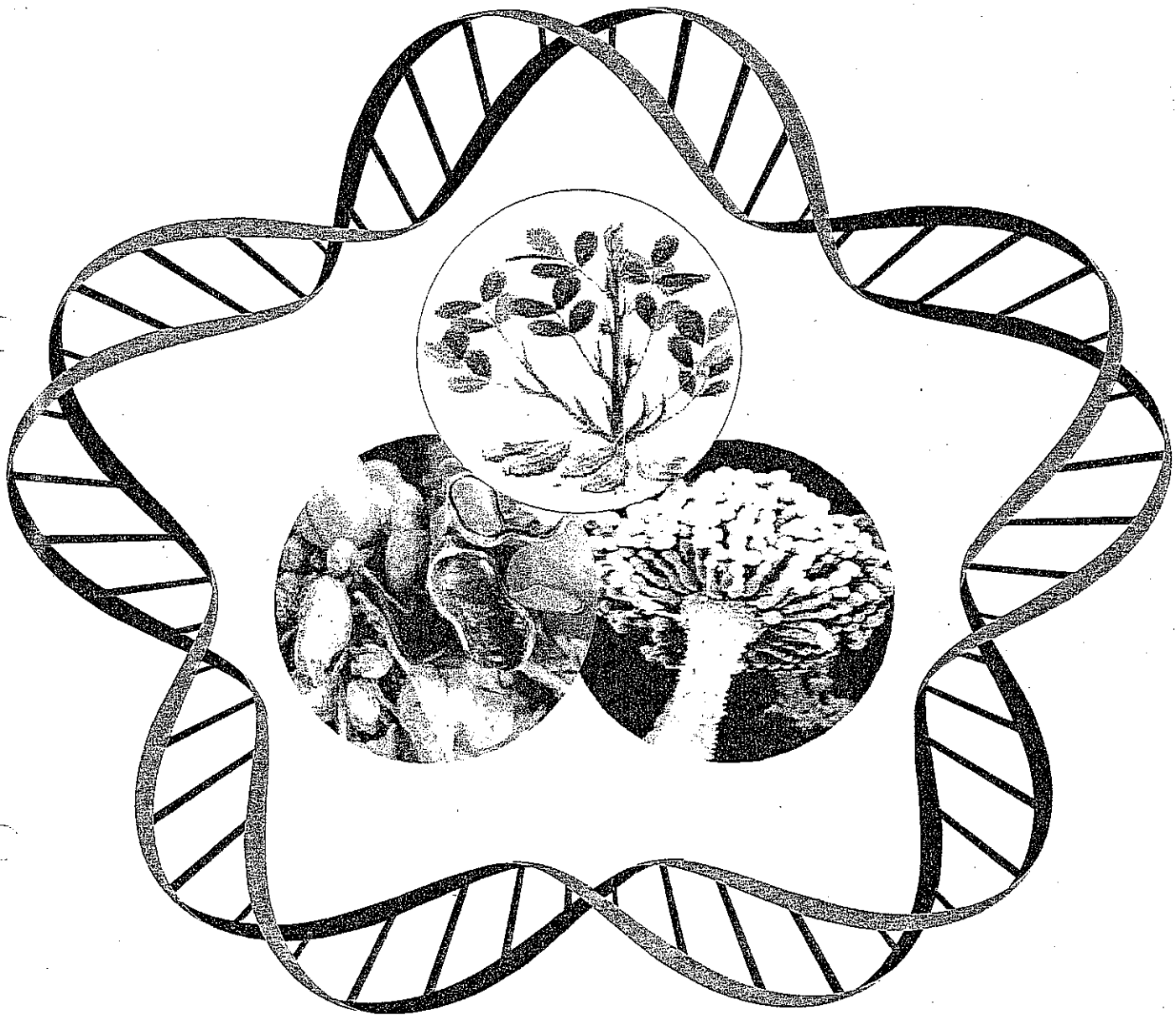


GROUNDNUT AFLATOXIN

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Program and Book of Abstract



Effect of soil application of lime, crop residue and biocontrol agents on pre-harvest *Aspergillus flavus* infection and aflatoxin contamination in groundnut

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This study evaluated the potential of various soil amendments to reduce pre-harvest *Aspergillus flavus* infection and aflatoxin (AF) contamination of groundnut (*Arachis hypogaea*) kernels in the field. Soil amendments used were: (i) gypsum (500 kg ha⁻¹); (ii) sorghum crop residues (SCR; 5 t ha⁻¹); (iii) biocontrol agents, *Trichoderma viridae* (300 kg ha⁻¹ as sand-coated); (iv) compost-enriched with *Pseudomonas aeruginosa* strain CDB35 (5 t ha⁻¹), and (v) the combinations of these treatments. Field experiments were conducted in a split-plot design in an *A. flavus* sickplot at ICRISAT farm with groundnut variety JL24 during rainy seasons of 2002 to 2004. End-of-season drought was imposed to provide ideal conditions for *A. flavus* infection and AF contamination. Sick plots with no treatment served as control. The response of different soil amendment treatments on *A. flavus* kernel infection and AF levels (5 to 1539 µg kg⁻¹) was variable across the years ($P < 0.05$). No correlation was found between the incidence of *A. flavus* infection and AF contamination in various soil treatments. Application of *T. viridae* resulted in reduction in AF contamination to the extent of 91- 98% (from 947 to 4 µg kg⁻¹) and that of gypsum to the extent of 65 to 79% (from 320 to 68 µg kg⁻¹). In 2003, compost treatment performed at par with *T. viridae* in reducing AF contamination, but this effect was not consistent across the years. Gypsum + *T. viridae* + SCR had a highly significant ($P < 0.05$) interaction effect in reducing the AF contamination (up to 90%, from 190 to 19 µg kg⁻¹). Gypsum + *T. viridae* + bacterial compost was also effective in reducing AF levels to the extent of 55 to 71%. Although, all the soil amendments used resulted in significant reduction in AF contamination, treatment with gypsum and/or *T. viridae*, was found to be most effective. These soil amendments have potential for pre-harvest AF management in groundnut in farmers' fields.