

SESSION SUMMARY OF DISCUSSION: GENETICS AND RESISTANCE BREEDING

Following the presentations of Drs. N. Mochizuki, V. R. Carangal, B. A. Aday and S. Jinahyon and the question hour, three basic issues emerged, deserving further detailed analysis. These were as follows:

1. Inheritance of resistance to downy mildew:

In general, the need to gather information on the genetic architecture of resistance to various species of downy mildews, as well as the role of genotype and environment interaction was suggested. The age of the host, inoculum load, level of plant vigor, locations, years, etc. may represent the various environments. In view of the observations of Dr. Mochizuki it was thought desirable to determine the various genetic parameters at varied levels of inbreeding: This basic information should help in the choice of the most efficient system of breeding scheme.

2. Conservation of downy mildew resistant stocks:

Assured conservation of downy mildew resistant genetic stocks received the attention of the entire house. In the Philippines, from where downy mildew resistant local open-pollinated varieties have been contributed, the facilities for long term storage of maize stocks are not entirely satisfactory. Moreover Dr. Carangal pointed out that the downy mildew resistant cultivars in farmers' fields are fast disappearing. Even though sources of resistance have been incorporated into elite backgrounds, it is very desirable to conserve the original sources of resistance for future use.

Dr. K. Murakami, Director, TARC, agreed to store the downy mildew resistant stocks. Dr. Elmer Johnson agreed to store the materials at CIMMYT, Mexico, provided the number of collections were a few and CIMMYT had freedom to distribute them freely. Dr. R. A. Frederiksen's suggestion on the possibilities of storing collections at Forst Collins, USA should also be explored. The house agreed to refer the detailed consideration of the matter to a subcommittee comprising Drs. Elmer Johnson, V. R. Carangal, B. A. Aday, Sujin Jinahyon and Joginder Singh. The subcommittee will submit the report later in the meeting.

3. The presentations of Drs. V. R. Carangal and S. Jinahyon suggested that a wide array of downy mildew resistant populations have been developed and used in various countries. Dr. Carangal suggested the need for evolving a uniform system of naming the downy mildew resistant populations. The house referred the detailed consideration of the matter to the subcommittee appointed for item 2.

4. Improving the experimental efficiency:

The matter of improving experimental efficiency was also discussed. Proper collaboration between breeders and pathologists should help in the matter. The techniques used at IACP, Thailand (Dr. B. L. Renfro) and Texas (Dr. R. A. Frederiksen) were very satisfactory, but there was considerable scope for improvement.

Joginder Singh