

SMALL GRAIN CULTURAL PRACTICES

R. Dewey Lee
Extension Agronomist, Tifton, Georgia

Fertilization

Soil samples should be taken from all fields to be planted in small grains, whether for grain or grazing. Soil testing prior to planting aids in determining the amount and type of fertilizer needed to produce a small grain crop. This practice may prevent excessive expenditures where the soil fertility level is very high, and it ensures that the nutritional needs of the crop are met.

Lime should be applied to maintain the soil pH at a target pH of 6.0. If the small grains are to be grazed or if magnesium (Mg) levels are low, dolomitic lime (high Mg) should be used. Adequate amounts of lime should be applied to the previous crop to ensure that the soil pH is in the desired range prior to planting small grains. If soil tests indicate the need for lime, it should be applied as soon as possible in order to allow adequate time for the soil pH change to occur (usually two to three months or more, depending on the fineness of grind).

The table below shows the recommended rates of fertilizer N-P₂O₅-K₂O to apply to small grains, based on soil test levels:

Soil Test Rating for Potassium (K ₂ O)				
	Low	Medium	High	Very High
Low	*-80-80	*-80-40	*-80-0	*-80-0
Medium	*-40-80	*-40-40	*-40-0	*-40-0
High	*-0-80	*-0-40	*-0-0	*-0-0
Very High	*-0-80	*-0-40	*-0-0	*-0-0

*For a small grain following a legume, apply 60-80 lb N/acre; for a small grain following cotton, corn, etc., apply 80-100 lb N/acre; for a small grain following grain sorghum, apply 100-120 lb N/acre. Apply 20-40 lb of recommended N/acre in the fall and the remainder in February. For grazing, increase the total N fertilizer rate by 60 lb N/acre and apply in two applications — one-half in the fall and the remainder in mid-winter.

Planting

Small grain seed should be planted in a well-prepared, firm, moist seedbed. Moldboard plowing or chisel plowing is recommended in preference to disc harrowing. The seed should be planted 1 to 1.5 inches deep. The proper planting date for small grains is important for both grain and forage production. Some factors to consider in determining the date for planting small grains include variety, geographic location, weather patterns, soil moisture and intended use of the crop. If irrigation is available, the planting date can be more flexible. The following table shows recommended planting dates in Georgia:

Recommended Planting Dates

Crop	Coastal Plain		Piedmont		Limestone Valley	
	Grain	Grazing	Grain	Grazing	Grain	Grazing
Wheat	11/07*- 12/01	10/15	10/25 - 11/15	10/01	10/10 - 11/01	9/15
Oat	11/07 - 12/01	10/01	10/07 - 10/30	9/15	9/25 - 10/15	9/01
Barley	11/07 - 12/01	10/15	10/25 - 11/15	10/01	10/01 - 11/01	9/01
Triticale	11/15 - 12/15	-	-	-	-	-
Rye	11/07 - 12/01	10/15	10/07 - 11/15	10/01	10/01 - 10/20	9/01

*November 7 in the Upper Coastal Plain and November 15 in the Lower Coastal Plain.

Pest Control

Check with your county Extension agent for the latest information on weed, disease and insect control in small grains or refer to the most current edition of the *Georgia Pest Management Handbook*.

Varieties

Select high-yielding, insect- and disease-resistant varieties for best results. Give careful consideration to the statistics (LSD) reported in the tables in this publication. An explanation of their proper use is given in the preface to this report. The variety listed at the top of the list may be only one of the best.

For late planting, the early-maturing varieties usually perform the best. Varieties recommended for the 2014 planting season are presented in the following tables.

Recommended Grain Varieties for 2014

Barley	Atlantic (S) Nomini (S)	Price (S) Thoroughbred (S)	
Oat	Gerard 229 (P,M) ² Gerard 224 (S) ²	Horizon 201 (S) ² Horizon 270 (S) ² Horizon 306 (S) ²	Plot Spike LA9339 (S) ² SS 76-50 (P,M) ²
Wheat	AGS 2026 (S) AGS 2027 (S) AGS 2035 (S) AGS 2038 (S) AGS 2060 (C) ^{2,3} *Dyna-Gro Baldwin (S) Dyna-Gro 9171 (P,M) ⁴ *Fleming (C) ^{3,4}	Jamestown (S) ^{2,4} LA754 (C) ² Oglethorpe (S) Pioneer 26R10 (P,M) Pioneer 26R20 (P,M) ² Pioneer 26R94 (S) SS 8415 (S) SS 8629 (S)	SS 8641 (S) TV8525 (P,M) ^{2,4} TV8535 (P,M) ⁴ *TV8848 (P,M) ² TV8861 (P,M) USG 3024 (P,M) *USG 3555 (P,M) ^{2,4}
Triticale	Trical 342 (C,P)		

1. M = Mountains; P = Piedmont; C = Coastal Plain; S = Statewide.

2. Consider using a labeled fungicide; highly susceptible to powdery mildew, leaf rust, stripe rust or crown rust.

3. Plant only at end of recommended planting period or later.

4. Susceptible to some Hessian fly; consider using an insecticide.

* To be dropped from list in 2015.

Recommended Forage Varieties for 2014

Oat	*Horizon 201 (S)	Plot Spike LA 9339 (C)	RAM LA99016 (S)
Wheat	AGS 2038 (S) Oglethorpe (P,M)	Roberts (P,M) ² SS8641 (S)	
Rye	*AGS 104 (S) Bates RS4 (S)	Elbon (S) Florida 401 (C) ²	Wrens Abruzzi (S)
Triticale	Monarch (C,P)	Trical 342 (C,P)	
Ryegrass	Attain (S) Big Boss (S) Diamond T (C) Early Ploid (S)	Fria (M) Jackson (C) *Jumbo (C) Marshall (S)	Nelson (S) Prine (P,M) TAMTBO (S) Winterhawk (P,M)

1. M = Mountains; P = Piedmont; C = Coastal Plain; S = Statewide.

2. Suitable for early planting.

* To be dropped from list in 2015.

To ensure good germination, the absence of noxious weeds and varietal purity **plant certified, treated seed**. General seeding rate recommendations based on bushels per acre are provided in Table 1. Seed size varies greatly from year to year and among varieties and seed lots. Therefore, more accurate plant populations may be achieved by using seeding rates based on seeds per area rather than on bushels per acre. For example, research on wheat has shown that seeding rates of 30-35 seeds per square foot are best for top yields. Accurate target populations are best achieved by adjusting grain drill settings based on the number of seed per foot of row. Grain drill calibrations can be accomplished quickly and accurately by counting seed collected from one or more rows during travel over a specified distance and calculating the drill output as seeds per foot of row. Table 2 is provided as a guide to establish target populations of the small grain crops for popular row spacings. The figures in Table 2 are broadly based on the average number of seeds per pound for the various crops but even more accurate calibrations can be accomplished if the actual number of seeds per pound is known for the seed lot being planted. At least one seed supplier in the Southeast now prints seed size information on the bag. If seed size is known, Table 3 may more accurately predict seed requirements.

Table 1. Recommended Seeding Rates for 2014

Crop	Weight	Grain	Grazing
	lb/bu	----- bu/acre -----	
Wheat	60	1.75-2.5	2.0-2.5
Oat	32	2.0	4.0
Barley	48	2.0-2.5	-----
Rye	56	1.0-1.5	2.0-2.5
Triticale	48	1.5-2.0	2.0-2.5

Table 2. Example of seeding rates of different small grains.

Crop	Seeding Rate			Row Width (inches)			
				6	7	8	10
	seeds/sq.ft.	lb/A ¹	bu/A ¹	----- seed per foot of row -----			
Barley	19	72	1.5	10	11	13	16
	25	96	2.0	13	15	17	21
	32	120	2.5	16	19	21	27
Oat	19	64	2.0	10	11	13	16
	24	80	2.5	12	14	16	20
	28	96	3.0	14	16	19	23
	38	128	4.0	19	22	25	32
Wheat	27	90	1.5	14	16	18	23
	37	120	2.0	18	22	25	31
	47	150	2.5	24	27	31	39
	55	180	3.0	28	32	37	46
Rye	31	56	1.0	16	18	21	26
	46	84	1.5	23	27	31	38
	62	112	2.0	31	36	41	52

1. Estimates based on average seeds per pound of 11,500 for barley, 12,875 for oat, 13,250 for wheat, and 24,000 for rye.

Data compiled by J. L. Day, Griffin Campus, Griffin, Georgia.

Table 3. Seeding rates for wheat based on seed size¹.

Seed Size seeds/lb	Desired Population (seeds per square foot)						
	30	32	34	35	36	38	40
	Seeding Rate						
	----- lb/A -----						
10,000	145	155	165	169	174	184	194
11,000	132	141	150	154	158	167	176
12,000	121	129	137	141	145	153	161
13,000	112	119	127	130	134	141	149
14,000	104	111	118	121	124	131	138
15,000	97	103	110	113	116	123	129
16,000	91	97	103	106	109	115	121
17,000	85	91	97	100	102	108	114
18,000	81	86	91	94	97	102	108

1. Seeding rate assumes 90% germination.