ABSTRACT

A two-year field experiment was conducted at the Agric. Res. and Exp. Center, Fac. of Agric., Moshtohor, Benha Univ., Qalyubia Governorate, during the 2016 and 2017 seasons, to evaluate the influence of integrated 3 biogas manure rates (0, 3.5, 7 ton/fed), 4 combination of N and P_2O_5 mineral fertilizer (N_0P_0, $N_{40}P_{7.5}$, $N_{80}P_{15}$, $N_{120}P_{22.5}$ kg/fed) and 3 levels of foliar nano micronutrients (zero, 100 and 200g/fed) on growth, yield and its component of maize (yellow S.C. hybrid 168) as well as biological and economic evaluation. The experiment was laid out in split-split-plot design with three replications. Results showed that:

The application of 3.5 ton/fed biogas sludge manure significantly increased ear weight, grain weight/ear, grain and biological yield/fed CUs as well as grain content of (N%, P%, and protein %), with some exception. Meanwhile, oil% significantly decreased with increasing biogas rates.

The application of $N_{80}P_{15}$ kg/fed was the most effective levels and enhancement the most characters of maize. While, No. of days to 50% tasseling and silking, No. of dry leaves/plant, oil % and carbohydrate% decreased by increasing NP fertilizer levels.

Nano micronutrients application at 100 or 200 g/fed markedly increase most studied traits of maize and net income. Combining 3.5 ton biogas x $N_{80}P_{15}$ kg x 200 g nano/fed gave the best treatment which was 56.02% more grain yield, in comparison to control, highest net income and saving 33.3% of mineral fertilizer compared with high fertilizer levels.

Key words: Organic, Inorganic, Nano Micronutrients, Maize.