of long-duration types. Each one of these tests consists of about 15 entries of our "best" performing material. Enough seed will be sent of each to plant a 3- or 4-replicate test.

3. Pigeonpea Unselected Bulk Population (PUB). *These populations consist of the F_5 or later generations of crosses made at ICRISAT. This material has been advanced using the single pod descent method that permits the retention of a sample of the complete range of variability in each cross.*

4. Special Requests. *We are also prepared to meet requests for small quantities of seed of specific types of material from our breeding program, but especially from our germplasm collection.*

Requests for seed should be sent to the Principal Pigeonpea Breeder, ICRISAT, or to the Germplasm Botanist (Pulses), Genetic Resources Unit, ICRISAT.

Notice of International Pigeonpea Breeders' Meets

As part of our work in international cooperation, pigeonpea breeders in all cooperating countries are invited to visit the Pigeonpea Program at ICRISAT, Patancheru (25 km from Hyderabad), during the Annual Pigeonpea Breeders' Meets, to gain first-hand knowledge of the research activities at ICRISAT Center and collaborative field stations.

Participants at these Meets are shown experiments in breeding, physiology, pathology, entomology, and microbiology. They are also taken around the breeding plots where material in different generations can be seen. In these fields they can select the material, as single plants or row bulks, that they consider would be suitable for their own regions (following which seed of the selected plants or rows is sent to requesting breeders after harvests). An informal discussion session is also held in which the participants and ICRISAT scientists discuss the problems of and prospects for pigeonpea improvement. This helps ICRISAT scientists to appreciate specific problems faced by breeders in different regions, and the ways in which it is possible to develop fruitful cooperative strategies.

The dates for the Breeders' Meet for the short-season crop at Hissar had been tentatively set for the week 12-16 October 1981, and for the full-season crop at ICRISAT Center for 7-9 December, 1981.

Research Reports

General

Early-Maturing Pigeonpeas Heading for a Green Revolution (Extracts of a tour report by ICRISAT's Director of Research.)

In October 1980 I had the opportunity of travelling through parts of western Uttar Pradesh, Punjab, and Haryana and was highly impressed with a new cropping system which is emerging in these areas. I traveled from Delhi to Dehra Dun, Chandigarh, Ludhiana, Hissar, and back to Delhi, thus completely encircling a small sector of these three States. In this area I was amazed to see field after field of sole-cropped pigeonpea. Its presence was most evident in Punjab and Haryana, and I will therefore confine my comments to these States.

It may be recalled that in both these States, following the wheat revolution, there was a spectacular emergence of rice as the most important cereal crop of the kharif (rainy) season. Farmers were claiming even 7 tonnes/ha of unhusked rice. Thus, a rice-wheat rotation has become common under irrigation, with heavy fertilizer inputs. This new cropping system, and the rising costs of labor coupled with the nonavailability of local workers, had led to an influx of migratory labor into these two States.

The demand for pigeonpea dhal by these migratory laborers provided a stimulus for the recent developments in pigeonpea in these areas. In addition, low-yielding kharif pulses, such as black gram and green gram that become affected by mosaic virus, started losing favor as crops for the area. The farmers were therefore looking for a substitute for these kharif pulses, as well as for pearl millet and maize, which for many reasons were not showing a bright future. In some districts even groundnuts, which became a victim of clump virus, also started yielding

ground to pigeonpea. I understand that in the last 2 years about 100,000 acres (some say these are hectares) have come under pigeonpea in Punjab alone. I cannot say how reliable this figure is but, judging from what I saw, I have no doubt that pigeonpea is an up-and-coming crop.

Pigeonpea is being grown as a sole crop in irrigated areas, usually without irrigation but sometimes with one application of water. The variety that is currently being used in Punjab seems to be a local version of T-21. Pigeonpea has fitted well into rotation with wheat because it is harvested by the 1st week of November, to release the land for seeding the wheat.

The farmers' reasons for taking up pigeonpeas are: low or nil inputs; a good substitute for other kharif pulses; pigeonpea's ability to improve soil fertility by adding organic matter and nitrogen, thus reducing extra nitrogen requirements for wheat; stalks that provide good fuel; good crop cover that reduces soil erosion; an average grain yield of 700-800 kg/ha; little pest or disease damage at present; and its good price because it is a food preferred by migratory labor.

Can pigeonpea workers contribute to the green revolution in pigeonpea and give to the farmers of irrigated areas of north India more productive, short-duration and disease- and pest-resistance material quickly? The farmers are desperately looking for such promising material.

I know there is good material in the pipeline. If we can provide a high-yielding, photoinsensitive, short-duration (no more than 120 days) variety that farmers can grow without much application of pesticides, and no more than one irrigation, it can click. Minimum average yields should be about 1500 kg/ha on an operational scale. Some agronomic experiments to work out the date of sowing and other agronomic requirements of the crop, and to quantify the savings of N through pigeonpea-wheat rotations, need to be conducted.

To sum up my observations I consider that the timing is right, and farmers are willing to try early-maturing pigeonpeas. Use of early-maturing pigeonpea can bring about a revolution in pulse production in Punjab, Haryana, and western Uttar Pradesh. Pigeonpea workers should not let this opportunity slip by.

- *J.S. Kanwar (ICRISAT)*

Pigeonpea Research in Fiji

Pigeonpea is an important crop in Fiji for the resident Indian community. Total pulses imported amount to 3000 tonnes per annum of which 500 tonnes are pigeonpea. Small-scale production has been traditional with Indian farmers in Fiji. However, the high cost of imported pigeonpea has forced consumers to eat split *Pisum* peas from New Zealand and Australia. The recent opening of a dhal mill in Fiji may provide an additional incentive for local pulse production.

The Ministry of Agriculture in Fiji has maintained a research interest in the crop, and the visit in 1978 by Dr. J.M. Green, then Pulse Improvement Program Leader at ICRISAT, provided the basis for a cooperative research program between the Fiji Ministry, the Department of Agriculture at the University of Queensland, and ICRISAT. ICRISAT has provided travel expenses for staff members from the University of Queensland to visit Fiji to plan, establish, and discuss progress of the research.

The program is aimed at introducing a wide range of pigeonpea germplasm to Fiji, both from ICRISAT and the University of Queensland, and to investigate production limits in the Fijian environment. Initially, germplasm was tested at three locations (in dry, mid and wet zones) under a range of planting dates and sowing densities. These studies indicated the importance of pests (particularly *Maruca*) and the poor productivity due to diseases and pests in the wet and mid zones of Fiji. In the dry zone several accessions have shown promise, particularly when planted in decreasing daylengths at high population densities. The Ministry of Agriculture is continuing these studies, under the direction of Mr. Richard Viner at Lega Lega Research Station, Nadi.

In addition, a quasi-Government Corporation (Native Land Development Corporation, the NLDC) has commenced relatively large-scale (150 ha in 1981) mechanized production of the cv Royes (released by the University of Queensland). The production system for cv Royes developed at the University of Queensland (Wallis et al. 1979) has been easily extended to the Fijian situation. The manipulation of sowing date x density interactions to restrict vegetative growth, ensure rapid synchronized flowering, and reduce the need for insect control, permitted yields of up to 1700 kg/ha to be harvested in the 1980 crop. It was not