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Loss of yield of groundnut (*Arachis hypogaea* L.) due to dry root rot (*Macrophomina phaseolina*) and their management under *in vivo* condition

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ABSTRACT

A field survey was done during 2002-2003 at Main oilseeds Research station, Junagadh Agricultural university, Junagadh to study the loss of yield of groundnut due to dry root rot. The maximum plant mortality (root rot) of 29.3 per cent due to *Macrophomina phaseolina* with highest yield loss of 435kg/ha was found in Keshod tehsil of Junagadh district of Saurashtra region. Therefore, a field experiment was conducted to manage root rot disease through various fungicides as seed treatment and bio-agent as seed/soil application. It was observed that increase in seed germination by 21.3 per cent as compared to control by seed treatment of vitavax. Similarly highest dry root rot disease control of 69.4 per cent with lowest disease 11.1 per cent was found in the seed treatment with vitavax + soil application of *Trichoderma viride* isolate I with neem cake followed by seed treatment of raxil + soil application of *Trichoderma viride* isolate I with neem cake and seed and soil application of *Trichoderma viride* isolate I with neem cake. The pod yield was highest *i.e.* 1427 kg/ha in the treatment combination of seed treatment with vitavax + soil application of *Trichoderma viride* isolate I with neem cake where pod yield was increase by 35.1 per cent followed by seed and soil application of *Trichoderma viride* isolate I with neem or castor cake.

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Key words : Groundnut, Yield loss, *Macrophomina phaseolina*, Control

INTRODUCTION

Groundnut is a major edible oilseed crop and its uses are as edible oil, seeds, vines and dry fodder as an excellent nutrient for cattle and *Rhizobium* bacterial root nodule provide nitrogen status of the soil. Groundnut grown accounts 40 per cent area (6.28 million hectare of land) and 30 per cent production (7.00 million tones) of groundnut pods with productivity of 1124 kg/ha in the year of 2004-05 (Anonymous, 2004). Fifty five pathogens including fungus, bacterial and viral have been reported in groundnut crop (Grover and Sakhuja, 1981). Among these diseases *Macrophomina phaseolina* (Tassi) Goid pycnidial stage of *Rhizoctonia bataticola* (Toub) Butler cause seedling blight, collar rot and charcoal rot in 500 plants species and it was 33.33 per cent seed rotting and 23.80 per cent post emergence mortality due to this disease (Gupta and Kolte, 1980).

MATERIALS AND METHODS

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RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

Assessment of losses :

The survey data revealed that the maximum yield loss was of 435 kg/ha in groundnut variety GG 2 under rainfed condition in Keshod tehsil, where the plant mortality or root rot was 29.3 % (Table 1). However, minimum yield loss of 19kg/ha with plant mortality of 1.0 per cent was also recorded from the same area but in var GG 10. The present findings are in agreement with the findings of Mathur *et al.* (1967) who also found that bunch varieties were more

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