Agricultural Update

February 2011

UPCOMING MEETINGS

Developing a Fumigant Management Plan – Wednesday, March 9, 2011 beginning at 9:00 am at the Craven County Agricultural Building. Written plans are now required for any individual applying soil fumigant materials. We will offer a training that will outline the basic requirements and resources available. Registration is required so that we can prepare packets of information for each participant. Registration deadline is Monday, March 7th. Pesticide credits for categories X, N, O and D will apply. Contact our office at 633-1477 or email penny_shue@ncsu.edu to register.

Farm Program Updates – Thursday, March 10th beginning at 9:00 am at the Craven County Agricultural Building. This meeting will provide updates of farm programs from Farm Service Agency, Natural Resource and Conservation Service and Craven County Voluntary Agricultural Districts. Contact our office at 633-1477 or the FSA office at 637-3567 if you plan to attend.

Weed Science Society of North Carolina 29th Annual Meeting – Thursday, March 10th at the J.C. Raulston Arboretum Ruby C. McSwain Education Center, Raleigh, NC. Topics of discussion include pesticide drift regulations, risk mitigation of soil fumigants, EPA assessments for pesticide safety, and the importance of herbicides to agriculture. For more information or to register, visit the web site, http://www.wssnc.ncsu.edu.

PESTICIDE DISPOSAL EVENT

On Tuesday, March 15th from 10:00 am until 2:00 pm, we will host a free pesticide disposal event sponsored by the NCDA & CS Pesticide Section. Any unwanted or unused pesticides in the original container with a label will be accepted. If you have containers larger than 5.0 gallons, you MUST contact our office prior the event in order for us to make arrangements with the NCDA & CS to have proper transportation containers and permits.

If you utilize this free service, make sure to transport the pesticides safely. You responsible for any spillage, damage or subsequent clean-up or restoration that might occur while you are transporting the pesticides. Thus, make sure to secure all containers, line the truck bed or trailer with plastic to make spills easier to contain or clean up and, secure the containers to prevent spilling or mixing. Brochures with
information regarding transportation of pesticides, over-packing and other safety information have been distributed to dealers and suppliers. We will email you a brochure by request (email mike_carroll@ncsu.edu).

**ELECTRONICS RECYCLING EVENT**

On Saturday, March 26th, Craven County will host an electronics recycling event from 10:00 am until 2:00 pm at the Craven County Agricultural Building. Television, computers, monitors, cell phones, radios, or any electronic gadgets are accepted. Some of these items are no longer accepted at the landfill so take advantage of this free service.

**SEED TREATMENTS**

Below are selected and slightly edited comments from NCSU Specialists, Drs. Stephen Koenning, Jim Dunphy, Ron Heininger and Keith Edmisten regarding seed treatments. With a number of seed treatments that claim to aid in nematode management rapidly emerging and the potential short supply of Temik, it is wise to review these comments.

Before discussion of seed treatments, a few definitions are needed:

1. **Fungicide** – Almost all seed treatments will contain a fungicide (usually two or three) to control post- and pre-emergence damping off. The basic fungicide chemistry differs little between one company and another. They are designed to control the same two to three soil borne diseases. They rarely affect nematodes or insects.

2. **Neonicotinoid insecticide** - thiamethoxam in Cruiser®, imidacloprid in Gauchó®, and clothianidin in Poncho® are common examples of insecticides used on cotton and soybean. These systemic insecticides have averaged about three weeks of protection against thrips. NCSU testing has generally not shown a positive growth response to neonicotinoids in the absence of insects. They have little if any activity against nematodes.

3. **Polymer** – a polymer is a complex chemical that is used in seed treatments to insure that the pesticide additives and other materials adhere to the seed and allow for easier and safer handling, as well as insuring that seed flows through equipment.

4. **Biological**- A number of bacteria, actinomycetes, and some fungi that may be added to enhance disease and or nematode control. They may be stand-alone treatments or adjuncts to traditional chemical control agents. Many are bacteria in the genus *Bacillus*. *Bacilli* are the preferred type of biological because they form spores which are relatively stable and resistant to degradation over time. A strain of *Bacillus subtilis* is the active ingredient in Kodiak® and *Bacillus fermis* is the active ingredient in Votivo®.

Another biological is known as Messenger® (or N-Hibit™ when used as a seed treatment). This is the Harpin protein that stimulates plant defense mechanisms to protect against attacking pathogens. This Harpin protein was discovered through its ability to protect against bacterial plant pathogens. Its efficacy against fungal or nematode pathogens is less clear.

5. **Avicta®** or **Abamectin®** is an organic fermentation product that comes from a soil inhabiting actinomycete (*Actinomyces avermitilis*). Overall, these products are extremely toxic to nematodes at very low doses with very little mammalian toxicity. They are however, nearly insoluble in water and are not systemic, so activity is limited in soil.

6. **Aeris®** is a carbamate insecticide. It has good nematicidal activity and limited systemic activity.
NCSU has evaluated a number of nematicidal materials on corn, cotton, and soybean. The most extensive North Carolina research was supported by the North Carolina Soybean Producers Association Check Off program. The results were disappointing. It’s not that they didn’t work, just that they didn’t work as well as we had hoped. At the rate they will be applied to seed, there likely will be no negative effects (phytotoxicity or stunting), and we don’t foresee negative interactions with herbicides.

Cotton -- In the case of Cotton, both Aeris® and Avicta® have been approximately equivalent to 5 to 7 lbs/acre of Temik® for nematode control. Neither product controls thrips, thus on cotton they should be used in combination with insecticidal seed treatments (Cruiser® or Gaucho®) or a systemic insecticide such as Temik in furrow to control thrips. Avicta® may be weaker on reniform nematode than some other products.

Corn - A limited number of tests with Avicta® on corn have generally resulted in increases in yield roughly equivalent to that achieved with Counter® for root-knot, Columbia lance, and stubby root nematode.

Soybean - Trials on soybean have shown yield increases equivalent to those achieved with Temik® for root-knot nematode. Yield increases with seed treatments for soybean cyst nematode (the most common problem) have not been statistically significant. That does not mean that they will not improve soybean yield. We have seen yield increases on the order of 1/2 to 5 bushels/acre, but the increases have not been consistent over locations and conditions. One to two bushel yield increases are more common, but in no trial have we seen that these products actually control nematodes. None of these products have had any impact on the numbers of nematodes we find.

Control vs. Management

Are we controlling pests (pathogens, weeds, insects) with our practices or pesticides? The answer is a definite NO! At best, we manage pests. Control implies elimination of the pest or completely removing adverse effects of the pest. At best, we suppress plant pest populations and this allows us to produce a crop profitably. These materials are more properly considered aids to pest management. In the case of nematicidal seed treatments they may act more as repellants that allow us to improve growth under nematode pressure in order to improve yield potential.

It is impossible to test all products. Generally, the seed treatments from reputable dealers are good, but not guaranteed to improve profits. Too, seeds treated by a dealer or companies are more likely to provide more consistent results than those you treat on your own. If possible, evaluate the results yourself if you have a yield monitor. Order some treated and untreated seed and place each in separate hoppers to see if there is a visible difference in treatment (Note: perceived growth increases or lack thereof does not mean a yield increase). Confirm with data from the yield monitor.

CEREAL LEAF BEETLE MANAGEMENT

Cereal leaf beetle is easily controlled with low rates of many insecticides if they are applied when the threshold is met. Because only one generation hatches per year, if insecticides are applied based on the use of thresholds, one application will give adequate management. However, if insecticides are applied early before threshold levels are met (such as with top-dress nitrogen), a second application will be required later in the season when the cereal leaf emerges.

Cereal leaf beetles prefer fields with a low plant population. Considering the late planting dates, very cold December and continued cold nights, most fields within Craven County have low tiller densities. Consequently, it is strongly suggested to monitor fields. When the number of live larvae exceeds the number of eggs, it is time to consider treatment. More precisely, when 25 or more eggs and the presence of live larvae per 100 stems is found, the threshold has been met. Low levels of leaf loss can be tolerated, especially damage to leaves below the flag leaf. However, even low levels of damage to the flag leaf can cause yield loss if this damage occurs prior to grain fill. Late damage during grain head fill does not usually cause severe yield loss.

Take time to scout fields thoroughly. Cereal leaf beetle populations can vary greatly with high population on one side of the field and a very low population at the opposite side. Consequently, scouting the entire field is required. If the threshold population is met, a list of appropriate pesticide products is available at
Choice of products should include considerations for other pests. As example, carbamates tend to increase aphid populations and spinosad materials work at low cereal leaf beetle population but not at high cereal leaf beetle populations. Pyrethroids at a high rate provide longer residual control but may not control aphids. The proper product choice will include consideration of the cereal leaf population, number of eggs found and other potential pest present.

If we can be of any assistance, please contact our office at 633-1477

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Agriculture

Accommodations for individuals with disabilities or special needs: Individuals with disabilities or special needs desiring accommodations to participate in these activities should contact Tom Glasgow at 633-1477 at least two weeks prior the event. NC Cooperative Extension takes seriously its obligation to accommodate the known disabilities of its faculty, staff and guests.