

Northwest Panhandle Crop Notes

November 2023

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Extension Agent – Agronomy

Dallam, Hartley, Moore, and Sherman Counties

Fall Harvest, Planting and Onset of the Cool Season

Greetings Everyone. This week already rounds out the end of November. Harvest of warm season crops in the area appears to be winding down. Earlier this fall, harvest got underway in September with corn being chopped for silage and included a few forage sorghum fields. Soon thereafter, many more forage sorghum fields were harvested and steadily continued until the earlier part of November. Early planted corn completed maturity and I soon noticed an increasing number of combines harvesting grain as September wrapped up and we entered the first days of October. Meanwhile, cotton matured at a good pace thanks to several sunny, warm days in October.

Conditions were favorable overall for the fall harvest season. Most fields I observed appeared to have maintained adequate levels of profile moisture. Another plus is that our area did not experience any major, early cold snaps in September or October. The accumulation of heat units during final maturity of cotton, particularly of mid- to upper-canopy bolls has been favorable. Seeing a lot of open bolls across fields in October was a benefit of steady heat unit accumulation. Those conditions save on need for additional harvest aid applications besides reminding us that the time for cotton harvest is just around the corner. Was nice to see bales of seedcotton being delivered to area gins and a growing inventory of seedcotton on gin lots waiting to be ginned.

Germination and emergence of planted small grains appears to be making steady progress. I see planting continued at a steady pace for winter cover crops where corn and forage sorghums, and now cotton have been harvested. Would like to keep seeing the effects of El Nino spurring on those gentle rain and/or snow showers across our area of the Panhandle. We know every drop counts and contributes moisture needed for the establishment and growth of seedling grain crops as cooler temperatures settle in.

To me, it seemed like spring of this year went by fast and no doubt, we all remember those one- and two-day wind events as the drought continued. And big wind events were happening weekly. The same drought had continued since last fall, through winter and into spring 2023. I found myself frequently thinking, “let it rain, let it rain.”

I routinely check the weekly, posted updates of a statewide, drought monitor map online https://twfdb.texas.gov/newsmedia/drought/doc/weekly_drought_report. The most recent map is included on the next page (Plate 1). Each map update gives a quick overview of the extent to which drought has gradually expanded and likewise, to keep us abreast should there be a reduction in areas impacted by levels of drought across the Texas Panhandle. Thank goodness looking back, we were aware that the later condition prevailed during the months of May and June. While it meant added challenges at planting time and slower accumulation of heat units in

May and June, the replenishment of soil profile moisture was greatly needed for the growth and maturity of warm-season, rainfed and irrigated crops during July, August and beyond.

Water Weekly

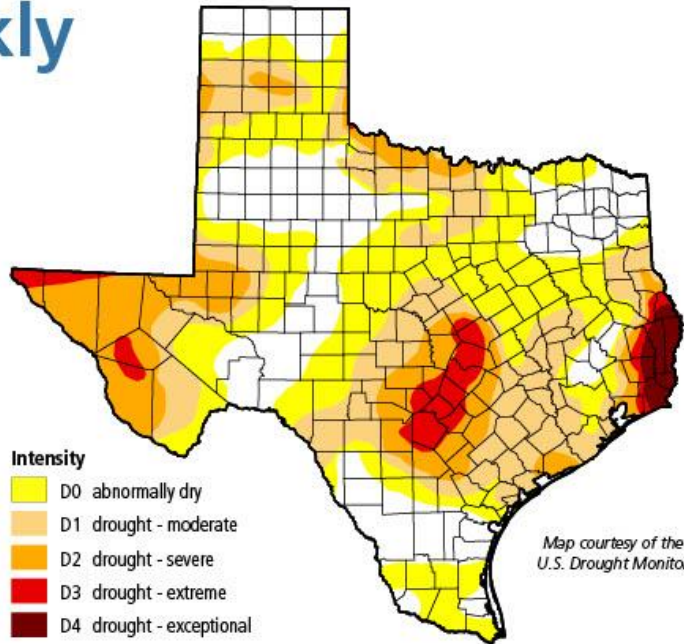
For the week of 11/27/23

Water conditions

Compared to the previous week, the drought map for conditions as of November 21 shows a 10 percentage point decrease in the area of the state impacted by drought. That's the second consecutive week with a double digit decline. Drought area has reached its smallest value since mid-July 2023.

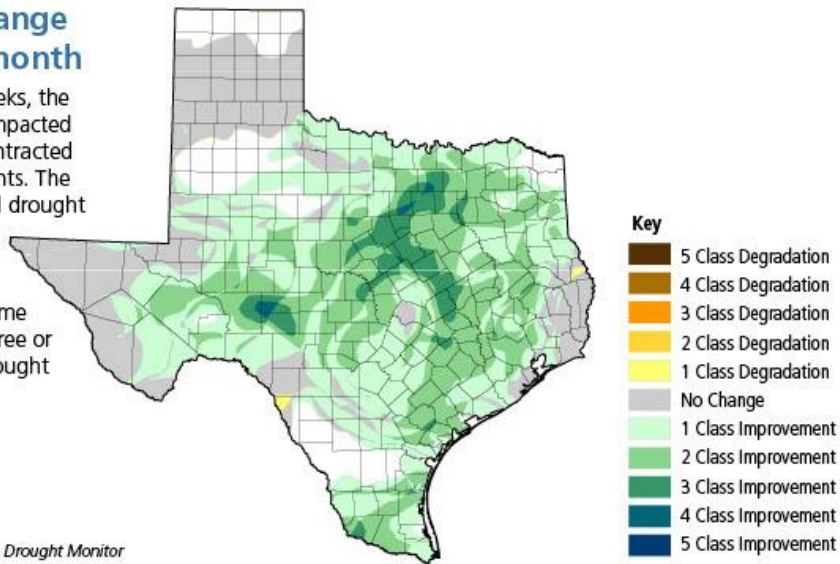
Drought conditions

- ◆ 44% now
- ◆ 54% a week ago
- ◆ 79% three months ago
- ◆ 63% a year ago



Drought change in the last month

In the last four weeks, the area of the state impacted by drought has contracted 31 percentage points. The area of exceptional drought has decreased from almost 7 percent to less than 2 percent. Some areas have seen three or more classes of drought improvement.



Written by Dr. Mark Wentzel — Dr. Mark Wentzel is a hydrologist in the TWDB's Office of Water Science and Conservation.

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Upcoming Winter Meetings

Winter is a good time to look back on various aspects of the previous cropping season(s) to consider what worked better, was the same or not so well. Economics, agronomics, and markets play heavily into strategies and planning for the season ahead. All of us in Extension want to be available and help as much as we can throughout the year. Our current plan is to host a virtual speaker, in-person meeting at the Moore County Community Building in Dumas on the 21st of December 2023, just before the Christmas Holiday. We will be offering five continuing education units (CEU's) for those needing to maintain their Texas Private or Commercial Applicators license and CEU's for Certified Crop Advisors. Key information that growers, consultants and those in agricultural industry can use will be presented as shown below (Plate 2). This meeting will include a specially prepared, hot lunch for everyone in attendance and serve as an appreciation event for our growers and the agricultural community. Optionally, you can attend the same meeting, same day and time at the Dallam-Hartley, Extension Annex in Dalhart. Please plan to attend either of the meetings on Dec. 21. We will be sending more details your way in a flyer announcement soon.

Looking ahead to January and February 2024, details are being finalized for our Northwest Panhandle Ag Conferences. The first conference is January 17th at the North Extension Barn in Stratford, second conference January 25th at the Moore County Community Building in Dumas, and a third conference planned for February 6th at the Frank Phillips Community College in Dalhart. Topics and speakers will vary among the conferences so make plans to attend more than one conference if possible. Conference agendas will focus on economics, agronomics, conservation practices for soil and water, manure application, research on biologicals, market outlook and marketing opportunities, and pest management updates and considerations for 2024.

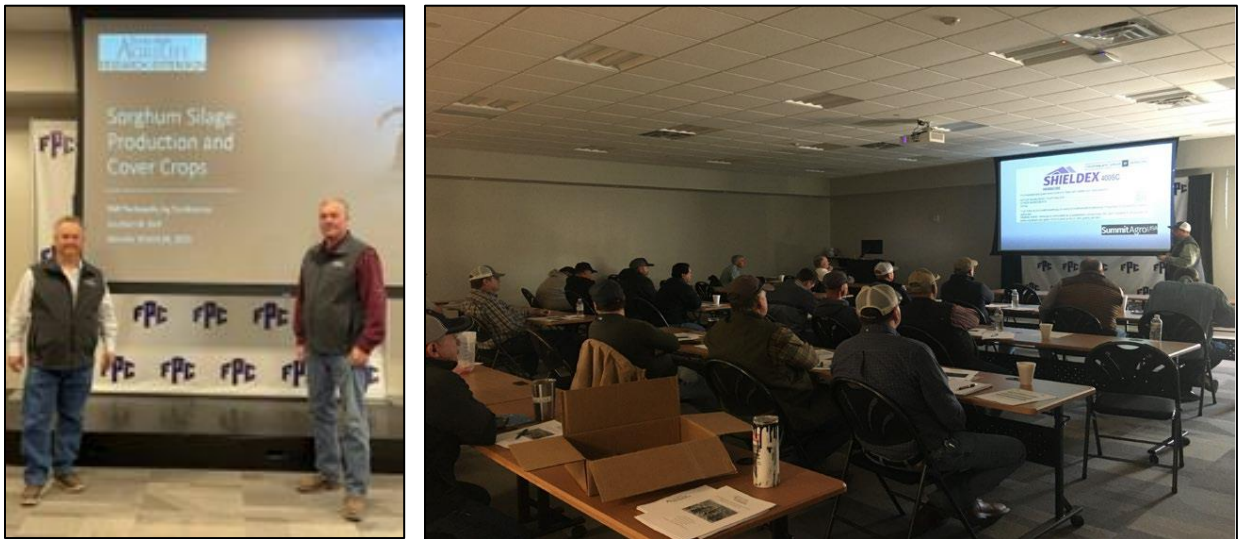


Plate 2. Example presentations during our Northwest Panhandle Ag Conference, Jan. 2023 at Dalhart.

Cotton Mapping at Two Sites

My goal over several seasons and locations has been to contribute collected data to a larger database that would be used for the establishment of a target development curve. Such a curve would be suited, relevant and representative of mid- to early maturing cotton varieties being planted in the northwest Texas Panhandle. A representative, standard target development curve can be a useful tool to compare the progress of a developing cotton crop, assist management of inputs and better understand end-of-season climate effects (<https://cotman.org>, COTMAN-Manual). Typically, in addition, the accumulation of heat units is considered because they play a large role in the timely maturity of cotton. Researchers at the University of Arkansas developed a standard target development curve for cotton grown in the Mississippi Delta and it is very useful in that environment (Fig. 1); however, the same curve may not necessarily be suitable or relevant to cotton grown in the Texas Panhandle.

The first, in-season mapping notes I collected for the current project happened during summer of 2022 at a site just west of Stratford in Sherman County. Notes were collected at two fields in 2023. Field site #1 was located approximately five miles north of Stratford off F.M. 2677 on the Adam Reed Farm. Field site #2 was located southwest of Texhoma off F.M. 119 on the Vern Koehn Farm. NexGen 3195 and FiberMax 1621 were the varieties planted at sites #1 and #2, respectively. Weekly note collection at both field sites got underway by July 6th, just beyond the pinhead square stage (Figs 2 & 3). Total mainstem nodes, total fruiting nodes, and plant heights were recorded during each visit to field sites. Once half of the plants at either site had reached flowering, total fruiting nodes, nodes above white flower and plant heights were recorded until observed plants had reached nodes above white flower less than five or what is considered physiological cutout.

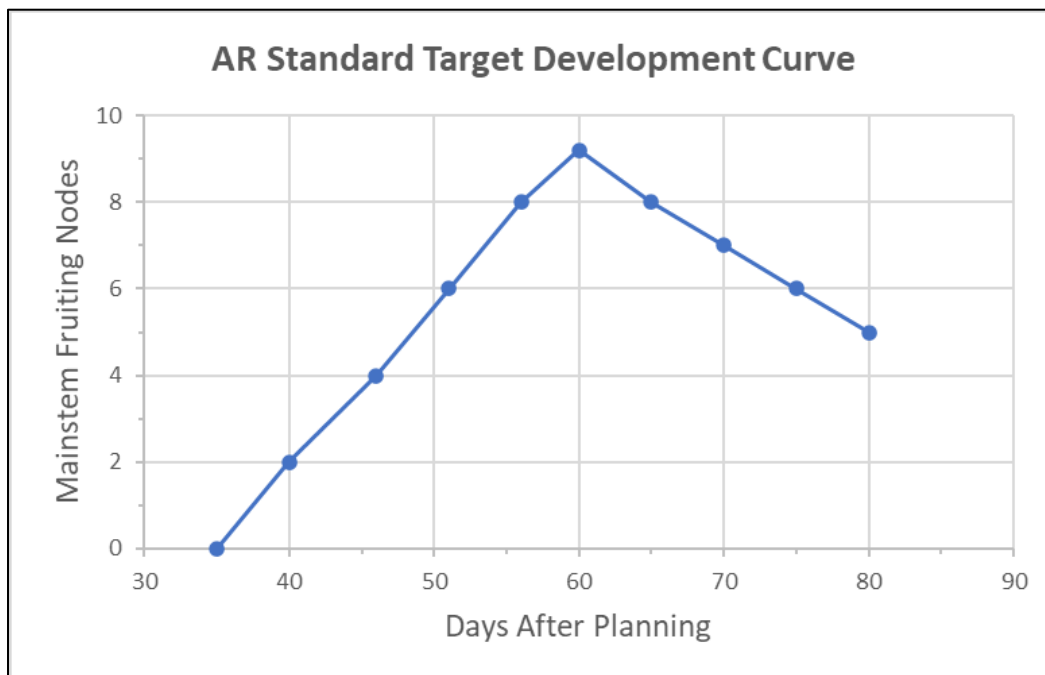


Figure 1. Standard target development curve as published in COTMAN Crop Management System, based on research conducted over multiple sites and seasons in the Mississippi Delta, Univ. of AR, 2008.

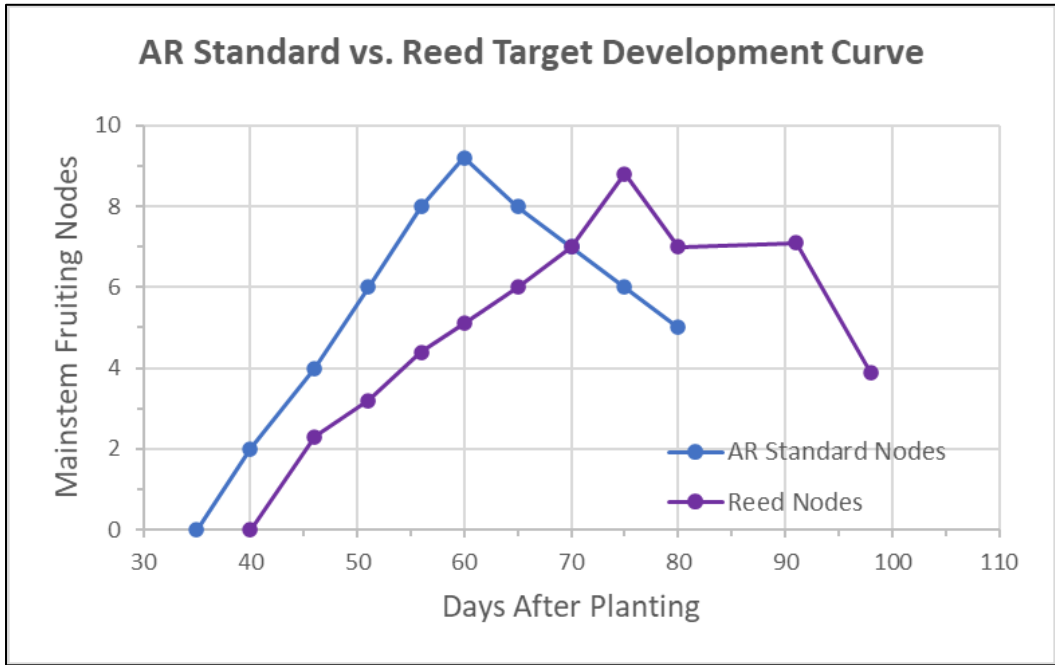


Figure 2. Standard target development curve versus data collected from field at Reed Farm in northern Sherman County, 2023.

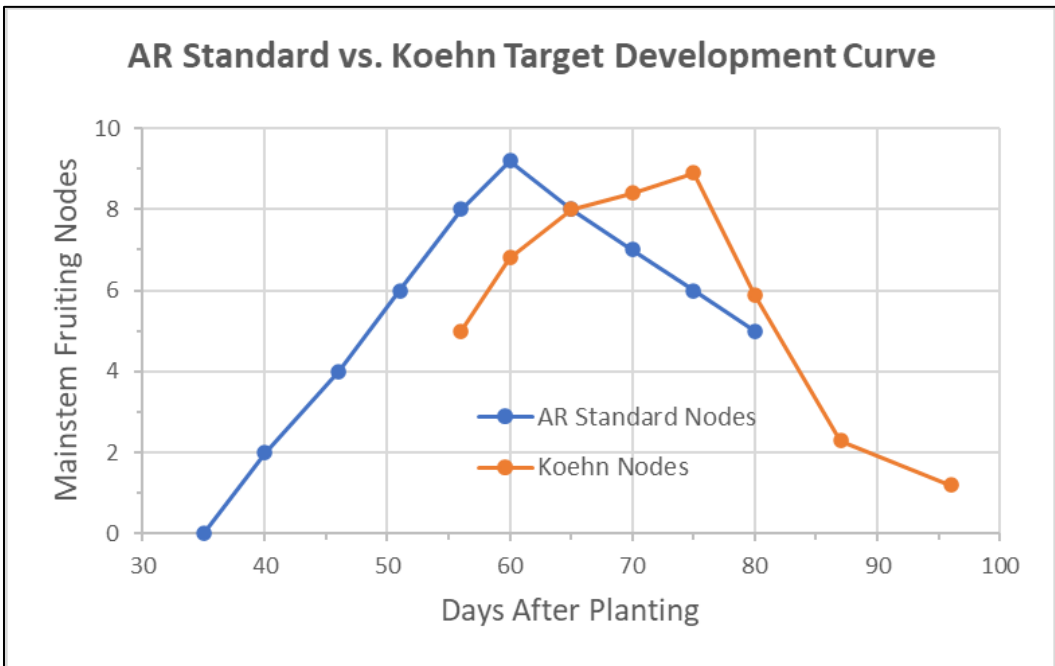


Figure 3. Standard target development curve versus data collected from field at Koehn Farm in northeastern Sherman County, 2023.

The following is a short summary of observations based on mapping efforts at two field sites in 2023 and a single site in 2022. Pinhead square stage of growth generally happens about 40 days

after cotton is planted in the northwest Panhandle of Texas. Texas Panhandle-grown cotton plants tend to add fruiting nodes slower than Arkansas cotton plants such that first flower occurs as much as two weeks later. Once cotton plants in the northwest Panhandle have initiated flowering, you can expect to reach physiological cutout or five nodes above white flower (NAWF=5) within three to four weeks depending on variety grown, available soil moisture and accumulated heat units. In fields I observed, NAWF=5 occurred from mid- to the latter part of August.

Crop managers of cotton should monitor heat units past cutout to determine optimal timing of pest and irrigation termination which happens to be 350 and 850 growing degree day 60's (GDD60's) in AR. However, in the northwest Panhandle of TX, GDD60's tend to be limited across seasons compared to scenarios from the Mississippi Delta. Thus, based on our previous research involving a flower tagging project, irrigation termination between cutout and first cracked boll will likely be more cost effective and a suitable rule of thumb to go by (SCSC-2022-07).

Irrigated Corn Response to Tillage: Second Year

If you would like additional insight about objectives for this applied research study and early season details, please refer to my previous blog and newsletter posted at <https://moore.agrilife.org>, <https://dallam.agrilife.org>, <https://hartley.agrilife.org> or <https://sherman.agrilife.org> and look under the 'Agronomy' tab. The beginning of this season was indeed interesting, one that included a lot of rain at planting in May through seedling development in June. These precipitation events were a timely contribution to refilling soil profiles with moisture increasingly needed through the vegetative and reproductive stages of development. Many growers were able to delay starting their irrigation systems which saves fuel for pumping water and eases demand on aquifer resources. However, as the rainstorms passed through bringing moisture, some included dispersed hail. Our study site in northern Dallam county also received hail in early June, at about the V4 stage of corn growth. Just when I thought there would be no more hail much later in the season, it happened again. The second hail came in early September when ear kernels were at the dent stage and beyond. This late hail damaged many leaves and noticeably impacted grain yield; however, fortunately, the damage was consistent across study plots.

Machine and hand harvesting of our study plots went smoothly on October 28th thanks to favorable weather (Plate 3). Grain yield, test weight and percentage moisture were measured and recorded for each plot. Thus far, we have looked at numerical and statistical comparisons of grain yield between tillage treatments. Grain yields were adjusted to 15.5 percent moisture study wide. The mean yield of no-till plots was highest at 228 bushels/acre followed by strip-till plots at 225 bushels/acre and lowest yield from conventional till plots at 211 bushels/acre. Numerically, there was a gain of 14 and 17 bushels/acre from no-till and strip-till plots, respectively compared to conventional till plots. Statistical analysis showed that grain yields from no-till and strip-till plots were greater than conventional till plots (Table 1). Budgets of expense versus income scenarios are being calculated now to see how the three tillage treatments compare economically. Results from these analyses will be shared at our January meetings and summarized in relevant publications.



Plate 3. Machine harvesting north blocks of study plots on 28 Oct. 2023, Dallam County.

Table 1. Comparison of irrigated corn yields across replicated tillage treatments at Providence Farm, Dallam County, October 2023.

Treatment	Machine-Harvested Yield	
	Yield (bushels/acre) [†]	Tukey's Test
No-Till	227.9	A [‡]
Strip-Till	224.5	A
Conv. Till	210.6	B

[†]Indicated yield values represent the mean of four replicate plots.

[‡]Yields followed by different letters are significantly different ($Pr > F 0.0073$).

Tillage is a management tool and represents varying degrees of soil disturbance that can affect changes in soil physical, chemical, and biological properties over time. Available soil moisture is a management variable affected by changes in soil properties, directly affects plant growth and may change based on differences in tillage used. By the end of a second season of study, the trend we have observed is that less tillage does not necessarily mean less corn grain and could result in higher, assessed yield (Plate 4). What is the main driver? I would speculate that greater, available, profile moisture associated with less soil disturbance, better covering by surface residue, improved shading and a cooler topsoil which reduces evaporation. Look to hear more at our January meetings about measured differences in soil water status between tillage treatments based on sensor data.



Plate 4. Grain transportation vehicles and farm staff helping to collect study data on 28 Oct. 2023, Dallar County.

David Parker, Ph.D., Associate Professor at WTAMU and Extension Water Engineering Specialist, acquired funding that has been integral to the purchase and proper installation of AquaSpy soil moisture sensors, soil, plant tissue and irrigation water analyses among other key aspects of the project. Profile soil moisture was monitored season long in six of 12 plots with AquaSpy sensors this season like was done in 2022. We appreciate the help of Eric Burton and Assistants with Better Harvest who installed, connected, helped monitor, then disconnected and uninstalled sensors in tilled plots at the end of the season. As in 2022, Cary's efforts pre-plant, plant and harvest in 2023 were key to a successful study. JJ and Shelby made a difference at harvest. Special thanks to Michael Rineart for cooperating with us in Extension and going the extra mile on behalf of accomplishing applied field research.

Summarizing Other Field Activities in 2023

Distributed data from weekly moth counts during the corn growing season helps growers, consultants, and others to keep abreast of moth flights, egg lay potential and likelihood of reaching economic thresholds of worm pressure in corn from four species. These include the Western Bean Cutworm, Southwestern Corn Borer, Corn Ear Worm, and Fall Army Worm.

In my opinion, the season for adult moth trapping near Bt and non-Bt corn fields went well this year. Big, kuddo thank you's up front to grower-cooperators Jared Meiwes and others at Lone Star Family Farms, with two sites in Sherman County and John Reznik with two Moore County sites. These folks facilitated my efforts from start to end. Collected data was updated to table

format (Table 2) and sent out to folks weekly via a Remind text. 16 traps at four locations were monitored for 12 weeks during 2023. Using an estimated \$6.00 per acre benefit, this information would represent a total value of \$948,966 on 158,161 acres planted to corn (2022) throughout Moore and Sherman counties. If you are interested in being added to the list of recipients to receive this information next year, please let me know.

Table 2. Northwest Panhandle moth trapping for corn in Moore and Sherman Counties, 2023.

Trap Locations	Southwestern Corn Borer (SWCB) Moths (#/Week)											
	06/14	06/21	06/27	07/05	07/12	07/19	07/26	08/02	08/08	08/15	08/23	08/30
Sherman North	wet	725	445	193	7	7	200	1,087	1,118	1,278	968	166
Sherman South	wet	52	100	44	2	3	23	123	172	89	87	16
Moore West		16	50	113	61	13	4	24	61	100	145	173
Moore East		23	30	85	64	12	3	4	15	102	84	78

Trap Locations	Fall Armyworm (FAW) Moths (#/Week)											
	06/14	06/21	06/27	07/05	07/12	07/19	07/26	08/02	08/08	08/15	08/23	08/30
Sherman North	wet	1	0	0	0	0	0	0	0	0	5	0
Sherman South	wet	0	0	0	0	0	0	0	0	0	0	0
Moore West		0	0	1	0	0	0	0	0	0	1	0
Moore East		0	4	2	0	0	0	0	0	0	0	0

Trap Locations	Western Bean Cutworm (WBC) Moths (#/Week)											
	06/14	06/21	06/27	07/05	07/12	07/19	07/26	08/02	08/08	08/15	08/23	08/30
Sherman North	wet	21	344	600	478	504	438	236	168	36	24	9
Sherman South	wet	6	142	134	400	281	100	98	121	46	62	55
Moore West		2	7	103	292	730	875	760	436	61	19	18
Moore East		0	9	200	400	529	386	190	84	62	37	24

Trap Locations	Corn Ear Worm (CEW) Moths (#/Week)											
	06/14	06/21	06/27	07/05	07/12	07/19	07/26	08/02	08/08	08/15	08/23	08/30
Sherman North	wet	659	246	396	290	185	100	99	100	93	125	121
Sherman South	wet	353	121	114	114	90	50	36	56	22	110	135
Moore West		200	214	145	238	234	196	192	181	153	138	221
Moore East		226	261	195	299	262	180	200	237	141	132	176

We appreciate Mr. Bill Graff for agreeing to cooperate with us on the implementation of a Replicated Agronomic Cotton Evaluation (RACE) trial at his farm in Hartley County this past season. The field was located about three miles north of Hartley just off FM 809 on the north side where it bends to the east before continuing north. This new trial consisted of nine varieties representing mixed herbicide technologies, planted on May 11th at 65,000 seeds per acre. We made it to about two weeks after planting at which point in time many cotton seedlings had emerged with others still emerging. The situation looked promising in the way of getting an adequate stand when unfortunately, a storm came through dropping hail over the whole field and leaving us with no other choice but to abandon our study. Perhaps, we will have better luck in 2024 initiating and keeping a RACE study in Hartley County.

This wraps up November's blog. Thanks again for your support and interest whether you are a grower, consultant, representing the agricultural industry, university, or government. Special thanks to all the sponsors of our meetings and programs, grower cooperators, County Commissioners and Judges. If you operate in Dallam, Hartley, Moore or Sherman counties and would like to help me as a Steering Committee member, please get in touch.