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Influence of Foliar Application of Zinc on the Yield, Quality and Storability of Potato

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ABSTRACT

Potato is one of the main tubers and a nutritious crop. Studies have shown that utilization of micronutrients increase the yield and quality of tubers. An experiment was conducted at Breeder Seed Production Centre (BSPC), Debiganj, Panchagarh, Bangladesh under AEZ-3 (Tista Meander Floodplain Soil) during the Rabi season of 2013-14 and 2015-16 to study the effect of foliar application of zinc on the yield and quality of potato. The treatments comprised of foliar application with six different concentration of zinc such as: T1 (0 ppm Zn), T2 (140 ppm Zn), T3 (280 ppm Zn), T4 (420 ppm Zn), T5 (560 ppm Zn) and T6 (700 ppm Zn). Potato variety *BARI Alu-25* (Asterix) was used as test crop. The unit plot size was 3 m × 3 m. The experiment was laid out in a randomized complete block design (RCBD) with three replications. Whole tubers of the potato were planted with a spacing of 60 cm × 25 cm on 15 and 17 November of 2013 and 2014, respectively. Urea, TSP, MoP, gypsum, magnesium sulphate, zinc sulphate and boric acid were used as a source of N, P, K, S, Mg, Zn and B, respectively. Zinc sulphate ($ZnSO_4$) was applied at three stages of plant growth (stolonization, tuberization and bulking) followed by three foliar sprays. In each case of foliar spray, 2.25 L of $ZnSO_4$ solution was applied at 9 m^2 plot (2500 L ha^{-1}). After maturity, potato was harvested on 25 February 2014 and 30 February 2015, respectively. The tuber yield of potato was significantly influenced by the foliar application of different concentration of zinc. The maximum yield (37.2 and 36.7 t ha^{-1} for 2013-14 and 2014-15, respectively) was found in 560 ppm Zn application. The highest dry matter content of potato tuber was found in this treatment. The highest gross margin and marginal benefit cost ratio were recorded in the same treatment. T5 (560 ppm Zn) also showed the minimum weight and rottage loss of potato tuber. Therefore, foliar application of 560 ppm Zn can be recommended for quality potato production.

Keywords: Quality of tubers, Potato, Micronutrients, Foliar application

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