

Research Paper

THE ASIAN JOURNAL OF HORTICULTURE

Vol. 6 | Issue 2 | December, 2011 | 316-318



Article history:

Received : 07.05.2011

Revised : 08.07.2011

Accepted : 15.09.2011

Effect of plant growth hormone and fertilizer on growth and yield parameters in chilli (*Capsicum annum* L.) cv. PUSA JWALA

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Abstract : A study was conducted at Horticulture Research Farm, Department of Horticulture, Choudhary Charan Singh University, Meerut during the year 2008-2009. The experiment was laid out in Randomized Block Design, consisted 9 treatments combinations, replicated three times. Plant growth hormone NAA each at 50 and 75 ppm and nitrogen 100 and 150 kg/ha concentration was used individually as well as in all possible combinations. The combined application of plant growth hormone and fertilizer each at higher concentration (75ppm NAA, 150 kg N/ha) gave the maximum growth and yield. The result revealed that a maximum increase was found in vegetative growth parameters as plant height 58.43 cm, no. of branch/plant 82.65, no. of leaves/plant 998.72 and yield parameters *i.e.* length of fruit 5.64 cm, yield of green fruit 68.49 q/ha, yield of dry fruit 6.74 q/ha with the combined application of plant growth hormone and fertilizer (75 ppm NAA and 150 kg N/ha) in comparisons to other treatment combination and control.

Key words : Chilli, *Capsicum annum* L., NAA, Nitrogen, Growth, Yield

How to cite this article : K. Kalshyam, Manoj, Kumar, Jiterdra, Mohan, Braj, Singh, J.P., Ram, Nathi and Rajbeer (2011). Effect of plant growth hormone and fertilizer on growth and yield parameters in chilli (*Capsicum annum* L.) cv. PUSA JWALA, *Asian J. Hort.*, 6 (2) : 316-318.

Chilli (*Capsicum annum* L.) is the fruit vegetable and belongs to the family Solanaceae. The genus capsicum is derived from Greek word “Kapsimo” meaning “tabite” chilli is an indispensable spice as basic ingredient in everyday cuisines all over the world. The world’s hottest chilli “Naga Jolokia” is cultivated in hilly Terrain of Assam in a small town Tejpur, India. Chilli has many medicinal properties such as stimulating good digestion and endorphins a natural pain killer to relieve pains. This crop requires heavy fertilizers for fruits especially the quantities on nitrogen for its high yields. Nitrogen accelerated the vegetative growth for fruit formation, plant height, fresh weight and leaves as green vegetable. Application of nitrogen ranging from 50-120 kg/ha. was found for obtaining maximum fruit yield. (Rohal and Kalra, 1986; Palled *et al.*, 1988.). Growth parameter of chilli are mainly depends upon nitrogen supply and along with other nutrients. Similarly the plant growth and yield to harness maximum benefit from seed production. It is also

observed that exogenous foliar application of growth regulators stimulates flowering, pollination, fertilization and seed setting to get maximum seed yield.

RESEARCH METHODS

The field experiment was conducted during 2008-2009 at the Horticulture Research Farm, Department of Horticulture, C.C.S. University, Meerut (U.P) cv. PUSA JAWALA. The experiment was laid out in Randomized Block Design, consisted 9 treatments combinations. Plant growth hormone NAA each at 50 and 75 ppm and nitrogen 100 and 150 kg/ha concentration was used individually as well as in all possible combinations. The soil of the experiment field was sandy loam (fine sand-55.6%, silt-22.3%, and clay-20.6%) with organic carbon (0.41%), N (0.052%), P (0.0079%), and K (0.0202%) and pH (7.4). Seeds of Pusa Jawala were sown in the nursery bed and after 25 days, seedlings of uniform vigour and size were transplanted in the field at a distance of 60 cm × 45cm