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Effect of organic fruit farming on yield of bushes and trees in the north of Shiraz, Iran

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Abstract

The study area is located in the northern city of Shiraz in Iran and in the factorial design in randomized complete block design has been done on Asgari grape varieties. The first factor was the type of plant (tree and shrub) and the second factors of cultivation (organic and chemical fertilizer) were performed in triplicate. A trait such as yield, cluster weight and berry weight was. According to the analysis of variance between all the different levels and types of cultivated plants had significantly And the interaction between the two factors apart from the rest of the berry weight traits were significant. Means comparison showed that the highest yield and cluster weight and berry as expected In terms of non-organically grown grapes plant results obtained, further investigation is Much less impact on the use of chemicals grape yield loss and other business attributes of a bush than a tree that had This can result in better economy towards a healthier product that is right after the establishment of fruit tree.

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Introduction

Agricultural Statistics, based on 1387 total production of horticultural approximately 4/13 million tones estimated that the province with the second part of the garden, 1/15 per cent. Pistachio orchard production level of about 302 thousand hectares of vines after 8/11% of the total area of the country gardens that make up the fertile and non-fertile blue grapes, grape rain fed 220 thousand, respectively, and 5/81 thousand hectares. Province with a share of 8/20 percent of the country's fertile vineyards is located in a prime position. Share grapes produce dry province 7/61891 of which 6/29% of total production of grapes were dry. Manufacturing contributed 30% of the grapes dry and drought in the agricultural and irrigation techniques should be used to keep Benefit from the reined cultivation. The strategies employed techniques of irrigation water can be used as a small catchment (Anonymous. 2009a, 2009b).

In the weeks after bud burst, shoot growth of hair depends on the amount of storage carbohydrates in an old branch, trunk and root tissues (Hale *et al*., 1962). Supplemental irrigation and fertilization increased the concentration of potassium in foliage, and potassium status has improved in recent seasons. Although the potassium status with supplemental irrigation and fertilization increased yield grapes, but it was not much (Sipiora *et al*., 2005). Use of chemicals to prolong the dormancy of plants - as a way to reduce the vineyards has resulted in a negative impact on the yield of spring frost damage has been noted (Mirmohammadi, 2002). This study examined the impact of organic farming on the cultivation of grapes, fruit trees and bushes in a healthy direction have been done.

Organic farming uses various methods to enhance or maintain soil fertility, such as crop rotation, tillage and cultivation practices, cover crops, and natural products (such as natural fertilizers, pesticides, and so on). The use of synthetic materials is not allowed in organic farming unless the materials are on the Natl. List of Allowed and Prohibited Substances. A synthetic material can be defined as a substance that is formulated or manufactured by a chemical process or by a process that chemically changes a substance extracted from a naturally occurring plant, animal, or mineral source. Organic farmers use animal and crop wastes, botanical, biological, or non synthetic pest controls, and allowed synthetic materials that can be broken down quickly by oxygen and sunlight. Organic farmers also use specific methods to minimize air, soil, and water pollution.

Materials and methods

This city with an elevation of 1800 meters above sea level in the north and longitude 52 degrees 46 minutes latitude 29 degrees 50 minutes factorial In a randomized complete block design with three replications was conducted on 91-1390 grape varieties cultivated in the military. The first factor to plant two trees and bushes were tested a second factor of culture and the organic form (Without use of fertilizers and chemicals) inorganic, and the (including fertilizer, and the Other Chemicals). From plant to plant trees as a 3 × 3 and 8 × 8, respectively. Each iteration consists of 1/3 acre tree planting five trees were randomly selected 10 plants in a plant and the characteristics of the whole area was Temin.

Much as 900 liters of water per hectare. And in the organic merely the beginning of the season (Feb.) 70 Manure land were added, but in the absence of organic content of 600 grams per tree and 300 grams per plant fertilizer NPK was added to eliminate weeds from 2.4- d and eliminate aphids from aphid insecticide was used. Ph = 6, EC = 3, and the texture of clay soil - sandy. Finally in September the first harvest and total yield per hectare, cluster and berry weight were measured. The results were analyzed using SAS software and mean comparisons using Duncan test at the 5% level were examined.

Results and discussion

Product performance, including financial performance (weight of grapes) in hectares. Analysis of variance showed that the performance of the different levels of culture, the interaction between the plant and the

significant difference in the 1% level (Table 1). The comparison of the average crop yield per hectare than a type of tree that can handle more and better compression because it is the operation Comparisons of the average crop yield as well as the expected average 7/22640 kg per hectare in non-organic conditions, respectively (Table 2).

Table 1. Analysis of variance of the overall performance of grape production.

S.O.V	DF	Product performance
Repeat	2	167766.083n.s
Type of plant	1	60795008.333**
Type Culture	1	112106307.000**
Planting × plant	1	17953640.333**
Error	6	756434.305
Coefficient of Variation (%)		4.44

Ns: Not significant, * and **: significant at 5 and 1% of probability level, respectively.

Table 2. Comparison of the average total daily production.

Factor		Product performance (Kg per hectare)
Type of plant	Grape Tree	17333.3 b
	Grape plant	21835.0 a
Type Culture	Non-organic	22640.7 a
	Organic	16527.7 b

Means with same letter in each column are not significantly different at probability level of 5.

Further investigate the interaction of two factors:

The maximum performance out in comparison with the average 7/26114 kg per hectare of cultivated plants and other organic conditions were And the lowest value in the same plant grown in organic conditions, with the average 3/17555 kg per hectare, respectively. With careful observation we find that the highest yield results in the form of a plant, the plant had and the lowest in terms of the type of tree it is organic, but this difference Nitrogen rate for corn production and yield components are determined. Effect of weed interference on yield and yield components critical to understanding the interaction of weeds. was much less The decrease reflects lower product of organic farming in terms of the type of tree it is In addition, it has a very high cost can be more healthy than the product of a plant is capable of Extensive growth of plant roots deep in the depths of the earth and its resources for food and water can be found In this regard, the results of Hale and Weaver (1962) and consistent with the positive effect of fertilizer increased yield by Mirmohamadi (2002) were consistent (Table 3).

Table 3. Comparison of overall average effect of grape production.

Factor		Product performance (Kg per hectare)
Grape Tree	Non-organic	19166.7 b
	Organic	15500.0 d
Grape plant	Non-organic	26114.7 a
	Organic	17555.3 c

Means with same letter in each column are not significantly different at probability level of 5.

Weight clustering

Analysis of variance due to differences between plants grown at 5% and the difference between the different levels of interaction between the two factors was significant at the 1% level (Table 4). We find that in comparison with the observations of the plant to plant grape cluster weight Had more than non-organic crops are also grown in terms of weight was allocated to additional clusters (Table 5).

The interaction of two factors indicated that non-organic grapes cultivated plants in terms of average

cluster weight was 351 g contains the most And while this cluster had the lowest weight organic plants The uncertainty reflects the adverse conditions and stressful than it is tree-type (Table 6). The results' regarding the effect of fertilizers on the yield of the Mirmohamadi (2002) is consistent.

Table 4. Analysis of variance grape cluster weight.

S.O.V	DF	Cluster weight
Repeat	2	81.083n.s
Type of plant	1	816.750*
Type Culture	1	31724.083**
Planting × plant	1	8060.083**
Error	6	128.638
Coefficient of Variation (%)		4.27

Ns: Not significant, * and **: significant at 5 and 1% of probability level, respectively.

Table 5. Comparison of the average weight of grapes.

Factor		Cluster weight (G)
Type of plant	Grape Tree	257.167 b
	Grape plant	273.667 a
Type Culture	Non-organic	316.833 a
	Organic	214.000 b

Means with same letter in each column are not significantly different at probability level of 5.

Table 6. Comparison of the average cluster weight interaction.

Factor		Cluster weight (G)
Grape Tree	Non-organic	282.667 b
	Organic	231.667 c
Grape plant	Non-organic	351.000 a
	Organic	196.333 d

Means with same letter in each column are not significantly different at probability level of 5.

Berry weight

According to the analysis of variance between the different cultures and the interaction between the two factors was not statistically significant but among the various levels of culture was significant difference at 5% level (Table 7). Means comparison also shows that, except in the case of organic farming the type of plant and the quality of grapes and weight loss market has Significant friendly and all the other levels, there were no significant differences in levels were.

Table 7. Analysis of variance weight grapes.

S.O.V	DF	Berry weight
Repeat	2	0.067n.s
Type of plant	1	0.005n.s
Type Culture	1	0.421*
Planting × plant	1	0.130n.s
Error	6	0.039
Coefficient of Variation (%)		16.25

Ns: Not significant, * and **: significant at 5 and 1% of probability level, respectively.

Table 8. Comparison of the average weight of grapes.

Factor		Berry weight (G)
Type of plant	Grape Tree	1.250 a
	Grape plant	1.208 a
Type Culture	Non-organic	1.416 a
	Organic	1.041 b

Means with same letter in each column are not significantly different at probability level of 5.

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