REPORT OF SUNFLOWER RESEARCH IN OKLAHOMA

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A. Sunflower Improvements

Sunflower variety tests were conducted by L. L. Ligon during 1945, 1946, 1947, 1948 and 1949. The yields were generally low except in 1946 when the test average was 1201 pounds per acre of seed (Table 1).

Table 1. Summary of information for sunflower strain tests conducted in Oklahoma from 1945-1949.[1/]

Year	Location	Entries	Test yield	Highest strain[2/]	Date planted	Percentage Oil	Percentage Protein
1945	Stillwater	6	594	749	5/18	16.5-21.8	20.6-22.4
1946	Stillwater	9	1201	1558	5/15	14.8-25.5	19.9-21.2
1947	Stillwater	9	400	444	5/25	18.9-24.0	20.5-30.0
1948	Stillwater	9	124	179			
1949	Lone Grove	12	313	570	4/18	23.4-30.8	19.7-22.6

1/ Data obtained by L. L. Ligon.
2/ Mennonite (Canada) ranked highest each year.

On the basis of data obtained in 1946, Ligon (1) reported the whole seed ranged from 14 to 26 percent oil, 20 to 21 percent protein and 0.43 to 0.76 tons of dry forage. He also reported that sunflower for silage had approximately two-thirds the value of corn or sorghum.

The authors theorized that the late date of planting caused sunflowers to be more susceptible to rust, sunflower head moth and environmental stress under Oklahoma conditions. Sunflower selection was made during the dry season in 1956. In 1957, strain and cultural tests were started again.

The mean seed yields were highest when the tests were planted in March or April (Table 2). The rust resistant hybrid T 56002 was entered in the test in 1962 and has consistently been the best producer for the past two years.

Table 2. Summary of information for sunflower strain tests conducted near Stillwater, Oklahoma, from 1958-1963.

Year	No. of entries	Lbs./acre Test yield	Lbs./acre Highest strain[1]	Date planted	Mean gm./100 seed	Range plant height, inches	Range head diameter inches	CV %
1958	20	417	761	5/1	4.8	44-77	4.0-7.7	--
1959	10	710	876	4/10	7.8	65-86	7.3-9.0	--
1960	11	[2]	[2]	4/15	---	39-49	6.0-9.0	--
1961	24	925	1345	3/28	7.0	43-67	6.3-9.3	23
1962	18	1038	1517	3/30	5.6	41-63	5.1-8.2	19
1963	14	1213	2459	3/26	6.8	38-96	---	19
1963	14	1474	1685	3/26	6.8	59-93	---	14

[1] Certain selections, lines, and plant introductions were evaluated in addition to the variety tests.
[2] Yields not taken because of nonuniform stand.

B. Plant Population Studies

A preliminary population study was conducted in 1957 using 40-inch spacing between rows. Advance sunflowers were thinned to a spacing of 3, 6, and 12 inches between plants. The results are shown in Table 3. There were no significant differences among means with respect to plant height and seed yield. It was interesting to note that the diameter of the head tended to increase as the distance between plants increased from 3 to 12 inches. These data seem to agree generally with that of Putt and Unrav (3) and Putt and Fehr (2). Luis del Villar (4) conducted a population study in Chillan, Chile, using Klein, Saratov, and Manchufen varieties planted in rows spaced 24 inches apart and with various spacings within the row. The tall variety, Klein, had the highest yield with 16 inches between plants. The intermediate variety, Saratov, had its highest yield at 8 inches between plants and the shortest variety, Manchufen, at 4 inches between plants.

Table 3. Sunflower population studies, Stillwater, Oklahoma. 1957

Spacing between plants, inches	Plant height, inches	Diameter of head, inches	Seed yield, lbs./A.
3	44	4.05	388
6	47	4.10	668
12	46	4.58	273
LSD	N.S.		N.S.

C. Chemical Control of House Sparrows in Sunflowers by Ray K. Baumgardner, Research Assistant, Bird Management Project, Research Foundation.

A method of deterring House Sparrows (Passer domestticus) from sunflower plantings was studied. Seed yield losses of 8.4 percent were measured from bagged and unbagged heads with a light bird infestation in 1962.

Grain sorghum and sunflower seed were placed in elevated bird bait stations near a control and experimental plot of sunflowers. The repellent (Phillips Petroleum Ca. No. 1861) was applied to grain sorghum and sunflower seed at 0.25 percent after 19 days on the untreated seed. After 30 minutes, 28 of the 90 sparrows noted became affected. The affected birds flew up into the air with wings beating rapidly and uttered audible distress calls. In this test the birds were repelled from the experimental area and no further bird damage resulted.

D. Weed Control

A preliminary pre-emergence study was conducted using Mennonite variety in 1959 (Table 4). The primary weeds were flower-of-the-hour and pigweed. The preliminary study indicated that 2,4-DB gave better weed control with least visible injury to the plants than Alanap, EPTC or 3Y9.

Table 4. Summary of notes on sunflower pre-emergence study. September 10, 1959.[1/]

Chemical	Rate (lbs./A.)	Weed control	Plant damage
Alanap	6	Fair	Medium
EPTC	4	Poor	Severe, few plants
2,4-DB	2	Good	None
3Y9	3	Fair	None

1/ Materials were applied by W. C. Elder, Department of Agronomy, Oklahoma State University.

References

1. Ligon, L. L. Will it Grow in Oklahoma? Oklahoma Agri. Exp. Sta. Bul. B-307. 1947.

2. Putt, E. D. and J. A. Fehr. Effect of Plant Spacings, Row Spacing and Number of Plants per Hill on Advance Hybrid Sunflower. Sci. Agri. 31:480-491. 1951.

3. Putt, E. D. and John Unrav. The Influence of Various Cultural Practices on Seed and Plant Characters in the Sunflower. Sci. Agri. 23:384-398. 1943.

4. Villar, Luis del. Personal Communication. (Unpublished) 1957.

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