



Strip-Till Did Warm the Soil Temperatures in Southern Michigan

by: Mike Petersen, Precision Tillage Agronomist, June 2010

The Center for Excellence a consortium of growers and other cooperating entities have continued to transfer skills, practices, observations, and field sized plot data to the public that is making farming more profitable and conservation minded. This year the leadership group at the two main sites kept good records of the soil temperatures in two specific tillage types; one in strip-till and the other No-Till.

We felt it was important to share that in the northern latitudes of United States where soils remain cold for so long and getting a row crop started off right is a serious challenge. Since the late 1970's conservation tillage is probably the wisest practice the grower can adopt to decrease fuel, labor, time, worry, loss of moisture, and to decrease losses due to wind and water erosion. Other factors of dollar savings from the afore mentioned items makes all growers sit up and take notice.

This data from the spring of 2010 from near Adrian, MI confirms what many have observed, some have measured that soil temperature can be 1 to 5 degrees Fahrenheit warmer in the strip-tilled zone compared to the Direct Seeded plots. Warming for germination and getting the stand started is mighty important where the growing season is greatly limited north of 42 degrees North. In the below two figures, we have plotted what the temperatures were at three inches in depth at the Bakerlads Farms and Tim Stutzman's farm.

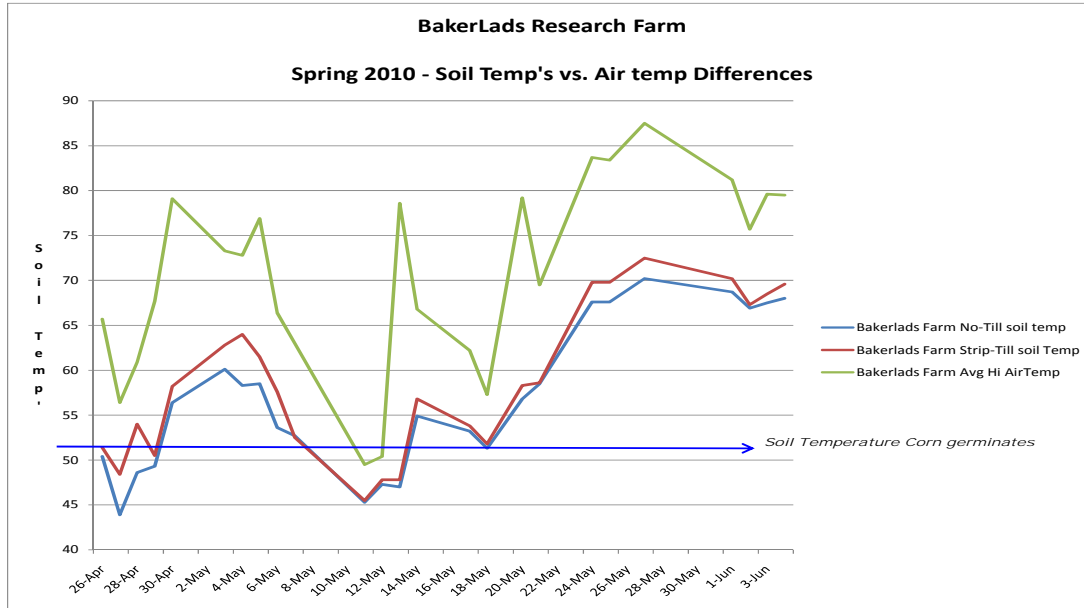


Fig. 1. BakerLads Farm soil temperatures for period April 26 through June 4th in 2009 corn residue. Observe that when the air temperature cooled significantly the 7-11th of May the response time was gradual due to rain and cooler weather.

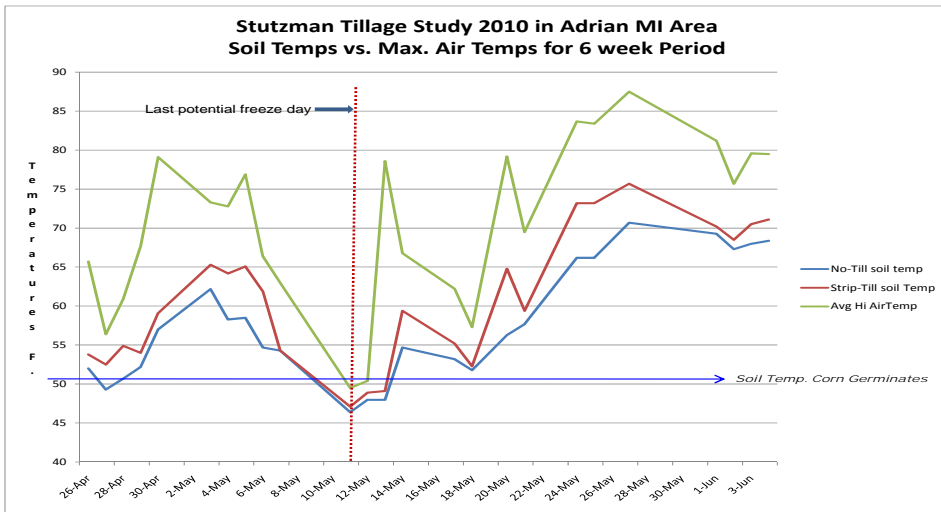


Fig. 2. Stutzman Farm soil temperatures for period April 26 through June 4th in 2009 corn residue. As you also observe this figure, the dotted vertical line represents when the last predicted freeze issue is past. So as the air temperature and wet soils dry, we see the soil temperature respond.

Inferences:

These plots are growing corn (maize) and the daily monitoring of the soil temperature along with air temperature do show some differences. In the northern tier states of the U.S. it is important to get the soils warmed as quick as possible to gain on taking the corn to maturity. We see an advantage with strip-till to open a zone about 8 to 10 inches wide in a 30 inch row system compared to the Direct Seeding (No-Till). Even with row cleaners on a No-Till type planter the residue may be an issue for the crop to get started right. Early in April into first days of May the Strip-Tilled plots show a warming effect to get crops going. When they are up and out of the ground we have a chance to grow. Seed' sitting in the soil being cold and wet will set the crop back and delays pollination and potentially harvest. Strip-till can offer that edge, give it some thought!

We want to thank the Bakers and Stutzman for allowing us to share this information with you. The field day at the Center is again on August 19th.



