Agriculture and Natural Resources

SAFFLOWER VARIETY EVALUATION
Texas A&M AgriLife Extension Service

NUECES COUNTY, 2012
Cooperator: Texas A&M AgriLife Research & Extension Center

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Summary

This test was located at the Research & Extension Center on Hwy 44. Rainfall early in the growing season was below normal, while February was above normal. Some rust appeared in late January. The winter type varieties did not perform, while spring types produced depressed yields due to lack of deep soil moisture.

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 December 2, 2011 at 25 lbs. /ac, at Clarkwood on the Texas A&M AgriLife Research & Extension Center in a randomized complete replicated block with four replications. Seeds were planted at a depth of 1.0 inch in 7 rows per plot (7-inch row spacing). Soil tests indicated a pH of 7.8 and a fertilizer recommendation of 85-25-0 for a 2,000 pound canola yield potential. This was used since a canola test was also planted in the same field. Fertilizer of (67-0-0) was applied on November 16, 2011 and incorporated. Trifluralin 4EC @ 1.5 pt/ac was incorporated on November 16, 2011. Rainfall recorded during the growing season was as follows; December = 1.09 inches, January = 0.49 inch, February = 3.82 inches, March = 2.12 inches, and April = 1.29 inches.

Table 1: Agronomic data for Safflower Variety Demonstration, AgriLife Research & Extension Center Nueces County, Texas, 2012

Planting Date:	Plot Size: 5' x 20' replicated 4 times	Row Width: 7 inch
December 2, 2011		
Fertility: 11/16/11 67-0-0	Soil Type: Clareville loam	Previous Crop: Cotton
Planting Rate: 25 lbs./acre	Herbicide: Treflan @ 1.5 pt/A	Harvest: 5/17/12

Results and Discussion

Harvesting of safflower usually occurs when most of the leaves have turned brown and the flower bracts show only a green tint. Seeds should have a moisture content of 8 percent or less for safe storage. The harvest of this safflower occurred on May 17, 2012 with a plot combine. Results were adjusted to 10 percent moisture to help standardize the weights. The actual moisture content of both of these varieties was about 6.5%.

Table 2. Comparison of yield per acre of safflower variety test, AgriLife Research & Extension Center, Nueces County, Texas, 2012.

Safflower Variety	Grain Moisture (%)	Test Weight (lbs./bu)	Yield (lbs./acre)	Value/Acre[1]
CW - 99 OL	6.30 a	30.73 a	548.4 a	$126
CW - 3268-OL	6.15 a	32.03 a	373.2 a	$86
Mean	6.23	31.38	460.8	
LSD (P=.05)	0.276	4.732	444.4	
Standard Deviation	0.122	2.103	197.5	
CV	1.97	6.7	42.9	

Means followed by same letter do not significantly differ (P=.05, LSD)
[1] *Estimated value per acre assumes a price of $0.23 per pound.*

Other safflower lines in the test did not perform which means that no seed was produced. Those experimental lines included PI 406002, PI 388901, PI 388903, and PI 485984. These lines are more adapted to the central and northern areas of Texas.

Conclusions

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 there is good soil moisture at planting in the seedbed, this advantage of a deep taproot will not be realized which is what was experienced in 2012. This experiment will be duplicated again on this site in 2013 with more varieties adapted to South Texas.

Acknowledgements