# 2025 Alternative Crop Options after Failed Cotton and Late-Season Crop Planting for the Texas South Plains

## 23rd Annual Edition

This document and any needed revision are at http://lubbock.tamu.edu/ (prices week of June 9)

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The primary objectives of this guide include providing producers with:

1) Guidelines for crop replant options after failed crops, especially cotton.
2) Assist with late-season planting decisions where timely planting, duration to crop maturity, and fall weather risk may impact successful cropping.
3) Provide contractor contact information as well as recent approximate pricing, particularly for crops where price is fixed at contract signing.
4) This information is applicable as well for the Texas Panhandle, Eastern New Mexico, Texas Rolling Plains, and the Concho Valley region. The planting dates will change for crop and location.

**New information/What has changed since 2023?**

Additions or significantly revised points include:

2025

- New guidelines and restrictions on dicamba-tolerant cottons may affect cropping decisions.
- Ethanol plants in Levelland (HET) and White Energy's Plainview and Hereford plants will accept direct farm delivery of grain sorghum.
- Guar production contracts are again available to Guar Resources, Brownfield, TX.

2024

- Comments on Enlist cotton and plant-back restrictions.
- The last recommended planting date for guar has been moved forward five days due to the need to plant earlier for a better chance at full maturity especially to help achieve better test weight to minimize a significant potential discount.

2023

- "Sugarcane aphid" (SCA) is in fact actually the sorghum aphid. Genetic tests confirm this. What we have known as SCA is not a new sugarcane aphid biotype after all. Management recommendations do not change with this new identification.
- Grain sorghum replant options now include herbicide tolerant hybrids that enable grass control in existing sorghum crops.

Crop hailout decision tools and late-season crop guidelines are outlined as follows for topics and crops in the Texas South Plains region:


| | | Page |
|---|---|---|
| **Section I** | **Evaluating Crop Damage and Remaining Stands for Cotton as well as Corn, Grain Sorghum, and Sunflower** | |
| | Don't Terminate Questionable Cotton Stands Too Quickly… | 3 |
| | Evaluating Stand Loss and Replant Decisions… | 3 |
| | Replanting and Compliance with Government Programs… | 4 |

| | | Page |
|---|---|---|
| **Section II** | **Replanting after Cotton and Late-Plant Considerations for Subsequent Alternative Crops** | |
| | Online Access to Herbicide and Other Chemical Labels… | 5 |
| | Cotton Herbicide Considerations… | 5 |
| | Be Realistic about Replant Cropping Expectations… | 6 |
| | Economics of Alternative Late-Season Crops… | 7 |
| | Replant/Late-Season Cropping Options, Crop Maturity, and General Last Recommended Planting Date… | 8 |
| | A Special Note about Recommended Last Planting Dates… | 8 |
| | Having the Right Attitude toward Replant Crops… | 8 |
| | Table 1. General Summary of Last Recommended Planting Dates by County | 9 |
| **Section III** | **Management Guidelines for Replant and Late-Planted Crops** | |
| | Grain Sorghum… | 9 |
| | Sunflower—Confectionary and Oilseed… | 15 |
| | Sesame… | 20 |
| | Black-eyed Peas and other Pea, Pinto and Bean Crops… | 21 |
| | Summer Sorghum/Sudan, Forage Sorghum, and Hybrid Pearl Millet Forages | 23 |
| | Guar… | 25 |
| | Soybeans… | 27 |
| | Proso millet… | 28 |
| | High Input Alternative Catch Crops— | |
| | Short-season Peanuts… | 28 |
| | Corn Grain & Silage… | 29 |
| | Options for Organic Replanting… | 31 |


## I. Evaluating Crop Damage and Remaining Stands for Cotton as well as Corn, Grain Sorghum, and Sunflower

Hailout, wind, and blowing sand damage on West Texas cotton are common in May and June, affecting up to 400,000 acres in some years (~10% of the total crop). Additionally, dryland cotton may not emerge in time (late June) to produce a viable crop that will mature very well. Marginal cotton stands or marginal cotton seedling health may be evaluated for possible termination. In typical years through early to mid-June early maturing cotton varieties might be replanted as soon as possible, especially south of Lubbock where full and reduced coverage insurance cut-off dates happen later, or growers may consider simply taking insurance disaster payments and leave a field fallow. Producers who choose to replant back to cotton must manage the new crop for earliness due to the abbreviated growing season. First-position fruit set is critical for short season cotton and should be protected from insect damage and

stress that can cause shed. Other producers will consider replanting to catch crops if alternative crop options, herbicide rotation restrictions, etc. are favorable.

As we may encounter further significant hail and wind damage on cotton in the coming weeks, growers with damaged cotton stands will await crop insurance adjuster decisions. "Prevent planting" crop insurance may enter the picture for some growers. Your crop insurance may have considerable influence on your decision regarding damaged cotton. Here are some suggestions to keep in mind.

**Don't Terminate Questionable Cotton Stands Too Quickly**

Moving past early to mid-June, however, will cause some growers to decide to replant to other crops rather than wait any longer for insurance decisions. As with any crop, sometimes replant decisions are made on insufficient information and emotion. Tearing up a stand that in fact still has respectable yield potential is a mistake to avoid. If possible, avoid making decisions on the day of a hail/wind event. Give the field a few days to see if plant recovery is a possibility. A good rule of thumb is: if you and those you have consulted (e.g., crop consultant, Extension personnel, retailer, etc.) have evaluated the stand and are not confident you need to replant, the best decision may be to keep the original stand. Previous work performed in Texas has shown that producers may find it appropriate to retain surviving cotton stands with as little as 1 to 2 *healthy* plants per foot of row (~13,000 to 26,000 plants per acre on 40" rows), especially if the remaining stand is uniformly spaced and of similar age (see references below). The performance of cotton in general, but particularly at low populations, will be determined primarily by 1) environmental growing conditions present through the remainder of the season, 2) growth stage at the time the hail or other source of crop damage occurred, and 3) the health of the surviving seedlings. Variety maturity characteristics will also play a role, in combination with season length due to differences in boll distribution as related to cut out.

There is adequate time to replant to other crops, so that should not factor in terminating a questionable cotton stand. Numerous replant options are readily available through early July. As usual, cotton herbicides, goals of the producer, available equipment for other crops, and production economics will dictate which crop may be more suitable. There is no one-size-fits-all here. As planting dates move toward late June, however, maturity class (shorter) will increasingly become a consideration for some replant crops such as grain sorghum.

**Evaluating Stand Loss and Replant Decisions**

Cotton

Both variety selection and crop management practices may need to be adjusted if replanting a failed stand back into cotton. If a small percentage of survivors from the first planting are present, a herbicide application should be considered to eliminate existing plants that will compete with the second planting. This will help reduce interference from the previous crop, eliminate weeds that had escaped earlier herbicide applications, and provide uniformity across the field regarding population and growth stage. Moving forward, an earlier maturing variety that begins reproductive growth at lower mainstem nodes will aid in making the most out of the shorter season. While this may cause you to miss out on a potentially longer season, it helps mitigate the negative impact of an early freeze to fiber quality of a mid-full season variety planted (replanted) late. A more aggressive plant growth regulator (PGR) strategy may also aid in controlling excessive vegetative growth and enhancing earliness. However, this should consider the environmental parameters and variety response to PGR, that are the primary drivers of crop growth.

The primary cotton assessment publication from Texas A&M AgriLife Research & Extension, Lubbock, is useful for evaluating cotton stand loss and replant decisions. Access the Texas A&M AgriLife Research & Extension Center's Lubbock website for the following information:

- Effects of Stand Loss and Skips on Cotton Yields, James Supak and Randy Boman, Texas A&M AgriLife Extension Service, Lubbock, (1997), http://lubbock.tamu.edu/files/2011/10/standloss.pdf
- Making Replant Decisions in Cotton, Randy Boman & Robert Lemon, Texas A&M AgriLife Extension Service, Lubbock (2007), SCS-2007-08, http://lubbock.tamu.edu/files/2011/10/makingreplantdecisions07.pdf

Corn, Grain Sorghum, and Sunflower

For many growers, particularly from the Lubbock area and northwest, if cotton has been hailed out then other crops may be heavily damaged as well. The following resources are also available from AgriLife Extension:

- Assessing Hail and Freeze Damage to Field Corn and Sorghum, John Bremer, Cloyce Coffman, and Steve Livingston; Texas A&M AgriLife Extension Service, publication B-6014 (1995—the information is still quite valid), http://publications.tamu.edu/CORN_SORGHUM/PUB_Assessing%20Hail%20and%20Freeze%20Damage%20To%20Corn%20and%20Sorghum.pdf
- Evaluating Hail Injury and Stand Reduction in Texas Sunflower, Calvin Trostle, Texas A&M AgriLife Extension Service, Lubbock (2001) http://lubbock.tamu.edu/programs/crops/sunflowers/hail-injury-stand-reduction.

For information on evaluating weather damage to other crops, contact Dr. Calvin Trostle.

**Replanting and Compliance with Government Programs**

Some undesirable quirks in Farm Service Agency (FSA) rules preclude planting of some vegetable and fruit crops on program crop ground. In making decisions to replant cotton to alternative crops producers should check how planting other crops may affect their compliance with government programs. These programs may dictate which alternative crops can be planted without losing base or benefits. Contact the FSA office serving your county for specific information regarding your farm. Unfortunately, crop programs may render agronomically sound cropping practices untenable if it will jeopardize your base acreage, particularly for cotton.

Prevent Planting Crop Insurance claims: If you collect on prevent planting (e.g., cotton in a given year) then this likely strictly limits you to replanting cover crops only later in the year, which can only be hayed or grazed after November 1. Furthermore, if you do plant a cash crop after prevent planting you may limit your prevent-planting payment to 35% or less—or none at all. Consult your crop insurance agent and/or FSA to ensure you understand these provisions.

## II. Replanting after Cotton and Late-Plant Considerations for Subsequent Alternative Crops

Foremost among replanting considerations on cotton ground are potential problems with residual cotton herbicides. Your cotton herbicide may dictate crop selection for replanting. **This has been especially true with Staple** in some years (more details below), which is often used for morningglory control. Consult product labels for rotational crop restrictions for the herbicide you used on cotton. Remember most of the lower Texas South Plains is predominantly sandy ground. Herbicide activities can be higher on susceptible alternative crops. Of course, buster planting may be used to "break out" the treated soil to get below the herbicide zone for some herbicides, particularly the 'yellows.' This would not necessarily address problems with a herbicide that is more soluble, or more mobile, like Staple. It is recommended that producers avoid "pulling" the treated soil toward developing plants during cultivation until later in the season to reduce potential herbicide effects on developing plants.

**Online Access to Herbicide and Other Chemical Labels**

Whether on your home computer, your tablet, or with your smart phone in the field, there is a convenient way to access chemical labels for everything from a quick check to assistance in planning your herbicide program. Chemical Data Management Systems, http://www.cdms.net, offers quick access to labels and Material Safety Data Sheets for herbicides, fungicides, insecticides, seed treatments, and many other labeled agricultural products.

AgriLife Extension has compiled a user guide for how to best utilize this valuable on-line resource.

"**Ready On-Line Access to Chemical Labels for Agricultural Production,"** is available to view, print, or download from
https://lubbock.tamu.edu/files/2023/07/Ready-On-line-Access-Chemical-Labels-CDMS-July2023.pdf

It is simple to access labels online. CDMS makes it even easier by compiling them all in one place. This URL enables you to conduct additional tasks (register for free), including: 1) Search by active ingredient. This will enable you to find alternative chemicals or possibly more cost-effective generics; 2) Learn what other chemical options may be available for your crop. For example, you can search by 'chemical type,' (e.g., insecticide, herbicide, etc.) and your target crop (grain sorghum, sunflower, etc.); 3) Minor crops provide a challenge as there may be few labeled herbicide or other chemical options. Rather than read a dozen or more labels, find which ones to read first by searching by crop and chemical type.

**Cotton Herbicide Considerations**

Among crop options after cotton, soybeans, sunflower, guar, cowpeas, and peanuts are typically grown with yellow herbicides, and thus do not experience potential injury risks like grain sorghum. Herbicide carryover injury from cotton fields may be a particular concern for Caparol, Cotoran, Karmex, Diuron, and Staple in soil residues. These herbicides, especially Staple, are potentially more likely to injure grasses like sorghum and corn than the yellows. The problem of herbicide residues in soil can often be minimized if not avoided in heavier textured soils with a buster planter to establish a herbicide-free seed zone. Again, consult the chemical labels or your chemical dealer.

Cotton producers are making greater use of Dual/Dual Magnum (*s*-metolachlor; numerous generic brands) or Warrant (acetochlor; several generic brands) herbicide, and if replanting to grain sorghum, then safened sorghum seed (Concep III, many others) can be planted directly into the treated soil with little risk of sorghum injury. Growers need to consider the potential cost per acre of this treatment (and agronomically sound seeding rates may minimize the cost) and the advantages that Dual or Warrant

may offer. Planting sorghum on Staple (pyrithiobac sodium) ground is simply not recommended. The Staple label even excludes sorghum planting the year after Staple application, and injury is known to have occurred. Staple is moderately mobile in the soil according to Dr. Wayne Keeling, Texas A&M AgriLife Research weed scientist, Lubbock.

The Staple label notes sulfonylurea tolerant soybean (STS) can be planted 30 days after Staple application. Supply of group IV STS soybeans in the South Plains is more common than years past when seed needed to be ordered (see more info in the soybean section below). Dr. Brent Bean, formerly Texas A&M AgriLife Extension Service, Amarillo, has previously tested STS soybean tolerance to several commonly used sulfonylurea herbicides (different chemical family than Staple, but cross tolerance is good) at rates up to 4X. Only one of several herbicides gave any noticeable injury in two years. When wheat prices are strong, wheat is an option for Staple-treated ground (four-month rotation restriction).

Dicamba Applications to Cotton and Replanting

As of this writing (June, 2025), all dicamba formulations for over-the-top application on XtendFlex varieties have had their labels vacated. Many other formulations of dicamba are allowed for burndown at least 21 days (with at least 1" of rainfall or overhead irrigation) prior to planting cotton (regardless of technology package). Follow label instructions closely to avoid damage to susceptible cotton.

Enlist Herbicide Applications to Cotton and Replanting

If the original planting was a cotton variety that has the Enlist trait (tolerant to over-the-top 2,4-D choline applications), and an application of an approved Enlist herbicide was made, there is no restriction to replanting another Enlist cotton variety. However, if you want to plant a non-Enlist traited cotton variety (dicamba tolerant, glyphosate tolerant, glufosinate tolerant, HPPD inhibitor tolerant, or conventional) AND an Enlist herbicide application has been made, you must wait 30 days following the application to replant that non-Enlist variety.

If you are replanting back to corn or sorghum, there are no apparent restrictions with regard to any Enlist herbicide application to Enlist corn or Enlist soybean or non-Enlist corn or soybeans (see the Enlist One label, 55.7% at https://www.cdms.net/ldat/ldE27006.pdf ) that was made to the originally planted Enlist-traited cotton crop. The label is silent on rotation to other crops like grain sorghum, sunflower, guar, sesame, summer annual forages, etc. In this case, contact your Corteva rep.

Texas A&M AgriLife Research & Extension High Plains staff can assist with producer herbicide questions:

- Dr. Peter Dotray, Lubbock, (806) 746-6101, pdotray@ag.tamu.edu (specializing in cotton and peanut herbicides; also, crop rotations involving guar, sunflower, sesame, grain sorghum)
- Dr. Wayne Keeling, Lubbock, (806) 746-6101, wkeeling@ag.tamu.edu (rotation to most crops)

**Be Realistic about Replant Cropping Expectations**

Realistic crop replant goals must consider numerous factors, including:

- A practical alternative crop choice after failed cotton will typically have a low establishment cost with the flexibility to adjust inputs only if conditions continue to improve.
- A suitable alternative crop fully utilizes previous inputs and maximizes growing conditions anticipated for your growing area.

Here's an example where the above principles are challenged, for better or worse: Since 2003, when producers in the Lamb Co. area tried shorter-season Spanish peanuts planted mid-June and even up to about the 25th, there has been a willingness on the part of producers to consider peanuts and now corn as replant options. "Is this what you really had in mind, a high-input catch crop?" I have long asked. A few of those 2003 growers thought they had figured out a smart way to make some money, but many if not most of these fields were a disappointment despite a relatively late fall. See further discussion at the end of this document about the pros and cons of shorter-season peanuts or corn.

Many replant crops grow well for producers. But then the crop sits there until cotton harvest is nearly complete. To that end producers should ask themselves if a particular crop is appropriate if it will be subject to yield and quality losses in the fall due to greatly delayed harvest.

Also, several of the crops listed below, due to possible later planting dates, may reach maturity and optimum harvest conditions while cotton desiccation/defoliation and cotton harvesting occur. Producers are going to focus on those tasks thus harvest quality, harvest losses, etc. may be negatively affected in alternative crops as they await harvest after farmers complete cotton harvest. Several crops such as sorghum and sunflower can often be managed for harvest well before cotton harvest to spread the workload and reduce losses in these crops compared to maturing during cotton harvest.

**Economics of Alternative Late-Season Crops**

Texas A&M AgriLife Extension Service economists at Lubbock have compiled irrigated and dryland crop enterprise budgets for several crops that may be useful in assessing and comparing economics of different crops of management practices. Economic information is compiled online at http://southplainsprofit.tamu.edu where you can find several aids to crop insurance, federal crop program details, as well as the 'Comparative Profitability Spreadsheet,' ("Download Profitability Spreadsheet" link). This annually updated Microsoft Excel spreadsheet contains crop enterprise budgets where you can insert your own numbers. The crops included are:

| Irrigated | | |
|---|---|---|
| Alfalfa | Black-eyed peas | Corn |
| Corn silage | Cotton (drip) | Cotton (pivot) |
| Guar | Peanuts (type not specified, but probably runner) | |
| Sesame | Sorghum grain | Sorghum silage |
| Peanuts (organic) | Sunflower (confection) | Sunflower (oilseed) |
| Wheat | | |

| Dryland | | |
|---|---|---|
| Cotton (organic) | Cotton (herbicide tolerant) | Guar |
| Sesame | Sorghum grain | Sunflowers (oilseed) |
| Wheat | | |

*The spreadsheet enables you to compare different crops based on the numbers you insert.*

For further information on the website and the spreadsheet, contact Lubbock AgriLife Extension ag. economist Dr. Andrew Wright, andrew.wright@ag.tamu.edu, (806) 723-8458, or agricultural risk management economist Will Keeling, will.keeling@ag.tamu.edu, (806) 746-6101.

**Replant/Late-Season Crop Options, Crop Maturity, & General Last Recommended Planting Dates**

Among the following crops, planting date suggestions (Table 1) reflect what AgriLife Extension believes is a conservative but appropriate buffer against cool fall conditions and early killing frost dates relative to historically average fall weather. Some of these recommendations, especially for grain sorghum, were strongly tested by the combination of August and September cool spells in 2008 topped off by the October 23 freeze. And in 2012 much of the Texas South Plains had a freeze that extended south of Lubbock on October 8-9. Many prior recent fall seasons beginning in 1997 have been much later than average. **We should guard against complacency about the risk of late planted crops not approaching their yield potential (poor seed filling) due to the cool weather preceding heavy frost or a light freeze.** This potential cool weather, when heat unit accumulation ceases for most crops, is usually a greater concern than the actual killing frost date.

These suggestions should encourage the farmer to avoid excessively late planting, thus losing significant yield potential and economic value. This also reduces the risk of late-season crop injury. As our experience increases with lesser crops these dates will be re-evaluated. When crop prices are strong, this necessitates even more making the right call on replant and late-plant decisions to capture profit.

**A Special Note about Recommended Last Planting Dates (Table 1)**

Suggestions for last recommended planting dates and/or crop maturity are provided for numerous crops. *These dates focus on crop maturity though likely at the expense of yield because of late planting, even if crop maturity is achieved*. Depending on the crop these suggestions have been developed from:

- Thirty-year climate data
- County elevation
- Hybrid or variety maturity
- On-farm observations
- Previous suggestions

These suggestions strive to be practical though they are not perfect. The objective for growers is a relatively "safe" recommended last planting date with a good expectation of successful production for a particular crop. Occasionally we have a very early fall (e.g., early frost/freezes in 2008, 2012; or even just sustained cool fall weather). Thus, to plant too late means a grower may risk insufficient crop maturity (low yield or test weight, poor quality, etc.) for a crop in 2 or 3 years out of 10 as immature crops may languish during cool weather. Finally, last recommended planting dates reflect an assumption that growers understand the need to shorten crop maturity with later planting dates when appropriate.

**Having the Right Attitude toward Replant Crops**

A poor attitude toward the commitment to grow another crop right is often the downfall of many of the crops discussed below, especially in a replant situation. Some of these crops like grain sorghum and sorghum hay forages, guar, sesame, don't require a lot of inputs in a replant situation, but management—not necessarily requiring significant input expenses—can make or break these crops as a catch crop. I believe we should expect more from our catch crop sorghum. Resist the temptation to plant the cheapest seed you can find. Learn what the key things are that you need to do to make these crops work for you in 2024 if you are put in a replant or late plant situation.

**Table 1.** Summary of general last recommended planting dates for alternative or late-planted crops, Texas South Plains, based on county.

Northwest: Parmer, Castro, Bailey, northern Lamb, Cochran
Central: Swisher, Briscoe, southern Lamb, Hale, Floyd, Hockley, Lubbock, Crosby, Yoakum, Terry
Lower: Lynn, Garza, Gaines, Dawson, Borden, Scurry, Andrews, Martin, Howard, Mitchell

| Crop | Suggested Last Recommended Planting Date for South Plains Region | | |
|---|---|---|---|
| | Northwest | Central | Lower |
| Grain sorghum† | 6/25-7/5 | 6/30-7/10 | 7/5-15 |
| Sunflower | 7/5-12 | 7/10-17 | 7/15-22 |
| Guar (5 days earlier for 2024+) | 6/20 | 6/25 | 6/30 |
| Sesame‡ | 6/15 | 6/20 | 6/25 |
| Black-eyed pea, pinto, green bean | 7/5 | 7/10 | 7/15 |
| Summer Annual Forages | | | |
| Sorghum/sudan, sudangrass, hybrid pearl millet (hay, grazing) | 7/20 | 7/25 | 7/30 |
| Forage sorghum (silage) | 7/1 | 7/5 | 7/10 |
| Soybean | 6/30 | 7/5 | 7/10 |
| Proso millet (estimated for 2020) | 7/15 | 7/20 | --- |
| Peanuts | | | |
| Spanish (140-145 day maturity) | 5/20 | 5/25 | 5/30 |
| Valencia (125-130 day maturity) | 5/30 | 6/5 | 6/10 |
| Corn | | | |
| 115-day relative maturity | 6/10 | 6/15 | X |
| 105-day relative maturity | 6/20 | 6/25 | X |
| 95-day relative maturity | 6/30 | 7/5 | X |
| Corn silage | Generally up to 14 days after grain date above for maturity | | |

†See the sorghum section for a breakout of last recommended planting dates based on hybrid maturity.
‡See the Sesaco sesame section for possible later planting dates with short-season varieties on irrigation.

## III. Management Guidelines for Replant and Late-Planted Crops

### Grain Sorghum

Numerous grain sorghum production resources for the 2024 cropping season are available for viewing/downloading from http://lubbock.tamu.edu/sorghum as well as the website of the United Sorghum Checkoff Program, http://www.sorghumcheckoff.com/our-farmers/

*United Sorghum Checkoff Program Production Guides*—USCP-funded preparation of pocket guides for grain sorghum including three editions that cover portions of Texas ("West Texas" covers the South Plains, Rolling Plains & Concho Valley; "High Plains" covers the Texas Panhandle; and "South & Central Texas"). View these guides online or download at https://www.sorghumcheckoff.com/our-farmers/grain-production/ Print copies of the original guide might still be available, call USCP (806) 687-8727.

Current South Plains 2025 Grain Sorghum Prices (as of June 21, 2025)

A note on **contracting** grain sorghum: Farmers may contract any amount they like. If they have a crop failure or they cancel they are likely on the hook for the contracted grain and could be out the money. Many farmers wait until closer to harvest when they can see they will have a crop before contracting anything. Some will contract 10-20% and wait on the rest. Contracting may be of particular interest to irrigated growers. Consider delivery locations and trucking costs in your net price. The standard moisture for grain sorghum is 14.0%, so you will be docked above that percentage. Be sure to also inquire about the maximum moisture a delivery point will accept.

- Local and regional grain elevators: New crop contract prices range from $-0.25/bu to $+0.40/bu relative to December 2025 corn which was $4.42.bu. This translates to $7.45 to $8.61/cwt. for sorghum. For current pricing check with local and regional elevator locations. Grain sorghum pricing appears stronger as one moves further north toward the Texas Panhandle and beef cattle feedlots.
- Ethanol plants.
    - Hartree/HET-Levelland. Conestoga Energy manages grain sorghum procurement for HET via direct purchases from farmers (their trucks), commercial truck, and rail. Contact Ken Pilsl, (308) 227-6203, ken.pilsl@conestogaenergy.com, or Logan Cox, (620) 655-9408, logan.cox@conestogaenergy.com Contracts can be basis or flat priced. If basis they must be priced by time of delivery. June 11, 2025 bids were $+0.50/bu relative to Dec25 corn but expected to decline somewhat in the coming weeks.
    - White Energy ethanol plants at Plainview and Hereford continue taking farmer grain sorghum direct. Contact Trenton Jone, (806) 360-7413, cjones@white-energy.com
    - Hereford Ethanol Partners does not purchase grain sorghum from farmers.

Grain Sorghum and Sorghum Aphid (formerly "Sugarcane Aphid") in the Texas High Plains

First, entomologists and geneticists have concluded that what we have called sugarcane aphid (SCA) is actually the sorghum aphid (*Melanaphis sacchari*). This was not a biotype change in sugarcane aphid. This is a technical difference. For farmers in Texas there is no change in the management strategies to control this insect now that we know it is the sorghum aphid.

Sorghum aphids arrived late in the 2014 season in the Texas South Plains. It was present at minimal levels in some fields in 2014, and at higher numbers in a few, but did not affect yield. For the Texas High Plains in 2015, sorghum aphid caused severe problems in untreated grain sorghum and also in treated grain sorghum (it appears initial thresholds were too high, sprayed for other reasons, etc.). This was a stark and perhaps unexpected contrast to downstate grain sorghum in 2015, of which little was sprayed, and major damage was scattered. Early in 2016 there was documented overwintering of sorghum aphid in the Texas South Plains, but these survivors apparently did not increase. Later infestations likely migrated to the region. No year since has had nearly the level of sorghum aphid damage we first saw. Spraying is still needed when thresholds are hit. But not spraying when there is threshold population of sorghum aphid in the field is a mistake. This is even more pronounced with higher grain sorghum prices.

Regardless of what you hear, all sorghum must be scouted.

Control guidelines for sorghum aphid in the Texas High Plains are different—thresholds are lower than downstate. Sorghum aphid control guidelines are in the updated sorghum insect and pest management guide from AgriLife Extension. See https://extensionentomology.tamu.edu/resources/management-guides/sorghum/ Some legacy information for sorghum aphid is at http://www.texasinsects.org/sorghum.html

Regarding sorghum aphid control in the Texas High Plains ensure you have the current sorghum aphid control recommendations from AgriLife Extension entomology colleagues. This includes:

- The "scout card" at http://lubbock.tamu.edu/files/2016/03/ENTO-047.pdf There has been a move within AgriLife to reduce the aphid thresholds downstate to lower SCA numbers in line with High Plains recommendations.
- Other sorghum aphid and sorghum insect management info. is found at http://www.texasinsects.org/sorghum.html
- Nine sorghum aphid videos, many specifically for the Texas High Plains, that were formally part of an SCA blog are now hosted at https://www.texasinsects.org/sorghum-videos.html

The threshold for seedling to pre-boot grain sorghum is 20% of plants in the field have the **Presence** of sorghum aphid (not tied to a fixed number of aphids per leaf or per plant like downstate). AgriLife Extension experts also recommend insecticide treated seed (e.g., Poncho, Gaucho, CruiserMaxx, etc.) for grain sorghum. This may add ~$50/bag to seed costs, but it is spread over 12-25 acres, and offers some protection for at least 30 days and possibly another two weeks in the more vulnerable seedling stage.

Overall, though sorghum aphid may again become an issue in the South Plains in 2024—no one knows at this time—it is a manageable insect if treated on time. Recommended insecticides (Transform, Sivanto, Sefina) are easy on beneficials, which are a major component of control. Do not mix Lorsban with either insecticide for sorghum aphid sprays as it will kill beneficials. You may be worse off. To locate an AgriLife Extension entomologist in your area or receive their newsletter, consult https://extensionentomology.tamu.edu/people/ for a specialist or IPM agent.

**What about sorghum aphid tolerant or resistant hybrids?** Know first that ALL grain sorghum hybrids are susceptible to sorghum aphid at some level, must be scouted, and sprayed if thresholds are met. Universities have largely stopped screening and field trials for sorghum aphid tolerant hybrids. Consult your seed company staff. United Sorghum Checkoff Program compiled a list of hybrids through 2018 based on limited data and the information companies provided which the companies believe represent their best potential genetics for helping slow the sorghum aphid pest. They are no longer updating that list as most companies now have a hybrid(s) they deem tolerant. For questions to ask your preferred seed dealer about choosing a grain sorghum hybrid in the face of potential sorghum aphid issues, consult AgriLife's "Caveat" suggestions at http://lubbock.tamu.edu/programs/crops/sorghum/

Grain Sorghum Hybrid Maturity & Last Recommended Planting Date—Texas South Plains

Table 2 is a conservative guideline for last recommended plantings of South Plains sorghum hybrids.

As planting moisture is available, mid- to late June is a preferred to plant dryland sorghum for medium and medium-early maturity hybrids. Grain filling occurs in September after the worst of the summer heat and more-frequent September rains assist the crop. Medium/medium-early sorghum hybrids are less likely to overextend available and expected moisture. Also, medium/medium-early hybrids still

retain good yield potential whereas yield potential declines significantly with true early maturity sorghum hybrids. Recent tests, using company hybrid maturities, found that 'early' grain sorghum hybrids as a group yielded 18% less than hybrids labeled as 'medium-early.' Medium-long maturity hybrids are not recommended for any dryland planting in the South Plains region.

**Table 2.** General last recommended planting dates for grain sorghum maturity groups, TX South Plains.

| | Grain Sorghum Maturity Class | | | | |
|---|---|---|---|---|---|
| **Counties** | Long | Medium-Long | Medium | Medium-Early | Early |
| Parmer, Castro, Bailey, northern Lamb, Cochran | June 10 | June 18 | June 25 | June 30 | July 5 |
| Swisher, Briscoe, southern Lamb, Hale, Floyd, Hockley, Lubbock, Crosby, Yoakum, Terry | June 15 | June 23 | June 30 | July 5 | July 10 |
| Lynn, Garza, Gaines, Dawson, Borden, Scurry, Andrews, Martin, Howard, Mitchell | June 20 | June 28 | July 5 | July 10 | July 15 |

*How do these last recommended planting dates fare in an early freeze?*
October 23, 2008/October 8, 2012

For the most part producers who hit the last recommended planting date in 2008 with a particular maturity hybrid in their county received fair results, with some test weights less than 56 lbs./bu. However, many producers planted hybrid maturities in 2008 that were well past their last recommended planting dates (in some cases they couldn't get seed of shorter maturities), and this led increasingly to immaturity, reduced yields, and low test weights. Heat unit calculations demonstrated that cooler than normal periods of August 15-20 and September 8-19 then the October 23 freeze (long-term average Oct. 31-Nov. 2 at Lubbock) slowed maturity. If a farmer planted just 5 days later than the last recommended planting date, however, for any hybrid and county, then reduced heat unit accumulation would have had a much greater negative impact on maturity than the weather with an additional 12 days later maturity hence delaying the total crop maturity by about 2 weeks. ***The bottom line? Planting date really matters!*** Likewise, in 2012 producers who followed planting date X hybrid maturity guidelines for the early Oct. 8 freeze were able to edge by without significant damage. Later plantings experienced significant yield loss.

Typical grain sorghum hybrids: Days to half-bloom and days to maturity. Days to half-bloom is when half of the sorghum heads in a field are in some stage of bloom (sorghum heads flower starting at the top and proceeding down the head). Some companies will rate half bloom a few days differently for the same maturity group. Knowing the range of maturity and days to half-bloom are key to effective sorghum management strategies and a producer's ability to *schedule* flowering. Once half-bloom is reached sorghum hybrids will complete flowering in a few days then proceed to grain filling and physiological maturity when black layer occurs in the seed (Table 3). This typically takes 32-35 days, but cool weather can greatly retard grain fill and lead to low test weight.

**Table 3.** Approximate days to half bloom and days to physiological maturity for grain sorghum hybrid maturities, Texas South Plains.

| Grain Sorghum Maturity | Days to ½ Bloom | Approximate Days to Physiological Maturity* |
|---|---|---|
| Early | ≤58 | <90 |
| Medium-early | 59-63 | 90-96 |
| Medium | 64-68 | 97-103 |
| Medium-long | 69-73 | 104-110 |
| Long | ≥74 | 111+ |

*Uses ~32-35 days for grain fill to maturity (flowering to black layer) for all hybrids. This is different (and shorter) than harvest maturity.

Basic Seeding Rates for Grain Sorghum—A Common Grain Sorghum Production Mistake

Many producers err on the side of planting **too much** grain sorghum seed per acre. As a result, in droughty conditions producers are at risk of inadequate moisture *per plant* during flowering and grain fill to produce grain. This problem was quite evident in 1999, 2000, and 2003 in the South Plains. When soil moisture levels are very good (5-6" total stored soil moisture) a good target is 30,000-35,000 seeds/A. Sorghum seed ranges from 12,000 to 18,000 seeds/lb., with most around 14,000 to 16,000 seeds/lb., thus this seeding rate is near 2.0 lbs./A for many sorghum hybrids. If soil moisture is fair (~2-3"), seed drop might be reduced to ~24,000-28,000/A. For any condition with poor soil moisture, especially as plantings approach July 1, consider even just 20,000 seeds/A. These seeding rates will seem unbelievably low to some prospective growers, but data has suggested over many years that these numbers are realistic. And if moisture conditions improve substantially after planting, sorghum's strong ability to compensate for low plant population will still make respectable yields. These seeding rate suggestions are a risk management tool. Yes, in some years a higher seeding rate might in fact offer some additional return, but the difference is minimal compared to the downside potential of having too many plants for too little available moisture thus not making much crop, particularly for dryland.

For assistance with grain sorghum seeding rates see the basic grain sorghum seeding rate guidelines for West Texas noted in the above sorghum production guide produced in conjunction with United Sorghum Checkoff program.

For limited irrigation sorghum (projected 6-8" irrigation, typical of many producers in the South Plains) with very good profile moisture conditions, target 50,000-55,000 seeds/A, but if soil moisture is minimal, reduce seeding rates by up to 10,000 seeds/A resulting in a total seed drop of 40,000-45,000 seeds/A. For full irrigation levels (12-16"), target 68,000-80,000 seeds/A. Extension suggests you cap your seeding rates at 80,000 seeds/A in just about any high irrigation scenario (and in grower surveys in 2015 some high-yield producers find that 50-000-60,000 seeds/A is all they need to make 10,000+ lbs./A grain sorghum), though by late June/early July consider up to 90,000-100,000 seeds/A for non-tillering hybrids as an attempt to synchronize bloom and reduce late maturing heads from tillers.

For replant grain sorghum, increase seeding rates slightly if trouble is expected with cotton herbicides or poor seeding conditions.

Because seed costs are still somewhat low for sorghum (~$3.00-4.40 per pound) for basic safened seed + basic fungicide to seed with full insect/herbicide protection. growers may too easily use higher seeding rates as it doesn't much affect production costs. Many companies now routinely treat all seed with Concep III/safener, which allows use of Dual, Warrant, and similar herbicides (*s*-metolachlor, acetochlor, alachlor, dimethenamid). This adds $15-20 per bag for all seed but simplifies marketing and warehousing. Full fungicide/insecticide treatments such as Poncho, Gaucho, or Cruiser—including insect protection potentially up to 45 days—may add $40-50/bag.

Other Grain Sorghum Considerations

Limited but timely irrigation in grain sorghum. Many producers replanting sorghum on what was irrigated cotton may consider limited irrigation. Although producers may convert failed irrigated cotton to dryland sorghum production, keep in mind that even one or two timely irrigations at boot stage just prior to heading and flowering can substantially lift yield. Other timely irrigations may occur 1) just prior to growing point differentiation when the sorghum plant begins a 7 to 10-day process of setting your maximum potential number of spikelets per head and seeds per spikelet (this begins about 30 to 35 days after germination depending on hybrid maturity and weather), and 2) during grain fill after flowering, especially if dry.

Sorghum fertility. This is often bypassed to minimize costs. Sorghum requires about 2 lbs. N per 100 lbs. of grain, sourced from fertilizer N applications, existing soil profile N to 24" deep, and even irrigation water. When dryland deep soil moisture conditions are present and an adequate planting rain occurs, I expect good potential return for side dressing limited N (either coultered or knifed in or applied in irrigation water, but not broadcast on dryland fields), particularly if applied by growing point differentiation. Many producers for irrigated cotton who put down preplant N will probably add little if any additional N for sorghum unless their sorghum yield goal is above 5,000 lbs./A. $P_2O_5$ applications on soils that test 'moderate' (20-50 ppm) show inconsistent yield responses for most crops, however, if $P_2O_5$ tests 'low' (10-20 ppm) then phosphorus requirements may approach 1/3 to 2/5 of the N requirement (not just the applied N).

Herbicides and grain sorghum:

Three hybrid grain sorghum seed companies now have herbicide tolerant grain sorghum hybrids for grass control in grain sorghum. See the summary at https://lubbock.tamu.edu/programs/crops/sorghum/

Drs. Calvin Trostle and Extension agronomist Dr. Joshua McGinty, Corpus Christi, have summarized available herbicides and their use in grain sorghum. The most recent information (2016) is posted at http://lubbock.tamu.edu/programs/crops/sorghum/ This will be updated and reposted by July 2025.

***Huskie herbicide***. This product became available late in 2011. It has excellent control on pigweed species and does not have the injury potential of 2,4-D or dicamba (grain sorghum grows out of leaf burn due to Huskie). The label all but invites producers to use with atrazine for improved weed control as well as include NIS. For agronomic instructions with Huskie, review the herbicide summary at http://lubbock.tamu.edu/files/2011/10/Huskie-Grain-Sorghum-Summ-Jan2015-Trostle.pdf and consult the label. This herbicide may play a major role in dealing with glyphosate-resistant Palmer ameranth. Since 2014 the label expands the application window past 12" tall to 30" tall though atrazine is not used after 12" tall sorghum. Occasional cotton rotation injury has been observed with Huskie use, especially in dryland with little rainfall. Huskie is a chemical injury concern for next year's cotton (the label does not mention cotton, but "field bioassay"), and several producers as well as some AgriLife staff report Huskie injury to cotton the next year.

*Atrazine in sorghum then rotating to 2026 cotton*. We are frequently asked about atrazine in

sorghum. Technically, the atrazine label bars use on sandy loam and loamy sand soils, or for soils with <1% organic matter. A specific recurring question about sorghum is "What rate can I use and go back to cotton next year?" The atrazine label would say that no application after June 10 should be made if you expect to return to cotton the next year. We believe, otherwise, that rates near 0.75 lb./A will still offer significant weed control in sorghum and will not likely harm cotton the following year. On the sandiest of soils where potential residual herbicide activity will be higher, a producer might consider 0.6 or even 0.5 lb./A rate. We believe this is in the range where producers might not be satisfied with control, but if soils are extremely sandy, then activity on weeds should still be significant.

A Final Note about Sorghum, Replant or Otherwise

Expect more from your crop and do the little things that will help stand establishment, anchoring those brace roots (throw some soil around the base of the plant), etc. In the words of one Dawson Co. farmer, "let's stop farming sorghum the way we farm cotton." What D.P. means in part is sorghum used to be planted by many producers with a buster planter (in the bottom), and the opportunity is there to readily move soil around the base of the plant to help the plant stand better as well as cover small weeds.

*What some farmers say… "Sorghum has never done all that well."*

I have heard this from numerous farmers. I have learned to ask, "Tell me about your crop" and "If you were to grow grain sorghum again, would you do anything different?" The latter point often generates one or both of two responses:

- "I probably planted more seed than I should have." If a farmer thinks he or she planted more grain sorghum seed than they should have, then they indeed probably planted more seed than they should have. Overpopulation is a drag on sorghum productivity. Refer to the note above on sorghum seeding rates.
- "I probably didn't fertilize my grain sorghum the way I should have." I will interpret what this likely means: '*I didn't put any nitrogen on my sorghum at all*.' You can't expect something from nothing for very long. Refer to the above note on sorghum N requirements.

**Sunflower—Oilseed Only**

Newly updated June 2025 AgriLife sunflower production information for the Texas High Plains is posted at http://lubbock.tamu.edu/programs/crops/sunflowers/

Contractors and Pricing (updated week of June 12, call for latest information)

Sunflower contracts in 2025 continue the practice of contracting acres not pounds. Some contracts may have different language for disaster clauses, which may affect price by $1/cwt.

Previous Texas High Plains sunflower hybrid testing data for oilseed, reporting multi-year averages when possible, are collected at the above URL as well as http://varietytesting.tamu.edu/sunflower These summaries note in the past that confectionary yields on average are about 5-10% lower than oilseed in the same production setting, but then confectionary prices are higher when available. This is now moot since confectionary contracts are no longer available.

For a review of sunflower growth stages, http://www.sunflowernsa.com/growers/growth-stages/

Oilseed Sunflower

Typically, oilseed sunflower has several options in the Texas High Plains including oil market as well as

birdfood. Some opportunities may remain late in the season, which for sunflower planting can extend to mid-July. Any High Plains oilseed for crushing will be exclusively high oleic, but you can use what you want for birdfood:

- High oleic oilseed vs. mid-oleic (NuSun). High oleic oilseed crush market sometimes offers a premium up to $1.00/cwt. in the oil market and may be the only option. There are plenty of good hybrid choices available, and there is no yield drag with HO relative to NuSun.
- Clearfield/Clearfield Plus imi herbicide-tolerant hybrids (several companies)—this added weed control option using Beyond herbicide is common. It may include over 50% of Texas sunflower oilseed acres. Clearfield Plus allows hotter spray tank additives (crop oil or MSO, rather than NIS), and beginning in 2015 higher rates of Beyond herbicide. Use nitrogen for both. Do not use crop oil or MSO with Beyond herbicide on sunflower hybrids labeled Clearfield only—Clearfield sunflowers cannot handle Clearfield Plus treatment. Beyond timing remains the same even for Clearfield Plus hybrids (conclude by 8-leaf stage, which is about 3 weeks after planting).
- Sulfonylurea herbicide-tolerant oilseed hybrids (ExpressSun from Pioneer; also, Croplan and Nuseed Global). Producers who have used Express herbicide have liked the weed control in part because there is an application window up to 2-3 weeks longer versus Beyond herbicide in the Clearfield system (up to just prior to the "R-1" or initial bud stage).
- Short-statured hybrids (Triumph Seed then Mycogen in the past). These sunflower hybrids, which were 1.5 to 2.5' shorter than typical hybrids, were popular with growers. Yields were comparable to conventional height sunflowers and oil content was higher than average. The relative height difference was greater before 2010. Some current so-called short-stature hybrids are now better called 'reduced height.' If marketed as short stature a farmer expects to make at least some of the sunflower head moth sprays with a ground rig. The shorter stature will also permit weed cultivation further into the season. Currently, there are no true short-stature sunflowers on the market, but **Nutrien** has new true short-stature hybrids in seed increase that may be available by 2027.

Oil content effect on net pricing. Historically oilseed prices have a standard base of 40.0% oil with a 2-for-1 premium for oil content above 40.0%. Do ask your contractor though as two different companies recently in Texas have used 42.0 or 43.0% as the base for oil content. Most common is a 2-for-1 or 2.5-for-1 discount for oil below 40%. For example, if a grower delivers at $25.00/cwt. with 41.0% oil, then he/she is paid at $0.50/cwt. premium, or $25.50/cwt. But if oil content is 39%, then pay price is $24.50/cwt (some buyers discount at 2.5%, e.g., $24.37/cwt.). For other examples, use National Sunflower Association's online calculator at http://www.sunflowernsa.com/growers/marketing/oil-premium-calculator/ A&M AgriLife Research & Extension trials in the High Plains since 2005 have averaged 40-43% oil, but late-planted sunflower may sometimes drop below 38% if maturity is cut short.

- Red River Commodities. Lubbock, TX, (800) 763-9740, larrym@redriv.com Early season prices were $27/cwt. irrigated, $25/cwt. dryland. A very few acres may still be available in early June though possibly at a reduced price. There is no check for oil content. Delivery locations may include Lubbock, Hale Center, Petersburg, and Barwise. Use any oilseed hybrid.
- Colorado Mills. Lamar, CO (719) 336-8452, or field agronomist Mike Bretz (785) 995-9029, mike@comills.com CM opened a 2025 delivery point in Abernathy, TX but contracts are full. This location in the future will target early planted (April to early May) to expand sooner the window for new crop crushing. The Abernathy contract is supported locally through Jack Seed, Idalou (806) 892-3932, high oleic $24.50/cwt (and oil content premium/discount) using straight production contracts (delivery what you produce, no contracted amount, and no obligation, AOG, if you lose the crop). Colorado Mills offers $0.20/cwt bonus for each

year a farmer has contracted with them in the past five years (up to $1.00/cwt. bonus).

- Eastern Colorado Seeds. Burlington, CO/Dumas, TX. No remaining contracts available for 2025. Clay Smith, clay.smith@ecseeds.com, (719) 342-9316. Delivery is to Dumas, TX (Oglesby).

Oil and confectionary last recommended planting dates for the Texas South Plains include a two-tiered recommendation (Table 4). Kansas State University's goal for sunflower is that for best potential yield, percent oil, and test weight, the crop should mature within the frost-free growing season. Sunflower is tolerant of temperatures down to 28°F. We accept that late planting dates may indeed experience cool fall conditions. Because sunflower has much higher tolerance to cool fall conditions and even a light freeze, these last recommended planting dates are more ambiguous for sunflower than for other crops.

- Tier 1 Late Planting Date (optimum 'plant by' date)—a conservative last recommended planting date highly likely for full maturity crop production in all but the worst of fall conditions.
  Tier 2 Extended Late Planting Date—Successful production can occur but yields and oil content may be reduced. There is potentially less flexibility in a Tier 2 planting date the further north in the Texas High Plains. Producers in some areas have planted even a week later than this with success, but there is significant increased risk.

**Table 4**. Last recommended planting dates for sunflower in the Texas South Plains.

| Counties | Tier 1--Primary | Tier 2--Extended |
|---|---|---|
| Parmer, Castro, Bailey, northern Lamb, Cochran | July 5 | July 12 |
| Swisher, Briscoe, southern Lamb, Hale, Floyd, Hockley, Lubbock, Crosby, Yoakum, Terry | July 10 | July 17 |
| Lynn, Garza, Gaines, Dawson, Borden, Scurry, Andrews, Martin, Howard, Mitchell | July 15 | July 22 |

For a full discussion consult 'Sunflower Last Recommended Planting Date Guidelines for the Southern High Plains' (2025) at http://lubbock.tamu.edu/programs/crops/sunflowers/

Confectionary Sunflower

Confectionary contracting (Red River) is no longer offered regionally. For historical purposes, split pricing was for seed size above and below those seeds that are retained above or pass through a screen of 22/64". Clearfield or Clearfield Plus confectionary hybrids had become available.

Sunflower Seeding Density (not plant population)

For both oilseed and confectionary hybrids, seeding rates are critical to crop success, especially confectionary where high plant population leads to smaller seed, which are worth about 1/3 less than the large seed. Like sorghum, general experience is that too high seeding rates can hurt the producer. Purchase sunflower plates/discs for your air-vacuum planter and ensure the planter is dropping the target number of seeds, especially for large-seeded confectionary. The following seeding densities reflect targeted plant populations at stand establishment of 85% of planted seed. Because South Plains soil water-holding capacity (lower in sandy soils) and evapotranspiration here is higher than in Kansas or Colorado, seeding rate targets are generally slightly lower than recommendations in northern states.

Suggested sunflower seeding densities (not plant populations) for West Texas. The presence or lack of deep soil moisture shifts the suggested seeding rate up or down within the range.

| | Irrigated | Dryland |
|---|---|---|
| Oilseed | 20,000-23,000 | 14,000-18,000 |
| Confectionary | 16,000-18,000 | 12,000-14,000 |

The above recommendations are bolstered by Texas A&M AgriLife trials in 2001-2003 from Plainview and Dumas particularly for irrigated confectionary. Across a range of confectionary seeding rates from 11,000 to 22,000 seeds/A, yields showed little difference, but confectionary seed size was substantially affected: the lower the seeding rate the higher proportion of large seed. This ranged from 70-75% large seed at the low seeding rate to ~45% at high seeding rates. This difference on a 2,000 lbs./A yield is equivalent to ~$80/A more income with the lower seeding rate at the contract prices last offered in 2022!

With later sunflower planting dates, potential trends may decline slightly during the season, but sunflower head moth pressure also usually declines. Common concerns about sunflower production in the South Plains revolve around sunflower moth control, volunteer sunflowers the following year (use a pan header or other header built specifically for sunflower at harvest and possibly Round-Up Ready cotton the following year), and those sunflowers were "hard on the ground." Fertility on sunflowers must not be neglected lest subsequent residual soil fertility for the next crop be poor. In general, nitrogen fertility (available soil N + fertilizer N) is recommended at the rate of 5 lbs. N per 100 lbs. of yield goal.

Planting the field. Uniform sunflower stands are sometimes difficult to achieve. Field surveys in most U.S. sunflower producing states suggest a common yield limiting factor is a lack of uniform stands due to irregular seed placement. I think this is more common for confectionary sunflower with their larger woody shell (I prefer small size confectionary seed) which must imbibe more water to germinate. Consider planting sunflowers north-south to minimize the sunflower head rubbing on the adjacent plant when the head tips down to the east after flowering. This can reduce seed loss.

The planter itself can be a problem. Consult National Sunflower Association's "Sunflower Seed Placement & Stand Uniformity" guide, http://www.sunflowernsa.com/uploads/3/planting-sunflower.pdf for 12 pages of advice to improve sunflower planting, including tips for your air-vacuum planter units.

Limited but timely irrigation in sunflower. Sunflower is very adaptable to limited but timely irrigation, particularly from bud stage at about 0.5-1.0" diameter to flowering ~20 days later and then an additional ~20 days to petal drop.

I especially recommend that new and prospective sunflower growers study production suggestions for West Texas sunflower summarized in "Common Concerns in West Texas Sunflower Production and Ways to Solve Them (2025)" available at the above Lubbock website. Kansas State Univ. also has a good sunflower production guide (2009) with nice pictures on the web. We posted it at the Lubbock site as well.

Consult KSU's sunflower bookstore for other helpful reading on sunflower, https://bookstore.ksre.ksu.edu/topic/crops/sunflower

## Timing of Sprays for Sunflower (Head) Moth Control

**The damage inflicted by uncontrolled sunflower moth (commonly referred to by many as 'head moth') is a nuisance if not the downfall of some sunflower production, particularly among new growers**. Understanding this issue is critical to sunflower production success. Although the biology of sunflower moth is quite different than weevils, there is a big reason I often refer to sunflower moth as "the boll weevil of sunflower." Left uncontrolled the larvae of this insect can wreak havoc on a sunflower crop, much of the damage coming not just from the burrowing larvae but the subsequent opportunistic infection of fungal *Rhizopus* head rot which can turn the head into a 'Styrofoam brick' with unfilled seed.

For information on sunflower insect control check with your local Extension IPM agent and consult AgriLife Extension bulletin B-1488, "Managing Insects Pests of Texas Sunflower," which was updated in 2020. The document is available online at http://lubbock.tamu.edu/programs/crops/sunflowers/, and producers may also contact Dr. Pat Porter, Extension entomologist, Lubbock, (806) 746-6101, pporter@ag.tamu.edu (Dr. Davis is no longer with AgriLife).

Scouting sunflower moth is best done early in the morning or after sunset as the heat cools off. You may get best results using a flashlight to find the adults on the head. During the heat of the day the moths tend to hide under leaves and may not fly much so they are harder to find—you will not get a reliable indication of the need to spray unless you simply see a few moths either flying around or on the head (which means pressure is high).

Industry partners suggest—and AgriLife Extension entomologists and I concur—that sunflower growers make their initial sunflower moth spraying decision targeting the initial spray at bloom of just a few percent bloom (and never later than 20%), to increase chances of control. Bloom constitutes when the ray petals have opened up and you can then see the center of the head (see pictures in "Sunflower Bloom-Growth Staging for Sunflower (Head) Moth Control" at http://lubbock.tamu.edu/programs/crops/sunflowers/. This means making the sunflower spraying *decision* 1-3 days earlier when you start to see the back side of the yellow ray petals on the head scattered across the field. The updated threshold since the early 2000s no longer cites a particular number of moths per five heads rather the threshold notes the presence of moths in the field. Some producers, consultants, and contractors essentially schedule sprays for sunflower moth no matter what. Scouting is still important, and experience suggests that once you spray you should scout ~2-4 days later to ensure you achieved control. If a grower ends up with head moth larvae infestation, typically it means that the farmer sprayed too late. Some of our field observations have indicated just how fast sunflowers can bloom going from 6% on day 1, 19% on day 2, 43% on day 3, 67% on day 4.

For a review of the pros and cons of different philosophies of sunflower head moth control and their timing among industry, farmers, and research review the "Texas Sunflower Insects Summary" PowerPoint at http://lubbock.tamu.edu/programs/crops/sunflowers/.

Labeled products for sunflower moth control include numerous pyrethroids (Warrior T, Baythroid, Asana, Mustang Max) and Lorsban (chlorpyrifos, but to not use alone). Also, newer products with different modes of action that attack worms rather than adults are now available (see brief comments in the above Insects Summary). These include Vantacor (Chlorotraniliprole, formerly marketed by Dupont as Prevathon), Belt (flubendiamide), or Besiege (chlorotraniliprole + pyrethroid), which AgriLife Extension has tested in work funded by National Sunflower Assn. AgriLife does not agree with some any company guidelines to spray pre-bloom. In calculating production costs, I recommend producers budget two sprays for irrigated and one spray for dryland. Let not having to spray be a nice treat, but don't

short the necessity of spraying if the moths, even at seemingly low levels, are present. When using an airplane do not use less than 3 gallons of water per acre (even if the label says 2), and in fact increase to 4 or even 5 gallons per acre if you can. Coverage is key! What product you use for sunflower moth control is, we believe, the third most important consideration whereas timing is first, and coverage is second.

## Sesame

Drought- and insect-resistant sesame is a crop option after failed cotton though sesame contractors emphasize primary crop production. Producers in Texas report that wild hogs do not cause major damage. Crop insurance is available for several Texas High Plains & Rolling Plains counties if applied for earlier in the season. {These counties include Gaines, Terry, Dawson, Hockley Lubbock, Crosby, Lamb, Hale, Floyd, Castro, Swisher, Tom Green, Runnels, Jones, Haskell, Wichita, Wilbarger, Hardeman). All varieties offered for planting are reduced/non-shattering.

- Sesaco, http://www.sesaco.com, regularly targets up to 100,000 contract acres for Texas and southwest Oklahoma. Daily pricing is tied to the soybean market. As of June 7, 2025, the base price is $39.36/cwt. plus a bonus depending on how close to the processing plant at Hobart, OK. The bonus for delivery to Stamford, TX is $2.50/cwt. (for a total of $41.86/cwt.) and slightly higher in southwest Oklahoma. There are no current delivery points in the High Plains though a delivery point might emerge depending on where acres are planted. There is no delivery limit on total lbs. If crop failure occurs, growers are not on the hook to deliver. Several additional premiums (typically $1-3/cwt., short of an early freeze occurring) kick in for clean samples, minimal crack seed, and seed color. For production, contract information, and agronomics contact Sesaco's Garrett Gunnels, ggunnels@sesaco.com, M (903) 944-9262.
    - Recently Sesaco signed a partnership with Farmers Edge to provide digital agricultural solutions to sesame growers. Farmers Edge specializes in daily satellite imagery, actual weather stations on your farm, etc. This partnership with Farmers Edge will give Sesaco the ability to keep track of all aspects of your sesame fields and further aid in your sesame production. Contact Sesaco for further information.
    - Inquire about Sesaco's production and harvest guides for Texas.
- Equi-nom of Israel, a genetics and seed company, is not currently active in the Texas market until potentially 2027. They had entered the Texas market with low shatter commercial varieties which commonly set multiple capsules per node.

In general, sesame companies anticipate for dryland production with good early season moisture, expect 500-900 lbs./A, and for irrigated production, 1,000-1,500 lbs./A.

Historically, the Caprock region of West Texas has grown the best quality sesame in the U.S. But old varieties were not suited (too long in season or split open dropping their seed on the ground). Newer varieties have improved shatter resistance, shorter maturity, and lower height for combining. Sesame may be planted, preferably on 30-inch rows, from late May to late June, and needs 95 days before first frost. In general, the crop can be grown with existing farm equipment. Texas A&M AgriLife Extension Service began testing sesame varieties for the first time on dryland in 2003 in Dawson County, with yields running about 550 lbs./A in spite of only 4.5" of rainfall while the crop was growing (adequate stored soil moisture contributed to yield).

Sesame, like guar, is not for your weedy ground. Six active ingredients are registered for sesame:

- Glyphosate (preplant)

- Clethodim for grass control (Select Max, Arrow, etc.)
- Sethoxydim (Poast) for in-season grass control
- Ethalfluralin (Sonalan HFP) and trifluralin (Treflan HFP) details are obscure but listed in footnotes. (Sesaco recommends applying at least 45 days in advance of planting.)
- Clomazone (active ingredient). This chemical is available commercially as 'Caravel' (Sipcam Agro) and 'Vopak' (ADAMA).
- An "indemnified" Section 24(c) label—the risk is yours—for s-metolachlor/Dual Magnum (83.7% a.i.) is available for sesame. For 2025 you can access this indemnified label by registering at https://www.syngenta-us.com/labels/default.aspx

Texas A&M AgriLife Research beginning in 2004 tested sesame for tolerance to applied herbicides in cotton. Yellow herbicides on cotton hail-out ground don't appear to be a major problem. Dr. Pete Dotray, Texas A&M AgriLife/TTU weed scientist, (806) 746-6101, pete.dotray@ag.tamu.edu, has also conducted cotton herbicide injury trials on sesame.

Contact Calvin Trostle for additional AgriLife sesame information. Access a production PowerPoint for the Texas High & Rolling Plains at http://lubbock.tamu.edu/sesame

## **Black-eyed Peas and other Pea, Pinto, and Bean Crops** (Primarily Contract Only)

Black-eyed pea contract availability for 2025 varies among contractors. Other pea or bean contracts may be available. Price and contract availability may change weekly. Where you deliver, payment terms (especially what is net to the producer after cleaning charges), etc. are important considerations. Although contractors are often "full" due to early season contracting, sometimes contract acreage may not get planted or new market requests are received. Thus, additional contracts may be offered. So, call for current availability and prices.

Black-Eyed Peas

***A special note about black-eyed peas is merited.*** Black-eyes, due to their popularity, can easily be overproduced if not overcontracted. Contracting too many acres is the #1 threat to a producer's profit, and sometimes contractors may reduce prices later in the season for additional acres due to potential oversupply. Growing without a contract, or wildcatting, is discouraged. Some growers doing this in previous years have received less than $10/cwt. As an alternative crop in a hail-out situation, growers should not necessarily expect to receive quoted prices on hailout acreage compared to early season contracts.

These contractors might have contracts available reflecting any recent changes in market demand or unplanted contract acreage returned to the contractor. Remember that quality adjustments, delivery terms, and payment dates vary among contractors. Thus, some contracts may be more favorable than others apart from price, so call for details. Be sure you understand if your quoted price is before or after cleaning charges, which typically run 5-6 cents a pound. Companies/contractors active with 2025 contract acreage for black-eyed peas in the Texas South Plains are noted below.

Any prices below reflect net price after cleaning for U.S. #1 grade:

- C.K. Nickels Co., Muleshoe. Contact Chad Nickels, office (806) 272-5589 or mobile (806) 946-9760, chad@cknickels.com, delivering in Muleshoe. Currently, some acres are available for black-eyed peas at $45 cwt. for #1, slightly less for #2 (prices are after cleaning). Using California 8046 variety. No other pulse crop contracts are available for this year.

- Texas Best Bean, Olton. Bobby Redwine, office (806) 285-3144, texasbestbean@hotmail.com. Black-eye carryover supply is high so availability to grow in 2025 is quite limited thus contract a contract is limited to the $45/cwt. range if available. Call for current details. Delivery in Olton.
- C.T. Smith/Peas Inc., Pleasanton, TX. Contracts on black-eyed peas ($41/cwt irrigated; $39/cwt. dryland), Chinese Red, and Crowder (both slightly higher price) are still available for 2025. For future reference call the office first, (830) 569-2140, or field production manager Jose Balli, mobile (210) 867-9367, jose@ctsmithco.com. Can take delivery on the turnrow or at Pleasanton, TX.
- Gladiator Proteins, Sudan. Jason Trotter, M (806) 891-3594, jtrotter@gladiatorproteins.com Call for details on contracts for 2025 black-eyed peas. Using California 8046 variety. Sometimes also contracts mung beans.
- New Deal Grain Inc., New Deal. Office (806) 784-2750, contact Peter Poff, peter@newdealgraininc.com, or Seth Fortenberry, sfortenberry@newdealgraininc.com Focused mostly on black-eyed peas for organic but no remaining contracts available. Sometimes have limited contracts for other pea and beans including mung bean.

A few Texas A&M AgriLife resources for planting black-eyed peas are located at http://lubbock.tamu.edu/programs/crops/other-field-crops/black-eyed-peas/

Planting date. Black eyes in the area from Muleshoe to Tulia can safely be planted up to about July 10, slightly later to the south. The crop requires about 80-90 days to maturity. Further production information is available from your contractor.

Cowpea family beans/peas and *Bradyrhizobium* peanut inoculants for fixing nitrogen. High Plains Extension survey work years ago suggested that fields which had never been in black-eye production before (or at a minimum, within the last 5 years) had lower *Bradyrhizobium* root nodule counts. We recommend that all BEP fields be inoculated, but this is especially important for long rotations from previous BEP. But there is good news! The same strain of inoculant, *Bradyrhizobium sp.* (Vigna), inoculates peanuts and black-eyed peas. Peanut inoculants may not mention the cowpea family or BEP on the label, but producers have expanded options to apply an inoculant if they can use granular or especially in-furrow liquid peanut inoculants. The liquid can also be applied on seed.

Past research on soybeans and Austrian winter peas in west Texas showed higher nodulation is achieved when the same seed-applied liquid inoculants are sprayed in-furrow. This is the preferred means of applying inoculant in peanut production. Some farmers have the inoculation equipment on their planters to do the same for black-eyed peas. Please consider this. Or lease a planter from a peanut farmer with in-furrow application equipment. Previous observations on black-eyed peas and inoculants were only for seedbox powder materials (much lower bacterial counts). These have been inconsistent if unsuccessful in increasing nodulation let alone yield. In-furrow liquid product costs run about $8-10/acre. If seedbox powders are your only option, then consider a sterile peat inoculant (with a sticker already in the inoculant), which has higher bacterial counts. It will also adhere to the seed better than conventional seedbox powder inoculants. Wetting the seed will improve sticking of the inoculant. This may be impractical for BEP seeding rates if you are planting very many acres.

An AgriLife tipsheet for inoculant of cowpea family crops (which includes BEP) is online at https://lubbock.tamu.edu/programs/crops/other-field-crops/black-eyed-peas/

Pinto bean. Occasionally this contract is available. Pintos are susceptible to heat above 93ºF during flowering and ideally should be planted by late April or after late June to minimize the heat. (One company prefers later planting, but plant by July 4 in the NW South Plains, July 10 in the central South Plains, and by July 15 in the lower South Plains.) Know in advance if the variety you are planting can be direct cut. Limited information on pinto bean production in Texas view the statewide Extension pinto

bean guide at http://aggie-horticulture.tamu.edu/vegetable/files/2011/10/pintobean.pdf

Other peas and beans—Purple hulls, pinkeyes, crowder, mung, black, etc. In addition, some of the above contractors, especially C.T. Smith/Peas Inc., sometimes have limited contracts available on several other types of beans (including black and mung), peas, and small-acre seed blocks. Call for current contract availability and price. Acreage is limited but many of these crops will readily fit a short-season window. Be sure to ascertain if there are any planting restrictions after certain herbicides or other chemicals such as Temik applied to cotton. For any other legume bean, there may be *Rhizobium* inoculants available you can use with each crop (contact Trostle for help finding them; likely from BASF, Novozymes and especially Verdesian and Visjon Biologics). If a liquid form (for in-furrow spray or applied to seed) or granular product is available, AgriLife Extension recommends those type of products over seedbox powder.

Several other contract crops may be available on a limited basis. Contact any fruit and vegetable sheds in your area to learn of other crop possibilities.

**Summer Sorghum/Sudan, Forage Sorghum, and Hybrid Pearl Millet Forages**

These forages provide a low-risk option in replant and late plant situations for two reasons:

1) Physiological seed maturity is not required to complete the crop.
2) If forage production is shortened by fall weather, forage quality will remain high.

Summer annual forages such as sorghum/sudans have good regrowth potential after grazing or baling. These will be planted on numerous acres in the South Plains in recent years due to higher hay prices from a shortage of forage. In 2002, FSA changed the planting date from June 30 to July 15 for full coverage NAP insurance (thus limited coverage is available into early August). Hay prices for the region are updated every two weeks by USDA at https://www.ams.usda.gov/mnreports/ams_2707.pdf

For a summary of current forage types including sorghum/sudans, forage sorghums, and millets (good for caliche soils due to lower susceptibility to iron deficiency; no prussic acid problems) contact Calvin Trostle. I can provide a revised "Annual Summer Forages for West Texas," now joint with New Mexico State University. It includes a brief introduction to brown mid-rib forages (generally lower lignin content, higher livestock palatability, and higher invitro digestibility) and photoperiod-sensitive forages (heads out in October regardless of planting date). Also, dryland and irrigated forage seeding rate guidelines have been revised in "Suggested Forage Seeding Rate Targets for West Texas" (contact Calvin Trostle). Both revised documents will be posted at http://lubbock.tamu.edu/programs/crops/other-field-crops/forage/, and in the meantime the older editions remain available.

Establishing summer annual forages in dry conditions—consider using a planter rather than a drill. In 2003-2004 (AGCARES, Lamesa, TX) and again in 2012-2013 due to minimal soil moisture conditions, Extension test plots were established in late June using a planter rather than a drill. We did not believe we had enough control over seed placement with our older drill hence establishment was more important to us than potential forage yield. We achieved excellent results using a planter on 40-inch rows. We were able to move soil to get to moisture which we could not have done with a drill. Despite only 4.5" of rain in 2003 on the crop from late June through mid-October, we averaged 2.7 dry tons of forage per acre. Results were over 4 tons/A in 2004. We used a seeding rate of ~8-10 lbs./A, rather than the 15 lbs./A we would have used with a drill, which saved us about $3-4/A on seed costs.

A take-home lesson from our Dawson Co. experience is that *establishment is important*. If you have an

older drill with limited ability to adequately place seed then using a planter may be a good idea, especially if you are on a 30-inch row spacing and soil moisture is marginal. In addition, grazing cattle will walk between the rows if the forage spacing is at least 20-24". Hence, they don't tromp the stubble and regrowth potential is improved. For many drills, especially if drilling small-seeded sorgo-sorghum/sudan, plugging every other drill hole may be necessary to reduce seeding rates of small seed.

Sorghum family forages and sorghum aphid. Essentially all sorghums used for forage are susceptible to sorghum aphid. To date two companies (Warner Seeds, Richardson Seeds; also, possibly Gayland Ward Seed) have noted S/S hybrid tolerance. Seed insecticide treatments are suggested (just like grain sorghums). Later plantings are likely subject to infestation, and if they become bad in a canopy impenetrable to Sivanto, Transform or Sefina insecticide sprays then your best options are to pour the cattle in and graze, or harvest for hay, then control sorghum aphid in the regrowth (especially ~8-12" tall).

Forage Sorghum Silage: Planting for silage can readily be conducted until early July (Table 1) so that longer season silage hybrids obtain soft dough. Shorter maturity silage hybrids can likely be planted through mid-July and still achieve good tonnage though quality may be reduced somewhat (see note on corn silage below). United Sorghum Checkoff Program funded preparation of a regional forage sorghum pocket guide, Western Forage Production Guide, which you may view online or download at https://www.sorghumcheckoff.com/for-farmers/forage-production/ To obtain a free copy, call USCP (806) 687-8727. Annual Texas A&M AgriLife forage sorghum reports from Bushland are posted at https://amarillo.tamu.edu/agronomy/

Summer forage seed production contracts: Numerous seed companies in the Lubbock-Plainview-Muleshoe-Hereford region contract seed production for hybrid grain and forage sorghums; hybrid pearl, German, and proso millet; hegari, early sumac, and other forages. Returning growers are usually given the first opportunity. Call area companies you are familiar with your inquiries, especially if you have grown seed blocks in the past.

Hybrid pearl millet. Millet is a leafy, high quality forage choice for late planting. If desired production extends into early October, sorghum/sudan may be a better choice as millets tend to shut down sooner in the fall. Millet is a good choice for caliche ground which causes severe iron deficiency in sorghum family forages. Hybrid pearl millet does not develop prussic acid. Millet seed, 70,000-90,000 seeds/lb., is much smaller than sorghum forages and may require reducing drill holes. Small seed precludes planting >1" deep on most soils. If moisture is marginal, sorghums can be planted deeper. For further information, see the New Mexico State/Texas A&M AgriLife regional millet production guide at http://lubbock.tamu.edu/files/2012/07/Millets-for-NM-West-TX-2012-A-417.pdf

Millet and sorghum aphid: Hybrid pearl millet is considered a poor host of sorghum aphid, see "Hybrid Pearl Millet: An alternative to sorghum aphid-susceptible sorghum family forages," http://lubbock.tamu.edu In general HPM may have a few sorghum aphids, but they don't colonize very well. Some reports in 2015 initially reported that millet was highly susceptible to sorghum aphids, but the millet tested was a garden store variety, and subsequent tests with commercial millets show much less damage than for sorghums. Millets should still be examined for sorghum aphids. One commercial HPM field was treated in 2015 in Hale Co., but survey work in 2016 with adjacent rows of HPM and grain sorghum, a few small colonies of sorghum aphids were found, but no damage to the crop when there were hundreds to thousands of sorghum aphids on the sorghum leaves. AgriLife Extension field assessment in 2016 found that sorghum aphids in several HPMs were 0.7 to 3.0% of what was found in adjacent heavily infested grain sorghum.

**Guar**

Guar Resources, Brownfield, (806) 637-4662, is contracting a target of 7,000 acres for 2025. Long-time Brownfield area farmer and guar grower David Puryear is the GR farm advisor for guar, (806) 638-7591, dpuryear@guarresources.com Guar is as heat tolerant and drought tolerant as any crop we can grow in West Texas.

Texas A&M AgriLife continues guar research and programming for this drought and heat tolerant crop as we believe there is a strong fit for this crop in much of semi-arid west Texas. We are expecting contracting opportunities to rebound moving forward from current low prices due to the downturn in the oil and gas industry.

Price for 2025 for #1 grade is $0.20/lb. delivered to GR at Brownfield, $0.17/lb. delivered to Vernon Co-op in the Rolling Plains, but $0.20/lb if delivered to Brownfield. The contract price discount schedule is significant if either of two grain grading conditions are not met—review these details in the Guar Resources grower contract:

Full contract price is achieved for:

- Test weight 60 lbs. and above. Late-planted guar may not achieve as high a test weight if grain matures or attempts to mature in a late cool September then into October. This is the main reason we have moved the last-recommended planting date forward (earlier) by 5 days based on your region.
- Dark colored seed (above 50% black?). There are two factors that contribute to dark seed: A) ample rain on the crop before harvest, and B) delayed harvest far into the fall, Thanksgiving and into December. Plan for timely harvest. Get your own combine ready or an arrangement with someone to cut it when it is ready. See the note below about harvest.

Guar input costs at this point are minimal and this should be considered when looking at gross and net return potential. No dryland guar in the South Plains in 1998-2020 that I know of required treatment insects or diseases. This excludes the variety Monument (a Texas Tech release about 2009), which is a shorter maturity variety with limited planting (see below).

Guar and weed control. Guar is well suited for dryland production on ground that has few weed problems. It is tolerant of yellow herbicides (trifluralin) used in cotton production, but few other options are available for herbicides on guar. You can use glyphosate as a preplant burndown; Aim (carfentrazone) is labeled for use with a hooded sprayer; and Select or other clethodim products can be applied to control grasses in guar. A label was sought for 2,4-DB but never finalized.

Varieties. Four varieties of guar are available, and all may be planted up to about July 4 in the South Plains although June 20$^{th}$ would be more favorable. Seed sources in 2025 exist only through Guar Resources. Current varieties include Kinman, Lewis, Santa Cruz (old public varieties), and Judd 69 (a selection from older A&M crosses?). TTU's 'Matador' is no longer offered. Also, past producers and Texas A&M AgriLife Extension staff reported significant field losses on one additional variety, Monument, due to stalk breakage and disease problems (possibly bacterial blight), and this variety does not hold up well if planted late and conditions turn moist (disease affects foliage, pods). I do not recommend planting Monument.

Be sure of high-quality guar seed that is free of morninglories. Some guar seed in past years had low germination so be sure that year of production (preferably at least 2021) and germination are

acceptable. Guar seed germ holds good for at least five years. Field observations since 1999 suggest that Lewis is slightly earlier in maturity than Kinman and Matador. Date from the early 1980s suggest that Lewis out yields Kinman. Judd 69 became a preferred variety of the former West Texas Guar. Dryland guar yields under average conditions are about 400-1,000 lbs./A, and somewhat higher for irrigated.

Irrigation. Guar responds well to one or two early or mid-season irrigations of 2-3", but I have seen yields reduced by over 25% due to over-the-top sprinkler irrigation relative to dryland production on the same field. This may be due to interference with pollination. Past Terry Co. data suggested 100-125 lbs. guar per 1" irrigation water under limited sprinkler irrigation. Because of the deep tap root on guar, this crop, like sunflower, favors large individual irrigations relative to frequent irrigation. The crop is extremely heat tolerant and can take advantage of deep subsoil moisture when available even though rainfall may be infrequent. Hence if the crop can be established it should perform satisfactorily if minimal additional rainfall occurs due to tapping deep soil moisture.

Row spacing and seeding densities. Guar appears suitable for narrower row spacings, especially the minimal-branching Lewis variety. Consult Guar Resources for seed cost ($0.75 or 1.50/lb., depending on early purchase). If seed germination is good target 5-8 lbs./A, the higher end as conditions are more favorable (irrigation) or as row spacing narrows. Guar Resources as well as the former West Texas Guar recommend that producers go ahead and use the higher seeding rate on dryland.

Guar and *Rhizobium* inoculants. Guar is a legume but getting it to nodulate very well has been difficult. Ideally guar seed should be inoculated with guar-specific *Rhizobium*, preferably one with a sticker (if powder) to adhere the inoculum to the seed for best results, although we have not had good success obtaining desired nodulation. Unfortunately, no standard guar-specific inoculants are now available (though there is guar-specific USDA guar strain, the most recent inoculant, a seedbox powder, did not perform well). Ask your contractor about inoculants. Sono Ag, Plainview, produces a non-specific crop inoculant for the seed that can be used for guar. This liquid product, Micronoc, can be prepared with a strain of bacteria that was isolated from nodules on guar in West Texas, and some growers have reported satisfactory nodulation in some years. Keep in mind that planting into hot, dry soils is not conducive to developing nodulation regardless of the product.

Harvest. Substantial harvest losses may be minimized by using a low-profile row-crop (soybean) header relative to a conventional flex bar header. Even better, custom guar harvesters (e.g., Barringtons of Oklahoma, custom harvesters who used to be active in West Texas) and farmers with air reels should be able to reduce harvest losses if they go slow enough to do a good job. Expect to pay $3-4/acre more than regular combine rates. Extension believes harvesting with air-reel headers is worth it due to higher harvested yields and less seed on the ground, which reduces volunteer guar problems the following year (this is a common concern that needs research for how to control volunteer guar with Roundup Ready cotton or other means).

A special problem AgriLife Extension has observed for years that delays harvest is the persistence of a green stem up to four weeks after branches, foliage, and pods are dry. This risks exposure to rains or long delays in harvest. AgriLife research demonstrated that paraquat and diquat dibromide worked well at drying the stem, glufosinate was fair, but glyphosate was insufficiently effective due to no leaf area remaining on the plant to absorb the chemical.

Contractors can provide additional production information. Recent guar production information has been compiled at http://lubbock.tamu.edu/programs/crops/other-field-crops/guar/, which also provides an old 1977 Extension document "Keys to Profitable Guar Production" with good, basic information.

Guar and crop insurance. Other than NAP, crop insurance is not available for guar. USDA Risk Management Agency held listening meetings in Texas in November 2018 about this possibility. Guar was chosen as one of a few crops nationally to be further investigated. Agralytica, Alexandria, Virginia, has been contracted to study guar crop insurance feasibility through 2023 (Trostle helping). A report was provided to USDA-RMA, but no further action has been taken.

**Soybeans**

Soybeans may be an option on irrigated land where cotton failed. Soybeans further north in the Texas High Plains can yield well under limited irrigation if irrigation is timely (flowering to mid-grain filling). Soybean production south of U.S 70 highway seems to more often have difficulty reaching yield potential due to heat, minimal rainfall support, etc. For that reason, I don't encourage even primary crop soybean production south of U.S. 70. For the Southern High Plains, soybeans may be planted as late as July 10 and still make a crop, but yields are lower (see below). Late planting usually retards stalk growth and can make it hard to harvest the lower seed pods. Higher seeding rates and narrower rows may encourage higher pod set.

Soybean maturity group. Data from the South Plains region suggests group IV soybeans remain the best choice for production even if planted in late June and early July. Though yields will decline with later planting, mid Group IV outperforms group-III soybeans even when planted in early July. Regional research demonstrates that yields for maturity groups from mid-III to V did decline gradually from early and mid-May planting dates, but yield declines were substantial if planted after mid-June. Group III soybeans did not perform well on planting dates averaging June 16 and July 3 planting dates relative to group IV. Plants were very short. Determinate group V soybeans have performed well even at later planting dates. Texas A&M AgriLife research from the Amarillo area suggests that for each day after June 20 that soybean yield potential declines 1 bushel per day. Data from Hale County from 2000-2002 would support a similar conclusion for the South Plains.

Sulfonylurea-tolerant soybeans, or STS, may be planted on cotton ground treated with Staple herbicide. Availability of STS soybeans in the appropriate maturity group may be limited. Check with several seed dealers to see what might be available. STS soybeans are more common in the area now and do not have to be ordered. Otherwise, nearly all soybeans are Roundup Ready, so producers can maintain their glyphosate weed control program after failed RR cotton.

Seeding densities for soybean should reflect row spacing, available soil moisture, and irrigation. In general, for 40-inch rows with full irrigation, consider a seed drop at least 130,000 up to 150,000 seeds/A (10-12 seeds/ft.). In the past I have suggested that 10 seeds per foot should be adequate (~130,000 seeds/A on 40-inch rows), but if stand establishment turns out to be less than 75%, which is sometimes the case, then you don't have enough plants if fully irrigating. For more desirable 30-inch rows and high irrigation, consider 150,000-170,000 seeds/A (9-10 seeds/ft.), and for drilled seeding rates growers may push seeding rates as high as 180,000-200,000/A. Reduce seeding rates slightly for less than full irrigation and/or poor soil moisture at planting.

*Rhizobium* inoculant for soybean. Most cotton ground probably has not been planted in soybeans before. Soybean-specific *Rhizobium* inoculants are recommended to ensure proper nodulation on such ground. On the South Plains soybean inoculant choices include seedbox (both powder and newer seed applied liquid) and in-furrow granular or liquid inoculant. Although granular delivers more *Rhizobium* to the seed than seedbox powder treatments, costs may be considerably higher than seedbox treatments, and liquid costs are somewhere in between. If using a seedbox treatment I suggest you use the seed-

applied liquid form. Avoid the seedbox powder. I see little success with any dry seedbox inoculants among soybean and three other legume crops in the South Plains. The seed-applied liquids appear to be a significant improvement over seedbox powders (which may blow off the seed in an air-vacuum planter), but if you are still planting into bare, hot dry soil then irrigating up you could lose much of the bacteria before the irrigation wets the soil. Texas A&M AgriLife data at Lubbock and Etter notes greatly increased soybean nodulation from using in-furrow liquid inoculants vs. the same material applied wet on seed. If you can apply liquid inoculant in-furrow, application is convenient, and you will deliver the highest numbers of *Rhizobium* to the seed. Planters used for planting peanuts are normally equipped for applying liquid inoculant in-furrow.

As soon as growers decide they will plant soybeans, you need to locate *Rhizobium* inoculant. Some years I have found no farm suppliers with current-year inoculant on hand anywhere in the South Plains and little in the Panhandle. If not available, then call regional sales reps for BASF/Becker Underwood, (515) 520-2170; Monsanto/Novozymes, (662) 326-0513; or Verdesian, (251) 294-0055, for information on how to obtain inoculum specific for soybeans.

Additional Texas Panhandle and South Plains production "Quick Tips" and irrigation information for soybeans may be found at http://lubbock.tamu.edu/programs/crops/other-field-crops/soybeans/

**Proso Millet (Grain)**

Proso millet is a relatively short-season crop with contract opportunities now in the Texas High Plains. Grain is used for birdfood or cattle feed. Planting dates (see Table 1) range into mid July for the Texas South Plains. Seeding rates range from about 12 lbs./A on dryland to 20 lbs./A on irrigated. Seed costs are low, perhaps only $0.15/lb.

See https://extensionpublications.unl.edu/assets/pdf/ec137.pdf for production information.

Contracting is through Eastern Colorado Seeds, Clay Smith, clay.smith@ecseeds.com, (719) 342-9316. Proso millet is more likely for the Texas Panhandle than the South Plains. Delivery of grain is likely to Oglesby, Dumas. Early dryland yields in the Texas High Plains approach 1,500 lbs./A. Herbicide options are straightforward and include several common options.

**High Input Alternative Catch Crops**

In recent years, some producers have asked about planting back to peanuts or corn. These crops were not covered in early editions of this replant guide due to the expectation of growers and the author that appropriate replant and late plant options after failed cotton would emphasize low-cost, low-input crops, which minimize economic risks by reducing financial expense when a crop has already been lost. My advice is caution if producers consider either of the following options. Visit with your peanut contractor, whose main concern may be a low grading crop, or your corn seed dealer for additional advice. Unlike other options discussed in this guide, significant irrigation will be required to pursue either of these options though corn increasingly is being grown in the region with lower target irrigation amounts, and I will briefly discuss dryland corn below.

**Short-season Peanuts (Valencia, possibly Spanish)**

Occasionally growers ask about late planting of shorter maturity Spanish peanuts or even shortest maturity Valencia peanuts in the northwest South Plains. This interest has expanded to our southern counties and companies have sometimes actively sought late-season contracts for Spanish peanuts.

Even modest yields can still gross $700/ton, keep in mind that input costs (irrigation, seed, fungicide, etc.) are similar to full-season production thus significantly higher than other replant/late plant crops, and these higher input costs contrast with the goal of having low-cost catch crops.

Although a few individuals have spoken to the contrary, I am averse to Spanish peanuts in a replant production system past May 28 in the northwest South Plains to about June 7 in Dawson and Gaines Cos. A significant acreage of Spanish peanuts was planted as late as June 20th in 2003 in Lamb Co. but yields most often did not reach one ton. One producer in Lamb Co. reported in 2003 that among 12 different fields his yields declined from near 4,000 lbs./A planted about May 12, to about 1,500 lbs./A ending with planting on June 3. Yes, a few individual growers have made 2,500 lbs./A with plantings as late as mid-June, but this is rare, represents risk, and has a strong potential for disappointment.

Let's put Spanish peanut production with late planting dates in perspective by looking at the issue of days to maturity for the recent Texas A&M Spanish peanut line Tamnut OL06. Most Spanish peanut varieties require about 140-145 days for proper maturity in a normal year (maturation is dependent on heat unit accumulation, which slows a lot for later planted peanuts). For this crop planted on June 1 above Littlefield, the average killing frost is October 22nd. From June 1 then a 'typical' estimated maturity date is October 18th, within 5 days of a killing frost (Table 1 dates represent potentially ~1/2 to 3/4 of full-season yields). This is unnecessarily risky. And cool weather can be expected after September 20th for much lower heat unit accumulation that far north, making 140-145 days 150 days and longer. Grade will be lower. Each missed day of planting in late May and early June is equivalent to 2-3 days of delayed maturity/heat unit accumulation in late September to mid October.

In more recent years Spanish has become a replant crop of interest to existing peanut producers in southern counties. There is more time to work with in this situation so at least the maturity concerns are alleviated if not the remaining underlying question of growing an expensive catch crop.

I do not recommend the small-seeded Spanish peanut AgraTech 9899-14 for late planting, which has a runner growth habit (used in the Spanish market as a high oleic peanut). It has a maturity at least 10-14 days longer than Tamrun OL06, and probably should not be planted after mid-May in Lamb Co. or late May in Dawson-Gaines.

**Corn Grain & Corn Silage**

Since the mid-2000's some medium maturity (there are not that many true short maturity corn hybrids, that'd be in maturity range of around 95 days or less—some companies regard days of corn maturity from emergence, not from planting, be sure to clarify this with your seed dealer) corn has been used to either double crop after wheat or plant in hailout situations from Lubbock north, and yields with substantial inputs can still achieve 10,000 lbs./A in some cases. Keep in mind, however, that the full-coverage crop insurance cut-off date for corn in all the Texas High Plains is June 5. Shorter maturity corn hybrid adaptation and selection for the region has improved substantially in the past 10 years.

In recent years, especially since ~2008 more producers are considering late corn if prices are strong, which may lead to a greater return on investment outcompeting grain sorghum and other crops—if the grower is willing to spend for inputs. Some hybrids have short enough maturity (95-day range) that can fit the production system on very late plantings into July, but don't cut yourself short on maturity as yield potential is lower (high yields are commonly reported for corns with 105-110 day maturity, but less common at shorter maturities). And remember that short-season corn still has a highly intense water requirement. One company agronomist suggests that in Lamb Co. a corn maturity hybrid should be planted such that black layer can be obtained no later than October 15, which is only ~10 days before

the average killing frost date at Littlefield.

As a guideline from private industry, one seed company offers that corn hybrids south of U.S. Highway 70 with a relative maturity (RM) of ~112-115 days should be planted by June 20; ~105 days RM, planted by June 25; ~95-99 days RM, planted by July 5. Other companies should have a similar range of hybrids. Other recent spring corn industry newsletters list examples of last recommended planting dates for Halfway, TX at July 4 for 93-day corn, and June 27, for 105-day corn (this particular company rates maturity days from emergence, not planting). Keep in mind again, however, that planting 5 days sooner in June (or early July) could be worth up to 10-15 days in late September or early October in terms of heat units for maturity. The risk you don't want to take is cutting yourself short on time to properly mature the crop, especially when the price is good.

Tips for late planting corn. Note the following pointers—targeted for the Texas Panhandle and northern South Plains, courtesy Dr. Brent Bean, formerly Texas A&M AgriLife Extension agronomist, Amarillo:

- Replanting corn late in June is risky. (Trostle: South Plains growers planting in late June would not consider corn risky to the same degree. Also, there are better yielding shorter-maturity corn hybrids than 15 to 20 years ago.) Though older Kansas data demonstrates that the same short-season corn hybrid planted on the 25th of April, May, and June had reduced corn yield of ~30% in June vs. May (Dr. Merle Witt), this probably needs to be revisited with newer corn genetics.
- Choose a 90 to 100-day hybrid for late plantings. (Trostle: South Plains growers except for Castro, Parmer, and Bailey generally have had good results planting corn with maturity to the low 100s to the end of June—yield potential drives much of this decision.) Even shorter hybrids could be chosen (especially in the Panhandle), but we have little data on their yield potential. This may be similar to what we observe as noted in the grain sorghum section, where true early maturity grain sorghums simply don't have the yield potential that medium-early maturity has.
- Choose full insect protection including Bt. Late planting will greatly increase the risk of corn borers and earworms in corn (but spider mites are less). Unfortunately, Texas A&M AgriLife Extension entomologists report that only Vip3a gene traits still have essentially full protection against worms.
- Choose a hybrid with good Fusarium tolerance as stalk and ear rots are more of a problem in late planting.
- Consider corn silage if possible (see below). It is much easier to grow 18-20 tons of corn silage than 160 bu/A corn when planting late.
- Consider increasing the seeding rate up to 15% as Kansas data suggests fewer kernels are produced per ear in late planted corn (consult seed dealer).

Corn for silage—Generally, the same corn hybrid planted for grain could be planted up to 14 days later if for silage. Silage prices in the Texas High Plains have been exceptionally strong, even up to $100/ton. Late seeded silage corn can have similar risks as grain corn including stalk and ear insects. Though the tonnage may be made, starch content hence feed quality may be reduced compared to earlier plantings of the same hybrid (courtesy Rod Carpenter, Pioneer Hi-Bred, Farwell, TX).

Like peanuts above, corn is not a low input catch crop as significant irrigation will be required to make a profitable yield.

What about dryland corn as a replant crop? A few areas are seeing some dryland corn, but some of the early positive results, I believe, are attributed to high rainfall. For most of the Texas High Plains (except the eastern and northeastern Panhandle) dryland corn would be expected to be minimally successful in years with typical rainfall unless a large amount of deep soil moisture is present at the beginning of the

cropping season. Seed costs alone in a replant situation will likely run 5 to 8 times higher than for grain sorghum (unless you receive a large volume discount on seed).

What seeding rates might be considered? We don't know—but for sure they must be adjusted to deep soil moisture prospects, 8,000 to 14,000 seeds per acre, if deep soil moisture is moderate to high? (Northern South Plains dryland corn growers with good deep soil moisture tend to center their seed drop around 10,000 to about 13,000. AgriLife is testing seed drops from about 7,000 to 18,000 seeds/A.) If deep soil moisture is low, I suggest an appropriate dryland corn seeding rate be 0 seeds/acre, e.g., don't plant. Unlike, dryland replant grain sorghum where N fertilizer is normally not added, I believe corn will require N fertilization at some level if you expect to make yield as I do not expect corn roots to scavenge as well as grain sorghum for needed N in the soil.

Unknown to me at this point is how to choose a corn hybrid for a thin seed drop regarding ear flex, potential multiple ears, and minimal tillering, etc. Your seed dealer may be able to help, but I would not want a corn hybrid in dryland that would possibly set a second ear. This is akin to my preference for a low-tillering/non-tillering grain sorghum hybrid for tough dryland conditions.

**Organic Crop Replant Options**

Organic growers face the same dilemma as other farmers but likely have fewer choices. Whether you have organic contracts available on grain sorghum, corn, sunflower, peas & beans, or forages, ensure that you have a market and a contract. Each crop may face its own special challenges. Organic sorghum growers in the region have usually contacted a seed company to have planting seed held back as untreated. If you are planting a legume then there may be an OMRI-approved *Rhizobium*/*Bradyrhizobium* inoculant you can use, especially if a liquid or granular form rather than a seedbox powder.

Though there are likely several buyers, one South Plains contractor currently has organic cropping options for a replant/late plant situation. These included organic grain sorghum, corn, and specialty dry beans. Contact New Deal Grain Inc., New Deal. Office (806) 784-2750, Peter Poff, peter@newdealgraininc.com or Seth Fortenberry, sfortenberry@newdealgrain.com

*This publication is updated annually by mid June for the Texas South Plains.*

For further Texas A&M AgriLife information for the Texas High Plains consult:

- http://lubbock.tamu.edu
- http://amarillo.tamu.edu
- Additional Texas statewide Soil & Crop information, http://soilcrop.tamu.edu
- Texas A&M AgriLife Extension Soil, Water & Forage Testing Lab, http://soiltesting.tamu.edu

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