



Pest Management News

News About integrated pest management for
producers in Runnels-Tom Green Counties

Richard Minzenmayer
Extension Agent-IPM
613 Hutchins Ave., Room 302
Ballinger, Tx 76821
Phone (325) 365-5212 Fax (365) 365-5212
TPMA Website: <http://www.tpma.org>

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E-mail: r-minzenmayer@tamu.edu
Website: <http://ipm.tamu.edu>
Mobile (325) 365-1292
Runnels County Website: <http://runnels-tx.tamu.edu>

GENERAL SITUATION

Temperatures are warming back up and wheat is progressing well. There are still a lot of questions regarding the freeze damage to the wheat crop. I have looked at a lot of wheat fields across Runnels and Tom Green Counties and damage varies from field to field. Generally speaking, the thicker the stand and the more moisture received, the lower the percent damage. Runnels County seems to have missed the brunt of the freeze damage. Tom Green County, on the other hand, seems to have sustained more damage. Fields which were headed and in the pollination or flowering stage at the time of the freeze were the most susceptible. We can expect sterilization of some or all the wheat flowers that were pollinating at the time of the freeze. I think many wheat fields in Tom Green County that were flowering at the time of the freeze sustained 20-25% damage. I have seen situations where damage occurred in just part of the field. Despite the pressure to immediately evaluate the impact of the freeze damage to our wheat crop, freeze damage to wheat cannot be accurately assessed this soon. I think in some cases, we are expecting this crop to be three weeks older than it really is at this time. The most mature wheat that I have been in was at one-half kernel development. At this stage, it will take another two weeks before complete elongation occurs. Basically, it takes three to four weeks for kernel elongation once the flower is pollinated. Don't expect to squeeze milk out of the kernel now.

The following information comes from Dr. Gaylon Morgan-State Small Grains Specialist:

How will this freeze impact the Texas wheat crop?

The impact of these freezing temperatures on wheat yield loss is dependent on several factors, including the low temperature, duration of low temperature, and crop growth stage. Wheat is the most susceptible to freeze injury during the flowering stage, where 32° F can sterilize some or all of wheat flowers. The next most susceptible growth stage is at heading and at early grain fill, when the wheat plant can handle temperatures down to 30° F. It usually takes 26-28° F temperatures to damage wheat in the boot stage. Wheat in the jointing stage, like much of the High Plains, should be able to handle temperatures down to 24-26° F for a short period

of time. The big question is how long did it stay this cold in the actual wheat canopy. The wheat canopy temperature, at least for a little while, will stay warmer than the air temperature. For additional information on identifying wheat freeze injury symptoms you can go to <http://varietytesting.tamu.edu/wheat/docs/mime-4.pdf>.

Can the wheat crop compensate for some damage?

If temperatures dropped below the critical level for the growth stage, some yield loss should be expected. However, wheat is a very resilient crop and has some degree of ability to compensate for adverse conditions, such as freeze damage. If freeze damage occurs to the main tillers, secondary tillers that normally would have been aborted should go ahead and develop grain. The level of compensation will depend on numerous factors including the growing conditions (moisture and temperature) for the remainder of the season, adequate fertility, and disease pressure. If conditions remain ideal for numerous days immediately following the freeze (good moisture and cool temperatures), secondary tillers will likely compensate for much of the initial yield loss by the freeze; however, if weather conditions become hot and dry, little compensation may occur.

How to assess the freeze damage

Remember, the diagnosis is only as good as the samples collected and evaluated. So, representative samples for the various growth stages should be collected from numerous areas within a field. Also, wheat varieties with different maturities should be inspected separately, because some varieties may be beginning to head while other varieties are flowering. Each field should be examined since small differences in environment and cultural practices can influence the amount of freeze damage that may have occurred.

If wheat was in the jointing or early-boot stage, the stem should be sliced open to look for the immature wheat heads. The wheat head should be just above the last node (joint) and hollow part of the stem. If the wheat head and/or the flag-leaf is brownish or has a water soaked appearance, then that tiller will not produce grain. Usually this tiller will quit growing, but may stay green for several weeks. Wheat that was in the early jointing stage should have time for secondary tillers to make up a significant amount of the potential yield loss.

If the wheat is heading or flowering, the flower parts will need to be inspected for damage. Healthy female flower parts (stigma) will have a feather appearance and should be a rich white color. The male flower parts (anthers) will be a light green to yellow depending on the flowering stage. Any off-color or water-soaking appearance of the stigma or anther, means that wheat seed will not develop. This is a tedious job but is required for an accurate evaluation of the damage. Also, remember that the wheat flowers from the middle of the head outward to the ends. So, depending on the portion of the head that was flowering at the time of the freeze, there may be blanks in only a portion of the head.

Disease Update

Prior to the freeze last weekend, temperature, rainfall, and higher humidity was conducive for leaf rust development. In the Blacklands and South Texas, leaf rust has increased but the wheat is beyond the point where the disease can cause substantial yield loss. In the Rolling Plains, many farmers were applying fungicides last week for leaf rust on susceptible varieties. Stripe rust levels have remained very low in South Texas and virtually nonexistent in other parts of the state. Powdery mildew remains present in the Blacklands and Rolling Plains, and in a few fields in the Panhandle, but in most cases is not at a level that justifies a fungicide application.

Dr. Billy Warrick summarizes what has been reported from across the region:

- San Saba & Gillespie Counties-no damage
- Concho, McCulloch and Mason Counties-the wheat that was pollinating was impacted the most with a range of 25 to 50% impact. The later developing heads will need time and environment to produce full test weight grain. The younger wheat that had not headed yet looked good.
- Jones County-less than 10% damage
- Taylor County-some areas of the county sustained considerable damage
- Glasscock, Reagan and Upton Counties-alot of damage across the area. Wheat which was pollinating was injured in a number of samples evaluated. Younger wheat overall looked good.

Wheat Streak Mosaic Virus and High Plains Virus

I collected four wheat samples last week; one from a volunteer wheat patch and three from adjacent wheat fields. Samples were collected from Northern Runnels County. All four samples were confirmed to be infected with Wheat Streak Mosaic Virus (WSMV) and High Plains Virus (HPV). These diseases often occur together because both are transmitted by the same vector, the wheat curl mite. Doubly-infected plants exhibit severe chlorosis, strong mosaic, severe stunting and rapid plant death. It is extremely important to destroy volunteer wheat early to prevent wheat curl mite infestations. There is no control options once a wheat plant is infected with WSMV or HPV; therefore, preventing infection is the most important control strategy.

UPCOMING EVENTS

WHEAT TOURS

Date has been set for the Concho County and Runnels County Wheat Tours.

Concho Tour date is May 15, 2007 (Millersview Gym-Registration at 8 am- Program begins at 8:30 am and ends at 4:00 pm.

The Runnels Tour is May 17, 2007. More information will be passed along as time gets closer.

SCOUT SCHOOL

Scout School has been set for June 4 & 5, 2007 at the San Angelo Texas A&M Research Center. More information soon to come.