

Performance of Wheat and Barley Varieties in Tennessee

2002

Fred L. Allen, Coordinator, Agronomic Crop Variety Testing & Demonstrations

Richard Johnson, Research Associate, Agronomic Crop Variety Testing & Demonstrations

Robert C. Williams, Jr. Extension Area Specialist, Grain Crops

Angela Warden, Laboratory Assistant

**Agronomic Crop Variety Testing and Demonstrations
Department of Plant Sciences and Landscape Systems
University of Tennessee
Knoxville**

Telephone: (865)974-8821
FAX: (865)974-8850
email: allenf@utk.edu

Variety test results are posted on UT's website at:

<http://taes.utk.edu/research/varietytrials/variety.html>

Acknowledgments

This research was funded by the Tennessee Agricultural Experiment Station and the Tennessee Cooperative Extension Service with partial funding from participating companies.

We gratefully acknowledge the assistance of the following individuals in conducting these experiments:

Dept. of Plant Sciences & Landscape Systems

Dr. Dennis West, Professor and Grains Breeder

Experiment Stations:

Knoxville Experiment Station, Knoxville

Dr. John Hodges, Superintendent
Mr. Bobby McKee, Sr. Farm Crew Leader
Mr. Craig Miller, Research Assistant

Highland Rim Experiment Station, Springfield

Dr. Barry Sims, Superintendent
Mr. William Pitt, Research Assistant

Middle Tennessee Experiment Station, Spring Hill

Dr. Dennis Onks, Superintendent
Mr. Roy Thompson, Research Assistant

Milan Experiment Station, Milan

Dr. Blake Brown, Superintendent
Mr. Jason Williams, Research Associate
Mr. James McClure, Research Assistant

West Tennessee Experiment Station, Jackson

Dr. James Brown, Superintendent
Mr. Gordon Percell, Research Assistant

Ames Plantation, Grand Junction

Dr. James Anderson, Superintendent
Dr. Rick Carlisle, Assoc. Superintendent
Mr. Marshall Smith, Research Assistant

County Standard Wheat Test

Coordinator: Mr. Robert C. Williams, Jr., Area Specialist, Grain Crops

Dyer County

Mr. Tim Campbell, Extension Director

Gibson County

Mr. Philip Shelby, Extension Director

Lake County

Mr. Greg Allen, Extension Director

Lauderdale

Mr. William Parker, Extension Director

Madison County

Mr. William Wyatt, Extension Agent

Moore County

Mr. Larry Moorehead, Extension Director

Obion County

Mr. Tim Smith, Extension Director

Weakley County

Mr. Jeff Lannom, Extension Director

Table of Contents

General Information	4
Interpretation of data	4
Results and discussion	5
Barley	17

List of Tables

Wheat

Table 1. Planting dates and soil types at locations where the wheat variety tests were conducted in 2002	5
Table 2. Mean yields of 52 soft red winter wheat varieties and experimental lines tested at six locations in Tennessee for one year (2002)	7
Table 3. Overall mean yield and agronomic characteristics of 52 soft red winter wheat varieties and experimental lines tested at six locations in Tennessee for one year (2002)	8
Table 4. Mean disease ratings, maturity and yield of 52 soft red winter wheat varieties and experimental lines tested at Jackson and Knoxville in 2002	9
Table 5. Mean yields of 28 soft red winter wheat varieties and experimental lines tested at five locations in Tennessee for two years (2001-2002)	11
Table 6. Overall mean yield and agronomic characteristics of 28 soft red winter wheat varieties and experimental lines tested in 10 environments in Tennessee over two years (2001-2002)	12
Table 7. Mean yields of 15 soft red winter wheat varieties tested in 15 environments in Tennessee over three years (2000-2002)	13
Table 8. Overall mean yield, test weight, and plant height of 15 soft red winter wheat varieties tested in 15 environments in Tennessee over three years (2000-2002)	13
Table 9. Yield comparisons of five wheat varieties between untreated seed and seed treated with a systemic insecticide when evaluated at six locations in Tennessee in 2002	14
Table 10. Comparisons of overall mean yield and agronomic characteristics of five varieties of wheat between untreated seed and seed treated with a systemic insecticide when evaluated at six locations in Tennessee in 2002	14
Table 11. Average yields of 24 soft red winter wheat varieties in nine County Standard Tests in 2002	15
Table 12. Overall average yields and test weights of 24 soft red winter wheat varieties tested in nine County trials and six Experiment Station trials in Tennessee in 2002	16

Barley

Table 13. Mean yields of four barley varieties and experimental lines tested at four locations in Tennessee for one year (2002)	17
Table 14. Overall mean yield and agronomic characteristics of four barley varieties and experimental lines tested at four locations in Tennessee for one year (2002)	17
Table 15. Freeze damage, agronomic traits and seed yield of four barley varieties and experimental lines evaluated at Knoxville, TN in 2002	18
Table 16. Mean yields of four barley varieties and experimental lines tested at two locations in Tennessee for two years (2001-2002) and three years (2000-2002)	18
Table 17. Mean yield and agronomic characteristics of four barley varieties and experimental lines tested at two locations in Tennessee for two years (2001-2002) and three years (2000-2002)	18

General Information

Experiment Station Tests: The variety performance tests were conducted in each of the physiographic regions of the state. Tests were conducted at the Ames Plantation (Grand Junction) and at the Highland Rim (Springfield), Knox (Knoxville), Middle TN (Spring Hill), Milan (Milan), and West TN (Jackson) Agricultural Experiment Stations.

All varieties were seeded at approximately 28 seeds per square foot. Plots were seeded with drills using 6 -10 inch row spacings. The plot size was seven or ten rows, 25 or 30 feet in length. Plots were replicated three times at each location. Seed of all varieties were treated with a fungicide, except Delta King varieties, 1551w, 9121, and 9410.

County Standard Tests: The Standard Wheat Test was conducted in seven counties in West Tennessee (Dyer, Gibson, Lake, Lauderdale, Madison, Obion and Weakley (two tests)) and one county in Middle Tennessee (Moore). Each variety was evaluated in a large strip-plot at each location, thus each county test was considered as one replication of the test in calculating the overall average yield and in conducting the statistical analysis to determine significant differences. At each location, plots were planted, sprayed, fertilized, and harvested with the equipment used by the cooperating producer in his farming operation. The width and length of strip-plots were different in each county; however, within a location in a county, the strips were trimmed on the ends so that the lengths were the same for each variety, or if the lengths were different then the harvested length was measured for each variety and appropriate harvested area adjustments were made to determine the yield per acre.

Interpretation of Data

The tables on the following pages have been prepared with the entries listed in order of performance, the highest-yielding entry being listed first. **All yields presented have been adjusted to 13.5% moisture.** At the bottom of the tables, **LSD** values stand for **Least Significant Difference**. The mean yields of any two varieties being compared must differ by at least (minimum) the amount shown to be considered different in yielding ability at the 5% level of probability of significance. For example, given that the LSD for a test is 8.0 bu/a and the mean yield of Variety A was 50 bu/a and the mean yield of Variety B was 55 bu/a, then the two varieties are not statistically different in yield because the difference of 5 bu/a is less than the minimum of 8 bu/a required for them to be significant. Similarly, if the average yield of Variety C was 63 bu/a then it is significantly higher yielding than both Variety B (63 - 55 = 8 bu/a = LSD of 8) and Variety A (63 - 50 = 13 bu/a > LSD of 8).

Also, the **coefficient of variation (C.V.)** values are shown at the bottom of each table. This value is a measure of the error variability found within each experiment. It is the percentage that the square root of error mean square is of the overall test mean yield at that location. For example, a C.V. of 10% indicates that the size of the error variation is about 10% of the size of the test mean. Similarly, a C.V. of 30% indicates that the size of the error variation is nearly one-third as large as the test mean. A goal in conducting each yield test is to keep the C.V. as low as possible, preferably below 20%.

----- Wheat -----

The planting dates and soil types for each location are presented in Table 1.

Table 1. Planting dates and soil types at locations where the wheat variety tests were conducted in 2002.

Experiment Station	Location	Planting Date	Soil Type
Ames	Grand Junction	Nov. 8, 2001	Lexington Silt Loam
Highland Rim	Springfield	Oct. 23, 2001	Dickson Silt Loam
Knoxville	Knoxville	Oct. 17, 2001	Sequatchie Silt Loam
Middle Tennessee	Spring Hill	Oct. 29, 2001	Maury Silt Loam
Milan	Milan	Oct. 30, 2001	Vicksburg Silt Loam
West Tennessee	Jackson	Nov. 2, 2001	Lexington Silt Loam

Results and Discussion

Large Number of Varieties: Fifty-two soft red winter wheat varieties/experimental lines were evaluated for yield and agronomic characteristics at the six experiment stations listed above (Tables 2 & 3). The 52 entries represented nine private company brands and varieties or experimental lines developed by five university breeding programs. Twenty-four of the 52 entries were new entries in the test for 2002. Twenty-eight have been entries in the tests for two years (Tables 5 & 6) and fifteen have been entered in the tests for three years (Tables 7 & 8). Twenty-four varieties were evaluated in the County Standard Wheat Test in nine environments in 2002 (Table 11). All 24 entries in the county standardized tests were also included in the experiment station tests. The mean yields and ranks of the 24 entries common in the county and experiment station tests are presented in Table 12.

Short Life Span of Varieties and Limited Data: A significant change that has taken place is the shortened "life span" of varieties. For example, of the 52 varieties tested in 2002, only 28 have been in the test for two years and only 15 of them have been tested for three years. This means that 46% (24 out of 52) of the varieties in the test this year were new entries. Thus, the two years of information across five locations (i.e., 10 environments) is about the most information we have on performance of varieties across years. This is one of the reasons that we are adding the **County Standard Test** results to the report and coordinating the entries and standard check varieties going into the tests conducted on experiment stations and in the counties. We are attempting to compile as much performance information as possible within a one-year and a two-year time frame so that producers can make informed decisions on the best choice of varieties to suit their operation.

Diseases: Disease ratings were recorded on Septoria, leaf rust, and barley yellow dwarf virus at the West Tennessee station by Dr. Melvin Newman, Extension Plant Pathologist (Table 4). Ratings were taken on take-all disease incidence at the Knox station by Dr. Dennis West, Grains Breeder (Table 4). Freeze damage scores were taken on the varieties following a freeze (23 degrees F) on March 22, 2002 in Knoxville (Table 4). In addition to yield performance, the disease and freeze ratings should be taken into consideration when choosing a variety, or varieties, for production.

Yields: Experiment Station Tests: The overall average yield across all entries and locations was approximately 55 bu/A. The location averages ranged from about 45 bu/A at Knoxville and Spring Hill to 66 bu/A at Jackson (Table 2). The two top yielding varieties over all locations (approx. 64 bu/A) were AgriPro Savage and Pioneer 25R78. The lowest yielding variety overall was Hopewell (approx. 46 bu/A). Based on the LSD (.05) value of 8.8 bu/A, there were 21 varieties that were not statistically ($P < 0.05$) lower yielding than the two top varieties (Table 2). Seven of the nine private companies plus one university program participating in the test, had varieties ranked in the top one-third of the test. Only three varieties, NK Coker 9184, Roane, and Tribute, had average test weight values that would be

above the 58 lbs/bu minimum without a price discount in marketing (Table 3). Test weight values ranged from 53.1 (Progeny 103) to 59.0 lbs/bu (Tribute).

Three companies and two universities had varieties in the top 10 varieties/lines for yield over the five locations for two years [Delta King (DK 9216, DK 9410, DK 7900, DK 9027, DK 9121), NK Brand (Coker 9663), Pioneer (2552), OH (Bravo) and VA (Tribute), respectively] (Table 5). The top three varieties over two years were Pioneer 2552 (~62 bu/A), Delta King DK 9216 (~61 bu/A), and Delta King DK 9410 (~61 bu/A). The top yielding variety for three years is Pioneer 2552 at 65 bu/a followed by USG 3709, Roane, and Pioneer 26R24 at an average yield of approximately 62 bu/A, and USG 3209, Coker 9663, Delta King DK 9027, AgriPro Patton at an average yield of approximately 61 bu/A (Table 7).

County Standardized Test: The overall yield average across varieties and locations for the 24 wheat varieties tested in the County Standard Wheat Tests in 2002 was 54 bu/A (Table 11) which was very similar for the overall average (55 bu/A) for the same varieties tested in the experiment station tests (Table 12). The highest yielding variety across all locations in the County Tests was Pioneer 25R78 (~66 bu/A) and the lowest yielding variety was Delta King DK 9121 (~49 bu/A) (Table 11). There was strong similarity between the top 10 varieties in the county tests and the top 10 of the set of 24 that were also tested in the experiment station tests. The two varieties that ranked #1 (Pioneer 25R78) and #2 (FFR 556) in the County Standard Trials, also ranked #1 and #2 for that set of 24 varieties in the Experiment Station Trials (Table 12). With two exceptions, the varieties that ranked in the top 10 in the county tests also ranked in the top 10 for that set of varieties in the experiment station tests. The first exception was Delta King 1551, which ranked 7th in the county tests and 23rd in the experiment station tests. The second exception, AgriPro Patton ranked 10th in the county tests and 21st in the station tests. The two exceptions that ranked in the top 10 in the experiment station tests but not in the county tests were NK Brand Coker 9663 and Delta King 9216. These two ranked 3rd and 4th, respectively, in the experiment station tests but 11th and 17th, respectively, in the county tests (Table 12). The top 10 represent varieties from four companies (AgriPro, Delta King, FFR, and Pioneer) and one university breeding program (VA). The two other private brands, NK Brand and USG, had varieties with average yields that were numerically and/or statistically equivalent ($P < 0.05$) to the top 10.

Seed Treated with Systemic Insecticides: In order to evaluate the effects of testing varieties that had been treated with a systemic insecticide such as Gaucho or Cruiser versus those that had not been treated, we evaluated five varieties with and without the insecticide seed treatment. We evaluated AgriPro Patton and AgriPro Natchez with and without Gaucho seed treatment at the six experiment station locations. We also evaluated three Delta King varieties, DK 9410 (4 locations), DK 1551w (6 locations), and DK 9121 (2 locations), with and without Cruiser seed treatment. There was a 10.6 bu/A increase in the Patton yields when using the Gaucho treated seed versus untreated seed when averaged over six locations (Table 9). For the variety Natchez, there was a 7.2 bu/A increase in yield for Gaucho treated seed versus untreated seed. For the three Delta King varieties, the yield advantage for the Cruiser treated seed versus untreated seed ranged from 3.0 bu/A to 7.0 bu/A (Table 9). The overall average across the five varieties and six locations reveals a 7.3 bu/A yield advantage to seed treated with a systemic insecticide versus untreated seed. At each of the locations the average difference between yields from treated and untreated seed ranged from -0.3 bu/A at Spring Hill to 18.8 bu/A at Knoxville. With the exception of Spring Hill, all the other five locations showed positive yield enhancement from the systemic insecticide treated seed (Table 9).

Table 2. Mean yields[†] of 52 soft red winter wheat varieties and experimental lines tested at six locations in Tennessee for one year (2002).

Band	Variety	Avg. Yield	Knoxville	Spring-field	Spring			
					Hill	Jackson	Milan	Ames
bu/A								
AgriPro	Savage (Exp. D97-6075)	64.2	61.9	65.7	43.3	74.3	76.8	63.0
Pioneer	25R78	63.7	49.8	60.0	46.6	83.6	72.5	69.4
Cache River Valley Seed	Dixie 900	59.8	43.7	58.3	42.9	72.8	76.5	64.8
FFR	556	59.6	48.8	52.8	46.4	73.6	70.9	64.9
NK Brand	Coker 9663	59.4	44.7	60.4	50.5	70.9	63.3	66.8
Progeny	133	58.6	42.6	55.9	51.4	72.7	70.8	57.9
Delta King	DK 9216	58.5	54.8	57.0	46.6	71.8	64.3	56.6
Delta King	DK 9027	58.4	41.2	60.8	48.8	67.0	70.8	61.5
Armor	3235 (Exp. AR 494)	58.3	51.4	57.7	44.2	67.1	69.2	59.9
Delta King	DK 9333	57.9	52.7	64.0	43.3	61.4	68.6	57.4
Delta King	DK 7900	57.9	47.1	56.5	43.8	68.6	70.8	60.6
Delta King	DK 7777	57.3	42.4	64.7	42.0	67.0	64.2	63.6
Cache River Valley Seed	Dixie X9512	57.3	44.0	52.9	46.6	75.5	62.1	62.4
Pioneer	25R44	56.8	40.3	51.0	44.2	80.3	68.1	57.3
Pioneer	25R37	56.4	44.4	54.4	44.2	69.8	71.0	54.8
Cache River Valley Seed	Dixie X9611	56.4	50.8	60.9	47.6	66.2	60.7	52.1
Pioneer	2552	56.2	43.4	60.2	45.0	66.7	68.5	53.3
AR	Pat (Exp. AR 89-27-1-3)	56.0	41.9	56.6	40.1	74.3	71.7	51.6
OH	Bravo	55.9	55.1	50.1	47.0	61.8	69.9	51.5
VA	McCormick (VA98W-591)	55.8	50.3	55.0	45.5	66.0	60.7	57.4
VA	Tribute (Exp. VA 98W-593)	55.6	61.5	49.0	41.3	69.3	56.4	56.3
Pioneer	25R49	55.1	55.5	43.8	43.9	65.2	72.1	50.4
FFR	551	54.9	46.5	50.4	46.7	63.3	63.2	59.2
VA	Roane	54.7	52.4	56.8	38.7	69.8	59.9	50.7
USG	3209	54.1	46.6	55.0	42.5	60.6	55.4	64.2
Ag South Genetics	AGS 2000	53.9	45.2	56.1	44.1	65.6	51.0	61.6
USG	3709	53.9	54.6	46.0	44.1	65.1	56.3	57.4
Pioneer	26R24	53.6	49.3	53.3	42.3	61.1	55.6	59.9
VA	Sisson	53.5	46.8	49.3	49.2	63.3	56.9	55.7
NK Brand	Coker 9184	53.5	46.8	52.8	45.3	62.7	61.6	51.9
Delta King	DK 9410	---	38.6	53.5	43.1	---	68.0	---
USG	Exp. 98X799	53.5	44.4	46.7	41.4	65.7	67.4	55.2
Progeny	156	53.4	44.2	46.0	48.1	66.3	59.7	56.1
AgriPro	Natchez	53.3	32.4	55.6	47.5	68.1	62.2	53.8
NK Brand	Coker 9025	52.8	42.4	45.0	48.7	61.4	61.5	57.6
FFR	510	52.2	49.9	59.9	42.9	55.7	51.5	53.1
FFR	540	51.9	41.9	46.5	43.3	59.6	63.6	56.7
Pioneer	2684	51.9	43.1	41.8	45.7	68.6	58.1	53.8
USG	3650	51.6	33.0	51.0	45.3	61.7	66.1	52.3
Delta King	DK 9121	---	---	---	---	61.3	---	47.0
AR	Sabbe	51.5	35.2	44.9	41.5	66.0	59.3	62.0
AgriPro	Patton	51.3	39.9	44.1	42.2	68.0	64.4	49.2
Progeny	118	50.8	39.9	48.0	45.4	67.4	57.2	47.1
VA	Jackson	50.0	42.8	49.2	47.0	51.9	51.8	57.3
NK Brand	Coker 9152	49.9	25.6	53.2	46.6	68.6	50.7	54.8
GA	Exp. 92-485 E15	49.9	33.4	49.4	47.0	59.1	49.1	61.3
Progeny	103	49.9	31.1	53.5	43.0	59.1	55.9	56.5
TN	Exp. TN X01-1	48.9	40.0	49.5	41.1	46.6	60.4	55.9
Delta King	DK 1551w	48.9	34.6	42.1	47.2	62.7	57.4	49.5
FFR	521	48.3	38.1	38.9	45.9	62.4	50.4	54.1
Pioneer	26R46	47.7	38.3	49.4	45.7	60.7	38.9	53.4
OH	Hopewell	46.2	35.8	41.5	44.8	53.9	57.4	43.9
Average (bu/A)		54.7	45.2	52.8	44.9	65.9	62.5	56.7
L.S.D. (.05) (bu/A)		8.8	12.1	8.9	6.0	7.5	9.6	8.1
C.V.(%)		10.1	16.6	10.4	8.3	7.1	9.5	8.8

[†]All yields adjusted to 13.5% moisture

[‡]--- Indicates that the variety was not tested at that location

Table 3. Overall mean yield and agronomic characteristics of 52 soft red winter wheat varieties and experimental lines tested at six locations in Tennessee for one year (2002).

Brand	Variety	Avg.	Test		Maturity (n=5)	Height (n=6)
		Yield (n=6)	weight (n=6)	Headed (n=2)		
		bu/A	lb/bu			In.
AgriPro	Savage (Exp. D97-6075)	64.2	56.6	177	217	31
Pioneer	25R78	63.7	57.3	177	218	30
Cache River Valley Seed	Dixie 900	59.8	56.4	179	220	35
FFR	556	59.6	55.9	179	220	30
NK Brand	Coker 9663	59.4	57.1	178	220	33
Progeny	133	58.6	56.1	178	220	35
Delta King	DK 9216	58.5	55.9	180	220	34
Delta King	DK 9027	58.4	56.0	179	219	33
Armor	3235 (Exp. AR 494)	58.3	56.9	179	220	34
Delta King	DK 9333	57.9	56.4	179	220	37
Delta King	DK 7900	57.9	55.8	178	219	35
Delta King	DK 7777	57.3	57.0	179	220	34
Cache River Valley Seed	Dixie X9512	57.3	56.4	178	220	35
Pioneer	25R44	56.8	56.7	182	220	30
Pioneer	25R37	56.4	57.6	181	219	31
Cache River Valley Seed	Dixie X9611	56.4	55.3	181	220	33
Pioneer	2552	56.2	57.1	182	220	30
AR	Pat (Exp. AR 839-27-1-3)	56.0	56.8	183	221	34
OH	Bravo	55.9	57.3	177	220	34
VA	McCormick (VA98W-591)	55.8	57.8	180	220	28
VA	Tribute (Exp. VA98W-593)	55.6	59.0	177	220	28
Delta King	DK 9410	---‡	56.5	193	222	32
Pioneer	25R49	55.1	55.6	180	220	31
FFR	551	54.9	55.9	178	219	29
VA	Roane	54.7	57.9	183	220	29
USG	3209	54.1	55.3	177	220	28
Ag South Genetics	AGS 2000	53.9	56.8	178	219	31
USG	3709	53.9	55.1	178	219	33
Pioneer	26R24	53.6	56.0	177	219	31
VA	Sisson	53.5	56.2	177	219	29
NK Brand	Coker 9184	53.5	58.3	182	220	30
USG	Exp. 98X799	53.5	54.9	178	220	31
Progeny	156	53.4	55.4	179	219	34
AgriPro	Natchez	53.3	56.2	180	221	32
NK Brand	Coker 9025	52.8	55.4	181	220	30
FFR	510	52.2	55.2	176	218	30
FFR	540	51.9	53.8	179	219	32
Pioneer	2684	51.9	56.4	177	220	29
USG	3650	51.6	55.7	181	219	30
AR	Sabbe	51.5	54.8	179	220	33
AgriPro	Patton	51.3	55.1	177	219	32
Delta King	DK 9121	---‡	55.5	167	214	32
Progeny	118	50.8	56.6	178	220	34
VA	Jackson	50.0	55.9	179	219	32
NK Brand	Coker 9152	49.9	55.8	179	220	33
GA	Exp. GA92-485 E15	49.9	57.3	177	219	31
Progeny	103	49.9	53.1	182	220	31
TN	Exp. TN X01-1	48.9	55.7	183	221	35
Delta King	DK 1551w	48.9	54.3	180	220	29
FFR	521	48.3	54.4	175	219	29
Pioneer	26R46	47.7	55.7	178	220	29
OH	Hopewell	46.2	56.4	185	222	33

[†]Days after planting.

[‡]Not tested at all locations.

Table 4. Mean disease ratings, maturity and yield of 52 soft red winter wheat varieties and experimental lines tested at Jackson and Knoxville in 2002.

Brand	Variety	Jackson ¹					Knoxville			
		Septoria	Rust	BYDV	Maturity	Yield	Freeze Damage	Take-all	Maturity	Yield
		-----score [‡] -----			DAP	bu/A	-----score [‡] -----		DAP	bu/A
AgriPro	Savage (Exp. D97-6075)	1.5	1.5	1.3	213	74.3	1.7	1.7	225	61.9
Pioneer	25R78	1.3	1.0	1.5	213	83.6	1.7	1.7	226	49.8
Cache River Valley Seed	Dixie 900	1.0	1.3	2.2	213	72.8	1.5	1.0	236	43.7
FFR	556	2.0	3.2	2.3	213	73.6	2.0	1.2	233	48.8
NK Brand	Coker 9663	1.8	1.0	1.0	213	70.9	2.2	1.0	236	44.7
Progeny	133	1.5	1.5	2.7	213	72.7	1.8	1.3	233	42.6
Delta King	DK 9216	1.3	1.0	2.5	213	71.8	1.0	1.0	233	54.8
Delta King	DK 9027	1.3	1.0	2.0	213	67.0	1.2	1.8	228	41.2
Armor	3235 (Exp. AR 494)	1.5	2.5	2.0	213	67.1	2.0	1.2	236	51.4
Delta King	DK 9333	1.2	2.0	2.3	214	61.4	1.3	1.2	235	52.7
Delta King	DK 7900	1.5	1.8	2.0	213	68.6	1.7	1.2	231	47.1
Delta King	DK 7777	1.5	3.3	1.5	213	67.0	1.7	1.3	235	42.4
Cache River Valley Seed	Dixie X9512	1.5	1.7	2.7	213	75.5	1.7	1.0	236	44.0
Pioneer	25R44	1.2	1.2	1.7	213	80.3	1.5	1.2	232	40.3
Pioneer	25R37	1.2	1.3	2.0	216	69.8	1.5	1.5	231	44.4
Cache River Valley Seed	Dixie X9611	1.7	1.3	3.0	213	66.2	1.0	1.2	237	50.8
Pioneer	2552	1.3	4.8	1.2	213	66.7	2.0	1.2	234	43.4
AR	Pat (Exp. AR 839-27-1-3)	1.7	2.0	1.0	216	74.3	1.5	1.3	236	41.9
OH	Bravo	1.2	2.0	3.2	213	61.8	2.2	1.0	236	55.1
VA	McCormick (Exp. 98W-591)	1.5	1.0	2.8	213	66.0	1.8	1.0	236	50.3
VA	Tribute (Exp. VA98W-593)	1.5	1.5	2.3	213	69.3	2.8	1.2	234	61.5
Delta King	DK 9410	---	---	---	---	---	1.8	1.2	235	38.6
Pioneer	25R49	1.5	1.8	2.0	214	65.2	1.5	1.2	234	55.5
FFR	551	1.3	2.2	2.7	213	63.3	1.5	1.5	232	46.5
VA	Roane	1.5	1.5	1.3	214	69.8	1.0	1.2	234	52.4
USG	3209	2.0	1.7	2.8	213	60.6	1.8	1.7	235	46.6
USG	3709	1.3	3.0	2.5	213	65.1	3.0	1.3	233	54.6
Ag South Genetics	AGS 2000	2.3	1.0	1.7	213	65.6	2.8	1.2	233	45.2
Pioneer	26R24	1.8	2.5	3.0	213	61.1	2.2	1.2	231	49.3
VA	Sisson	2.0	2.0	3.7	213	63.3	1.5	1.2	230	46.8
USG	Exp. 98X799	1.5	3.3	1.8	213	65.7	1.5	1.2	234	44.4
NK Brand	Coker 9184	1.8	1.3	2.2	213	62.7	1.5	1.2	238	46.8
Progeny	156	1.5	1.8	2.8	214	66.3	1.5	1.5	231	44.2

Continued on next page

Table 4. (Continued)

Brand	Variety	Jackson [†]					Knoxville			
		Septoria	Rust	BYDV	Maturity	Yield	Freeze Damage	Takeall	Maturity	Yield
		-----score [‡] -----			DAP	bu/A	-----score [‡] -----		DAP	bu/A
AgriPro	Natchez	1.8	1.0	2.7	216	68.1	2.7	1.8	232	32.4
NK Brand	Coker 9025	3.0	1.0	1.5	216	61.4	2.5	1.5	230	42.4
FFR	510	2.2	2.5	3.2	213	55.7	2.7	1.3	227	49.9
FFR	540	1.8	2.8	2.2	213	59.6	2.0	1.2	233	41.9
Pioneer	2684	1.5	2.0	4.5	213	68.6	1.5	1.2	234	43.1
USG	3650	2.0	2.3	3.0	213	61.7	2.7	1.8	232	33.0
AR	Sabbe	1.7	3.3	2.7	213	66.0	2.5	1.3	235	35.2
AgriPro	Patton	1.7	1.2	2.7	213	68.0	1.5	1.8	231	39.9
Delta King	DK 9121	1.3	1.0	1.3	214	61.3	---	---	---	---
Progeny	118	1.5	3.3	2.2	213	67.4	2.3	1.3	233	39.9
VA	Jackson	1.2	4.8	1.5	213	51.9	2.5	1.2	231	42.8
NK Brand	Coker 9152	2.3	1.2	3.8	213	68.6	4.2	1.5	236	25.6
Progeny	103	1.5	3.5	2.5	213	59.1	2.2	1.3	235	31.1
GA	Exp. 92-485 E15	2.0	1.0	3.2	213	59.1	3.5	1.8	234	33.4
Delta King	DK 1551w	1.5	3.8	1.8	213	62.7	2.0	1.2	236	34.6
TN	Exp. TN X01-1	1.3	4.8	1.5	213	46.6	2.0	1.2	236	40.0
FFR	521	1.5	2.7	3.3	213	62.4	1.8	1.7	228	38.1
Pioneer	26R46	1.3	3.3	2.3	213	60.7	3.5	1.2	236	38.3
OH	Hopewell	1.5	2.2	4.2	217	53.9	1.3	1.3	239	35.8

[†]Disease data from Jackson (5-15-02) provided by Dr. Melvin A. Newman, UT Extension Specialist, Plant Pathology.

[‡]Scores of 1 to 5; 1 = no disease, 5 = 100% of plants infected.

BYDV = barley yellow dwarf virus.

Freeze damage scores: freeze occurred on March 22, 2002, (23 degrees F) ratings taken on April 2, 2002. Score of 1 = <5% of plant damaged; 5 + 95+% of plants damaged.

DAP = days after planting.

Table 5. Mean yields[†] of 28 soft red winter wheat varieties and experimental lines tested at five locations in Tennessee for two years (2001-2002).

Brand	Variety	Avg. Yield (n=10)	Knoxville	Springfield	Spring Hill	Jackson	Milan
Pioneer	2552	61.9	61.3	55.0	61.9	65.5	65.9
Delta King	DK 9216	61.1	61.6	53.8	58.3	66.9	64.9
Delta King	DK 9410	60.8	62.5	47.8	62.0	65.3	66.5
VA	Tribute (Exp. 98W-593)	59.7	69.4	47.0	61.2	65.2	55.8
Delta King	DK 7900	59.6	53.1	49.1	62.1	63.2	70.7
OH	Bravo	59.1	63.6	46.6	59.9	59.4	66.0
Delta King	DK 9027	58.3	52.1	51.3	62.0	59.7	66.4
VA	Roane	58.1	64.3	49.0	58.4	61.9	57.1
NK Brand	Coker 9663	58.0	52.9	47.4	64.4	63.9	61.2
Delta King	DK 9121	57.9	56.1	46.2	62.8	62.9	61.6
Pioneer	25R37	57.9	55.1	46.2	60.1	66.9	61.0
Delta King	DK 7777	57.7	51.7	54.6	57.3	61.4	63.4
USG	3709	57.7	58.8	47.2	60.4	62.5	59.4
AgriPro	Patton	57.6	54.3	45.2	61.3	64.5	62.5
Pioneer	26R24	57.3	59.7	47.1	64.4	59.6	55.9
Ag South Genetics	AGS 2000	56.9	57.0	52.8	59.9	60.8	54.1
Delta King	DK 9333	56.7	55.0	52.4	55.3	54.9	65.6
NK Brand	Coker 9025	55.8	54.4	46.1	62.5	57.1	59.0
USG	3209	55.8	58.0	47.6	60.9	56.7	56.0
Pioneer	2684	55.5	54.6	40.6	62.8	62.7	56.6
Delta King	DK 1551w	54.8	49.2	41.7	61.3	60.6	61.2
AgriPro	Natchez	54.7	47.6	45.5	59.7	62.5	58.2
FFR	540	54.4	55.7	44.5	55.9	56.5	59.3
VA	Jackson	53.8	54.3	46.2	60.9	52.2	55.5
VA	Sisson	53.6	54.0	44.1	61.0	57.2	51.9
NK Brand	Coker 9152	53.5	45.4	45.2	59.3	64.8	52.9
OH	Hopewell	53.5	52.1	43.9	60.7	56.1	54.8
Pioneer	26R46	52.9	56.0	48.8	59.6	55.1	45.2
	Overall Average (bu/A)	57.1	56.0	47.2	61.3	60.8	59.7
	L.S.D. (.05) (bu/A)	7.8	9.5	7.1	6.4	7.5	8.1
	C.V. (%)	9.2	11.3	10.2	7.0	8.2	9.1

[†]All yields adjusted to 13.5% moisture.

Table 6. Overall mean yield and agronomic characteristics of 28 soft red winter wheat varieties and experimental lines tested in 10 environments in Tennessee over two years (2001-2002).

Brand	Variety	Avg. Yield (n=10) bu/A	Test weight (n=8) lbs/bu	Headed (n=6) -----DAP [†] -----	Mature (n=10)	Height (n=10) In.
Pioneer	2552	61.9	57.2	189	221	30
Delta King	DK 9216	61.1	56.5	187	222	32
Delta King	DK 9410	60.8	57.0	187	221	34
VA	Tribute (Exp. 98W-593)	59.7	59.0	188	222	29
Delta King	DK 7900	59.6	56.0	187	222	34
OH	Bravo	59.1	58.2	187	222	33
Delta King	DK 9027	58.3	55.7	187	221	32
VA	Roane	58.1	58.4	188	221	29
NK Brand	Coker 9663	58.0	57.0	189	223	34
Delta King	DK 9121	57.9	56.4	187	222	31
Pioneer	25R37	57.9	56.8	188	222	30
Delta King	DK 7777	57.7	56.9	189	222	34
USG	3709	57.7	55.6	188	221	32
AgriPro	Patton	57.6	55.6	187	221	32
Pioneer	26R24	57.3	56.7	188	221	31
Ag South Genetics	AGS 2000	56.9	57.0	188	222	31
Delta King	DK 9333	56.7	56.3	188	222	36
NK Brand	Coker 9025	55.8	55.6	189	222	30
USG	3209	55.8	55.3	188	221	27
Pioneer	2684	55.5	56.5	187	220	29
Delta King	DK 1551w	54.8	54.6	190	222	29
AgriPro	Natchez	54.7	55.8	190	223	32
FFR	540	54.4	54.8	189	221	31
VA	Jackson	53.8	56.0	188	220	31
VA	Sisson	53.6	56.3	187	220	27
NK Brand	Coker 9152	53.5	56.8	188	220	33
OH	Hopewell	53.5	55.6	191	223	32
Pioneer	26R46	52.9	56.1	188	221	29

[†]Days after planting.

Table 7. Mean yields[†] of 15 soft red winter wheat varieties tested in 15 environments in Tennessee over three years (2000-2002).

Brand	Variety	Avg. Yield	Knoxville	Springfield	Spring Hill	Jackson	Milan
		(n=15)					
-----bu/A-----							
Pioneer	2552	65.0	65.8	60.9	66.1	62.7	69.4
USG	3709	61.9	62.1	53.1	67.2	60.6	66.6
VA	Roane	61.8	67.2	51.5	64.6	60.1	65.6
Pioneer	26R24	61.8	64.9	55.4	66.5	57.8	64.2
USG	3209	61.3	65.1	50.3	70.3	57.0	63.8
NK Brand	Coker 9663	61.0	55.0	53.7	66.7	61.0	68.7
Delta King	DK 9027	61.0	55.3	55.0	63.3	59.2	72.1
AgriPro	Patton	61.0	57.6	52.4	66.7	61.3	66.9
Ag South Genetics	AGS 2000	60.4	58.1	56.4	68.3	57.7	61.6
Delta King	DK 9121	60.1	56.9	49.3	67.6	59.9	67.0
FFR	540	58.9	56.7	53.3	60.6	56.4	67.3
VA	Sisson	58.5	56.2	50.7	66.9	56.7	61.9
NK Brand	Coker 9025	57.7	58.4	51.0	63.6	54.7	61.0
Delta King	DK 1551w	57.5	51.6	47.6	64.7	58.2	65.3
VA	Jackson	57.0	56.6	48.5	62.5	53.9	63.4
Overall Average (bu/A)		60.3	59.4	52.6	64.5	58.9	65.8
L.S.D. (.05) (bu/A)		8.8	11.9	8.8	8.1	6.5	7.6
C.V. (%)		10.0	13.9	11.6	8.6	7.6	8.0

[†]All yields adjusted to 13.5% moisture.

Table 8. Overall mean yield, test weight, and plant height of 15 soft red winter wheat varieties tested in 15 environments in Tennessee over three years (2000-2002).

Brand	Variety	Avg. Yield	Test weight	Height
		(n=15)	(n=10)	(n=15)
		bu/A	lbs/bu	In.
Pioneer	2552	65.0	57.7	33
USG	3709	61.9	55.7	35
VA	Roane	61.8	58.9	31
Pioneer	26R24	61.8	57.1	34
USG	3209	61.3	55.9	30
NK Brand	Coker 9663	61.0	57.0	36
Delta King	DK 9027	61.0	55.7	34
AgriPro	Patton	61.0	55.7	34
Ag South Genetics	AGS 2000	60.4	57.0	33
Delta King	DK 9121	60.1	56.4	33
FFR	540	58.9	54.8	34
VA	Sisson	58.5	56.2	30
NK Brand	Coker 9025	57.7	55.8	33
Delta King	DK 1551w	57.5	55.3	32
VA	Jackson	57.0	56.4	34

Table 9. Yield comparisons of five wheat varieties between untreated seed and seed treated with a systemic insecticide when evaluated at six locations in Tennessee in 2002.

Brand	Variety	Knoxville	Spring- field	Spring Hill	Jackson	Milan	Ames	Avg. Yield (n=6)	Difference
AgriPro	Patton (non-Gaucho)	39.9	44.1	42.2	68.0	64.4	49.2	51.3	
AgriPro	Patton (Gaucho)	57.1	61.2	43.1	67.3	79.3	63.3	61.9	10.6
AgriPro	Natchez (non-Gaucho)	32.4	55.6	47.5	68.1	62.2	53.8	53.3	
AgriPro	Natchez (Gaucho)	51.2	68.9	43.7	74.8	66.7	57.4	60.5	7.2
Delta King	DK 9410 (non-Cruiser)	38.6	53.5	43.1	---	68.0	---	50.8 [†]	
Delta King	DK 9410 (Cruiser)	61.2	56.7	43.7	70.5	62.5	61.3	56.0 [†]	5.2 [†]
Delta King	DK 1551w (non-Cruiser)	34.6	42.1	47.2	62.7	57.4	49.5	48.9	
Delta King	DK 1551w (Cruiser)	51.2	50.7	48.4	65.6	62.6	56.7	55.9	7.0
Delta King	DK 9121 (non-Cruiser)	---	---	---	61.3	---	47.0	54.2 [†]	
Delta King	DK 9121 (Cruiser)	47.0	43.4	44.9	64.4	56.4	50.0	57.2 [†]	3.0 [†]
Average -- Untreated Seed [†] (bu/A)		36.4	48.8	45.0	65.0	63.0	49.9	51.4	
Average -- Treated Seed [†] (bu/A)		55.2	59.4	44.7	68.0	67.8	56.9	58.7	7.3
L.S.D. (.05) (bu/A)		12.1	8.9	6.0	7.5	9.6	8.1	8.8	
C.V. (%)		16.6	10.4	8.3	7.1	9.5	8.8	10.1	

[†]Mean based only on data from locations where both treated and untreated plots of the variety were present.

Table 10. Comparisons of overall mean yield and agronomic characteristics of five varieties of wheat between untreated seed and seed treated with a systemic insecticide when evaluated at six locations in Tennessee in 2002.

Brand	Variety	Avg. Yield bu/A	Test weight (n=6) lbs/bu	Headed (n=2) -----DAP-----	Mature (n=5)	Height (n=6) In.
AgriPro	Patton (Gaucho)	61.9	55.8	177	219	33
AgriPro	Natchez (non-Gaucho)	53.3	56.2	180	221	32
AgriPro	Natchez (Gaucho)	60.5	56.5	180	220	33
Delta King	DK 9410 (non-Cruiser)	50.8 [†]	56.5	193	222	32
Delta King	DK 9410 (Cruiser)	56.0 [†]	56.1	178	219	35
Delta King	DK 1551w (non-Cruiser)	48.9	54.3	180	220	29
Delta King	DK 1551w (Cruiser)	55.9	55.0	179	218	30
Delta King	DK 9121 (non-Cruiser)	54.2 [‡]	55.5	167	214	32
Delta King	DK 9121 (Cruiser)	57.2 [‡]	55.9	179	221	32

[†]Mean based only on four locations where both were present.

[‡]Mean based only on two locations where both were present.

Table 11. Average yields of 24 soft red winter wheat varieties in nine County Standard Tests in 2002.^{†‡}

MS	VARIETY	Yield bu/A	Average			DYER	GIBSON	LAKE	LAUDERDALE	MADISON	MOORE	OBION	WEAKLEY ¹	WEAKLEY ²
			Test Wt. lbs/bu	Moisture %	bu/A									
A	PIONEER 25R78	65.6	57.5	13.4	67.4	70.8	51.3	73.0	51.6	62.7	69.8	56.6	86.7	
AB	FFR 556	61.3	56.7	13.2	62.3	68.2	49.2	72.1	49.7	59.7	62.8	52.9	75.1	
ABC	PIONEER 25R49	61.0	57.3	13.5	61.5	60.3	54.9	67.0	55.8	59.0	69.5	54.2	67.2	
BCD	PIONEER 25R37	58.5	58.9	13.9	48.2	57.3	55.0	60.5	45.5	59.6	60.1	55.5	85.1	
BCDE	DELTA KING 7900	58.0	56.5	13.2	64.8	46.9	54.4	62.8	48.2	57.5	57.9	56.2	73.2	
CDEF	ROANE	56.7	59.0	14.3	50.1	50.8	45.1	70.5	51.1	66.4	54.6	51.7	69.8	
CDEF	DELTA KING 1551w	56.7	55.9	13.1	44.5	52.5	44.8	73.6	50.2	57.5	63.2	52.6	71.0	
CDEF	FFR 551	56.7	55.7	13.2	51.7	51.3	46.0	68.0	46.8	60.2	57.7	55.9	72.5	
DEFG	PIONEER 25R44	55.2	58.0	13.6	43.5	57.3	49.1	69.4	39.7	52.8	59.6	52.0	73.7	
DEFGH	AGRIPRO PATTON	54.0	55.6	13.5	49.3	54.0	45.4	59.2	49.2	57.6	59.0	48.4	64.1	
EFGH	NK COKER 9663	53.8	56.6	14.6	46.3	56.0	47.2	61.6	49.2	56.5	54.3	50.5	62.5	
EFGH	USG 3209	53.8	55.7	14.3	49.4	56.7	52.0	61.2	49.8	54.8	59.9	49.8	50.3	
FGHI	USG 98X799	53.4	55.2	12.8	57.1	46.0	47.1	62.5	37.8	55.4	58.7	48.7	67.5	
FGHIJ	PIONEER 26R24	53.3	56.2	13.9	52.8	55.0	52.5	67.7	36.5	54.2	54.4	49.2	57.4	
FGHIJK	USG 3709	53.1	54.7	13.5	53.5	55.8	44.9	66.1	40.7	52.2	58.1	47.2	59.1	
FGHIJK	FFR 510	52.7	55.2	13.5	51.1	49.6	50.2	62.9	44.7	56.8	52.3	48.5	58.1	
FGHIJK	DELTA KING 9216	52.2	56.6	13.5	39.3	49.2	42.8	66.3	41.1	55.0	53.7	53.1	69.1	
GHIJK	FFR 540	51.2	54.6	13.3	43.3	48.9	45.3	64.2	40.4	49.2	54.9	47.5	67.5	
GHIJK	USG 3650	50.8	56.6	13.9	53.0	46.9	41.2	60.7	38.8	48.9	52.1	48.2	67.4	
HIJK	FFR 521	50.2	56.6	13.5	45.9	46.1	38.4	60.2	40.5	58.5	59.7	50.0	52.9	
IJK	NK COKER 9184	48.9	57.7	14.1	37.8	42.0	44.4	59.5	40.9	56.4	52.9	44.1	62.5	
JK	AGRIPRO NATCHEZ	48.8	56.4	14.0	35.4	47.9	43.6	62.8	45.2	55.9	51.1	41.1	56.5	
K	NK COKER 9025	48.6	55.1	14.2	41.3	51.0	35.6	56.2	48.5	53.6	60.1	45.8	45.7	
K	DELTA KING 9121	48.6	55.8	13.2	43.8	47.3	46.9	61.4	38.8	47.7	59.5	45.1	46.8	
	AVERAGE	54.3	56.4	13.6	49.7	52.8	47.0	64.5	45.0	56.2	58.2	50.2	65.1	

MS = Varieties with any MS letter in common are not statistically different at the .05 level of probability.

AVG YLD, AVG TWT & AVG %M = the average yield @ 13.5%, average test weights and average % harvest moisture across all locations.

[†]Each variety was evaluated in a large strip-plot at each location, thus each county test was considered as one replication of the test in calculating the average yield and in conducting the statistical analysis to determine significant differences (MS).

[‡]Data provided by Robert C. Williams, Extension Area Specialist, Grain Crops, and extension agents in counties shown above.

¹Grooms - no-till; ²Waterfield - conventional-till

Table 12. Overall average yields[†] and test weights of 24 soft red winter wheat varieties tested in nine County trials and six Experiment Station trials in Tennessee in 2002.

Brand	Variety	County Standard Trials			Experiment Sta. Trials		
		Avg. Yield (n=9) bu/A	Avg. Test Weight (n=9) lbs/bu	Rank	Avg. Yield (n=6) bu/A	Avg. Test Weight (n=6) lbs/bu	Rank
Pioneer	25R78	66	58	1	64	57	1
FFR	556	61	57	2	60	56	2
Pioneer	25R49	61	57	3	55	56	8
Pioneer	25R37	59	59	4	56	58	7
Delta King	DK 7900	58	57	5	58	56	5
VA	Roane	57	59	6	55	58	10
Delta King	DK 1551w	57	56	7	49	54	23
FFR	551	57	56	8	55	56	9
Pioneer	25R44	55	58	9	57	57	6
AgriPro	Patton	54	56	10	51	55	21
NK	Coker 9663	54	57	11	59	57	3
USG	3209	54	56	12	54	55	11
USG	Exp. 98X799	53	55	13	54	55	15
Pioneer	26R24	53	56	14	54	56	13
USG	3709	53	55	15	54	55	12
FFR	510	53	55	16	52	55	18
Delta King	DK 9216	52	57	17	59	56	4
FFR	540	51	55	18	52	54	19
USG	3650	51	57	19	52	56	20
FFR	521	50	57	20	48	54	24
Syngenta	NK Coker 9184	49	58	21	54	58	14
AgriPro	Natchez	49	56	22	53	56	16
Syngenta	NK Coker 9025	49	55	23	53	55	17
Delta King	DK 9121	49	56	24	54 [‡]	56	---
Overall Average (bu/A)		54	56		55	56	

[†]All yields adjusted to 13.5% moisture.

[‡]Average of only two locations (Jackson and Ames).

Barley

Two varieties and two experimental lines, all originating from the Barley Breeding Program at Virginia Tech, were evaluated at the Knoxville, Highland Rim (Springfield), and Milan Experiment Stations and at Ames Plantation (Grand Junction) in 2002. During the growing season, one of the experimental lines, VA96-44-321, was released as a new variety under the name 'Price.' The average yields (adjusted to 13.5% moisture) and agronomic characteristics are presented in Tables 13 - 17.

All of the barley varieties suffered some damage from the freeze (23 degrees F) that occurred on March 22, 2002 (Table 15). The variety Callao exhibited more stem breakage than did the other varieties. In the case of stem breakage, the heads had broken over but did not detach from the plant.

Table 13. Mean yields of four barley varieties and experimental lines tested at four locations in Tennessee for one year (2002).

Brand	Variety	Avg. Yield	Knoxville	Springfield	Milan	Ames
		-----bu/A-----				
VA	Callao	76.4	67.2	92.5	82.4	63.3
VA	Price (VA96-44-321)	74.4	65.6	101.1	76.1	54.6
VA	Exp. VA97-13-176	69.8	71.7	83.7	79.0	44.8
VA	Nomini	66.9	64.5	84.3	67.4	51.4
Avg.		71.6	67.2	93.2	76.2	53.5
L.S.D.		15.2	8.8	37.4	14.9	12.7
C.V.		12.6	6.5	17.7	9.8	11.9

Table 14. Overall mean yield and agronomic characteristics of four barley varieties and experimental lines tested at four locations in Tennessee for one year (2002).

Brand	Variety	Avg. Yield	Test Weight		Height	Lodging ³	
		bu/A	lbs/bu	Headed ¹			Mature ²
				-----DAP [†] -----	In.	score [‡]	
VA	Callao	76.4	43.6	173	217	26	4.2
VA	Price (VA96-44-321)	74.4	43.8	174	216	26	2.5
VA	Exp. VA97-13-176	69.8	44.5	174	217	27	3.2
VA	Nomini	66.9	43.5	173	219	34	1.5

¹Mean of Knoxville and Ames data.

²Mean of Knoxville, Springfield and Milan data.

³Mean of Springfield location only, lodging was not prevalent at the other locations.

[†]Days after planting.

[‡]Scores of 1 through 5 where, 1 = 95+% of plants erect; 2.5 = ~50% of plants leaning at angle 45° ; 5 = 95+% of plants prostrate.

Table 15. Freeze damage, agronomic traits and seed yield of four barley varieties and experimental lines evaluated at Knoxville, TN in 2002.

Brand	Variety	Freeze Damage ¹	Stem Breakage ²	Height In.	-----DAP [‡] -----		Yield bu/A	Test Weight lb/bu
					Headed	Mature		
VA	Exp. VA97-13-176	2.7	2.0	25	184	221	71.7	47.6
VA	Callao	2.5	3.2	23	183	220	67.2	45.4
VA	Price (VA96-44-321)	3.2	1.8	24	184	220	65.6	45.8
VA	Nomini	3.0	1.3	33	183	227	64.5	44.1

¹Scores of 1 through 5, where 1 = <5% plants damaged; 5 = 95+% of plants damaged. Freeze (23EF) occurred on March 22, 2002, ratings were taken on April 2, 2002.

²Scores of 1 through 5, where 1 = <5% of stems broken below the head; 5 = 95+% of stems broken below the head.

[‡]Days after planting.

Table 16. Mean yields of four barley varieties and experimental lines tested at two locations in Tennessee for two years (2001-2002) and three years (2000-2002).

Brand	Variety	2 Years			3 Years		
		Avg. Yield	Knoxville	Spring-field	Avg. Yield	Knoxville	Spring-field
VA	Price (VA96-44-321)	82	87	76	---	---	---
VA	Nomini	79	88	70	75	81	68
VA	Callao	78	83	72	69	71	66
VA	Exp. VA97-13-176	74	83	65	---	---	---

Table 17. Mean yield and agronomic characteristics of four barley varieties and experimental lines tested at two locations in Tennessee for two years (2001-2002) and three years (2000-2002).

Brand	Variety	2 Years					3 Years		
		Avg. Yield	Test weight	Headed	Mature	Height	Avg. Yield	Test Weight	Height
VA	Price (VA96-44-321)	82	43.8	186	217	26	---	---	---
VA	Nomini	79	43.9	186	220	32	75	44.4	34
VA	Callao	78	43.5	184	218	30	69	45.4	31
VA	Exp. VA97-13-176	74	43.3	186	217	28	---	---	---

[‡]Days after planting.