

Plant & Soil Sciences

Feb. 11, 2011 • Vol. 4 Issue 3

Extension Newsletter



In this issue ...

- Is removing terraces from no-till cropland a good idea?

- New Pete's Sheet for 2011

- OSU Plant Science Academy

- Effects of herbicide application timing on winter canola yield

Is removing terraces from no-till cropland a good idea?

By Jason Warren

Recently I was asked what I thought about removing terraces from no-till cropland. On its surface this sounds like a good idea. In fact I have often pondered it myself. Removing terraces would make field operations much easier in many instances. No-till management can result in increased water infiltration capacity thereby reducing the volume of water moving down slope. Maintenance of surface residue reduces sheet and rill erosion which further reduces the perceived need for terraces.

However, before we decide if removing terraces is a good idea we need to understand the benefits that they provide. As water moves down slope it gains volume as well as speed. Terraces are generally designed to slow water down and divert it to an outlet. The maximum water volume and its speed are reduced because the terraces effectively shorten the slope length. This reduces sheet and rill erosion and perhaps more importantly in a no-till situation prevents gully erosion. I highlight the importance of terraces in prevent gully formation because regardless of residue if sufficient water moves down slope and is channelized gullies can form regardless of residue. In contrast, sheet and rill erosion are very effectively controlled by maintaining residue.

Most terraces were designed to handle a 10 year rainfall event (an event with a 10% chance of occurring in any one year). Therefore, larger events have the potential

to overtop terraces even if they are properly maintained. The benefits of no-till with respect to decreased runoff volume will make terraces more effective at protecting the soil from large events. However, if no terraces were in place during a large event, water moving down slope could gain sufficient volume and speed to wash residue and then soil down slope. This could potentially cause severe damage regardless of the amount of residue present on the field. In short, terraces provide protection from large rainfall events.

(Continued on page 2)

Figure 1: Terraces are an important component of Oklahoma's soil conservation system.



Plant & Soil Sciences Extension

368 Ag Hall
Stillwater, OK
74078

Phone:
405-744-6130

Fax:
405-744-0354

Removing terraces (cont.)

Another concern with the removal of terraces is that they provide insurance against the loss of sufficient surface residue. Surface residue accumulation and maintenance is an important component of a no-till system for a number of reasons. However, it can be a struggle sometimes. The inclusion of a low residue crop in rotation such as cotton, grazing, or simply a drought resulting in low residue production can all result in a field having limited residue at some point in time. Intact terraces will prevent a low residue situation from becoming a catastrophic erosion event.

Lastly, removal of terraces will require a lot of earth to be moved which would in itself be expensive. Replacing them in the event that they are later required would be equally or more expensive. Terraces are protective infrastructure that should be maintained regardless of tillage, because they provide a layer of protection from large rainfall events. We may not need them very often but the next 20 year rain storm would certainly make us realize why they are important if we decided to remove them.

*Jason Warren can be reached at
jason.warren@okstate.edu.*

New Pete's Sheet for 2011

By Brian Arnall

We are unveiling the newest Pete's Sheet that is ready for distribution. The Nutrient Needs of Oil Seeds: Canola and Sunflower PS is set up just like the previous Wheat and Corn Pete's Sheets. These cards are designed to help you in making fertilizer decisions. The cards have the nitrogen, phosphorus, potassium and sulfur requirement for each crop. The optimum pH range for each crop can also be found in the card. If you would like copies of any of our Pete's Sheets, please email or call me with your request. The cards will be sent out free of charge. A maximum of

100 of each of the cards per request will be sent. All PS cards are folded in half to equal the size of the average business card. Also if you have a topic that you would like to see on a PS let us know and we will get too it.

To see all of the Pete's Sheet available check out www.NPK.okstate.edu/petesheets/index.htm.

*Brian Arnall can be reached at
b.arnall@okstate.edu.*



Subscription Information

To receive an electronic copy of the OSU PaSS Extension Newsletter, contact Janelle Malone at janelle.malone@okstate.edu. Please include "PaSS Newsletter Subscription" and your name in the subject line.

OSU Plant Science Academy

By Sarah Lancaster

The Plant and Soil Sciences Department at Oklahoma State University will be offering a Plant Science Academy to upcoming freshmen and sophomore high school students interested in a career in plant and soil sciences. The academy is scheduled for June 8-10, 2011, to provide participants opportunities to advance their knowledge in plant science while gaining leadership skills and networking with OSU faculty members. Participants will spend three days and two nights on the OSU campus. Students will visit the agronomy research farm where they will learn about crop production and wheat breeding in hands-on activities. They will also participate in a wheat processing tour at Shawnee Milling. Other activities include a campus tour and personal development activities.

The Plant Science Academy is organized by Dr. Sarah Lancaster, with assistance from Dr. Brett Carver, PaSS Wheat Breeder/Geneticist and Dr. Jeff Edwards, PaSS Small



Dr. Brett Carver (right) shows 2010 Plant Science Academy participants how to select wheat spikes that will be used in his wheat breeding program.

Grains Extension Specialist. The Plant Science Academy is sponsored by Dow Agro-Sciences LLC. There is a short application required to attend the academy as well as a registration fee of \$45 to cover meals and lodging expenses. To find more information and the application, visit <http://pass.okstate.edu>.

Sarah Lancaster can be reached at sarah.lancaster@okstate.edu or 405-744-3525.



An OSU Plant and Soil Sciences graduate student shows 2010 Plant Science Academy participants how to calculate wheat yields. Participants used this information to discuss the effects of tillage and crop rotation on wheat production.

Effects of herbicide application timing on winter canola yield

By Josh Bushong

Two research trials were established in the fall of 2009 to evaluate the timing of herbicide application on winter canola yield. These trials were located near Perkins, OK and Stillwater, OK. The trials were planted on September 22nd, 2009 and harvested on June 11th, 2010. Both sites had a heavy infestation of volunteer wheat (15 plants per square foot) and Italian ryegrass (10 plants per square foot). Eleven application timings were evaluated. Roundup Powermax was applied at each herbicide timing. The optimum timing was about 4 weeks after planting. The first application removed most of the volunteer wheat, but some Italian ryegrass emerged after the herbicide was applied which reduced the canola yield. Following the fourth week after planting (Oct. 23rd) canola yields were reduced by 1.33 bushels per week.

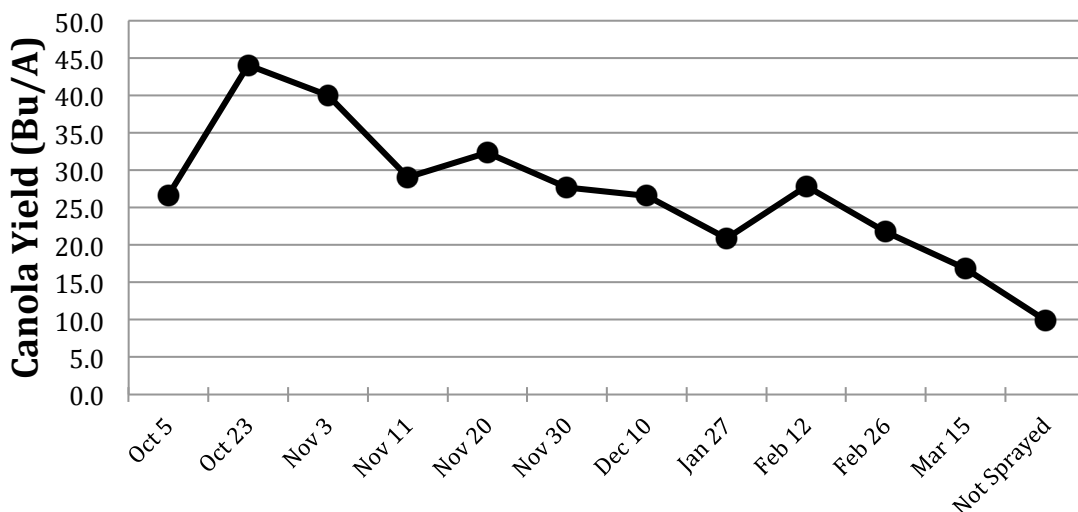
Herbicide application timing proves to have a strong economic impact. Just as we have seen in wheat, the winter annual grassy weeds that emerge with the crop have the greatest impact on yield. Winter canola doesn't compete very well with weeds as a

seedling. So the most "bang for your buck" would be to apply your herbicides early in the fall to allow the canola to establish. Usually if the weeds can be controlled before canopy closure the canola will become much more competitive. Even though more winter annual grassy weeds will likely emerge later into the fall and early winter the weeds that have the most impact on canola yield would be the early weeds that emerged with or shortly after the crop. A second herbicide application in early spring is common amongst canola producers to control the weeds that emerged after the first herbicide application. These weeds typically won't impact canola yield as much as the earlier weeds.

Field scouting in early spring can determine if a second herbicide application is necessary or even economically justified. Producers also need to take into account the reason why they decided to grow canola. If their main goal was to clean up their wheat fields then a second herbicide application would be highly recommended because even the slightest infestation would

(Continued on page 5)

Winter Canola Yield by Herbicide Application Date



Effects of herbicide application (cont.)

repopulate the field once again. According to some of our past research data it usually takes at least two years of intense manage-

ment to reduce winter annual grassy weeds to a satisfactory level.

*Josh Bushong can be reached at
josh.bushong@okstate.edu.*

Figure 1: Italian ryegrass in winter canola.



Follow us on Twitter ...

- @OSU_smallgrains
- @OSUWeedSci
- @OSU_NPK