt damage is more likely, pop-ups in the furrow can cause stand reductions. The idea that plants will benefit from closer proximity to the fertilizer seems to make sense until you look at the seed itself. For the first two weeks, after planting, the plant relies on the nutrients in the seed, not the fertilizer. By the time these reserves are depleted, root development should be adequate to reach the 2x2 band. The greatest benefit for pop-ups may be in using low amounts of P in the seed furrow in soils that already have plenty (at least they will have plenty once the soil warms). Growers should stay away from any pop-ups that include ammonia (urea, mono or diammonium phosphate) as the ammonia can cause problems.

Once the corn is up and growing, a sidedressing of 40 to 60 ponds per acre is recommended. This should be done when the corn is between 6 and 12 inches in height. How do you know if your corn really needs a sidedressing? Perhaps a cover crop was in the field previously or manure was added. Each of these will supply some of the nitrogen needs of the crop. For most of the macro and micro nutrients needed by plants, reliable and reproducible soil tests are available to aid a grower in making fertilizer application decisions. For nitrogen, however, this is not the case. More than 95% of all the nitrogen in soil is present in complex organic compounds that must first be broken down before any nitrogen is available to the plant. The availability of this soil nitrogen is affected by soil temperatures, soil moisture levels, and types of soil microbes, as well as other factors over which the grower has no control.

The presidedress soil nitrate test (PSNT) has been used to estimate soil nitrate levels and recommend the amount of nitrogen that a grower should use in his sidedress. With the PSNT, nitrate concentrations in the top 12 inches are recorded and growers can make informed decisions on sidedressing their crop. As much as a 33% reduction in nitrogen applications have been realized in some states, with a savings to growers of more than 100 million dollars. Soils testing above 30 PPM nitrate normally require no sidedressing. At 25-30 PPM, try using half the usual amount of nitrogen. Below 25 PPM, apply the full sidedressing rate.
Nitrate measurement sensors have been available for years but cost and reliability have limited their use. Recently, inexpensive quick tests have appeared that allow instantaneous measurements that are nearly as accurate as much more costly and time consuming laboratory methods. Two of the meters, the Nitrate Quick Test and the N-Trak operate by adding soil or plant extract to a test strip or test tube. The color change is noted and nitrate concentration may be predicted. The Cardy Nitrate meter uses a nitrate specific electrode onto which a drop of soil solution is placed. A digital display indicates the nitrate concentration. Check with your local cooperative extension educator or crop consultant to see if they can perform this test for you.

Common sidedressing materials include anhydrous ammonia, urea, ammonium nitrate and N solutions. Fertilizers that contain ammonium like urea need to be incorporated. If they are left on the soil surface, anywhere from 10 to 50% of the N could be lost to the atmosphere. You can actually smell the nitrogen being lost in the form of ammonia. Nitrate forms (like calcium nitrate or potassium nitrate or even ammonium nitrate) will not volatize and can be placed on the soil surface where rainfall or irrigation can move it into the ground.

Phosphorus and potassium use should be based on soil tests. Over the past 50 years, there has been a tendency to apply more of these two elements than was actually needed. Since neither is leached to any great degree, many of our soils in New York have high or very high levels of both of the nutrients. Soil tests are highly accurate for these elements and should be consulted prior to any fertilizer application. Temporary deficiencies of phosphorus may be seen when soils are cool and phosphorus is tied up. As the soil warms, the deficiency will disappear. Applying 20 pounds of P₂O₅ in the band at planting will prevent this temporary deficiency.

Sweet corn is particularly susceptible to zinc deficiencies. Deficiency symptoms include a yellow striping between midrib and the edge of the leaf, mainly on the lower half. If your soil pH is high (>7.0) include 1 pound of zinc per acre in the fertilizer band at planting. If the soil is warm and the pH is 6.0 - 6.5, cut the rate in half.

Magnesium at a rate of 5 pounds per acre in the fertilizer band should be applied in fields with low pH (<5.5, when rotating with potatoes).

**PLASTICULTURE**

Despite New York’s cool spring temperatures, vegetable growers will plant sweet corn weeks before the last spring frost in order to have early corn. If the weather allows, corn growers south of Buffalo will plant in late March. All of these early plantings are grown under protection, usually clear plastic. Typically, two narrow rows of corn are planted in trenches, 17 inches on center. Herbicide is applied and clear plastic is then stretched across the rows. The high temperatures warm the soil for quick emergence and avoid slow germination times that can lead to seed rots. The plastic will typically stay on until either temperatures are consistently rising above 100F under the plastic or the corn reaches a height when it presses on the plastic. As in most northern locations, growers hope to have their first sweet corn of the season by July 4.

Recent research conducted in eastern NY by Cornell Extension Educator Chuck Bornt, compared typical plastic covered corn with corn using floating row covers. Floating row covers tend to moderate the high temperatures seen under clear plastic, allowing covers to remain on the field later into the season. Bornt also compared a reduced tillage system to a conventional moldboard plowed field. The trial was planted on April 24. Plastic was removed May 22 and row covers on May 29. The minimum tilled plots were planted into winter killed Sudex. The trial results are presented in Table 2.
Table 2. Plants per acre and early and total yield under three production systems.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Plants per Acre</th>
<th>Harvest Date</th>
<th>Marketable Ears/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional Tillage Floating Row Cover</td>
<td>26,484</td>
<td>Early (7/13)</td>
<td>18,644</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Late (7/17)</td>
<td>2,904</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>21,548</strong></td>
</tr>
<tr>
<td>Conventional Tillage Plastic</td>
<td>21,482</td>
<td>Early (7/13)</td>
<td>8,152</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Late (7/17)</td>
<td>3,298</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>11,450</strong></td>
</tr>
<tr>
<td>Minimum Tillage Floating Row Cover</td>
<td>28,575</td>
<td>Early (7/13)</td>
<td>10,454</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Late (7/17)</td>
<td>6,215</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>16,669</strong></td>
</tr>
</tbody>
</table>

Floating row covers significantly increased both the early and total yields compared to clear plastic. Part of this yield increase is due to the higher plant populations under floating row covers. These fields were planted on 30 inch centers and had a target plant population close to 30,000 per acre. Although plastic corn is planted 17 inch between rows, the spacing between the plastic beds may be wide, in order to allow room for plastic laying equipment. This results in fewer plants per acre, as indicated in Table 2. But even when accounting for the increased number of plants under floating row covers, both early and total yields were increased compared to plastic corn. Although plant stands in the minimum tilled plots were better than conventional, the conventional tilled plots did have a significantly greater early and total yield.

Using row covers on plastic will cost money. For plastic sweet corn, we estimate a cost of about $350 per acre. Row covered corn will cost more, due to the higher cost of row cover compared to plastic. A high quality row cover will cost close to $2,000 for one acre, compared to about $250 for clear plastic. The row cover can be reused however, and we estimate a grower could get up to 5 years from one cover. Figuring in this longer period of use, the floating row cover is expected to cost about $550 annually. In addition, no specialized planting equipment will be needed with row covers as compared to plastic. A corn grower can simply plant and cover. This, along with a significantly higher yield, certainly seems to justify the additional annual cost of floating row covers compared to traditional plastic.