The use of pesticides in agriculture has become an inseparable part of modern agrotechnology. The widespread application of pesticides against the pest organisms brings along with it certain risks, since the toxic effect of the substances applied is not limited to organisms against which they are intended, their use leading to the contamination of plant cultures, of water, soil and of the air as well.

In this connection special attention must be devoted to the study of the secondary effects of pesticides in the biosphere. Among these effects we are specially interested in the influence on the microbial populations and their biochemical activities. The knowledge of the effects of pesticides in this area is important especially from the standpoint of creating suitable conditions for the growth and development of cultivated plants, and so also of the production ability of soil.

The use of modern methods and equipment in the research concerning the pesticide-microbe interaction will provide the investigator with an assurance that the data obtained are likely to be more accurate and will also possibly reduce the time involved, but where it is not possible to use modernizations, older methods
should be equally acceptable provided they have been critically evaluated for reliability. Methods should always be considered in the context of suitability, acceptability and reproducibility. No current method can be said to be so direct for studying soil organisms in situ as to preclude all possible disruptions to the environment that surrounds and supports them. The choice of methods is therefore understandably wide and varied in the approach to a seemingly insurmountable problem.

The pesticides used in this study responded very differently to the various activities of soil microorganisms.

The pesticides in doses used in the practice did not harmfully affect the total soil microbial population. Gram negative bacteria were found to be less sensitive to the pesticides as compared to gram positive types. In case of fungi, Trichoderma, Penicillium and Aspergillus were the dominant genera and only occasionally fungi with cottony growth were observed in pesticide treated soils. Stimulatory behaviour of streptomycetes to many of the pesticides was noted during the study.
Stimulation in the soil ammonification was observed in the soils applied with many of the pesticides used in the study. This can be considered as harmful effect to soil fertility, since stimulation of the ammonification may decrease the soil fertility by depleting both carbon and nitrogen reserves in soils.

The present study on the effects of pesticides on soil nitrification revealed that these chemicals had only slight retarding effects on the process. The degree of effect of pesticides on the soil nitrification depended on their chemical nature and dosage as well as the soil type.

Soils treated with the pesticides, had stimulatory or a little inhibitory effect on sulphur oxidation. The increased sulphur oxidation rate can be considered as positive reaction, since sulphate is the only plant available source of the element.

Soil dehydrogenase activity followed by pesticide applications, responded very similar to microbial populations. Thus, this parameter can be used to measure total activity of the biota of soils.
Statistical analysis of the data revealed that treatment effect of the pesticides, was more in the initial phase of the experiments, but it was reversed to less or nonsignificant in the later period. Thus days of incubation were having more effects on the microbial activity than the treatments of a pesticide.

Statistical significant differences between treated and untreated soil, may or may not be of practical importance (Johnen and Drew, 1977). The adverse effects of a pesticide must be compared with its beneficial effects, i.e. eradication of pests, increase in crop yield etc. The implications of pesticide effects, on microflora and on their activities can be interpreted by considering recovery period. If the recovery period of pesticide effects on microorganisms is 15 or 15-30 days, it has minor importance and the effect can be considered as tolerable effect.

The pesticides used in this study were all insecticide compounds and had little influence on soil microorganisms after 4 weeks, so these chemicals can be considered as safe compounds and in the absence of effective biological control methods, they can be continuously used in agriculture.