

Reports

Asian Grain Legumes On-farm Research (AGLOR) Project

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Introduction

A Planning Meeting for Asian Grain Legumes On-farm Research (AGLOR) was organized by the Asian Grain Legumes Network (AGLN)/ICRISAT during 20-24 Nov 1989, to prepare plans for adaptive on-farm research and transfer of technology in Asian countries for ICRISAT's mandate legumes: groundnut, chickpea, and pigeonpea. The representatives of Indonesia, Myanmar, Nepal, Sri Lanka, and Vietnam along with consultants and ICRISAT staff prepared draft proposals for adaptive on-farm research for each country. Based on these draft proposals, ICRISAT submitted a proposal for funding to the United Nations Development Program (UNDP). Based on the recommendations of the fact-finding mission, the UNDP approved the on-farm research activities for four countries (Indonesia, Nepal, Sri Lanka, and Vietnam) as a component of the UNDP/FAO Regional Project for Improvement of Food Legumes and Coarse Grains in Asia (RAS/89/040).

The ICRISAT component of the RAS/89/040 is titled "Testing and adaptation of technology for increased and stabilized groundnut, pigeonpea, and chickpea production in South and Southeast Asia". The objectives of the project are:

- to assist NARSs to assemble available information from research and extension sources within the project countries and the region that could be used in generating production technologies.
- to generate and test, crop production technology under research station and farmers' field situations.
- to modify the most effective production technologies to suit real-farm situations.
- to enhance the adaptive research capabilities and interest of NARSs in legumes production.

Planning meetings

In the beginning we are undertaking on-farm research on groundnut. As a first step to initiate the project, AGLOR Planning Meetings were held in each country. These meetings were conducted to review the existing information and to document the available technology, and decide on the target areas for undertaking on-farm research. In some countries (Nepal and Sri Lanka), the Planning

Meetings were held after the rapid rural appraisals or diagnostic surveys, while in other countries (Indonesia and Vietnam) the meeting was held earlier. The following meetings were organized:

Agency for Agricultural Research Development (AARD)-ICRISAT AGLOR Planning Meeting, Malang, Indonesia, 29-31 Nov 1990.

Ministry of Agriculture, Food and Cooperatives (MAFC)-ICRISAT AGLOR Planning Meeting, Hambantota, Sri Lanka, 26 Jan 1991

Ministry of Agriculture and Food Industry (MAFI)-ICRISAT AGLOR Planning Meeting, Hanoi, Vietnam, 4-6 Feb 1991

National Agricultural Research Center (NARC)-ICRISAT AGLOR Planning Meeting, Kathmandu, Nepal, 11-2 Apr 1991.

Diagnostic survey/rapid rural appraisal

The diagnostic surveys, or rapid rural appraisals were undertaken to assist in planning the on-farm experiments. A multidisciplinary team of scientists from the national programs, ICRISAT, and the International Rice Research Institute (IRRI) visited the target area in Indonesia and interviewed farmers to understand the local agrosystems, agronomic and crop management practices followed, to identify the causes for low yield in groundnut, and to prepare plans for on-farm and supportive backup experiments to address and solve the identified constraints. The details follow:

- Indonesia: Diagnostic surveys were conducted in two target areas, Tuban in East Java (rainfed area), during 10-14 Dec 1990 and Subang in West Java (irrigated area, postrice crop), during 25-29 Dec 1990.

Most groundnut in Tuban is grown on undulating uplands (red latosols) during the second part of the rainy season from March to June. Insect pests, and soil nutrient disorders were major problems, and diseases, and drought were second priority problems.

In Subang area, most groundnut is grown as an irrigated crop mostly as a third crop after two rice crops. Poor seed quality (low germinability) and low-plant populations were the major problems. Insect pests, diseases, and drainage were identified as second priority problems.

Based on the identified constraints in the two target areas, plans for on-farm research and backup research were formulated. The three different packages of practices for the farmers: Low-, medium-, and high-input technology that were formulated at the planning Meeting were modified based on the survey findings.

- Sri Lanka: Rapid rural appraisal was conducted mostly in the central and southern parts of Sri Lanka during 14-25 Jan, 1991. It was obvious from the survey that the farmers considered groundnut as a low-input crop, and the present area and production levels appear to balance the present demand. Seedling mortality, high seed rate, diseases (leaf spot and rust), and lack of high-yielding variety were the major problems. Simple, single-factor diagnostic trials have been planned for on-farm research. Plans also include a marketing survey to evaluate the effects of increased production on price situation.
- Nepal: A diagnostic survey in the major groundnut production areas of Nepal was undertaken during 6-11 Apr 1991. Lack of an integrated market infrastructure was considered as the major constraint that is acting as a disincentive to many potential groundnut growers. Other constraints identified were: insect pests, diseases (late and early leaf spots, rust), reduced plant population, lack of fertilizer management, and high-yielding varieties. On-farm experiments include simple diagnostic trials of components to compare with farmer's normal practice. Also included are the plans for backup research to support the on-farm trials.
- Vietnam: Diagnostic surveys were conducted in both north Vietnam (Nghe Tinh province, 7-13 Feb 1991) and south Vietnam (Long An and Tay Ninh provinces, 19-24 Feb 1991).

In Nghe Tinh province, groundnut is the main crop grown during spring (Feb-June) in the coastal sandy area, river beds, and midland and sloping areas as a rainfed crop. Lack of cash to purchase inputs, and low price of groundnut at harvest were major socio-economic problems. Drought at flowering and waterlogging at harvest were important abiotic constraints. Among the biotic constraints, bacterial wilt (?) and damping-off diseases, leaf-eaters and white grub were considered major problems.

In Long An and Tay Ninh provinces, groundnut is grown mostly as a second crop after rice in the winter-spring (Nov-Feb), and as a third crop in summer (March-June). Most groundnut is irrigated. Leaf eaters, and lack of coconut ash (as manure) were priority problems. Inadequate irrigation water, weeds, and damping-off disease were the other problems considered as important by farmers.

On-farm experiments to address identified problems in both regions have been planned, along with supportive backup research. Considering that the level of crop management by farmers and yields obtained are high in south Vietnam, many backup research studies were suggested for this region to enable scientists to refine

the existing technology with reduced or reallocated resources.

Progress to date

The experiments in Tuban (Indonesia) and Nghe Tinh and Ha Bac (Vietnam) have been sown. The experimentation in other areas will start in the next crop season.