



## SAFFLOWER VARIETY EVALUATION

Texas AgriLife Extension Service

NUECES COUNTY

**Cooperator:** Texas AgriLife Research & Extension Center

**Authors:** Jeffrey R. Stapper, County Extension Agent -AG/NR

J. R. Cantu, Demonstration Assistant - Nueces County

### Summary

This test was located on the Research & Extension Center on Hwy 44. Rainfall during the growing season was above normal. Yields ranged from a low of 156 pounds per acre to a high of 1,876 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 January 12, 2010, at Clarkwood on the Texas AgriLife Research & Extension Center in a randomized complete replicated block with four replications. The soil at seeding depth was moist and a Drill placed seed in 9-inch rows. Soil test indicated a pH of 8.1 with a fertilizer recommendation of 50-35-0 for 2,000 canola yield potential. This was used since a canola test was also planted in the same field. Fertilizer of 57-40-0-0.8Zn was applied on November 5, 2009 and incorporated. Prowl H2O at 1 qt/ac was applied January 13, 2010. Rainfall recorded during the growing season was as follows; January = 2.45, February = 4.25, March = 1.12, April = 2.11, and May = 0.27 for a total of 10.2 inches. The safflower varieties were hand harvested and samples were thrashed in a portable thrashing machine and weighed.

**Table 1: Agronomic data for Safflower Variety Demonstration, AgriLife Research & Extension Center Nueces County, Texas, 2009-2010.**

<b>Planting Date:</b> January 12, 2010	<b>Plot Size:</b> 4' x 20' replicated 4 times	<b>Row Width:</b> 9 inch
<b>Fertility:</b> 11/5 57-40-0	<b>Soil Type:</b> Clareville loam	<b>Previous Crop:</b> Canola
<b>Planting Rate:</b> 25 lbs./acre	<b>Herbicide:</b> Prowl H2O@ 1 qt/A	<b>Harvest:</b> 6/15/10

**Results and Discussion**

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 June 15.

**Table 2. Comparison of percent emergence, bloom %, plant height, lodging, and yield per acre of safflower variety test, AgriLife Research & Extension Center, Nueces County, Texas, 2010.**

Variety	Emergence (%) 2/8/10	Bloom (%) 5/17/10	Plant Ht 6/15/10	Lodging (Yes/No)	Yield <sup>1</sup> (lbs./acre)
S-345	53.8 ab	97	47	No	1,876 a
PI 544006	43.8 c	98	44	No	1,632 ab
99 OL	62.5 a	97	44	No	1,338 b
PI 405988	62.5 a	60	50	Yes	336 c
PI 406002	57.5 ab	2	50	Yes	292 c
PI 485984	50.0 bc	2	53	Yes	240 c
388901	61.3 a	1	49	Yes	156 c
LSD (P=.05)					492.5
CV					39.35

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

Since both S-345 and 99 OL were spring varieties, while the majority of the other varieties were winter varieties, it seems that the spring types are better adapted to the local climate.

Assuming a seed value of \$0.17 per pound, the best performing variety in this test (S-345) produced enough seed per acre to be valued at \$318.92 per acre.

### **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, which makes it suited for dry growing conditions, which we did not have this year with the above normal rainfall. In fact, the rain seems to have hurt some of the varieties.

Spring safflower seems to be better adapted to the local climate and should be evaluated further to determine its feasibility in the Coastal Bend.

### **Acknowledgements**

The cooperation and support of James Grichar and his staff from the Texas AgriLife Research for planting this demonstration is appreciated. The support of Dr. Rob Duncan for providing seed for the test is also appreciated.