

Evaluation of resistant and high yielding pigeon pea (*Cajanus cajan*(L.) Mill sp.) for Satpura plateau

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SUMMARY

The selected improved resistant lines from the population of hybrids of pigeon pea varieties were evaluated in the research farm of ZARS JNKVV Chhindwara. Twenty three lines which were categorized in three groups as the basis of maturity duration early group, medium group and late group, including parents there twenty three lines were ICPL 85010, ICPL 87, MA 89, PUSA 33, 0061, 0074, JJA 72-3, J 72-9, J 64-1, J 64-2, BSMR-736, JKM-7, 008, 0080, 0299, JJA-28-6, 0013, 0031, 0109, 0118, 0119, Medium duration lines were found of high yielder & resistant to wilt and pod borer, Medium duration's lines were found best for Chhindwara plateau.

Key words : Pigeon pea, Yield evaluation.

Pigeon pea is one of the most important grain legume crop of India. Deep tap root system of this crop has made it suitable, for rain fed area and thus it is generally grown under rain fed condition, From the last decades pigeon pea production has remained stagnated due to resistant and high yielder variety. The pigeon pea breeding strategies in M.P. were planned to evaluate high yielding early duration having wide adaptability and resistant to wilt, to achieve these objectives, experiments were conducted of improved lines.

MATERIALS AND METHODS

Two improved but susceptible varieties T-21 and No.-148 were crossed and backcrossed to resistant varieties ICPL 87, ICPL 86007, ICPL 85030, ICPL 86012, ICPL 151, ICPL 335, ICPL 8362, ICPL 035, ICPL 4769, ICPL 7119, DPA 8514, ICPL 7867, . To observe the hybrid's performance, field trials were conducted Non replicated populations of resistance hybrids were sown, to advance the bulks and make suitable selection for desirable single plants.

There were made 320 single plant selections from 20 individual populations, Twenty three improved lines were selected to evaluate resistant high yielder variety for Satpura plateau. These lines were comprised of parents also These were divided three groups according to its maturity duration, ICPL 85010, ICPL 87, MA 89, PUSA -33, 0061, 0074, were in early group, JJA 72-3, J64-1, J64-2, BSMR-736, JKM-7, 0078, 0080, 0299, JJA -28-6, in medium group and 0013, 0031, 0109, 0118, & 0119 were in late group. These improved selected lines were sown in research form of Z.A.R.S. JNKVV Chhindwara of Satpura plateau during 2001-2002. The evaluation was made on the basis of character viz - days to 50% flowering, days to maturity, plant height, no of primary branches / branch. No of pods

/ plants, seed color, yield / ha and diseases & pest.

RESULTS AND DISCUSSION

From the study of flower colors were found to be governed by two complementary genes to each other, In yellow colored flowers were observed with purple streaked. Due to lack of rains and high temperature, height was checked, it effected No of primary branches, pod number / plant and consequently it had effected yield. 50% flowering was observed too early in the variety ICPL 85010 of early group it is 30-70 days earlier than medium and late lines, and thus it was matured also 30-98 days before than medium and late lines. But the early type entries gave very low yield, late lines were also low yielder due to high temperature and lack of winter rains, pod remains unfilled. Due to high temperature in early group and lack of winter rains late genotypes reached physiologically forced maturity, were less pronounced. Medium maturing lines exhibited higher yield than the other group and best check, indicating the role of medium phenology in enhancement of productivity under rainfed and late sown environments. The lines possessing earliness showed maximum losses due to high temperature, stress and pod borer menace, ICPL 85010 and ICPL 87 both were early line but susceptible to pod borer. Among late duration the 0013, 0109, 0031 were susceptible to wilt and pod borer due to biotic effect it lost yield.

In evaluation of improved lines it is found that medium duration lines were higher yielder, resistant to pest and wilt. Thus according to the result medium duration possessed lines are best for Satpura plateau.