



Texas AgriLife South Plains/Panhandle Crop Testing Program Results 2008 Grain Sorghum Hybrid Suggestions

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Disclaimer—Grain Sorghum Hybrid “Picks” Criteria

The source of hybrid yield data for this publication is the official Texas A&M/Texas AgriLife Research Crop Testing program dating back to 1997. Occasionally replicated trials conducted by Texas AgriLife Research & Extension staff may be consulted for additional input on certain hybrids. For more information about the Texas AgriLife Research Crop Testing program results or how to enter hybrids in trials anywhere in Texas, contact Dennis Pietsch, Crop Testing director, College Station, (979) 845-8505, croptest@neo.tamu.edu, or visit the website at <http://varietytesting.tamu.edu>

A good hybrid should consistently be in the top 25-33% of yields across locations and years. Many sorghum hybrids were not considered as the company marketing them has not entered their hybrids in the Texas AgriLife Crop Testing program. Though this requires a fee to have hybrids entered it is the best independent data available upon which Extension can base suggestions. Testing results for all statewide locations may be accessed via the Internet at <http://varietytesting.tamu.edu> (then go to “Corn & Sorghum”). Keep in mind that the goal of this document is to bring you a list of hybrids that have already performed well over time or show high promise, ones that members of the Texas A&M System Agriculture Program have documented experience with.

Introduction

Producers regularly ask for suggestions on sorghum hybrid picks. I have reviewed Texas AgriLife Research Crop Testing Program results since 1997 (recent data at <http://varietytesting.tamu.edu>). For the Texas High Plains, this data reflects results from Lamesa, Lubbock, Halfway, and Dumas for dryland, and Lubbock, Halfway, Dumas, Hereford and Perryton for irrigated.

Hybrid Selection Highlights

Multiple year data such as the AgriLife Crop Testing Program is important as is the yield stability of a hybrid over time and varied locations. When this data is available, hybrid selection is a lot easier. Other factors—not yield alone—can be important considerations as well.

Ten or more years ago I suggested that producers should choose, if not demand, greenbug-resistant hybrids. The active biotypes of greenbugs have shifted, however, and many sorghum hybrids do not have resistance to current biotype I. Know that resistance does not mean immunity. Heavy infestations of greenbugs can damage greenbug-resistant hybrids. Hybrid resistance to biotype E, I, and K greenbug is the cheapest control measure you can get. Biotype E used to be the most common, but it is not present much anymore. Biotype I is the main concern since 2001, but few if any commercial hybrids have resistance to it yet (and once commercial lines do, they will also probably be resistant to biotype E). Biotype K exists, but it is rare. With use of Gaucho and other seed insecticide treatments, which can protect against greenbugs (up to 60 days?), breeding efforts to incorporate greenbug-resistant germplasm into commercial hybrids is not a priority with most companies.

Standability is also important for grain sorghum. Many farmers complain about their sorghum lying down late in the season. That could be a function of several factors: 1) poor hybrid, 2) too high plant populations (which makes the sorghum plant more susceptible to stalk and charcoal rot especially for dryland sorghum in droughty years), and 3) management of the planting pattern such as throwing dirt on bottom of plants OR planting in the bottom rather than on top of the bed may greatly enhance standability. *Good standing hybrids can make or break a sorghum crop.*

Don't be deterred by sorghum seed price. A common mistake in Texas High Plains sorghum production is planting the cheapest seed you can find. Be willing to spend as little as \$0.50-2.00 more per acre for a proven hybrid that has good yield history, drought tolerance, etc. It pays! With many cheaper hybrids you may not know what you are getting. In general, with seed whether sorghum, cotton, corn, alfalfa, or wheat “you get what you pay for.” Planting seed that may cost more becomes easier when we get the seeding rate, which is often too high, down to an agronomic rate (see below).

A Note about Relative Grain Sorghum Hybrid Maturity: Grain sorghum hybrids are typically broken out into five groups of relative maturity—early, medium early, medium, medium long, and long (full season). Most companies will cite a number of days to half bloom, or when the majority of heads in a field are in bloom about half way down the head. Then upon that they will impose their view of which maturity group each sorghum hybrid will fit into. Though ratings might vary by a couple of days, the following table generally represents the range you will find among most hybrid seed companies for grain sorghum.

<u>Relative Maturity</u>	<u>Days to ½ Bloom</u>
Early	=58
Medium-early	59-63
Medium	64-68
Medium-long	69-73
Long (full season)	=74

Knowing maturity range & days to 1/2 bloom are key to effective sorghum management strategies. These include targeted combinations of planting date (early or late) and hybrid maturity to “schedule” flowering and peak water use outside of the hottest time of year (~July 5 to August 15), or to perhaps target grain sorghum production when sharing irrigation with another crop such as cotton so as to minimize the overlap of peak crop water demand for the two crops.

Bottom Line for Sorghum Hybrid Selection: Always know what hybrid you planted. Too often producers don’t put enough time in deciding which hybrid to plant. Yes, the Texas South Plains is dominated by cotton, but remember, *picking the right sorghum hybrid is as important to sorghum production as the right cotton variety is for cotton production.*

Additional Grain Sorghum Hybrids Not Yet Tested

In addition to the comments noted above in the disclaimer, are there other good grain sorghum hybrids? Yes! The Texas AgriLife sorghum testing program may lag the latest releases by about 2 or 3 years. Don’t hesitate to ask your seed dealer about new releases and what popular hybrids they may replace and why. A good way to check these hybrids out yourself is to buy a single bag and try it alongside sorghum hybrids you are currently using or to some of the hybrids below.

Also, what type of situation are you planting for? Replant? Anticipating drought stress at particular stages of growth (or want to guard against a particular stress)? Some hybrids would be proscribed for pre-flowering stress, others for post-flowering stress, etc. Hybrids in the Texas AgriLife sorghum testing program have been exposed to a multitude of conditions over several years. If you have a hybrid that particularly interests you, but you can’t find sufficient yield testing data encourage your company representative to enter their hybrids in the yield trials.

Texas A&M Grain Sorghum Hybrid Picks

Dryland

Mostly medium & medium-early maturity, which are appropriate for dryland (1997-1999, 2002-2003, 2007). {A new program for High Plains dryland testing began in 2007 will provide 3-year multiple site results by 2009.}

NC+ Y363, 7C22, 371 (an older line tested prior to 2003)

Monsanto: DeKalb DK-40Y, DK-44 (bronze)

Sorghum Partners (Novartis) KS 585

Golden Acres 737 (formerly Cargill, an older line tested prior to 2003)

Irrigated

Mostly medium-long and long maturity (1997-2003). *Hybrids in italic note most recent data.* Some newer hybrids are on a ‘watch list’ based on early good performance but less than 3 years of data, or scattered yield data over three years.

Monsanto: Dekalb *DKS54-00*; Asgrow *A571, A570*

Crosbyton Seed 1489 (not marketed directly as a Crosbyton hybrid but marketed through other companies; contact Crosbyton Seed Co. for dealers carrying this hybrid line)

Pioneer 84G62

DynaGro 780B

Frontier 700

Texas A&M: AT3778 x RT430, AT2752xRT430, AT399xRT430 (Plainview)

Watch list: NC+ 8R18, NC+ 7R83, Pioneer 85Y40

Food Grade (White grain/tan plant)

Limited Texas A&M System food grade testing was conducted in 2001-2003, and performance was good with Richardson S

Until recently most food grade sorghums were medium-long to long maturity and thus suitable mostly for irrigation. Recent hybrid releases do include medium maturity hybrids, more suitable for dryland, but it may be harder to maintain grain quality on dryland.

No hybrids are on both lists for irrigated and dryland. Differences in maturity greatly affect choice of hybrid based on whether irrigation will be used.

Suggested Texas High Plains Grain Sorghum Seeding Rates

Dryland

The goal with dryland grain sorghum production is to make a crop, not a mistake, which is most often a too high seeding rate that places too many plants in the field thus there is not enough moisture per plant to make good grain yield. Grain sorghum hybrids most often have about 14,000-16,000 seed per pound, but size could be less than 12,000 seeds/lb. or up to 18,000 seeds/lb. I talk normally in terms of seed drop rather than pounds per acre. Stand establishment often runs about 70% of the seed drop, and will vary up or down depending on the planting and moisture conditions.

For most dryland conditions where soil moisture is good consider a maximum seed drop of 30,000-35,000 seeds/A (~2 lbs./A) to give 21,000 to 28,000 plants/A. This should provide good results under a wide range of conditions. Such a seeding rate is high enough to not limit yield, but low enough so the sorghum crop is less likely to burn up during drought. Adjust seed drop up only if soil conditions lead you to expect reduced stand establishment. If soil profile moisture is fair to poor then consider reducing the seeding rate to the range of 25,000 seeds/A. For early July plantings with low available moisture, lower targeted plant population to about 18,000-20,000 seeds/A and plant a medium-early to early, drought tolerant hybrid. Limited research in the Texas Panhandle suggests that higher seeding rates can be productive for late plantings. This would be more likely among non-tillering hybrids.

For a farmer with 40-inch rows, there are about 13,000 feet of row per acre. A seeding rate of 26,000 seeds/A would mean only 2 seeds per foot. There are about 17,000 feet of row for 30-inch rows thus 26,000 seeds/A would be about 1.5 seeds per foot. Over the long term, however, yield results demonstrate that these lower seeding rates are agronomically and economically less

risky than higher seeding rates because they usually outyield higher seeding rates in normal and especially dry years.

Irrigated

Again, consider the amount of soil moisture available in the soil profile. For sorghum production under projected limited seasonal irrigation (6-8"), use the following guidelines: Good soil moisture, target 50,000-55,000 seeds/A; poor soil moisture, target 40,000-45,000 seeds/A.

If full seasonal irrigation is projected (12-16") consider up to 68,000-80,000 seeds/A, and for late-season plantings, consider 100,000-110,000 seeds/A primarily for non-tillering hybrids or 90,000 seeds/A for tillering hybrids.

Seeding Rate Summary: As a handy rule of thumb, for both irrigated and dryland target your seeding rate—and do not exceed—the following targeted seeding rates:

(Available soil moisture to 4' depth) + (Median growing season rainfall, 6") + (Target irrigation level) =

Total available water

Then...

Targeted seeding rate = $32,000 - (\text{Total available water} - 12") (3,000)$

For example, if:

Soil moisture available to 4' = 3"
Median growing season rainfall = 6"
Target irrigation level = 8"

Then total available water = 17"

Thus target seeding rate = $32,000 + (17" - 12") * 3,000 = 47,000$ seeds/acre

Texas AgriLife Research & Extension Sorghum Internet Resources

Additional Texas grain sorghum production information may be found at
<http://lubbock.tamu.edu/sorghum>
<http://amarillo.tamu.edu/programs/agronomy/>

Texas AgriLife Research Crop Testing program (grain sorghum, yellow corn, food grade/white corn, corn and forage sorghum silage, sunflower), <http://varietytesting.tamu.edu>