WHEAT PRODUCTION NEWSLETTER

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Oklahoma State University Small Grains Extension
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Dry weather continues

By Jeff Edwards

The fall of 2005 will go down among the driest ever in Oklahoma (Figure 1), and the new year has offered little relief in the way of rainfall. In fact, most areas of the state have received less than 0.4 inches of rain since last October. In many cases this minimal rainfall will be enough to keep wheat plants hanging on, but will not be enough to encourage additional tillering or forage growth for grazing.

I am an optimist by nature, and I am not ready to write off our wheat crop just yet. Certainly, late-planted fields that only had partial emergence due to dry weather will have minimal yield potential. Issues that will be faced by late-emerging wheat include lack of sufficient cold weather for vernalization and reduced tillering. I am attaching a recent (01-13-06) Texas A&M newsletter to the electronic version of this newsletter. I feel the authors do a great job conveying the ins and outs of evaluating the potential of late-sown wheat.

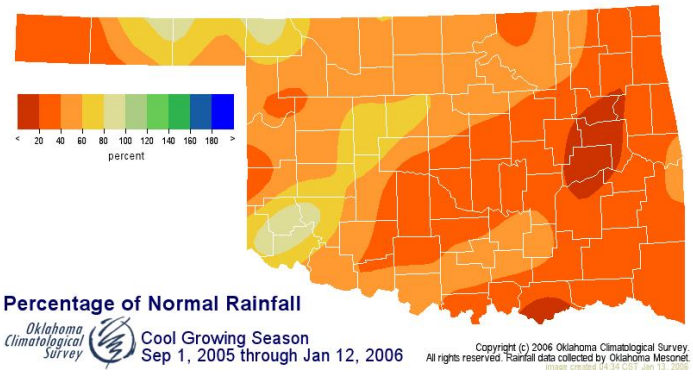


Figure 1. Most areas of Oklahoma have received less than half of normal rainfall for the wheat growing season. (figure courtesy of the Oklahoma Climatological Survey).

If we can catch a few more snows and/or rains on well-established wheat, we may still go into the spring of 2006 with a decent crop. Further, while it is no consolation for stocker producers, reduced grazing in the fall of 2005 will likely be of benefit to the grain crop of 2006.

This issue of the Wheat Production Newsletter could easily be called the tough decisions edition. This is because drought conditions ratchet up the pressure placed on what would normally be easy, everyday decisions in a farming operation. Whether or not to topdress wheat, for example, is generally a matter of routine for many producers, but questions such as "*will we get enough rain to move N into the soil?*", "*should I change the type of N product I use in a dry year?*", and "*is it worth it to topdress at all?*" can make these decisions agonizing. Therefore, in this issue we will attempt to provide you with the pros and cons of different N management options and help you make a well-informed decision regarding topdress N.

INSIDE THIS ISSUE

What about my fall-applied nitrogen?

By Jeff Edwards and Hailin Zhang

Where we stand right now regarding nitrogen that was applied last fall? In most circumstances, the bulk of fall-applied nitrogen should still be around. We had little rainfall for losses from leaching and denitrification. Further, since forage production was low, there was not too much nitrogen taken off through grazing.

Now that we have established that most of your fall-applied nitrogen is still around, the next logical question would be *is my fall nitrogen application enough?* If you have a soil test from last fall you can do some quick math to estimate your topdress nitrogen needs.

The most accurate way to determine your crop nitrogen need is with a nitrogen-rich-strip. It is in the tough years, such as this, that nitrogen rich strips and sensor-based nitrogen recommendations truly shine because they take the guesswork out of the decision. For more information on nitrogen rich strips and their use talk with your local county extension agent or visit www.wheat.okstate.edu, click on fertility and then follow the links to sensor-based nitrogen recommendations and/or nitrogen use efficiency.

It's all about timing

By Jeff Edwards and Hailin Zhang

Many producers have written off topdressing this year, while others are waiting as long as possible to pull the trigger on nitrogen applications. Arguments can be made for each approach, and this decision must be made on a farm-by-farm basis. It is important, however, not to wait too late to make this decision.

There are benefits to waiting, but from a practical standpoint the best time to top dress is when you can get the work done. Growers with soil types that are typically hard to get across, need to cover a large amount of acreage, or who rely on custom applicators that have a large acreage to cover will need to get started early and perform top-dress operations when conditions allow.

Research has indicated that timing of spring N applications will have minimal effect on wheat yield. However, studies agree that N application should be made at or prior to Feekes growth stage 6 (Feekes GS 6 is identified by a visible hollow stem and node above the soil surface), as effectiveness of N applications past this point are diminished. It is also important to remember that rainfall will be required to move N into the soil profile. So not only does the nitrogen need to be applied by GS 6, it also needs to moved into the soil profile very soon thereafter.

Don't sacrifice quality for speed. Misapplied nitrogen costs the same per pound as properly spread N.

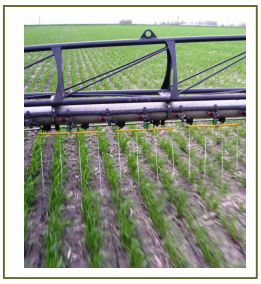
Coke or Pepsi?

By Jeff Edwards and Hailin Zhang

No, we are not reviving the Pepsi Challenge, but just like there are numerous opinions out there on which cola is the best, there are several different opinions on which nitrogen fertilizer is best. The most common debate is over Urea vs. UAN solution. This decision must be made on an individual basis, but the deciding factors are common for most operations.

a. ***which can be applied in a uniform fashion?***
Both liquid and granular top-dress N can be applied uniformly across a wheat field; however, both can result in a streaked wheat field as well. The important thing to remember here is that properly applied N costs no more that improperly applied N, so uniform application is essential to obtain the most bang for your buck.

b. ***which is the cheapest source per unit N?***
The most common forms of top-dress N used in Oklahoma are UAN solutions (28, 30, and 32% N), urea (46% N), and ammonium nitrate (34% N). The only fair way to compare product prices is to compare the cost per unit N. An example for how to do this is shown below (Table 1):



Streaming nitrogen is one way to eliminate the burn associated with topdress applications of liquid N.

c. ***what are the weather conditions?***
The first issue to consider is "burn" that can occur when broadcast applying large amounts of liquid UAN fertilizers to actively growing plant tissue, which results is desiccation of wheat leaves. I am not aware of any published research regarding yield losses associated with N "burn", but any potential for yield loss would be more likely for wheat that is past the tillering stage. If leaf burn is a concern, then liquid N should be dribbled on using stream bars or granular N should be applied.

d. ***what about volatilization losses?***
Volatilization or gaseous losses of N as ammonia gas (NH_3) are known to occur when urea is applied to soils with pH > 7.0 and where surface soil temperatures are high. Since all the N in urea is in the

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Table 1. Comparing the prices for different N sources

	Urea		28% UAN	
Percentage N	46%		28%	
	2000		2000	
Actual N in a ton of product	920		560	
Price per ton		$368		$241
	÷	920	÷	560
Price per unit N		***$0.40***		***$0.43***

ammoniacal form and only part of the N in UAN is in this form, the volatilization loss from urea is higher than UAN. However, UAN is about 10% more expensive than Urea. If the same amount of money is spent on N, ***the net effect is probably the same*** when both are applied to fields with pH less than 7 and temperature lower than 70 degree.

e. ***I am no-tilling, does that make a difference?*** Reduced tillage systems have shown distinct advantages over that of conventional tillage in terms of soil erosion control, increased soil moisture, and higher residual soil mineral N levels. However, reduced tillage systems can also increase volatilization losses from surface applied urea in contact with residues when compared to conventional tillage.

Other fertility issues associated with reduced tillage systems include increased surface soil acidity, denitrification, immobilization, NO_3-N leaching and higher N requirements for crop production. However, due to the drought condition this season neither denitrification nor leaching is significant.

In summary, whether you are conventionally tilling or no-tilling should have little impact on the type of nitrogen fertilizer you should use. You should also take note that, volatilization losses can be minimized by applying nitrogen on a cooler day regardless of the tillage system used.

Subscription Information

The *Wheat Production Newsletter* is published in electronic format on an as needed basis throughout the year. To receive an electronic copy in pdf format, send an email with **subscribe** as the subject line to jeff.edwards@okstate.edu

Upcoming Events

February 17 – Oklahoma Grain and Stocker Producers (OGSP) annual meeting. Autry Technology Center, Enid (morning) and the Wheat Pasture Research Center, Marshall, OK (afternoon). Contact: Candace Krebs (580) 242-1910.

Conservation Tillage 101– This is a series of four meetings directed towards producers with no experience in conservation tillage and those currently using conservation tillage who wish to gain more information. Each session will cover different topics. They are scheduled for ***January 18, February 1, 8, and 15th*** at the Hoover building in Enid. All sessions start at 9 AM. Contact the Garfield County Extension office form more information.

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