Renwood Farms

2018 Wheat Update

Since we started tracking weather in 2003, our best yields have come when wheat is topdressed with a winter nitrogen application between 800 and 1,000 GDU, which usually occurs around the first week of February based on an October 15th planting date.

As shown in this table, wheat planted on Oct.15 in Central VA reached 792 GDU on Dec. 31 according to our Manquin satellite weather station. This is cooler than our 829 GDU average since 2003. Note that the two best wheat yield years (2008 & 2011) had GDU below 800 at the end of the year.

Central VA averages four GDU per day in January. This makes the wheat just over nine days behind the 14-year average.

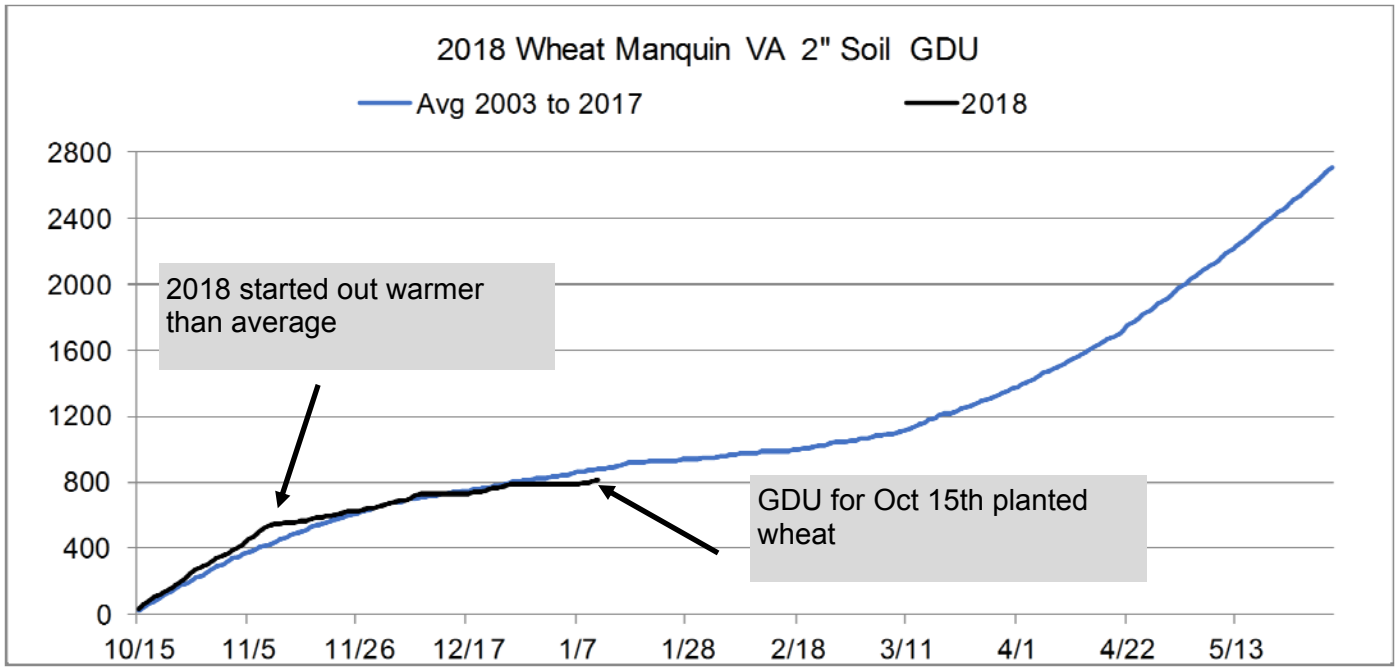
Year	Dec 31 GDU	State Avg. Yield
2004	738	55
2005	769	63
2006	661	68
2007	777	64
2008	787	73
2009	785	55
2010	869	51
2011	762	71
2012	986	65
2013	809	62
2014	851	68
2015	815	66
2016	1174	55
2017	889	62
2018	792	

There are less than two full tillers (see photo) in most fields so the recommendation is for 50 to 60 lbs. /acre of nitrogen. A nitrogen:sulfur fertilizer in an 5:1 ratio (ex: 25-0-0-5) is likely the best solution.

One full tiller: three leaves and a growing point

For November-planted wheat, winter applications will need to be completed by the end of February regardless of the GDU accumulated. As the days get longer, the wheat accelerates thru the vegetative stages and tillering will be completed just after March 21 (days become longer than nights).

Normally, we recommend 4 ozs. of propiconazole with this topdress to keep the wheat clean from mildew and septoria but due to the very dry and very cold weather conditions, we have not observed leaf diseases so we see little need for this fungicide in this application.



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Wheat Nutrition for Higher Test Weight and Falling Numbers Scores

Two major limiting factors affecting profitable wheat production for food-grade wheat in the eastern US are *low test weights* and *low falling number scores*.

Low test weight indicates a *physical change* in kernels. 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. When it rains, 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 or even heavy dews. The result is a lower test weight.

The Falling Number test is used to measure alpha-amylase activity due to sprout damage in wheat. Sprout damage is caused by the enzyme alpha-amylase, which 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.

According to research recently discovered, applying molybdenum as a foliar application will reduce the enzyme alpha-amylase activity in mature wheat by increasing the dormancy period of the kernel 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 2018, Renwood Farms is recommending 1qt. / acre of Molyron™ be applied with the winter and spring topdress to increase wheat test weight and falling numbers. A second option is to add to the spring topdress and again at flag leaf.

Boron deficiency in wheat

Boron leaf levels continue to test very low or deficient. Boron must be supplied throughout the life of the crop. Boron increases nitrogen efficiency and utilization by the wheat plant. Apply 1 qt. /acre of 10% boron with this winter topdress.