

“Effect of Nematicides on the Yield and Quality of Tobacco and the Soil Nitrifying Bacteria.”

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Gujarat occupies about 28 per cent area of the total hectares under tobacco in the country. Per hectare tobacco yield in Gujarat is second highest in the country, first being Tamil Nadu. Substantial yield increase could still be achieved, if root-knot nematodes causing colossal damage to the crop are controlled effectively. Nemagon (DBCP), a soil fumigant made available in recent years, was found to increase the yield by 45% in other experiments. Besides Nemagon number of other systemic nematicides have also come in the market. A field experiment was, therefore, conducted to study the effect of five nematicides. With a view to test their efficacy in controlling root-knot nematodes and to study their effect on the performance of bidi tobacco.

The nematicides tested were — Thimet, Temik, Mocap, Metasystox and Nemagon. No nematicidal application was used as control. The field experiment was conducted for three seasons using randomised block design with four replications. The planting spacing used was 90 cm × 75 cm. There were 42 plants to a plot during first year, while for remaining two years, 36 plants represented a plot. 1. Among the nematicides, Nemagon, Thimet and Temik were found to be effective in increasing the yield of bidi tobacco. Among the three, however, Nemagon was found to be the best for increasing the yield of bidi tobacco

due to effective control of root knot nematodes. On an average, phenomenal increase of 45% in yield was obtained however, under heavy infestation of Nematodes, this increase could be even as high as 89 per cent, as observed in one of the years of the study. 2. Thimet and Temik, systemic Nematicides though did not lower the degree of disease, were helpful in increasing the yield by 25-32 per cent. Temik, however, due to high rate of application, was found uneconomical as there was a loss of Rs. 210/- per hectare. Using Thimet (nursery + field application) left an additional profit of Rs. 684/-, which was as much as with Nemagon. Thimet can, therefore, be used as an alternate to Nemagon and should be preferred to Nemagon because it is not expected to produce any detrimental side-effects as with Nemagon. Chemical residue of Thimet in leaf, however, needs to be determined. 3. None of the Nematicides tried had any adverse effect on quality of the produce of bidi tobacco. 4. Nitrogen, phosphorus, potash, nicotine and chlorine contents of the bidi tobacco leaf were not influenced by the nematicides. 5. Varying degree of temporary inhibition of nitrifying bacteria and thereby the rate of nitrification, was observed, the effect being maximum with Nemagon. 6. Nematicides protect the crop initially but infestation of root knot develops later during the crop growth, which probably does not appreciably influence the crop performance. 7. Systemic nematicides like Thimet should be applied both in nursery and field to provide adequate protection to the crop from Nematodes. 8. Among the nematicides, Nemagon, a soil fumigant, was found superior in lowering the intensity of the disease. 9. Besides controlling Nematodes, Nematicides also seem to exert some beneficial influence on the plant growth which needs, however, further investigation.