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Sussex County Ag Agent

New Ag Agent Introduction
Cory Whaley - Extension Ag Agent, Sussex

I would like to say hello to the entire ag community, and take this opportunity to introduce myself. I am a native of Sussex County. I grew up on a family farm near Seaford. While pursuing my education at Clemson University, University of Delaware, and Virginia Tech, I have had the opportunity to work in production agriculture with many knowledgeable and experienced individuals. Growing up in an agricultural setting, I am familiar with the challenges and issues growers in production agriculture face.

I am in the process of planning a couple of meetings this winter and would like any input as to topics you may be interested in. I am aware that nutrient management credits are of interest to many of you. Feel free to contact me by phone or e-mail at (302) 856-2585 ext. 321 or whaley@udel.edu.

I plan to provide the Agronomic Crops News quarterly as an information source on various topics or issues that may be important to production agriculture throughout the year. Enclosed is a form to indicate how you would prefer to receive this information. Also, indicate if you would like to be added to my Sussex Producers e-mail list that I will use as a timely way to provide information on important issues, topics, or announcements throughout the year relating to production agriculture. Return the form by mail or contact me by phone or e-mail to advise me of your interest. This newsletter will also be available online at: http://www.rec.udel.edu/TopLevel/Publicat.htm.

I hope to meet many of you at the Delaware Ag Week in January. Have a safe and happy holiday!

Soybeans

Soybean Rust Update
Bob Mulrooney - Extension Plant Pathologist

Many may be asking what happened with soybean rust in 2005. As of this writing 139 counties in the US were detected with soybean rust and confirmed positive by scientists at USDA. Counties in FL, GA, AL, MS, LA, SC, and NC were affected as well as a lone detection on kudzu in TX and KY. Many of the most northern detections in NC occurred in November and caused no yield loss. All of those finds were from soybeans. Rust was found on one kudzu...
leaf in KY in mid-November. While rust occurred late in areas of FL and GA, soybean rust did cause defoliation and yield loss in research plots showing that the disease is still a threat to soybean production if it goes undetected and uncontrolled. Most commercial farmers sprayed at the appropriate time in areas that were at risk and little if any yield loss occurred.

Fortunately for us, kudzu did not turn out to be the very susceptible host for soybean rust that was predicted last year. North American kudzu populations vary greatly in their susceptibility to rust. Some populations are pretty susceptible while others do not get infected and others are somewhere in between. Some kudzu never got infected as reported in MS. In addition, the weather down south was hotter and drier during critical periods of the season, which was not favorable for widespread infection either. Without soybean rust spores being produced in large quantities, there were few to be moved around when the tropical storms and hurricanes arrived. We know now that soybean rust spores were distributed throughout much of the South and as far north as North Dakota, South Dakota, and Michigan. Since the disease did not occur, this means that too few spores survived to cause an infection or the weather was not favorable for infection when they arrived. Remember that the presence of rust spores does not equal presence of the disease. It takes the soybean plant, the rust fungus and favorable weather conditions to cause the disease, not just the presence of the rust fungus spores.

Soybean growers are still going to need to know how much soybean rust overwinters this year down South and monitor spread throughout the season, as we did this past season. At this point, we will continue to plant sentinel plots to monitor disease spread and the Southern states will be doing that again for our benefit. Spore monitoring will continue as well as scouting efforts to detect soybean rust early.

More information will be presented on detection and monitoring, fungicide effectiveness, soybean rust biology and other important topics during the winter meetings.

**Dectes Stem Borer**

*Cory Whaley - Extension Ag Agent, Sussex*

Damage to soybeans by *Dectes* stem borer was more prevalent this year than it has been in the last several years. One reason *Dectes* damage was more severe this year is because of the drought that occurred in late summer.

Adult *Dectes* beetles lay their eggs in soybean petioles over a 6 to 8 week period from July to August. Following hatching, larvae burrow and tunnel within the soybean stem, disrupting the movement of water and nutrients to the developing pods and seed. In late summer, larvae tunnel to the base of the plant and girdle the interior of the stem at about 2 inches above the soil surface, where they overwinter. This stem girdling increases the potential for lodging as damaged soybean plants mature.

Adult and larvae *Dectes* feeding on the soybean plant can reduce yields slightly, but significant yield losses can occur when soybeans lodge and beans can not be picked up by the combine. Unfortunately, chemical control is very difficult and not economically feasible due to the lengthy time period in which the adult beetles are laying eggs. Damage from *Dectes* can be reduced by using nematode resistant soybean varieties, planting in narrow rows (< 20"), and harvesting early. Planting nematode resistant soybean varieties can add some tolerance to *Dectes*, but may not completely eliminate the damage.

Scout fields before beans mature for the presence of larvae and feeding damage in fields where *Dectes* has been a problem in the past. If you suspect *Dectes* in your field, harvesting as soon as beans mature can reduce yield loss from stem lodging. I will hopefully remind you next August to begin scouting your fields for the presence of *Dectes* if weather conditions are favorable.

More information on *Dectes* stem borer can be found in the Weekly Crop Update, Volume 10, Issue 18, July 26, 2002 and online at: http://www.rec.udel.edu/Update02/Issue%2018%202002.pdf.
Wheat  .................................................................

Rethinking Nitrogen Rates on Winter Wheat in 2006
Richard W. Taylor - Extension Agronomist

One of the most overlooked aspects of plant nutrition is the meaning of the slope of the yield response curve. The yield response curve describes how much yield (on average or in an average growing season) a grower can expect to produce if you add a given increment of fertilizer. Generally, the first increment of fertilizer produces a large yield response and, thereafter, each additional increment produces a smaller and smaller yield response. In some crops for nitrogen (N) applications after a certain rate is applied, the yield actually goes down if more fertilizer is applied (perhaps because of an increase in lodging or an increase in disease incidence).

For example, on a sandy, low organic matter soil, wheat should produce a yield of about 40 bu/A even without a N application. Why? The plant is able to pick up some N from rainfall and the rest from mineralization (decomposition) of soil organic matter and crop and weed residues that contain N. We typically expect soil with 1 percent organic matter to contribute about 30 lb of plant available N per growing season. If we take this as the base and then apply 60 lb N/A, we can reasonably expect at today’s prices for N and wheat about $3 return for each $1 spent on N fertilizer. Somewhere around 80 to 100 lb N/A, $1 spent on N produces only $1 to $1.50 return in yield (slightly higher in excellent growing seasons and under high yield management).

The other aspect that was mentioned is the frequency of a meaningful response to fertilizer application. In a study on winter wheat on a Matapake silt loam, Bob Uniatowski and I found yield increases from 0.1 to 5.5 bu/A when fertilizing wheat with 100 lb N/A versus 80 lb N/A. In two years, the increase was 0.1 and 0.3 bu/A; but in the third year the increase was 5.5 bu/A. With N the probability of response often depends on rainfall amount and intensity, amount of sunlight, and such factors as day and night temperatures and disease incidence and severity, since these things affect either the ability of the crop to respond to the added fertilizer or affects the availability of the fertilizer (leaching and denitrification). For nutrients such as potash (K) and phosphorus (P), the probability of a yield response is tied to the soil test level of the nutrient. If the nutrients are in the optimum or high level, the probability of a yield response to addition of either nutrient is low, whereas at low soil test levels the probability of a yield response is high.

With high N prices and high potash prices this year, and relatively low commodity prices, growers should carefully weigh whether extra fertilizer above that recommended by a soil test has the potential to return more dollars in yield than the nutrient costs. Because of the impact of the probability of response, price fluctuations, and growing season variability, the general rule of thumb is that you should reasonably expect from $2 to $4 return for each $1 in input costs. If you don’t expect that rate of return, the risks probably outweigh the reward when evaluating input costs.

Pastures and Hay ..................................................

Managing Hay Fields in Winter for Spring Regrowth
Richard W. Taylor - Extension Agronomist

The recent cold snap has most of us thinking about hot chocolate or hot toddies rather than about field work, but for hay growers there is a step that can be taken to improve not only the quality of first cut but the appearance of the hay as well. Last fall in alfalfa, alfalfa-grass mixtures, and fall accumulated grass hay fields, the end of the growing season drought limited the amount of growth on many fields early in the fall when the day length and weather allow producers to take a final harvest. In some of these fields, October rains and warm late fall temperatures produced significant growth that could not be easily harvested as hay. In these fields where growth occurred, dead, dry material remains (see photo 1) and is likely to be incorporated in bales made during the first spring harvest. This low quality material will affect the visual quality of
first cutting hay as well as reduce the feed value of the hay.

Hay growers should take the opportunity presented during winter cold snaps and when snow is not on the fields to mow hay fields and remove much of the standing low quality forage (see photo 2 to 4). Frozen ground can allow them to mow with only minimal impact on soil quality (compaction). For some hay growers, it also can be an opportunity to test out winter repairs to harvest equipment.

Hay producers who have hay fields with substantial quantities of tall standing hay still present should consider the potential benefits of mowing these fields whenever the ground either is frozen solid enough or has dried out enough to support mowing equipment. Always leave enough stubble to help catch snow that can act as an excellent insulator to modify extreme temperature changes. When possible, stubble removal should be completed prior to spring green-up.

Strengthening Pasture and/or Hay Fields for Spring

Richard W. Taylor - Extension Agronomist

The severe late-summer and early-fall drought last year resulted in some stand loss from pasture and hay fields by season’s end. The weather was especially severe for shallow rooted legumes such as white clover, although even red clover, alsike clover, and other moderately deep rooted legumes may have been eliminated from pasture and hay fields. The loss of legume
plants, as well as the weaker grass plants, has left a lot of open ground that can be colonized by weedy species. It’s likely that some winter annuals have already established in these open areas although unless the infestation is severe and competes severely with established forage plants, the impact on the long term production capacity of the pasture will not be great. More worrisome will be the summer annuals such as crabgrass and foxtail species, lambsquarters, pigweed, and perennial weed species of thistles, forbs, shrubs, vines, or trees. Photo 5 shows how damaged pastures can quickly be overcome by invading weed species.

One way to try to overcome the effects of stress on forage stands is to do everything possible to thicken and strengthen the stand. For producers with access to no-till drills, early spring renovation of pasture or hay fields by overseeding with Ladino (generally only for pastures), red clover, or more grass seed is a key ingredient. For producers without access to a no-till drill or with small acreages, a frost crack seeding in mid- to late-February (or earlier depending on when your fields stop experiencing freezing and thawing cycles) can boost the percentage of legumes in pasture or hay fields. Keep in mind that for alfalfa there is a problem called self-allelopathy, where the established alfalfa plant residues secrete chemicals into the soil that injure or kill young alfalfa seedlings. Do not overseed or frost crack seed alfalfa (also the larger seed size and expense of alfalfa seed make it a poor choice for frost crack or overseedings.) Some growers also overseed with some faster growing and establishing grasses such as orchardgrass. Grasses slow to establish such as tall fescue and reed canarygrass should not be overseeded since competition with the established plants will make successful establishment unlikely.

Another approach to thickening and strengthening stands is to ensure soil fertility levels are in the optimum range (pull a soil sample and send it for laboratory analysis as soon as the ground thaws out) and apply some nitrogen (N) as soon as the grasses begin to green up in the spring. To avoid injuring new legume seedlings (reducing nodulation), the spring N rate should be limited to no more than 30 pounds of N per acre. If legumes are part of the pasture or hay mix, keep soil pH near pH 6.0 or higher. Proper soil pH not only improves forage yield potential, but improves the efficiency that crops use applied nutrients.

Finally, whenever you are using equipment on pasture and hay fields, try to avoid times when the soil is too wet to support the equipment. Heavy equipment can cause significant compaction issues. Especially on pastures, compaction is a reoccurring problem because of the grazing animals. Avoid making the problem worse by staying off fields that are too wet or keeping animals in the barn when fields are saturated.

Weed Management

Herbicide Resistance Continues To Be A Problem
Mark VanGessel - Extension Weed Specialist

Herbicide-resistant weeds are becoming more wide-spread. Triazine-resistant pigweed and lambsquarters is wide-spread and something many just take for granted. In 2005, there was an increasing number of reports of glyphosate-resistant horseweed (marestail) in Sussex County. Pigweeds resistant to Pursuit also are spreading; and many of these are resistant to similar herbicides as well, such as Permit or Sandea. The first report of Pursuit-resistant pigweed was about five years ago and although the growers have made a commitment to control pigweed with other herbicides, this year there were more problems with pigweed. The problem is that the pigweed seeds can remain dormant for many years and once a field is infested with a herbicide-resistant weed, you can not get rid of it.

Another weed that has shown resistance recently is common ragweed. A field that has had problems with controlling common ragweed was investigated for herbicide resistance. The common ragweed was resistant to herbicides with two modes of actions, ALS-inhibiting herbicides and PPO-inhibiting herbicides. The ALS-inhibiting herbicides tested in the greenhouse were Ally, Arsenal, Beacon, Classic,
FirstRate, Permit/Sandea, Pursuit, Raptor, and Scepter. We sprayed 100X the normal use rate of these herbicides and did not achieve 50 percent control. The PPO-inhibiting herbicides included were Blazer, Cobra, Reflex, and Valor. The level of resistance to PPO-inhibiting herbicides was 10 to 30-fold, meaning these plants need 10 to 30 times the normal use rate to achieve the same level of control. This is quite a list of herbicides that these plants are resistant to and it dramatically limits the options that the growers will have to control this biotype.

The more varied the weed management program, the more ways the weeds are killed, and less likely resistance will develop. Mechanical weed control in the form of cultivation is beneficial for resistance management. Rotating herbicides with various modes of action is very important. Many herbicides now have a number on the containers to help identify the mode of action. Do not repeatedly use herbicides with the same numbers. UD Weed Management Guides for Corn and Soybeans include the modes of action of all the common herbicides used in DE. These publications are in the Sussex County office or are available online at: http://www.rec.udel.edu/weed_sci/WeedPublicat.htm. If you have questions about developing a herbicide program or concerns about herbicide resistance, contact the Sussex County Extension Office.

Soil pH

Weather Impacts on Soil pH
Richard W. Taylor - Extension Agronomist

In four of the past five years, many locations on Delmarva have received average to well above average rainfall. The rainfall pattern has resulted in near record yields in some years and above average yields in others. This type of rainfall pattern leads to increased leaching of nitrate nitrogen (N) (since growers apply ammonium or urea forms that are oxidized to nitrate in the soil releasing acidity) as well as calcium and magnesium (basic cations), increased denitrification requiring higher N application rates, increased crop removal of basic cations, increased crop residue levels that release acidity when they decompose, and numerous other factors that lead to higher acidity levels in our soils. Sandy soils that have a low cation exchange capacity are especially susceptible to loss of basic cations and sudden drops in soil pH (increases in soil acidity). What this means is that soil testing is more important than ever so you can identify either problem fields or problem areas before they impact your yield and income flow.

For example, this summer a grower noticed that following UAN sidedress application on the corn in one of his smaller fields (about 5 acres), the corn went backward showing yellow to white areas between the veins of the leaf, leaf margin burning, and stand loss. The outside edges (headlands) remained mostly green and plants were many times the height of plants in the center of the narrow field. Soil analysis showed that the soil pH in the good areas was in the mid-4 range but only 3.5 to 4.0 in the bad areas. It turned out that the small field was always lumped with a larger one across the road when soil tests were taken. In the drought prone 1980’s and 1990’s, this was not a problem since little leaching or denitrification occurred. With the rainfall of the past few years, the fields have separated as similar units. The why for this is open for discussion, but may be as simple as extra overlap in the center of the long narrow field when N was applied and perhaps being at the end of the line when lime was applied. Whatever the reason, the fields were no longer similar management units and should be tested separately for the next few years until they can be brought to a similar soil test level.

Numerous other examples could be discussed, but for most situations it comes down to subtle differences in soil texture, soil organic matter, underlying soil layers, or even impacts from application forms and practices from many years ago. The bottom line message is that if you find areas on the farm that are not looking right or have not yielded what you expected in the past, you should think about an extra soil test to look at your soil acidity level. Liming is not an inexpensive practice, but maintaining fields at the proper soil pH not only improves crop growth
but improves the efficiency with which plants use nutrients, especially N, P, and K.

**Announcements** ........................................

- **2005 Corn hybrid and soybean variety trial results** are available online at: [http://www.udel.edu/varietytrials/corn/](http://www.udel.edu/varietytrials/corn/).

- **UD Weed Management Guides for Corn and Soybeans** are available in the Sussex County Extension office or online at: [http://www.rec.udel.edu/weed_sci/WeedPublication.htm](http://www.rec.udel.edu/weed_sci/WeedPublication.htm).

- The University of Delaware REC offices will be closed January 23 to 27 for our move into the new Elbert N. and Ann V. Carvel Research and Education Center across the road. The new address after January 23 is:
  - Elbert N. and Ann V. Carvel Research and Education Center
  - 16483 County Seat Highway
  - Georgetown, DE 19947

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**Upcoming Events** ....................................

- **Delaware Ag Week** will be held the week of January 16 to 21, 2006 at the DE State Fairgrounds in Harrington, DE.
  - Ag Week program books were mailed out on December 15.
  - Web address for Ag Week information: [http://www.rec.udel.edu/AgWeek/home.htm](http://www.rec.udel.edu/AgWeek/home.htm).

- **Women in Agriculture Conference** will be held February 9 and 10 at the Dover Sheraton in Dover, DE.
  - More information can be found online at: [http://ag.udel.edu/extension/kent/womeninag.htm](http://ag.udel.edu/extension/kent/womeninag.htm).

- **Nutrient Management Certification Sessions** will be offered in March.
  - To sign up for sessions, please contact Jeanie Johnson at (302)856-2585 ext. 305.
  - Upcoming programs for continuing education can be found on the nutrient management website at: [http://www.rec.udel.edu/nutrient/page3.html](http://www.rec.udel.edu/nutrient/page3.html).
Agronomic Crop News Mailing List 2006

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or contact me by e-mail (whaley@udel.edu)
or phone (302) 856-2585 Ext. 321.

Name: _____________________________________________

Address: ___________________________________________

City/State/Zip: _______________________________________

Home Phone: ___________ Work Phone: ___________ Cell Phone: ___________ Fax: ___________

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I would like to receive Agronomic Crop news by:

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I would like my e-mail address to be added to the Sussex Producers list for timely information on Production Ag topics, issues, or announcements throughout the year.

Yes _____ No _____

What are some topics you may be interested in for winter meetings in Sussex County?
________________________________________________________________________________________
________________________________________________________________________________________