



2012

Fresh Vegetables Value Chain Baseline Screening



AgBiz Program

USAID AgBiz Program (www.agbiz.com.mk) overall objective is to increase incomes for all participants in selected Macedonian agricultural value chains by increasing sales (domestic and exports), improving productivity, enhancing the agricultural business environment, and increasing access to finance. AgBiz builds off of the existing capacity and expertise of Macedonian professionals and lead firms and farms to create a new understanding in the market for imbedded business development services and fee-based service delivery. EPICENTAR International is selected and responsible for implementation of the Fresh Fruits and Vegetable component as Lead Facilitator.

EPI Centar International (www.epicentar.com.mk) is a consulting company, providing consultancy and expertise to strengthen the capacities of individuals, private companies and local communities, for achieving greater economic results.

The company provides services such as:

- Support in drafting and conducting Market/Sector/Product Specific Research, Analyses and Studies, Plans and/or other Strategic Documents essential for the success of an organization;
- Planning, Implementation Management and Monitoring and Evaluation of Donor and/or Agency Funded Projects;
- Assistance in locating the most suitable business partner in Macedonia and business representation in the country;

Positive changes are a compound part of the work and are achieved through raising people's awareness, capacity building approach and direct community interventions.

EPICENTAR's ultimate objective is to become a reliable "partner of choice" for the implementation of donor and/or agency funded Projects.

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Authors:

Ljubomir Dimovski, Director, EPI CENTAR International, Skopje

Stevan Orozovic, Evaluation and Monitoring Expert, EPI CENTAR International, Skopje

Vesna Garvanlieva, Business Development and Financial Specialist, Skopje

Gordana Pop Simonova, PhD, Faculty of food and agriculture, Skopje

Goce Georgievski, Technical Expert for Fresh Vegetable sub-sector

Vladimir Kokarev, Technical Consultant for Fresh Fruits and Vegetables Markets

Federation of Farmers of Republic of Macedonia, Skopje

List of Acronyms

FF&V	Fresh Fruits and Vegetables
VC	Value-Chain
Ex-YU	Ex Yugoslavian
HORECA	Hotels Restaurants Catering
MFN	Most Favoured Nations
LA	Lead Actor
LF	Lead Facilitator
FGD	Focus Group Discussion
FFRM	Federations of Farmers of Macedonia
CMO	Common Market Organization
PDO	Protected Designation of Origin
PGI	Protected Geographical Indication
TSG	Traditional Specialty Guranteed
CEFTA	Central European Free Trade Agreement
WTO	World Trade Organization
LPIS	Land Parcel Identification System

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I. Objective

USAID supports economic growth in Macedonia through programs that strengthen and improve competitiveness of Macedonian agribusinesses, improve the business environment, and encourage local economic development. The objective of AgBiz extension is to build up the existing capacity and expertise of Macedonian professionals, lead firms, and farms to create a new understanding in the market for embedded services and fee-based service delivery. The provision of the services will be delivered sustainably by local partners well beyond the anticipated graduation of the USAID Macedonia program.

AgBiz value chain upgrading work will focus on supporting FF&V value chain participants to more effectively and efficiently link themselves to viable markets, identify possible new market entry opportunities and expand their export sales. EPI CENTAR was selected as the Lead Facilitator that will implement an activity package that will lead to better coordination between suppliers of raw material and inputs and traders/exporters to implement activities to encourage development of highly productive and competitive Integrated Supply Chains, overcome key constraints at both the pre-harvest and post-harvest levels and enhance the value chain's productivity and competitiveness. One of the initial activities is preparation of FF&V VC Baseline Screening and setting up a mechanism for regular discussion and information exchange between LAs and their farmers on the VC performance progress at the primary production level through established Focus Groups. This VC Baseline Screening is a product of the detailed analysis based on relevant desk and field research data received and discussed with all the relevant VC players.

II. Background

Export markets for the fresh vegetables are traditionally Ex Yu (acronym) countries with some changes in the last decade, when as a result of the improved production technology and increased quantity of the production of high quality, market demanded tomato, pepper and cucumber in the glasshouses, EU markets have been increasingly penetrated for the Macedonian producers.

However, the dominant production remains to be sold on the Ex-Yu markets. The competition on these markets is increasing, especially by the regional producer Albania which due to the climatic preconditions and recent investments in the agriculture and agribusiness has more productive glasshouses than the Macedonian ones. Their products are competitive both on the Kosovo and Bosnian market. On the other hand, the Turkish production represents a serious and permanent treat on the regional and other common export markets. Russian market is also an option that is becoming relevant especially in the past few years. Not developed links with local traders and big risks connected working on these markets, will have to be considered.

In this regard the key constraints that impedes FF&V and the fresh vegetable (special focus on tomato, pepper and cucumber) producers and exporters to make optimal export decisions is weak vertical integration and coordination and market information flow between

traders/exporters and farmers. Also there is a lack of relevant VC data and overview that will provide clear, updated picture about the VC players, performance analysis, constraints and potentials, VC dynamics that can be utilize in developing specific interventions for Improving Competitiveness and Productivity and Increasing Domestic and Export Sales of FF&V products.

Therefore, EPICENTAR as FF&V Lead Facilitator together with FFRM as a subcontractor implement an activity that included developing of a Baseline screening of the FF&V VC with emphasis on three product groups: (apple/fruits, table grapes, and fresh vegetables). It provides ready to use data and overview of the overall performance of the FF&V VC and serve as a tool for VCLAs, their suppliers and all other VC stakeholders but also for EPICENTAR, FFRM and AgBiz program to understand the latest specifics of the domestic production, and the most current issues related to the FF&V VC export competitiveness.

The overall objective of this activity is the preparation of FF&V VC Baseline Screening and setting up a mechanism for regular discussion and information exchange between LAs and their farmers on the performance progress on the primary production level through established Focus Groups.

The methodology used is based on the research from both primary and secondary data sources.

The secondary data sources used in the research were collected initially through desk research. The desk research was based on data available from State Statistical Office, State Customs Office, FAOSTAT, EUSTAT, reviewed reports and documents from various institutions and organizations.

For further improvement of the study and focused in-depth analysis, in order to increase the quality and credibility of the study EPI CENTAR used primary data collected through interviews with relevant VC players and Focus Group Discussions (FGD).

The data collected has been thoroughly analyzed and reviewed by the EPICENTAR Team, respective Academic and Market experts in the area and Federation of Farmers of Macedonia (FFRM) especially at the policy level. All the data received and analyzed has been cross-checked in order to provide relevance and consistency.

III. Introduction to the Macedonian Fresh Vegetables VC

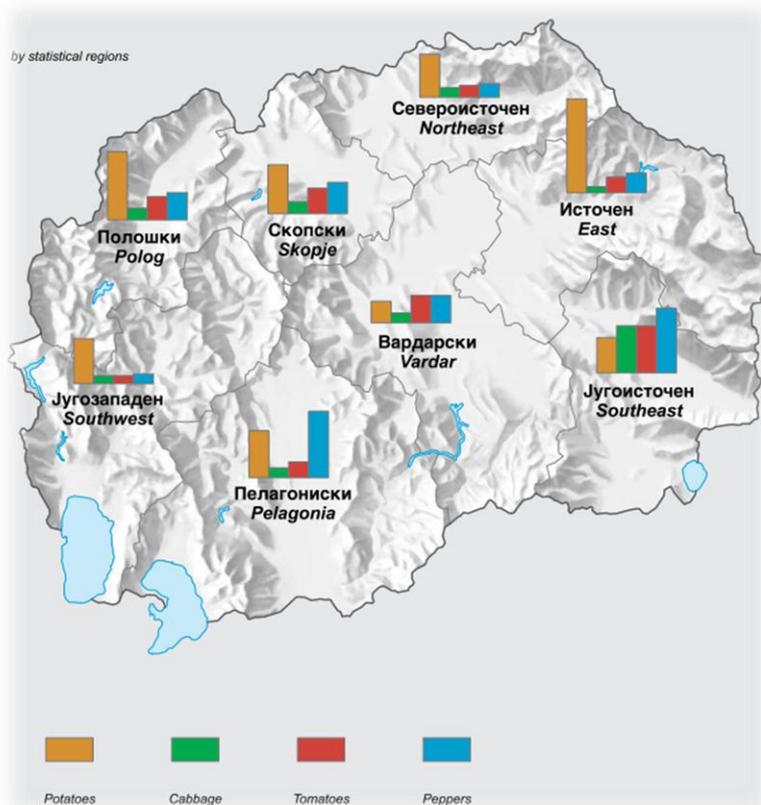


Chart 1: Production of four main vegetables in the country on the regional level, stat.gov.mk

Macedonia has around 12.000 ha under vegetables in the country. Most of the vegetable production is sold as fresh on the export and domestic market. The fresh vegetables industry plays an important role in the national agriculture and country economy as large portion of the export income in agribusiness comes from the vegetables sales.

The fresh vegetable contributes with approximately 10% to the national GDP on annual basis. The production of fresh vegetables is either done on open field or production in glasshouses and/or plastic houses. The main fresh vegetables produced in glasshouses and exported are tomatoes, cucumbers and peppers.

The production of fresh vegetables is pretty regional and almost 80% is an output of the Southeastern Macedonian region. However in a total vegetable production (both for fresh consumption and for processing) beside the Southeastern region, other big producer, especially of processing pepper is the Pelagonija region. All other regions in the country produce vegetables, but quite smaller quantities of peppers or tomatoes.

IV. Producers and production trends

1. Input Suppliers

1.1. Main inputs

Modern technologies offered by companies from Holland and Israel are used in glasshouses. These companies supply our glasshouses with appropriate seeds, fertilizers, predators for biological control, etc. Soil-less technology is applied only in some glasshouses while rock wool, perlite and peat are used as substrate. The start of cultivation depends on the possibility of heating the greenhouses. The few glasshouse operations that have financial means to purchase sufficient crude oil and start nurseries (first tomato, later the more cold-sensitive cucumber) already in November, transplant the seedlings in December and harvest the crop in February and March when very high prices can be obtained. Most glasshouse operators, who cannot afford the heating expenses (up to 0.39 Euro/kg. crude oil), start later to save on fuel consumption but fetch lower prices for the crop.

Input	Type	Activities and supplies
Soil preparation	Agro technical measures	Deep plowing, shallow plowing, leveling, mulching
Soil properties improvement	Fertilization	Organic and mineral fertilizers
Seed	Planting material	Hybrid varieties, certified
Irrigation	Installation of irrigation system	Drip irrigation
Plant protection	Insecticides	Wide range with different active substances
	Fungicides	Wide range with different active substances
	Herbicides	Wide range with different active substances
Harvesting		
Packaging, classification and transport	Boxes, bags	Pallets, net bags, wooden and carton boxes

Table 1: Inputs and activities in the production technology of vegetables, Experts Review

1.2. Main input suppliers (domestic and import)

A large number of companies in Macedonia are taking their part as suppliers of fertilizers, pesticides, etc. Nearly all of the companies are importing the materials. Some of the companies are focused only on particular products, but the big companies are offering complete production programs (seed, plant nutrition and plant protection).

The main input suppliers are:

Agrojunikom - Skopje

Agrohemija - Skopje

Fitohemija - Skopje

Chromos pesticides - Skopje

Geotermika - Strumica
Radomak – Skopje
Magan Mak – Skopje

1.3. *Planting material and varieties*

The production of vegetable planting material has a big impact on the development and yield of the crops through the genetic potential, the development degree, health and other characteristics of a particular variety. In accordance with the authenticity and health of the planting material, the seed must be certified for quality standards.

Most of the tomato varieties grown in greenhouses are: Belle, Balet, Magnus, Yena, Alandra, Bonito and Geronda. There are short cucumber varieties (Adrain, Pontia, and Jazer), long type cucumbers (Nevada, Kalunga, Palmera) as well as gherkins (Motiva, Componist, Parker, Levina). The quantities of peppers grown in protected area are insignificant compared to the aforementioned crops. Predominant pepper varieties are: Fortesa and Struma (hot peppers) and Pinokio (sweet peppers).

1.4. *Quality and certification*

In Macedonia, practically there is no domestic seed or planting material produced or used for commercial purposes in production of vegetables. The competitiveness of the imported seed is too high so the Macedonian companies and institutions that were producing vegetable seeds are no more present. The seeds and planting material are mostly imported from Holland and Israel, and also some amounts from Serbia and Bulgaria. It can be noted that there is a lack of seed material that is produced in Macedonia.

As for the planting material, several companies are importing planting material cultivated in Albania and Serbia, mostly because of the low price of the planting material. The Macedonian production of vegetables (tomatoes, peppers, cucumbers) is export oriented mainly to the countries of ex-Yugoslavia and EU.

Taking into consideration that quality standards must be fulfilled for entering the EU market, the Macedonian producers follow the certifications and standards of the planting material. According to legal regulations, the suppliers of planting material must be registered in the registry of suppliers kept by the Department for seed and planting material within the Ministry of Agriculture, Forestry and Water Economy.

In Macedonia, there are a big number of registered suppliers of seed varieties that produce planting material and more registered suppliers that are importing the planting material directly. Under these regulations, planting material from any vegetable crop can be put on the market only if the variety is registered in the national list of varieties which is in accordance to the European Union's common catalogue of varieties of agricultural plant species.

There are four types of planting material, allowed for trade in the country:

a) **Initial planting material**, which has been produced according to the accepted practices and standards for planting material that will be further used to produce of basic (prime) certified material;

b) **Basic (prime, mother) planting material**, which is produced from the initial planting material according to the standards and practices for basic planting material which is virus and infection free;

c) **Certified planting material** (for reproduction), produced from the basic (prime) or mother planting material which is mainly used for reproduction or for direct production of vegetables;

d) **Standard planting material** (for reproduction), produced for reproduction or for direct production of vegetables;

All different types of produced planting material are tested by the appropriate entity, in a determined procedure which confirms the quality and safety of the planting material.

Different colors are used for the label on the planting material: white with purple diagonal stripe for initial material, white for basic (prime or mother) planting material, blue for certified material and dark yellow for standard material.

2. Producers and Production

2.1. *Production Trends last 10 years*

Macedonian vegetables have a very good reputation in the region with their fresh recognizable taste and aroma. Limiting factors for profitable glasshouse production in the Republic of Macedonia are the extreme temperatures in winter and in summer time. For that reason, not only that the glasshouse capacities are underutilized, but the expensive seed hybrids that are intended for at least 10 months cropping period can not return the profit within the short cropping period of 3-4 months. Tomatoes are the leading export product of this sub-sector, followed by cucumbers (and gherkins) and peppers. The reasons for this ongoing trend of production can be located in the production costs and more important, the market demands.

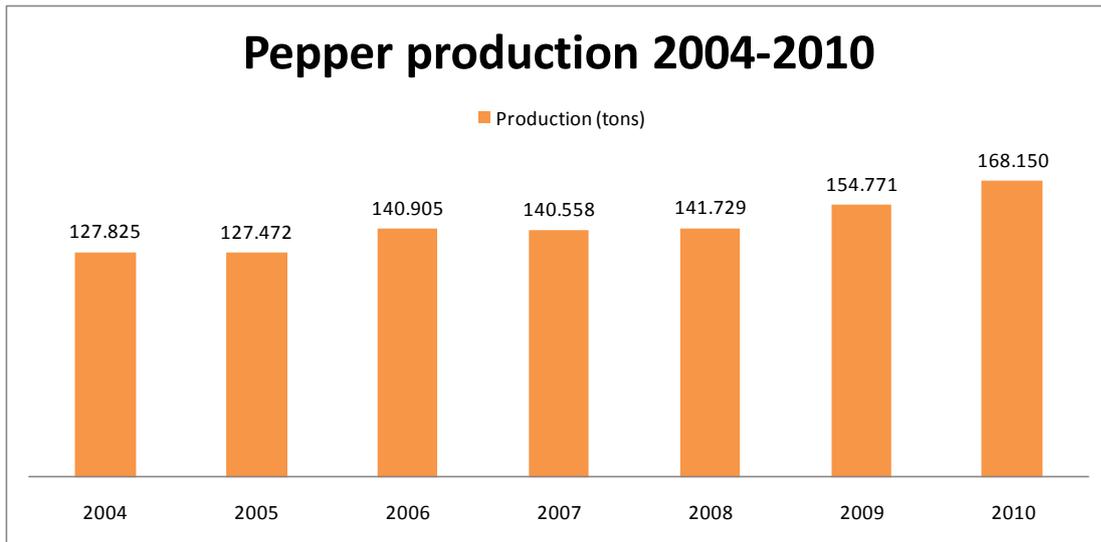


Chart 2: Pepper production 2004-2010 in tons, stat.gov.mk

The pepper production in Republic of Macedonia has increased 31% in 2010 in comparison with 2004. This is because of the use of new varieties and subsidies by the government. There is no significant increase of the production area, but however, this number is expected to increase due to the popularization and direct payments for organic pepper production.

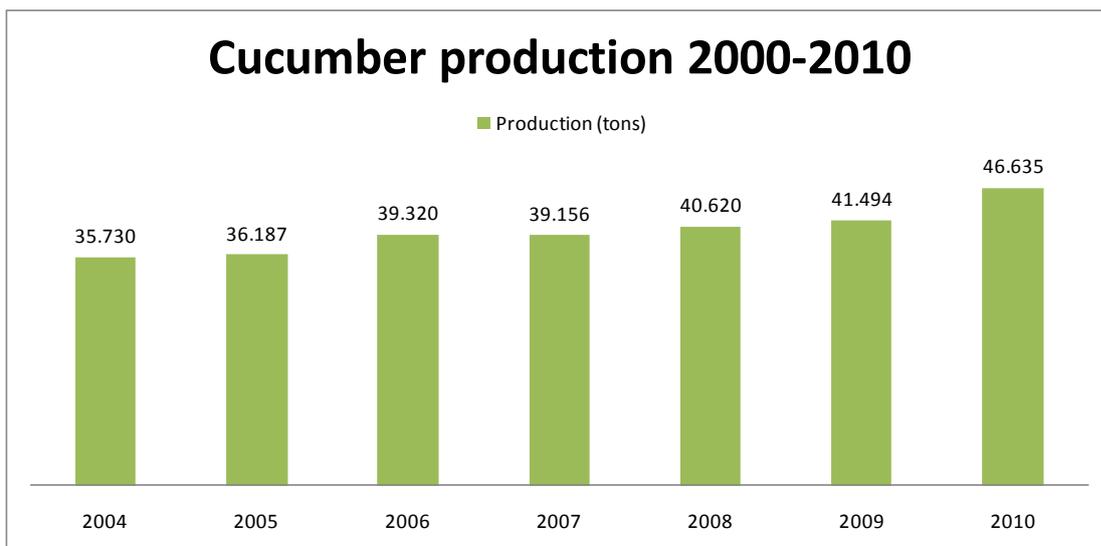


Chart 3: Cucumber production 2004-2010 in tons, stat.gov.mk

The production of cucumbers is constantly increasing in average by 12% every year, in the last 10 years. As the export destinations are expanding, the producers are investing in new production areas and technologies to fulfill the market demands. The processing industry also takes its part in this expansion of production.

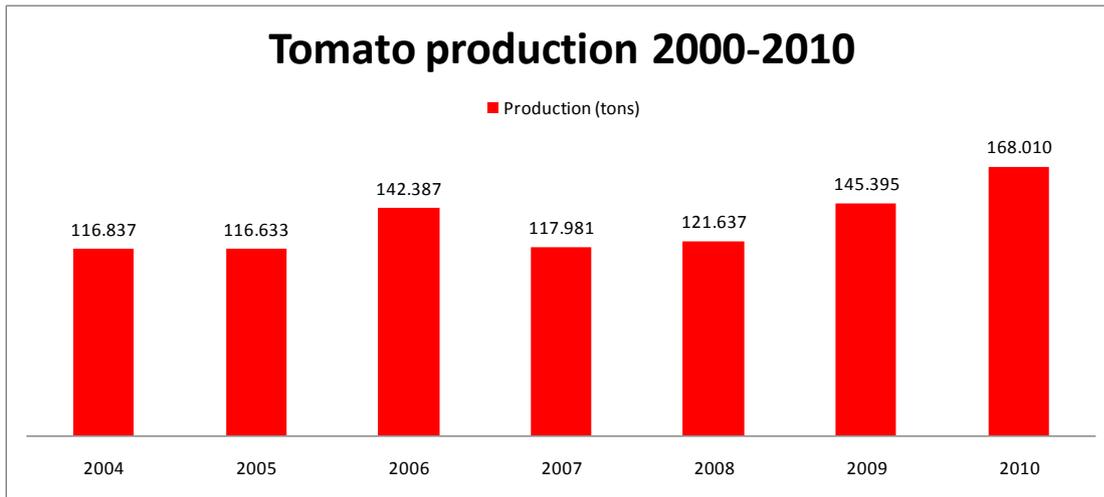


Chart 4: Tomato production 2004-2010 in tons, stat.gov.mk

The production of tomatoes (open field and in greenhouses) is definitely the most interesting and most popular among the big and small producers. Tomato is the most exported fresh product from Macedonia. Since the privatization process took part for the state-owned greenhouses, tomatoes became the primary crop for almost every greenhouse in Republic of Macedonia with 15% average increase of production by year.

2.2. Production area in ha last 5 years

Macedonia has approximately 260 ha of agricultural cultivable area under glasshouses, but the exploitation of the capacities ranges between 70-75%. Most of the greenhouse complexes are blocks of 6-24 ha units in extent.

The area cultivated under plastic (foil) tunnels is not precisely known, but is estimated between 4000 and 6000 ha for cultivation of tomatoes, cucumbers and peppers. The production of peppers in greenhouses is drastically reduced in Macedonia.

Although if we look at the statistics, the production of peppers is very favorable in the south-east part of Macedonia, greenhouse producers are generally not interested in production of peppers for fresh market.

Crop	2005	2006	2007	2008	2009	2010
	ha	ha	ha	ha	ha	ha
Tomatoes	117.2	120	121	140.6	154.2	147.0
Cucumbers	45.5	42.5	50.4	54.0	55.8	62.0
Pepper	39.0	1.5	2.0	3.8	5.0	3.0

Table 2: Production area in ha of tomato, cucumber and pepper, stat.gov.mk

2.3. Average annual yields

Yields per unit are quite variable depending on the year, producer, variety, cultivation technology, etc. It is noted that the vegetables produced with hydroponics have bigger yields than the production on soil.

This production technology is mostly implemented for production of tomatoes. The difference between the yields of tomatoes produced on soil and with hydroponics is very high.

The yields of traditional production on soil vary from 150 to 200 t/ha, and with hydroponics the average yield varies from 450 to 600 t/ha depending of the variety. Cucumbers have average yield of 220 t/ha. The average yield of peppers is 35-36 t/ha for some varieties that are meant for the processing industry.

The main reasons for increased yield or overall improvement of the productivity, especially in the greenhouses are result of:

- Improved (modernized) production technology and appropriate pest management
- Enlarged and standardized parcels of uniformed varieties
- Introduction of new, more productive and market demanded varieties

- Improvement of the quality of planting material used (certified planting material)

Out of the total agricultural land planted with vegetable, 23% is planted with peppers, 15% with watermelons, 9% with tomatoes, cabbage 5%, melons 3%, cucumbers 2% and the remaining 43% are planted with other remaining vegetables (22.9% potato, 8.3% beans, 5.5% onions, 1.2% strawberries etc).

2.4. Number and size of producers

More than 80% of the production of tomatoes, peppers and cucumbers is located in the south-east part of Macedonia due to the favorable climate conditions.

The delayed privatization process has restrained glasshouse operators from making necessary expenses for maintenance and new equipment. For many glasshouse operations, there is an acute lack of working capital to pay for heating, which means that these greenhouses have no advantage over tunnels with regard to the time of harvesting.

No investment in the glasshouse sector has been made in the last 15 years and so, which has lowered the output and raised the cost of production substantially. Only recently some modifications have been made in the sense of technology modernization and computerization.

Company name	Location	Number of employees
Altra	Gevgelija	40
Turan	Bogdanci	7
Badzo	Bogdanci	21
Peca Komerc	Kavadarci	14
Agros 2004	Kocani	2
Euromilk	Valandovo	90
Vivi Prom	Strumica	7
Univerzal Promet	Kocani	10
Badzo PT	Bogdanci	21
Dobra Greenhouses	Kocani	18
Inter-Mak	Veles	4
AMANITA	Bitola	30
Antares	Kocani	10
Anva	Gostivar	4
Hortena	Strumica	8 + 50 season workers
Vant DOOEL	Strumica	
Ado 95	Sirkovo	2+35 season workers
Ajvazov DOOEL	s.Dolni Lipovik	35 season workers

Table 3: Main glasshouse vegetable producers, Field research

The production of fresh vegetable in Macedonia is either done by individual farmers or agricultural companies. The number of the individuals i.e. farming households is by far larger

than that of companies that is result of the size of plots and the size of production. The individual sector produces on 97% of the vegetable producing area while the business sector only on the remaining 3%.

The average size of an individual farmer plot producing vegetables is around 0.21 ha, while average business plot producing vegetables is 2.86 ha.

2.5. Varieties and production technology

Although a number of other crops are cultivated under protected cover, such as early potatoes, watermelons under small tunnels and strawberries under plastic soil cover, the largest area is planted by tomato, cucumber and hot pepper.

Most of the tomato varieties grown in greenhouses are: Belle, Balet, Magnus, Yena, Alandra, Bonito and Geronda. There are short cucumber varieties (Adrain, Pontia, and Jazer), long type cucumbers (Navada, Kalunga, Palmera) as well as gherkins (Motiva, Componist, Parker, Levina).

The quantities of peppers grown in protected area are insignificant compared to the aforementioned crops. Predominant pepper varieties are: Fortesa and Struma (hot peppers) and Pinokio (sweet peppers).

The start of cultivation depends on the possibility of heating the greenhouses. The few glasshouse operations that have the financial means to purchase sufficient crude oil and start nurseries (first tomato, later the more cold-sensitive cucumber) already in November, transplant the seedlings in December and harvest the crop in February and March when very high prices can be obtained. Most glasshouse operators, who cannot afford the heating expenses (up to 0,39 Euro/kg. of crude oil), start later to save on fuel consumption but fetch lower prices for the crop.

The production in the plastic tunnels starts in February/March with harvest in May/June, depending on whether or not, the tunnels are heated. In case of heating this is done subsoil by passing hot water through plastic tubes that are laid below the ground. However, most foil tunnels are not heated and thus come later into production.

The open field season starts in April, often using seedlings grown in protected nurseries and continues until September. In the hot summer months, protected cultivation cannot compete with open field cultivation. The protected cultivation starts again in September for a second crop (only tomato and cucumber-often gherkins) as practiced by an increasing number of growers, where heating is available.

Vegetable in plastic & glasshouses vs. total production area									
Region	Glass houses	Plastic tunnels	Total Closed Area	Total Area ha of Products usually grown in "closed" area					% of Closed Area of Total Producing Area
				tomato	pepper	cucumber	cabbage	Total Areas T, P, Cu, Ca	
	ha	ha	ha	ha	ha	ha	ha	ha	
Pelagonija region	14.73	15.4	30	725	1,776	160	352	3,013	1.00%
Vardar region	12.05	115.79	128	700	823	129	226	1,878	6.81%
North east region	0.1	21.03	21	288	475	46	308	1,117	1.89%
South west region	7.26	7.02	14	222	322	37	258	839	1.70%
Skopje region	0.76	164.66	165	896	893	268	386	2,443	6.77%
South east region	66.58	1,721.44	1788	1,295	2,361	693	1,031	5,380	33.23%
Polog region	0.1	7.59	8	750	1,020	158	393	2,321	0.33%
East region	48.04	11.6	60	532	742	45	305	1,624	3.7%

Table 4: Vegetable in plastic & glasshouses vs. total production area, stat.gov.mk

2.6. Classification of production by quality (I-III category)

The production of fresh vegetables is organized in accordance with the market destination. There are several varieties of vegetable crops that are being especially cultivated for the processing industry, but in most of the cases the distribution of vegetables appointed for the processing industry is the Class III products from the producers. The Class I vegetable products are intended for export and for the domestic chains of supermarkets. Average export price for Class I tomatoes for 2011 is 0.73 USD/Kg, Class I peppers 0.66 USD/Kg and Class I cucumbers 0.45 USD/Kg. Class II vegetable products are distributed on the fresh markets with an average price 15-20% smaller than the Class I products. The Class III tomatoes are marketed with prices 60% lower cost from the Class I products. The classification of fresh vegetables is regulated by the Law on quality of agricultural products (Official Gazette of R. of Macedonia, No. 140, 2010).

2.7. Production cost structure (unit cost)

The open field production has many disadvantages. While the greenhouse pepper production is mostly done with soilless technology, or with highly controlled fertirrigation, the open field production raises cost because the producers are basically familiar with the common varieties and recommendations by the institutions but the market demands are limiting factor regarding the use of new varieties. The crop rotation is in two year period. There is no soil analysis done, which raises the cost of using various fertilizers. Also, the crop protection is not supervised by adepts. The current practice of pepper production is resulting in lower yield than expected and lower quality of the fruits.

Operations		Services and material	Value / MKD
1.	Basic plowing	Tractor with 4 plows	3.300
2.	Over plowing	Tractor with 4 plows	2.800
3.	Harrowing	Heavy harrow	1.086
4.	Waving	4 winged wave	700
5.	Tillage	4 meter tiller	840
6.	Furrowing	3 way furrow	300
7.	Fertilization	500 kg NPK	7.000
8.	Spreading of NPK	Machine spreader	300
9.	Weed management	Cart 400l	2.900
10.	Manual planting	Daily pay 22,3 x 300 MKD	6.690
11.	Transport of plant material	Daily pay 3 x 300 MKD	900
12.	Watering with sprinkling	10-12 / 30-40mm sediment	15.000
13.	Plant nutrition	N - 200kg	4.400
14.	Plant protection	4 treatments	10.000
15.	Machine dust up	Cultivator	800
16.	Manual dust up	Daily pay 28,3 x 300 MKD	8.550
17.	Harvesting 350kg	100 Daily pays x 300 MKD	30.000
18.	Loading, unloading and transport	Depend on the yield	6.000
19.	Seed	1,2 kg/ha	3.600
20.	Seed bed establishment	100m ²	1.600
21.	Plant material breeding	90 Daily pays	2.800
22.	Polyethylene foil	30kg x 90 MKD	2.700
23.	Seedling plucking	33 Daily pays	10.000
24.	Manure loading and unloading	45t Manure	2.726
TOTAL			151.592 MKD

Table 5: Direct pepper production costs of 1ha open field, planned yield 30-35t/ha

Similar situation is with the open field production of tomatoes. Producers have a clear image of what should be done to increase the yield and quality resulting in decreased production costs, but still the practice has not changed. Similar with the pepper production, there are less than five steps to increase the quality of production and therefore the yield. Regular soil analysis, crop protection and crop rotation are required. These services are costly, but when compared with the production costs without any analysis done, it is far more effective.

	Operations	Services and material	Value / MKD
1.	Basic plowing	Tractor with 4 plows	3.300
2.	Over plowing	Tractor with 4 plows	2.800
3.	Harrowing	Heavy harrow	1.086
4.	Waving	4 winged wave	700
5.	Tillage	4 meter tiller	840
6.	Furrowing	3 way furrow	300
7.	Fertilization	500 kg NPK	7.000
8.	Spreading of NPK	Machine spreader	300
9.	Weed management	Cart 400l	2.900
10.	Manual planting	Daily pay 22,3 x 300 MKD	3.960
11.	Transport of plant material	Daily pay 4 x 500 MKD	2.000
12.	Watering with sprinkling	8-10 times / 30-40mm sediment	13.000
13.	Plant nutrition	N - 200kg	4.400
14.	Plant protection	4 treatments	10.000
15.	Machine dust up	Cultivator	800
16.	Manual dust up	Daily pay 20 x 300 MKD	6.000
17.	Harvesting 450kg	133 Daily pays x 300 MKD	39.999
18.	Loading, unloading and transport	Depend on the yield	15.000
19.	Seed	250 gp/ha x 6000 MKD	1.500
20.	Seed bed establishment	80m ²	1.500
21.	Plant material breeding	90 Daily pays	28.000
22.	Polyethylene foil	24kg x 90 MKD	2.100
23.	Seedling plucking	17 Daily pays x 90 MKD	5.000
		TOTAL	152.485

Table 6: Direct tomato production costs of 1ha open field, planned yield 60-65t/ha

V. Post Harvesting

3. Traders (Storage and Packaging)

3.1. *Buy-out and post-harvesting*

Currently in Macedonia, marketing of vegetables products is mostly “unorganized”. For the large majority of farmers - that are not part of a “cluster” in which trader/exporters pre-finance their crop and buy out all of their products - marketing is a yearly chore that drains a lot of their time and resources and increases their business risk.

The farmers transport their produce to collection or pickup points in their respective villages where a spot price transaction takes place with buyers. The call for presence of the buyers appears to be largely spread by agents for the bigger wholesalers and word of mouth. These concentration points or “buying spots” are informally organized and are not regulated.

Among the post-harvesting operations some washing, grading, and packing processes occur at a farm level, but almost no standards are practiced. Producers are paid a spot price as negotiated with the wholesalers (dealers) or the smaller traders.

In most of the cases the traders do the calibration and packaging. The costs that the trader incurs for the activities they undertake: sorting, calibration, packaging and transportation of the goods, represent additional expenses of 22% to 25% of the traders’ revenues. The remaining 4% to 20% represent the profit margin of the trader.

According to the traders and exporters interviewed, the buying price from the farmers is determined on a daily basis and by the wholesalers on the wholesale markets (mainly in Strumica).

3.2. *Post harvesting facilities*

Until 2010, Macedonia did not have any modern capacities for post-harvest operations. The first modern facility by a foreign investment as a purchasing and distribution center for fresh fruit and vegetables was built in 2010 in Strumica. The facility of Agrifruit includes cooling chambers, grading and packing lines. So far, this facility is the biggest, but it is expected that by 2014 there will be 10 more centers in different regions that will operate fully equipped as purchasing and distribution centers. From those centers, the open field producers will benefit the most. The private greenhouse producers are organizing their own logistics regarding post-harvest operations. Only a few of the big greenhouse producers have calibrators and cooling storages each with 500 t capacity. The packing is being done mainly during harvest and the distribution to the markets is being done with tarpaulin trucks. Only two of the greenhouse producers are distributing the products with refrigerated trucks.

3.3. *Post harvesting operations*

Macedonian producers have acknowledged the quality standards of the EU market. Traditionally, the main export of fresh vegetables is directed to the markets of the former Yugoslav republics (Serbia, Croatia, Bosnia, Montenegro and Slovenia). However, in the past few years, the producers have expanded to the other EU countries such as Germany, Poland, Switzerland, Austria, etc. The Macedonian legislation is in full accordance with EU, and according to the law, all of the producers have implemented HACCP standard and also follow the market rules for proper handling, packaging and labeling.

Fresh products are primarily bought from individual farmers directly from the field through organized buyout from the marketer which is at the same time adding value to the products through calibration, sorting, and packaging of the products. It is crucial to mention at this point that due to lack of farmers' facilities necessary to prevent damage to the product and due to lack of immediate post-harvest treatment, the products lose quality before they reach the marketers. In addition, the lack of immediate sorting of the product and harvesting when the products are ripe, reduces the quality. This reduces the shelf life of the product and decreases the product value especially on the EU markets.

Also, the traders do not bother to adopt and compete with other products which are with higher added value such as ready salads or packages for single member family etc. This results with absence of packaging centers with modern equipment and significant size. The additional stifling characteristic to this conclusion is the non functioning incentive systems for change. The traders stick to the traditional markets, they pay the farmers in terms of quantity and in bulk, not providing incentive for the farmers to clean, sort and grade which means to change towards the needs of the EU markets for fresh vegetables.

VI. Markets

4. The Domestic Markets.

4.1. Varieties market trends

Most of the tomato products distributed on the fresh markets are from the currently popular varieties: Belle, Big Beef, Optima, Jabuchar. Jabuchar is maybe the only variety with a long tradition of production, although with time, the yield is lower than it used to be. Still, the small fresh market in Macedonia demands this variety.

The small markets are generally interested in traditionally cultivated varieties and there is a small dose of skepticism when it comes to the quality of new varieties.

Predominant pepper varieties are: Fortesa, Struma, Pinokio, Bela Duga, and Kavardzik. There are various varieties of cucumbers present on the market: Adrain, Pontia, Jazer, Nevada, Kalunga, Palmera, Gergana, Sandra and Sofia.

4.2. Retail prices and retail markets and players, market share

The retail level is closest to the consumer. The major categories of retail level are:

- Supermarkets
- Small local shops
- Open green market

Green Market still sells a substantial volume of vegetables, but their share has declined dramatically over the years and throughout the country.

Supermarkets are catalysts for increased sales of pre-packed produce. Their fruit and vegetable assortments have become diversified. Retailers increasingly collaborate to develop new and innovative products. Multiple retailers pay much attention to the design of their fresh produce departments, trying to appeal to customers. Remarkably, these departments now imitate the typical characteristics of the traditional green markets. They may almost completely replace the green market and small local shops.

The retail price in supermarkets depends of products and suppliers but usually it is for 10% higher compared to open green market. The retail prices depend on the season, so the highest prices are in January and February, because only the greenhouse vegetables are available. The lowest price is from July till October when the open field production comes on the market.

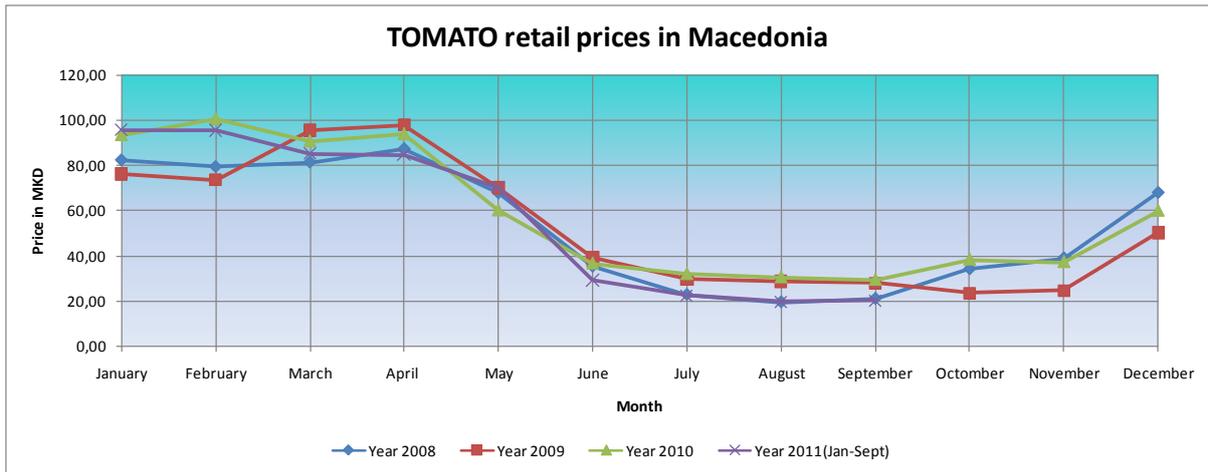


Table 7: Tomato retail prices in Macedonia, stat.gov.mk

The pepper retail price similar as the tomato reaches its maximum during the period January-April and decreases in May-June. Then, till November is sold for 20-40 MKD per kg.

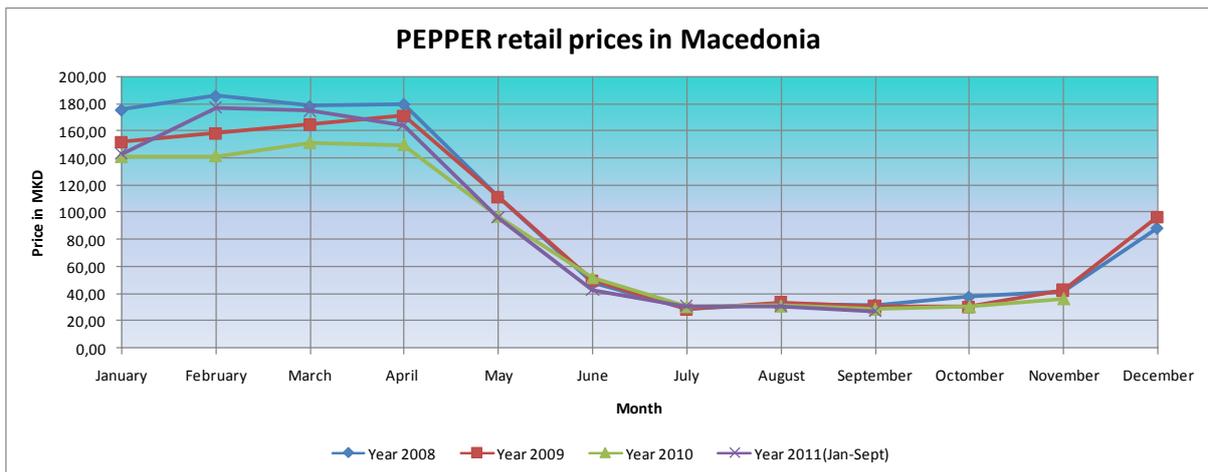


Table 8: Pepper retail prices in Macedonia, stat.gov.mk

In overall, the customer habits are changing and the recent researches on the market in the region illustrate that the supermarkets become more popular and trusted sales point for fresh vegetable, especially in the large urban areas. The habits in the smaller cities are also changing, but slower than in the larger urban areas.

4.3. Wholesale prices and wholesale markets and players, estimated market share by type

Wholesale markets and wholesale companies cover approximately 70% of the fresh produce market. Major wholesale markets exist in Skopje and Strumica. The price is higher in beginning of year when the supply is limited to the greenhouse production and lower in the summer period when the supply is higher due to the open field production.

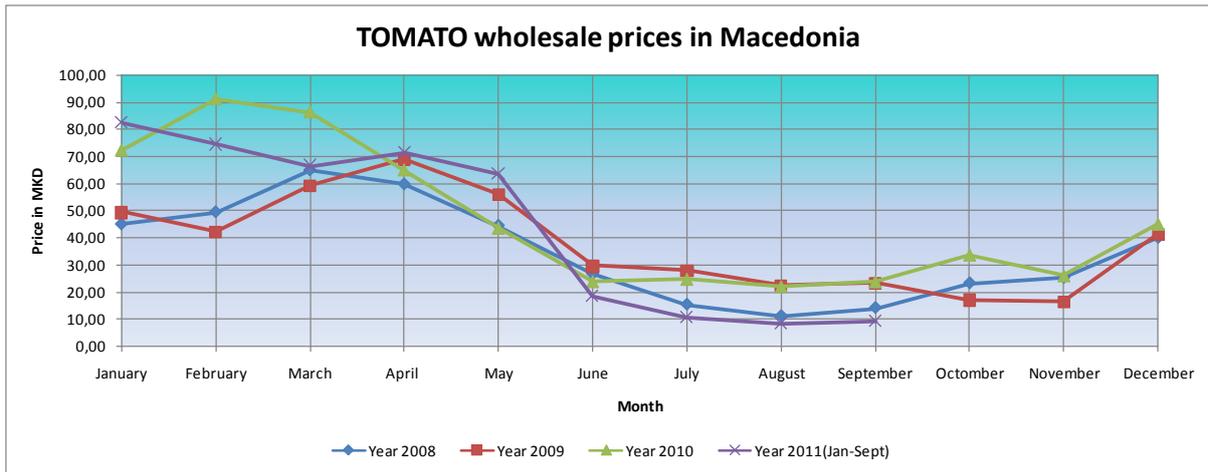


Table 9: Tomato wholesale prices in Macedonia, stat.gov.mk

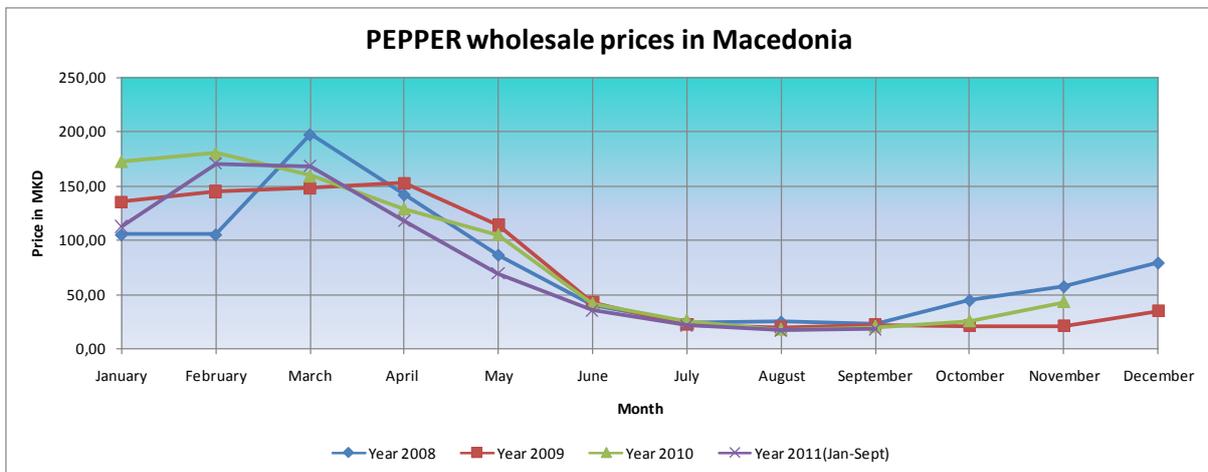


Table 10: Pepper wholesale prices in Macedonia, stat.gov.mk

Their main customers are small shops, smaller supermarket, and open green markets. The wholesale importers/distributors are significant buyers of Macedonian vegetables.

According to the EPICENTAR's field research, the buyout and sale price as listed in table below provided by Macedonian traders/exporters of fresh vegetables, illustrates the difference between buy-out and retail price, defining the trader's margin.

The provided information indicates that 57% to 74% of the revenue of the fresh vegetable traders is merchandise purchase, i.e., the costs or the revenue to the primary producers. The costs that the trader incurs for the activities they undertake: sorting, calibration, packaging and transportation of the goods, represent additional expenses of 22% to 25% of the traders' revenues. The remaining 4% to 20% represent the profit margin of the trader.

According to the traders and exporters interviewed, the buying price from the farmers is determined on a daily basis and by the wholesalers on the wholesale markets (mainly in Strumica).

MKD/kg	Buying Price	Other costs	Trader Margin
Tomatoes	74%	22%	4%
Peppers	70%	23%	7%
Cucumbers	69%	24%	8%
Cabbage	66%	25%	9%
Watermelons	57%	24%	19%
Melons	67%	25%	8%

Table 11: Buying price and trader's margin

The wholesalers/traders/exporters after handling the products, sell the products to the foreign importers and their role stops here. No interviewed exporter identified by EPI CENTAR directly deal with supermarket chains or sell directly to supermarket chains (with small exceptions). The reasons are manifold: no year round production, i.e., no produce available for a year round supply, no adequate small sized packaging ready for consumers, the varieties are not adequate as the most demanded varieties on the European markets.

4.4. Characteristics of the supply (size, type of packaging, quality, color)

Packaging plays an important role in ensuring safe and efficient transport of a product and conforming to handling requirements, uniformity, recyclable material specifications, proper storage needs and even attractiveness for marketing purposes.

Packaging plays an important role in ensuring safe and efficient transport of a product and conforming to handling requirements, uniformity, recyclable material specifications, proper storage needs and even attractiveness for marketing purposes.

The most common packages used are presented in the table below.

Product	Packing Type	Kg Net	Pallet type	Vehicle
Tomatoes	Carton Box 300 x 400 x 160	6 - 6,5	0,80 x 1,20	Frigo Truck
	Wooden Box 300 x 400 x 150	7 - 7,5	1m x 1.20m	
	Wooden Box 300 x 500 x 190	8 - 10		
Peppers	Carton Box 400 x 600 x 190	8 - 10	0.8m x 1.2m	Frigo Truck
	Carton Box 300 x 400 x 190	8 - 10	1m x 1.2m	
Cucumbers	Carton Box 300 x 400 x 190	8 - 12	1m x 1.2m	Frigo Truck
	Plastic Bag 350 x 600	8 - 10		
	Net Bag 350 x 500	10		

Table 12: Type of packaging of three main vegetable products Experts review

5. The Export Market

5.1. *Export markets by value, quantity and average price for last 5 years*

The main export markets for the Macedonian fresh vegetables are the countries of South-east Europe, EU and the Eastern European countries.

The countries from South-east Europe, or as preferred Ex-Yugoslavia plus Albania, are the leading export destination for the Macedonian vegetables for decades. This can be due to the good links and cooperation between the partners that is going for decades.

The average amount of fresh vegetables exported from Macedonia for the last five years is 120.000 t. From this number, nearly 50% is export of tomatoes, 14% peppers and 13% cucumbers.

The tomato export is ascending every year by 10% in average for the last five years with an average price of 0.45 EUR/kg. Serbia continues to be the main importer of Macedonian tomatoes with 70% of the total Macedonian export of tomatoes.

The rest is exported to Croatia (7%), Bulgaria (7%) and the EU (10%). The numbers are almost the same with peppers, except the average price which varies depend on the season period. The average price for the last five years is 0.47 EUR/kg.

The European market for fresh vegetables is characterized by its sophistication and specific demands for fresh vegetables. Although the EU market is respectively big, the difference in the price between the regional markets and EU is nearly 50% lower due to the export costs for the EU markets. This is the reason why Macedonian producers are more interested to export in the regional markets than EU.

Producers or exporters from Mk preparing to access EU markets should be aware of the market access requirements of trading partners and EU governments. Requirements are demanded through legislation and through labels, codes and management systems. These requirements are based on environmental, consumer health and safety and social concerns. It is necessary to comply with EU legislation and be aware of the additional non-legislative requirements that trading partners in the EU might request.

Some threats can make it more difficult to export to the EU market. These include: stagnating consumption in the old EU countries, strict demands for quality, certification and food safety requirements, transport costs, oversupply, increased consolidation in buyers' markets, demanding large-scale production.

Major retailers prefer to work with a limited number of suppliers, which favors large producers who can serve them efficiently. If small-scale exporters can increase their supply by joining forces with other small scale producers and forming grower groups, they can benefit from this trend and work with these large buyers. In general, producers whose products fit into the current trends of health, convenience, pleasure, organic, fair trade and sustainability can benefit from current market opportunities.

The ex-Yugoslavia, considered as one market, is traditionally and is still the largest consumer of the Macedonian fresh vegetables. This market has “survived” due to several reasons. Firstly, the well-kept relationships among partners which have been active during the last decades when Macedonia has been the main producer of agricultural products for Yugoslavia. The consumers in this region are used and familiar with the Macedonian production, therefore still consume the fresh vegetables from Macedonia.

The regional market, besides the ex-Yu market, is another significant market which is comparable and very similar to the ex-Yu market. The European market is another destination of the Macedonian fresh produce which has been significantly increasing in the years from the last decade. The European market is considered as more “demanding” and sophisticated in sense of the consumer needs. This market demands smaller packages; different varieties etc. which according to the exporters is still something to strive for.

The reason why the Macedonian production was not “aiming” to this market in the past is due to the previous “security” on the ex-Yu and regional market which is familiar and satisfied with the current products from Macedonia providing some security of sales. However in the last few years the competitive products from other countries have come to the Ex-Yu markets and the Macedonian fresh vegetable is under serious threat from the competition especially when it comes to more standardized production, packed and appropriate to the market demands.

It is a stifling factor for further development of the Macedonian fresh produce to a level which is adequate for the European market. At the same time the Macedonian fresh produce on the European market is exposed to a competition which is traditional and well established on this market especially from Spain, Turkey and Greece. These countries are considered as “domestic” producers with higher compliance with the consumer demand, subsidized production etc.

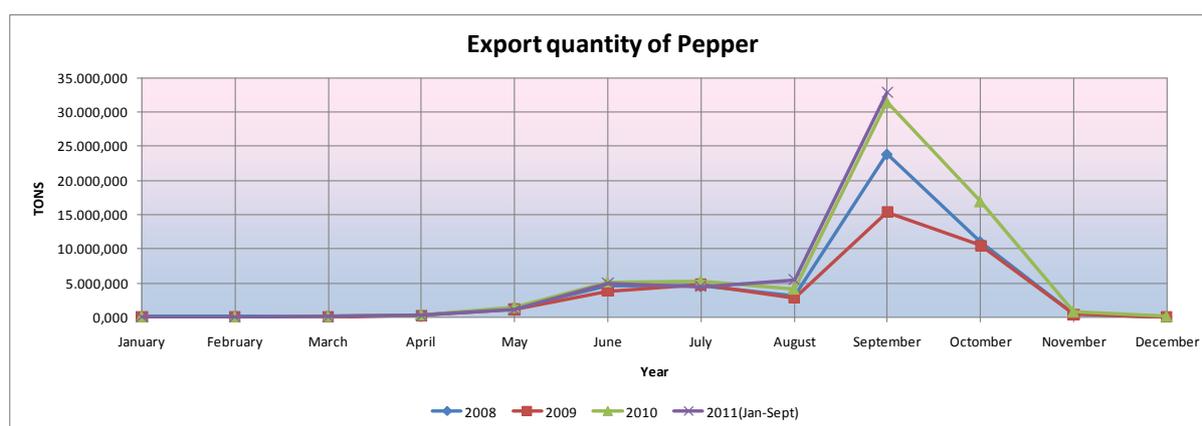


Table 13: Export quantity of Pepper, stat.gov.mk

The export of pepper has seasonal trends; most of it in terms of quantity is exported in the period August to November with a peak in September, when the production is highest in volume and diversified in quality. Most of the production in this period is open field. The

trends of the last three years are approximately the same in seasonality; however the quantities are increasing every year for approximately 10-15% per year.

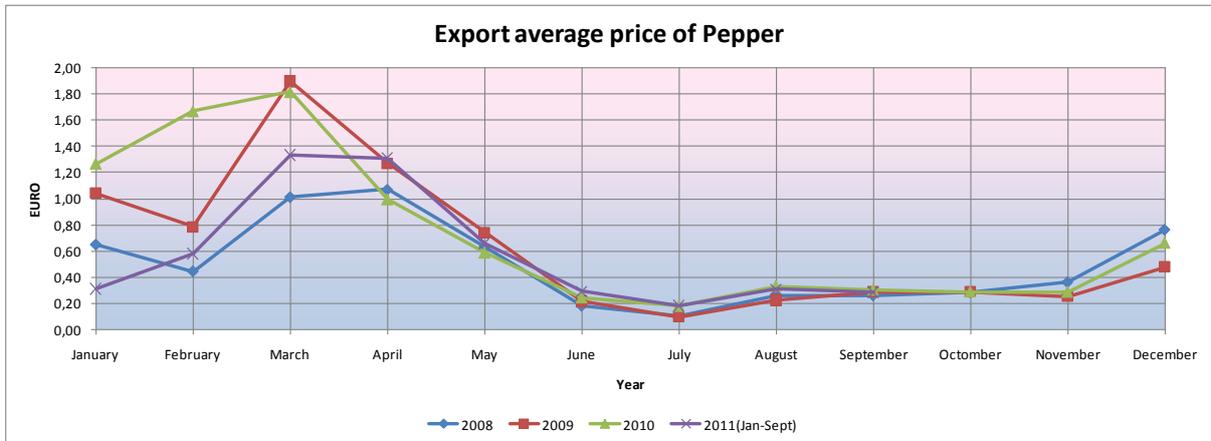


Table 14: Export average price of Pepper, stat.gov.mk

The export prices follow the export quantity trends in opposite to the seasonal trends. The price is highest in January- April with a peak in March when it reaches 1,80 Euro/kg, and it is lowest in July with 0,20 Euro/kg.

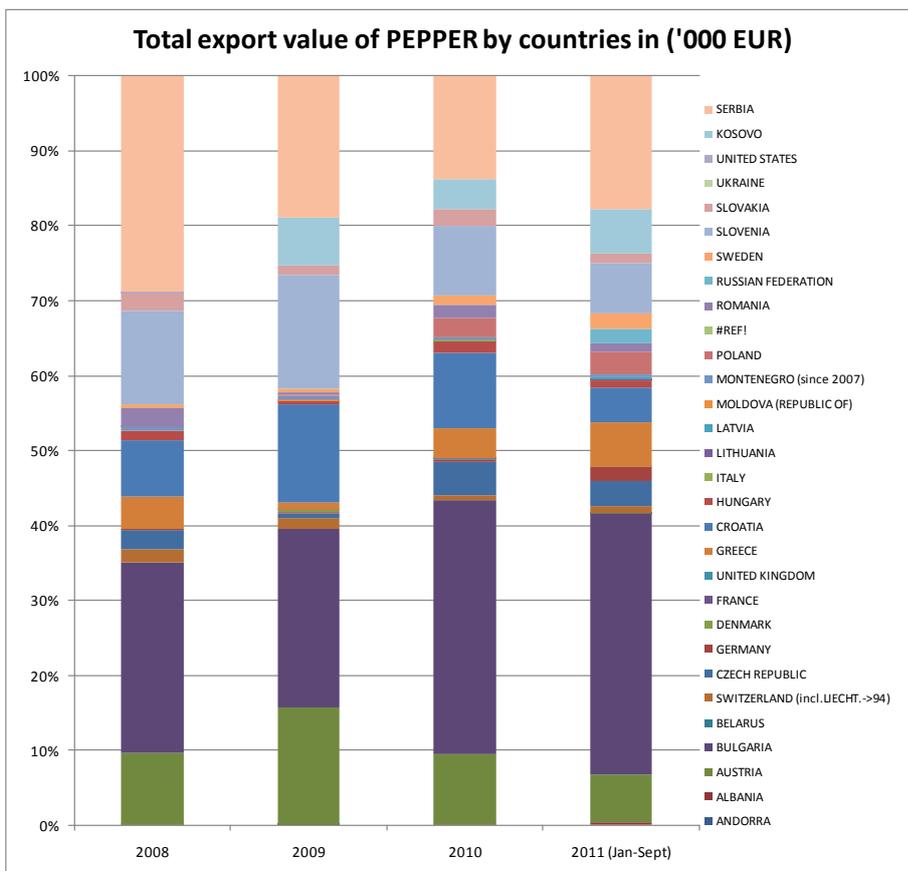


Table 15: Total export value of pepper by countries in '000 Euros, customs.gov.mk

The export value of pepper by countries in '000 Euros illustrates that most of the pepper is sold on the Ex-YU markets (Serbia, Kosovo, Croatia and Slovenia) as well as Bulgaria, Ukraine and Romania. From the EU markets, the Macedonian pepper is sold in Germany, Czech Republic, Denmark, France and Austria with smaller quantities compared to the region and Ex-Yu. In the recent years the Ex-Yu markets decline and are replaced by the regional markets.

5.2. Seasonality of export (monthly) by value, quantity and average price

VII. Regulatory Framework and access to finance

6. Legal Framework regulating the fresh vegetables

Regarding the organization of markets of agriculture products of plant (and animal origin), the Ministry of Agriculture, Forestry and Water Economy (MAFWE) has enacted the Law on quality of agriculture products (Official Gazette of the Republic of Macedonia no. 140/2010)¹, selecting the most important products in terms of their participation within the overall agriculture production in the country, and regulating them within the broader CMO frame. For the first time, the areas of marketing and marketing standards of main agriculture products, as well as the quality schemes for PDO/PGI and TSG are regulated in accordance with the EU CMO's Acquis.

Based on the Law, marketing standards and general marketing of vegetables are already fully regulated through the enactment of the relevant bylaw² - This bylaw regulates in specific areas of minimal quality requirements, classification and size of products, acceptable deviations, packaging and products labeling requirements.

The second law that covers most of horizontal aspects of the CAP that are relevant for markets of agriculture products including the respective sub-sector, is the Law on agriculture and rural development (Official Gazette of the Republic of Macedonia no 49/2010). Namely, toward achieving more equal income distribution within the food chain by improving market relations and alleviating the significant tensions in contractual relations between actors of the chain, the law defines the basic principles and manners of trade with agriculture products stipulating the conditions to trade with agriculture products.

In addition to this, the Rulebook on Agriculture Market Information System (Official Gazette of the Republic of Macedonia no 79/09) enabled the Ministry to start operating with web based Agriculture Market Information System (AMIS) that collects the market data on prices from agricultural markets for key products including tomato, pepper and cucumber from representative markets in term of influence made on the prices based on traded quantities.

¹ Adopted by the Parliament of the Republic of Macedonia on 15 October 2010

² Book of rules on minimal standards for quality of fruit and vegetable meant for processing and specific market standards for quality of fresh fruits and vegetable meant for consumption (Official Gazette of the Republic of Macedonia No.91/6.7.2011).

7. Food Trade Policies (CEFTA and WTO) and import tariffs

As a result of WTO accession in 2003, most of the traditionally used price and trade policy instruments were either phased out or reformed based on principles of restriction of market distortion practices and interventions, and in general free formation of the prices for agricultural products. Tariff protection for Macedonian producers has been reduced significantly, which place increasingly competitive pressure on domestic producers and processors. For the majority of the agricultural products, a gradual reduction of applied tariffs through the transitional period between 2003 and 2007 has been projected. As a consequence, MFN tariffs for agriculture products almost halved, being reduced from 24,87% to 13,75%. Import tariffs have been reduced for the most of traded products, though moderate-to-high tariffs remain in place for highly sensitive commodities, such as vegetable and processed agricultural products³.

Price premiums ("prelevman") introduced for agricultural and food products, essentially as seasonal protection most recently applied to wheat was identified as a prohibited variable levy and was therefore requested to be converted into ad valorem or specific tariffs.

Although Macedonia provided export subsidies in the base period of 1998-2000, it committed to export without subsidization upon accession.

The establishment of area of free trade by 2011 started by removal of all barriers to entry of Macedonian agricultural goods into the EU, but baby beef, fish and wine import regulated by quotas regime. Subsequently, the Macedonian side agreed on gradual liberalization for EU imports, for semi-sensitive products transitionally by 2011 and for highly sensitive products protection remains or partially is regulated with preferential trade quotas.

The overall economic impact of the agreement is considered as limited, given the gradual nature of the reduction in tariffs agreed, the on-going protection of certain sensitive products and the concessions already granted under WTO (which were considered to have a far greater impact on the sector in the short to medium term).

The Free Trade Agreement with CEFTA 2006 countries is very important step in creation of fully liberalized regional trade zone with Macedonian traditional most important trading partners. The agreement signed in 2006, and ratified in 2007, basically provides full trade liberalization between member states. Under this agreement, the trade between Republic of Macedonia and Republic of Serbia, Bosnia Herzegovina, Montenegro, and Kosovo is fully liberalized, while with Croatia only few products are traded within free-trade quotas and with 45% of MFN out of quota tariffs. From November 2011, full free-trade regime started with Albania. And finally, with ratification of changes in the agreement with Moldova, full liberalization of trade relations will be also established with this country, with only exception of wine that is regulated with free-trade quota regime.

Free trade agreements with Turkey and Ukraine are more restrictive with selected agricultural and food products on free-trade quotas or quotas with reduced tariffs regime, and MFN tariff based trade for out of quota quantities.

³ Document number WT/ACC/10/Rev.1, note by the Secretariat: The number of tariff lines bound at the peak rate of 60% dropped from 142 tariff lines upon accession to only 6 tariff lines at the end of implementation period. One third of the tariff lines are higher than 15%.

Only with few countries with which Macedonia has signed agreements for free trade, certain quantitative limitations (quotas) can be observed that are applied during export by so called preferential rates for customs. For example, in the:

FTA with Croatia, the export of:

- sweet pepper, tariff code 0709 60, is regulated with 3.500 tones duty-free tariff quota and with tariff of 45% of MFN for quantities traded out of quota,

FTA with Turkey, the export of following products is regulated with collective 1.500 tones duty-free tariff quota and 45% of MFN for quantities traded out of quota:

0702 00	Tomato, fresh or chilled
0703 10	Onion and alma
0704 90	Other, cabbage fresh
0707 00	Cucumbers
0709 60	Pepper, fresh

Within the same agreement, the export of Macedonian table grapes and apples is defined to be carried out at applicable MFN rate without any additional preferences.

FTA with Ukraine, the export of:

- sweet pepper, tariff code 0709 60, is regulated with 5.000 tones duty-free tariff quota and with tariff of MFN for quantities traded out of quota,

Tariffs for the pepper on import in the Republic of Macedonia as regulated by the provisions of actual free-trade agreement are presented in the table bellow.

Tariff number	Description	Custom's rate for import in RM	Regime	EU	EFTA	Croatia	Turkey	Ukraine	Moldova
0709 60	Pepper								
0709 60 10 00	Sweet pepper	45% + 0.12 €/kg, max 65	LB/LB	45% + 0.12 €/kg, max 65	45% + 0.12 €/kg, max 65	0%	45% + 0.12 €/kg, max 65	45% + 0.12 €/kg, max 65	45% + 0.12 €/kg, max 65
0709 60 91 00	Capsicum	45% + 0.12 €/kg, max 65	LB/LB	45% + 0.12 €/kg, max 65	45% + 0.12 €/kg, max 65	0%	45% + 0.12 €/kg, max 65	45% + 0.12 €/kg, max 65	45% + 0.12 €/kg, max 65
0709 60 95 00	For ether oils	45% + 0.12 €/kg, max 65	LB/LB	45% + 0.12 €/kg, max 65	45% + 0.12 €/kg, max 65	0%	45% + 0.12 €/kg, max 65	45% + 0.12 €/kg, max 65	45% + 0.12 €/kg, max 65
0709 60 99 10	15.05.-14.11	45% + 0.12 €/kg, max 65	LB/LB	45% + 0.12 €/kg, max 65	45% + 0.12 €/kg, max 65	0%	45% + 0.12 €/kg, max 65	45% + 0.12 €/kg, max 65	45% + 0.12 €/kg, max 65
0709 60 99 90	15.11.-15.05	25% + 0.12 €/kg, max 51	LB/LB	25% + 0.12 €/kg, max 51	25% + 0.12 €/kg, max 51	0%	25% + 0.12 €/kg, max 51	25% + 0.12 €/kg, max 51	25% + 0.12 €/kg, max 51
0711 90 10 00	Temporarily conservation	45%	LB/LB	45%	45%	0%	45%	45%	45%
0904 20 10 00	Dried	45%	LB/LB	45%	45%	0%	45%	45%	45%
0904 20 30 00	Milled	45%	LB/LB	45%	45%	0%	45%	45%	45%
0904 20 90 00	Chipped	45%	LB/LB	45%	45%	0%	45%	45%	45%
1209 91 90 70	Pepper seed	2%	LB1/LB	0%	2%	0%	2%	2%	2%

2001 90 20 00	Capsicum in vinegar	50%	LB/LB	50%	50%	0%	50%	50%	50%
2001 90 70 00	Sweet pepper in vinegar	50%	LB/LB	50%	50%	0%	50%	50%	0%
2004 90 98 10	ajvar	50%	LB/LB	50%	50%	0%	50%	50%	50%
2005 99 10 00	Capsicum homogenized	50%	LB/LB	50%	50%	0%	50%	50%	50%
2005 99 90 10	ajvar homogenized	50%	LB/LB	50%	50%	0%	50%	50%	50%

8. Existing state support

8.1. AFSARD Subsidies

The Agency for Financial Support of Agriculture and Rural Development (AFSARD), established in 2007, implements the annual programs for financial support and continuously builds an accredited institution for implementation of pre-accession funds for rural development (IPARD) from the beginning of 2008. MAFWE formulate the policies and acts as IPARD managing authority. Necessary infrastructure for Integrated Administration and Control System's elements, such as Farm Register and Land Parcel Identification System (LPIS) are established and maintained by the MAFWE.

Direct support to agriculture is implemented through annual Program for Financial Support in Agriculture. This program consolidates direct payment schemes and measures for technical assistance. Annual Program for financial support for rural development along with the IPARD program is the second set of documents to implement policies on agriculture and rural development in respect of schemes for capital grants and other measures for technical assistance related to problems of rural development.

Pepper	2008			2009			2010			2011
Measure	per unit	total amount paid MKD	farmers	per unit	total amount paid MKD	farmers	per unit	total amount paid MKD	farmers	per unit
Direct payments for cultivated area of vegetable production				9.000	22.960.368	3.430	20000	178.629.091	9.754	20000
Additional direct payments for vegetable production grown in controlled conditions (greenhouses)				80.000	20.095.384	66	80000	20.332.013	202	90000
Additional direct payments for vegetable products sold to processing companies	12.000 den/ha	1.772.555	138	9.000 den/ha	518.852	151	1.5 den/kg	17.797.527	629	1.5 den/kg
total		1.772.555			43.574.604	3.647		216.758.631	10.585	

9. Access to finance (products, terms, providers etc.)

In support of agricultural producers to obtain financial assets, the opportunity was presented in the form of loans at favorable terms offered by the Agricultural loan and Discount Fund (ACDF). The fund is responsible for payment of loans and is based on agreement / Memorandum of Understanding between Government of RM and financial institutions.

Through ACDF the following loan categories are financed:

- Loan for purchase of capital investment and operating costs for primary agricultural production to 100,000 Euros per user, with an interest rate of 4% per annual level if the loan is disbursed through commercial banks or 6% if paid through savings bank
- Loan for purchase of capital investment and operating costs for small and medium businesses with primary activities in the agro-food processing, up to 200,000 Euros per user, with an interest rate of 5% on annual level if the loan is disbursed through commercial banks or 6, 5% if paid through savings bank.
- Loan for purchase of capital investment and operating costs for small and medium enterprises, with export activity of the agro-food products to 200,000 Euros per user, with an interest rate of 5% on annual level if the loan is disbursed through commercial banks or 6, 5% if paid through savings bank.

Repayment terms and the repayment period is responsibility of financial institutions in accordance with their credit policy. Regular repayment period is 7 years for capital investments, including 3 years grace period and for operating expenses, the repayment period is 3 years with 1 year grace period.

According to the decision of the Government, as of 7/1/2010, ACDF credit line is administered within the Macedonian Bank for Development Promotion (MBDP), which is regulated by the Agreement of the administration concluded between of the Ministry of Finance and MBDP.

The total number of financial institutions involved in the implementation of ACDF credits is usually around 11, of which 9 are commercial banks and 2 savings banks, through which networks of subsidiaries and branches throughout the Republic of Macedonia, an easier access to potential beneficiaries to these resources is allowed.

Implementation of credit activities within the Agricultural Credit Discount Fund is conducted from October 2003, and the status of refinanced loans at 12/31/2011 is approved 2.456 loans in totaling 43 million euro's.

VIII. Sub Sector Dynamics

10. Trends and Drivers

The **development trends** in the vegetables sector illustrate an increasing production trend, both in quantity and production area in the last few years. There is increased investment in the glasshouse production by small and medium enterprises, that produce under high productive technology with good yields and standardized quality. The glasshouses are used for early production of tomato, pepper and cucumbers. The glasshouses operate mostly using energy efficient sources such as hot water and for that purpose most of it is located near the thermal waters in Kocani, Strumica and Gevgelija.

On the other hand, the production of vegetables among small scale producers has also increased in quantity and improved in quality. There are some examples of non-formal producer organization or a cooperative as the one in Kuklis Strumica, where there are attempts to unify the production and improve the production technology.

However, beside the recent trends in increasing of production land and improvement of the production technology, the overall picture describes that there is still lack of standardization, low quality of the products and low yields mostly due to the: weak production technology, questionable input material quality, small parcels leading to smaller yields and expensive production costs etc. These factors do not apply to the modern production in glasshouses and greenhouses where the problems are mostly linked with appropriate post-harvesting and marketing.

In overall the Macedonian vegetable export sales in the recent years has some slight changes, decreasing the sales on the Ex-Yu markets and opening the regional markets and some of the EU countries. The regional market entrance and the entrance to the Ex-Soviet markets are one of the options for improvement of the marketing in mid-term period.

The constraints at this stage are linked to:

- Introduction of modern production technology and standardization among small-scale producers
- Introduce appropriate post-harvesting techniques and equipment that will compete at the global markets with safety and preserved quality products
- Identification and market analysis of the new (non-traditional) markets

The **key drivers** to successfully approach these two main challenges include:

- Continuation and further specification of direct support of the investment in the sub-sector by the state and its categorization and specification according to the market demands
- Improve the productivity of the vegetable producers through implementation of modern production technology, use of diversified mechanization in all growing and harvesting processes

- Increase the know-how and improvement of skills among the producers through study visits and appropriate trainings, as well as of the traders in the area of post-harvesting
- Identification of the new market opportunities, creation of market linkages and elaboration of the market possibilities among the domestic traders/exporters
- Promotion of investment possibilities in the sub-sector and improvement of the access to funds.

11. SWOT Review

<i>Inputs Level</i>	<i>Production Level</i>	<i>Post-harvesting Level</i>	<i>Marketing Level</i>
STRENGTHS			
The seed and planting material is mostly imported and its quality and safety is according to the market demand;	The production is improving in the last decade, there are higher investments in the modern production technologies (glasshouses and new market demanded varieties);	The traders/exporters' awareness for post-harvesting treatment is improved and there is a trend of investment in modern post-harvesting equipment;	The ex-Yu markets were and are still the main consumer of the Macedonian vegetables where a kind of a brand for the quality of our products still exists;
	The production is organized mainly in South Eastern part of Macedonia where over 80% of early vegetables is produced;		
	The climate and natural preconditions, traditions and improvement of the technology represent main strengths of the sector;		
WEAKNESSES			
No domestic production of vegetables planting material; The competitiveness of the imported seed is too high so the Macedonian companies and institutions that were producing vegetable seed are no more present	The production plots are small and parceled, which makes them low productive;	Limited post-harvesting knowledge and equipment, make the production quantities low competitive;	The production is exported on few, mainly regional, ex-Yu markets with high market dependency;
	The extension service provision is weak, the level of know-how and skills transfer is limited and the business service providers need further improvement in terms of knowledge for new production technologies;		
<i>Inputs Level</i>	<i>Production Level</i>	<i>Post-harvesting Level</i>	<i>Marketing Level</i>
OPPORTUNITIES			
	The production of vegetables responds to the domestic consumption demands;	Necessary investments in cooling and storage facilities to enhance the sector and improve its competitiveness;	The export of vegetable is increasing with an excellent potential to target new (nontraditional) markets and increase the export price;
	Excellent natural pre-conditions for high yields and low labor costs;	The packaging of vegetables is appropriate to the market demands and diversified according to the final buyer needs;	Standardization of vegetables and traceability of the product are very important aspect that needs to be further developed and monitored;

	Limited managerial skills of farmers and associations- the improvement of these skills will lead to better and more effective use of the funds available and improvement of the production		
THREATS			
	The production of vegetables in the region is increasing in quantity and improved quality and represents serious threat for the Macedonian production;	Limited harvesting and post harvest practice knowledge limits the shelf life of the products, and leads to damages, so it is critical to load and organize the transportation in cooling vehicle;	The global market trends change the market demand very quickly, which is hard to be followed by the Macedonian exporters;
	The producers are weakly organized in effective groups, and their activities and performance are limited;		

IX. Monitoring VC Impact Matrix

Based on the findings of the study and the FG Discussions the following monitoring matrix was suggested as the most appropriate chart of data assessment and recording that will enable appropriate monitoring of the sub-sector development.

<i>MONITORING MATRIX FOR VC Vegetables</i>						
	<u>Indicator</u>	<u>Source</u>	<u>Indicator Type (qualitative & quantitative)</u>	<u>Time for indicator collection</u>	<u>Frequency of collection</u>	<u>Responsible Organization</u>
1	Number of new production area of vegetables in ha (by products and variety)	A Statistics Office	Qualitative and Quantitative	March	Annually	FFRM
2	Sold quantities of open field production by product and variety	Customs office	Qualitative and Quantitative	December	Annually	FFRM
3	Sold quantities of closed field (covered) by product and variety	Customs office	Qualitative and Quantitative	December	Annually	FFRM
4	# sold imported plants (planting materials) by variety	Seeds and Planting Material Office	Quantitative	March	Annually	FFRM
5	Variable costs	FFRM - Model Farms	Quantitative	December	Annually	FFRM
6	Yield per ha/open field production	FFRM - Model Farms	Quantitative	December	Annually	FFRM
7	Yield per ha/closed field production	FFRM - Model Farms	Quantitative	December	Annually	FFRM