



Wheat Condition and Foliar Fungicide Considerations

Josh Bushong, Area Extension Crops Specialist

The wheat crop has been growing rapidly in the region with recent rains and warm days. Overall I think we have started jointing a little late, especially in areas that were more impacted with drought. This may hinder yields for some fields if stands were thin or planted late. Due to the hastened pace of vertical growth, additional tiller development was minimum for many so far this spring.



Some of the better-looking fields have been very deceiving when seen driving down the road. Several of the fields I've been in the past couple of weeks unfortunately had fewer stems than I would've anticipated. Time will tell if fewer but possibly larger heads can carry the yield potential to support late season management inputs such as additional nitrogen or fungicide applications.

Along my travels I have noticed some chlorotic, or yellowing, in some of the wheat fields. With a little inquiring and receiving a few phone calls, I have attributed the main to potential culprits have been either nitrogen deficiencies or response to herbicides. Crop response to nitrogen applications is always going to be determined on a field-by-field basis. While some of the crop has been under fertilized for obvious price reasons, I have also received reports of farmers claiming they have yet to see a response from their N-Rich strip. This year has been a prime example where using N-rich strips to fine tune topdress nitrogen applications rates can really pay off.

As far as the crop response to herbicides, there have been a few fields where the crop has shown symptomology from applications of Acetolactate Synthase inhibitors (Group #2, Sulfonylurea & Imidazolinone). These products have been widely used in wheat for decades and a vast majority of the time farmers expect zero crop injury from using these products. Occasionally when applications are made on stressed wheat within a couple days of cold temperatures crop injury can be found. Rarely will these instances reduce grain yield. The wheat usually recovers once growing conditions improve with more rain and warmer temperatures.

There are still a few reports of mites throughout the region. Brown wheat mites are easiest to find in the afternoon on warm days. Wheat may show symptoms of being scorched or bronzed and withered. Treatment thresholds for an acaricide application in 25-50 per leaf on 6-9 inch plants. Heavy rainfall can reduce mite numbers significantly but will not eliminate them. Crop rotation is a good management option going forward.

Multiple reports of aphids are starting to come in, mostly greenbug and bird cherry-oat. Using the "Glance-N-Go" method (factsheet or phone app) is a great tool for scouting for greenbugs. Bird cherry-oat aphids typically don't cause much visible damage to the wheat plant, but high numbers can reduce forage and grain yields. If populations exceed an average 25-30 per tiller prior to the wheat heading a 5% yield loss could occur and if populations average 50 or more a 10% yield loss could occur.

As far as wheat diseases, there have been a few reports in the region of multiple "leaf spotter" diseases. These include tan spot, septoria tritici blotch, and stagonospora nodorum blotch. These typically are found in the lower canopy and can result in loss or yellowing of leaves. Tan spot in particular is often found in heavy residue in no-till fields. So far, practically no stripe or leaf rust has been found in the region.

I have started to receive some questions about fungicide applications to protect the flagleaf. As with all crop protection products this year, the price and availability of fungicides is a major concern. From reviewing the past eight years of the data from the OSU wheat variety trial near Lahoma, on average there was about a 20 percent yield savings comparing no fungicide versus a single flagleaf fungicide application. This average is across all varieties tested including those with and without adequate disease resistance.

Knowing your wheat variety and how good of a disease package it is expected to have is always our first line of defense. Next is scouting and reviewing reports of diseases as they progress through the region. A fungicide application will only protect yield potential, so the decision to spray or not will ultimately depend on the risk of having the disease present.

Products that contain Tebuconazole, which are usually plentiful and affordable, will be in short supply this year and are expected to have an increased price. There should still be many good options available and some that will be pre-mixes with multiple modes of action. These products may come at a premium but should provide good to excellent protection for two to four weeks.

As always, contact your local OCES office for more information.



Biosecurity for Prevention of Avian Influenza

Dana Zook, Area Extension Livestock Specialist



High Pathogenic Avian Influenza (HPAI) more commonly known as Avian Influenza is back at it again, detrimentally impacting poultry operations across the U.S. Many may recall the large outbreak that occurred in 2014-2015 when over 50 million birds died or were euthanized to manage the spread of the disease. That incident has been noted as the most detrimental and costly animal health emergency in the history of the U.S. Although the current outbreak has not reached that level of severity,

as of March 23rd, 2022, the United States Department of Agriculture (USDA) has detected Avian Influenza in commercial poultry and backyard flocks in 17 states. Detections have been identified in states close to Oklahoma (Kansas & Missouri), but thankfully no HPAI has been detected in Oklahoma. Due to the close proximity of the disease to Oklahoma, it is imperative that poultry producers be aware and understand the importance of biosecurity to prevent HPAI in Oklahoma.

Here are a few tips to protect domesticated poultry from infection of Avian Influenza:

- 1.) Keep your distance from other poultry facilities and reduce visitors to a minimum. Do not borrow equipment, tools, or poultry supplies from other bird owners.
- 2.) Do not ever allow wild birds to commingle with domesticated poultry. As an added precaution, animal health officials are encouraging producers with outdoor birds to either completely confine or take steps to cover their outdoor pens for the next 30-45 days to prevent interaction with all wild birds or their manure.
- 3.) Maintain cleanliness! Clean and disinfect your hands, clothes, shoes, and equipment before and after handling poultry.
- 4.) Don't haul the disease home. Birds coming home from a poultry show should be quarantined from the rest of the flock for 14 days. Newly purchased birds from outside sources should be quarantined for a least 30 days.
- 5.) Know the warning signs. Birds infected with HPAI may exhibit lack of energy and appetite, decreased egg production, abnormal egg shape, respiratory distress, diarrhea and swelling or purple discoloration of the head, eyelids, comb, wattles, and legs.
- 6.) Report sick birds. Contact your local county OSU Extension Office or the Oklahoma Department of Agriculture, Food, and Forestry at (405) 522-6141.

No matter the size of the poultry operation, you are part of the U.S. poultry industry. As a small flock owner, you are not immune to the disease as many flocks across the U.S. have been infected. If you notice birds with the warning signs, please make a report. Listen more about the current Avian Influenza Outbreak on the Extension Experience

Podcast at <https://spotlight.okstate.edu/experience/podcast/> or look us up on your mobile device on Apple Podcasts, Google Podcasts, or Spotify.

Ukrainian Agriculture has far Reaching Effects

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The war in Ukraine continues to send shockwaves through commodity markets with prices reacting to the unforeseen struggles ahead. As a country with 81.5 million acres of tilled land, it commands great respect in the fundamental landscape of agriculture. For example, this would be comparable to a majority of the U.S. soybean crop residing in a war zone.

Before war broke out in Ukraine, Dr. Antonina Broyaka was the Dean of the faculty of Economics and Entrepreneurship at Vinnytsia National Agrarian University in Ukraine. She recently presented information about the agricultural situation in Ukraine during a webinar hosted by Kansas State University. That webinar can be viewed here: <https://agmanager.info/news/recent-videos/ukraine-russia-conflict-agricultural-ramifications-online-update>

Many of the insights and statistics from her presentation are included in this article.

There are numerous concerns for the Ukrainian farmer due to the war with Russia. A lack of labor is gripping the agricultural industry as many young workers are dedicated to the war effort, which will make planting and harvesting crops difficult. Farmers are

also struggling to source inputs such as diesel and fertilizer to ensure the crop is high quality and can be produced. On top of it all, even if the crops are successfully raised and harvested, it is unclear if those commodities can be stored and shipped in a safe manner.

Typically, 60% of Ukraine's agricultural products are exported by sea. Currently there is 7 million tons/month of grain export potential being blocked by war activity. Major ports that are disrupted or shut down completely include Berdyansk, Chernomorsk, Kherson, Mariupol, Olvia, Odesa and Pivdennyi. This leaves few seaports as options to ship grain out of the country, forcing shippers to rely on river ports such as Izmail, Reni and Ust-Danubsky in the far southwest of the country.

The Ukrainian Railway will become a major source of shipping, if possible, but capacity will need to increase substantially to make up for the loss of other shipping opportunities. Terminals on the border with Poland, Romania, Moldova and Slovakia will be crucial in shipping grain out of the country by land. This is hampered again by labor, loading facilities, locomotives and train cars and access to shipping insurance in the middle of a war zone.

Negative impacts will not be limited to the current crop. It is estimated that harvested winter crops in 2022 will be down by 41% and spring planted crops will decrease by 39%. This is a major portion of the world's exportable grain coupled with some nations refusing to purchase Russian grain. It is important to note that there are nations continuing to bid on Russian commodities so the changing pathways of export will be dynamic in coming years as grain is shuffled through different shipping channels.

It is estimated that nearly 51% of the total winter wheat growing region is located in dangerous regions of the country. Also, it is reported that 30% of prospective spring wheat plantings are located in similar areas. Troop movement and abandoned military equipment are among the hazards facing farmers in their fields and it will undoubtedly result in more hardships in coming years. Supplies of all major crop inputs are estimated to be below 80% of the expected demand with fuel being the most scarce.

As a producer, it is impossible to relate to the struggles that face Ukrainian farmers well into the future. This war has left the rest of the world with some of the same struggles such as rising input costs and difficulty in sourcing inputs. U.S. producers are dealing with these shortcomings by pre-purchasing what crop inputs are available and attempting to be frugal with fertilizer purchases.

Oklahoma farmers are currently dealing with a wheat crop that is getting hammered by drought. Recent dry weather and high winds have set the current crop back and rising input costs coupled with lower yield potential is not completely offset by higher grain prices. Producers occupying the farmer and business manager roles for their operations are under immense stress.

Scrutinize all purchases as yield potential is in question. Continue to be cautious in crop marketing and have a plan to counteract shortfalls. Past difficult years have hardened

producers to low profitability circumstances and while prices are higher, I believe this will be another year of low profitability.

When is the Best Time (Age) to Castrate Bull Calves?

Britt Hicks, Ph.D., Area Extension Livestock Specialist

Beef Quality Assurance Guidelines recommend that bull calves that are not herd sire prospects be castrated as early in life as possible (preferably, between birth and four months of age). Some cattlemen believe that delayed castration improves growth in nursing calves due to a “testosterone effect” in intact bull calves. However, bull calves do not have significantly high levels of testosterone until they reach about 8 to 9 months of age. In addition, several studies suggest that there is no lifetime performance advantage to waiting to castrate calves until weaning. In fact, most research show that late castration (at weaning) decreases feedlot arrival gains and increases morbidity (sickness).

In 2003, Kansas State University research determined the effect of castration age and growth implants (Synovex C) on weaning and preconditioning weights. Calves were early castrated at 90 days of age with no implant, early castrated and implanted, or late castrated at weaning (226 days of age). Steers that were early castrated and implanted had weaning weights similar to those of bull calves, and both of these groups weighed 15 lb. more than the early castrated non-implanted steers. However, 28 days after weaning the early castrated implanted steers weighed 20 lb more than the early castrated non-implanted or late castrated steers. These results indicate that early castration paired with growth promoting implants may yield more total pounds than either early or late castration alone when using a backgrounding program.

In a 2006 Oklahoma State University study, 2 to 3 month old bull calves were left intact or were castrated (surgically or banded) and all calves were implanted with Ralgro. At weaning (7 to 8 months), intact bulls were castrated (banded) and all calves were re-implanted with Ralgro. Weaning weights did not differ between intact bulls and castrated bulls. However, during a 50-day period following weaning bulls that were castrated at weaning gained 11.3% slower (0.12 lb./day less) than bulls that had been castrated at 2 to 3 months of age.

In 2011, University of Florida research investigated whether timing of castration in nursing calves affected calf performance and weaning weight. In this study, calves were either surgically castrated early (average age of 36 days) or late (average age of 131 days). Actual weaning weight (456 vs. 452 lb) and adjusted 205-day weaning weight (512 vs. 504 lb) were all similar between early and late castrate treatments, respectively. These researchers concluded that this data indicates that producers have some degree of flexibility in determining when to implement castration. The data also showed that castration at or near birth did not have a detrimental effect on calf performance or weaning weight.

In 2015, joint research between the University of Arkansas and West Texas A&M University (WTAMU) evaluated the effect of castration timing (near birth or at weaning) on lifetime growth performance and carcass quality of beef calves. In this study, calves were surgically castrated near birth or at weaning. All calves were weaned at day 214 of the study to



undergo a 56-day weaning period. After this weaning phase, the calves were shipped 480 miles to the WTAMU Nance Ranch and grazed on native grass and sorghum-Sudan grass for a 111-day backgrounding period until entry into the adjacent WTAMU Research Feedlot. The calves were fed a common feedlot ration throughout the finishing period (average length of 128 days) and harvested at a commercial processing plant.

These researchers reported that there was no difference in weaning weight between the bulls left intact or the non-implanted steers castrated near birth. However, during the 56 day weaning period, calves castrated near birth gained 10.3% faster than calves castrated at weaning (2.25 vs. 2.04 lb./day). Summer grazing and feedlot finishing performance and carcass measurements did not differ between treatments. These researchers concluded that the results of this study indicate that castration procedures should be performed as early in life as possible to minimize performance loss.

Research conducted at the University of California, Davis (2017) assessed the effect of age on healing and pain sensitivity after surgical castration of beef calves. In this study, beef calves were surgically castrated at 3 days of age (range of 0 to 8 days) or 73 days of age (range of 69 to 80 days). The results of this study showed that calves castrated soon after birth experienced more tissue swelling and showed more signs of pain, but their incisions healed sooner (39 vs. 61 days) and their weight gain 77 days after castration was greater (1.54 vs. 0.66 lb./day), when compared to animals castrated around 73 days of age.

Research from Nebraska (2005) has shown that as age of castration increases, weight loss resulting from the procedure increases (Figure 1). In addition, reviews of marketing data show that bull calves marketed through conventional channels have historically suffered a price discount of ~5% compared to steer calves (~\$6.00 to \$11.00/cwt discounts) since surgical castration of calves after arrival at a feedlot decreases daily gains and increases morbidity.

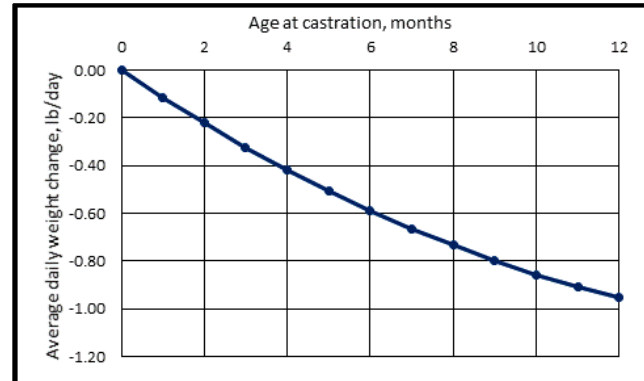


Figure 1. Average daily weight change of calves castrated by elastic band and surgical castration for the first 30 days post-castration. Adapted from Bretschneider. 2005.

Collectively, these studies suggest that there is no lifetime performance advantage to waiting to castrate calves until weaning, but there is a high probability of receiving lower prices when marketing intact calves through conventional channels. When considering how age at castration affects animal welfare, the consensus is that the younger the calf is at time of castration, the less impact castration has on its welfare and performance.

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The *Extension Experience* podcast is available on Spotify, Google Podcasts, and Apple Podcast platforms. You can also access the episodes on spotlight, <http://spotlight.okstate.edu/experience/>.

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