NC STATE UNIVERSITY

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Inside this issue:

Wheat Production

Wheat is projected to exceed 900,000 acres in North Carolina this year with record high commodity prices wheat is a good crop to fit into the farm plan for 2012-2013. More options are available with the opportunity to double crop with both soybeans and grain sorghum. However input cost will also increase for this wheat crop with higher seed, fertilizer, chemical, and production cost. As in the past it is important to maximize production to assure an opportunity to produce high yields and a profitable outcome. Wheat production has become very intensive to maximize yields. The most important phase of wheat production is getting off to a good start with variety selection, fertility, land preparation, and timely planting dates.

Planting Dates and Seeding Rates

The optimal planting dates for wheat in Wayne County are October 20-30. Planting earlier can result in excessive growth, increased insect and disease infestations, and early spring freezes. Later planting can result in reduced tillering and poor root development, which can result in cold weather damage, and increased seeding rates.

Seeding rates for small grains can vary widely due to differences in seed quality, planting conditions, planting dates, and the planting equipment or system being used (drill

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or broadcast seeding). Information from the intensive wheat management guide from the Virginia Polytechnic Institute recommends planting 1.31 to 1.52 million seeds per acre. This is in the upper half of the "ideal" range which is 1.1 to 1.52 million seeds per acre.

The best way to ensure a correct small grain seeding rate is to calibrate the drill for the specific seed being planted. The most accurate way to calibrate is to base seeding rates on the desired number of seed per drill-row foot. This number does not vary across seed sizes or change depending upon seed treatments. The Seeding Table gives target seeding rates in terms of seeds per drill-row foot across a range of drill-row widths. For example, the Table shows that if a grower has a drill with 7.5-inch row spacing, the correct seeding rate is between 19 and 22 seeds per drill-row foot (assuming planting is on time, the seed has at least 90 percent germination, and planting is into a conventionally tilled seed bed). Remember seeding rates should be increased by 20% for no-till.

Million Seed Per Acre	**1.31**	**1.52**
Seeds Per Square Foot	30	35
Seed Size Seeds Per Pound	Pounds of Seed Per Acre	Pounds of Seed Per Acre
10,000	131	152
11,000	119	138
12,000	109	127
12,500	105	122
13,000	101	117
14,000	94	109
15,000	87	101
Drill Row Spacing (inches)	Seed per Drill-Row Foot	Seed per Drill-Row Foot
6	15	17
7	18	20
7.5	19	22

Variety Selection

Variety selection is very important for yield potential, test weight, insect and disease resistance, and planting dates. The best source of unbiased public and private wheat variety performance information for NC is the *Wheat Variety Performance and Recommendations SmartGrains Newsletter* www.smallgrains.ncsu.edu/_SmartGrains/_VarietySelection.pdf),

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(enclosed) which is released every July at NC State University and prepared by Randy Weisz in the Crop Science Department at NC State. This newsletter is based on the *Official Variety Test Report* or OVT (www.ncovt.com), and additional Cooperative Extension variety testing projects around NC. This newsletter groups wheat varieties into four categories: above average yielding, above average but less consistently yielding, average yielding, and below average yielding. It also gives heading date and pest resistance information about each wheat variety. Heading date also indicates when a wheat variety should ideally be planted. Medium and late heading wheat varieties tend to do best when planted at the start of the planting season, and consequently should be the first varieties a producer plants. Early and medium-early varieties tend to produce the highest yields when planted later in the fall.

Small grain variety performance can vary greatly from one year to the next. This makes it nearly impossible to pick a single best variety. Consequently, producers should plant three or more varieties every season. Growing at least three varieties will reduce the risk of freeze injury, pest damage and other forms of crop failure and maximize the potential for a high-yielding crop.

Seed Treatments: Fungicide seed treatments such as Dividend Extreme, RaxilXT, Proceed, and Charter F2 are effective against, loose smut, early season powdery mildew, SNB, and head scab. Insecticide seed treatments such as Gaucho and Cruiser are effect against early season aphids which can transmit barley yellow draft virus (BYDV) and Hessian fly. The typical use rates applied by distributors are in the range of 0.8 – 1.0 oz. of product per 100 pounds of seed. However, the highest labeled rates are recommended for control of Hessian flies.

Saved Seed: Producers need to be especially concerned that saved seed may be contaminated with diseases such as loose smut, *Stagonospora nodorum* blotch (SNB), or head scab. If the seed was produced using no-till methods, the chances of SNB or scab contamination are increased. If loose smut, SNB, or head scab were present in the field the small grain was harvested from, the grain should *not* be used for seed. Doing so would contaminate the new crop, resulting in reduced yield, lower test weight, and the potential need to apply a foliar fungicide. Treating saved seed with a low-cost fungicidal seed treatment (such as Dividend Extreme, RaxilXT or Proceed) can reduce (but not eliminate) this risk.

Fertility

Soil testing before planting is an essential component of a small grain fertility management program. Proper pH is critical in obtaining good crop growth and yield. Small grains grow best when the pH is near the target level for each soil class. Target levels are 6.0 for mineral soils, 5.5 for mineral organic soils, and 5.0 for organic soils. When the soil pH is below these targets, apply lime as early as possible in the production year to allow time for neutralizing soil acidity. A good soil test is the best way to determine at plant fertilizer requirements for nitrogen, phosphorus, potassium, and sulfur and other micro nutrients.

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Weed Management

Early season weed management depends on starting clean. This requires a good burndown herbicide or tillage to control emerged weeds and grasses. Winter annual weeds, such as chickweed, henbit, annual bluegrass, wild mustard, and Italian ryegrass have often emerged at the time of planting. Unless killed at time of planting, these weeds will have a head start on the crop and will be very competitive. Emerged weeds can be killed prior to planting with glyphosate or paraquat. Particular attention should be paid if Italian ryegrass is a problem and has emerged before planting. If ryegrass plants have tillered Roundup should be applied before planting or prior to tillage as tillage may not kill these larger plants and chemical control later in the season may not be effective on these larger ryegrass plants. There are 2 herbicides available for residual control of ryegrass near planting. Valor can be applied at 2 oz./A **30 days** before planting in **NO-Till wheat only**. Valor gives fair to good control of ryegrass and good to excellent control of broadleaf weeds. If ryegrass pressure is light to moderate a Valor application may be adequate for ryegrass control. If ryegrass pressure is moderate to heavy Valor will reduce early season competition and buy some time before a postemergence application of Powerflex, Axial, or Osprey may be needed. Valor can be applied in a tank mix with your burndown herbicide. The other option is Axiom which is applied when wheat reaches the spike to 2 leaf stage of growth. Axiom should be applied at 6 oz./A on sandy soils and 7-8 oz./A on medium to heavy soils. Axiom will control ryegrass and most broadleaf weeds if activated by rainfall 7–10 days after application. Valor and Axiom are good compounds for management of ACCase resistant ryegrass.

Wheat Following Grain Sorghum

Sorghum leaves a chemical in the soil that can hurt wheat. Little is known about it, and tests have never been done in this part of the country. So we have little data to go on. The problem is most severe in no-till wheat following sorghum. Some reports have shown up to a 25% yield reduction when no-till wheat follows sorghum. Some reports have shown less. Tillage helps. Yield reductions in tilled wheat following sorghum have ranged up to 10%.

Growers who want to plant wheat following sorghum should know that this might be a problem for them. Because very little research has been done in this area, it is difficult to make recommendations to assist folks who want to do this. But, here are several suggestions that may help.

1) Use glyphosate to kill the sorghum prior to harvest. If the sorghum is left alive and starts to regrow after harvest, the new roots will continue to exude the toxic compound.
2) Use tillage to incorporate sorghum residues and hasten their decomposition.
3) Delay wheat planting. This is tricky. Delaying wheat planting can in-and-of-itself reduce wheat yield, but it may also help to allow the toxic compounds to decompose.
4) Make sure the wheat is treated to high pre-plant fertility levels. Make sure pre-plant N, P, K, and S are at or above recommended levels.

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5) If planting wheat after tillage check stand establishment and watch early tillering. The problems are most likely to show up early in the season and look like either a poor stand, or a good stand that starts to go backwards. Early N in February may help.
6) If planting wheat no-till, watch the wheat plants both early for stand establishment, tillering (and need for February N), and also in the spring!!! Research has shown that the problem may not start in no-till wheat until the spring when plants may begin to turn yellow and abort tillers. We are learning as we go on this one! Hopefully by next year we will have a lot more concrete information about this.

More detailed wheat production information can be found in the NC State University Small Grain Production Guide and North Carolina Measured Crop Performance Small Grain Guide (OVT) both available in the Wayne County Extension Office or on line at www.smallgrains.ncsu.edu/production-guide.html and www.ncovt.com.

I am pleased to be able to provide you this educational information.

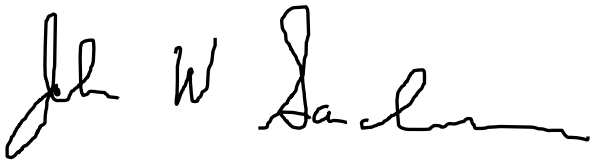

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Table 1. 2011 & 2012 Wheat Variety Performance

Wheat Variety[1]	Test Weight[2]	Heading Date	Pest Resistance To[4]								
			Powdery Mildew	Leaf Rust	SNB[3]	Hessian Fly	BYDV	Soilborne Wheat Mosaic	Wheat Spindle Streak	Head Scab	Stripe Rust
Above Average Yielding (88 to 94 Bushels per Acre)											
AGS 2035	ave	early	MS	R	MS	good	MR	MR	MS	MS	MR
DG 9012	ave	late	MS	MR	S		MR			MR	
DG Shirley	-	late	R	MR	S	fair	MR	MR	R	MS	S
FthrStn VA258	ave	medium	MR	R	MR		S			S	
NC Cape Fear	+	early	R	MS	MR	fair	MR	MR	R	MS	S
P 26R20	+	late	MR	R	MS	good-fair	S			S	
Prog 870	-	late	MS	MS			MR			S	
SS 8340	+	late	MR	MS	MR		MS			MR	
Terral TV8881	ave	late	MS	MS	MS		MR			MS	
USG 3120	+	early	MS	R	MR		MR		MR	S	
Above Average Yielding But Less Consistent											
DG Dominion	ave	medium	R	S	MR	fair-poor		R	MS	MR	MR
Oakes	+	medium	MS	MS	MR	fair	MS	S	MS	MR	
P 26R10	-	late	MS	MR			MS			MS	
SS 8500	ave	late	MS	MR	MS		MR			MS	
Terral TV8535	-	late	MS	MS	S		MR			MS	
Terral TV8848	ave	late	MS	MR	MR		MR			MR	
USG 3438	-	medium	MR	MR	MR		MR			MS	
USG 3555	-	medium	MR	S	MS	fair-poor	MR	MR	R	MR	R
Average Yielding (86 to 87 Bushels per Acre)											
AGS 2026	ave	early	MS	R	S	good	MR	MR		S	R
DG 9053	-	late	MS	MS	S		MS			MS	
DG 9171	-	late	MR	MR	MS		MR			MR	
DG Baldwin	ave	medium	MS	R	MS	good	MS	MR	R	MS	MR
NC Yadkin	ave	late	R	MR	MS	fair	MS	MR	R	MR	MS
P 26R12	+	late	MS	S	MS	good	MR	MR	MR	S	MS
P 26R22	-	late	MS	S	MS	fair-poor	MS	MR		MS	R
SS 520	-	early	MR	S	MS	poor	S	S	R	S	S
SS 5205	+	medium	MS	MR	MS	poor	MR		MR	MS	R
SS 8404	+	medium	MS	R	MS	fair-poor	MR	MR	S	S	S
SS 8641	+	medium	R	R	MR	fair-poor	MR	MR	MS	S	MR
SS 8700	-	late	MR	S	MR	fair-poor	MR			MS	
SY 9978	-	late	MR	MS	S	good	MR			S	
Terral TV8525	+	late	MR	MR	MS		MR			MR	
USG 3201	ave	late	MS	MR	MS		MR			MR	
USG 3209	ave	early	MR	S	MS	poor	MS	MR	R	MS	MS
USG 3592	+	medium	MS	R	MS	fair	S	MR	R	S	MS
Below Average Yielding (80 to 85 Bushels per Acre)											
AGS 2056	-	late	MS	MR	S		MR			MS	
C 9553	+	medium	MS	MS	MS	fair-poor	MS	MR	MS	MS	MR
C 9804	-	medium	MS	MR	S	poor	MS		MS	S	
NC Neuse	+	late	R	MR	MR	good	MS	MR	MS	MR	MS
P 25R32	+	late	MS	MR	MR	good-fair	MS			MR	
P 26R15	-	late	MR	R	MS	good-fair	S	MR	R	MR	MR
Prog 117	ave	medium	MS	S	S	poor	MS		R	MR	
Prog 125	ave	early	MS	MS	S		MR			S	
Prog 185	ave	late	MS	MS	MR	poor	MS		MR	MS	S
Prog 357	-	late	MS	S			MR			S	
SS 8302	ave	late	MS	S	MS	fair		MS	MR	MR	R
SS 8308	+	late	MR	MS	MS		MS			S	
Terral TV8626	-	late	MS	S	MS		MR			MS	
USG 3409	ave	medium	MR	S	MS		MR			S	
USG 3665	-	medium	MR	R	S	good-fair	MR	S	R	MR	MS
VA Jamestown	+	early	MR	MS	MS	fair	MR	MS	MS	MR	MR
VA Merl	+	late	MR	MS	MS		S		R	S	

1. Listed alphabetically within groups: AGS = AgSouth Genetics; C = Coker; DG = Dyna-Gro; FthrStn = Featherstone; P = Pioneer; Prog = Progeny; SS = Southern States; SY = Syngenta; USG = UniSouth Genetics.
2. For test weight "+", "ave", and "-" stand for above average, average, and below average, respectively.
3. SNB stands for Stagonospora nodorum blotch.
4. S, MS, MR, & R stand for Susceptible, Moderately Susceptible, Moderately Resistant, & Resistant, respectively.