

Productivity and Nutrient Uptake of Cotton as Influenced by Application of Organic Nitrification Inhibitors and Fertilizer Level

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Abstract : A field experiment was conducted during kharif season of 2013-14 at Agronomy research farm, Dr. PDKV, Akola, to study the productivity and nitrogen use efficiency in cotton using organic nitrification inhibitors. The experiment was laid out in factorial randomized block design with three replications each having nine treatment combinations comprising three fertilizer levels viz., 75% RDF (F1), 100% RDF (F2) and 125% RDF (F3) and three nitrification inhibitors viz., neem cake @ 300 kg/ha-1 (N1), karanj cake @ 300 kg/ha-1 (N2) and control (N3). The result showed that various growth attributes viz., plant height, number of functional leaves plant-1, monopodial and sympodial branches and leaf area plant-1(dm²) were maximum in fertilizer level 125% RDF over fertilizer level 75% RDF and which at par with 100% RDF. In case of yield attributes and yield, number of bolls per plant, Seed cotton yield and stalk yield kg ha-1 significantly higher in fertilizer level 125% RDF over 100% RDF and 75% RDF. Uptake of NPK kg ha-1 after harvest of cotton crop was significantly higher in fertilizer level 125% RDF over 100% RDF and 75% RDF. Significantly highest nitrogen use efficiency was recorded with fertilizer level 75 % RDF as compared to 100 % RDF and lowest nitrogen use efficiency was recorded with 125% RDF level. Amongst nitrification inhibitors, karanj cake @ 300 kg ha-1 increases potentiality of growth characters, yield attributes, uptake of NPK and NUE as compared to control and at par with neem cake @ 300 kg/ha-1. Interaction effect between fertilizer level and nitrification inhibitors were found to be non significant at all growth attributes and uptake of nutrient but was significant in respect of seed cotton yield.

Keywords : cotton, fertilizer level, nitrification inhibitor and nitrogen use efficiency, nutrient uptake

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