The use of cover crops in a vegetable production system can provide numerous benefits, even in the first year such crops are included in a cropping system. Cover crop residue or a growing cover crop leaf canopy can block light, alter the light frequencies, and change soil surface temperatures; all of which can inhibit establishment and growth of weeds. Other cover crops produce root exudates or other chemicals that have natural herbicidal effects. Cover crops can also provide a hospitable environment for beneficial microbial life that can discourage plant diseases, and can create a soil environment that lessens the occurrence of soilborne diseases. Resources provided by cover crop plants, such as pollen and nectar, are helpful in attracting and retaining pollinators, and also beneficial insects such as predatory and parasitic species that attack and control pest insects and mites on crops. Certain cover crops also produce chemicals that reduce populations of pest nematodes, and cover crops can increase numbers and diversity of beneficial nematode species.
Yield Improvement Due to Enhanced Soil Health. Cover crops can improve soil health by speeding up infiltration of excess surface water, relieving compaction and improving structure of overtilled soil, adding organic matter that encourages beneficial soil organisms, and enhancing nutrient cycling.

Reduction in Soil Erosion. Cover crops that grow rapidly will hold soil in place, reduce the degree of soil crusting, and reduce the amount of soil erosion by wind and rain. The aboveground plant structures of cover crops also protect soil from rain drop impacts. If cover crops are used over long time periods, water infiltration is increased and runoff, which can quickly remove soil from a field, is reduced considerably.

Conservation of Soil Moisture. When cover crops are killed and the plant residue is left on the soil surface, water infiltration into the soil is increased and evaporation is reduced, which reduces the amount of moisture stress during droughts. If cover crops are lightly incorporated into the soil, they capture surface moisture and add organic matter. These factors lead to increased water infiltration to the root zones of plants. Types of crops that exhibit exceptional soil covering ability are grass type covers such as rye, wheat, and the sorghum–sudan grass hybrid.

Protection of Water Quality. Cover crops slow erosion and reduce runoff, thereby decreasing the amount of nonpoint source pollution due to sediment, nutrients, and pesticides. The uptake of excess soil N also keeps nitrogen from leaching into the groundwater.

I hope I have made a convincing case for the use of cover crops in vegetable production systems. Two excellent resources that provide details on cover crops and soil improvement can be obtained on the Sustainable Agriculture Research and Education Bookstore website: http://www.sare.org/webstore.htm. The two books are

- Managing Cover Crops Profitably, 3rd edition ($19), and

Both of these books will provide you with a strong background on cover crops and help you get started using these valuable plants in your own vegetable production system.

Bob’s Video Vegetable Notes

Check out my new video blog where I discuss all things concerning vegetables and vegetable production: http://vegnet.osu.edu

Things will become much more interesting as we move into the field for the 2009 season. I will be observing crop growth, pest outbreaks, alerts and basically What’s Happening in the field. For starters, I have a few pre–season topics that might be of interest:

If you haven’t yet decided on what sweet corn or pumpkin varieties to plant this season, see my suggestions in Sweet Corn or Pumpkins For You.

In a brief video, Jim Jasinski talks about the Heirloom Tomato Project and have you tried Ellepots for vegetable transplant production.

The first video is an introduction and also presents some highlights of the 2009 Ohio Vegetable Production Guide.

The video menu can be scrolled to find something of interest. Don’t expect Spielberg, but quality will improve with time.

Please Note: Not for Dial Up or Modem connections because of large file size.