



Research Paper

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Performance of broccoli as influenced by foliar mineral nutrients and GA₃ spray

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Abstract : To assess the impact of foliar spray of urea (1%), micronutrients (B, Zn, Mn, Cu and Fe each 0.2%) and GA₃ (0.01%) on production productivity, earliness in curd production and quality of broccoli cv. FIESTA under Ranchi condition were carried out at the Department of Horticulture, Birsa Agricultural University, Ranchi, Jharkhand during winter season of 2008-2009. The maximum ultimate plant spread in E-W and N-S direction (54.63 and 51.92 cm) exhibited in urea 1 per cent spray whereas more increase in number of leaves was in the favour of boric acid 0.2 per cent spray (16.79). Moreover, GA₃ 0.01 per cent and zinc sulphate 0.2 per cent proved their superiority in obtaining the stalk length (16.03 cm) and root length (15.07 cm), respectively over other treatments and control during harvesting. The control exhibited the lowest number of leaves, minimal stock length and root length. In addition to this, GA₃ (0.01%) had most favourable effect in causing earliness in 50 per cent curd initiation and 50 per cent curd maturity by 20.04 and 19.24 days over control. A significant increase in head yield (129.8 q/ha) was noticed with the foliar spray of urea 1 per cent and the magnitude of increase was 39.13 per cent over control. The physicochemical properties particularly TSS (10.53° brix), total sugar (2.61%) and soluble protein (40.49 mg/100g) content were registered highest with urea 1 per cent spray but ascorbic acid decreased and it was in the favour of zinc sulphate as well as boric acid 0.2 per cent spray whereas lowest phenol recorded under copper sulphate 0.2 per cent spray. Regarding the economics of broccoli production, urea spray resulted into higher net profit per hectare.

Key words : Broccoli, Foliar mineral nutrient, GA₃

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Broccoli (*Brassica oleracea* var. *italica*) primarily marketed fresh or frozen is a member of the cruciferae family and it is widely cultivated in many European and American countries. In India, broccoli is still grown in a very limited scattered areas and total cultivated area is still not exactly known. It has enormous nutritional and medicinal value due to excellent source of vitamins, minerals and anti-oxidant substances which prevent the formation of cancer causing agents.

The beneficial effects of applying foliar plant nutrients particularly nitrogen, zinc, boron, iron and manganese and its sources play a key role in improving the productivity and quality of crop due their involvement in various enzymes and other physiologically active molecule (Alloway and Brain

2008). These nutrients are also involved in structural and functional integrity of membrane and other cellular components (Rengel, 2007). Subsequently, a lot is known about the plant growth regulator especially the crucial role of GA₃ in various physiological and bio-chemical processes to regulate growth and yield in vegetable species (Leshem and Steiner, 1968 and Boojj, 1990).

The aim of present studies was to evaluate the efficiency of mineral nutrients and gibberlic acid applied as a foliar spray to broccoli grown under field conditions.

RESEARCH METHODS

The investigation was carried out during the season of 2008-2009 on a sandy loam soil with pH 5.6, 0.456 per cent