

## **DRIP FERTIGATION OF SOME VEGETABLE CROPS GROWN ON BAHARIYA OASIS SOIL**

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### **ABSTRACT**

A pot experiment was carried out at Sakha Agricultural Research Station during winter season of 2008 to study the suitability of Bahariya Oasis soils for producing vegetable crops under drip fertigation system. Three factors were arranged (crop kinds, lettuce, onion and pea ; Organic fertilization, unfertilized and fertilized with farmyard manure; NPK levels, without NPK, 50%, 100% and 150% of recommended dose) in randomized complete block design with three replicates.

Organic matter fertilization increased shoot dry weight by 159.1% with lettuce, 160.7 % in onion whereas this increase amounted by 15.6 only in pea plants.

under 0.0 organic addition shoot dry weight were increased with increasing mineral fertilization dose up to 150 % of recommended dose. This increase represents 5.51, 3.35 and 1.46 fold of unfertilized treatment. The same trend was also obtained under organic fertilization condition but with a lower rate of increase.

Under 100% of mineral recommended dose , organic fertilization increased lettuce and onion nitrogen content of shoots from 2.13 to 3.24% ( 52.11% increase ) and from 2.33 to 4.03% (72.69% increase) and the lowest increase was achieved in pea shoot nitrogen content(1.18% increase).

It is worthy to note that, in general nitrogen concentrations in roots are very low comparing to it's content in shoots .

Phosphorus concentration of organic fertilized lettuce, onion and pea shoots represent 156.59,149.77 and 171.57 % of that of organic unfertilized lettuce, onion and pea shoots , respectively.

Mineral fertilization increased phosphorus content of the studied crops even with addition of organic fertilizer up to the highest level used (150% of the recommended dose) and it's effect was abundant under 0.0 organic fertilizer treatments.

Organic matter addition increased potassium concentration in lettuce shoot, onion shoots and pea shoots by 19.78, 38.46 and 45.21%, respectively compared with 0.0 organic manure addition .So both mineral fertilization with organic manure and without organic manure increased potassium concentration in lettuce shoot, onion shoots and pea shoots to a large extent.

Little effect was found on potassium concentration of roots due to organic manure addition, where organic fertilized lettuce, onion and pea treatments mean is very closed to that of unfertilized one.

Utilization rate of applied nitrogen It was increased from 24.72 to 48.60% (mineral fertilization treatments mean), from 20.24 to 45.37% and from 29.58 to 55.38% due to organic matter addition to lettuce, onion and pea , respectively.

Nitrogen utilization was increased with a lower rate in absence of organic matter.

Utilization rate of applied phosphorus was increased from 12.28 to 21.11% (mineral fertilization treatments mean), from 9.86 to 19.52% and from 12.16 to 24.20% due to organic matter addition to lettuce, onion and pea , respectively.