

Breeding of Garden Pea (*Pisum sativum* var. *hortense* L.) for Growth, Yield and Quality Traits under Mid Hill Conditions of Himachal Pradesh

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Abstract—This study was carried out at the Research Farm, Department of Vegetable Science, Dr. YS Parmar University of Horticulture and Forestry, Nauni, Solan (HP) during Rabi, 2010-11. The experiment was laid out in a RCBD with three replications. Fifty four genotypes including four check cultivars were evaluated for different horticultural traits. The observations were recorded on days to first flower (number), node at which the first flower appear (number), number of pods per plant, pod length (cm), number of seeds per pod, shelling percentage (%), days to marketable maturity (number), pod yield (kg/plot), pod yield (q/ha), TSS ($^{\circ}$ B), total phenols (g/100g) and powdery mildew severity (%). Analysis of variance showed significant differences among all the genotypes for all the characters under study. Seven genotypes viz. 10/PMVAR-3, 10/PMVAR-4, 10/PMVAR-5, 9/PMVAR-7, AG-12, IC-381058 and VP-433 were found superior over other entries and over standard checks for yield, quality and other important horticultural traits. High heritability estimates coupled with high to moderate genetic gain were observed for pod yield (kg/plot), pod yield (q/ha), total Phenols (g/100g), node at which the first flower appear (number) and number of pods per plant which indicated that these characters are under additive gene control and are more reliable for effective selection. Yield had shown positive association with number of pods per plant, pod length (cm), number of seeds per pod, shelling percentage (%), total sugars (%) and total soluble solids ($^{\circ}$ B). Among all the traits studied pod yield per plot had shown maximum positive direct effect on yield per hectare followed by number of pods per plant, number of seeds per pod, days to first flower and pod length. Further divergence studies indicated that hybridization between genotypes from cluster II and III can be utilized for getting the superior recombinants in segregating generations.