NATIONAL SYMPOSIUM
ON
PULSES FOR SUSTAINABLE AGRICULTURE AND NUTRITIONAL SECURITY

APRIL 17 - 19, 2001
NEW DELHI

ABSTRACTS

Sponsord by

Indian Council of Agricultural Research

Organised by

Indian Society of Pulses Research and Development
Indian Institute of Pulses Research
Kanpur 208 024

भा कृ अनु प
ICAR

ISPRD

t much difference between the nematicidal efficacy of seed treatment with azophos or chlorpyriphos (population reduction >30% in both the cases) and em seed powder (reduction >28%). On the other hand seed treatment with the ex of *C. procera* was found to be as good as the biocontrol agent *P. lilacinus*, iereas Kalisena (*A. niger*) showed better nematicidal property over both the latex d *P. lilacinus*. Maximum grain and straw yield was obtained with the carbofuran llowed by neem seed powder, which also provided drastic reduction in the number cysts of *H. cajani*.

D.33 EFFECT OF PLANT TYPES, PLANT POPULATIONS ND PEST MANAGEMENT PRACTICES ON GRAIN YIELD OF PIGONPEA GROWN DURING RAINY SEASON

A. Singh[1] and Pradyuman Kumar[2]

[1]Division of Agronomy, Indian Agricultural Research Institute, New Delhi 110012

[2]National Centre for Integrated Pest Management, Indian Agricultural Research Institute, New Delhi 110 012

A field experiment, to study the effects of plant types, plant populations and st management practices on grain yield of pigeonpea was conducted at Indian gricultural Research Institute, New Delhi during rainy season of 1997 and 1998. nder IPM the seeds were treated with Thiram and *Rhizobium*. The pest were onitored by pheromone traps and visual observations. *Chrysopherla* larvae and uclear Polyhedrosis virus of *Helicoverpa armigera* were used when the pest ossed economic threshold levels. In ICU the seed treatment was done by Thiram. HC dust was used for *Mylabris*. Six sprays of endosulfan were made for *armigera*. Cultivar Pusa 855 produced significantly more number of pods/plant,)00-grain weight and grain yield (1550 kg/ha) over cultivar Pusa 33 (1290 kg/ha). population of 1.5 lakh plants/ha gave significantly more grain yield (1550 kg/) than the populations of 1 and 2 lakh plants/ha (1420 and 1290 kg/ha, respectively) plant population of 2 lakh plants/ha resulted in significantly lowest grain yield 290 kg/ha). Integrated pest management (IPM) and intensive chemical use (ICU) rategies being at par gave significantly more grain yield (1460 and 1480 kg/ha, spectively) than traditional farming (TF) i.e. 1310 kg/ha.

D.34 ALLEVIATING SOME BIOTIC CONSTRAINTS IN PIGEONPEA THROUGH BIOTECHNOLOGICAL APPROACHES

Nalini Mallikarjuna and K.B. Saxena

International Crops Research Institute for Semi Arid Tropics, Patancheru P.O. 502 324 (A.P.)

Pigeonpea is an important crop of dryland farmers in India with about 3.2 m ha cultivated annually in a wide range of environments. Pigeonpea vareities are capable of producing approx. 3 t/ha yield but the realized yields are low especially in central and southern India. Major biotic production constraints in pigeonpea are diseases and attack by insect pests. These together cause huge loss each year. Among diseases fusarium wilt, sterility mosaic and phytophthora blight are economically important while pod borers and podfly are major yield reducing insects. Pigeonpea breeders have achieved considerable success in breeding resistant cultivars for wilt and sterility mosaic diseases, but resistance breeding for phytophthora blight disease and helicoverpa/pod borers has not been achieved.

Wild species of pigeonpea are important sources of resistance genes not available in the primary gene pool. It has been possible at ICRISAT to identify wild species with resistance to phytophthora blight and pod borers. Not all wild species are crossable with cultivated pigeonpea by conventional breeding techniques. Biotechnological interventions are necessary to transfer resistance genes. *Cajanus platycarpus* and *C. acutifolius* are resistant to phytophthora blight and attack by pod borers, respectively. In 1994 experiments were initiated at ICRISAT to transfer resistance to phytophthora blight disease from *Cajanus platycarpus* into cultivated pigeonpea. By the standardization of *in vitro* and molecular techniques, it was possible to introgress genes from *C. platycarpus* and cultivated pigeonpea. Two hundred and forty interspecific hybrids at F_2 and F_3 generation were screened for phytophthora blight disease and thirty four hybrids were found to show resistance reaction to the P_3 isolate of *Phytophthora drechsleri*, the pathogen that causes severe phytophthora blight disease in pigeonpea. In 1998, experiments were initiated to transfer pod borer resistance from *C. acutifolius* into cultivated pigeonpea. The hybrids at F_1, and BC_1 generation were screened for pod borer damage under multiple-choice and no-choice conditions. Extensive damage was observed on cultivated pigeonpea pods, whereas some of the hybrid pods had minimum damage. The results of the experiments will be discussed in detail. Another approach to obtain disease resistance plants and bring in much desired variation is by *in vitro* induced somaclonal variation. The results of experiments on somaclonal variation in pigeonpea will also be discussed.