

LATEST DEVELOPMENTS AND TRENDS IN SUNFLOWER  
PRODUCTION IN ROMANIA

By

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Sunflower culture in Romania has increased rapidly since World War II so that now we not only supply our own edible oil needs but have even started to export. Sunflower is the most important edible oil source; its acreage amounting to 85% of the whole area under oil crops.

In comparison to the mean of the five years preceding the War, the total seed yield has increased 15 times (Table 1), reaching 750,000 tons. This large increase is due both to the extension of seeded areas and to progressively greater yields.

The seeded area has increased 9 times amounting to 520,000 hectares in 1968. In the near future, only a slight increase of the area under sunflowers is expected, but important additions are planned with respect to seed and oil yield.

As a matter of fact, the average seed yield has increased continuously from 800 kg per hectare in 1948 to 1500 kg per hectare in 1967. There are three factors that have contributed to such an increase:

1. The correct place in the ecologic zones and rotation.
2. Improvement in cultural practices.
3. The use of more productive varieties with higher oil content.

Sunflower culture is concentrated into climatically favourable and very favourable zones, on black soils, forest red-brown soils, alluvial soils and on the flat plateau with deep, uneroded soils. Within the framework of the annual crop rotation, sunflowers followed wheat, barley or corn and are never grown in the same field until four years have elapsed.

Cultural practices have been constantly improved. Sunflower culture on the state farms and on the majority of the cooperative farms is totally mechanized. The use of fertilizers, insecticides and herbicides on a large scale, as well as the extension of irrigated areas, has contributed to the increase of sunflower yields.

Concerning fertilizers, these are used mainly on soils of low fertility where they give good results, or on irrigated fields. On the forest red-brown soils, nitrogen is effective and economic when it is applied in moderate doses (60-80 kg N per ha) alone or together with phosphorus. On the black soils phosphorus is the most effective element, the recommended doses being 60-90 kg P per ha. In this case the nitrogen dose is reduced to 30-40 kg N per ha.

Table 1. Seeded area, yield and oil content of sunflowers in Romania

Years	Seeded area (Thousands hectares)	Seed Yield		Cultivated varieties and oil content (%)
		Total (Thousands of tons)	Average per hectare (quintales)	
1934-1938	55.8	48.4	8.7	Local varieties
1948	416.8	140.9	8.0	Jdanov 8281 (32%)
1958	352.0	286.1	7.7	"
1959	513.1	529.2	10.0	VNIIMK 8931 (44-47%)
1960	480.1	521.7	10.7	"
1961	439.5	481.4	10.8	"
1962	427.5	449.5	10.5	"
1963	464.2	505.9	10.9	"
1964	467.4	518.1	11.1	"
1965	462.0	564.0	12.2	"
1966	467.7	671.2	14.4	Record (47-50%)
1967	480.6	719.8	15.0	"
1968	520.0	720.0	14.0	"
1969*	525.0	750.0	14.3	"

\* unofficial data

The optimum population for sunflowers varies from 30-45 thousand plants per hectare, depending on the soil-climatic conditions. The pneumatic sowing machine allows precise seeding with one seed per hill, so that thinning is not necessary.

In order to control annual weeds in sunflower, most farms use herbicides, especially Prometrin at 3-4 kg per hectare, sprayed on the rows at the time of seeding.

Sunflower varieties have also played a prominent part in raising yields. Before World War II, Romania cultivated local varieties, with low oil content. After the War and until 1958 the Soviet variety Jdanov 8281 was grown. It is also a low oil content variety but broomrape resistant. In 1959, on the whole area under sunflower cultivation, we introduced the new high oil content variety VNIIMK 8931, developed by V.S. Pustovoit at Krasnodar. Its oil content has ranged from 44 to 47% on a dry weight basis.

In 1966, the variety VNIIMK 8931 was replaced by the variety Record developed at Fundulea-Bucharest Research Institute for Cereal and Industrial Crops by using Pustovoit's breeding method and VNIIMK type varieties as initial material. Record is more vigorous than 8931. Flowering is 3-4 days later, but it is more resistant to drought than VNIIMK 8931. This proved to be true in the excessively dry year, 1968, when there was no rain from early spring to the end of summer. The oil content of the variety Record has ranged in different years and regions from 47 to 50% on a dry weight basis.

There is a promising outlook for increasing sunflower yields as a result of the imminent availability of single cross  $F_1$  sunflower hybrids. By 1972, about 15,000 hectares will be planted with hybrid seeds and in 1974 the entire area under sunflowers (more than 500,000 hectares) will be seeded with high yielding hybrids. In this way, the average seed yield could go as high as 2000 kg per hectare by the end of 1975, while the oil content in dry seeds will amount to 52%.

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#### DISCUSSION

Question: You mentioned sunflowers are planted with a pneumatic planter?

Answer: Yes, a pneumatic planter.

Question: Why do you apply nitrogen to your crops, and which ones?

Answer: We apply nitrogen to wheat in our country because corn and wheat are the most important crops. They are 75% of the crops grown and we use nitrogen for wheat and are seeding sunflowers after wheat. We have noticed that sunflowers do not use fertilizer well. In this case, it is better to use a good supply of fertilizer on corn or wheat and then plant sunflowers after the well fertilized crop. Another