Asian Region Groundnut Scientists' Meeting
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The meeting was organized by International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in cooperation with the Indonesian Agency for Agricultural Research and Development (AARD), at the Malang Research Institute for Food Crops (MARIF), Malang, Indonesia, from 14 to 17 November 1988. The Australian Centre for International Agricultural Research (ACIAR) and the Peanut Collaborative Research Support Program (Peanut CRSP) supported the Meeting by the participation of their staff and by bringing to Malang scientists involved in groundnut research in other countries of the region. The meeting was organized to bring together scientists from national, regional and international research institutions concerned with groundnut production in Asia in order to:

(i) Discuss problems affecting groundnut production in the various parts of the region and exchange research information

(ii) Identify the most important problems, and indicate their extent and where they are most serious

(iii) Recommend priorities for research at national and international levels, and suggest collaborative research activities

(iv) Discuss training needs in relation to agreed priority research areas, and

(v) Facilitate interactions among groundnut scientists in the region and encourage cooperation at all levels.

Fifty-two scientists, from Australia, India, Indonesia, Korea, Malaysia, Nepal, People's Republic of China, Philippines, Thailand, USA, and Vietnam, and representatives of ACIAR, FAO, the Dutch ATC Project, IDRC, Peanut CRSP, Winrock International, and from ICRISAT attended. Problems of groundnut production in the Asian region, and ways to overcome constraints to production through collaborative efforts were discussed in different group sessions. The priorities for research that were indicated and the recommendations to the group for research collaboration, training, and related aspects are summarized below:

Diseases:
Priority should be given to research on foliar fungal diseases (rust, late leaf spot, early leaf spot; virus diseases, especially peanut stripe virus (PSTV) and bud necrosis disease (BND) caused by tomato spotted wilt virus; bacterial wilt; and the aflatoxin contamination problem.

(i) The influence of cropping systems and seasonal variations in weather on diseases should receive more attention, particularly in respect of foliar fungal diseases and bacterial wilt

(ii) More use should be made of the sources of resistance to rust and late leaf spot currently available from ICRISAT

(iii) The economic importance of PSTV should be established by surveys and crop loss assessments within the region

(iv) The isolates of PSTV from various parts of the region should be compared and studied in a country where groundnuts are not grown

(v) Screening of groundnut and interspecific hybrid derivatives for resistance to PSTV should continue as an international cooperative project, and resistance breeding should be done by the involved international agencies

(vi) The distribution and economic importance of BND should be established for the region

(vii) Information on control of BNI by modification of cultural practices should be made available, as well as information on other virus diseases

(viii) Information on the occurrence of bacterial wilt, the spread, and on diagnosis of the disease should be made available through existing newsletters. ACIAR Bacterial Wilt and ICRISAT International Arachis Newsletters should exchange relevant articles

(ix) An international cooperative project along the lines of the Peanut Stripe Virus Project should also be initiated by ACIAR for bacterial wilt in order to coordinate research, exchange resistant germplasm, and investigate P. solanacearum isolates from different parts of the world

(x) National institutes should examine their groundnut produce and produce to determine the importance of aflatoxin contamination in their countries

(xi) Both preharvest and postharvest infection of groundnuts by the toxigenic A. flavus should be examined in order to give appropriate crop management recommendations to growers

(xii) Resistance to preharvest seed infection by A. flavus exists and should be utilized to reduce the aflatoxin contamination both before and after harvest

(xiii) Soil/seeds and seedling disease interactions should receive further attention. The benefits of seed protectants should be evaluated

(xiv) The importance of diseases caused by, Sclerotium rolfsii may be exaggerated and should be investigated. Cultural control measures should be developed rather than giving undue emphasis to resistance breeding
Drought:  Intermittent drought in upland rainfed cropping systems and terminal drought in lowland rainfed cropping systems were identified as major problems. Waterlogging in semi-arid tropical regions was also identified as a problem. Drought tolerant germplasm lines identified at ICRISAT and tested for their yield performance under a range of intermittent and terminal drought regimes could be used in breeding programs.

Postharvest Technology and Aflatoxin:  Drying and storage of groundnut products are important aspects of postharvest technology that may be affected by rainfall during field drying, poor drying procedures, poor storage facilities, etc. These factors increase the likelihood of seed invasion by Aspergillus flavus and subsequent aflatoxin contamination, which is a serious problem in many countries of the region. Lines of resistance to seed invasion by A. flavus are available from ICRISAT.

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Nutrient Stresses:  It was apparent that information on nutritional problems in groundnut in the region was sketchy and poorly reported. However, groundnut is robust, e.g., in its ability to extract P from soil, and most cultivars are tolerant of a wide range of pH from moderately acid to moderately alkaline.

(i) A detailed inventory of nutrient disorders in groundnut across the Asia region should be compiled

(ii) Adequate diagnostic or predictive tests for determining the occurrence and severity of individual nutritional disorders should be developed. Criteria for P fertilizer inputs are particularly important.

(iii) Priority should be given to research on extremely acid soils (pH<5) to determine interactions with nutrient disorders. The AARD/ACIAR project, which has links with the Philippines through Peanut CRSP, should be supported.

Screening of germplasm for tolerance of acid soils in the Philippines should be encouraged and supported.

ICRISAT should provide a catalog of cultivars sensitive to alkalinity-induced iron chlorosis.

Nitrogen fixation by groundnuts should be quantified.

Research on soil processes should be expanded to provide a better understanding of the problems involved in acid soils, waterlogging, nodulation, seedling establishment, and diseases, and the diagnostic procedures for identifying nutrient disorders.

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(i) A standard should be established for inspection of seed for aflatoxin contamination

(ii) Technology for groundnut production by small-scale farmers to reduce risk of aflatoxin contamination should be worked out for different agroecological zones.

(iii) International cooperative research into the aflatoxin problem should be encouraged

(iv) ICRISAT should take a leading role in making available A. flavus resistant cultivars, in collating and distributing research findings, and in arranging training courses.

Germplasm Collection and Adaptation:  Although most national programs are involved in germplasm collection, maintenance and evaluation, cooperation between them in germplasm exchange is limited, mostly due to lack of information on material available. Participants were informed that germplasm lines specific crosses, segregating material, and homogeneous breeding lines are available from ICRISAT. Breeding lines include early maturing lines, rust and late leafspot resistant lines, confectionary lines, thrips and jassid-resistant lines, drought-tolerant lines, and medium to late-maturing lines. These are available as observation nurseries, or as replicated international nurseries.

(i) All countries and international organizations should cooperate in collecting landraces. These should be added to the world collection maintained at ICRISAT Center
(ii) ICRISAT should continue to provide both segregating and advanced breeding lines to national programs who, in turn, should supply ICRISAT with information on the performance of this germplasm in their countries specific subject matter working groups should be organized to address such constraints as drought, foliar diseases, virus diseases, bacterial wilt, insect pests, acid soils, and shade problems.

(iv) Attempts should be made to resolve problems encountered in seed production.

Crop Production:

Although many problems regarding crop production and agronomy were identified as being common throughout the region, it was considered appropriate that research on production and agronomy be conducted within national programs owing to their location specific nature. However, the role of international/regional organizations in supporting this work through physiological research was also considered important.

(i) Attention should be given to the many agronomic problems occurring in the region, and this research, because of the location specific nature of many of the problems, should be carried out within national programs.

(ii) National research activities in groundnut agronomy, including development of machinery, should be reported in the International Arachis Newsletter and other newsletters as well as in appropriate journals.

(iii) National programs should collect and document data on occurrence and importance of the various agronomic constraints within existing production systems.

International Cooperation and Training:

a. Germlapm exchange and quarantine

(i) The importation of multiple samples of identical seed material into a country should be avoided, thus reducing the chances of importing diseases and pests.

(ii) Germplasm and other lines with identified stress resistances or other favorable characters should be maintained within countries to reduce the need for fresh importations.

b. Networking

The Asian Grain Legumes Network (AGLN) was considered to be an effective network, and the ACIAR and Peanut CRISI projects, although country specific, are collaborating effectively with it to support groundnut research in the region. The development of working groups to promote collaborative research was strongly supported, and the following areas were identified: virus diseases, bacterial wilt, aflatoxin contamination and postharvest technology, integrated pest management and agronomy and crop physiology.

c. Training

It was emphasized that in addition to looking toward IARCs for technical information and assistance, countries in the region need to interact to improve their capability to identify problems and conduct research.

All the above recommendations were presented and approved in the plenary session. ICRISAT was asked to consider including other legumes (mungbean and soybean) in the AGLN, and to collate information on groundnut from different sources for dissemination to groundnut scientists.