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Research Paper

Influence of plant growth regulators and their application methods on yield and quality of onion (*Allium cepa* L.)

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ABSTRACT

The field experiment was carried out during *Rabi* seasons for the years 2007-08 and 2008-09 in sandy loam soil at Horticultural Research Farm, Department of Horticulture, B. A. College of Agriculture, Anand Agricultural University, Anand in Randomized Block Design with three replications. The growth regulators GA_3 and NAA each @ 50, 100 and 150 mg/l were tried as root dipping, foliar spray as well as their combinations and compared with control. The application of GA_3 50 mg/l as root dipping + foliar spray significantly increased volume of bulb, equatorial and polar diameter of bulb as well as bulb yield, while average weight of bulb was significantly increased in GA_3 100 mg/l as root dipping + foliar spray. The other characters *viz.*, number of leaves per plant, TSS and dry matter content of bulb were found non-significant. The physiological loss of weight, spoilage loss and finally total loss were significantly reduced under NAA 100 mg/l as root dipping treatment when compared to control.

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Key words : Onion, Plant growth regulator, Application method

Onion (*Allium cepa* L.) is one of the most important bulbous vegetable crop of India grown in an area of 0.45 million hectares with a production of 6.03 million tonnes (Anonymous, 2006). It is used as salad, cooked in various ways of fried, boiled, soup making, sauces and pickles. Now-a-days white onion is also widely used in dehydrated powder form and has several medicinal properties. There is a great demand in the international market and it becomes one of the major sources of foreign exchange. India exports annually 5 lakhs metric tonnes onion and earns Rs. 276.21 crores (Veere Gowda *et al*., 2002). Plant growth regulators have given favourable impact on growth, yield and quality of onion (Singh *et al*., 1992 and Singh *et al*., 2003). However, their use in crop like onion was not realized on commercial basis. Therefore, present study was under taken to study the influence of plant growth regulators and their application methods on yield and quality of onion.

MATERIALS AND METHODS

The experiment was conducted at Horticultural Research Farm, Department of Horticulture, B. A. College of Agriculture, Anand Agricultural University, Anand during *Rabi* season of the years 2007-08 and 2008-09 in

Treatment details

Treatment	Treatment details	Treatment code
T_1	GA_3 50 mg/l as root dip	G_1M_1
T_2	GA_3 50 mg/l as foliar spray	G_1M_2
T_3	GA_3 50 mg/l as root dip + foliar spray	G_1M_3
T_4	GA_3 100 mg/l as root dip	G_2M_1
T_5	GA_3 100 mg/l as foliar spray	G_2M_2
T_6	GA_3 100 mg/l as root dip + foliar spray	G_2M_3
T_7	GA_3 150 mg/l as root dip	G_3M_1
T_8	GA_3 150 mg/l as foliar spray	G_3M_2
T_9	GA_3 150 mg/l as root dip + foliar spray	G_3M_3
T_{10}	NAA 50 mg/l as root dip	G_4M_1
T_{11}	NAA 50 mg/l as foliar spray	G_4M_2
T_{12}	NAA 50 mg/l as root dip + foliar spray	G_4M_3
T_{13}	NAA 100 mg/l as root dip	G_5M_1
T_{14}	NAA 100 mg/l as foliar spray	G_5M_2
T_{15}	NAA 100 mg/l as root dip + foliar spray	G_5M_3
T_{16}	NAA 150 mg/l as root dip	G_6M_1
T_{17}	NAA 150 mg/l as foliar spray	G_6M_2
T_{18}	NAA 150 mg/l as root dip + foliar spray	G_6M_3
T_{19}	Absolute control	Ctrl