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Department of Tourism, Department of Cultural Studies
Faculty of Geography at the UNIVERSITY OF BELGRADE, SERBIA
Department of Economics and Organization of Tourism – University of Economics, VARNA
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# VIA DIAGONALIS CULTURAL TOURISM WITHOUT BOUNDARIES





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

Cane Koteski<sup>1</sup>, Zlatko Jakovles<sup>1</sup>, Tanja Angelkova<sup>1</sup>, Snezana Bardarova<sup>1</sup>, Vladimir Kitanov<sup>1</sup>

<sup>1</sup>Fakultet za turizam i biznis logistika uGgevgelija,7noemvri bb,Gevgelija, R.Makedonija

(cane.koteski@ugd.edu.mk).

### **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 productivness 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.

TABLE.1. Number of trees and areas of orchards with apples, pears, plums, cherries, sour cherries, apricots, peaches, walnuts and almods at the confluence of Crna River in 1970 and 2007

Number of stems and orchards' areas in 2007

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$Ap_{j}$	pie	PE	ear I	Fil	ims	Chei	rries	Cher	ries	Apric	:01	reac	en	IVU	is	Aime	onas
Total number of plants	Total space (ha)	Total numbe r of plants	Total space (ha)	Total numbe r of plants	Total space (ha)	Total numbe r of plants	Total space (ha)	Total numbe r of plants	Total space (ha)	Total number of plants	Tota l spac e	Total number of plants	Tota l spac e	Total numbe r of plants	Tota l spac e	Total number of plants	Total space (ha)
98145	135.23	7060	13.62	6969	11.39	9331	44.37	13752	9.03	590	0.88	17377	22.9	1655	7.14	49	0.11
721	1.18	446	0.87	4200	5.12	437	0.71	324	0.66	5118	7.62	18255	26.7	304	1.39	798	1.26
9205	16.16	1395	3.04	21893	47.60	631	2.20	3128	3.27	148	0.32	98	0.29	1579	10.5 6	10	0.02
2895	5.69	1031	1.90	3117	7.08	66	0.18	143	0.32	179	0.28	135	0.31	163	1.04	1	0.00
7161	13.19	1597	3.50	10395	17.18	756	0.78	721	0.54	43	0.16	51	0.09	1365	5.03	6	0.03
18339	24.46	4431	5.60	12507	20.54	862	1.51	3477	3.84	3066	5.52	45189	72.6 8	627	7.15	705	1.44
1044	1.90	323	0.73	2698	4.92	72	0.17	88	0.18	100	0.23	138	0.27	53	0.25	10	0.10
4733	11.95	651	1.72	13905	26.05	180	0.52	140	0.48	46	0.12	36	0.05	747	3.87	25	0.14
																	0.06
1739	2.21	920	1.23	1680	2.10	85	0.13	83	0.10	81	0.15	426	0.52	155		75	0.14
10423	20.51	2955	5.91	9712	19.67	1644	3.71	1797	3.76	2958	5.99	2495	4.65	4510	23.1	422	1.33
7080	10.15	6842	9.20	6498	17.38	111	0.15	234	0.45	9237	13.4 6	390598	581. 77	75	0.37	1242	2.38
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
162958	712	28089	734	94879	630	14267	506	24321	511	21656	518	474869	1249	11396	473	3350	206
1					fruit p	olants and j	fruit produ	ction and b	oranch in	1970		1					
Che	rries			Apr	ricot		nces		ole	Pea		Plun		Pea		Νι	uts
Total number of plants	Per 1 plant killogra mnes	Total numbe r of plants	Per 1 plant killogr amnes	Total numbe r of plants	Per 1 plant killogr amnes	Total numbe r of plants	Per 1 plant killogr amnes	Total numbe r of plants	Per 1 plant killog ramne s	Total number of plants	Per 1 plan t killo gra mne	Total number of plants	Per 1 plan t killo gra mne	Total numbe r of plants	Per 1 plan t killo gra mne	Total number of plants	Per 1 plant killogr amnes
	Total number of plants  98145  721  9205  2895  7161  18339  1044  4733  1473  1739  10423  7080  0  162958  Che  Total number of	number of plants         space (ha)           98145         135.23           721         1.18           9205         16.16           2895         5.69           7161         13.19           18339         24.46           1044         1.90           4733         11.95           1473         2.09           1739         2.21           10423         20.51           7080         10.15           0         0           162958         712           Cherries           Total number of plant killogra	Total number of plants         Total space (ha)         Total numbe r of plants           98145         135.23         7060           721         1.18         446           9205         16.16         1395           2895         5.69         1031           7161         13.19         1597           18339         24.46         4431           1044         1.90         323           4733         11.95         651           1473         2.09         438           1739         2.21         920           10423         20.51         2955           7080         10.15         6842           0         0         0           162958         712         28089           Cherries         Cherries         Cherries Cherries           Total number of plant killogra         plant killogra         plants	Total number of plants         Total space (ha) plants         Total numbe r of plants         Total space (ha) plants         Total space (ha) plants           98145         135.23         7060         13.62           721         1.18         446         0.87           9205         16.16         1395         3.04           2895         5.69         1031         1.90           7161         13.19         1597         3.50           18339         24.46         4431         5.60           1044         1.90         323         0.73           4733         11.95         651         1.72           1473         2.09         438         0.61           1739         2.21         920         1.23           10423         20.51         2955         5.91           7080         10.15         6842         9.20           0         0         0         0           162958         712         28089         734    Cherries  Cherries  Cherries  Cherries  Cherries  Total number plant killogra plants killogra amnes	Total number of plants         Total space (ha)         Total numbe r of plants         Total numbe rof plants         Total numbe rof plants         Total numbe rof plants         Total numbe rof plants           98145         135.23         7060         13.62         6969           721         1.18         446         0.87         4200           9205         16.16         1395         3.04         21893           2895         5.69         1031         1.90         3117           7161         13.19         1597         3.50         10395           18339         24.46         4431         5.60         12507           1044         1.90         323         0.73         2698           4733         11.95         651         1.72         13905           1473         2.09         438         0.61         1305           1739         2.21         920         1.23         1680           10423         20.51         2955         5.91         9712           7080         10.15         6842         9.20         6498           0         0         0         0         0           162958         712         28089	Total number of plants   Total number of plants   Total number of plants   Total numbe rof plant rof amnes rof rance rof rof mumbe rof mumbe rof amnes rof amnes rof mumbe rof mumbe rof amnes rof mumbe rof amnes rof mumbe rof amnes rof mumbe rof amnes rof mumbe rof mumbe rof mumbe rof amnes rof mumbe rof mumbe rof mumbe rof amnes rof mumbe rof mumbe rof mumbe rof amnes rof mumbe rof	Total number of (ha) plants   Total number of plants   Total numbe number of plants   Total number of plants   Total number of plants   Total number of plants   Total number num	Total number of plants         Total (ha)         Total numbe (ha)         Total space (ha)         Total numbe (ha)         Total space (ha)         Total space (ha)         Total numbe (ha)         Total space (ha)         Total numbe (ha)         Total space (ha)         Total numbe (ha)         Total plants         Total numbe plant plants         Total numbe plant plants         Total numbe (ha)         Total numbe plant plant plants         Total numbe plant plants         Total numbe plant plants         Total numbe plant plants         Total numbe plant plants         Total plants         Total numbe plants         Total plants         Total plants         Total plants         Per 1 numbe plants         Apricot plants         Quimces	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{c c c c c c c c c c 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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 part of the basin	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 part of the basin	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 part of the basin	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 part of the basin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total :	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 rodsand production in				
		Vinyard total		manufactured grape m.c.	Produced in hl.		
Municipality	/number rods in 000	total yield	yield Per 1rods (kg)		Wine	Rakija	
Bitola	6790	93857	1.5	75482	38833	3843	
Gradsko part of the	6311	120864	2.0	86506	52710	285	
basin D.Hisar	649	5026	0.8	4500	1927	34.	
Dolneni	0	0	0	0	0	-	
Drugovo part of the basin	423	4211	1.0	2730	1314	24	
Kavadarci part of the basin	14319	317783	2.5	181548	114348	904	
Krivoga stani	0	0	0	0	0	(	
Krusevo	398	2331	0.7	967	464	72	
Mogila	0	0	0	0	0	(	
Novaci	0	0	0	0	0	(	
Prilep	6149	53660	1.1	38068	18536	2744	
Rosoman	0	0	0	0	0	(	
Caska part of the basin	0	0	0	0	0	(	
Total :	35039	597732	33	389801	228132	1914	
			Vineyard plants in 2007		<u> </u>		
	Total viney		Vineyard plants in 2007 Vineyard plant fro	m wine varietes	vineyard plants from tal	ole varietes	
M Es	Total viney number			m wine varietes  Total space	vineyard plants from tab	ole varietes Total space	
Municipaliti		ard plants		Total space (area)		Total space (area)	
	number rods in 000	Total space (area)  (ha)	Vineyard plant fro	Total space (area) (ha)	Number of rods	Total space (area) (ha)	
Bitola	number rods in 000	ard plants  Total space (area) (ha)	Vineyard plant fro Number of rods	Total space (area) (ha) 182.54	Number of rods 75954	Total space (area) (ha) 26.13	
Bitola Gradsko part of the basin	number rods in 000 715274 489505	ard plants  Total space (area) (ha)  208.69  162.53	Vineyard plant fro Number of rods 639320 483615	Total space (area) (ha)  182.54	Number of rods 75954 5890	Total space (area) (ha) 26.1:	
Bitola Gradsko part of the basin D.Hisar	number rods in 000 715274 489505 27136	ard plants  Total space (area) (ha)  208.69  162.53 6.80	Vineyard plant fro Number of rods 639320 483615 25976	Total space (area) (ha)  182.54  160.49	Number of rods  75954  5890  1160	Total space (area) (ha) 26.1:	
Bitola  Gradsko part of the basin  D.Hisar  Dolneni	number rods in 000 715274 489505 27136 23836	ard plants  Total space (area) (ha)  208.69  162.53  6.80  7.65	Vineyard plant fro  Number of rods  639320  483615  25976  22681	Total space (area) (ha)  182.54  160.49  6.51  7.04	Number of rods  75954  5890  1160  1155	Total space (area) (ha) 26.1: 2.0-0.2: 0.0:	
Bitola Gradsko part of the basin D.Hisar Dolneni Drugovo Kavadarci part of	number rods in 000 715274 489505 27136	ard plants  Total space (area) (ha)  208.69  162.53 6.80	Vineyard plant fro Number of rods 639320 483615 25976	Total space (area) (ha)  182.54  160.49	Number of rods  75954  5890  1160	Total space (area) (ha) 26.1:	
Bitola Gradsko part of the basin D.Hisar Dolneni Drugovo Kavadarci part of the basin Krivoga	number rods in 000 715274 489505 27136 23836 4711	ard plants  Total space (area) (ha)  208.69 162.53 6.80 7.65 1.48	Vineyard plant fro  Number of rods  639320  483615  25976  22681  4621	Total space (area) (ha)  182.54  160.49  6.51  7.04  1.45	Number of rods  75954  5890  1160  1155  90	Total space (area) (ha) 26.1. 2.0 0.2 0.0 0.0	
Bitola  Gradsko part of the basin  D.Hisar  Dolneni  Drugovo  Kavadarci part of the basin  Krivoga  stani	number rods in 000 715274 489505 27136 23836 4711 17045887	ard plants  Total space (area) (ha)  208.69  162.53  6.80  7.65  1.48  4587.94	Vineyard plant fro  Number of rods  639320  483615  25976  22681  4621  15834792	Total space (area) (ha)  182.54  160.49  6.51  7.04  1.45  4262.35	75954 5890 1160 1155 90 1211095	Total space (area) (ha) 26.1. 2.0. 0.2 0.0 0.0 325.5	
Bitola  Gradsko part of the basin  D.Hisar  Dolneni  Drugovo  Kavadarci part of the basin  Krivoga stani  Krusevo	number rods in 000 715274 489505 27136 23836 4711 17045887	ard plants  Total space (area) (ha)  208.69  162.53  6.80  7.65  1.48  4587.94  3.26	Vineyard plant fro  Number of rods  639320  483615  25976  22681  4621  15834792  10868	Total space (area) (ha)  182.54  160.49  6.51  7.04  1.45  4262.35	Number of rods  75954  5890  1160  1155  90  1211095  3050	Total space (area) (ha) 26.1. 2.0. 0.2. 0.0. 325.5: 0.5.	
Bitola  Gradsko part of the basin  D.Hisar  Dolneni  Drugovo  Kavadarci part of the basin  Krivoga stani  Krusevo  Mogila	number rods in 000 715274 489505 27136 23836 4711 17045887 13918	ard plants  Total space (area) (ha)  208.69  162.53  6.80  7.65  1.48  4587.94  3.26  6.33	Vineyard plant fro  Number of rods  639320  483615  25976  22681  4621  15834792  10868  17870	Total space (area) (ha)  182.54  160.49  6.51  7.04  1.45  4262.35  2.73  6.10	Number of rods  75954  5890  1160  1155  90  1211095  3050  815	Total space (area) (ha) 26.1. 2.0. 0.2. 0.0. 325.5. 0.5. 0.2. 1.6.	
Bitola  Gradsko part of the basin  D.Hisar  Dolneni  Drugovo  Kavadarci part of the basin  Krivoga stani  Krusevo  Mogila  Novaci	number rods in 000 715274 489505 27136 23836 4711 17045887 13918 18685 190341	ard plants  Total space (area) (ha)  208.69  162.53  6.80  7.65  1.48  4587.94  3.26  6.33  56.32	Vineyard plant fro  Number of rods  639320  483615  25976  22681  4621  15834792  10868  17870 186319	Total space (area) (ha)  182.54  160.49  6.51  7.04  1.45  4262.35  2.73  6.10  54.68	Number of rods  75954  5890  1160  1155  90  1211095  3050  815  4022	Total space (area) (ha)  26.1  2.0  0.2  0.0  325.5  0.5  0.2  1.6  0.6	
Bitola  Gradsko part of the basin  D.Hisar  Dolneni  Drugovo  Kavadarci part of the basin  Krivoga stani  Krusevo  Mogila  Novaci  Prilep	number rods in 000 715274 489505 27136 23836 4711 17045887 13918 18685 190341 23633	ard plants  Total space (area) (ha)  208.69  162.53  6.80  7.65  1.48  4587.94  3.26  6.33  56.32  8.08	Vineyard plant fro  Number of rods  639320  483615  25976  22681  4621  15834792  10868  17870  186319  22131	Total space (area) (ha)  182.54  160.49  6.51  7.04  1.45  4262.35  2.73  6.10  54.68  7.47	Number of rods  75954  5890  1160  1155  90  1211095  3050  815  4022  1502	Total space (area) (ha)  26.1  2.0  0.2  0.0  325.5  0.5  0.6  10.1	
Municipaliti  Bitola Gradsko part of the basin D.Hisar Dolneni Drugovo Kavadarci part of the basin Krivoga stani Krusevo Mogila Novaci Prilep Rosoman Caska part of the basin	number rods in 000 715274 489505 27136 23836 4711 17045887 13918 18685 190341 23633 828484	ard plants  Total space (area) (ha)  208.69  162.53  6.80  7.65  1.48  4587.94  3.26  6.33  56.32  8.08  222.48	Vineyard plant fro  Number of rods  639320  483615  25976  22681  4621  15834792  10868  17870  186319  22131  794513	Total space (area) (ha)  182.54  160.49  6.51  7.04  1.45  4262.35  2.73  6.10  54.68  7.47  212.37	Number of rods  75954  5890  1160  1155  90  1211095  3050  815  4022  1502  33971	Total space (area) (ha) 26.1. 2.0. 0.2. 0.0. 325.5. 0.5. 0.2.	

## 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 oportunity 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.

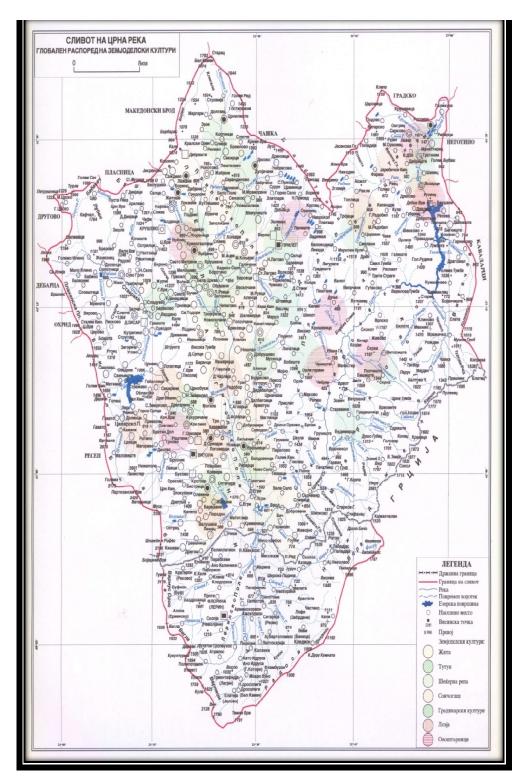
The main suggestion should be in the future to pay more attention when launching new fruit and vine crops, to plant quality seedlings that are demanded in the market, which have high yields per tree and vine cutting, have high market price and for which types the state gives subsidies per unit area.



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 ov 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.

### References:

- 1. Koteski C. (2009) Fruit and Viticulture at the confluence of the Black River, Skopje, Republic of Macedonia, (Doctoral dissertation manuscript, the confluence of the Black River geographical cartographic modeling, differentiation and functional development of the individual regional units, Mathematics Skopje, Institute of Geography), 400, 232-237.
- 2. SSO, crop, fruit and viticulture in SRM 1970. Statistical Review No. 21, Skopje, 1972., 68, 58-68.
- 3. Census of agriculture in the Republic of Macedonia, 2007. Kn. II, Skopje, 2008, from 57.43 to 57.
- 4. LUČIĆ, P. Djuric, G., Micic, N. (1996), fruit and Nolit, Partenon. Beograd.
- 5. Cvetkovic, M., Paunovic, G., Yeljković, S., Pasalic, B. (2012), cultivars and rootstocks of fruit trees in the nursery production on the territorory of the Republic of Serbian, XVII Conference on biotechnology, Cacak.