

Research Article

The effect of nutriseed pack application on maize yield and its components

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Summary

To study the nutriseed pack application of nutrients on the yield of maize, a field experiment was conducted with following treatments viz., T₁ – Control; T₂ – 100 per cent NPK - Surface application of fertilizers; T₃, T₄, T₅ : 75, 100, and 125 per cent NPK- nutriseed pack (Plain) ; T₆ – 100 per cent NPK- nutriseed pack (Furadan); T₇ – 100 per cent NPK- nutriseed pack (neem) ; T₈ – 100 per cent NPK- nutriseed pack (fertilizer + manure mixture). The results of the experiment indicated the nutriseed pack with furadan recorded the highest grain yield of 4489 kg ha⁻¹ which was 13.2 per cent higher than surface broadcast, and stover yield of 7939 kg ha⁻¹ which was 20.3 per cent higher than surface broadcast. On an average nutriseed pack with furadan recorded more number of grains per cob (248), number of grains/ row (17.2), number of rows/ cob (14.4), number of cobs/ 100m² (881).

Key words : Nutriseed pack, Deep placement, Drip irrigation, Maize

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Introduction

Optimum nutrient management has long been acknowledged as being critical for producing high yield in maize. One means of increasing the nutrient supply without increasing the fertilizer amount is to improve the efficiency of fertilizer, which can be achieved through deep placement of the fertilizers. Nutriseed pack technique which combines the promising aspects of deep placement of fertilizers and integrated nutrient management, under surface irrigation as well as water saving irrigation namely the drip irrigation, in comparison with conventional surface broadcast method of fertilizer application.

Drip irrigation is the recent advancement in irrigation which has been found ideally suitable for the maize crop. In this method, water is provided most efficiently at the required rate and practically near the root zone of the crop. Field experiment was conducted to evaluate the combined effect of precise application water by drip irrigation and precise placement of fertilizer by nutriseed pack gave well-defined results for the deep placement and conventional broadcast

methods.

Phene and Beale (1976) found that sweet corn yields were maximized with automated high frequency drip irrigation. Trickle irrigation studies with sugarcane in Hawaii showed that application of N and phosphorus continuously through the trickle system was more efficient both in terms of nutrient uptake and fresh weight accumulation than trickle application at bi-monthly intervals. Janat and Somi (2001) found that seed cotton yield, dry matter production and lint properties were maximized with drip irrigation than surface irrigation on cotton.

Deep placement can be done with simple tools and incidentally aim in the reduction in labour requirement, then farmers can prefer it to adopt easily. Asha (2003) made a pioneering approach of deep placing NPK fertilizers just below the germinating seedling with an aid of tubular holder called nutriseed holder, which contained sprouted seeds on top and fertilizers at bottom. This study with ¹⁵N tracer demonstrated a 57.1 per cent of fertilizer N recovery, which exceeded two folds of recovery noted for surface broadcast (26.1 %). Besides, appreciably deep placement recorded the very high rice grain yield with a yield increase of 81.8 per cent over surface