

David Hallauer
District Extension Agent, Crops & Soils

More Heat Stress – Effects on Soybeans

I tried to shoo away this heat dome by writing *last* week about heat/drought stress in corn. It didn't work, so I'm trying again *this* week, focusing on soybeans.

We're well aware of how soybeans flip leaves over to reduce transpiration, then curl or clamp completely to conserve moisture, both of which reduce growth and productivity – but allow the plant to survive. If things get even more severe, leaves may drop, but there are a lot of things going on we may *not* see as well.

For starters, very high soil temperatures (90 degrees F and above) can decrease nodulation and nitrogen fixation. This is typically more of an issue in fields without adequate canopy coverage, but even under grass cover at our some of our Mesonet stations (<https://mesonet.k-state.edu/agriculture/soiltemp/>), soil temperatures are approaching and even exceeding this threshold. Well-nodulated soybeans need seven to 14 functioning nodules on the tap root at flowering for best results.

Because a soybean might abort flowers to the tune of 20-80 percent (depending on stress...), we often don't notice day to day flower losses that may be occurring – until the stress sticks around for a while. Flower production can occur for more than a month, so as long as decent conditions return before too long, flowering continues and pods are set (temperatures above 95 degrees F have been shown to significantly reduce pod set...). Keep in mind as well, older pods will have priority for resources. When that prioritization takes place, you may see *some* increase in seeds per pod to compensate for the loss of other flowers and small pods. If drought/heat stress is intense, blooming/pod setting periods could be shortened and yields compromised. With any luck, this weather will subside sooner than later with soybeans able to produce new flowers and pods up to the beginning seed stage.

What if it doesn't subside or we see this again later this summer? Losses can occur during beginning seed swell through full seed on any pod on the plant as well, with reductions in pods per plant that can't be replaced by new blossoms and pods. With any luck, we won't have to worry about it. The Climate Prediction Center forecasts (<https://www.cpc.ncep.noaa.gov/products/predictions/814day/>) actually make the 8-14 day forecast look a little better. Let's hope that holds true.

Ross Mosteller
District Extension Agent, Livestock & Natural Resources

Turnips, Not Just for The Garden

Brassicas is the name given to some high yielding, fast growing, high quality crops such as kale, rape, swedes, and turnips. Some of these names may sound familiar and typically they may be associated with the garden, but brassicas can be a very good forage crop for livestock if harvested before heading. Often brassicas are included in a cover crop mix, which can bring multiple benefits to producers. Turnips have often been the forage crop of choice in our area.

The above ground growth of turnips will normally run in the 20 to 25 percent crude protein range and typically 65 to 85 percent TDN. The roots also provide some nutrition at 10 to 14 percent crude protein and 80 to 85 percent digestibility. The other major benefit in quality is that the plant will not lignify nearly as quickly as grasses and legumes at temperatures over 90 degrees. This is what keeps the digestibility levels high.

Grazing can be provided most anytime in the late summer and fall, with a big advantage being use well after freezing temperatures. Turnips grow fast and can be grazed as early as 70 days post planting. Typically, the maximum production peaks three months after planting. Turnips can be seeded any time after the soil temperature reaches 50 degrees until 70 days prior to a killing frost. The other advantage is that they are a fairly low cost, low maintenance crop.

All brassicas require good soil drainage and pH in the range of 5.3 to 6.8. Seed bed preparation can range from clean till to no-till in wheat stubble. Typical seeding rate ranges from 1.5 to 2 pounds per acre with turnips, drilled in 6- or 8-inch rows, no more than 0.5 inches deep. However, a broadcast seeding will also work to establish turnips.

Planting date studies show that a mid to late July planting will yield the most tonnage from turnips. Studies have also shown favorable results mixing turnips with oats in a spring or fall planting. The key component for establishment is rainfall, of which 8 inches will be required over the growing season. Nitrogen demand can be somewhat higher than some other forage crops, a range of 60 to 120 lbs, but 75 lbs of nitrogen per acre should be adequate in most years. Phosphorus and potassium needs will be similar to that of small grain crops. As a final note, it is best to not grow brassicas in the same field more than two consecutive years due to disease.

Brassica crops can cause some animal health disorders if not grazed properly. To avoid problems, introduce animals to the pastures slowly (over 3 or 4 days) and avoid abrupt changes in diet. In other words, don't take them directly from dry pasture to lush green turnips, and never turn out hungry animals. Brassicas should be thought of as a concentrate feed and because of this they should constitute no more than 75 percent of an animal's diet. Grazing typically can begin when the forage is 12 inches tall.

For best results, utilize short grazing intervals and rotate between dry grass/hay and the turnips, the plants will regrow if given time to do so. A normal system would be to graze tops only the first rotation and then tops and bottoms at a later time, if a waiting interval is followed. Digging of the bulbs or roots is generally not a practice that is needed to be done, as livestock remove some and the remaining bulbs create macro pores in the soil as they decay. As with most plants rotational grazing works very well to maximize the forage resource.

Some downfalls of turnips are being high in water content (90 percent) and digestibility, can increase the rate of passage making for loose stools and the potential of choking is also a concern on bulbs. If there is a need for some alternative grazing, try giving brassicas a try. For more information on brassica crops, view the K-State Forage Facts publication [FORA26 Brassicas and Chicory for Forage](#)

Laura Phillips
District Extension Agent, Horticulture

It's Time to Plant Fall Crops

Many gardeners do not think of late summer as planting season. Yet planting cool-season vegetables now can bring you fresh produce into October or even late November. Since the produce will ripen in cooler weather, they can even be tastier and healthier.

Although cool-season vegetables are more apt to withstand lower temperatures, they will need time to establish themselves before they can face fall weather. Planting seedlings when it is appropriate rather than seeds can give your crops a head start. When sowing seeds, plant them slightly deeper than you would in spring. With our current hot weather, this will provide extra insulation and moisture for successful germination. You can also help them with light fertilizing, as many nutrients from spring fertilizer applications are likely depleted by now. Do not be alarmed if the first frost causes some damage – this is normal and well-established crops should pull through.

In late July through early August, you can start planting cucumbers, summer squash, and beans. Beets, carrots, radishes, and other root vegetables can be sown directly into the soil. Once August hits, spinach and heat-tolerant leafy greens can go in the ground. If you have any cabbage, broccoli, or cauliflower starts, you can begin putting them into the ground in early to mid-August as well.

As you look ahead to the rest of your fall garden, now is the time to start seeds indoors for late August and early September plantings. Options include chicories, bulbing fennel, collards, kale, and leafy greens. Allowing these plants to start inside gives them a head start on growing when it is still too hot for them to be outside. Since the conditions inside your home or greenhouse are very different from those outside, be sure to slowly introduce them to the outdoors, increasing the amount and intensity of sunlight and the exposure to outdoor temperatures. This will prevent the plants from experiencing shock when they are planted in the ground.

Taking care of your fall garden is not difficult. You might even find that fall gardening is easier, as the lower temperatures mean you won't have to battle as many pests and weeds. When sowing seeds for fall, remember to keep the soil moist to allow germination. A soaker hose or drip irrigation is often the best option. Adding mulch can also help insulate the seedlings from hot August temperatures and retain moisture in the soil. If you are experiencing extended, intense heat, consider putting up a shade cloth a few feet over the soil to help provide protection from the heat during seed germination.

Teresa Hatfield
District Extension Agent, Family and Community Wellness

Dining with Diabetes Self-management education program to be offered by K-State Research and Extension Meadowlark District

Bite by tasty bite: Self-management program aims to help cut diabetes risks.

Approximately one in every nine adults in Kansas in 2020 has been diagnosed with the disease that can lead to stroke, blindness, and kidney failure. Imagine a gathering with nine friends and family members. Imagine that at least one of you has a disease that can lead to blindness... amputation...or a stroke. The prospect is not at all far-fetched.

About one in 9 adults in Kansas has been diagnosed with diabetes, a chronic disease characterized by elevated blood sugar (blood glucose). High blood glucose levels result from inadequate insulin production or resistance to the effects of insulin, a hormone produced by the pancreas.

K-State Research and Extension offers [Dining with Diabetes](#), a national extension program designed to boost the health and wellness of Kansans with prediabetes, Type 2 diabetes and help educate their family members, caregivers and others who support them.

“Learning strategies to control blood sugar levels through changes in diet and exercise is important to improve your health and reduce the risk of developing other chronic health conditions,” said Christina Holmes, K-State Research and Extension family and consumer science specialist and coordinator of the program in Kansas. Diabetes increases the risk of stroke, heart disease, kidney disease, retinopathy that can lead to blindness, and neuropathy that can lead to lower limb amputation.

The vast majority of adults diagnosed with diabetes – 90 to 95 percent – have Type 2 diabetes which occurs when cells in the body become resistant to the effects of insulin. Unlike Type 1, which occurs when the body cannot produce insulin and cannot be prevented, the onset of Type 2 can be prevented.

The prevalence of diabetes is greater in African-Americans and Hispanic Americans and among older adults and those with a family history of Type 2 diabetes, Price said. Some risk factors, however, can be modified, including being overweight or obese, physical inactivity, high blood pressure, high blood cholesterol, and smoking.

An estimated \$327 billion was spent on diagnosed diabetes in 2017 in the United States alone, according to a [study](#) by the American Diabetes Association. The study also indicated that people with diabetes spend an average of 2.3 times the amount of money on their health every year that people without diabetes spend. That works out to an average of \$16,750 a year per person, about \$9,600 directly attributed to diabetes.

Dining with Diabetes is a series of two-hour classes held once a week for four weeks. Lessons focus on the best ways to care for yourself if you have the disease; healthful food choices, including familiar foods; low-impact physical activity; food sampling; cooking techniques using herbs, spices, reduced-fat foods, and artificial sweeteners.

For more information or to register for Dining with Diabetes classes, starting September 3, 2023, at the Meadowlark Extension District office in Oskaloosa, contact Teresa Hatfield at 785-364-4125 or thatfield@ksu.edu.

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Cindy Williams
District Extension Agent, Family & Community Wellness

No news this week.