Groundnut Research at ICRISAT and Its Relevance to Asia

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Introduction

Groundnut is currently sown to 21.7 million ha in more than 100 countries with a total production of 28.5 million tons (FAO 1994). The world groundnut production has been increasing in recent years; the increase in production being largely confined to Asia. An increase in both productivity and area under the crop have contributed to the increased groundnut production in Asia. In 1994, the groundnut productivity in Asia increased by 29.98%, area under the crop by 24.40%, and production by 61.30% over the 1979/81 period.
remains lower than south America (1.83 t ha^{-1}) and north and central America (2.63 t ha^{-1}). Currently, Asia produces 71.6% of the world groundnut production in 63.3% of the area. The leading groundnut producing countries in Asia are China, India, Indonesia, Myanmar, Vietnam, and Thailand.

Several constraints limit groundnut production in Asia. Among the biotic constraints are rust, leaf spots, aflatoxin, leaf miner, *Spodoptera*, white grub, peanut bud necrosis virus disease, peanut clump virus, peanut mottle virus, peanut stripe virus, and bacterial wilt. Among the abiotic constraints are drought, low soil pH, iron chlorosis, and low soil fertility. Because of these stresses, most of the currently grown varieties are poorly adapted.

Groundnut research at ICRISAT is currently packaged into three global groundnut projects, each addressing a distinct agroecology. These projects are:

GN 1 Improvement of medium- and long-duration rainfed groundnut productivity and stability
GN 2 Improvement of short-duration rainfed groundnut productivity and stability
GN 3 Improvement of irrigated postrainy season groundnut productivity and stability

While GN 1 largely targets subsistence levels of production, GN 2 focuses on areas where both subsistence and intensive farming are practiced, and GN 3 concentrates on high-input intensive commercial production of groundnut.

Research activities are grouped under seven subprojects which form the components of each project (except for management of drought, which involves only GN 1 and GN 2). These subprojects are:

- Management of foliar diseases
- Management of foliar pests
- Management of aflatoxin

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- Management of viruses and sucking pests
- Management of drought
- Yield and adaptation
- Information and technology exchange

All research activities are targeted in PS 5,6,8,9,10, and 11 with spillover to PS 2, 3, and 4 in Asia. These activities cover strategic, applied, and adaptive components of research. Some constraints such as bacterial wilt, low soil pH, iron chlorosis, and low soil fertility, which are important in Asia, do not rate high in priority on a global basis. These constraints are being dealt with under network activities, and complementary/ special funding is being sought for research activities related to them.

Significant outputs of collaborative research activities in Asia are as follows:

- During 1994 and 1995, 104 sets of international trials, 1625 advanced breeding lines, 267 segregating populations, and 320 other materials were supplied to cooperators in Asian countries. Further, 34 crosses were made at the request of our cooperators during the same period.
- Joint or ICRISAT assisted varietal releases since 1990 in the region include ICGV 87160 (as Sinpadetha 5) in Myanmar, ICGS(E) 56 (as BARD 92) and ICG 4989 (as BARD 479) in Pakistan, JL 24 (as UPL Pn 10) in the Philippines, ICGV 86564 (as Walawe) and ICGS 11 (as ANKG 2) in Sri Lanka, and ICGS(E) 56 (as HL 25) in Vietnam. In India, the Central Varietal Committee releases include ICGS 37 (ICGV 87187), ICGS 1 (ICGV 87119), ICG(FDRS) 10 (ICGV 87160), ICGV 86590, and ICGV 86325, and the State Varietal Committee releases include ICGS 1 as Konkan Gaurav in Maharashtra, ICGV 86143 as BSR 1, and ICGV 86011 as ALR 2 in Tamil Nadu.
- ICGS(E) 11 and ICGS(E) 55 in Bangladesh and ICGS(E) 52, ICGS(E) 56, and ICGS 36 in Nepal are included in on-farm trials.
- On-farm trials related to improved groundnut production technology were conducted in Indonesia, Nepal, Sri Lanka, and Vietnam. These technologies are now being extended to large areas in these countries.