

Article title	One-Time Fertilizer Briquettes Application for Maize Production in Savanna Agroecologies of Ghana
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Abstract	Declining maize yields in the Guinea Savanna ecological zone of Ghana call for effective nutrient management strategies that increase maize productivity and profitability among smallholder farmers. Field trials were conducted during 2016 and 2017 in three locations in northern Ghana to evaluate the agronomic effectiveness of one-time application of multi-nutrient fertilizer briquettes for maize production. The treatments were: (i) farmer practice (FP); (ii) NPK fertilizer briquettes applied at the recommended N, P, and K rates (100%-Briquette); (iii) 75%-Briquette; (iv) modified farmer practice (MFP) with N, P, and K applied at the recommended rate (100%-MFP); (v) 75%-MFP; and (vi) control, with no fertilizer applied. The farmer practice involved surface broadcasting the granular N, P, and K fertilizer at the recommended rate. The MFP involved subsurface incorporation of the granular fertilizer into the soil. Across all three locations and in both years, maize grain yield resulting from the treatments followed this order: 100%-Briquette > 100%-MFP = 75%-Briquette > 75%-MFP > FP > control. Despite the greatest grain yields resulting from the 100%-Briquette treatment, the greatest gross profit margin of 0.46 was obtained with the 75%-Briquette treatment, followed by the 100%-Briquette treatment (~0.43), 100%-MFP (~0.39), 75%-MFP (~0.24), and FP (0.03). From the combined results, we conclude that the one-time application of multi-nutrient fertilizer briquettes could be an efficient fertilizer management strategy to increase maize yields and profitability for smallholder farmers in the Guinea Savanna zone. This presents a real strategy for improved productivity across diverse agroecologies for food security among smallholder farmers.
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