

# Early Sweet Corn Demands Crucial Soil, Plant Management

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NEW HOLLAND (Lancaster Co.)  
— Sweet corn on July 2? It's possible!

At least David Lankford, a grower based in Hurlock, Md., believes so. Using a combination of raised beds, drip irrigation, and inserting sweet corn transplants through clear plastic mulch, Lankford said that last year his sweet corn was picked for roadside stands on July 2.

Seeds for transplant are placed in trays March 15. The transplants are injected through the plastic in the fields on April 10. Using this method, the central Maryland grower is able to get to the markets early and sell at a high price.

Lankford spoke to farmers and vegetable business representatives at the New Holland Vegetable Day on Monday at Summit Valley Elementary School.

## Attract customers

Lankford, who grows a variety of vegetables for the roadside markets, manages 60 acres. He also maintains eight greenhouses totalling 20,000 square feet to start his crops.

He said that without sweet corn, he wouldn't be able to attract customers to roadside markets. "For some reason, sweet corn is the attractant for all vegetables," said the grower.

He spends close to \$300 per acre for plastic mulch and drip irrigation. Lankford uses raised beds on his sweet corn, but he found that planting through the clear plastic (even with cold soil conditions) worked well. While growing sweet corn as transplants can be more expensive, he told the farmers that he makes up the difference in total yield at an earlier date.

Also, spoon-feeding places nitrogen in the soil to the plant in the exact rate at the right time. It saves fertilizer cost and cuts down on leaching that may occur. The "spoon-feeding" program, he said, "puts out what the plant needs closer to when it needs it," he said. With his production methods, after planting a total of 18,000 sweet corn plants per acre, he achieves a yield of 1,000 dozen per acre.

(Lankford noted this applies to regular sweet corn, and not the supersweets, which require 70 degree soil temperatures in order to germinate and grow. Also, injecting the supersweet corn seeds through the plastic worked well if done late enough.)



**Ray Samulis, Burlington County, N.J. agent, spoke about the importance of recognizing and learning to manage soil compaction with vegetables. "There's no doubt in my mind that we are losing significant yields through compacted soils," he said.**

## No substitute

The vegetable grower spoke about the importance of growing material here, in the climate in which the plants are meant to thrive. "There is no substitute for locally grown plants for our own conditions," he said. Plants that are grown in Florida and shipped here often go through shock from the temperature change, and can go into dormancy.

Lankford grows cabbage, tomatoes, peppers, egg plants, watermelon, cantelopes, and other crops for the roadside markets in the Baltimore-Washington area. Lankford emphasized the importance of custom feeding his plants (often, even nitrogen can stress plants readily in the greenhouse).

Proper care of greenhouse plants include maintaining the dif temperature (setting the heat in the greenhouse 2 or 3 degrees warmer at night than during the day). He uses side ventilation, similar to poultry houses, with fans to help only during the summertime, when heat stress can create problems.

A key ingredient in overall stress management in the greenhouse is using thermostats to ensure a nearly constant room temperature.

He also uses a suspended sprinkler system. Lankford told the farmers he doesn't believe in the floating or flood system because if one tray goes bad, the rest can be easily affected.

## Relies on automation

He also relies heavily on automation, including clocks, because of his busy schedule.

Also, he told the farmers that if using a greenhouse to get a good alarm system. At the end of March last year, the temperature fell to 20 degrees at night, and if it wasn't for a temperature alarm system, he would have lost 250,000 peppers.

"We keep all of our controls in the center of the house," he said, "out of the sunlight. All the elements have to be in good working order."

Also, keeping a backup supply of water is critical. "Water is the most critical thing you need," he said. The Maryland vegetable grower keeps 3,000 of gallons of water handy in case of emergency. He uses three water pumps in the greenhouse. Also, he checks to ensure the pH of the water (which runs to 8.2 in some cases) is balanced properly.

## Managing stress

Lankford also spoke about managing stress in vegetable plants. The optimum growing conditions are when moisture levels are near field capacity in the soil. Too much water and there is no oxygenation and roots can rot. Too little, and the plant is under stress, which directly affects yield.

During prime growing periods, water demands are an average of 1 inch of week, or 27,000 gallons/acre/week for your crop. Drip irrigation, he said, raised beds, and plastic mulch are ways to achieve the 90-95 percent range of field capacity (equivalent to soil 24 hours after a heavy rain, which is quite wet) necessary for optimum growing conditions.

Lankford said that he waters a little more than two hours per day every day. His "multiwatering" techniques also include fertigation.

To see how much the plant is taking up, and exactly how much it would need, he regularly conducts tissue analysis. He said that since using this method, especially on sweet corn, instead of the 150 units of nitrogen normal per acre in a growing season, he's "not even near that" in application.

Also, Lankford said that, when it comes to growing watermelons, most of the water uptake is at night. His watering program for melons is at 5 a.m., at noontime, and between 9-10 p.m. He uses a "rinse" mode after applying fertilizer through the drip lines to make sure there is no root intrusion into the nozzle.

Using these methods, the Maryland grower said that he is able to produce about 1,000 dozen of corn or about 100,000 pounds of watermelon per acre.

But farmers must be careful to match the drip irrigation product to soil type to provide that "continuous feeding trough" critical to the plant. "Understand your soil so you can properly apply water," said Lankford.

## Manage compaction

Also at the Vegetable Day, Ray Samulis, Burlington County, N.J. agent, spoke about the importance of recognizing and learning to manage soil compaction with vegetables.

"There's no doubt in my mind that we are losing significant yields through compacted soils," said Samulis.

The New Jersey agent said the worst compaction problems occur



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on sandy soil (not, as many think, on silt or clay loams). The negative affects of compaction include decreased root growth, increased runoff, and yield decreases.

Farmers should measure compaction problems using a penetrometer or simply a half-inch wide solid steel bar, pressed firmly into the soil, to check for compaction.

Preventing the problem, by keeping heavy equipment off the soil when it is wet, may prove better than managing it by using subsoiling equipment. If using subsoilers, he told the farmers to do the work in the fall (when soil moisture is low and the soil is workable), work to the depth and width required, and select crops to help in rotation to prevent compaction.

## Getting started

Larry Yager, Penn State marketing specialist, spoke about getting started in the vegetable business and alternative markets.

"If we fail to plan, we plan to fail," said Yager, who introduced the results of the Mid-Atlantic Produce Project (MAPP) survey, outlined in the report, "Developing A Wholesale Marketing Strategy For Produce In The Mid-Atlantic Region."

The report, prepared by James

C. Hanson, farm management specialist, University of Maryland, and David J. Rada, produce marketing consultant, University of Maryland, showed the results of 182 produce buyers in the Baltimore-Washington area. The buyers indicated that a large number (33 percent) buy because local produce is fresher and many would prefer to purchase from local stands.

For growers to obtain new customers, it's important to provide samples (40 percent listed this) and that they should provide a list of products (21 percent). For long-term success, 40 percent said that the product should be of high quality, and growers should know their product (19 percent) and offer good service (16 percent).

According to the marketing specialist, institutions (hospitals, nursing homes, etc.) would be willing also to buy directly from the grower.

Yager said growers should do some primary research. "Go to the buyers and see what they want and when they want it," he said.

The Vegetable Day hosted a wide range of other topics, including two sweet corn integrated pest management sessions, bedding plants, pumpkin production, fumigation, potatoes, and growing and managing greenhouse tomatoes.

## Ag Scholarships Offered

THURMONT, Md. — Rodman Myers, chairman of the Maryland State Grange Agriculture Scholarship Committee, announced the Maryland State Grange will offer five scholarships this year.

Three \$300 Past Masters scholarships will be awarded to recipients who are enrolling in agriculture or science-related courses at a Community College in Maryland.

Two \$500 Edward F. Holter University of Maryland Agriculture Scholarships are available to students enrolling in agriculture at

the University of Maryland, UMES, or enrolling in a two-year program at the University of Maryland Institute of Applied Agriculture in 1993.

Deadline for applications is May 1.

Myers said the Grange is always interested in maintaining quality education and is able to do this by offering the Agriculture Scholarship Program.

For applications, contact C. Rodman Myers, 15727 Smith Road, Thurmont, MD 21788, (301) 271-2104.



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