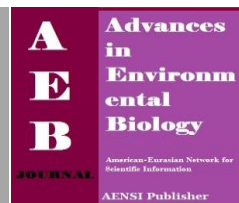




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Compare and Evaluate the Impact of different Tillage Systems on the Yield of Onion in the Northern region of Khuzestan

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ABSTRACT

Evaluating the effects of different tillage methods in crop 2011-12 Shoushtar in the city compared with some type of tillage systems on crop white onion plan was implemented. Priorities for the area to determine the best tillage system. The experimental design statistical "T - student" was conducted with four treatments. Results with software (Mstac) were analyzed. In conclusion, the Duncan test was used for comparison. Treatments consisted of four tillage systems include conventional tillage (moldboard plow + Use a pruning phase plate), severe tillage (using cyclotiller depth 28 cm), Superficial tillage (disk harrow, two-step), and finally, conservation tillage (no-tillage direct seeding). Bulb planting operations for each of the four treatments using pneumatic Gaspardo Italy was working fine. The results showed that the number of green buds was significant differences between treatments and no tillage treatments had higher germination rate and the number of green plants was higher than other treatments and plant height and diameter of the sheath tumor and the amount of weeds between the treatments were not significant. The bulb diameter and also yield a significant difference between treatments was observed traditionally, product performance than other methods studied were at a higher level. Average yield in conventional tillage to 29,000 and then to 27,000 and after a half deep tillage Superficial tillage in the 25500 and finally product performance to no-till direct cultures to 22,000 kg per hectare.

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INTRODUCTION

Movement and use of equipment and agricultural machinery, preserving the remains of the previous crop straw in the field of sustainable agriculture program objectives are. With minimal use of machinery and farm management practices on the farm, but to save time, costs, Energy, reduce soil compaction and density will be followed [1]. Kuiper's conducted research that concluded that the method of plowing, makes inefficient use of time and energy is sufficient to cause more wear and tear of machinery the energy required for tillage operations is significant. In modern agriculture, it would be a technical challenge or an economic problem [9]. research on the effect of tillage systems, conventional tillage (chisel plow) and no tillage on the yield of spring wheat cultivars under rain fall be studied And showed that the average yield in conservation tillage systems, no-tillage and conventional tillage systems was significantly higher than the performance [7]. Nyborg & Malhi have reported in their study that store moisture in no-till systems: moldboard plows more [11]. Rasnak and colleagues, research conducted in the idea reached to moldboard plowing and other tillage systems on soil water infiltration into the soil back in the short-term increase but after a few turns of rain usually fall soil surface crusting decreases water infiltration into the soil [12]. Also the effect of raindrops hitting the soil particles, dispersed them, and makes the soil pores are closed and runoff occur Murdoch et al evaluate experiments are reported for seven years conventional tillage and no-tillage wheat yield in both systems, significant differences were observed [10]. This study investigated the relation of history and culture in Bangladesh tillage method did product performance onion in the conclusion reached Best planted in this region 21 November proved to yield more onions and they should be preserved soil moisture should be maintained and onion bulbs need frequent watering [6]. As compared to that on bare ground and the ground was covered in straw and mulch did Concluded that the use of leaf mulch or crop residue is a good technique to improve performance and increase profitability And the use of mulch tillage method and other methods in no-till is more [3, 2].

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MATERIAL AND METHODS

Results of the experiment (Table 1) and analysis of variance table shows the number of green plants in the experimental treatment there was a significant difference And the greatest number of green plants per unit area of the first treatments (no-till) with a mean of 95 and a low plant green plant belonging to the second treatment plant was (chisel Piller) with 7/70 And the number of plants for the fourth treatment (conventional tillage) with an average of 2/86 and the third treatment plant (disk harrow) plants was with average 7/77 In no-till planting of more green due to better moisture was And deep tillage due to the low water penetrates into the pores of green plants is minimal. Prior to the experiment, composite soil samples were collected from 0–100, 100–200, 200–300 mm of topsoil, then air-dried and sieved. Soil samples were used to measure the plastic limit (PL). The plastic limit is the water content at which a soil begins to crumble when rolled into a thread approximately 3mm in diameter Organic matter content was determined and particle size distribution measured by the pipette method [5].

Table 1: Selected physical properties of the Silty clay loam soil

Soil layer (mm)	Silt (g kg ⁻¹)	Clay (g kg ⁻¹)	Sand (g kg ⁻¹)	OM (g kg ⁻¹)	PL (g kg ⁻¹)	MWD (mm)
0-100	535	354	100	12	22	1.3
100-200	525	338	110	9.6	21	1.5
200-300	527	312	120	8.5	20	1.6

OM: organic matter; w_{PL}: water content at plastic limit; MWD: mean weight diameter

Table 2: Analysis of variance table for plant height Onions

Source of variations	Disk	Plow	Chisel piller
Soil depth (cm)	15	20	30
Speed (km/h)	6	3	5
Slupe %	10.5	14	10

Table 3: Analysis of variance table for the characteristic diameter of the sheath Onion

Source of variations	d.f	treatment
Tillage	3	0.024 **
Total	45	0.38 **
Error	42	0.46 [†]
CV (%)		12.78

n^s.: not significant. * Significant at P = 0.05. ** Significant at P = 0.01.

The defendant was significantly higher bulb diameter in four treatments with four treatments (conventional tillage) has a mean maximum diameter of the tumor diameter 83/69 mm Treatment A (no-till) with a mean tumor diameter 59/59 Is the minimum diameter of the tumor and The second treatments (chisel Piller) with a mean tumor diameter 35/69 mm and the third treatment (disk harrow) with a mean tumor diameter 98/65 mm, respectively.

Table 3: Analysis of variance table for the characteristic diameter of the yield Onion

Source of variations	d.f	treatment
Tillage	3	0.124 **
Total	45	0.39 **
Error	42	0.56 [†]
CV (%)		14.58

n^s.: not significant. * Significant at P = 0.05. ** Significant at P = 0.01.

RESULTS AND DISCUSSION

No-tillage systems on crop emergence has quickly than other systems, and also in terms of plant height and diameter of the sheath tumors treated with other is not significantly different But since this is a no-tillage system, previous crop of onions in a field that was And the remaining onion cultivation in no tillage before planting done yield is lower than other tillage systems If we can make our onion crop on crop rotation, such "very good case for growing grain or vegetables that would later exam to Very likely to yield better than other methods in no-till tillage will be And while we are on arable soils are clay and hard tissue Operations before planting, watering should be done early and getting up cattle farm without doing any tillage and planting attempted to work with any device Row In addition, the linear system has recently also entered the country that can do No tillage on crop residues before tillage without any attempt to cultivate But since this is a big heavy machine requires high power 120 hp tractor with a for pulling And farm machinery and tractors in the traffic compaction caused the soil to After using cow to the ground and planting a row of devices for conventional farmers is economical to use any tillage farming.

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