WILDCAT AGRI-SERVICES

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PIONEER PREMIUM SEED & TREATMENTS, CROP INSURANCE, AGRONOMY SERVICES, FIELD DAYS, SEED WHEAT, SEED DELIVERY, & PERSONAL SERVICE

INSIDE THIS ISSUE:

THANK YOU FOR SUPPORTING WILDCAT AGRI-SERVICES!

We want to thank all of you for planting Pioneer hybrids on your farm in 2021. We know you do have choices when it comes to whom you partner with on your seed selections.

Sometimes we may forget in the heat of the moment to say , **"THANK YOU"** for supporting Wildcat Agri-Services through your purchases of Pioneer seed, & other ag products. Being available evenings, & weekends we figure is part of the job of being a local independent dealer.

We appreciate you selecting Pioneer products for your acres and we want to continue to earn your business in the future

Mike McGinn & Family
Tye Engel & Family
Korey Carmichael & Family

EFFECT OF HEAT STRESS ON CROPS

Producers in Kansas are familiar with the effects of drought stress on summer row crops. But high-temperature stress can also affect crop development and yields, and this is not always associated with drought stress. Row crops grown under full irrigation sometimes have below average yields in years when temperatures are unusually hot during the sensitive stages of crop development. If crop yields are less than expected given adequate rainfall or irrigation, look at temperatures during flowering and grain fill, which can explain part of yield variability across years.

Corn—By late July or early August, most of the corn in Kansas has been pollinated and is moving into grain filling. Within 10 to 14 days after pollination, a corn kernel can be aborted in response to drought stress combined with high temperatures. Once the kernels are at or beyond blister stage, the final kernel number won't change much but kernel weight can.

After the blister stage, yield is determined by grain fill rate and duration. Research has indicated that 72 Degrees F is the ideal temperature for grain fill in corn. The rate of grain fill usually goes up with higher temperatures, meaning that more dry matter is deposited in the grain on a daily basis at warm temperatures than at cold temperatures. The problem is that the duration of grain fill typically is reduced at high temperatures. There are fewer days available to deposit dry matter in the grain. The balance of these two responses to high temperatures determines how much yield might be reduced, if any.

A controlled-environment study in Canada in the 1980's showed that increasing the day temperature (day/night temperatures of 95/59 vs. 77/59 degrees F) reduced yield by 42%. A more recent study at Iowa State compared increases in both day and night temperatures (93/77 vs. 77/68 Degrees F) during grain fill. The higher temperatures increased grain fill rate by 19%, but cut the duration of grain fill by 5 days, resulting in a 7% reduction in kernel size and 10% reduction in protein content. It is important to remember that these temperatures were imposed during most of the grain fill period. Actual temperatures can be even higher than these, but typically do not last the entire grain fill period.

Sorghum—According to research conducted by Vara Prasad, K-State crop physiologist, and others, the two stages of grain sorghum reproductive development most sensitive to high temperature stress are flowering and 10 days prior to flowering. In their research they used con-

CONTINUED ON PAGE 2

FUNGICIDE CONSIDERATIONS FOR CORN DISEASES

SOUTHERN RUST SCOUTING: Southern rust is typically first report in Kansas in mid-July. Pustules will appear on the upper leaf surface (unlike common rust which can be found on either side of the leaf). Pustules will be scattered on the leaf surface and spores will appear orange and will rub off on fingers. Severe infections can be seen on leaf sheaths.

GRAY LEAF SPOT SCOUTING: Begin scouting for gray leaf spot in corn about 2 weeks before expected tassel emergence. Gray leaf spot is characterized by rectangular lesions that are 1-2 inches in length and cover the entire area between the leaf veins. Early lesions are small, necrotic spots with yellow halos that gradually expand to full-sized lesions. Lesions are usually tan l color by may turn gray during foggy or rainy conditions. The key diagnostic feature is that the lesions are usually very rectangular l shape.

TAR SPOT was detected in Kansas during the 2022 corn season. To date, it has been reported in Atchison, Brown, Doniphan, Jackson, Jefferson, and Nemaha counties in Kansas. Tar spot lesions are black, raised, and have a round/elliptical shape. Irrigated corn may be at particularly high risk for yield or silage loss.

For confirmation of tar spot, please submit samples to K-State Plant Pathology Diagnostic Clinic at https://www.plantpath.k-state.edu/extension/plant-disease-diagnostic-lab/

CORN YIELD RESPONSE TO FUNGICIDE APPLICATIONS.

Research clearly demonstrate s that the single best time to apply a fungicide to corn for gray leaf spot control is from VT to R1 A single application at V6-V8 will not hold up against late-season pressure. A VT to R1 application may also provide suppression of south-

continued on page three

EFFECT OF HEAT STRESS ON CROPS CONTINUED

trolled environments to impose a day/night temperatures regime of 104/86 degrees F for 10 day periods at various stages of plant development. High temperatures stress in the pre-flowering and flowering stages caused maximum reduction in seed set, seed numbers, and seed yields. Early seed filling periods were more sensitive to high temperature stress than later periods.

Seed yield losses during post-flowering stages were mainly due to decreases in seed size. How are high temperatures reducing yields in sorghum? Lower seed yields were not the result of decreased leaf photosynthetic rates, as the rate of photosynthesis remained constant even under continuous exposure to high temperature stress. This suggests that high temperature stress reduced seed size by decreasing seed filling duration, without an increase in seed filling rate to help compensate.

Soybean—Exposure to heat stress during flowering results in pollen sterility and reduced seed set. Lower seed set under heat stress can be caused either by problems with pollen release or by decreased pollen viability or ovule function. The impact of high-temperature stress will be different for determinate and indeterminate varieties. Indeterminate varieties (typically MG IV and below) develop flowers over a longer period to time. Plants that are stressed by heat can compensate and form new flowers and seed set later if environmental conditions improve. Also, a decrease in seed set and numbers can sometimes be partially offset by greater seed size.

In contrast, determinate varieties (typically MG V and above) flower over a shorter period of time. Stress during this period can have a great influence on reproductive development. High temperatures soon after seed-set cause abortion of embryos, leading to fewer seeds per pod. Studies at The University of Florida, have shown that reduced seed size in soybean is a result of decreased seed filling rate. In addition to the impact on seed number and size, heat stress can reduce grain or seed quality. Heat stress increased the percentage of shriveled seed and influenced seed composition. Oil concentration increased with increasing temperature with an optimum at 77 to 82 degrees F, above which the oil concentration declined.

Seed protein concentration of soybean was constant at temperatures between 60 and 77 degrees F, but increased at temperatures above 77 degrees F. Oil and protein concentration were inversely related to heat stress during seed fill. Soybean plants gown at high day (95 degree F) and high night (86 degree C) temperatures produced seed with reduced germination and subsequent seedling vigor. Greater reductions in seed germination and seedling vigor were observed with longer duration of exposure to high temperatures, especially during seed fill and maturation.

ALFALFA SEED AND INOCULANTS

Premium alfalfa is in somewhat limited quantities. If you are considering planting fall seeded alfalfa please try to let us know as soon as possible. Blended alfalfa is in good supply at present.

Alfalfa: Pioneer has a good supply of Alfalfa varieties, for fall seeding in both blends and pure lines available.

Don't forget RR Alfalfa is available.

Inoculants: Silage, high moisture grain, and alfalfa inoculants are also all available. All inoculants are in good supply, but some are a special order item, so plan ahead.

SORGHUM U & WHEAT U

August 9th 2023 from
8 am—3:45 PM

at the Doubletree by Hilton on S. Airport Road in Wichita, KS

This event is held by the High Plains Journal and several other sponsors. Please see their website for more information and to register

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Fungicide considerations for Corn Diseases Continued

ern and tar spot. Some fungicides that are good to excellent for gray leaf spot are also very good for tar spot and southern rust control. Summaries of multi-year university research about fungicide efficacy can be found here:

Disease risk factors to consider when weighing the benefits of a fungicide application

Susceptibility level of corn hybrid: Seed companies typically provide information on the susceptibility of their hybrids to grapy leaf spot and southern rust. In general, hybrids that are more susceptible to fungal foliar disease will have a great response to a foliar fungicide (if disease pressure is high enough).

Previous Crop: Because gray leaf spot and tar spot survives in corn residue, the risk of disease increases when corn is planted back into a field that was in corn the previous year. Fields with a history of gray leaf spot and tar spot should be closely scouted. Southern rust, on the other hand, blows in for the south each year. It is important to watch regional updates about southern rust pressure in the state.

Weather: Rainy and or humid weather generally is most favorable to gray leaf spot. In growing season when these conditions prevail, the risk for disease development increases. Southern rust is favored by warm days and nights (>80 degrees) as well as high humidity. Tar spot is favored by mild temperature (60 degrees F to 73 degrees F), high relative humidity (>75%), and a prolonged leaf wetness period (>7h).

Field history: Some field locations may have a history of high foliar disease severity. Fields in river bottoms or low areas or surrounded by trees may be more prone to having gray leaf spot.

Current disease management guidelines suggest the following criteria for considering an application of foliar fungicide.

- For susceptible hybrids (those with the lowest rating within a company's lineup): Fungicide applications should be considered if disease symptoms are present on the third leaf below the ear or higher on 50% of the plants examined.
- For intermediate hybrids (those with an average rating within a company's lineup): Fungicide applications should be considered if disease symptoms are present on the third leaf below the ear or higher on 50% of the plants examined it he field is in an area with aa history of foliar disease problems, the previous crop was corn, there is a 35% or more surface, residue, and the weather is warm and humid.
- For resistant hybrids (those with the best rating within a company' lineup): Fungicide applications generally are not recommended.

According to the data from Illinois corn fungicide trials, if at least 5% of the ear leaf area is a affected by disease at the end of the season, a foliar fungicide applied at VT and R1 would likely have been beneficial. Using the disease risk factors and scouting observations collected just before tassel emergence will help predict how severe disease pressure may be several weeks after the VT to R1 stages, and help decide whether to apply a foliar fungicide.

If no disease is present or pressure is low, I recommend holding off on the R1 application since efficacy will begin to wane in three to four weeks, just as late-season pressure may begin to develop. Data exists that would suggest that if disease pressure begins to develop later, an R2 application can be economical and will provide protection later into the grain fill period. This later application could also protect against any late-season southern rust pressure.

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Thank you to these young men who have spent countless hours and driven hundreds of miles to get your seed sorted, treated, and delivered to you this season. We appreciate all that they do for Wildcat Agri-Services!


Maverick Stauth

Not Pictured

Cole McGinn

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Carter Dirks


Tate McGinn

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Visit www.wildcatagriservices.com - to learn more about Pioneer Products!

YouTube **Heat Stress During Corn Pollination** Type this into the search bar to find it. Take a tour of the lab to see how the product is tested and advanced.

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Wildcat Agri-Services Field Day is Thursday August 17th at 7 PM

August 17th at 7 P.M. is the date of this years field day. Anyone interested in evaluating new corn and soybean products including many that contain crop protection and other value-enhanced traits, will want to attend the field day and BBQ dinner sponsored by Wildcat Agri Services Inc. The field day will be held at the warehouse located 1/2 mile west of Sedgwick on 4th Street.

This event will feature many new Pioneer ® brand corn hybrids and soybean varieties available for the 2024 growing season. Pioneer agronomists will be on hand to talk about Pioneer's lineup of products. We have number of the newest varieties and hybrids growing in local test plots and encourage producers to come out for a first-hand look. This will be a great opportunity to learn about new products from Pioneer that are bred specifically for our area.

Wildcat Agri Services & Pioneer Hi-Bred Payments Are Due Now

Recently you should have received an updated invoice on your Pioneer seed account. After August 6th we will have very limited ability to make changes to Pioneer invoices.

Please make your seed purchase payments out to Pioneer Hi-Bred Int.

If you also purchased seed treatments from Wildcat Agri Services, you will also receive a bill for those purchases. **Please pay Wildcat Agri Services for seed treatments.**

Please review your billings and call us if you have any questions. If you feel that you cannot meet this deadline to make your payment (s) please contact us as soon as possible.