



2017 Wheat Update: April, 2017

Dodging a Bullet with Variety Management

Warm winter temperatures in 2017 accelerated wheat growth and it seemed that Mid-Atlantic wheat growers were heading towards a replay of the 2016 April 6th freeze event. As shown in this table, the accumulated Growing Degree Units (GDU) for 2016 and 2017 are fairly close for wheat planted in Central VA on Oct. 15.

The difference between 2016 and 2017 on March 31 was 164 GDU. In April, we average 16 GDU/day, so we were about 10 days behind 2016 (but still 10 days ahead of average). The main difference between 2016 and 2017 was that the warm temperatures in 2016 came in March while the warm temperatures of 2017 came in February.

Year	Mar 31 GDU	State Avg. Yield
2004	1171	55
2005	1212	63
2006	1159	68
2007	1374	64
2008	1382	73
2009	1381	55
2010	1291	51
2011	1310	71
2012	1925	65
2013	1243	62
2014	1268	68
2015	1226	66
2016	1876	55
2017	1712	

The wheat is not as far along as the GDU calendar suggests in 2017 due to the short days of February. Late heading wheat varieties, which are the earliest planted varieties, are photosensitive and do not respond 100% to temperatures. So even with warm days in February, the plants were unable to gain much growth because the days were so short. The freeze events of mid-March did damage the very earliest planted NC wheat but it did not produce a total rout.

In 2016, wheat growth was accelerated due to the very warm March. In March, 2016, Central VA received 481 GDU which was second only to the 586 GDU received in 2012. Fortunately, there were no April freezing temperatures in 2012.

According to the ag.systems wheat models, the best VA state wheat yields have come when the wheat receives between 305 and 325 GDU in March (2008 and 2011).



USG 3316

Flag leaf emerging in Caroline CO., VA. The plant will have three nodes before the flag leaf emerges.

The best news, besides dodging the freeze, is that in 2017, March produced 317 GDU which indicates a very high wheat yielding year if all goes well from here out.

Spring freeze is a real threat to Mid-Atlantic winter wheat every year. Selecting specific (late-heading) varieties to plant early reduces this threat dramatically and is a key component of high-yield wheat.

Wheat Nutrient Status

Wheat plant tissue samples at GS30 (GS5) were surprising in some respects. The relatively dry winter contributed, we believe, to higher-than-normal nitrogen levels. Nitrogen levels above 3.0% at GS30 are critical to ensure tiller survival.

Boron and zinc lead the pack as usual for nutrients that were considered at yield-limiting levels but new in 2017 was the appearance of iron and molybdenum as yield limiting nutrients.

Molybdenum got some press coverage this winter in its role of limiting dockage from low falling numbers (and test weight). Iron has been identified as yield limiting in soybean trials but this is the first time levels have been observed as yield-limiting in wheat. Several trials were put in place to see if these foliar treatments do indeed impact yields and grain quality.



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Wheat Disease and Insect Status

Stripe rust has been identified on the Eastern Shore and in NC. Stripe rust is a mean fungal pathogen which moves very quickly through susceptible wheat varieties. The table shows varietal differences in susceptibility to both stripe rust and powdery mildew.



Stripe rust in wheat

Powdery mildew was found during GS30 and most fields received a fungicide spray at that time.

Moving forward, growers producing seed wheat or those with specific food grade markets are urged to apply a fungicide at flag leaf for septoria control. Please remember that propiconazole has a limit of 4 ozs. /acre per year. Strobi fungicides can be used if applied prior to heading. Scab is not as menacing in 2017 due to the advanced growth. Scab needs warm temperatures and leaf moisture over 8 hours, a more common occurrence in May then in April. Keep your fingers crossed. Insecticide applications at GS30 have kept all bugs under control.

Variety	Stripe rust	Powdery Mildew
VAW11-106 VaTech /VCIA	1.8	1.7
Hilliard VaTech /VCIA	0.0	1.2
USG 3523	0.3	2.7
USG 3404	0.0	1.2
USG 3316	2.3	3.9
USG 3895	2.2	2.2
USG 3197	0.0	2.6
USG 3201	0.0	2.4
9223 DynaGro	3.1	3.7
9552 DynaGro	2.3	3.4
9522 DynaGro	3.3	2.2
Shirley DynaGro	4.6	1.7
9692 DynaGro	0.0	3.9
WX15742 DynaGro	0.6	1.9
415 Agri-Maxx	4.3	2.4
444 Agri-Maxx	2.8	2.4
446 Agri-Maxx	0.0	3.2
454 Agri-Maxx	0.0	4.2
462 Agri-Maxx	2.3	2.4
SS-8360 Southern States	1.0	2.9
SS-8340 Southern States	0.0	2.7
SS-8513 Southern States	0.1	1.7
SS-8415 Southern States	0.6	1.4
SS-8530 Southern States	0.3	0.9

Stripe rust & mildew ratings from Dr. H. Melh, VA. Tech, Assistant Professor, Plant Pathology: the higher the number, the more susceptible the variety is to the disease