I N T R O D U C T I O N

Berseem or Egyptian clover (Trifolium alexandrinum L.) is the most important annual leguminous forage crop in Egypt owing to its highest yield , and super qualitative characters such as the nutritive value , and crude protein content .

The total cultivated area of Egyptian clover in Egypt was 2.7 million faddan in 1983 , which produced about million ton of feed unit as a starch value .

More than 80% of the total yield of Egyptian clover is consumed during the winter and spring seasons , whereas 20% is preserved for later use at the serious feed shortage in summer as hay , haylage and/or silage .

Increasing the productivity and quality of this forage is of great interest in Egypt in order to fulfil the substantial feeding requirements allover the year around .

Mixing of legumes with grasses is an acceptable practice to have more advantages of the stand . Among these advantages are ; (1) more rapid establishment of the sward and efficient use , (2) better seasonal distribution of growth , (3) increasing thr production and persistance of the stand with greater palatability , (4) better balanced feed because of the richer nitrogen and calcium of legumes , (5) taking the advantage of the nitrogen fixation of

legumes through the symbiatic rhizobia to the grasses , and (6) reduction of the apparent higher incidence of bloat on pasture by increasing the total dry matter of the legumes if mixed with grasses especially in the first cut of Egyptian clover .

In this respect , Egyptian clover was sown with Italian ryegrass (Lolium multiflorum L.) in an appropriate mixture of a ratio 3 : 1, respectively as it was recommended by the author in a previous study , to improve the nutritive , physical , and physiological feeding properties of the forage .

Also , applying macro and micronutrients are among the cultural practices for increasing the crop productivity and quality . This is because of the intensive cropping system that is recently used and recommended in Egypt which led to the exhaustion of soil nutrient reserves in the old land especially after the construction of the Aswan High Dam. And also the insufficient fertility of the new land necessitates the macro and micronutrients application .

The substantial quantities of the suspended materials that carried out by the water streams of the Nile represent the main source of nutrient elements to the soil in the Nile valley . However , after the construction of the Aswan High Dam , it is real important to check and suppliment the shortage of any of these material in case of deficiency .

Soil micronutrients are usually present and/or available in very

small quantities . These nutrients exist in soils in different forms which varied in their availability for plants . The available form , however , represents that fraction of nutrient in the soil which can be taken up easily by plant roots , since the soil is considered as a complicated dynamic system , containing many factors that affect the availability of these nutrients in soil .

Therefore, this study was designed to investigate the effect of soil application of various nitrogen levels , and various concentrations of different foliair micronutrients on the mixture of Egyptian clover and ryegrass in respect of growth , botanical composition as well as the quantitative and qualitative characters of the produced forage .