

# FOCUS on South Plains Agriculture

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## Sorghum Agronomy

Late season desiccation and drydown

## Sunflower Agronomy

Late season desiccation and drydown  
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## Sorghum Agronomy

### Late Season Crop Desiccation/Drydown/ Weed Control

*Disclaimer: Several chemicals are discussed below for possible use in crop termination, drydown, and early harvest. This document is not a substitute for label information. As with all farm chemicals please read and follow the label directions before applying the product.*

### Can Desiccants Be Used for Grain Sorghum?

Yes. This question comes from time to time. Glyphosate, sodium chlorate, or possibly other chemicals/herbicides may address some of the reasons presented below that bring producers to consider desiccation as a possible option.

1. Late planting increases the chances of either cool or moist fall conditions during drying after physiological maturity. When it is cool and little drying is occurring then a producer may be able to manage harvest by spraying the crop to ensure that the crop doesn't sit unnecessarily long in the field.
2. The presence of 'sucker heads' emerging from upper nodes on the stalk (in contrast to basal tillers). These sucker heads and tillers from the top nodes on the grain sorghum stalk create a lot of green fodder that can delay timely harvest. In the past this has actually tended to be more of a problem on dryland fields which don't merit the added cost unless the primary heads have good yield. Sometimes these sucker heads, however, can delay harvest by 4 to 6 weeks as we wait for cold temperatures or even frost to kill the plant.

If there is enough difference in the maturity of primary heads and sucker heads, a producer may be able to harvest the main heads while the sucker heads are still green with little or no seed development, hence will pass through the combine.

3. In 2009 grain sorghum prices with 'deliver by' dates of Sept. 30 and Oct. 15-20 (particularly for grain going to the ethanol plant in Hockley Co.) are significantly higher thus there is increased interest in getting sorghum out of the field.
4. Sometimes a late-season harvest aid/desiccation treatment can prevent weed seed (pigweed is commonly noted) from reaching maturity or exert control over rhizome Johnsongrass. However, if a field has had season-long weed control issues then weed competition with crops and seed production has already occurred. But a harvest aid still might help get the crop dried down.

### **Grain Sorghum Seed Moisture May Influence Harvest Timing More than Desiccant Use**

The bottom line is that you need to have sorghum grain moisture content down to 14% to avoid dockage. We don't have the ability in the South Plains to dry much wet grain. So even if the plant can be dried down, in order to justify use of desiccants we need to also dry the seed. Sorghum harvest research conducted in the Texas Rolling Plains using sodium chlorate (6 or 12 lbs./A) demonstrated that although the plants were indeed dried, harvest based on seed moisture could not be moved forward. See the report at <http://juniper.tamu.edu/Agronomy/PDFs/sorghumharvestaid.pdf> (This research report also notes the results of using paraquat to desiccate sorghum, but due to residue issues paraquat is not labeled for use in grain sorghum.)

### **Late-Season Weed Control in Physiologically Mature Grain Sorghum**

Several producers are interested in Roundup as a means to terminate the plant and facilitate harvest. The label (WeatherMax formulation) states that applications may not be made until the seed is at 30% moisture or less (44 ounces/A maximum rate). Broadly, seed moisture is 25-35% at physiological maturity, or black layer. Past producer experience suggests that there is some risk in using glyphosate—greater than for sodium chlorate—in that the plant is indeed killed, and may have difficulty standing if harvest is delayed. The presence of any charcoal rot in the stalk would further increase lodging potential. Again, as noted above in the Rolling Plains research, seed moisture at harvest will limit how soon the crop can be harvested, and in some cases there may not be that much time gained.

Texas AgriLife Research at Lubbock has conducted limited research using glyphosate in grain sorghum and, although the potential to hasten harvest is there, it is not a certainty. Other factors that might contribute to a decision to spray include a high level of late weeds in the field whereby glyphosate applied at sorghum physiological maturity can reduce the number of weeds going to seed.

Texas AgriLife staff Wayne Keeling, Lubbock, and Kerry Siders, Hockley-Cochran counties., concur that glyphosate is an excellent treatment for both Johnsongrass and late-season pigweed. Dr. Keeling echoes the Roundup Label in that recommended sprays of glyphosate should not occur until maturity, and also that any sprays less than two weeks before a freeze will have reduced weed control. Producers might be tempted to spray sorghum with glyphosate before physiological maturity allowing for the fact that it may take 5-7 days before glyphosate affects the plant. There is risk in these earlier applications, however, as later tillers are still maturing and could lose some of their yield potential. Any spraying at soft dough (probably another 10 days to physiological maturity) would likely damage grain yield and test weight. Roundup

is not recommended for any seed production field.

An Extension summary from South Texas in 2003 describes the use of glyphosate and sodium chlorate for sorghum desiccation, but does not present any trial data. “Harvest Aids in Sorghum” may be viewed or downloaded [here](#). One note concerning sodium chlorate, however, is that this chemical works best in hot, dry weather—which is common in the sorghum cropping season in South Texas due to early plantings. Sodium chlorate performance in the High Plains late in the season under cooler conditions might be less than optimum.

Several good pictures in the above document are included that describe sorghum seed maturity for individual seeds at black layer. Keep in mind, however, that individual sorghum seed maturity may be quite different (earlier) than field maturity as the top seed on primary heads will mature up to a week before the seed on the bottom of the head and even two weeks prior to seed on some tillers.

## Sorghum Agronomy

### Can Desiccants Be Used for Sunflower?

With recent wet weather and a significant sunflower acreage, particularly oilseeds, planted in late June to mid-July in the South Plains, dry down will be pushed later in the season in 2009. Many Panhandle sunflower growers have routinely used desiccation as part of their harvest strategy, but for the South Plains where most of our acres tend to be planted early (confectionary) heat for drydown has not been a major concern.

Farmers do have some options, however, for hastening dry down on sunflower and also including some late-season weed control. These options include paraquat (in contrast to not being labeled for use in grain sorghum), sodium chlorate, and glyphosate, the latter which is actually labeled for late-season weed control. These accomplish dry down and earlier harvest which farmers seek. Research in the Northern High Plains has

demonstrated how important harvest aids have become for producers as a much higher proportion of sunflower hybrids now demonstrate the stay green trait.

Further information here is summarized from the website of the [National Sunflower Association](#).

Desiccant Information—Getting the sunflower crop off early with the aid of a desiccant can pay good dividends by reducing lodging due to wind or stalk insects, reduce combine harvest losses, and minimize blackbird feeding. Glyphosate is now labeled as a late season weed control and provides desiccation as well. This is a good addition to the existing labeled products paraquat (i.e., Gramoxone Max) and sodium chlorate (i.e., Drexel Defol). All products are labeled for both oil and confection types. All labels indicate application when seed is 35% seed moisture or below or when the bracts are turning brown. This can be difficult to determine exactly, since many hybrids are now of the ‘stay green’ type. Often these hybrids can have dry seed in the head but exhibit all of the color of an immature plant. Glyphosate is slow acting and research indicates that there is in most cases a margin of error if application occurs earlier than 35% seed moisture without sacrifice to yield, oil content, or test weight. For more detail, go to [the article](#) in NSA's *The Sunflower* magazine about this topic.

Preharvest use instructions on the label of Roundup WeatherMax state, “This product provides weed control when applied as a harvest aid to a physiologically mature crop prior to harvest of sunflower. For sunflower, apply when the backsides of sunflower heads are yellow and bracts are turning brown and seed moisture content is less than 35%.” The label indicates to allow a minimum of 7 days between treatment and harvest or livestock feeding, and to apply no more than 22 fluid ounces of the product at a preharvest timing to sunflower.

For results discussing the use of paraquat on late maturing sunflower hybrids, including stay green hybrids, view the [online research summary](#).

Finally, North Dakota State Univ. has prepared a [video on how to decide if sunflowers are ready for desiccation](#).

### **Texas High Plains Experience with Sunflower Desiccation**

Since Texas AgriLife Research & Extension has not conducted desiccation research, I summarize some of the local practices. At this writing I have not visited yet with Red River Commodities, Lubbock. Triumph Seed Co., Ralls, frequently uses desiccation on seed production fields. According to seed production manager Steven Koepp, they primarily use paraquat, but wait until seed moisture is lower at 20-22% (vs. the labeled <35%, usually corresponding to physiological maturity, e.g. back of heads are lemon yellow and bracts are turning brown and black). Seed production fields should delay paraquat spraying to ensure that germination is not compromised. In Triumph Seed's case for seed production fields, harvest usually occurs 5-7 days later at 10% moisture. Triumph uses a rate equivalent to 12 oz./A of the 4-lb. material with 15-20 gallons of water per acre including a labeled rate of surfactant. If conditions are hot and dry then Triumph usually sprays in the morning or in the evening so the spray doesn't dry too fast.

The labeled rate of Gramoxone for sunflower desiccation is 1.2-2.0 pints/A with a minimum of 5 gal/A by air, 10 gal/A by ground (which is probably difficult to do in most cases, even on 40" rows as the heads tip down, although this is less a problem with short-statured sunflower hybrids).

Some growers may insist on using sodium chlorate if cotton is close by. Triumph, however, prefers the paraquat treatment better as it leaves the stalk fairly intact in case harvest is delayed whereas in their experience sodium chlorate can cause lodging problems if you cannot get harvested in 7 days. It seems to dry the plants too much. Triumph has limited experience with using glyphosate, but they generally believe it does not work as quickly as paraquat.

### **Sunflower Harvesting & Suitable Combine Headers**

Sunflower harvest can be tricky in that there is sometimes a potential fire hazard as heads can still be green and sticky yet there is a lot of dry trash that can get hot and catch fire. Ideally sunflower heads should pass through the combine in one piece without shattering into dry fragments. Many producers err on the side of waiting too late to take a test cutting and moisture check, especially for the newer stay green hybrids.

The ideal combine header for harvesting sunflowers is one specially made for sunflower. A few are in the Texas Panhandle, and I hear there are two sunflower headers in the Olton area, and a Lynn Co. producer/harvester has an all crop header with extra screens (which he prefers over 'pan' attachments). Otherwise, the best choices are 1) a platform header mounted with 'pans,' which protrude forward about 4' off the header to guide stalks and heads into the header, or 2) an 'all-crop' head, which can work well especially for shorter sunflowers. In both cases sometimes the combine may need a shield or some rods at the ends of the header to prevent the crook of the stalk from hanging up and ultimately the heavy head flipping seed and stalk out of the header on to the ground.

Experience harvesting sunflower is a strong advantage. Talk to those who have run lots of acres on combine settings, etc. Finally, don't delay deciding in advance of crop maturity who is going to harvest your sunflowers if you don't have your own equipment. Seed and lodging losses will increase with delay which compounds shoddy combining. This combination is throwing money on the ground. CT

## Alfalfa Agronomy

### Fall Seeding Alfalfa—Is it too late?

The window is closing on recommended alfalfa seeding dates for the Texas South Plains in 2009. In general, Extension in many states, including West Texas, recommends that producers seed alfalfa a minimum of 6 weeks before the date of your historical first fall freeze. This ensures that the alfalfa is well established prior to the freeze. Alfalfa dormancy usually does not occur until about 28 F, so if the first freeze comes early it shouldn't hurt the stand too much. On the other hand, alfalfa needs time to establish a root system then undergo the contractile growth which pulls the young crown back down into the soil and increases protection from potential winter freeze injury when temperatures in the South Plains drop into the single digits.

Historical first freeze dates in the Texas South Plains and rule-of-thumb guidelines for last suggested planting dates at least 6 weeks ahead of then are as follows for several Texas South Plains locations:

Muleshoe, average first freeze 10/20;  
last suggested planting date, 9/8  
Dimmitt, 10/25; 9/13  
Plains, 10/31; 9/19  
Lubbock, 11/2; 9/21  
Lamesa, 11/4; 9/23  
Snyder, 11/5; 9/24

It is quite reasonable to plant alfalfa an additional 2 to 3 weeks prior to the last suggested dates noted above. Allow extra time to prepare soil test, incorporate P fertilizer, firm up the seed bed before seeding.

### What if I can't get my alfalfa seeded by the last suggested date?

Alfalfa seedings past the above suggested dates can be successful but with added risk or, if the alfalfa is poorly established due to late planting, vigor and initial production the following spring may and will be reduced.

I have planted alfalfa as late as October 6 (2006) in Lubbock and received adequate stands. But what risk do I have in a test plot? In that particular year our first freeze occurred on Nov. 1 (but October 13 at Dimmitt, and freezes again on Oct. 22, 27-28).

The above last suggested planting date is considered is agronomically sound and protects a producer against an early fall freeze and prolonged cool conditions. Remember that alfalfa that has not established a crown is more prone to winter injury and will be less vigorous in the spring.

### If my alfalfa seeding falls too late, should I wait and seed in the spring?

Spring seeding alfalfa is full of potential risks—increased insect and weed pressure, limited herbicides available (in contrast to fall seedings when weed pressure is minimal), probably requires a cover crop, blowing wind, and reduced first-year yield for comparable irrigation relative to a fall seeding. Read about spring fever alfalfa pitfalls in West Texas at [this link](#). I would rather risk a late planting in the fall than plant in the spring, but when you are investing as much money as it takes to get an alfalfa crop going, especially seed costs which can top \$100/acre, then avoid planting dates that elevate risk and reduce potential return.

### Alfalfa Resources for the Texas South Plains

Numerous alfalfa resources for agronomy, fertility, stand establishment, and weed control for the Texas High Plains are available on the web at

<http://lubbock.tamu.edu/othercrops> Some resources have not been updated since about 2006. NMSU has published a [new weed control guide](#) in 2009 online. Largely based on NMSU test data from eastern NM, Texas AgriLife Extension Service has compiled a list of suggested alfalfa varieties to consider for different Fall Dormancy groups. If you are interested in discussing alfalfa variety selection, contact Calvin Trostle.

Here are key tips for establishing new alfalfa stands in the Texas High Plains:

1. Fitting land area to irrigation capacity. In the past 8 years or so, this is usually the first question that arises when producers call about putting in alfalfa. A simple formula on page 5 in the Extension's '[Texas Alfalfa Production](#)' helps calculate an approximate acreage for alfalfa given your irrigation capacity. Most often this calculation reduces the acreage that a producer expected to seed. Generally the formula sets targeted irrigation capacity near 9 gallons per minute per acre.
2. Firm seed beds ease establishment and seeding. The rule of thumb is that when you walk across an alfalfa field for seeding the heel of your shoe should sink no more than 3/8" into the soil.
3. Alfalfa variety selection and seed cost. Though variety trial data from New Mexico and Oklahoma note many varieties with consistent performance, in general there is not a great deal of difference in yield among most varieties. I believe your management (stand establishment, fertility, maintaining your stand, harvest timing, scouting and spraying for insects like alfalfa weevil, cowpea aphid, worms, etc.) will have a greater impact on your overall success. Producers will find that alfalfa seed costs may range from about \$2.50-4.50 per pound, but at 20 lbs. per acre and prorated over four years, producing as little as an extra 100-200 lbs. of alfalfa per acre per year will pay for higher cost seed. I do recommend that producers avoid 'common' or VNS seed and any other seed that is not treated with *Rhizobium* inoculant or a seed fungicide. In general planted Fall Dormancy (FD) ratings for alfalfa in the Texas South Plains should focus on FD 4 & 5 and perhaps 6 for the northwest South Plains, 5 & 6 and perhaps 7 for the central and lower South Plains. Seeding less dormant alfalfa (higher FD number, which greens up earlier and in theory pro-
- ducers longer into the fall) does not ensure that you will yield more alfalfa, and it can open you up to potentially more insect problems, shorter stand life, etc.
4. P fertility. Phosphorus is an important nutrient for alfalfa as each ton of alfalfa removes 12-14 lbs. of P<sub>2</sub>O<sub>5</sub> per acre. Thus a seven ton alfalfa crop is removing 90 lbs. of P<sub>2</sub>O<sub>5</sub> per acre per year. Now multiply that by 4 or 5 years. We know that P is immobile in the soil. Surface applied P to an existing alfalfa stand is tough to get into the root zone where it is needed. Hence I believe that producers should consider applying at least 2 years worth of P up front when it can be incorporated into the soil. Ideally we would knife the P in (rather than broadcast then incorporate) to further increase availability over time, especially if we could band the P at 15" centers or less.
5. Soil testing. Alfalfa is as expensive a crop to produce, and has a high nutrient demand for macronutrients (N which should largely come from *Rhizobium* fixation, P, K, S). Although soils in West Texas are inherently high in potassium (K), levels can be drawn down in alfalfa production. Soil testing is a good bet for alfalfa as much as any other crop we grow in West Texas. CT

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