

## VARIABILITY OF OIL CONTENT IN SEEDS OF NEW RESTORER LINES

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## INTRODUCTION

Yield of oil per unit area is the paramount objective of sunflower growing. It is the product of seed yield and oil content in seeds.

A high variability in the percentage of oil in seeds exists within and between populations. It is also due to environmental factors (Morozov, 1947; Nikolić et al., 1971). According to Škorić and Bedov (1978), it is feasible to develop restorer lines with a high oil content in seeds.

In the selection cycles conducted so far, a high oil content has been achieved faster in CMS lines than in restorer lines. However, the latter are indispensable for the creation of high-oil hybrids.

Stojanova et al. (1971) suggest that all lines with less than 40% oil in seeds are discarded from breeding programs and that only those above the threshold are used in crossing programs.

The objective of this paper is to review the variability of oil content in seeds of the new Novi Sad restorer lines that feature a high degree of tolerance to Phomopsis.

## MATERIAL AND METHOD

The selection material for development of restorer lines derived from the NS population was surveyed. The population consists of 11 lines which, in the field conditions of 1980, had exhibited a high tolerance to Phomopsis. The lines were diallelly crossed in a greenhouse in the course of the fall and winter of 1980/81. The ensuing combinations were selfed and screened for reaction to Phomopsis in subsequent years. By selecting only resistant plants in the generations of selfing, a number of resistant lines was produced in the course of seven years.

These lines were tested for the oil content in seeds by means of an NMR analyser manufactured by "Jožef Štefan" Institute at Ljubljana.

## CONCLUSIONS

The following conclusions were drawn on the basis of the NMR analyses of 1929 new restorer lines:

- the values of the oil content in seeds ranged from 27 to 64%;
- the majority of the restorer lines had about 42% oil in seeds;
- a number of restorer lines had over 50% oil in seeds. These lines are the reward for this cycle of analyses;
- most restorer lines with more than 50% oil in seeds, whose number is not negligible either, lacked the armour layer in the husk. These restorers may nevertheless be used for the production of hybrids if crossed with females with a thick armour layer. The layer is needed for protection against the sunflower moth;
- of the total number of the restorer lines, 22.3% are recessively branched. These restorer lines allow the development of hybrids with safe seed production;
- the recessively branched restorer lines had as a rule a higher oil content than the non-branched type: the oil content in seed over 50% was recorded in 41.8% of the branched restorer lines and only 13.2% of the non-branched restorer lines.