Last Recommended Planting Date Guidelines for Sunflower in the Texas & Oklahoma High Plains

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How late can sunflower be planted in the Texas South Plains, Texas Panhandle, and Oklahoma Panhandle with minimal risk for maturing a good yielding, high quality crop? This depends on a number of factors, including, fall temperatures, actual first frost date, and hybrid maturity.

Maturation of Southern High Plains sunflower in the fall is a question for two key reasons:

1) Sunflower is a practical crop for replanting after failed cotton (hail damage, drought, insufficient rainfall during the growing season;
2) Sunflower can tolerate temperatures as low as 28º F late in the season if the exposure is a few hours or less, yet continue near normal growth and development (albeit slowed). This is true especially following petal drop. Once ray petals drop off plants, frost tolerance is greatly increased.

Kansas State University suggests that sunflower best matures within the frost-free growing period (KSU, 2009). Significant acres of sunflower in West Texas and the Oklahoma High Plains do experience frost late in the season but still can produce modest yield results. This confounds setting planting date targets for sunflower. North Dakota State University calculates heat unit accumulation (growing degree-days) for sunflower with a base temperature of 44º F, but Colorado State University uses a more conservative 50º F.

In contrast, grain sorghum, the most common crop of choice for late planting after summer crop storm damage or lack of planting moisture, especially in the Texas South Plains, is much more subject to limitations that result in lower yield and test weight. Grain sorghum will shut down permanently at about 5-8º F higher temperature than sunflower, and relative development is much slower than sunflower even in the 40sº F.

Planting sunflower into early and mid-July means growers risk not fully maturing a crop. Also, particularly with oilseed sunflowers, oil content is the last process that occurs in maturing the sunflower seed. Though respectable yield may still be achieved with later plantings, significant cold weather can curtail oil accumulation and thus a farmer may incur a discount for oil contents below 40% (sunflower pays a premium for oil content > 40%; discounts if less < 40%). Likewise, sunflower planted past July 10 will be beyond partial crop insurance coverage in this region. However, late plantings can be effective under normal summer conditions if they become necessary in your operation as long as hybrid maturity is shortened.

Trials in eastern Colorado indicate that medium maturity hybrids planted the first week of July adequately matured in a normal season; however, later planted sunflowers yielded less than earlier plantings. Also, late maturing sunflowers take much more time to dry down (even if a desiccant is used) hence producers with substantial stalk boring insect infestations (stem weevil; and especially soybean stem borer in sunflower, e.g. *Dectes texanus*) may risk increased lodging. Some seasons, however, later planted sunflower may have slightly less insect issues.

Using thirty-year climate data, county elevation, hybrid maturity, on-farm observations, and previous recommendations, following are some practical suggestions for the last recommended sunflower planting date in the southern High Plains. The objective for growers is a relatively "safe" or low-risk recommended last planting date with a high expectation of successful production with little if any limitation. In general sunflower yield potential and oil content are expected to decline somewhat from April to May to June then mid-July plantings.

Two-Tiered Guidelines for West Texas & Oklahoma Panhandle Counties

- Tier 1—Last recommended planting date for satisfactory late-season sunflower production (we are confident that sunflower is largely free of major late-season crop limiting weather conditions)
- Tier 2—Recommended cut-off date for all plantings where modest risk is assumed.

Tier 1 July 1/Tier 2 July 7—Texas: Dallam, Hartley; Oklahoma: Cimarron, Texas, Beaver.

Tier 1 July 5/ Tier 2 July 12—Sherman, Hansford, Ochiltree, Moore, Hutchinson, Roberts, Oldham, Potter, Carson, Deaf Smith, Randall, Parmer, Castro, Bailey, Cochran; also Harper, OK.

Tier 1 July 10/ Tier 2 July 17—Lipscomb, Hemphill, Gray, Wheeler, Armstrong, Donley, Swisher, Briscoe, Lamb, Hale, Floyd, Hockley, Lubbock, Crosby, Yoakum, Terry.

Tier 1 July 15/ Tier 2 July 22—Collingsworth, Hall, Childress, Motley, Dickens, Lynn, Garza, Gaines, Dawson, Borden, Scurry, Fisher, Andrews, Martin, Howard, Mitchell, Nolan.

Are there exceptions? Individual farmers have sometimes achieved satisfactory results in the Texas Panhandle and northwest South Plains with even later planting dates. But understand the risk increases significantly for individual "short" years that may result in poor production with little economic benefit, or even a loss.

A late planting date is not the way to manage risk! Don't plant a sunflower crop July 15 when you could have planted 10 days or even 3 days earlier if planting conditions were favorable. Just five days of additional heat unit accumulation in July could require at least twelve extra days in early to mid-October to equal the same heat unit accumulation. Also later plantings are subject to more humidity and cool temperatures thus increased potential late-season disease development, particularly fungal rust, which prefers cooler, moist conditions for growth.

Sunflower and Crop Insurance. Sunflower is a program crop in most counties in the Texas High Plains and two regional Oklahoma counties with a full-coverage crop insurance plant date of June 25 (see map link below). If your county is not listed then you may be able to obtain a separate written agreement by working with a local crop insurance agent, especially if you have your own yield history.
http://www.sunflowernsa.com/uploads/resources/128/texas-and-oklahoma-final-planting-dates.pdf

Consult your contractor: Contractors understand the risks you face and the quality of sunflower, whether for oil content or confectionary size, they are willing to receive.

These suggestions should encourage producers to not plant so late as to lose significant yield potential and economic value, but to also reduce risk of late-season crop injury to a minimal level. As our experience increases with west Texas and Oklahoma sunflower these dates will be re-evaluated.

Reference—KSU, 2009. High Plains Sunflower Production Handbook, MF-2384. R.F. Meyer (ed.), Kansas State Univ., Manhattan, KS (http://www.ksre.ksu.edu/bookstore/pubs/MF2384.pdf)

For additional sunflower information, view these online resources:

- Texas A&M AgriLife Research & Extension Center, Lubbock, http://lubbock.tamu.edu/sunflower
- Texas A&M AgriLife Research Crop Testing Program, http://varietytesting.tamu.edu/sunflower
- Oklahoma Cooperative Extension Service, http://www.oces.okstate.edu/ (use the search box in upper right corner for 'sunflower')
- National Sunflower Association, http://www.sunflowernsa.com

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