INVESTIGATION THE USE OF NON-CONVENTIONAL WATER (SALTY AND BRACKISH) USING PITCHER UNDERGROUND IRRIGATION SYSTEM IN GREENHOUSE GROWN CAPSICUM

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ABSTRACT

The necessity of exploiting unconventional waters (salty and b rackish) as part of water resource use in drought periods in Sistan area of scientific need and use of new methods of irrigation in the exploitation of these waters is the unavoidable . This statistical test design splitplot based on a randomized complete block with four main treatments include various levels of saline water (2-4-8-12) ds / m and two subtreatments include a capsicum cultivars Capsicum Yellow (ez-iniaez-1) and green Capsicum (california wonder) in four replications using clay underground irrigation system in place Zahak Research Station in 1382 was carried out for one year. Analysis of variance obtained from this study indicates that the fruit yield, plant height and root length were significantly affected by salinity treatments. Traits such as plant height, fruit yield, as a significant number were affected. In this study, with increasing salinity from EC = 2ds / m to EC = 12ds / m yield fruit, root length, has declined. Highest performance 46/74 ton/ha with conventional water EC = 2ds / m respectively, the statistical performance of the treated fruit in salt water EC = 4ds / m in a group were statistically not significant.

Keywords: Capsico, Pitcher, Brackish, Water

INTRODUCTION

Since the Sistan plain is dry and semi-arid region located and periodic drought losses to many agricultural imports to the region, the use of saline waters and as unconventional sources of water available to farmers enjoyed considerable importance and Farmers sink area with drilling depth of 7-8 meters of water species exploited sectors. Including strategies for effective use of these waters, according to new methods of irrigation including methods such as subsurface irrigation system is underground clay.

Earthen irrigation methods in the past to cultivate vegetables such as watermelon, melon or cucumber was common as trees and farmers in land desired by drilling holes and placing the jars and jars of water slowly leak killed attempting to plant seeds and have the desired have.

Results Farmer et al (1379) in preliminary studies on clay underground irrigation system indicating the product is that depending on the amount of water under cultivation to a third of a second has been saving (for example, tomatoes grown over 3150 cubic meters per hectare Water consumption has) to yield products other than

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cotton, has increased five times (for the kitchen garden cucumber yield approximately 110 tons per hectare is achieved.) Improved product quality indices and fertilizer consumption over saving is 50 percent. 73-1972 years in India as well as measuring water consumption in two pumpkin using 10-liter jars of clay was determined from planting to harvesting stage, approximately 170 cubic meters per hectare water consumption and amount of product was also compared with surface irrigation noticeable. Also in a similar study in India on watermelon and cucumber juice consumption, respectively 139 and 186 cubic meters and other research Ydr 1978 on watermelon juice consumption during the 88 days is estimated at about 200 cubic meters.

Kykha et al (1381) in their review to evaluate irrigation systems and the horizontal and vertical clay densities of different varieties of cucumbers and Dvmynvs Sinai, showed the highest fruit yield varieties belonging to the Sinai in the density of 40 cm on the row with irrigation system is the vertical clay.

Research Center Research Institute, Karnal, India saline soils (CSSRI) shows that the amount of water leaking from each depends on the pitcher jug (pitcher) and number of plants had been irrigated by each pitcher depends on soil type, sea-wall pores is the pitcher. This research also shows that soil moisture and salt distribution in the root zone of plants in developing a pitcher irrigation methods than other systems were more appropriate.

Methods

The statistical design of split plot (spilet plot) based on a randomized complete block with four main treatments, including levels of salinity (ds / m 2, ds / m 4, ds / m 8, ds / m 12) and Treatment consists of two sub-figures a green capsicum yellow capsicum (ez-iniaez-1) and green capsicums colifornia wonder in four replications using clay underground irrigation system, one year at the Agricultural Research Station affiliated Zahak Agriculture and Natural Resources Research Center Sistan was implemented in 1382.

Analysis of major physical and chemical treatments in Table (1) has.

To perform this study after construction of the desired area of the greenhouse 270 m^2 (9 * 30) meters, first considering the necessity of preparing the bed in greenhouse cultivation and appropriate requirements for earthen irrigation system, digging trenches in action routes during cultivation

depth and width, respectively, 0/6 and 0/5 m, and then according to the required planting bed soil texture according to the formula 20% (soil) + 35% (35 percent sand and gravel) and 45% (mixture of rotten animal manure) to achieve tissue SandyLoam, Loam has combined, of course, before transferring the soil prepared according to the above first formula in the bottom of trenches to produce heat and warmth, some straw plus fertilizer N (100 grams per meter trench) placed 10 cm height and eventually was transferred to the above soil mix. In order to control soil salinity and salt to remove large soil initial leaching was done before running the system. Soil chemical and physical profile as desired tables (2) and (3) is.

The jars of clay that has length, external and internal diameters respectively 45, 6 and 4 cm apart 0/5 m from each other has been installed. Seedling establishment of two stages in order to irrigate with ordinary water, then took the design and installation of four water storage tanks containing water of different quality according to plan treatments and after watering a seedling stage was carried out according to plan treatments. Water levels were measured as a volume.

Results and discussion

Analysis of variance in the desired traits (Table 4) and compare the results table means (5) is shown.

Yeild

Analysis of variance indicates that the desired effect of salinity treatments and varieties of Capsicum performance statistics in a significant percentage of, so most of the performance results obtained on average compared to a number of treatment related to irrigation (saline water with EC = 2ds / m) with the functional equivalent of 46/74 tons per acre that statistically the number two treatments (saline water with EC = 4ds / m) placed in a group and no significant difference. Accordingly, the lowest yield with increasing salinity in irrigation water, number four irrigation treatments (saline water with EC = 12ds / m) with an average functional equivalent of 27/33 tons per hectare have been achieved with this treatment the number three treatments (water saline with EC = 8ds / m) is not significantly different. Yellow capsicum cultivars also devoted to 50/38 tons per hectare green capsicum varieties with average yield of 23/17 tons per hectare are statistically significant superiority.

Plant height

Effect of different treatments of salinity and effects on plant height, respectively, figures in statistical level of 5 percent and one percent have been significant. Highest plant height under the effect of different treatments of salinity with a height equivalent to 98/5 cm belonging to treatment EC = 2ds / m, which was treated statistically with the number two EC = 4ds / m and no significant difference in a statistical group is located. Lowest plant height with 85/5 cm belonging to the treatment number three in terms of statistical treatments in a group of four numbers located, is. Yellow capsicum varieties 100/44 cm height and two digit numbers, 84/13 cm are also allocated.

Root length

Effect of different salinity treatments on root length in statistics has been a significant percentage, so the results of the study compared with the average increase in salinity of irrigation water, EC = 2ds / m to EC = 12ds / m root length has reduced the Subject expresses sensitivity to salt is capsicum. Lowest root length Tymarh Number Four (19/75 cm) and salinity of the figures also did not make a significant difference.
Volume of water
Average water consumption per (m3/ha) in different irrigation treatments showed that the highest volume of 8900 cubic meters of water levels on four acres in treatment and lowest numbers in treatment number one (4926 cubic meters) occurred.
Because of increased volume of water in saline conditions, prevent water stress and osmotic pressure of plant growth is better.

Resources

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Table (1) Analysis of major physical and chemical treatments

S.A.R	S.S.P	Miliquivalents per Liter					PH	Discription ds/m
		Na	Mg + Ca	CL^-	HCO_3	CO_3		
3.1	42	6.9	9.6	5.6	5.2	0	8.7	EC=2
10	64	27.5	15.2	13.4	3.4	0	8.2	EC=4
17	71	60	25	33.5	6.1	0	8.3	EC=6
30	82	102.5	23	73.5	6.1	0	8.2	EC=8

Table (2) physical and chemical soil profile

Mn Ppm	Zn ppm	Cu ppm	Fe ppm	K (av) ppm	P(av) ppm	O.C %	$CaCo_3$	T.N.V %	EC (ds/m)	PH	Depth (cm)
7.61	3.73	1.04	11.7	685	84.2	1.68	0	19.96	4.6	7.8	0-60

Table (3) analysis of variance effect of salinity

Traits	D.F	MS	F	CV (%)
Yield (ton/ha)	3	589.248	7.8016**	27.93
Root depth (cm)	3	86.281	14.8530**	15.44
Height (cm)	3	349.698	4.34.9*	12.09

Table (4) analysis of variance effect of salinity levels and cultivars

Traits	D.F	MS	F	CV (%)
Yield (ton/ha)	3	75.692	0.7174	27.93
Root depth (cm)	3	0.781	0.0601	15.44
Height (cm)	3	16.781	1.3908	12.09

Table (5) Comparison of different treatments on the characteristics of measured salinity

treatments	Yield (ton/ha)	Height (cm)	Root depth (cm)
EC=2 ds/m	46.76 A	98.5 A	27.25 A
EC=4 ds/m	40.50 AB	97.375 AB	24.63 A
EC=6 ds/m	32.50 BC	97.75 BC	21.75 B
EC=8 ds/m	27.33 C	85.5 C	19.75 B

Table (6) compared to average figures of the traits measured

varieties	Yield (ton/ha)	Height (cm)	Root depth (cm)
Yellow capsicum	50.380 A	100.44 A	24.25
Green capsicum	23.17 B	84.13 B	22.43