

Peer Review

Review of: "Row Configuration and Soil Amendment Affect Performance of Popcorn (*Zea mays* L. var. *everta*) in Semi-Arid South Africa"

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This study addresses an important agronomic gap regarding optimal plant density and nutrient management for popcorn production under semi-arid South African conditions, and its strengths include a well-structured factorial split-plot design over two seasons, comprehensive measurement of growth and yield traits across phenological stages, and practical comparison between compost and mineral NPK fertilizer rates. The finding that 20 × 20 cm spacing combined with either 8 t/ha compost or 90 kg N/ha produced superior yield responses is agronomically relevant, especially for smallholder systems seeking sustainable intensification. However, several issues limit interpretability and impact: seasonal effects are not presented separately before pooling, and no year × treatment interaction is reported; the very high coefficients of variation for some yield traits (e.g., >50%) raise concerns about field variability and experimental precision; plant population calculations appear inconsistent (e.g., 1,333,333 plants/ha likely a typographical error); and grain yield responses to fertilizer were statistically non-significant in some cases despite strong claims in the discussion. Additionally, soil nutrient status (e.g., relatively high Bray-1 P) suggests the site may not have been strongly nutrient-limited, which should be critically discussed when interpreting fertilizer effects. The manuscript would be strengthened by clarifying plant density calculations, presenting seasonal ANOVA tables, reporting effect sizes and confidence intervals, conducting regression analysis between plant population and yield, and incorporating a partial economic analysis comparing compost versus NPK. A more concise discussion that avoids repetition and better integrates statistical significance with agronomic interpretation would enhance scientific rigor and suitability for higher-impact agronomy journals.

Declarations

Potential competing interests: No potential competing interests to declare.