Promising lines are being purified and would be further tested under the multilocation testing programme. Some of these lines have good agronomic characters and hence, are being tested in yield trials for their direct use.

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Pigeon Pea Improvement at Banaras Hindu University

S. VENKATESWARLU* and R.B. SINGH** (*Training Program. International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru P.O. 502324, India; **Regional Coordinator, (Germplasm resources) South East Asia, FAO Buildings, Bangkok, Thailand).

The National Pulse Improvement Program has entrusted us the main responsibility of developing high yielding and disease free cultivars of pigeon peas (Cajanus cajan (L) Millsp.) belonging to the medium (160-200 days) and late (above 200 days) maturity groups.

To achieve these objectives, we started collecting the germplasm from all over the country including some of the most tribal areas. Presently we have 578 entries in our list of which 198 entries have been catalogued for majority of the characters.

Wild relatives of pigeon pea, i.e., Atylosia scarabaeoides, A. platicarpa, A. lineata, A. sericea, A. albicons, and Rhynchosia rothii are being maintained and used in intergenetic hybridization to transfer desirable genes. Our attempt to cross A. platicarpa (a commonly available weed in our fields) with the above species including Cajanus is underway. The F_2 plants of the other intergenetic material are in the field.

Pigeon pea wilt (Fusarium udum) and Sterility Mosaic Virus (SMV) are the most serious diseases of this locality. Screening of our germplasm in a well established wilt-sick plot resulted in identifying thirteen lines free from this disease. Screening of the germplasm lines by infector row and leaf stapling techniques for SMV helped in identifying 28 lines with high degree of resistance. Fortunately one of these lines (Purple-1) has a very high degree of multiple resistance to both wilt and SMV and at the same time providing yields up to 1500 kg/ha in about 200 days. This line has been tested by the Pulse Pathologists of the National Program as well as the Pulse Pathology Unit at ICRISAT.

Of the pest complex of pigeon pea, podfly (Melanagromyza obtusa) is serious, causing maximum damage in North India. Screening the germplasm provided some useful results. One of our collections (GP. 127) from a tribal area in Koraput District in Orissa State was least preferred by the podfly (damage $\leq$5%). When the larvae were fed on Cajanus and Atylosia, particularly A. scarabaeoides, they showed relatively more preference towards Cajanus.

Variability for different characters was very wide in our germplasm. Seed size in our collection ranged from 5.10 g to 25.96 g/100 seeds (the highest seed index in GP 125D).

Genetic markers (purple and green stem colours) from germplasm have been utilized in finding out the extent of natural crossing at our centre (27%). Based on this important information, our breeding approaches are being diverted to some extent towards the establishment of composites as well as the utilization of male sterile lines (available at ICRISAT) in the hybrid seed production.

Our Cropping Systems Unit (Agronomy) is working to evolve a suitable crop sequence to fit pigeon pea as an intercrop (since the farmers do not grow pigeon pea as a pure crop).

Floods generally cause severe damage to the standing crop in our region particularly from the second fortnight of August to middle of September. Promising breeding lines are being evaluated to plant them after the flood water recedes (by 25th Sept.) to have a reasonably good crop by March with suitable agronomic manipulations (population size, spacing etc.,).

Some of our advanced breeding lines of medium and late durations are under evaluation in the National Coordinated Trials for their yielding ability.

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Breeding Mung Bean (*Vigna radiata* Wilczek) for Photoinsensitivity, High Yield and Field Resistance to Yellow Mosaic Virus

K.P.S. CHANDEL, B.S. JOSHI and K.C. PANT (National Bureau of Plant Genetic Resources, I.A.R.I. Campus, (C.T.O) New Delhi-110012, India).

Traditionally pulses have been important constituents of Indian diet. Rich in protein and essential amino acids such as lysine, they are consumed in various ways in different parts of the country. Pulses are cultivated over a vast area - nearly 23 million hectares constituting 18% of the total cultivated area of the country.