

TITLE:

Dryland Commercial NuSun Sunflower Variety Trial at AG-CARES, Lamesa, TX, 2002

AUTHORS:

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METHODS AND PROCEDURES:

Soil Type: Amarillo fine sandy loam
Planting: June 28, 2002 on 40" rows
Previous Crop: Cotton
Seeding Rate: Lowest seed drop possible (about 21,000 seeds/acre with vacuum planter) thinned by hand to 11,000-12,000 two weeks after emergence.
Plot Set-up: Two two-row strips (four plots) per hybrid, approximately 130' long
Harvest Area: Four replicates, two 40-inch rows X 40' each.
Fertilizer: None
Herbicide: None
Insecticide: Sprayed with Warrior T for sunflower head moth, ~ August 22
Rainfall: See Lamesa area summary elsewhere in the AG-CARES report, 2.45" for June 29-October 2.
Date Harvested: October 2, 2002
Number of Entries: Eight (plus higher seeding rates on two hybrids)

RESULTS AND DISCUSSION:

Approximately 4,000 acres of sunflower were produced in 2002 from Lynn Co. south toward the Concho River Valley. To complement NuSun mid-oleic sunflower hybrid testing at TAES-Halfway, a trial among eight Triumph Seed and Pioneer Hi-Bred hybrids was planted on the AGCARES dryland facility late in June with minimal moisture.

The plant population was thinned to ~ 11,000 to 12,000 plants per acre as the John Deere air-vacuum planter did not have a sunflower disk (a cotton disk was used at the lowest possible seed drop, but still about 75% more than desired). A recommended seed drop for the conditions at planting would have been about 13,000-14,000 seeds/A, or 1 seed per foot. Low rainfall was recorded during sunflower growth, but the sunflower taproot penetrated into deep soil moisture, and stands held up well.

The crop was sprayed for sunflower head moth via airplane using Warrior T when approximately 40% of the sunflowers were in bloom, about 1-2 days later than optimum. Moth pressure was high. Some damage from *Rhizopus* head rot was still observed.

Table 1. NuSun mid-oleic sunflower hybrid trial at AGCARES, Dawson Co., Texas, 2002.

Hybrid	2002 Avg. plant population (plants/A)	2002 Treatment yield (Lbs./A)^	2001-2002 Two-year avg. yield (lbs./A)^
Triumph 665	10,800	889 a	862 b
Pioneer XF4735 (exptl)	11,300	885 a	---
Triumph 636	10,900	794 ab	---
Pioneer 63M91	11,500	780 ab	782 a
<i>Pioneer 63M91 (High Popn.)</i>	<i>20,400</i>	<i>720 bc</i>	---
Triumph 545 (conv. oil)	11,300	672 bcd	---
Triumph 658	11,200	648 cd	789 a
Pioneer 63M80	9,500	605 cde	602 b
Triumph 652	9,600	545 de	673 b
<i>Triumph 545 (High Popn.)</i>	<i>20,800</i>	<i>501 e</i>	---
Average (Low Popn.)	10,700	727	741
P-Value (hybrids)		<0.0001	<0.0001
LSD (0.05)		130	103
Coeff. of Variation (%)		20.5	20.9
P-Value (year)			0.005

^ Means in the same column followed by the same letter are not significantly different at 0.05.

Trial Results, 2002

Reported yields were adjusted slightly for bird damage (in contrast to heavy bird damage on upright hybrids in 2001). Agronomic production, adjusted for bird damage, averaged 727 lbs./A. Bird problems are common when near town, as the plots were at the south end of the dryland facility. Lubbock market prices for birdfeed at the time of harvest were ~\$9.75/cwt. No oil premium is given for oilseed sunflower in the birdfeed market per se, but prices in the South Plains have reflected compensation for a premium that might be available in an oil market (2-for-1 premium for oil content above 40%). (Oil analysis not yet complete—please contact after March 1 for full report.)

Among hybrids in this trial for the second year, Triumph 665 again performed well. Other Triumph lines saw substantially reduced yields compared to 2001 (658 & 652). Pioneer XF4735 is an experimental hybrid that may be released for commercial production. Yield for Pioneer entries 63M91 and 63M80 were consistent between years, but yields of 63M80 were significantly lower. These hybrids experienced slight losses (1-5%) due to bird damage, as the head remained more upright than the Triumph lines. Triumph 545 is a traditional oil hybrid for comparison of oil content vs. NuSun.

Seeding rate. Entries for Triumph 545 and Pioneer 63M91 were left at the original plant population without thinning, nearly double the plant population of what was targeted for these dry conditions. Yield was reduced significantly, 171 lbs./A, for Triumph 545. Heads were small, typically 1.5-3.0" in diameter, whereas the head size for 545 in thinner stands was typically 4". A 60-lbs./A decrease in Pioneer 63M91 at the higher plant population was not significant.

Economics. Using the test average of 727 lbs./A, gross receipts were \$71/A. Expenses included one head moth control (\$12/A), combining, seed, planting, one listing pass, and herbicide. The net return over variable costs was \$11/A in 2002, compared to \$13/A in 2001 (yields slightly higher, prices slightly lower). Individual hybrid selection for 2002 would have a major effect on profitability.

Additional data from Texas South Plains sunflower research at TAES-Halfway will be available in March, 2003 (irrigated confectionary and oilseed hybrid trial results, irrigated sunflower seeding rate trial results). For additional information please contact Extension for a copy of "Common Concerns in West Texas Sunflower Production and Ways to Solve Them," or visit the Texas A&M-Lubbock website for several sunflower resources at <http://lubbock.tamu.edu>