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Wheat prices at $7.00/bu presents a fun challenge along with several management considerations. Wheat seed at planting time may well be limited for the amount of acres to be planted. We want to use outstanding varieties and plant as many acres as possible with these varieties. We also want to make sure we position ourselves to make high yields and high quality wheat. In addition to this we usually have many producers who produce wheat on marginally adapted soil. Many of these producers only produce wheat when the price is high and usually appreciate reminders of the basic management steps that build the potential for a good crop on these soils.

This newsletter is aimed at the first few management steps for this year's crop with the above objectives in mind.

Wheat Varieties for Planting This Fall

Bill Bruening and Dave Van Sanford

Most farmers have already selected their wheat varieties to plant this fall. However, in response to good wheat prices many growers are getting into wheat late or plan on increasing their wheat acreage. For these growers, variety selection decisions are still being made. The choice of varieties may be limited due to high demand and short seed supply, but using UK wheat variety test data (available at <http://www.uky.edu/ag/wheatvarietytest>) is still the best bet for maximizing potential production profitability. In addition to grain yield and test weight data, the UK variety test report also provides info on forage and straw yield potential and disease ratings.

Variety selection has consequences for the entire crop year. For example, it is best to plant varieties with some level of head scab resistance because this can be such a devastating disease. If resistant varieties are not available, however, and a grower chooses to plant a susceptible variety, it is critical to be ready to apply a fungicide next spring, if conditions favor head scab. Growers can go to http://scabusa.org and sign up for FHB alerts, then click on the Scab Smart link to learn about available fungicides. The bottom line is that the varieties selected now will determine the potential management decisions for the entire crop year.

Using Saved Seed for Planting: A Fusarium Head Blight Perspective

Don Hershman

A shortage of wheat seed has many growers contemplating the possibility of planting saved seed this fall. Recently, I have received several questions from wheat farmers about the wisdom of planting seed harvested from fields that had symptoms of Fusarium head blight (FHB), also known as "head scab". The fungus that causes FHB, *Fusarium graminearium*, is often present at high levels in grain harvested from fields where FHB was at least moderate (i.e., 10-30% of heads had FHB symptoms; Figure 1). Planting such seed can result in poor stands. However, marginal quality seed can often be successfully used as long as attention is given to certain details. Poor quality, low germination , seed should not be planted under any circumstance.

Preliminary data (July 2010) from the University of Kentucky Seed Testing Laboratory found that the average percent germination for 107 samples tested was 78%. When 30 samples averaging 70% germination were treated with the fungicides Raxil-Thiram, under laboratory conditions, the germination percentage was increased to an average of 89% - a net gain of 19%. These data suggest that grain harvested this spring is not uniformly of high quality for seed purposes. Also, that a cause of reduced germination in the seed lots tested had a fungal origin, as reflected by the significant improvement in percent germination when fungicides were applied. In most cases, *F. graminearium* was a probable cause of reduced germination rates, although this was not specifically determined.

If you are considering planting saved seed this fall, the first thing to do is to have the seed tested for germination. High germination seed could probably be planted with excellent results without applying a seed fungicide. However, it might still be prudent to arrange for a seed treatment fungicide in the off chance that loose smut is a "hidden" problem and/or post-planting conditions turn hostile. Moderate germination seed should be treated with an appropriate seed treatment fungicide. This is especially true if germination tests indicate that treating seed improves the percent germination of the seed lot in question. It is an easy and inexpensive proposition to get this information. For $14, the University of Kentucky Seed Testing Laboratory in Lexington will determine germination percentages of untreated seed and the same seed treated with Raxil-Thiram . If treating does not improve the germination percentage, it is an indication that some non-disease factor, such as physical damage, is at play in keeping seed germination lower than desired. Seed in this situation may still be useful, but do not expect seed treatment fungicides to improve germination. Still, seed fungicides may help protect developing seedlings that may be stressed or have reduced vigor.

One final point. Everything I have discussed up to this point has to do with seed germination and stand establishment. However, there is NO CONNECTION between *F. graminearium* in and on seed and how much FHB develops next spring. They are completely unrelated! How much FHB develops next spring is a function of the weather conditions leading up to, during and immediately following anthesis (i.e., flowering after head emergence), the susceptibly of the variety to FHB, and if a fungicide was applied to the heads or not. Spores of *F. graminearium* that result in FHB in the spring come primarily from corn residue – not seed. The contribution of seed towards the development of FHB is negligible.

Figure 1. Typical symptoms of Fusarium head blight ("head scab")

Use Decision Tool to Control Wheat Seed Costs

Sam McNeill

The goal of every wheat producer is to reach the maximum yield potential from each variety grown. Selecting and achieving the optimum seeding rate during planting is the first step towards this goal, which requires that grain drills be calibrated with each seed variety/lot that's selected. A field study in the late 90's with four different drills showed that individual seed metering/delivery units on the same drill can vary by more than 10% above or below the target-seeding rate, which affects seed costs proportionately. For this reason, it's best to collect seed from 3 to 5 drop tubes across the length of the drill during calibration to obtain an accurate value of the average seeding rate.

Most drill operator's manuals provide seeding rate tables that are useful for 'coarse tuning' a drill but these have been found to vary by 10% or more from measured values in calibration trials for many soft red winter wheat varieties. Operators who calibrate their drills each year and who keep records of their drill settings for a range of seed sizes from year to year can reduce the time required to calibrate their equipment provided that seed of similar size is used.

Seeding rates are typically increased as the planting season progresses. No-till operators also match seeding rates to the amount and condition of residue that's encountered at planting time. The degree of residue decomposition, soil and residue moisture, and post-harvest residue treatment (mowed or uncut stubble) all affect drill performance, stand establishment, final stands, yield, and ultimately profits.

For these reasons, a spreadsheet has been developed to help farmers calibrate their drills, figure the amount of seed needed, and make it easy to keep records of their wheat enterprise. It is especially helpful this year because seed prices are generally higher and farmers can use it to control input costs.

An example of the spreadsheet is shown in Table 1 with four different wheat varieties for a 500-acre farm. Notice that seed costs per acre can vary considerably (~$28.50 to $56) depending on seed size (10,000 to 15,000 seeds per pound) and price per bag ($13 to $20). Since wheat seed is typically sold in 50-lb bags and seeding rates are based on a specified number of seeds per unit area, the smaller seed of equal quality is the better buy provided the same yield potential exists between the varieties being compared. Additionally, seed size can vary considerably between lots of the same variety (last two rows in Table 1), so if sufficient quantity of the smaller seed had been available the farmer could have saved $980 ($7.84/acre).

By simply changing the plant population on the spreadsheet the total amount of seed and its cost for a given operation are quickly calculated…a useful feature that helps farmers select profitable target populations. To illustrate this point, the impact of different seeding rates on the total seed cost for the previously described varieties in a 500-acre operation is shown in Table 2 for a typical range of desired plant populations. In this example, a difference of 50 plants per square yard changes the total seed cost by $3.884. Moreover, the difference in total seed costs between timely planting and late planting can approach $7,768 or $15.54 per acre.

This spreadsheet is accessible from the UK Biosystems and Agricultural Engineering Department website (http://www.bae.uky.edu/ext/Grain_Storage/calculators.htm).

Table 1. Seeding rates for four wheat seed lots based on the desired plant population, row spacing, and seed tag data. After putting in the number of acres and cost per bag, the number of bags needed and seed costs per acre are calculated for each lot.

Desired stand		Row spacing In.	Plants per foot of row								
per square yard	per square foot										
300	33	**7.5**	21								
					Seeding rate				Cost		
Variety	Lot No.	No. seeds per lb	Germ %	Purity %	lb per acre	gram per 200 ft of row	No. acres	No. 50 lb bags	per bag	per seed lot	per acre
Var 1	**Lot 1**	**15,000**	**90**	**98**	110	143	**125**	274	**$ 13.00**	$ 3,567	$ 28.54
Var 2	**Lot 1**	**10,000**	**90**	**98**	165	214	**125**	412	**$ 17.00**	$ 6,997	$ 55.97
Var 3	**Lot 1**	**14,000**	**90**	**98**	118	153	**125**	294	**$ 20.00**	$ 5,879	$ 47.04
Var 3	**Lot 2**	**12,000**	**90**	**98**	137	179	**125**	343	**$ 20.00**	$ 6,859	$ 54.88
						Total	500	1323		$ 23,302	
										Average	$ 46.60
Note: Items shown in **bold** are used to compute the desired values for each variety based on seed tag and cost data.											

Table 2. Seed costs for various plant populations with the same varieties selected on the 500-acre farm in Table 1.

Target Population		Total Seed Cost
plants/yd^2	**Plants/ft^2**	
200	22	$ 15,535
250	28	$ 19,419
300	33	$ 23,302
350	39	$ 27,186
400	44	$ 31,070

Wheat Planting When Futures are High and Seed Might Be Short

Chad Lee and Jim Herbek

Many producers locked in wheat contracts for 2011 at or over $7 per bushel and some are growing wheat for the first time in five years. There are rumors that seed supply is tight. If these rumors are accurate, there may be some temptation to skimp on seeding rates in order to cover more acres. If you are one of those producers, just know what your risks are by cutting back and proceed with caution.

Maximum wheat yields normally require a final stand of 30 to 35 plants per square feet, but under the right conditions, stands as low as 20 plants per square foot will yield well. Getting a successful stand requires several things, including timely seeding, an accurate seeding rate, correct seed depth (1.0 to 1.5 inches), adequate soil moisture, and no seedling diseases.

Wheat should be planted from about October 10 to October 30 for most of Kentucky. This window normally provides the best opportunity for getting a good stand and good growth before the cold winter months. Seed rates can be 30 to 35 seeds per square feet, but if you are considering dropping back a little, this is the time to try it. If planting occurs after October 30, then the seed rate should be 35 to 40 seeds per square foot. These seed rates assume a standard germination of 90%. For seed lots with lower standard germinations, a higher seeding rate is needed.

Drill calibration is absolutely necessary to dropping the correct amount of seeds. This process takes time and should be conducted with each seed lot you receive. If you do not have the time and/or patience for this procedure, then hire someone to calibrate your drill. This procedure will benefit your wheat production system. Guidelines on calibrating wheat drills is available in the ID:125 Comprehensive Guide to Wheat Management, Chapter 4 "Planting and Drill Calibration" http://www.uky.edu/Ag/GrainCrops/ID125Section4.html.

Adjusting the drill for planting depth also takes time but will result in better stands. These adjustments need to be made in the field on the day of planting. Field conditions change from day to day and the pressure needed to get the desired depth may change day to day as well.

So, if you decide you are short on wheat and you want to skimp on seed, be sure you know the conditions in which you are planting. If possible, try to skimp in situations that will still provide a chance for good stand establishment. In a year when a large part of the 2011 crop may already be sold, skimping on seeding rates should only be used as a last resort.

Wheat in 15-inch Rows Will Work But Might Cost Yield

Chad Lee and Jim Herbek

With the increased interest in wheat from futures prices and the anticipated increased acres planted this fall, many farmers are asking if they can use their 15-inch soybean planter to plant wheat. The quick answer is yes, but you might loose some yield.

We have investigated three varieties of wheat at Princeton and Lexington in 15-inch and 7.5-inch rows at Princeton and Lexington for the past two years, giving us four environments. We tested varieties that were known to be prolific, meaning that they produce a lot of tillers. Yields were excellent, ranging from 70 to just over 120 bushels per acre (Table 1). In two of the environments, there were no differences in yield between 15-inch and 7.5-inch rows. In the other two environments, yields in 15-inch rows were about 8.5% less than yields in 7.5-inch rows.

Based simply on this research, if yields in 15-inch rows are 8.5% less than yields in 7.5-inch rows and futures prices are $7 per bushel, a field of 500 acres will net about $30,000 more with 7.5 -inch rows. Trucking and storage have not been included in these returns. However, If we assume the $30,000 over 500 acres, that is a difference of $60 per acre.

So, instead of converting your 15-inch planter to wheat, you might want to consider contracting with someone who has no-till drill and drilling the wheat in 7.5-inch rows. If contracting is not an option and you are not in the market to buy a grain drill, a 15-inch planter can work… it just might yield a little less. If you do use a 15-inch planter, try to find a variety that produces a lot of tillers.

Table 1. Wheat yields combined across Beck's 122, Branson and Pembroke varieties in different row spacings in Princeton and Lexington, Kentucky.

Site	Row Width (inches) [1]	Yield, bu/A
Lexington 2009	15(35)	90.4
	7.5	93.9
Princeton 2009	15(35)	89.6
	7.5	100.6
Lexington 2010	15(25)	71.0
	15(35)	74.0
	7.5	78.5
	3.75	80.8
Princeton 2010	15(25)	121.0
	15(35)	122.9
	7.5	121.5
	3.75	115.7

[1] 15(35) and 15(25) refer to wheat in 15-inch rows and 35 or 25 seeds/ft^2, respectively.

ID-125 WHEAT MANAGEMENT IN KENTUCKY

http://www.ca.uky.edu/agc/pubs/id/id125/id125.pdf

MARK YOUR CALENDARS FOR THE UPCOMING WINTER WHEAT MEETING

January 11, 2011
Christian Co. Extension Office

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