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**Multiline Cultivars and Intercropping Systems as Measures of
Pest and Disease Control**

18. The tolerances of disease and pest attack by mixtures of crops consisting either of varieties of the same crop species ('multilines') or of different crop species ('intercrops' or 'mixedcrops') and that by the pure cultures of the individual components have been reviewed. In reviewing the literatures, it has been indicated that the susceptible plants become less infested by Pests and fungal pathogens when grown with resistant plants than when grown in pure stand and that with increase in the relative proportion of resistant plants in 'multilines' and 'intercropping' systems the level of infestation of the susceptible plants is reduced. The reasons for this difference have been traced to reduced immigration rate, reduced population growth rate, and increased emigration rate. These are substantiated by experimental evidences.

19. The available evidences on the types of interactions within a multiline variety of wheat attacked by rust disease and multiline rice variety attacked by brown-spot disease have been discussed and include competition between races of the parasite, crossprotection of hosts, host adaption and mutation.

20. Results suggest that stabilizing selection can contribute significantly to the horizontal resistance of a multiline and thus reduce crop losses. Similar situation presumably exists in intercropping systems.

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21. The review as well as the data presented in this paper suggest a strong case for advocating the practice of multiline cultivars and intercropping systems in reducing crop losses due to pests and diseases.

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**Breeding and other Strategies for Minimising Crop Losses
due to Pests and Diseases**

22. The evolution of new races in micro-organism (insects, pests, fungi, nematodes, bacteria and viruses) takes place at a much faster rate than breeding of matching resistant varieties. Fortunately among the new races only few are of virulent type and the most virulent types are not always the fittest to survive. For breeding of long lasting resistance a full understanding of the host parasite relationship is a must. Till the breeding of long lasting resistance in all crops are attained we have to resort to the system of integrated pest and disease control. Of the several methods of pests and diseases control (cultural, mechanical, physical, biological, chemical etc.), the chemical method though most effective is not free from health hazard and environment pollution. Allelochemicals, a compound obtained from plants being easily biodegradable seems to be insecticides of coming future. Breeders, entomologists and pathologists face several problems, the solution of which is possible by active involvement of statisticians. The statisticians should adopt some of these as their own problems and conduct experiments on field. Mendel could not have discovered the laws of inheritance had he not conducted his own experiments on pea.

23. A method for identifying suitable genotypes to act as parents in breeding for pest and disease has been suggested.

24. Winding up the symposium, the Chairman, Dr. Joshi thanked the Society for organising the symposium on a topic which should receive greater attention in the field of crop production. He stated that the present topic takes care of the crops at two stages, one while introducing the crop variety resistance to pests and diseases and the other when the crop is standing in the field by taking various preventive measures to avoid and to minimise losses. He mentioned that although various measures are being taken to minimise the crop losses due to pests and diseases but suitable techniques to measure quantitatively the extent of losses are yet to be worked out. To this end, the statisticians should take steps so that both policy makers and the farmers can benefit from their findings.