

INTERNATIONAL PEPPER COMMUNITY
WORKSHOP ON JOINT RESEARCH FOR THE
CONTROL OF BLACK PEPPER DISEASES
27-29 OCTOBER 1988 at GOA-A REPORT

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INTRODUCTION

The genesis of the Workshop dates back to the 10th Peppertech meeting when the member countries of the International Pepper Community (IPC) felt the need to invite all the "black pepper pathologists" from the member countries to a common platform to discuss the status of black pepper diseases so as to assess the existing disease management methods available and to formulate programmes for the future course of action on a co-operative basis. The Government of India agreed to host the Workshop.

REPORT ON THE WORKSHOP

Accordingly Workshop on Wilt Diseases of Black Pepper was organized by the Indian Council of Agricultural Research (ICAR) in collaboration with the International Pepper Community at Cidade-de-Goa, Panaji, Goa during October 27-29, 1988. The Workshop was attended by 60 delegates from India, Indonesia and Malaysia besides the representatives from International Pepper Community (IPC) including the Executive Director, Mr. A. G. Nasution. Delegates from Brazil could not participate in the Workshop.

The delegates included participants from Indian Council of Agricultural Research, Central Plantation Crops Research Institute, National Research Centre for Spices, Directorates of Agriculture of the Governments of Kerala & Goa and Cocoa, Arecanut and Spices Development, Spices Board, Kerala Agricultural University, University of Agricultural Science Dharwad, Karnataka and other important agencies directly concerned with production of black pepper.

Mr. A. G. Nasution in his introductory remarks explained the mandate and objectives of IPC and also the genesis of IPC Workshop on Joint Research for the control of black pepper diseases.

The Honourable Minister of Agriculture, Mr. Fransisco C. Sardinha of the Government of Goa, who presided over the inaugural function appealed to the delegates to discuss in detail the production constraints being faced by the pepper producing countries of the IPC and come out with concrete proposals for increasing the production and productivity.

The Workshop was inaugurated by Dr. N. S. Randhawa, Director General, Indian Council of Agricultural Research and Secretary, Department of Agricultural Research and Education, Government of India. Dr. Randhawa traced the major production constraints in black pepper in India as well as in other producing countries and urged the IPC to undertake a project for realistic estimation of the crop loss due to the wilt diseases. He also emphasized the need for judicious application of a combination of systemic and non-systemic fungicides in addition to biological control, for controlling the wilt diseases. He further stressed the need for interaction among scientists and experts from member countries and to pool their know-how in tackling the problems.

The three Technical Sessions viz., 'Status of pepper diseases', 'Epidemiology' and 'Disease management' were chaired respectively by Dr. D. N. Srivastava, Retired Dy. Director-General, ICAR; Dr. S. Nagarajan, Assistant Director-General, ICAR and Dr. R. K. Hegde, Dean of Post-Graduate Studies, University of Agricultural Sciences, Dharwad. The Scientists from Malaysia, Indonesia and India presented the present status of research on *Phytophthora* foot rot (quick wilt) and slow decline (slow wilt), the two major diseases of pepper in their respective countries. The research workers also presented information on the new diseases like phyllody and little leaf in India and stunting disease in Indonesia.

The status paper from India was presented by Dr. Y. R. Sarma in which he gave a detailed account on the invest-

igations carried out on the black pepper diseases. Dr. Djiman Sitepu, the Indonesian delegate, in his presentation covered all diseases of black pepper in all aspects in his country. Dr. T. K. Kueh, the Malaysian representative gave a comprehensive coverage on status of *Phytophthora* foot rot in Malaysia and the research programme on diseases. In the second session three papers were presented, two on epidemiology of quick wilt disease and one on slow wilt disease. Mr. M. Anandaraj gave a vivid picture of the epidemiological investigations carried out on quick wilt disease. Mr. K. P. Mammooty of KAU presented the work carried out at the Kerala Agricultural University. Dr. K. V. Ramana, gave a detailed account on the nematological investigations on the epidemiology of slow wilt disease. In the third session on Disease management, Mr. N. Ramachandran presented a detailed account of the work carried out on the disease management at the NRCS, Calicut. The disease management aspects were also covered in the status papers presented by Indonesian and Malaysian delegates.

There was an enlightening guest lecture by Prof. Peter H. Tsao, an international authority on *Phytophthora*, on the 'Taxonomy and nomenclature of *Phytophthora* Sp' that causes quick wilt disease in black pepper. He convincingly presented data with excellent slides and stressed that the name "*Phytophthora palmivora*" MF₄ be changed to *P. capsici* with the revised redescription by him.

The Workshop after detailed deliberations, decided that the key diseases

of black pepper are the *Phytophthora* foot rot incited by '*Phytophthora palmivora*' MF₄ and the slow decline incited mainly by the burrowing nematode *Radopholus similis* and *Meloidogyne incognita*. In latter case, possibly other plant parasitic fungi and nematodes are also of considerable importance. The Workshop felt that as far as India is concerned there is no spatial separation of the two categories of pathogens viz., the *Phytophthora* and the nematodes in its natural environment. The Workshop felt that our present understanding of the causal agents, spread and basic concept of management of these diseases are now on a much more sound footing than before. Thus, it should be possible to conduct definite trials with a view to identify the gaps, if any, in the management practices and also use such trials for purposes of demonstration to the farmers.

The Workshop suggested to undertake basic research on latent infection in the planting material, monitoring inoculum load in the soil for timing the first application of the chemical and the biological control of the nematodes. New diseases like phyllody, little leaf and stunting disease may be investigated. The Workshop also identified various steps for integrated management of the wilt disease of black pepper, as enumerated below:

- i) Selection and use of disease free planting materials;
- ii) The raising of nursery from disease free planting material in fumigated/sterilized soil;
- iii) A time gap of at least one year between excavation of the

previously infected plant and replanting;

- iv) Necessary precautions in the use of live standards which may act as reservoir of inoculum/or as collateral hosts for one or the other key pests/diseases;
- v) Use of effective and less toxic pesticides;
- vi) Extensive trials with the fungus *Paecilomyces lilacinus* and also of any known bacterial pathogens against the nematodes;
- vii) Priorities to be given to evolve superior genotypes with high level of disease resistance/tolerance, facilities for screening for disease resistance under controlled conditions to be provided.

The Plenary Session was chaired by Dr. K. L. Chadha, Dy. Director General (Horticulture), ICAR and based on the Proceedings of the 3 technical sessions and the discussions, the following decisions were taken:

- 1) The quick wilt or foot rot of black pepper shall be renamed as *Phytophthora* foot rot and the yellows disease and slow wilt as Slow decline.
- 2) It was decided to discontinue the use of the name "*Phytophthora palmivora*" MF₄ for the *Phytophthora* foot rot pathogen of black pepper and instead use *P. capsici*. The species has to be redescribed to include the correct and newly recognised morphological feature as well as the range of natural variability.

- 3) The need for effective exchange of planting material for conducting the "Inter country varietal trial" was stressed.
 - 4) The procedure for exchange of planting material was finalised. It was decided to complete the exchange of materials by January 1989 and 120 cuttings in each of the variety packed in sphagnum moss will be despatched. The materials from India will be despatched through the National Bureau of Plant Genetic Resources to the Research Institute of respective countries. Materials from Indonesia and Malaysia will be despatched to NBPGR for onward transmission to the National Research Centre for Spices, Calicut.
 - 5) It was decided to lay out uniform trials for disease management for all the member countries.
 - 6) In order to facilitate free and fair exchange of scientific information among the member countries, it was recommended that the IPC should bring out bi-monthly newsletter containing information on latest research findings, production statistics and other relevant information including the list of research workers on black pepper for circulating among active research workers in the member countries. The following officials have been identified as Liaison Officers in member countries to furnish the information to the Secretariate of IPC:

India	: Dr. K. L. Chadha Dy. Director General (Hort), I C A R, Krishi Bhawan New Delhi-110 001
Indonesia:	Director, Research Institute for Spices & Medicinal Crops, Jln. Cimanggu-3 Bogor, 16111, Indonesia
Malaysia :	Director of Agriculture, Department of Agriculture H. Q. Jalan Simpang Tiga, Kuching, Sarawak, Malaysia
 - 7) The Workshop also recommended that the IPC may consider the possibility conducting International Workshop on various aspects of research and development of pepper once in every two years.
 - 8) Sharing of *Phytophthora* foot rot culture by KAU and NRCS to the ITCC, Div. of Mycology and Plant Pathology, I. A. R. I., New Delhi and the I.T.C., U.S.A. and mutual exchange of cultures between research workers.
 - 9) To bring out an illustrated hand out on symptoms, host-pathogen interaction and methodology to be adopted in the study of pepper diseases so that the member countries would follow uniform investigation procedure.
- The Workshop concluded with expression of thanks to ESCAP, UNDP among others for extending financial support.