

LATEST DEVELOPMENTS AND TRENDS IN
SUNFLOWER PRODUCTION IN MEXICO

By

Dr. Cesar C. Gallegos B.
Chairman of Oilseeds Department
Institute of Agriculture
Chapingo, Mexico

I would like to express my appreciation to Mr. Gandy for his invitation to participate in this conference and talk about sunflowers in Mexico.

The sunflower is well known in Mexico since many years ago as an ornamental plant, but it has never been important as an oilcrop. Several efforts were made before 1965 to establish the sunflower as a crop but failed because of the lack of an adequate market.

Mexico has obtained most of the edible oil from the cottonseed during the past, however, during 1969 and the present year a considerable reduction in the acreage planted with cotton and the increase in population and oil consumption made it necessary to import oilseeds, mainly soybeans, to satisfy the national demand.

Because of the agronomic characteristics of drought and frost resistance, wide area of adaptation, high oil content of some varieties, high price of the seed and similarity of equipment required, costs and methods for cultivation with corn, sunflower seems to be the ideal crop for the semi-arid and marginal regions of the Central Plateau and some parts of North Central Mexico where the annual rainfall is less than 600 mm.

It was in 1965 that a small program was initiated by the Instituto Nacional de Investigaciones Agricolas to study the possibilities of sunflower as a new crop in the country.

During the first year the objective of the conducted tests was to prove the adaptability of some outstanding varieties such as Peredovik, VNIIMK 1646, Smena, Greystripe, Arrowhead, and Mingren among others. Plantings were made during the rainy season from April to July in most of the States of the Central Plateau and North of Mexico; the results obtained were very successful and proved that sunflower growing was possible under many different soils and climates of Mexico.

The next step in the program was to determine the best varieties for different areas and variety trials were set in the grounds of the Experimental Stations or cooperating farmers of the Central Highlands, West Coastal areas and Central and Northern Mexico.

The results obtained demonstrated that the varieties Peredovik, Smena and Vniimk-1646 gave the highest yielding among the oil-type varieties and Greystripe and Mingren were the best among the Confectionary type. The yields ranged from 800 pounds to 3 tons per hectare.

The Central Highlands because of the moderate temperatures and rainfall

seems to be the best area for obtaining high yields of sunflower seed during the summer.

During 1969 the sunflower program was directed to gain information about the cultural practices such as fertilization, density planting and sowing dates besides the variety trials. As a result of those experiments we are recommending to fertilize with 130 of nitrogen and 80 pounds of phosphate per hectare in those areas where precipitation is higher than 600 mm or under irrigation conditions; with respect to plant density we recommend in a preliminary form, to plant at a distance of 30 inches between the rows and 11 inches between the plants.

During 1970 the sunflower experiments will include mostly oil-type varieties since we do not have yet an adequate market for other types of seeds. The plans are to conduct plant density, fertilization, sowing dates and variety trials experiments in several regions that differ considerably in soil type, precipitation and temperature, the main objective is to obtain information at a regional level for future recommendations.

The most important among the 1970 projects is the experimental commercial trial. Spread over 12 different States in the Central Highlands, the Central Plateau and Coastal areas about 3 to 4 thousand acres will be planted utilizing 8 different oil-type varieties to determine the potential of the areas for sunflower seed production, to increase the seed for next year's plantings, to learn about problems such as insects and seed setting and also to study the variations in oil content of the seed from one region to another.

This will be the initiation year of commercial sunflower production in Mexico and if the results are successful we expect a great expansion of the sunflower area for 1971.

* * *

DISCUSSION

Question: Where did you get your seed? From Russia?

Answer: I took over the department last year and I don't know where the seed was obtained. I know that we have some Russian varieties. We also have some from Romania, I think. Now we are trying to collect new varieties. But the place of origin, I cannot trace.

Question: Are there any sunflowers grown by the oil industry or is it all grown by the government?

Answer: The oil industry in Mexico is very much in favor of the program. There is a competitive program between the oil industry and the Mexican government. I work for the government and am in charge of this investigation.

Question: What is the relationship between your production of sesame and your growing interest in sunflowers?

Answer: There is no relationship because the sesame is grown

mostly in the Gulf of Mexico and the West Coast of Mexico, practically from the border of the United States to the border of Guatamala. So we are not planning to replace sesame in Mexico with a crop like sunflowers. We are more interested in starting an oil crop for the very poor areas of Mexico where the corn is planted, but the yields are very low. They sometimes get 400 or 200 pounds per hectare. We think that sunflowers, because of the high price of the seed, might be a better crop for the poor farmers of that area and might be of some benefit to the economy of the family and the region. But we are not planning a relation between sesame and sunflowers in Mexico.

Question: Before sunflowers were grown in Mexico, were there many wild sunflowers?

Answer: No, not really. You can see some sunflowers growing wild in Mexico. But the ones you see along the road, the seed is not used. I suppose these are very old varieties which have not been used in our studies at the Institute. We expect to collect some of those varieties because I am sure they must have some good characteristics, like resistance to insects. This seems to be one of the future problems of sunflower production in Mexico. But nobody grows sunflowers in commercial acreage. In 1968, 80 acres were planted in Yucatan with an average yield of 1200 kilos, about 2400 pounds. The government was pleased with the results. But the oil industry didn't want to build factories and were not interested in sunflower oil promotion, so the farmers didn't grow sunflowers there anymore. Now the industry seems to be in the position of buying as much sunflowers as can be of use. This is different than sorghum, where they eat what they produce. They don't care much about the money they make. They don't eat the sunflowers and the oil industry has to buy almost all the seed produced so the industry has also interest in results.

Question: Perhaps he is familiar with the publication of Dr. Heisure on this subject. He has published a series on the history, the origin and the early uses of sunflowers in the Americas. In his work, he has pointed out that the varieties, some of which are still in existence and have been improved slightly, were very small seeded, very few of them were eaten. The oil was used for appearance purposes to smooth down hair. It wasn't until the Russians developed sunflowers as an agricultural plant that it then came back to North America and was of any significance in agriculture. This was also true of the wild plants that were used by horticulturists in Europe without ever being introduced into agriculture. I think that the varieties being talked about here do not exist, because they are not of any significance.

Answer: The wild species I don't know where you went, but they are grown in many fields. I think one of the many problems that we are going to have with the sunflower is that there will be some natural crossing with the oil kind. This is why wild sunflowers might be a good place for the insects. I am afraid that

some of the insects reproduce in this wild sunflower. Mexico seems to be one of the countries for the oil centers of this crop.

Question:

In traveling in Mexico a couple of years ago in late October, I noticed this wild species growing largely over the central plateau. Actually, in late October it was in full bloom or late bloom in the Guadalajara area and was more advanced as I drove north towards Monterey. It is a distinct kind, and I'll report on what I found in the oil of this tomorrow. I did notice that there are people in that area that do cultivate sunflowers. I just had a casual look at the time, but they appear to grow them mixed with corn, perhaps tomatoes or squash and a few other crops all mixed in the same field, plus these wild sunflowers. I looked at two plants. One had white seed and the other had a striped seed of medium size. I do feel that the plateau area is probably a reservoir of useful germ plasm of sunflowers. I don't know if anybody has explored this at this time.

Answer:

I don't know either. I am also sure that we can get many different things from the other cross varieties that have been grown in Mexico for many years. I also know that the Mennonites of the north grow sunflowers, but I don't know the origin of the variety either. I know that they are white and striped varieties, although I don't know if they have good oil content. They have some good characteristics I suppose.

- - -