Tropentag, September 10-12, 2025, hybrid conference

"Reconcile land system changes
with planetary health"

Effect of different combinations of granular and briquette fertilisers on maize yield in northern Ghana

Hammond Abeka[1], Michael Asante[1], Emmanuel Wandaat[1], Godfred D. F. Atawura[1], Mark Amoah[2], Osman Issifu[2]

[1] *CSIR-Savanna Agricultural Research Institute, Ghana*
[2] *University for Development Studies, Ghana*

Abstract

Several research findings have reported on how fertiliser briquettes increase maize yield relative to granular fertiliser. Nevertheless, some researchers have reported contradictory results. Inadequate soil moisture or dry spells have been attributed to the irresponsive results obtained from briquette fertilisers. This is because fertiliser briquettes possess less surface area and thus dissolves slower, especially under inadequate soil moisture regimes. Granular fertilisers, however, dissolve relatively quickly. Applying fertiliser as split has become the norm in the northern region of Ghana. However, applying both basal and topdress fertiliser in briquette forms may not produce optimum maize growth and yield, as rainfall has become unpredictable. Hence the objective of this study was to identify the granular (GRA) and briquette (BRI) fertiliser combination as basal and topdress applications that produces optimum maize growth and yield in the northern region of Ghana. Six treatments; (1) No fertiliser (2) GRA-GRA (3) GRA-BRI (4) BRI-GRA (5) BRI-BRI (6) BRI FULL (briquette one time application as basal) were set-out at the CSIR-SARI experimental field at Nyankpala. NPK was applied at 90–60-60, with basal application done using NPK 15–15-15 and topdress using urea. Several growth parameters were determined at various growth stages and grain yield, at harvest. The results revealed that for both the growth parameters and grain yield, GRA-BRI BRI-BRI BRI FULL > GRA-GRA. It is therefore recommended that briquetting basal NPK in a split N application may not be economically prudent while BRI FULL may be economically profitable as compared to the split applications in the study area.

Keywords: Briquette, fertiliser, granular, maize, nitrogen, yield

Contact Address: Hammond Abeka, CSIR-Savanna Agricultural Research Institute, Tamale, Ghana, e-mail: oyewu.abeka07@gmail.com