

Height, Yield and Oil Content of Short-Stature Sunflower (Helianthus annuus) vs. Conventional Height Sunflower in the Southern High Plains



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Short-Stature (SS) Sunflower

- ⦿ Initial commercial release about 2002 with advent of NuSun
- ⦿ Earliest hybrids were as much as 2.0-2.5' shorter than many conventional hybrids
- ⦿ What are implications of shorter sunflower?
- ⦿ What about management?
 - ⦿ Lodging?
 - ⦿ Yield?
 - ⦿ Oil content (thought this is not necessarily a trait of SS)
 - ⦿ Field operations for sunflower moth and weed control?

Hybrid Trial, Lubbock, TX 2010



Hybrid Trial, Bardwell, TX 2011



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How this summary is conducted

- ⊙ Texas High Plains and Western Kansas public irrigated hybrid trial sites have 3 to 6 SS hybrids (Triumph Seed Co.) per site most years
- ⊙ Comparisons (non-statistical) made of height, yield, and oil content **as a group** for SS and Conventional hybrids
- ⊙ Northern producers may be interested in maturity of SS hybrids, which tend to be near full-season, which might preclude use of current SS hybrids in North Dakota

“The Sunflower,” January 2013 Issue

- © “Options Growing with Short-Stature Hybrids”
- © Read scientist and industry comments on SS sunflower



Criteria for “Short Stature” Sunflower?

- ⦿ There is none, but this is commercial designation
- ⦿ How much reduced height is needed to change the characteristics or management requirement (something you have to do) or management opportunity (something you now *can* do)?
- ⦿ Producer criteria:
 - ⦿ In-field spray or cultivation mid-season?
 - ⦿ Ease of harvest?
 - ⦿ View may depend on row spacing?
 - ⦿ Reduced lodging?

Height differential between short-stature sunflower and conventional height is often not that great (Triumph s670CL in foreground).



Short-Stature Sunflower on 30" Rows



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Industry Offerings (Oilseed)

- ⦿ Triumph Seed Company initiated commercial short-stature hybrids
- ⦿ Other companies now also offer short-stature or at least 'shorter' hybrids (perhaps 'reduced height' is a better designation?)
 - ⦿ Mycogen (8N678S)
 - ⦿ Seeds 2000
 - ⦿ Others?
- ⦿ Remember that environment affects actual height
- ⦿ *This report is not an endorsement of any product or company by Texas A&M AgriLife Extension Service or K-State Research & Extension.*

2008-2011

TX Panhandle Oilseed Hybrid Trials

	Hybrid	# of	Height	Height	%Oil	Yield	Crop
Year	Type	Hybrids	Avg. (in)	Range (in.)	Content	(Lbs/A)	Value (\$/A)
2008	SS	5	45	38 to 51	40.4	2,292	\$564
	Conv	21	60	47 to 71	37.8	2,113	\$493
2009	SS	5	52	49 to 59	47.1	2,646	\$550
	Conv	28	73	62 to 90	44.8	2,609	\$523
2010	SS	4	55	51 to 59	43.1	2,407	\$402
	Conv	22	71	63 to 77	40.7	2,515	\$395
2011	SS	3	42	41 to 44	41.2	2,168	\$621
	Conv	25	56	48 to 66	41.3	2,237	\$643
4-Year	SS	17	48	45 to 53	42.9	2,379	\$534
	Conv	96	65	55 to 76	41.1	2,368	\$513

Lodging, all kinds: SS, 2.0%; Conventional height, 3.7%

2008-2011

Lubbock, TX Oilseed Hybrid Trials

		Height	Height			Crop
Hybrid	# of	Avg.	Range	%Oil	Yield	Value
Type	Hybrids	(in.)	(in.)	Content	(Lbs/A)	(\$/A)
SS	15	47	44 to 51	43.2	2,184	\$494
Conv	80	60	50 to 69	41.0	2,036	\$453

Lodging, all kinds: SS, 0.4%; Conventional height, 2.5%

2009-2011

Tribune, KS Oilseed Hybrid Trials

Hybrid	# of	Height	Height	%Oil	Yield
Type	Hybrids	Avg. (in)	Range (in.)	Content	(Lbs/A)
SS	11	53	51 to 56	43.3	1,947
Conv	81	64	53 to 72	40.9	1,667

2009-2010

Colby, KS Oilseed Hybrid Trials

Hybrid	# of	Height	Height	%Oil	Yield
Type	Hybrids	Avg. (in)	Range (in.)	Content	(Lbs/A)
SS	19	51	44 to 58	43.3	2,718
Conv	63	69	61 to 76	42.5	2,780

Summary I

- ⊙ Yields of short-stature sunflowers are at least comparable to conventional height sunflowers
- ⊙ SS hybrids may allow better management of in-field operations such as sunflower head moth sprays (ground rig), cultivation of weeds, etc.
- ⊙ Compact, short-stature growth habit does not penalize yield potential.
- ⊙ Other intangibles: reduce potential blackbird roosting, acceptable (reduced) maturity for northern climes?, reduced root lodging?

Summary II

- ⦿ Like any significant change in plant phenotype, producers will learn how to manage the plant type to their benefit
- ⦿ Read “The Sunflower” short stature article for additional grower and industry considerations,
<http://sunflowernsa.com/Magazine/details.asp?ID=857&Cat=16&printable=1>
- ⦿ Some current SS hybrids may be “reduced height” but not short enough to change management opportunities