

"Influence of Decapitation, Partial Root Pruning and Exogenous Application of Plant Growth Regulators on the Growth, Yield and Quality of Potato".

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The response of potato var up-to-date in respect of its growth, yield and quality was studied by altering the natural hormonal balance through pruning treatments as well as hormonal sprays. The three pruning treatments were—(A) normal plants (intact i.e. without any pruning treatment), (B) decapitated plants (pinching off of the apex of each sprout) and (C) partly root pruned plants (cutting the roots from all the four sides of the sprout at a distance of 10 cm from the main stem). The levels of KIN used were 0, 15, 30 and 60 ppm; those of IAA were 50, 100 and 200 ppm and those of GA were 50, 100 and 150 ppm. Pruning treatments were given at 7-9 leaf stage, while single spray of IAA, and GA was given at 10-12 leaf stage and further, a single foliar spray of KIN was super imposed (over IAA and GA) at 15-17 leaf stage.

Decapitation of potato plants increased the number of leaves per plant through increasing the number of branches. Partial root pruning of plants did not have any favourable effects

on the growth of plants. In general, normal plants receiving no pruning treatment put up more vegetative growth and resulted in higher yield of tubers. GA alone as well as in association with KIN was found beneficial for the growth of plants. GA helped in the production of stolons while, KIN in addition to GA helped in the production of stolons as well as tubers. However, their aggregate influence on the total yield of tubers was not found to be additive. Highest level of GA produced maximum number of tubers. However, this effect was not reflected in the weight of tubers. The influence of GA in association with KIN in respect of yield of big as well as medium sized tubers and also total yield of tubers (weight and number) was found to be superior. Starch content of potato tubers was not influenced by different growth regulators.

In conclusion therefore, it could be said that normal potato plants without any pruning treatments produce higher yield of tubers. Though GA increased total number of tubers per plot, it could not increase the total yield in terms of weight. Similarly, though the group KIN after GA had favourable influence on the total yield as well as other yield attributes, the specific combination to pinpoint the exact level of KIN and GA could not be ascertained indicating thereby a need for further experimentation by widening the levels of KIN and GA and also by increasing their frequencies of application.