

## Wheat Quality for Commercial Entries in the NC OVT 2018-19

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Falling number is a relative measure of the enzymatic activity in a living wheat seed following harvest, specifically alpha-amylase activity. It is a measure of end-use quality of milling and baking wheat and purchasers use it along with protein and test weight to evaluate wheat quality and determine the price for a grower. Alpha amylase breaks down starches in the endosperm of the seed and results in decreased final flour quality. Acceptable falling number, protein and test weight values will vary depending on the purchaser and the product they intend to make from the milled wheat. Please be in touch with your purchaser to determine their specific requirements.

In the 2018-19 cropping season, we evaluated all commercial entries to the NC official variety test for falling number and protein in addition to the usual reported metrics of yield and test weight. We collected this data for Union and Lenoir County locations by reserving a subsample of wheat from every plot. Protein numbers presented are the average percent protein of all four replications at a given location. For falling number, all four subsamples for a location were homogenized and a 100g sample was ground for evaluation. Falling number is reported in seconds. Falling number and protein content are affected by both genetics and environment. The following data provide a representative look at the performance of commercial soft wheat lines in two locations in North Carolina for a specific crop year.

Union Commercial Wheat - 2019							
Company/Brand	Variety	Test					
		Yield (bu/A)	Weight (lb/bu)	Height (in)	Lodging (%)	Protein (%)	Falling Number
Seedway	SW62SR	113.8	58.1	34.8	17.5	11.8	301
Armor	Mayhem	113.7	57.4	36.0	52.5	11.3	272
Limagrain	L11719	113.4	58.2	34.3	51.3	11.6	362
Va Tech	Hilliard	112.3	57.3	36.5	23.8	11.8	383
Local Seed	LW2958	112.3	58.0	36.8	25.0	11.9	362
UniSouth Genetics	USG 3118	112.0	57.5	32.5	3.0	12.1	394
Croplan	CP9606	111.1	56.2	34.5	23.8	11.3	273
AgriMAXX	495	110.2	58.3	33.5	25.0	11.5	371
AgriMAXX	473	110.1	56.9	37.0	43.8	11.5	281
Progeny	#BLAZE	109.5	56.5	35.3	83.8	11.3	338
AGS	3040	108.2	57.6	37.3	6.3	11.9	363
Progeny	#BERKELEY	107.8	55.3	34.0	8.8	11.6	282

Company/Brand	Variety	Test					
		Yield (bu/A)	Weight (lb/bu)	Height (in)	Lodging (%)	Protein (%)	Falling Number
Harvey's AP	AP 1971	107.6	58.5	35.3	7.5	12.0	270
Local Seed	LW2848	107.6	57.1	35.8	42.5	11.2	284
Syngenta	SY 547	107.4	58.1	35.3	13.3	12.0	294
AgriMAXX	480	107.1	58.0	34.3	22.5	12.0	284
Progeny	#TURBO	107.1	57.2	35.5	2.5	11.8	328
Dyna-Gro	9932	107.1	58.1	33.8	5.0	11.5	345
AGS	2038	106.7	59.3	39.3	27.5	11.6	304
Armor	Spirit	105.9	57.9	35.8	38.8	11.7	376
Syngenta	SY Viper	105.5	58.3	37.3	10.0	11.4	300
Local Seed	LW2937	105.4	54.4	32.8	73.8	11.8	315
Pioneer	26R41	105.1	57.8	31.5	2.5	11.6	307
UniSouth Genetics	USG 3458	104.9	56.8	32.8	3.8	10.8	269
AGS	2024	103.9	57.6	36.8	3.8	11.8	344
Progeny	#BULLET	103.1	57.1	38.8	61.3	11.6	291
Southern Harvest	SH 5550	102.2	57.9	37.0	1.3	12.0	298
UniSouth Genetics	USG 3790	100.9	58.0	33.8	60.0	12.0	339
AgriMAXX	486	100.7	57.2	35.5	21.3	11.5	340
Limagrain	L11713	100.5	58.6	35.5	21.3	11.4	309
AgriMAXX	463	100.1	56.5	35.5	7.5	11.8	343
Seedway	SW64SR	99.8	57.3	37.0	67.5	12.2	325
Pioneer	26R10	99.7	57.0	35.0	51.3	11.7	283
Croplan	CP8550	99.6	56.8	36.5	77.5	11.1	320
Dyna-Gro	Shirley	99.5	56.4	34.8	6.3	11.7	366
Progeny	#FURY	99.2	57.6	34.8	2.5	11.5	273
AgriMAXX	481	98.6	56.8	35.5	23.8	11.6	266
Southern Harvest	SH 7200	98.2	56.6	37.5	8.8	12.0	229
AgriMAXX	415	97.9	58.5	35.5	27.5	11.7	308
Dyna-Gro	9811	96.9	57.0	36.0	13.8	11.8	273
UniSouth Genetics	USG 3329	96.7	57.6	36.5	77.5	12.0	329
Limagrain	L11718	96.6	55.1	36.5	58.8	11.9	299
Harvey's AP	AP 1950	96.3	57.4	35.8	46.3	11.8	286
Harvey's AP	AP 1947	96.2	57.6	34.5	30.0	11.5	248
Pioneer	26R45	95.6	56.8	35.8	56.3	11.6	321
Southern Harvest	SH 7510	95.1	57.4	33.8	48.8	11.2	313
Pioneer	26R59	95.0	56.1	33.0	22.5	11.5	265
Dyna-Gro	9980	94.5	59.9	34.3	53.8	12.0	300
UniSouth Genetics	USG 3536	94.1	57.1	36.0	62.5	11.3	282
Dyna-Gro	9862	93.7	57.4	34.3	45.0	11.7	354

Company/Brand	Variety	Test					
		Yield (bu/A)	Weight (lb/bu)	Height (in)	Lodging (%)	Protein (%)	Falling Number
Croplan	CP9415	93.4	57.9	33.5	7.5	<b>11.7</b>	297
Featherstone	Featherstone 31	93.1	57.5	34.0	68.8	11.3	362
Progeny	#WARRIOR	92.7	57.0	33.5	10.0	<b>11.6</b>	365
Croplan	CP8800	92.7	56.9	35.5	56.3	<b>11.7</b>	373
AgriMAXX	485	92.5	57.9	33.0	52.5	11.3	299
UniSouth Genetics	USG 3895	92.4	55.7	32.8	37.5	11.3	306
Dyna-Gro	9701	91.8	57.2	37.3	61.3	<b>11.7</b>	270
Armor	Velocity	90.3	56.6	34.3	33.3	11.2	362
Dyna-Gro	9941	89.7	56.4	35.3	59.3	11.4	380
Harvey's AP	AP 1981	89.0	57.7	35.8	53.8	11.4	363
Southern Harvest	SH 4400	87.8	56.7	35.5	12.5	11.4	312
Local Seed	LW2867	87.7	57.9	33.0	80.0	<b>11.7</b>	345
NCSU	NC13-21213	87.3	58.0	36.0	53.8	11.5	318
Pioneer	26R36	72.2	56.1	34.3	71.3	11.5	277
<b>Mean</b>		100.3	57.3	35.2	35.0	11.6	315
<b>CV</b>		10.9				3.5	
<b>Avg LSD (<math>\alpha=0.1</math>)</b>		12.6				0.6	

**Bolded** varieties in top yield group produced a statistically equivalent yield to the top yielding variety.

**Lenoir Commercial Wheat - 2019**

Company/Brand	Variety	Test				
		Yield (bu/A)	Weight (lb/bu)	Height (in)	Protein (%)	Falling Number
UniSouth Genetics	USG 3118	<b>95.1</b>	60.6	33.8	10.2	424
Progeny	#FURY	<b>89.0</b>	60.5	35.3	9.8	403
Armor	Velocity	86.6	60.7	38.5	10.1	455
AgriMAXX	473	86.2	58.8	37.8	9.9	373
Progeny	#BERKELEY	85.7	59.2	37.5	10.1	385
Local Seed	LW2848	84.0	59.4	36.5	9.8	420
Croplan	CP8800	83.8	58.5	35.5	9.7	377
Croplan	CP8550	83.1	58.8	39.0	10.1	420
Southern Harvest	SH 7200	82.2	60.7	37.3	<b>11.0</b>	307
Armor	Mayhem	80.8	59.2	37.3	10.0	443
Southern Harvest	SH 5550	80.5	62.0	38.0	<b>10.5</b>	445
Croplan	CP9606	80.5	58.4	29.8	9.7	350
Progeny	#BULLET	80.0	59.3	40.8	9.9	417
AGS	3040	78.8	60.2	42.0	10.0	455

Company/Brand	Variety	Yield (bu/A)	Test			Falling Number
			Weight (lb/bu)	Height (in)	Protein (%)	
Harvey's AP	AP 1950	78.4	60.3	40.3	10.2	381
Progeny	#WARRIOR	76.9	57.4	35.3	8.9	391
UniSouth Genetics	USG 3536	76.6	59.0	37.3	10.3	395
Dyna-Gro	9701	75.0	58.9	36.8	10.1	431
Pioneer	26R41	75.0	59.7	32.8	10.0	390
AgriMAXX	481	74.9	61.9	32.5	10.7	305
Pioneer	26R45	73.5	59.3	39.0	9.8	426
Seedway	SW62SR	73.2	59.1	32.8	10.1	388
AgriMAXX	480	72.5	60.6	34.8	10.2	303
Pioneer	26R36	72.1	59.4	33.3	9.6	379
AgriMAXX	495	71.7	59.1	35.5	9.8	403
Dyna-Gro	Shirley	70.9	56.6	32.3	9.8	464
AgriMAXX	485	70.8	58.7	33.0	10.0	428
Pioneer	26R10	70.5	58.6	32.3	9.7	409
Featherstone	Featherstone 31	70.3	59.0	31.3	11.0	466
NCSU	NC13-21213	70.1	60.7	35.3	9.9	317
Croplan	CP9415	69.8	58.1	34.3	10.1	401
Local Seed	LW2867	69.7	58.5	34.8	10.4	462
Syngenta	SY 547	69.4	59.9	40.3	10.2	403
Dyna-Gro	9811	69.1	59.1	33.0	10.2	368
Armor	Spirit	68.9	60.8	28.3	10.2	409
Local Seed	LW2958	68.6	59.9	36.3	10.4	402
AgriMAXX	486	68.5	57.5	35.8	9.9	473
Limagrain	L11713	67.8	60.3	29.0	10.2	377
Va Tech	Hilliard	67.8	59.4	36.8	10.1	409
Harvey's AP	AP 1971	67.7	59.6	38.3	10.6	418
Seedway	SW64SR	67.4	58.7	34.8	10.1	389
AgriMAXX	415	65.1	59.3	34.8	9.9	305
Southern Harvest	SH 4400	64.9	56.7	40.0	10.0	478
Harvey's AP	AP 1981	64.5	58.6	34.0	10.0	413
Harvey's AP	AP 1947	64.3	60.0	32.5	9.8	445
Limagrain	L11718	64.2	56.3	29.8	10.2	479
UniSouth Genetics	USG 3790	64.0	58.1	35.3	9.8	371
Limagrain	L11719	63.9	58.4	33.0	9.5	446
Southern Harvest	SH 7510	63.0	57.7	36.8	10.5	352
UniSouth Genetics	USG 3458	62.9	57.2	35.3	8.9	378
Local Seed	LW2937	62.5	55.7	34.5	11.0	418
Dyna-Gro	9932	61.7	58.7	29.5	10.1	442

Company/Brand	Variety	Test				
		Yield (bu/A)	Weight (lb/bu)	Height (in)	Protein (%)	Falling Number
Progeny	#BLAZE	61.6	58.1	33.5	10.1	396
AgriMAXX	463	61.2	57.1	31.0	10.2	432
Syngenta	SY Viper	60.2	58.5	40.8	9.5	441
AGS	2024	59.6	59.4	33.3	10.1	304
Dyna-Gro	9862	59.0	58.6	30.5	10.0	466
Pioneer	26R59	58.9	57.0	31.3	9.3	412
Dyna-Gro	9941	57.9	55.6	28.3	<b>10.5</b>	476
UniSouth Genetics	USG 3895	54.1	59.7	32.8	9.4	370
Progeny	#TURBO	53.4	57.9	32.3	<b>10.5</b>	415
Dyna-Gro	9980	53.3	60.1	30.5	<b>10.6</b>	475
AGS	2038	52.6	59.4	41.0	9.8	376
UniSouth Genetics	USG 3329	45.1	57.5	32.0	9.8	407
<b>Mean</b>		69.8	58.9	34.8	10.0	407
<b>CV</b>		10.4			4.4	
<b>Avg LSD <math>\alpha=0.1</math></b>		7.8			0.6	
<b>Bolded</b> varieties in top yield group produced a statistically equivalent yield to the top yielding variety.						

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