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# Comparison of nitrogen fertilizer to grow tomatoes (*Lycopersicon esculentum*. L )in a sample attributes Calcareous soil

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**ABSTRACT:** The use of nitrogen fertilizers including ammonia and urea ammonium nitrate, ammonium sulfate is the tomato plant with the scientific name *Lycopersicon esculentum* L. soil cultivation evaluated in a completely randomized design with three replications It placed. test. Nitrogen fertilizers in each of the five levels of zero, 50, 100, 150 and 200 mg per kg of soil was used in the form of potassium nitrate, potassium . Element to 80 mg per kg of soil and the amount of phosphorus in the form of triple superphosphate 80 milligrams per kilogram of soil .Factors flower number, fruit plants and chlorophyll and plant height were recorded. The results showed that the highest percentage increase in plant height in the first stage of treatment, 50 mg per kg of urea and ammonium nitrate, the lowest percentage in the treatment of 200 mg per kg, and the largest percentage increase in height In the second phase of the treatment plant 150 mg per kg of ammonium nitrate, and the lowest percentage of treatment 200 mg per kg of ammonium nitrate and urea, as well as the highest number of goals in the treatment of 50 mg per kg, and the lowest number of goals related to the treatment of 100 mg per kg of ammonia, and the largest number of fruits treated with 100 mg of urea per kg, and the smallest number of fruits on the treatment 100 mg of ammonia, ammonium sulfate and ammonium nitrate, 200 mg and 200 mg per kg, and the maximum amount of chlorophyll in the treatment of 150 mg of urea, ammonium sulfate and ammonium nitrate, 150 mg, 150 mg of per kg, and 100 mg urea treatment for the least amount of chlorophyll per kilogram of soil.

***Keywords*:** Tomato, Ammonia, Ammonium Nitrate, Ammonium Sulfate, Urea.

## INTRODUCTION

Tomatoes (*Lycopersicon esculentum* Mill. L) of Vegetables is very important that every country and culture, especially in the southern provinces of the region's farmers tomatoes Prdramdbray products including vegetables from the family solanacea which like other plants for the development and production of high quality including nutrient plays Micro and macro need nutrients required for the growth of tomato plants. This metal element N SPAD growth and increase plant efficiency and Nitrogen fertilizers used by farmers such as ammonium sulfate, ammonium nitrate, urea, and ammonia pointed out that higher percentages of nitrogen are different. The most important mineral resources in tomatoes depends on the type of soil and fertilizer that contains phosphorus, potassium, chloride and iron. Nitrogen (N) is one of the most important nutrients for plants and other living organisms is necessary so that the plant needs water more than any other factors influencing the growth of the plant. Although about 79 percent by volume nitrogen atmosphere accounted for, but most plants, especially in arid and semi-arid plants grow because of a lack of organic matter in these soils are deficient in this nutrient as well as in the strong bond between two atoms of nitrogen molecules there are three plants are not able to break the link However, due to the indiscriminate use of nitrogen fertilizers by farmers in this study will impact each of these fertilizers with different concentrations of vegetative and reproductive growth of tomato plants will be evaluated and considered to be the most appropriate to achieve nitrogen fertilizer the best tomatoes specified.

## MATERIALS AND METHODS

In this study, the effect of nitrogen fertilizer on tomato growth and flowering time in a calcareous soil were investigated for this purpose, fertilizers, ammonia, urea, ammonium nitrate and ammonium sulphate used. The 60 pots were selected within each 5 kg of soil, the cast and the pot of seeds of tomato cultivation have the treatments in question, including levels (0, 50, 100, 150 and 200 mg of nitrogen per kg soil) of each of the above fertilizers can be added individually to each pot. In order to provide potassium, phosphorus, potassium and phosphorus levels of 80 mg per kg of soil potassium sulfate and triple superphosphate are added to the pot equally. After emergence, strong seedling per pot left and the other broader omitted. The amount of water during irrigation during the growing season and so was the water out of the pot and water pots of field capacity is not. At the time of flowering, the leaves serving by serving can be measured. Factors measured include goals every pot number, number of flowers to become fruits and plants is high.

***Flower***

On the day of the first flower of flowers were counted, and the average was recorded.

***Plants height***

In this study, fertilization was done in two stages. First, the plant was cultivated and the second stage was the beginning of flowering plant in two stages so measured and the data were recorded.

In this study, a randomized complete design applications with twenty treatments and three replications. The comparison was done by Duncan's multiple range test. Application software for statistical analysis of data, the software was MSTAT-C.

## RESULTS AND DISCUSSION

Analysis of variance showed a significant treatment effect at 1% on the percentage increase in plant height and number of flowers in the first and second phases, respectively. This effect was significant at 5% of the fruit. The amount of chlorophyll, there was no significant difference between treatments.

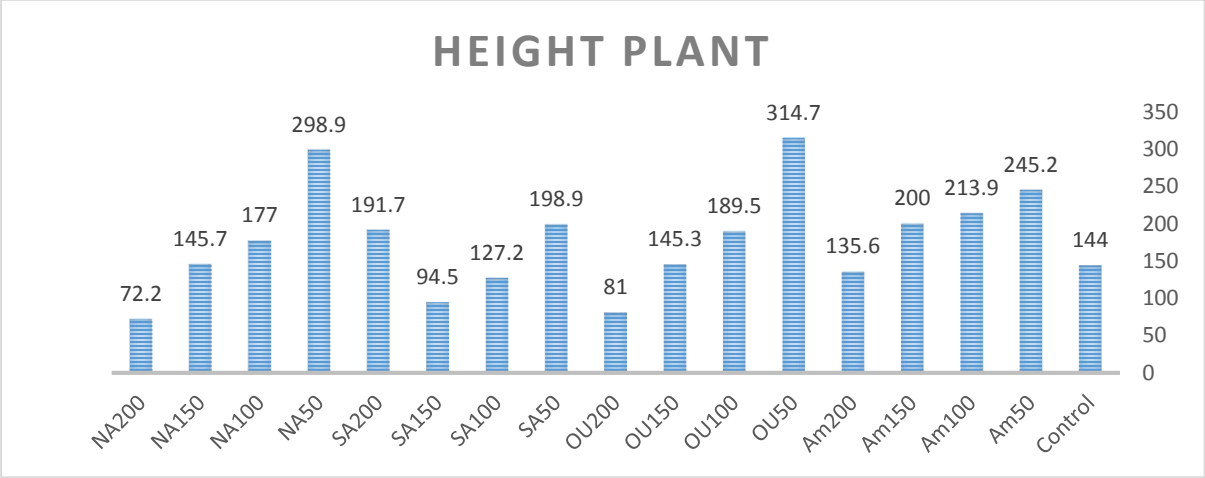


Figure 1. Comparison of different treatments on the percentage increase in plant height (the first stage).(Means that at least one letter in common, at 1%, with no significant differences Duncan.)

Compared to treatments using Duncan test at 1% showed that the height of the first step in the treatment of urea and ammonium nitrate 50 The 200 was the lowest. There was no significant difference between levels of ammonia, however, by increasing the concentration of ammonia, plant height had increased slightly over time. Increase in urea concentration significantly affected the plant height so that the percentage increase in urea plant height of 150 and 200 was significantly less than 50 urea. There was no significant difference between the different levels of ammonium sulfate, however, increase from 50 to 150, resulting in less plant growth, but at a concentration of 200 height was great. Increasing the concentration of ammonium nitrate significantly affected plant height so that the percentage increase in plant height significantly below 200 Ammonium nitrate of ammonium nitrate was 50. In this regard, the

only significant difference between the control and the treatment of Urea 50 treatments were not significantly different from controls (Figure 1). In the early stages of development, the use of urea 50, ammonium nitrate and ammonia 50 50 The highest percentage increase in plant height of tomato created.

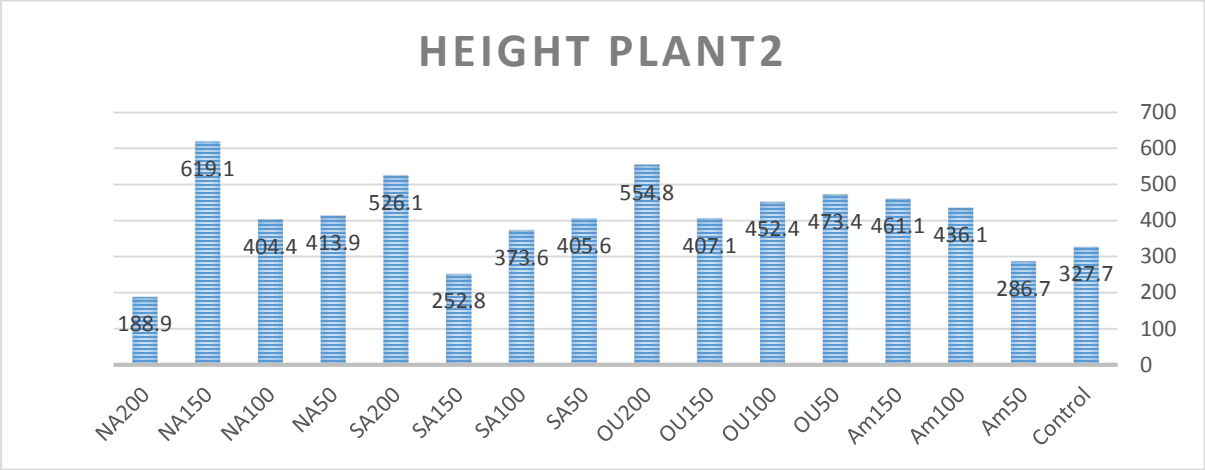


Figure 2. Comparison of different treatments on the percentage increase in plant height (second stage).(Means that at least one letter in common, at 1%, with no significant differences Duncan.)

Compared to treatments using Duncan test at 1% showed that plant height in the second stage in the treatment of ammonium nitrate and ammonium nitrate 200 150 most was the lowest. Treatments between different levels of ammonia, urea and ammonium sulphate significant difference was observed. While a clear trend with increasing concentrations of the drug in the second stage, there was no increase in plant height. In this respect, none of the treatments were not significantly different from control. Plants treated with ammonia 200 continue all died (Figure 2). In later stages, the use of 150 ammonium nitrate, urea, ammonium sulfate, 200 and 200 the highest percentage increase in plant height of tomato created.

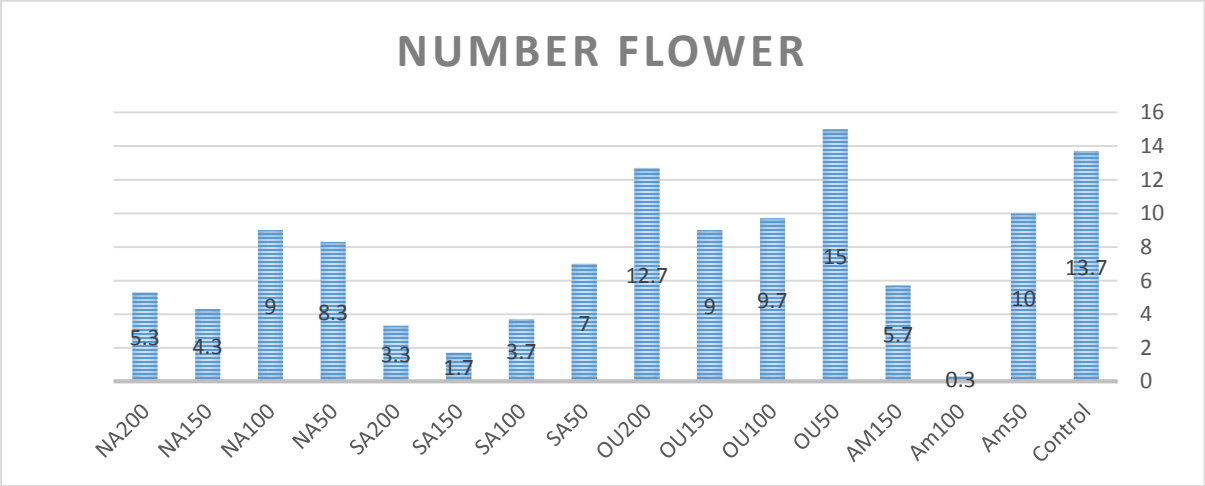


Figure 3. Comparison of different treatments on the number of flowers. (Means that at least one letter in common, at 1%, with no significant differences Duncan.)

Compared to treatments using Duncan test at 1% showed the highest number of goals in the treatment of urea and ammonia 50 100 was the lowest. Significant differences were observed between the different levels of ammonia so that the ammonia concentration increased from 50 to 100, the number of goals have certainly reduced. Increases in serum urea and ammonium sulfate had no significant effect on the number of flowers The number of flowers decreased concentrations of 50 to 150 and from 150 to 200 non-significant increase was observed. In this regard there was no clear trend ammonium nitrate. In this regard, 100 and 150 treatments ammonia, ammonium sulfate and ammonium nitrate from 50 to 200, 150, 200 less than the number of flowers Witness and control were significant

differences (Figure 3). The use of urea-50, non-use of fertilizers, urea and ammonia 50 200 produced the highest number of goals.

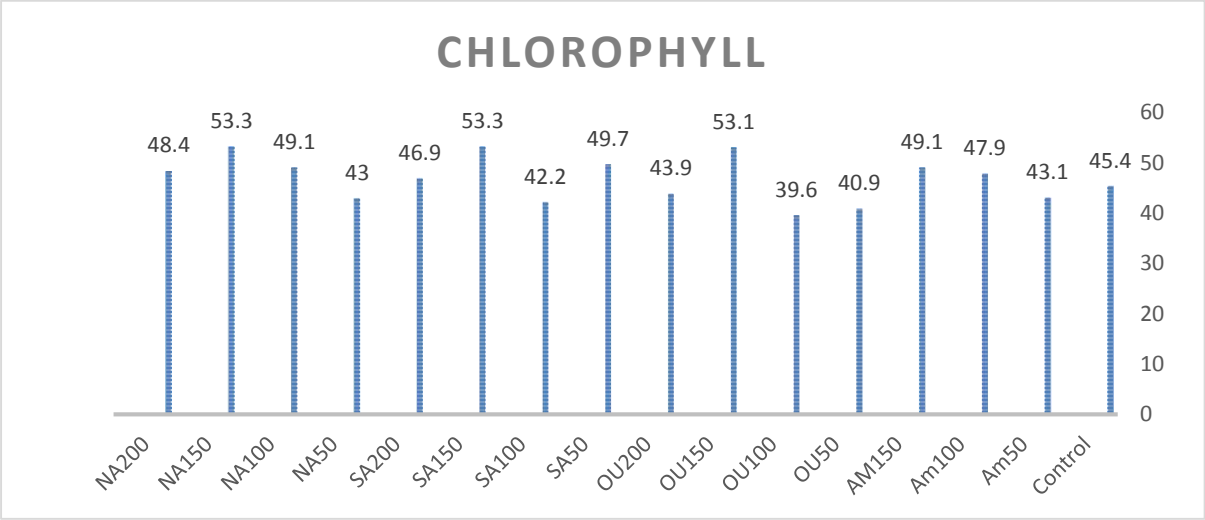


Figure 4. Comparison of different treatments on chlorophyll..(Means that at least one letter in common, Duncan test at 5% level are not significantly different.)

Compared to treatments using Duncan test at 1% showed that the chlorophyll in the 150 urea, ammonium sulfate and ammonium nitrate and urea highest was 100 minimum. There was no significant difference between levels of all materials. There was no significant difference between treatments in general (Figure 4).

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