

WHEAT VARIETY NEWS FOR 2019



We have never figured out how to put six gallons in a five-gallon bucket. Its the same with wheat varieties. When it comes to selecting wheat varieties, there are always trade-offs as we can't get everything in one variety. Of all the performance traits, the ones most requested by wheat growers are:

- Yield
- High test weight (over 58 lbs. for #2 wheat)
- Scab resistance (less than .5 ppm vomotoxin)
- High falling numbers (over 300)

Everyone expects yields: we get it. But even yields coupled with low test weights means dockage at the elevator so even higher yields may not mean higher farm income.

History says we will have a significant scab infection once every five years in the Mid-Atlantic. The only thing worst than selling wheat at a discount is not being able to sell it at all due to vomotoxin. There are new wheat varieties with high scab tolerance and even scab resistance. But they tend to have average test weights and can be susceptible to other diseases. New crop protection chemicals have proved their worth in controlling or at least limiting the damage from scab. **Note to self:** get the scab spraying done in the very narrow at-flowering window if selling into a food-grade market. Always.

So that leaves us with the other two major limiting factors effecting profitable wheat production for wheat in the Mid-Atlantic: *low test weights* and *low falling numbers*. These two factors are impacted by variety, harvest timing and weather.

Low test weights and falling numbers in 2018 were caused by the 29.6" of rain in May, June and July. These conditions were almost impossible for any variety to overcome.

So we all understand, **test weight** is a measure of how much grain weight can be placed in a given volume. At maturity (about 30% kernel moisture), prior to any rain, wheat kernels will pack well into a bushel.

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USG Varieties Available

USG 3536 (NEW): Strong yield performance over the entire Mid-Atlantic area. Full bearded variety with excellent test weight. Above average disease package: moderately resistant to soil-borne viruses (good for heavier soils). Moderately tolerant to scab: taller wheat if straw production is important.

USG 3895: Short stature variety producing very high yields if managed; excellent test weight. Selected for planting on lighter soil types due to deep rooting: Above average resistance to glume blotch plus leaf and stripe rust. Moderately tolerant to scab.

USG 3404: Powerful wheat with high yields, very good test weight and an outstanding disease package. Top yields in VA Tech and NCSU wheat official variety trials (OVT). This is the most versatile and widely adapted USG wheat variety available. Average tolerance to scab.

USG 3228: Very high yields in all locations North of the James River (PA, MD, DE and VA). An early maturing variety with **resistance to scab**: superior disease package with a very showy, smooth head. This is an early-maturing variety, so this variety needs to be **harvested first**. Plant thicker to produce higher yields.

USG 3329 (NEW): Great test weight with above average scab tolerance. It produces very high yields averaging 93.6 bu./acre in NCSU 2018 OVT trials. This bearded variety has above average stripe rust resistance which makes it a good choice for South of the James River and NC wheat production.

USG 3118 (NEW): Excellent test weight in this late-planted, early-harvest variety. Averaged 95.7 bu./acre in 2018 NCSU OVT trials. This is a short-stature variety with a tip beard and a very aggressive tillering characteristic: very good resistance to stripe and leaf rust, powdery mildew and Septoria leaf blotch. Average tolerance to scab. Good winter hardiness.

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Wheat Variety Selection and Seed Treatment (continued)

With rain or heavy dew, kernels swell and upon drying, the kernels do not shrink back to their original volume, shape, and smoothness. This results in more space between kernels, and they will not pack into a bushel as well as they did before the rain. The result is a lower test weight. Low test weight indicates a physical change in kernels.

The **Falling Number** is a value that measures alpha-amylase activity. Alpha-amylase is produced when the wheat seed has come through its dormancy and begins sprouting (precocious germination). Alpha-amylase cuts long starch chains in the wheat endosperm into shorter pieces, resulting in poor bread, cake and noodle quality. Low falling numbers indicate a chemical change in kernels.

To improve test weight and falling numbers, growers have to decide in the fall which fields will be harvested first. Wheat that matures early will have to be harvested first. **An important concept to understand is that the first-planted wheat may not be the first harvested wheat.**

According to research, applying molybdenum as a foliar application to wheat will reduce the enzyme alpha-amylase activity in mature wheat by **extending the kernel dormancy period** for about two weeks.

In the data, foliar applications at flag leaf were critical to prevent low falling numbers. However, for increasing test weight (and protein), the molybdenum applications will have begin prior to that growth stage.

For 2019, Renwood Farms is recommending 1qt. / acre of **Molyron™** be applied with the winter topdress and 1 qt./acre with the spring topdress to preserve wheat test weight and falling numbers. A second option is to apply 1 qt./acre to the spring topdress and another 1 qt./acre again at flag leaf.



Wheat boron levels in the leaves continue to test very low or deficient in the 228 wheat plant tissue samples taken over the past four years. Excessive tillering is an indicator of boron deficiency.

Boron must be supplied throughout the life of the crop. Boron increases nitrogen efficiency and utilization by the wheat plant. Boron is responsible for pollination of kernels and for the number of kernels per head.

Apply .25 lbs. /acre of boron with fall fertilizer prior to or just after planting wheat. A tissue sample during the season will indicate if additional boron is needed.

Group 1 earliest planting	Group 2 & 3 middle planting	Group 4 last planting
USG 3536	USG 3404	USG 3118
USG 3895	USG 3228	
	USG 3229	

Planting the right variety in the right planting window is critical to limit spring freeze damage. The table at left shows which variety is recommended for the different planting windows. **Planting Group 4 varieties too early enhances chances for spring freeze damage.**

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Vizor™ Seed Treatments for the Mid-Atlantic and Southeast

Vizor™ seed treatments are designed to stop the diseases associated with both warm and cool soil temperatures. Seed treatments other than **Vizor™** are usually added to protect in cold soils only.

In addition to stopping diseases early, **Vizor™** offers extended protection. **Vizor™** provides 200 days of protection compared to only 35 days for other seed treatments.

The graph above shows NCSU wheat seed treatment plots over a three-year period. This research showed that the **Vizor™** wheat seed treatments were the only treatment that increased yields every year.

Renwood Farms can include **zinc** on seed. Zinc is needed as a plant nutrient but also stimulates soil microbes to release more nutrients to the plant. **Adding zinc to seed has increased plant manganese levels** in field conditions.

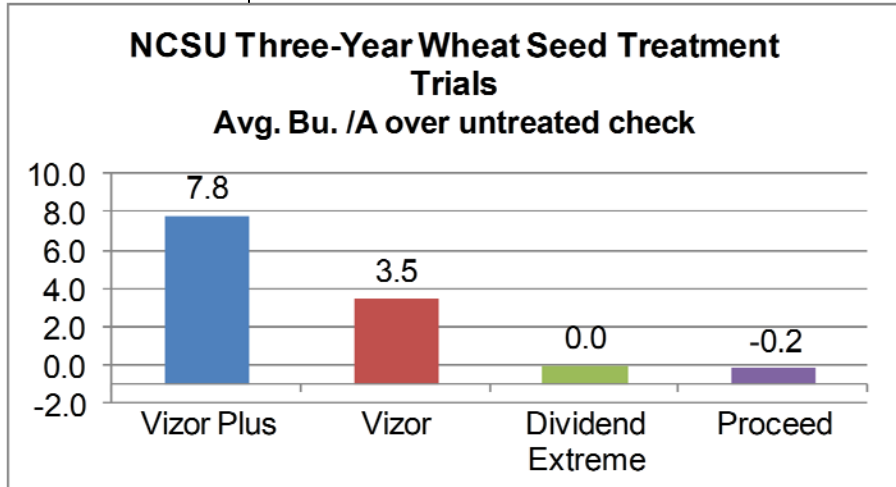
Zinc seed treatments can prevent sharp eyespot fungal infections where litter has been used. In 2013, adding **zinc to the seed increased yields by 16 bu. /acre** in Renwood Farms seed production. Seed zinc has increased wheat yields by 12 bu. /acre or more in Mississippi, North Carolina and Virginia.

Growers often request seed insecticides to prevent aphids, Hessian fly and soil insect damage but most suppliers use the lowest rates allowed by the labels which lowers performance.

Vizor Plus™ and Vizor 5Z™ provides Gaucho 600 at 1.5 ozs. /100 lbs. to provide protection from aphids, Hessian fly and soil insects all fall.

Adding a seed insecticide at the proper rate added 4.3 bu. /acre in NCSU trials.

Vizor™ seed treatments are the most effective way to protect against root rots and insect pests. **Vizor 5Z™** adds a critical nutrient package to not only protect but also feed plants to deliver higher yields.



Vizor™	Unique multiple fungicide treatment with higher rates for longer, stronger protection
Vizor Plus™	Vizor with insect control for aphids and Hessian fly
Vizor ZN™	Vizor with zinc
Vizor 5Z™	Vizor Plus with zinc



Renwood Farms' state-of-the-art seed treatment facilities means that every seed gets evenly coated with the correct amount of seed treatment to ensure growers get the most value for their seed treatment dollar.

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Fall 2018 Wheat Variety Characteristics (listed in order of planting)

Variety	Maturity	Height	Head Type	Test Weight	Mildew	Glume Blotch	Scab Tolerance	Soil Virus
USG 3536	ME	M-T	A	2	3	3	2	2
USG 3895	M	S-M	A	2	NR	2	3	4
USG 3404	M	M	A	3	2	2	3	2
USG 3228	E	M-T	S	4	3	3	1	2
USG 3329	ME	M	A	2	NR	3	3	2
USG 3118	E	S	AL	2	3	3	4	3

Maturity: E = early harvest, M = medium harvest, L = late harvest

Height: S = short, M = medium, T = tall

Head Type: A = awned (full beard), AL = awnletted (tip beard), S = smooth (no beard)

Test Weight: 1 = best, 9 = worst

Mildew, Glume Blotch, Scab, Virus: 1 = best resistance 9 = least

Call us to order your wheat seed for planting this fall!

