

## Prussic Acid

This is Ag Outlook on 1420 KJCK, I'm Chuck Otte, Geary County, K-State Research and Extension Ag & Natural Resources Agent. I've spent quite a bit of time talking about nitrates the past few weeks so I think it's time we give prussic acid some equal billing. Prussic acid is restricted to a much smaller window of plant species that it is a concern in. Basically we just worry about the sorghums, sudangrasses and Johnsongrass. While other plant species can have issues with prussic acid, they are rarely observed in anything other than sorghums. Prussic acid is what we commonly call the compound in the plants but it can also be called hydrocyanic acid or hydrogen cyanide. Yes, that cyanide. When plants high in prussic acid are eaten cyanide is released from the cells and absorbed directly into the blood stream where it attaches to enzymes in the cell blocking the ability of the hemoglobin to transfer oxygen to body cells. The animal essentially asphyxiates very rapidly. By rapidly, I mean, in a matter of minutes. Usually much quicker than you have time to get a vet there. The good thing about prussic acid is that as the plant grows it drops in concentration. Anything that ruptures cells, like harvest or frost, also releases it. You never want to graze drought stressed sorghums under 24 to 30 inches in height. The risk is just too great. We can test for prussic acid, call me if you want to. Generally we just make sure that the sorghum is tall enough to not be much threat or we ensile or swath and crimp it. In both cases, these actions will result in enough time passing that the prussic acid is no longer a threat. This has been Ag Outlook on the Talk of JC, 1420 KJCK, I'm Chuck Otte.

## Pearl Millet

This is Ag Outlook on 1420 KJCK, I'm Chuck Otte, Geary County, K-State Research and Extension Ag & Natural Resources Agent. With the ongoing issue with heat and drought we have producers everywhere looking at options for possibly growing short season alternative forages. We've spent time the past few weeks talking about nitrates and prussic acid. One thing I haven't talked about is potential issues with herbicide carryover or issues with herbicide labels not addressing secondary crops OR forage crops being taken off and forage use isn't on the label. Which is all I'm going to say about that right now. One potential forage crop that people are looking at is pearl millet. Millet has many production characteristics of sorghum but it isn't related to sorghum. It can have a fairly short season as in it can be out of the ground to flowering in 65 to 70 days. It can produce considerable good quality forage and unlike sorghums or sudans, it doesn't have issues with prussic acid. As I've said before though, any plant can have nitrate issues. Pearl millet can be grazed, hayed or ensiled. Planting rates should probably be in the range of 17 to 25 pounds per acre. Heavier seeding rates will give you thinner stems but lower seeding rates will also have the advantage of needing less moisture. Obviously you'll get more production with fertilization, and rain. But in most cases this year I suspect that there is adequate residual nitrogen in the soil unused by the previous crop such that I wouldn't worry about fertilizing right now. If we start getting rain we can get some top dress applied if we think we need it! This has been Ag Outlook on the Talk of JC, 1420 KJCK, I'm Chuck Otte.

## Wheat Variety Selection

This is Ag Outlook on 1420 KJCK, I'm Chuck Otte, Geary County, K-State Research and Extension Ag & Natural Resources Agent. In a few more weeks producers will start asking me what wheat variety to order to plant for this fall. Well, the first challenge is going to be that as of the end of last week, none of the wheat variety trial results from across the state are posted on line yet. I prefer to go off of those tests because they are replicated test which means we can test how much variation that there is from one rep to the next and use that to determine how much difference in yield we need to really indicate that there is a difference. When you start looking at your own yields I'll bet that you have the same variety planted in several fields and the yield in each of those fields was different. I know of cases this year where the same cultivar was planted in fields across the road from each other with 10 to 15 bushel yield difference. Why? In this case the soil was the same, but one field was in corn and one in soybeans last year. The corn field quit growing in August so any rain from then on went into the soil water bank for later use. The other side of the road was in soybeans that were still pulling moisture from the field in early October. In most years, winter moisture would have balanced that out - but not this year. If it were me, I'd make no big changes in what you are planting this fall. Go with the varieties that have done well for you in the past. Go ahead and look at the variety trials from K-State. These are replicated and have good stats associated with them. But because of the stress this wheat crop was under, make changes slowly. This has been Ag Outlook on the Talk of JC, 1420 KJCK, I'm Chuck Otte.

## Nutrient Deficiencies, Drought, Heat or What?

This is Ag Outlook on 1420 KJCK, I'm Chuck Otte, Geary County, K-State Research and Extension Ag & Natural Resources Agent. I've seen soybean, corn and sorghum fields that are in all stages of growth, sometimes in the same field, and those plants can look quite normal, quite stressed or have all sorts of abnormal growth symptoms. Is it drought? Is it heat? Is it nutrient deficiencies? In a year like this it can be very hard to separate things out. Soil compaction, in various stages and forms, can create short term foliage symptoms that look like nutrient deficiencies. Weather conditions especially dry soil, can hinder root development and that can mimic nutrient deficiencies. Even cold soil conditions early in the season can make corn look like it's short in potassium when there is plenty in the soil. This time of year and especially this year, with it's heat and drought, can make it very challenging to know if we have some nutrient deficiency, especially some micronutrient deficiency. I would be very reluctant this year to recommend any foliar micronutrient fertilization. These can be pricey and without the benefit of some good testing, may not be necessary. If you are seeing some weird patterns showing up in your fields, let's investigate. We can get soil samples and tissue samples from the normal and abnormal parts of the field and then test them to see what's going on. But this is going to be testing to see what we need to do in the future, more so than for this year. Stressful growing conditions can exaggerate how bad things are, but they can also call our attention to things that should be addressed. This has been Ag Outlook on the Talk of JC, 1420 KJCK, I'm Chuck Otte.

## Bad Time for Drought and Heat Stress

This is Ag Outlook on 1420 KJCK, I'm Chuck Otte, Geary County, K-State Research and Extension Ag & Natural Resources Agent. Corn is always a popular crop to grow because it can produce phenomenal yields. But remember that old saying, don't put all your eggs in one basket? That's basically what corn does, as opposed to wheat, sorghum and soybeans. A corn plant is what we'd call a determinant plant. It grows, it produces a flower and that's it. If that flower doesn't do well, it doesn't get a do over. It's got one tassel and basically one ear, maybe a second in some situations. But it has a very limited time frame to do it's business. Wheat can have secondary tillers develop. Sorghum can regrow and send up tillers. Soybeans can start growing again and produce more flowers. But if we have heat and or drought stress right when corn is pollinating, the damage is done. You can wind up with blank ears or ears with far fewer kernels than there should be on the ear. The problem is that when you have temperatures over 100 at pollination, even if the corn has good soil moisture and doesn't appear to be under drought stress, the heat alone can cause pollen death, poor seed set or abortion of kernels within a few weeks of pollination. Do you leave it for grain or cut it for forage? If, after pollination it looks like grain yield is going to be under 25 bushels per acre, best to cut it for forage. If it looks like it's got a chance to make at least 50 bushels per acre, then leave it for grain. If it's in between that 25 and 50 bushels, you have a dilemma and we probably need to talk about your options. This has been Ag Outlook on the Talk of JC, 1420 KJCK, I'm Chuck Otte.