



# Effect of plant growth regulators on potato tuber yield under varying fertility levels

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**Abstract :** Seed production of potato variety Kufari Pukhraj gave maximum seed tuber yield (374.95 q/ha) net monetary return (Rs. 297254/ha) and B:C ratio (4.83) with the application of 100 per cent of NPK (150:80:100 NPK kg/ha) along with Azotobacter 3 kg/ha and sprayed with Ethrel @ 250 ppm twice at 25 and 50 days after planting under agro-climatic region of Gird region of Madhya Pradesh. Thus it is clear that yield of seed size tubers (q/ha) was the maximum under treatment combination  $F_2B_1G_2$  due to highest weight and large number of seed size tubers per plant and lowest weight and numbers of small size tubers per plant.

**Key Words :** Potato, PGR, Yield, Quality

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## INTRODUCTION

Potato is one of the most important food crops after wheat, maize and rice, historically contributing to food and nutrition security in the world. It is recognized as a nutritionally goldmine with favourable protein carbohydrate balance and high quality proteins. In Madhya Pradesh, potato is cultivated as a *Rabi* crop. However in some areas it is also grown as *Kharif* crop. The major potato producing district of Indore, Dewas, Shajapur, Chhindwara, Sagar, Ujjain and Satana. The annual production of potato in M.P. is 562400 tones from 42800 hectare with a productivity of 13.14 t/ha. (Commissioner, Land Records MP 2005-06).

Potato is being vegetatively propagated by seed tubers and from true seed. Potato production from seed tubers is popular because of the ease by which tubers can be planted, the fast and vigorous growth of plant, the uniformity of harvested tubers besides its high yield potential. In spite of all these advantages, the method has presented important problem, which hampered the adoption and expansion of potato in India. The main problem is the non availability of good quality seed for planting purpose.

Under normal production technology, farmers use non-

judicious chemical fertilizer to obtain the high commercial yield, which leads to more large size tubers in the produce. Which leads to the proportion of seed size (25-75g) tubers is less. Many research workers reported that plant growth could be altered by the use of growth regulars. It is a well-known fact that is a balance between the growth of tubers and plant. Anything which favours the growth of one will retard the growth of others. Plant growth regulators play an important role in increasing the tuber yield by 10-15 per cent by increasing the size of the tuber. (Shen *et al.*, 1996, Javed and Arshad, 1998, Ghosh *et al.*, 2000).

## MATERIALS AND METHODS

The experiment was carried out at the Horticulture Nursery, College of Agriculture, Gwalior is located at 26°13' N latitude 78°14' E longitudinal at a height of 211.5 metre above the mean sea level in Gird belt. The experimental field was laid out in the split plot design. Main plot treatment fertility levels were sub plot treatment, plant growth regulators were three. Total treatments combination was eighteenth. All the treatments were replicated three times. variety kufari pukhraj used of seed tuber size was 40-50 gram.

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