

Small Grain Production Guide 2013 - 2014

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Variety Selection

Variety selection is one of the most important decisions in small grains production. Growers should choose varieties with a high yield potential and good disease resistance. Seed weights vary from year-to-year among varieties because of the variations in growing conditions, however, planting seeds with low test weights can significantly reduce yields.

Table 1 shows excerpts from the UGA, 2012-2013 Small Grains Performance Test for wheat at Tifton, GA.

Planting

Wheat, rye, and oats grown for grain should be planted into a well prepared seedbed or, if using a no-till drill, may be directly planted without tillage. Small grain roots can be easily inhibited by hardpans or plow layers, so deep tillage may be necessary if hardpans exist in a field.

The optimum time to plant small grains for grain production in North Florida is November 7 – December 15. It is important to plant full-season

varieties in the early part of the range to ensure the crop receives enough cool weather to properly vernalize. Insufficient vernalization will reduce seed head formation. Additionally, do not plant early season varieties at the beginning of the planting window as they may head out too early and be damaged by a late frost.

Seeding Rate

Seeding rates for various small grains are similar, however there are large differences in how much a bushel of each crop and variety within a crop, weigh.

The old rule of thumb was to plant wheat at 2 bushels per acre. However, because of the major differences in seed weight among varieties, it is better to plant based on the number of seeds per square foot.

The recommended rate is to plant 30-35 seeds per square foot. If you are using a grain drill with 6 – 8 inch row spacing, this would be 18 - 23 seeds per foot of row in order to plant 30 seeds per square foot. *See table on next page.*

Row Width	Seeds per square foot			
	30	35	40	45
	<i>Seeds per linear foot</i>			
6"	15	18	20	23
7"	18	20	23	26
7.5"	19	22	25	28
8"	20	23	27	30

Adapted from 2013 Alabama Winter Wheat Production Guide

The optimum planting depth is between 1 and 1.5 inches. Seeding rate can be increased by 10-15% if planting in December.

Fertilization

Nitrogen (N) is a key nutrient for grain production. A pre-plant application of 20-30 lbs. N per acre followed by 70-90 lbs. applied around Feekes 3 (generally occurs between the last week of Jan. and first 10 days of Feb.) produces good yields. On sandier soils it may be beneficial to use split applications, applying 60 lbs. of N in late January, followed by another 40-60 lbs. in mid to late February.

Late applications of N (stem elongation or later) generally do not increase yield but can lower test weights and increase foliar disease. Total N applications over 120 lbs./acre have not been shown to be beneficial and can increase lodging, reduce grain quality, and delay maturity.

Sulfur (S) applications may increase yields on sandier soils, where S is not as available. Top-

dressing 15-20 lbs./acre with N should be adequate.

Phosphorous (P) and Potassium (K) are essential for high grain yields. A soil test is the most accurate method to determine P and K requirements. The majority of plant uptake for these nutrients occurs early in the plant's development, therefore, it is important that these nutrients be applied at planting.

Lime should be applied prior to planting to achieve the target pH of 6.0.

Weed Control

Planting into a weed-free seed bed is essential to establishing a stand of small grains. The best way to accomplish this is with tillage or burn-down herbicide applications. Additionally, there are several herbicides that can be used once the crop has emerged, but most must be applied early in the season, before jointing occurs.

Wheat and other small grains can be injured by some herbicides if they are not applied during the correct growth stage or at the correct rate. See the table below for the effectiveness of various herbicides on winter weeds.

Feekes Scale

The Feekes scale of wheat development is a common tool used to describe the growth stage of a wheat crop. Adapted from University of Kentucky Ag Extension. *See below.*

Figure 2-1. The Feekes scale of wheat development.

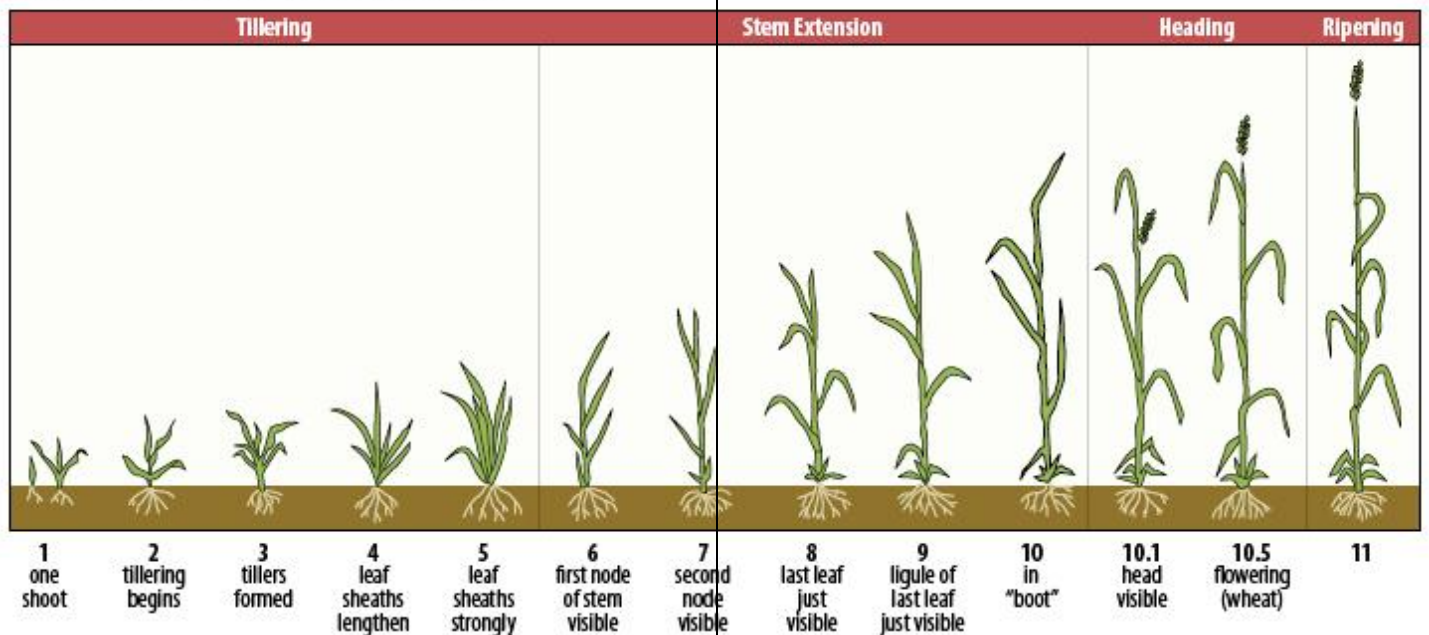


Table 1. Excerpts from the University of Georgia Wheat Variety Trials, Tifton.

Variety	3-Yr. Avg.	2-yr. Avg.	2013	Test Wt.	Height	Head Date	Leaf Rust	Stripe Rust	Glume Blotch	Powdery Mildew	BYD
	-- bu/acre --			lbs/bu	inches						
Jamestown	85.2	86.3	96.6	61.0	39	4/04	Poor	Good	Fair	Good	Fair
AGS 2035	84.5	83.1	82.2	60.5	43	4/01	Good	Good	Fair	Fair	Fair
Oglethorpe	84.3	81.1	84.9	59.4	40	4/07	Good	Good	Good	Fair	Fair
AGS 2026	83.2	78.8	81.8	59.0	40	4/08	Good	Good	Good	Good	Fair
SS 8641	82.0	80.8	81.3	58.8	42	4/10	Good	Good	Fair	Good	Fair
AGS 2038	80.3	79.6	82.3	60.3	45	4/01	--	--	--	--	--
La754	78.5	74.9	69.2	59.8	39	4/05	--	--	--	--	--
Coker 9700	78.0	73.2	71.8	59.6	38	3/28	--	--	--	--	--
P 125	77.5	69.4	72.9	58.0	37	4/06	--	--	--	--	--
USG 3555	75.8	67.6	72.6	58.2	38	4/09	Poor	Good	Fair	Fair	Fair
Arcadia	75.5	73.4	72.1	52.7	39	4/05	--	--	--	--	--
Baldwin	75.0	74.7	77.1	61.1	42	4/06	Good	Good	Good	Fair	Fair
AGS 2060	73.8	72.6	65.9	58.4	40	4/01	Good	Good	Fair	Fair	Fair
SS 8308	73.3	64.8	69.5	59.8	39	4/11	Fair	Fair	Good	Fair	Fair
SS 8404	73.2	70.8	74.3	60.9	36	4/10	--	--	--	--	--

1. Yields calculated at 60 lbs./bu at 13.5% moisture.
2. C.V. = 11.8% df for EMS = 237.
3. Planted Nov. 12, 2012; Harvested May 30, 2013
4. 22 seeds per foot in 7" rows
5. Pre-plant: 48 lbs. N, 58 lbs. P₂O₅, 68 lbs. K₂O/acre; Top-dress 60 lbs. N/acre
6. Experimental lines (not commercially available in 2013) were removed from the table.

Table 2. Weed Response to Broadleaf Herbicides Used in Wheat.

	2, 4-D ¹	MCPA ¹	Express ¹	Express + MCPA or 2,4-D ¹	Buctril ¹	Harmony Extra ¹	Harmony Extra + MCPA or 2,4-D ¹	Peak	Finesse ²	Axiom ²	Hoelon ¹	Axial XL ¹	Osprey ¹	PowerFlex ¹
Annual Bluegrass	N	N	N	N	N	N	N	N	N	G	N		GE	PF
Annual Ryegrass	N	N	N	N	N	N	N	N	F	PG	E	GE	GE	GE
Buttercup	G					G	GE		G		N	N	FG	FG
Chickweed	P	P	G	GE	PF	G	GE		G		N	N	FG	FG
Ragweed	G	F			E	PF	FG	E			N	N		
Cornflower	G				GE	P	F		F		N	N	P	
Cudweed	GE	GE		E	G	E	E				N	N		
Curly Dock	P	P		P	PF	E	E				N	N	P	
Dandelion	E	E		E	E		GE				N	N		
Dogfennel	G	F			GE	E	E				N	N		
Evening Primrose	E	E		E	F	F	E	FG			N	N	P	P
Field Pennycress	G				G	G	GE		G		N	N		
Goldenrod	F	G			F						N	N		
Hairy Vetch	FG	FG			F	P	F				N	N		
Henbit	P	P	F	G	F	G	GE	FG	G	GE	N	N	GE	FG
Horsenettle	F	F			F						N	N		
Horseweed	F	F			F	FG	FG				N	N		
Knawel	P				P	G	G				N	N		
Lambs-quarters	G	G			E	E	E	G			N	N		
Plantains	E	E		E	E	E	E				N	N		
Shepherd's Purse	GE	GE		E	G	E	E	G	G		N	N		
Swinecress	G	G		GE	GE	E	E				N	N	E	
Thistles	G	G			G	FG	G	FG			N	N		
Vetch	G				F	P					N	N	PF	
VA Pepperweed	E			E	FG	G	GE				N	N		
Wild Garlic	F	P			P	GE	GE	E	P		N	N	P	
Wild Mustard	E	GE	F	E	G	FG	E	G	G		N	N	G	GE
Wild Radish	E	GE	F	E	FG	FG	E	G	G	GE	N	N	G	GE

1.) Timely post-emergence application. 2.) Applied pre-emergence.

Key: E = excellent control, 90% or better; G = good control; 80% - 90%; F = fair control, 70% - 80%; P = poor control, 25% - 50%; N = no control

Adapted from the Univ. of Georgia 2012-2013 Wheat Production Guide.