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Effect of different soil pHs on the growth and proceeds of Tomatoes

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ABSTRACT: Effects of different soil pH of 6, 7 and 8 on the growth and yield of tomato plants scientific name Lycopersicon esculentum L. Culture soil were assessed. Experiment was a completely randomized design with three replications. To provide 200 mg of urea nitrogen was applied evenly to the plants. Factors, number of flowers, fruit, vitamin C, TSS and Chlorophyll of plants were recorded. Experimental results showed that the highest number of goals scored in the lowest pH 6 and pH 8, respectively. The highest number of fruits pH 6 and pH 8 were lowest in the fruit. Greatest amount of chlorophyll at pH 8 and pH 6 was observed at thelowestChlorophyll Index.

Keywords : Tomato, soil pH, proceeds.

INTRODUCTION

Excellent flowering tomato plants, the subclass of dicot of the family Solonaceae, Lyopersicon is made. Tomatoes (in Persian: Eggplant Roman) (Scientific name: Solanum lycopersicum) fruit is red and juicy. This plant is native to Central and South America during the Spanish colonial period were transferred to other parts of the world (pyvast, 2006). Tomatoes are rich in vitamins A, B and C, iron, phosphorus and boron minerals are particularly abundant. Tomatoes, like other plants require nutrients for growth and development, including phosphorus, potassium, phosphorus and potassium, but is that the plant will vary depending on soil pH (Daneshvar, 2004). Consumption of fertilizers in the soil under cultivation , changes in pH can cause more fertilizers from ammonia , sulfate, chloride, potassium , super phosphate , sulfur , urea and dried blood , causing degradation of soil pH , while other fertilizers such as cyanamide , nitrates , sodium, calcium and manure , pH raise soil . Tomatoes adequate amounts of nutrients needed to produce fruit . Especially calcium, potassium and nitrogen are important nutrients . Failure to provide these nutrients in sufficient quantity to cause weakening of the plant and reduce fruit quality of tomato are Frtgy . Soil pH should be appropriate. Each plant will tolerate a pH range of specific and appropriate if the soil pH is too low or impairing plant growth and production . Soil pH should be appropriate. Each plant will tolerate a pH range of specific and appropriate if the soil pH is too low or impairing plant growth and production . Flowers and plants are no exception to this rule , but are sensitive to the pH of soil . Soil pH affects plant growth directly or indirectly . Important role in controlling the solubility of nutrients in the soil , soil pH , ie the ability to absorb nutrients is highly dependent on soil pH . Nutrients at different pH , different Hlalythay with increasing pH decreases the solubility of nutrients Mylybdvn component . Iran is one of the problems that the soil pH is alkaline , the pH above 7 . The lack of rainfall in dry climate has led to the accumulation of exchangeable bases in the soil and thus progress towards the alkaline soil . Another problem that increases the pH of calcareous soil (Salardyny, 1977). alkaline pH causes the solubility of nutrients essential for plant nutrients such as phosphorus and deficiency can decrease (Pb), iron (Fe), zinc (Zn), manganese (Mn) are found in plants . Major factor in the occurrence of these deficiencies are much lime and iron deficiency in many sources from limestone called the yolk . So the cause of jaundice, much lime in the soil. In contrast, calcareous soils , soils that have a pH of less than 7 are acidic . Due to the pH of acidic soils, acidic soils to both mild and severe acid are classified . In soils that are too acidic , ie, pH less than 4/5 to 5 , the solubility of nutrients such as iron (Fe), aluminum (Al) and manganese (Mn) rises so that the plant is toxic . The solubility of nutrients is very much dependent on soil pH . Iron in plant nutrition is very important and it is also dependent on the soil pH is too high . If you find a lower soil pH

increases the solubility iron thousand times . If an order or to change soil pH , soluble manganese (Mn) and zinc (Zn) is an essential element in plant nutrition are being changed in a hundred times (Salardyny , 1977).

MATERIALS AND METHODS

In this study, we evaluated the effect of different soils with pH . For this purpose three soils with a pH of 6 , 7 and 8 pick and choose some pots of soil Hrgldan 5 kg in children. The first two seeds in each pot of tomato cultivated varieties of G. We then seed germination and plant four bushes to form stronger hold another 've cut surface . During the growth period tried to field capacity moisture content of the pots , the plants provide 200 mg of N per kg of soil nitrogen from urea into the pots were Fzvdh . National factors measured were : number of flowers and fruits of conversion , value of fruit sugar , TSS and chlorophyll plants were measured . Number of iterations , respectively, in this study a total of 27 treatments and 3 replications were 81 pots . The statistical design used in this study was a completely randomized design, the comparison was done by Duncan 's multiple range test . Computer application software for statistical analysis of data , software MSTA-TC is.

RESULTS AND DISCUSSION

Number flower

As can be seen from Table 4.2 Effect of pH on the number of flowers showed that by increasing the pH significantly reduced the number of flowers. So that the greatest number of goals pH 6 (3/7 goals) and lowest at pH 8 (9/2 goals) was observed, and this indicates that it is a 6 pH of the soil and increase the number of flowers for floral the tomato plant will be very effective.

Chlorophyll Index

As can be seen from Table 4.2 Effect of pH on specific SHA chlorophyll, chlorophyll indices showed significantly increased with increasing pH. So that the maximum chlorophyll-specific train at pH 8, which is equal to 8/60 compared to pH 7 and 6 had a significant increase in chlorophyll at pH 6 which specific SHA least equal to 6/45 is a significant decrease than pH 7 and 7 is. This indicates that the use of soil 8 pH and chlorophyll index of gay GREENS tomato plant would be ideal.

NumberFruit

As can be seen from Table 4-2 Maximum number of fruits pH 8, which is equal to 0/2, which is a significant increase compared to pH 7 The least number of fruit at pH 7, which is equal to 6/1, which is significantly lower than pH 8 than pH 6 the difference is not statistically significant. These results indicate that the use of soils with pH 6 play an important role in floral and fruit of the tomato plant will naturally, and with results obtained by Esfandiari *et al* (2008) are consistent.

Table 1. Comparison of the effect of pH on the traits

PH Traits	6	7	8
Flower	7/3a	4/0b	2/9c
Chlorophyll Index	45/6c	51/6b	60/8a
Fruit	1/8ab	1/6b	2/0a
Vitamin C (mg)	44/29b	46/51a	38/68c
TSS (%)	5/26b	5/14b	5/71a

†Means in each column having the same letter, have not significant difference (P ≤ 0.01) according to DMRT

VitaminC

As can be seen from Table 4.2 the effect of pH has a significant effect on the maximum amount of Vitamin C Vitamin C in pH 7 which equals 51/46 ratio pH 8, and 6 increased has a significant The least amount of vitamin C, which corresponds to pH 8 with 68/38 which is significantly lower than pH 7. This result obtained by Rokhsar et al (2008) is consistent.

TSS

As can be seen from Table 4-2, the maximum amount of TSS, pH 8, which is equal to 71/5 ratio increased to pH 6 and 7, but this increase was not significant. The lowest rate of TSS at pH 7 is equal to 14/5 is reduced, but this

reduction was not significant compared to pH 6 and 8. This result obtained by the Religious Sharaei et al (2004) do not match.

CONCULSION

The technique discussed in this paper provides an interactive approach in which the decision maker can search for an acceptable solution of the multi-objective optimization problem. The proposed method to solve multiobjective linear programming problem is better than many existing methods as the concept of bound is used in the iteration.

If we substitute some values to a_i , α_i in multi-objective linear programming problem (3.1), it reduces into single objective LPP. This discussion also holds in the case as given by by Kanniappan and Thangavel (1998). The same problem for integer solution was studied by Bhargava and Sharma (2003).

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