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RESEARCH PAPER

Influence of growth regulators and crossing period on flowering, seed yield and quality of chilli hybrid HCH-9646

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Abstract **:** Application of growth regulators before flowering and at fruit initiation stage reduced the number of days for flowering and increased the seed yield and quality of chilli hybrid HCH-9646. Among them spraying NAA (20 ppm) before flowering and at fruit initiation stage recorded higher seed yield (9.06 g/plant) followed by 2,4-D at 1 ppm (9.05 g/plant) and GA_3 at 50 ppm (8.53 g) indicating their utility in enhancing seed production of chilli hybrid. Flowering behaviour, seed yield and quality of hybrid seeds produced at two different durations of crossing in HCH-9646 was assessed. The number of flowers crossed per plant, number of crossed fruits retained per plant, fruit set percentage and seed yield per plant increased from first crossing period (P_1-45 days) and reached to maximum in second crossing period (P_2-60 days), respectively during 2006 and 2007 *Kharif*. While, seed quality parameters declined as the crossing period prolonged.

Key Words **:** Growth regulators, Crossing period, Hybrid chilli, Seed yield

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INTRODUCTION

Chilli is gaining commercial importance as spice and also consumed as green vegetable. There is a great potential to increase yield in chilli either by reducing flower drops or by increasing fruit set. Plant growth regulators being considered as new generation of agro-chemicals after fertilizers, pesticide and herbicides have potential ability to increase productivity of vegetables. The plant growth regulators have contributed a great deal to the progress of horticulture by modified and controlling growth behaviour of vegetable crops. To exploit the hybrid vigour, flowers on the female plants are emasculated and pollinated from desired pollen parent by hand and the late season flowers are removed leading only the hybridized fruits. However, no information is available on how hand crossing periods affect hybrid seed yield. Hence, a study was noticed to find out the suitable growth regulator and the effect of hand crossing periods on flowering behaviour, hybrid seed yield and quality.

MATERIALS AND METHODS

A field experiment for HCH-9646 hybrid seed production was laid out at Agricultural Research Station, Bailhongal farm, during *Kharif* 2006 and repeated in 2007 in a Randomized Block Design with factorial concept. Experiment consisted of two factors, first factor was growth regulator spray involving of four treatments *viz.*, GA_3 at 50 ppm, NAA at 20 ppm, 2, 4-D at 1 ppm and no spray (control) and second factor was of two crossing periods *viz.*, 45 days and 60 days. Twenty five days old seedlings were transplanted, single seedling per hill in each plot of 3 m x 3 m. The half dose of nitrogen (75 kg/ha) and full dose of phosphorus (75 kg/ha) and potassium (75 kg/ha) were applied at transplanting time and the remaining nitrogen (75 kg/ha) was applied as top dressing after six weeks of transplanting. These growth regulators were sprayed before

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