The present work was carried out to investigate the effect of farmyard manure (FYM) and nitrogen fertilizer on growth, yield and yield attributes of TWC 310 maize hybrid, grown at Demo Agriculture Experimental Farm of the Faculty of Agriculture, Fayoum University, Egypt were conducted during 2008 and 2009 seasons. Three FYM rates i.e. 15(M1), 30(M2) and 45 (M3) m3/fad. and three levels of nitrogen, i.e. 90 (N1),120(N2), and 150(N3) kg/fad. of ammonium nitrate (33.5%) were examined. The field was laid out in a split-plot arrangement with four replications.

Results revealed increasing positive response of maize to FYM up to the largest amount of M3 that seemed to be large enough to release N, throughout the growing seasons and produced the highest values of almost the studied traits.

Nitrogen application had a significant effect on all characters except ear length, number of row/ear and shelling% in second season only, intermediate mineral fertilizer (N2) application produced the tallest plants and number of leaves at 60 days age, also plant height, with the highest ear position and heaviest ear weight, number of rows in two season and grain yield /fad. in second season. However N3 resulted in superior values of other traits, with insignificant differences for ear length, ear weight, grain weight /ear, shelling% and grain yield /faddan of those of N2 in second season. Grain yield produced with M1, M2 and M3 of FYM applications were respectively comparable to those of N1, N2 and N3 indicating that mineral fertilizer (N) could be replaced by FYM in such soil.

The interaction between FYM and N fertilizers was significant for all characters under study in two seasons. The M2N3 and M3N3 interactions were of the highest and had similar effects on leaf area, ear length, ear weight, number of grain /row, grain weight /ear, shelling % and grain yield /faddan (1661.75 and 1875.25 kg). The M3N2 and/or M2N2 combinations produced higher grain yield than those of sole application of either organic (FYM) or inorganic N fertilizer. The above mentioned results emphasize the evidence that high and sustained crop yield could be obtained in newly reclaimed soil with judicious and balanced mineral fertilization combined with organic matter amendments.

Key words: Farmyard manure, Nitrogen fertilizer, Maize, Newly reclaimed soil

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