

# RESPONSE OF GAMMA IRRADIATION ON PLANT GROWTH AND YIELD OF MAIZE

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## ABSTRACT

Experiments were conducted to assess gamma irradiation induced effect on seedling emergence, plant growth, yield and yield attributes of maize (HQPM-1). In this study seeds of maize were exposed to gamma radiation ranging from 0.0025, 0.005, 0.01, 0.05, 0.1, 0.2, 0.3, 0.4 0.50, 1.0 and 2.0 kGy with the help of <sup>60</sup>Co  $\gamma$ -radiation source facility available in the Centre. Irradiated seeds were sown in the field during kharif (July-October) 2013 and 2014 cropping seasons at IARI research farm New Delhi. Germination percent and seedling emergence were determined. The germination was (>90%) upto 0.1 kGy was good after that it had deteriorated significantly. Irradiated seeds did not germinate beyond 0.5 kGy dose. From the assessment of data it is obvious that plant growth parameters such as plant height, photosynthetic rate, chlorophyll content leaf area index at tussling as well as silkingsatge affected positively at lower doses (<0.2 kGy) Yield attributes such as biological yield, cob weight, cob length number grains per cob and 100 grain weights were influenced positively at lower doses (<0.2kGy). The biological yield was enhanced by 35.2% at 0.1 kGy over the control. Contrast to this there was largest reduction in the biological noticed at 0.5 kGy by 33%. Similarly grain yield of maize showed an enhancement by 12% at 0.1 kGy and it reduced by 57% at 0.5 kGy.

**Keywords:** Germination Percent, Photosynthetic Rate, Leaf Area Index, Gamma Irradiation and Yield.