SAFFLOWER VARIETY EVALUATION

Texas AgriLife Extension Service

NUECES COUNTY, 2011

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Summary

This test was located at the Research & Extension Center on Hwy 44. Rainfall during the growing season was below normal and temperatures in early February were below normal. Yields ranged from a low of 796 pounds per acre to a high of 1,830 pounds per acre.

Objective

To evaluate safflower varieties for yield and production in South Texas and determine the economics of producing these crops and potential risks associated with production.

Materials and Methods

Safflower was planted on November 18, 2010, at Texas AgriLife Research & Extension Center on Clarkwood Road in a randomized complete replicated block with four replications. The soil at seeding depth was 1.0 inch and was planted in 9-inch rows. Soil test indicated a pH of 8.0 with a fertilizer recommendation of 85-40-0 for 2,000 pound canola yield potential. This was used since a canola test was also planted in the same field. Fertilizer of 100-40-0 was applied on November 16, 2010 and incorporated. Treflan at 1.5 pt/ac was incorporated on November 16, 2010. Rainfall recorded during the growing season was as follows; November- 0.03 inches, December-0.78 inches, January -3.79 inches, February 0.2 inches, March 0.43 inches, April 0 inches, May 1.71 inches for a total of 6.94 inches. The safflower varieties were hand harvested on May 23, 2011 and were thrashed in a portable thrashing machine, and weighed.

Table 1: Agronomic data for Safflower Variety Demonstration, AgriLife Research & Extension Center Nueces County, Texas, 2010-2011

Planting Date: November 18, 2010	**Plot Size:** 4' x 20' replicated 4 times	**Row Width:** 9 inch
Fertility: 11/18/11 100-40-0	**Soil Type:** Clareville loam	**Previous Crop:** Canola
Planting Rate: 25 lbs./acre	**Herbicide:** Treflan @ 1.5 pt/A	**Harvest:** 5/23/11

Results and Discussion

Very cold temperatures were measured February 2 and 3, as the average temperature on February 3 was only 28 degrees F, while the low temperature was 24 degrees F. Freeze damage was seen in both the S-345 and 99 OL varieties.

Harvest of safflower usually occurs when most of the leaves have turned brown and the flower bracts show only a green tint. Seed should have a moisture content of 8 percent or less for safe storage. Harvest of the safflower occurred on May 23, 2011.

Table 2: Comparison of plant height, and yield per acre from hand harvest, of safflower variety test, AgriLife Research & Extension Center, Nueces County, Texas, 2011.

Safflower Variety	Bloom (%) 4/15/11	Plant Height 4/19/11	Yield (lbs./acre)	Value/Acre[1]
PI 406002	15	39 a	1,830 a	$311.10
PI 544006	84	34 a	1,678 a	$285.26
PI 405984	9	41 a	1,360 ab	$231.20
99 OL	75	28 c	820 b	$139.40
S-345	54	28 c	796 b	$135.32
Mean	47	34	1,297	
LSD (P=.05)		3.5	565.3	
Standard Deviation		2.3	366.9	
CV		6.64	28.29	

Means followed by same letter do not significantly differ (P=.05, LSD)

[1]*Value per acre assumes a price of $0.17 per pound.*

Conclusions

Very cold temperatures in early February certainly hurt the yields of spring varieties S-345 and 99OL. These temperatures were well below normal and not seen in the Coastal Bend of Texas very often.

Today there is renewed interest in safflower seed for its oil and food use. Before the 1960's in the U.S., the oil was used mostly as a base for paints, and is still used for that today. However, it is also being used in infant formulas, cosmetics, and salad and cooking oils. Safflower meal is about 24 percent protein and high in fiber and is used as a protein supplement for livestock and poultry feed. Whole safflower seeds are used in the birdseed industry.

Safflower is a deep tap rooted plant that can draw nutrients from depths of 6 to 8 feet however, unless you have good soil moisture at planting in the seed bed, this advantage of a deep tap root will not be realized.

Acknowledgements

The cooperation and support of James Grichar and Kenneth Schaefer and the staff of Texas AgriLife Research for helping implement this demonstration is appreciated. The support of seed companies by providing seed is also appreciated. The support of Rob Duncan for assistance in securing seed and consultation is also appreciated.