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Fruit - Growing and Viticulture at the Confluence of the Crna River (Black River) in Macedonia

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ABSTRACT

The purpose of the scientific paper is to give an opinion on the natural and pedological conditions that exist, as well as the regions where they are grown on the confluence of the Black River in the Republic of Macedonia as a key condition for the development of fruit growing and viticulture. As main results of the survey for fruit growing and viticulture at the confluence of the Black River in the Republic of Macedonia are introduced the types of fruits that are grown in the municipalities, the total number of trees, one tree yields (kg) and the total area for a period of 37 years, also vineyards are presented in the confluence of the Black River in the Republic of Macedonia by municipalities, according to the total number of vine cuttings, the total yield, yield per one vine cutting, processed grapes, the vineyards of the vine and table types of grapes, production of wine and brandy.

Finally, we conclude that at the confluence of the Black River there are good conditions for the development of fruit growing and viticulture, in the last 40 years because of rising demand in the market area of fruit growing, the market price of the fruit is good, the state provides subsidies for raising new orchards, in the last 40 years the price of grapes is low, the area under vineyards significantly reduced, declining interest in planting new vineyards due to the low market price of grapes, it has been made a thematic map for the areas where the fruit - growing and viticulture are, at the confluence of the Black River by municipalities in Macedonia.

Keywords: Fruit – growing, Viticulture, total amount of stems and vine cuttings, yields, thematic map.

Introduction

Quality orchard and wine production can not be achieved without a well organized and quality production. Intensive crops, depending on the quality of seedlings become productive in the first year after autumn planting and full productivity reach in the third and fourth year of the cultivation of fruit trees (Michich et al., 1998; 2005). Choosing a convenient system of cultivation of fruit trees and vines, which respect the biological laws of growth and development (Dzhurich et al., 1999; Mishich 2004) will enable the successful and profitable orchard and wine production. Production of various fruit and grape quality seedlings in terms of representation various types and substrate, are subject to constant analysis.

Object and purpose of the research: as an subject of the research are the types of orchards and vineyards and their representation at the confluence of the Black River.

The aim of the research is through text, tables, statistics and thematic map thoroughly and scientifically to be presented: an analysis of the representation of the types of orchards and vineyards, production per fruit and vine cutting, ground and the presence of orchards and vineyards plantations in the region of the confluence of the Black River in the Republic of Macedonia.

Working methods and research: scientific methods which are used: geographical methods, text method, information methods, AUTO KAD MAP program for making thematic maps, field survey method, cartographic methods, mathematical, statistical methods and techniques, the method of survey and analysis collected data.

An analysis of the number and structure of fruit and vine seedlings produced in nurseries and vineyards in the years (1970 and 2007) at the confluence of the Black River in the Republic of Macedonia, was made on the basis of secondary data analysis, obtained by authorized institutions to control the production and seedlings in the Republic of Macedonia. Authorized the Ministry of Agriculture, Forestry and Water Management of the Republic of Macedonia, Institute of Fruit Growing, Viticulture and horticulture and the National Statistics Office - Skopje. The confluence of the Black River in the Republic of Macedonia has a good natural and pedological conditions for the development of fruit growing and viticulture.

Valleys are protected by mountains from cold winds, the impact of modified Mediterranean climate as well as the areas under diluvial, alluvial, sandy, pebbly and stony land are suitable for growing fruit and vineyards. At the confluence of the Black River in the

Republic of Macedonia there are a lot of agricultural pharmacies from which farmers are supplied with the necessary preparations for the successful development and yields of fruit growing and viticulture. In Bitola, agricultural pharmacies are: CPV Agrarija Agro Seeds, Gorocvet, 96 Bademont, Semenarna, Semenarstvo etc.. In Prilep agricultural pharmacies are: Agricultural Pharmacy, Auto Start, Agro Progress, and in Rosoman there are six agricultural pharmacies from which the most important are: Agro Zimak and ADO 2000.

To see how it moved the representation of orchards and vineyards we will use the data from Tables 1 and 2.

Bitola	5559	47.4	42863	28.6	1936	24.1	67.24	35.0	39459 0	30.0	55572	36.3	93390	36.0	3828	28.1	2657	53.0
Gradsko <i>part of the basin</i>	1342	15.9	662	11.3	24066	6.5	1399	22.3	10220	38.4	82688	14.4	34556	40.8	2526	12.4	7178	27.0
D.Hisar	4194	18.7	659	19.0	101	12.5	564	20.2	12600	29.9	3125	21.5	34285	26.6	251	12.7	1790	18.5
Dolneni	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drugovo <i>part of the basin</i>	6779	24.3	612	12.2	1254	9.4	975	17.4	80185	45.5	11522	25.1	63745	34.7	2327	15.3	7761	20.1
Kavadarci <i>part of the basin</i>	2221	13.6	797	15.6	6055	13.3	1998	19.5	9223	25.0	12146	27.8	27135	25.8	90781	19.4	7395	21.6
Krivoga stani	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Krusevo	598	28.1	45	16.7	80	3.6	0	0	8260	32.8	1807	23.5	15168	18.3	0	0	338	26.4
Mogila	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Novaci	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prilep	1287	35.4	862	23.9	9822	26.0	2691	32.8	93200	37.4	132489	21.0	57212	44.4	3769	21.8	5174	32.7
Rosoman	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Caska <i>part of the basin</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Total :</i>	21980	214	46500	157	43314	117	7718	167	60827 8	266	299349	193	325491	259	10348 2	134	32293	220

Source of data: SSO, crop, fruit and viticulture in SRM 1970. Statistical Review No. 21, Skopje, 972. Census of Agriculture, 2007. Book II, Skopje, 2008.

Analysis of the data: the data from Table 1 for the total number of fruit trees and tree yields 1 (kg) 1970 and the total number of trees with areas for 2007, show that the new benefits from the state for raising new trees per hectare the trend of increase in fruit production areas will continue and also quite high price of the fruit market in recent years as well as the placement and purchase of fruits further motivate the farmers from Pelagonian and Vardar Region in Macedonia that are on to the confluence of the Crna River in the Republic of Macedonia to invest in this sector.

TABLE.2. Vineyards, the number of rods and production at the confluence of the Black River in the years 1970 and 2007.

Number of rods and production in 1970						
Municipality	Vinyard total			manufactured grape m.c.	Produced in hl.	
	/number rods in 000	total yield	yield Per 1 rods (kg)		Wine	Rakija
Bitola	6790	93857	1.5	75482	38833	3843
Gradsko part of the basin	6311	120864	2.0	86506	52710	2857
D.Hisar	649	5026	0.8	4500	1927	345
Dolneni	0	0	0	0	0	0
Drugovo part of the basin	423	4211	1.0	2730	1314	241
Kavadarci part of the basin	14319	317783	2.5	181548	114348	9041
Krivoga stani	0	0	0	0	0	0
Krusevo	398	2331	0.7	967	464	72
Mogila	0	0	0	0	0	0
Novaci	0	0	0	0	0	0
Prilep	6149	53660	1.1	38068	18536	2744
Rosoman	0	0	0	0	0	0
Caska part of the basin	0	0	0	0	0	0
<i>Total :</i>	35039	597732	33	389801	228132	19143

Vineyard plants in 2007						
Municipaliti	Total vineyard plants		Vineyard plant from wine varieties		vineyard plants from table varieties	
	number rods in 000	Total space (area) (ha)	Number of rods	Total space (area) (ha)	Number of rods	Total space (area) (ha)
Bitola	715274	208.69	639320	182.54	75954	26.15
Gradsko part of the basin	489505	162.53	483615	160.49	5890	2.04
D.Hisar	27136	6.80	25976	6.51	1160	0.29
Dolneni	23836	7.65	22681	7.04	1155	0.03
Drugovo	4711	1.48	4621	1.45	90	0.03
Kavadarci part of the basin	17045887	4587.94	15834792	4262.35	1211095	325.59
Krivoga stani	13918	3.26	10868	2.73	3050	0.54
Krusevo	18685	6.33	17870	6.10	815	0.23
Mogila	190341	56.32	186319	54.68	4022	1.64
Novaci	23633	8.08	22131	7.47	1502	0.61
Prilep	828484	222.48	794513	212.37	33971	10.12
Rosoman	3683517	1037.73	3476596	975.07	206921	62.66
Caska part of the basin	0	0	0	0	0	0
<i>Total :</i>	23064927	6932	21519302	6354	1545625	819

Source of data:

SSO, crop, fruit and viticulture in SRM 1970 Statistical Review No. 21 Skopje, 1972.
Census of Agriculture, 2007, vol. II, Skopje, 2008.

Analysis of the data: the data from the table we see that the number of vine twigs and areas from year to year decreases.

Most productive areas are located in the Vardar and Pelagonija, part of the confluence of the Black River in the Republic of Macedonia, where climatic and pedological conditions are good, that could be a good opportunity for the farmers to invest in the future in further development of this branch.

Suggestions: as the main results of the survey for fruit growing and viticulture at the confluence of the Crna River in the Republic of Macedonia are introduced the types of fruits that are grown in the municipalities, the total number of trees, tree yields 1 (kg) and total area for the period of 37 years, also introduced the vineyards at the confluence of the Black River in the Republic of Macedonia by municipalities according to the total number of vine cuttings, the total yield, the yield on one vine cutting, processed grapes, the vineyards of the wine and table varieties and the production of wine and brandy.

The main suggestion should be in the future to pay more attention when launching new fruit and vine crops, to plant quality seedlings that are demanded in the market, which have high yields per tree and vine cutting, have high market price and for which types the state gives subsidies per unit area.



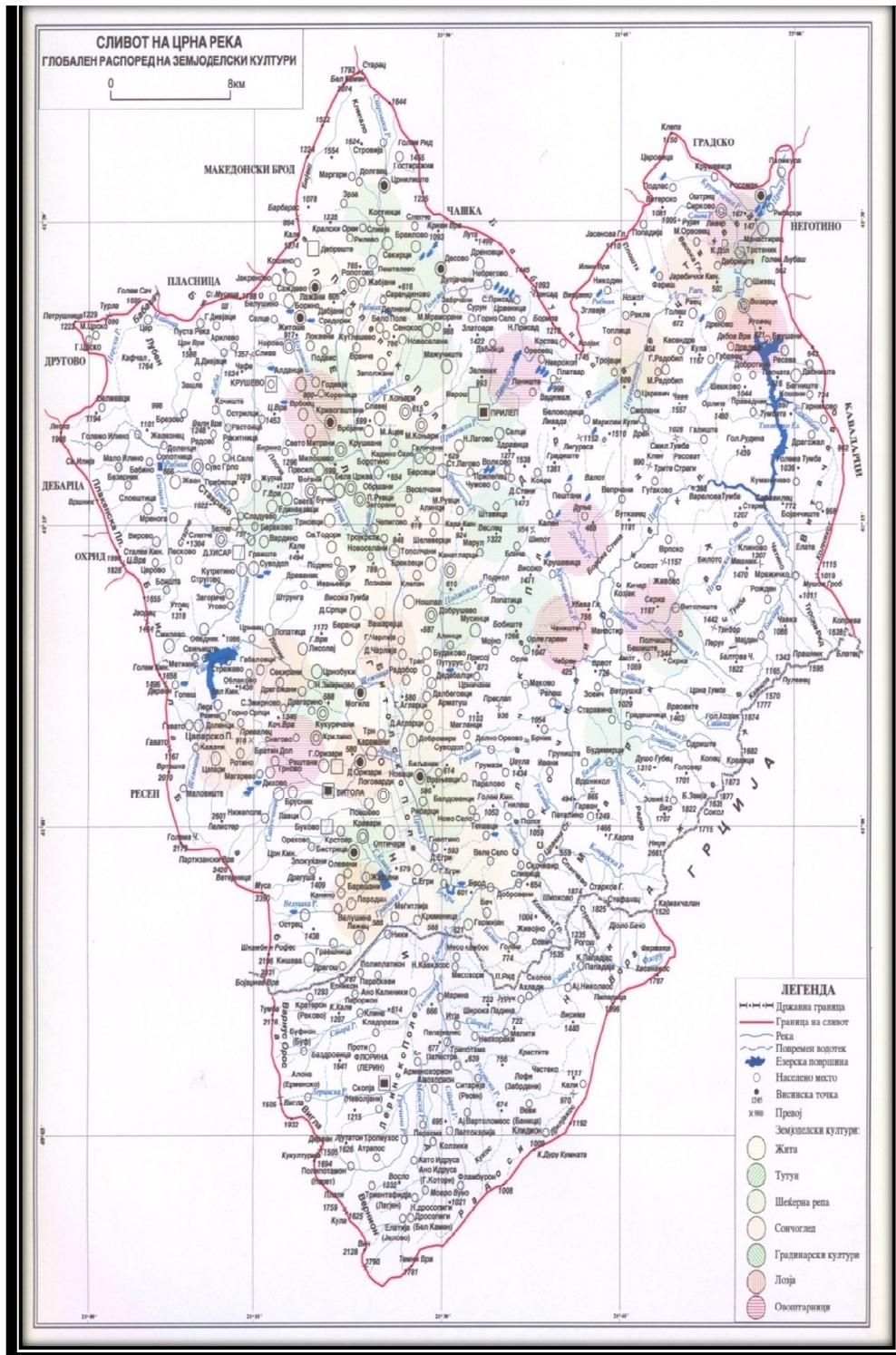
Picture 1. FirstModern orchard near the village Dolenci.

(08/09/2008) Photo: C. Koteski



Picture 2. Plantation with grape plants in Tikveshija.

(10.10.2008) Photo: C.. Koteski



Thematic map 1. Global scheduling of field crops in the Crna River basin.

Conclusion:

At the confluence of the Black River in the Republic of Macedonia there are good conditions for the development of fruit growing and viticulture, in the past 40 years because of rising demand in the market areas with fruit growing, the market price of the fruit is good and ranges from 1 (kg) 15 - 40 denars (61denar = 1 euro) and the state gives subsidies to raise new orchards.

In 2007 at the confluence of the Black River total there were 162 958 apple trees of the total area of 712 ha, 28089 pear trees of the total area of 9.20ha, 94,879 plum trees on an area of 630ha, 14,267 the cherry trees on an area of 506 ha, 24 321 sour cherries in an area of 511ha, 21,656 apricot trees in an area of 518ha, 474,869 peach trees in an area of 1249ha, 11396 walnut trees on area of 473ha and 3350 almond trees on area of 206ha.

In the last 40 years the price of grapes is low, areas with vineyards significantly lowered declining interest in planting new vineyards due to the low market price of grapes wine varieties is heading 1 (kg) from 8 -12 dinars table grapes 1 (kg) 15 - 35 denars (61 denar = 1 euro). In 2007 total amount of vineyards at the confluence of the Black River was 23,064,927 on area of 6932ha, total amount of vine cuttings in vineyards of wine varieties accounted 21519302 on total area of 6354ha and the total number of vine cuttings of table grape vineyards was 1,545,625 on an area of 819ha.

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