ABSTRACT

In Egypt, both sandy and calcareous soils represent the areas for reclamation in our agricultural expanding policy. These areas may undergo some problems in plant nutrient supplying power. The shortage of most essential nutrients especially nitrogen which are an acute of need for raising the production of various crops in Egypt.

Two field experiments were carried out in two sites. The first has non-calcareous sandy soil at Ismaealiya and the second one has calcareous sandy loam soil at Noubariya. In a split plot design, the main treatments were N forms namely, ammonium nitrate (33%N), urea (46 %N), urea formaldehyde (40%N) and neem coated urea (46%N). The sub main treatments were four N rates i.e 0, 80, 100 and 120 Kg N/fed. added to sorghum plant only.

The test crops were sorghum (Andropogen sorghum) variety Dorado planted in the summer season of 2008 and wheat (Triticm aesti vum) variety sakha 93 planted in successive in winter season of 2008/09 .Each crop stayed up to maturity.

Plant heights were estimated. Grain, stover, straw and their dry matter yields were recorded. Nitrogen, phosphorus and potassium uptake by plants and their status in soil were determined.

The obtained results could be summarized in the following, increasing the rate of all nitrogen forms caused a significant increase in sorghum yield (grains and stover) in both sites. Wheat grain yields responded to the residual effects of these application rates up to 120 kg N/fed in both sites.

Urea formaldehyde was the most effective N forms in case of sorghum and wheat grain yields in the two field experiments.

Ammonium nitrate associated with urea formaldehyde in it's superiority in case of sorghum grains and stover at Ismaealiya, while urea and urea formaldehyde gave the same effects on wheat grain and straw at Noubariya.

Urea formaldehyde significantly recorded the highest values of total nitrogen recovery of sorghum and wheat plants as compared with urea and neem coated urea at Ismaealyia, but the descending order at Noubariya was urea > urea formaldehyde > neem coated urea up to 120 kg N /fed.