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The influence of land retention systems on the characteristics and production of Cv. Frantoio, Vlore, Albania

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Abstract: *The objective of this study was to evaluate the impact (influence|) of soil holding systems on the characteristics and production of Cv. Frantoio, Vlore, Albania. The experiment was carried out during 2013 in Vlora. The analyzed indicators have been the linear growth of sprouts, the number of flowers, the number of flowers, the% of the fruit associated with 100 fruits, yield and% of oil. The experiment was carried out in four soil holding systems; (i) Wrought land, (ii) Unrefined soil (natural state), (iii) Hordeumvulgaris vegetable cover, and (iv) Mulchering System. The size of each variant was 245 m2. Statistical data processing is performed using the SPSS version 18.0 statistical program. Research results have demonstrated the superiority of the soil holding system by mulching to other cultivation systems in relation to all the analyzed indicators, the increase in the number of shoots, the number of flowers, the number of flowers / kranth, the number of fruits, the fruit weight and% of oil. Even the filing of dusty groundwater works has demonstrated superiority over the other two systems analyzed. The experiment renewal for many years is indispensable for obtaining the most accurate results and advising on the best method of keeping olive trees, taking into account the potential changes in soil characteristics and other quality indicators of oil.*

Keywords : *Land retention systems, production indicators, Cv. Frantoio*

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I. Introduction

Olive oil is a very important plant for many households in Albania. In the spread and spread of cultivars in our country cultivar Frantoio occupies second place in relation to the cultivation surface with 10 %. Over the last 20 years there have been isolated studies on the impact of land management systems (olive land holdings) on the yield of olive culture and oil quality (Abazi et al., 2012; Ferraj., B. 2003). Other studies in the Mediterranean area, Spain, have demonstrated the superiority of keeping unprocessed soil with bad weeds as a method which has led to increased production compared to traditional cultivation.

Other thoughts are contradictory, emphasizing the fact that in different types of soil, and in different years, production is reduced (Aguilar et al., 1995). Reduced land use systems, both semi-working and minimal work, have led to increased yields compared to convection work, (Pastor 1990; 1991), being for many years a widespread system in Andalucia, Spain. On land in which the unpaved bare land (without vegetation) system has not proportioned optimal results, reduced working practices can be a good option. Other studies carried out (Castro, 1993) have demonstrated the superiority of vegetative cover, moreover in dry years and with scarce rainfall, but in this case it is important to harvest the vegetal cover before drinking water olive with the vegetable cover and meet the common nutritional needs. In dry years, unworkable systems (no bare work) or reduced work (Minimal Work) are much more efficient than those with convective work (Castro, 1993). On the other hand, the land holding systems in the olive grove affect the erosion process. Many studies have demonstrated the superiority of holding the vegetal cover as the most efficient for eliminating it (Phillips y Young, 1979; Blevins, 1986). Coverage action is triple: (i) Reduces the number of rainfall on the surface of the ground, (ii) Raises the soil's stability to the impact of rain drops (less), (iii) Reduces corrosion that the cultivation of olive groves is of great interest, especially in areas with erosion risk. Based on the issues discussed above and by isolated studies conducted in our country, during the last years as well as the necessity to advise farmers on the best system of olive cultivation, this study was carried out whose objective was the influence of land retention systems on the characteristics and production of Cv. Frantoio, Vlorw, Albania

II. Material And Methods

As a material for carrying out the experiment, the cultivars of the Frantoio cultivar, with an age of 40 years old, have been planted for oil, planted 7 x 7 m in length. The selected treatments were: (i) Arable Land, (ii) Untapped Ground (Natural Condition), (iii) *Hordeum vulgaris* and (iv) Land Mulching, with five replicas for each treatment. The size of the treatment (treatment) is 245 m2, with 25 plants / variants. The experiment was carried out on hilly land, sloping 4-5%, sea level 30-35 m, average natural fertility indicator, medium subarctic mechanical composition, low to medium average organic matter. Analyzed creams have been: estimation of flowering and fruit binding, vegetative growth of olive grouts, yield and% of oil. Statistical data processing is performed through the SPPS version 18.0 statistical method.

III. Results

The results of the study are presented in Tables 1-3. The linear increase of the holes has resulted to be higher in the Unholded Earth holding system with a spontaneous spatter length of 3460 mm and as a result the average height increase of the lengths of 108 mm (Table 1), while the decrease has resulted in the land holding system with vegetable cover. No major changes have been observed in the linear increase of the number between the milling system and the unmanaged olive growing system. The results demonstrated a very rapid growth of lasting 60 days (March 31 - May 30, 2013), a fact that we think is owed enough soil moisture to this period of the year.

Table 1. Vegetative growth of olive groves in the year 2013, in various schemes of olive groves for cultivator Frantoio

Treatment	No. Observed branches	Linear growth in mm March31st, 2013	Linear growth in mm May30th, 2013	Avarage growth in mm March31st, 2013	Avarage growth in mm May30th, 2013
(**I**) Arable land,	200	3290	16674	16	83
(II) Non arable land	200	3460	21661	17	108
(**III**) *Hordeum vulgaris*	200	1680	15708	**0.84**	78
(**IV**) Mulched land	200	3384	21801	16	109

Considering the main indicator we have analyzed some of its elements, (Table 3). The results demonstrate a higher percentage of the number of branches, the number of flowers, the number of associated fruits (Table 2) in the case of soil holding by mulching. This fact can be explained by the preservation of moisture on the soil after the onset of drought after May and during the summer season. The highest percentage of fruit connection after IV treatment has been observed in the vegetable retention system, *Hordeum vulgaris*

Table 2. Presentation of productivity elements

	Blooming			**Fruitification**					
Treatment	**No of branches**	**No of flowers**	**Avarage flower/branches**	**July 1st No. Fruits % %**		**September 10th No. Fruits % %**		**Maturing No. Fruits % %**	
(**I**) Arable land,	515	7513	14.5	192	2.5	148	1.9	-	-
(**II**) Non arable land	575	7570	13.2	177	2.3	124	1.6	-	-
(**III**) *Hordeum vulgaris*	518	7273	13.3	183	2.5	165	2.2	-	-
(**IV**) Mulched land	613	7982	13.0	282	3.5	213	2.6	-	-

Production efficiency is realized through the necessary calculations (rewrite / variant) at the time of production harvest. At this point, the average sample for laboratory analysis, 100 head weight, pulp ratio, fat percentage, acidity, peroxides, etc., has been obtained (data not shown in this study). Even the weight of fruit, yield, production, and oil% resulted in higher in the milling system, followed by a fallow system. In the *Hordeumvulgaris* soil holding system, the% of the oil has resulted to be higher than the natural holding system. By comparing the results obtained in this study, with other results found by (Pastor 1991) which have indicated that the minimum holding system of land holding is the best, the data results contradictory, resulting in land holding by mulching as superior to other methods of cultivation. The experiment's persistence for many years and the analysis of all the indicators related to the change in soil characterization and product quality would eliminate the dilemmas for solving the best cultivation system.

Table 3. Presentation of production indicators in land management systems in the Frantoio cultivar

Analized indicators	**I.Ugar system**	**II. Olives in natural conditions**	**III.*Hordeum vulgaris***	**IV. Mulchered system**
Weight of 100 fruits in gr	236	220	228	239
Yield in kg/tree	31.5	20.1	24.4	34
Production in kg/ Variant	787.5	502.5	610	850
No. plant/ Ha	200	200	200	200
% of oil/ 100 kg	18.8	18.3	18.4	19.1
Production kg/Ha	6300	4020	4880	6800

IV. Conclusions

From the results found we can conclude that the best system for keeping the olive land, for the Frantoio cultivar is the mulching system, which has demonstrated superiority over all other systems for all analyzed indicators. Very positive indicators both in production and in% of oil have also resulted in the retention of soil gravel, which are similar to those observed by Pastor M., 1991, for Arbequina cultivar. These two systems demonstrate superiority over the other two land retention systems for all the analyzed indicators. Continuation of the study is necessary to see the progress of these indicators in order to advise farmers on landfill systems in the Vlora area of Albania.

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