CHANGE IN GROWTH OF PLANTS DUE TO DIFFERENT RATIOS OF CHEMICAL FERTILIZERS

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Abstract

Long green onions were used in the experiment by using three kinds of chemical fertilizers.

Through this experiment the following were examined:

・How the difference in the ratio of elements in fertilizers affects the size of growth.

Introduction

* N (Nitrogen)･･･makes branches and leaves grow thicker and larger.
* P (Phosphorus)･･･produces more flowers and fruits.
* K (Potassium)･･･strengthens roots of stems.

Fertilizers

Three kinds of liquid chemical fertilizers used:

RATIO

* Chemical fertilizer A (N:P:K)=(6.5%:6%:19%)
  69.5% :Other liquid chemical elements
* Chemical fertilizer B (N:P:K)=(5%:5%:5%)
  75.0%: Other liquid chemical elements
* Chemical fertilizer C (N:P:K)=(6%:10%:15%)
  69.0%:Other liquid chemical elements

Hypothesis

A (N:P:K) has a higher ratio of N and K
than B (N:P:K) and C (N:P:K)

➡ **Long green onions with fertilizer A will grow in size the most.**

Material

* Four plastic bottles （1 L each）
  - Four sponges（one-half）
  - Four pieces of non-woven fabric（3cm×20cm）
  - Aluminum foil (size sufficient to cover the plastic bottles)
  - Four long green onions

Experience

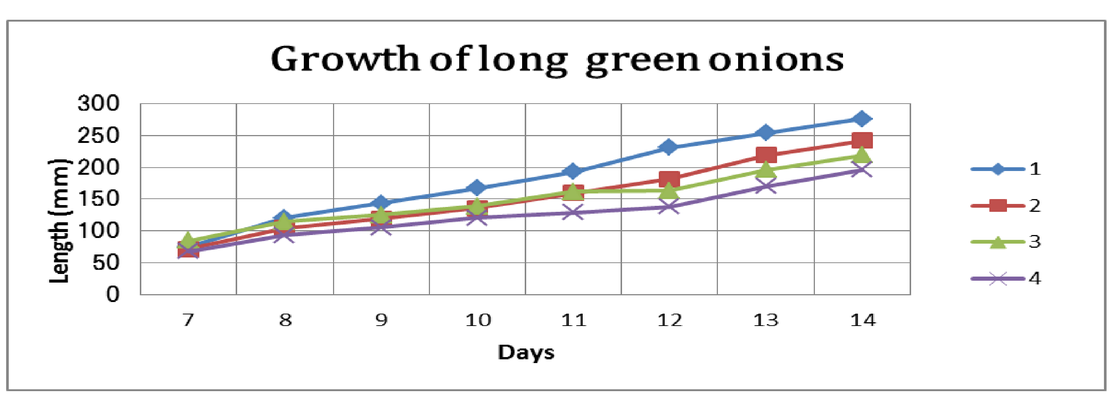
Four set-ups were prepared

1 (=with chemical fertilizer A)
2 (=with chemical fertilizer B)
3 (=with chemical fertilizer C)
4 (=only with water)

Long green onions were cut 10cm from their stems.
Size of the long green onions were measured after 7 days because for a few days the change of growth was only slight.

Result

set-up /Days	1	2	3	4
7	75.1	72	84.9	68.3
8	120.45	104.6	114.75	93.05
9	143.15	119	125	105.4
10	167.4	135.8	139.2	120.4
11	193.1	159.3	161.9	129
12	231.1	181.3	163	138.4
13	254	219	196	170
14	276	242	219	196



- Long green onion in set-up 1 with fertilizer A (N:P:K) = (6.5:6:19) grew the most.
- Long green onion in set-up 4 with only water grew the least.

Discussion

Chemical fertilizers make plants grow larger and longer.

* Long green onions were used in this experiment.
  So , the ratio (amount) of N (Nitrogen) is most important in this experiment

➡ **The long green onion in set-up 1 (N:P:K) = (6.5:6:19) grew the most confirming my hypothesis.**

Conclusion

* Chemical fertilizers have an effect on the growth of plants.
* The difference in the ratio of chemical fertilizers have different effects on plants.
* A high percentage of the elements (e.g. Nitrogen) have a greater effect on plants.

References

* Website:
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・“ペットボトル栽培の準備♪”すくすく水耕栽培http://yaefit1500.blogspot.com (cited 2011-07-21)