

SUNFLOWER RESEARCH IN GEORGIA

By

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Sunflowers have been grown in small scale plots at the Georgia Experiment Station for several years. Until 1967 the interest was in the use of the stems for paper pulp. In 1967 we changed our emphasis to oil production, and in 1968 increased our efforts due to the interest shown by oil seed processors.

In a preliminary survey, we screened all the sunflower entries available from the U.S. Department of Agriculture New Crops Division for 40% or better oil. The linoleic acid content of the 38 entries saved for planting this year varied from 38 to 73%. The variability between single seeds in some entries was almost this great. While we do not plan a breeding program at Experiment, we will continue screening studies on a small scale.

Dr. John Massey of our staff planted Russian Mammoth sunflowers in 30 inch rows in two tests in 1967. He obtained a yield of 2100 lbs/A with populations of 8 to 24 thousand plants. He found no significant differences in plots treated with 50, 100, or 150 lbs N/A. They averaged 2400 lb/A yield while check plots yielded 1400 lbs/A. Dr. Massey is repeating these tests this year with Peredovik. There appears to be greater differences in nitrogen treatments than those obtained last year.

Since we are interested in fitting this crop into our present cropping system, one of our primary interests is dates of planting and harvests. In 1967 plantings up to August 7 gave satisfactory development. The seed were ready to harvest by combine after frost. This would give both a planting and harvest date when other crops do not have a heavy labor demand.

We did have an interesting competition from adjacent rows. The picture shows plots planted on August 16 on the south side of those planted on June 27. The row 3 feet from the older plants is about 1 foot high, those 6 feet away at 2 feet and the row 9 feet was near normal. This inhibition cannot be attributed to shading or moisture. We were able to obtain similar inhibition in the greenhouse, but when soil was taken from the various rows and put in pots we had no differential growth. An inhibition like this could prevent double cropping.

In 1968, May 10 to June 6 appeared to be the best planting dates at Experiment. Earlier plantings failed to produce sufficient photosynthetic area. In south Georgia, however, commercial plantings as early as March 20 gave good yields. We had some difficulty in obtaining good stands in the June 6 planting. On this date 45,000 plants/A in 20 inch rows appeared to be producing the best yield. The prospective yield was estimated by number and size of the heads. These plants did not show water stress when adjacent corn, soybeans, and sorghum did.

Problems with insects and disease are still at a minimum. I have seen no sunflower moths on the 200 or so acres I have looked at. Mildew appears late and perhaps helps dry the plants for harvest. We have little bird damage although we have found a bird's nest in one field. We have a small percentage of abnormal heads, some of which are apparently not caused by injury or insects. In one field near Dawson, Georgia, there was what appeared to be boron deficiency. I am waiting for a soil analysis to confirm this.

In summary, at this stage, it appears that sunflowers can be grown successfully in Georgia using good agronomic practices. We hope that before the insects and disease problems build up, workers in the areas where these problems already exist will have solved them.

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