



# THE APPLE SECTOR IN MACEDONIA



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## Fruit Production in Macedonia

Macedonia is placed at the crossroads of continental and Mediterranean climates, has fertile soils and favourable climatic conditions which is ideal for fruit production. Fruit growing even though not sufficiently used is a great contributor to the Macedonian agriculture and economy as well as to the local economies.

In the period 2000-2006, the average total production of fruit accounted for 125 thousand tons, out of which apples accounted for 60%, while the stone fruits (cherries, sour cherries, peaches, apricots and plums) accounted for 35%. The areas planted with orchards indicate a decreasing trend since the end of the 1980s (500 ha annually, on average) and aging of the plantations. The main reason is the lack of investments as a result of the transformation of the former state-owned sector (whose plantation accounted for about 50%) and the loss of the traditional Yugoslavian markets. Also, the domestic fruit processing industry is small and underdeveloped (with outdated technologies) and there are no markets for its products.

In the 2000-2005 period, fruit orchards (including grapes) covered 43.4 thousand hectares, of which grape production accounted for around 62% (of which 30% table grapes), and the remaining are fruit orchards (apples 18%), plums (7%), sour cherries (5%), peaches (3%), pears (2%), and apricots and cherries (1% each).

**Table 1 – Crop area, production, yields of fruit crops (including grapes), 2000 - 2005<sup>1</sup>**

	2000	2001	2002	2003	2004	2005
<i>Crop area (in ha)</i>						
Fruits (incl. grapes)	42,944	43,983	42,348	42,610	41,291	38,912
<i>Apples</i>	7,379	7,456	7,283	8,110	8,051	7,200
<i>Plums</i>	3,206	3,655	3,063	3,141	3,133	2,610
<i>Peaches</i>	1,411	1,249	1,320	1,329	984	949
<i>Apricots</i>	597	433	424	368	350	345
<i>Pears</i>	1,071	1,099	1,080	1,039	1,040	830
<i>Cherries</i>	360	360	358	345	354	300
<i>sour cherries</i>	2,270	2,503	2,518	2,478	2,492	1,535
<i>Quinces</i>	120	118	109	109	109	98
<i>grapes (table and wine)</i>	26,530	27,111	26,194	25,692	24,777	25,044
<i>Production (in tons)</i>						
Fruits	402,204	300,866	230,274	342,892	398,666	410,951
<i>Apples</i>	84,275	38,433	63,470	61,936	82,414	86,217
<i>Plums</i>	23,421	13,252	24,203	15,313	25,815	25,254
<i>Peaches</i>	9,512	4,598	6,315	7,261	12,045	11,041
<i>Apricots</i>	4,168	2,271	2,546	1,436	4,476	2,964
<i>Pears</i>	8,949	6,487	7,817	5,980	7,058	8,892
<i>Cherries</i>	3,346	2,412	3,175	2,782	4,017	4,358
<i>sour cherries</i>	3,293	3,032	3,213	3,690	7,324	5,532
<i>Quinces</i>	983	576	600	673	904	975
<i>grapes (table and wine)</i>	264,256	229,805	118,935	243,821	254,613	265,717
<i>Yields (tons per ha)</i>						
Fruits	9.37	6.84	5.44	8.05	9.66	10.56

<sup>1</sup> Agricultural Publication 2000-2005 SSO

<i>Apples</i>	11.42	5.15	8.72	7.64	10.24	11.97
<i>Plums</i>	7.31	3.63	7.90	4.87	8.24	9.67
<i>Peaches</i>	6.74	3.68	4.78	5.46	12.24	11.63
<i>Apricots</i>	6.98	5.25	6.00	3.90	12.80	8.59
<i>Pears</i>	8.35	5.90	7.24	5.76	6.78	10.72
<i>Cherries</i>	9.30	6.70	8.88	8.07	11.35	14.51
<i>sour cherries</i>	1.45	1.21	1.28	1.49	2.94	3.60
<i>Quinces</i>	8.20	4.89	5.49	6.16	8.28	9.91
<i>grapes (table and wine)</i>	9.96	8.48	4.54	9.49	10.28	10.61

Yields in qualitative and quantitative terms are hampered by use of old machinery, of uncertified propagating material (imported mainly from neighbouring countries, given Macedonia's insufficient domestic production) and insufficient use of agricultural inputs and irrigation. Fruit farmers are poorly organised. A survey conducted in 2005 among producers, wholesalers and retail traders and agricultural associations shows that the fruit farming sector is inadequately supported in financial and technical terms (research/extension), there is lack of packing, sorting and manipulation, storage and processing capacities, and lack of legislation on market standards for quality for both domestic and foreign markets<sup>2</sup>.

The average size of farming agricultural households producing fruit is 2.9 ha, out of which 1.4 ha are fruit plantations, whereas the size of the orchards of the agricultural enterprises is in average 30 ha. Two thirds of the fruit producers are part-time farmers. Between June and October, around 85% of the fruit producers market their products, corresponding to the lowest market prices.

In 2005, export of fruit (including dried and semi processed) amounted to €8.4 million (mainly apples 30%, table grape 22%, wine grape 19% and semi-processed fruit 8%), while imports amounted to €15.6 million (85% tropical fruits and citrus). Net exports were €2.8 million<sup>3</sup>. The largest part of the fruit export is to the neighbouring countries.

## Apple Sector

### In general about apples in Macedonia

The apple (*Malus sp.*) is a fruit with wide ecological amplitude. It is cultivated in moderate climate areas, but it is also successfully cultivated in more continental and subtropical areas. The Republic of Macedonia with its ecological conditions is an excellent area for successful cultivation of apples.

The growing system of apple trees is of a big importance in direction of fruiting and year after year reach yield. In Republic of Macedonia apple orchards are grown with less density by using more vigorous rootstocks, the trees are higher, the crowns are denser, less in lighted, with a late full fruiting, with reduced sunshine. The yields are lower and the fruits less colored. Therefore, new technologies should be introduced.

The soil surface cultivation belongs to agro technical measurements that contribute for better growing and fruiting of apple trees. Because of the fact that clean cultivation that mainly is being used in the Macedonian orchards shows a great number of failures, it is assumed that introduction of a new way of managing of soil in apple orchards through grassing of soil surface would be beneficial for the farmers.

The flowers at apple trees are of that kind that the pistils mature 2-3 days earlier than filaments, which exclude auto fertilization. Besides, almost all apple cultivars are auto sterile that seek cross-

<sup>2</sup> Source: Study on the competitiveness of the fruit farming sector in Republic of Macedonia, year 2005 (SLR Project)

<sup>3</sup> SSO 2005

pollination. Therefore, the apples have a great need for honey bees that will be doing the pollination. Therefore, it is necessary just before blossoming to introduce bee societies as a needed pomological technical measurement in apple orchards.

In apple production the cultivar is one of the basic factors that affect the quantity and quality of fruits. In Macedonia the cultivar situation is very bad. Ida Red, for example, contributes with over 65 % of total apple production, which is not high ranked in world's cultivar lists.<sup>4</sup>



Picture 1 – Young Apple Tree and Apple Orchard in Prespa

Apple production dominates the fruit farming sector in Macedonia with around 60% of fruit production which mainly occurs in the regions of Resen and Ohrid Lake, the main apple variety produced is Ida Red, which unfortunately is not well demanded on the world market. There are total of 3,500 ha apple orchards in Prespa. Varieties include 65-70% of Ida Red, 10-15% of Gold and Red Delicious, around 10% of Jonagold, Mutcu and 5% other varieties. The region's people have developed great skill in growing apples, since the apple growing business is part of their tradition for many decades.

## Domestic Consumption of Apples

The total production of apples in Macedonia in 2007 was 152,089<sup>5</sup> tons. The exported quantity in the same year is around 90,000 tons, whereas around 10-15,000 tons are sold as industrial apple, while the rest of around 40- 50,000 tons is consumed by the domestic market. According to the UNCOMTRADE statistics the import of apples in Macedonia in 2007 was US\$ 150,000. The low standard of living in Macedonia contributes to the level of import of other varieties of apple not produced or produced in smaller quantities in Macedonia as well as the lower price of the domestic apple which in comparison to the imported one is about 70% cheaper. The above information clearly shows that Macedonia satisfies its (quantity) needs for apple in entirety from its own resources.

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<sup>4</sup> Introduction of new technologies and cultivars in apple orchards project report 2004, implemented by GTZ

<sup>5</sup> Development Strategy of Municipality of Resen

## Export and Import of Apples

The partitioning of former Yugoslavia limited the exporting capability, therefore other markets were found such as Bulgaria and Albania and in the recent years Hungary and Romania. In spite all the hurdles, the market functions better and better every year, while the region has increased its production.

Apples are placed on the domestic and to export markets for fresh consumption. Industrial apple is processed in Macedonian factories in very small quantities, and a higher percentage is exported in the neighbouring countries. Apple dominantly contributes to the production and export in the fruit farming sector, but has unfavourable age and variety structure of the plantations.

The tables below present the export and import of apple over the period 2004-2007. As it can be seen the main export countries are Serbia, Albania, Bulgaria, Bosnia and Herzegovina and Rumania and Hungary starting from 2007. In this period 50% of the export is made to Serbia and Bulgaria. It is worth mentioning that the highest average price per kg of apple over these years is continuously paid by the Albanian importers (average 0.38 Euro), whereas the lowest price per kg is paid by Serbia and Bulgaria (average 0.15 Euro). Since no information is provided on the category and quality of the apple exported, one can conclude that most of the apples that are exported to Serbia and Bulgaria are industrial, used for processing while the ones exported to Albania are fresh apple. Also it should be mentioned that the import of apples has grown but in an insignificant rate from US\$ 50,000 in 2004 to US\$ 150,000 in 2007, which accounts for less than 0% of negative export balance. The following tables present the total export and import of apples by year/quantity/value and country.

**Table 2 - Export-Import of Apples in 2004<sup>6</sup>**

Trade Flow	Partner	Trade Value	NetWeight (kg)	Average Price
<b>Export</b>	<b>World</b>	<b>\$4,630,173</b>	<b>27,359,735</b>	<b><u>\$0.17</u></b>
Export	Serbia & Montenegro	\$2,121,623	16,184,222	<u>\$0.13</u>
Export	Albania	\$1,465,955	4,044,563	<u>\$0.36</u>
Export	Bulgaria	\$907,745	6,462,603	<u>\$0.14</u>
Export	Other	\$134,850	668347	<u>\$0.20</u>
<b>Import</b>	<b>World</b>	<b>\$51,513</b>	<b>188,964</b>	<b><u>\$0.27</u></b>
Import	Greece	\$44,773	166,746	<u>\$0.27</u>
Import	Other	\$6,740	22,218	<u>\$0.30</u>

**Table 3 – Export–Import of Apples in 2005**

Trade Flow	Partner	Trade Value	Net Weight (kg)	Average Price
<b>Export</b>	<b>World</b>	<b>\$7,061,261</b>	<b>42,411,299</b>	<b><u>\$0.17</u></b>
Export	Serbia & Montenegro	\$3,519,954	24,604,852	<u>\$0.14</u>
Export	Bulgaria	\$1,794,452	10,830,761	<u>\$0.17</u>
Export	Albania	\$1,115,857	3,152,400	<u>\$0.35</u>
Export	B&H	\$550,422	3,537,744	<u>\$0.16</u>
Export	Other	\$80,575	285,542	<u>\$0.28</u>
<b>Import</b>	<b>World</b>	<b>\$90,600</b>	<b>251,629</b>	<b><u>\$0.36</u></b>
Import	Greece	\$77,406	214,920	<u>\$0.36</u>
Import	Other	\$13,193	36,709	<u>\$0.36</u>

<sup>6</sup> [www.comtrade.un.org](http://www.comtrade.un.org)

**Table 4 - Export-Import of Apples in 2006**

Trade Flow	Partner	Trade Value	Net Weight (kg)	Average price
<b>Export</b>	<b>World</b>	<b>\$10,974,942</b>	<b>64,955,811</b>	<b>\$0.17</b>
Export	Bulgaria	\$3,522,179	19,236,123	\$0.18
Export	Serbia	\$2,647,365	21,126,421	\$0.13
Export	Albania	\$1,821,892	5,302,431	\$0.34
Export	Bosnia Herzegovina	\$1,638,821	8,152,259	\$0.20
Export	Romania	\$969,271	9,401,788	\$0.10
Export	Russian Federation	\$203,678	1,048,777	\$0.19
Export	Other	\$171,738	688,012	\$0.25
<b>Import</b>	<b>World</b>	<b>\$89,313</b>	<b>262,931</b>	<b>\$0.34</b>
Import	Greece	\$40,968	120,137	\$0.34
Import	Italy	\$21,003	54,379	\$0.39
Import	Other	\$27,342	88,415	\$0.31

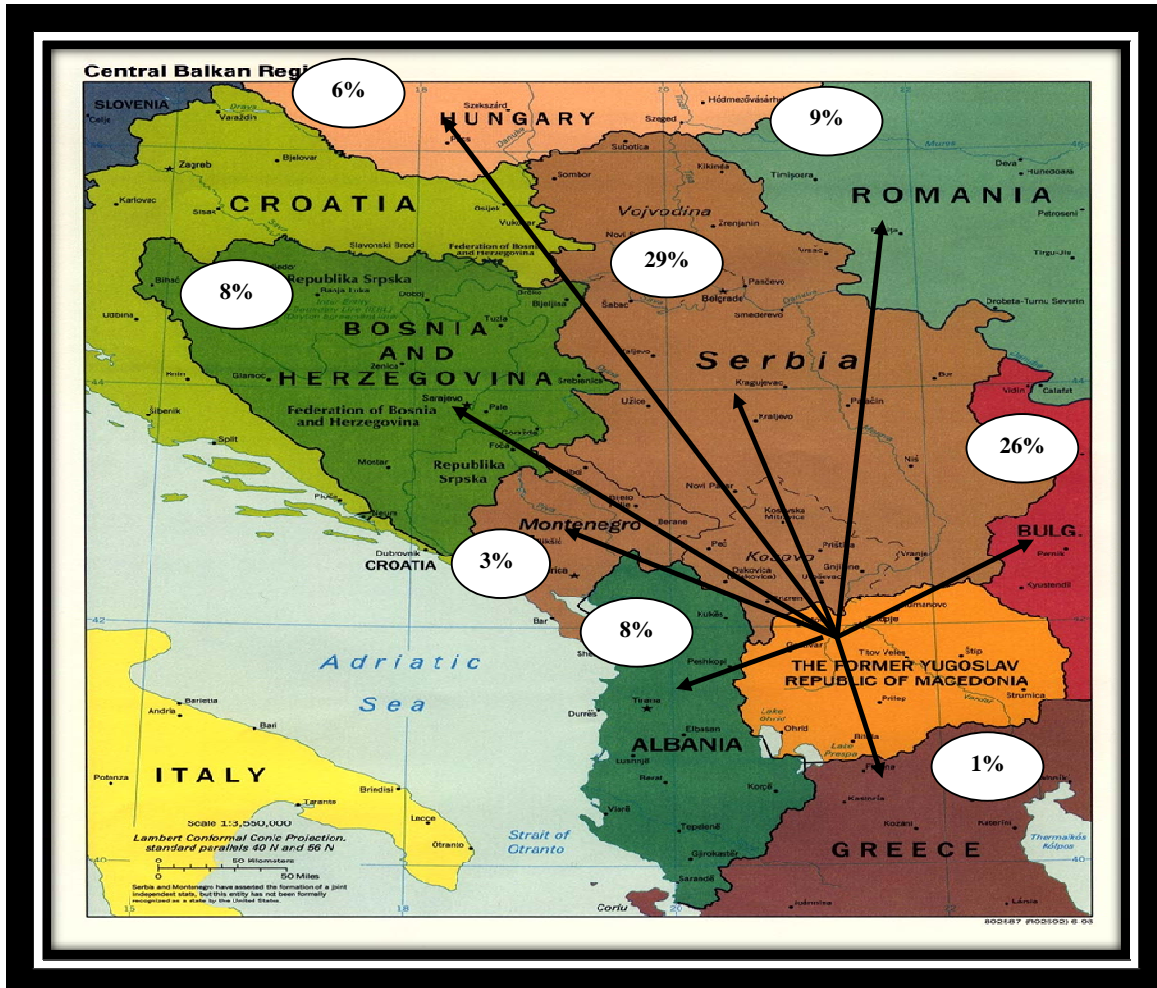
**Table 5 – Export-Import of Apples in 2007**

Trade Flow	Partner	Trade Value	Net Weight (kg)	Average price
<b>Export</b>	<b>World</b>	<b>\$19,610,157</b>	<b>88,559,365</b>	<b>\$0.22</b>
Export	Serbia	\$5,672,419	27,952,863	\$0.20
Export	Bulgaria	\$5,027,382	28,320,053	\$0.18
Export	Romania	\$1,778,964	7,217,644	\$0.25
Export	Bosnia Herzegovina	\$1,539,690	7,160,425	\$0.22
Export	Albania	\$1,526,213	3,403,209	\$0.45
Export	Hungary	\$1,134,175	3,121,857	\$0.36
Export	Montenegro	\$604,823	3,738,769	\$0.16
Export	Slovakia	\$557,944	1,244,037	\$0.45
Export	Turkey	\$505,142	1,554,821	\$0.32
Export	Austria	\$470,791	1,819,357	\$0.26
Export	Iraq	\$309,444	1,334,962	\$0.23
Export	Greece	\$211,943	812,940	\$0.26
Export	Poland	\$172,845	580,180	\$0.30
Export	Russian Federation	\$59,721	203,526	\$0.29
Export	Other	\$38,660	94,722	\$0.41
<b>Import</b>	<b>World</b>	<b>\$149,018</b>	<b>312,183</b>	<b>\$0.48</b>
Import	Italy	\$58,168	94,243	\$0.62
Import	Greece	\$48,154	113,003	\$0.43
Import	Other	\$42,696	104,936	\$0.41

### Major Export Destinations of the Macedonian Apples

The map below presents the main export destination of apple in 2007 and their percentage share in the apple export of Republic of Macedonia. As it can be seen in the map, main export partners of

Macedonia that take on more than 50% export of total Macedonian apple are Serbia and Bulgaria. Also it is worth mentioning that in 2007 a significant export has been made to Slovakia (US\$ 0.5 million), Turkey (US\$ 0.5 million), Austria (US\$ 0.5 million), which account of 9% of the total export (not shown in the map). A significant export in 2004 of US\$ 2.2 million<sup>7</sup>, is made to Kosovo as well, however it is not clear whether this amount is included as export to Serbia in the UNCOMTRADE statistics.



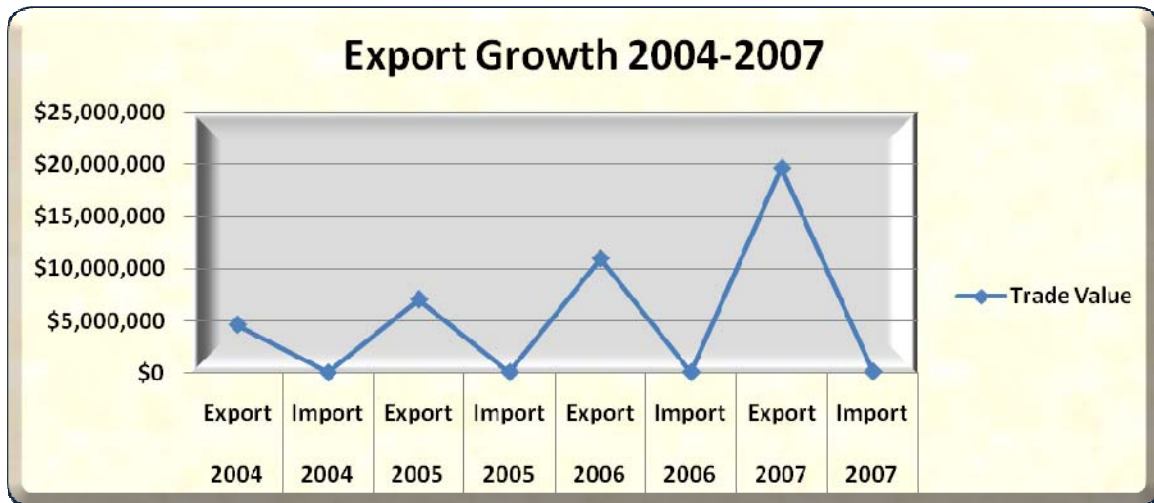
Graphic 1 - The Export Growth of Apples over the period 2004-2007

## Growth of Exports

The table below illustrates how export of apple has continued growing over the period 2004 -2007, being less than US\$5 million in 2004 and reaching almost US\$ 20 million in 2007, which is 324% of growth. Whereas, the import has grown insignificantly, being around US\$ 50,000 in 2004 and in 2007 around US\$ 150,000. Along with the export growth as a precondition the production of apple has grown as well. However, there is lot more do be done in this sector, for there is a potential which is not used in entirety. Instituting marketing companies would help apple growers to reach other markets, and offer better product. This could be accelerated by implementing calibrating and storage technologies, as well as by instituting partnerships with end-use sellers in high-yielding markets.

<sup>7</sup> Apple market profile - SPHPK/Intercooperation

**Table 6 – Export Growth**



## The Main Apple Actors

### In General about Prespa

Prespa is a region where the apple production is present on approximately 3500 hectares. That is the most concentrated apple production not only in the R. Macedonia but also in the whole region. At the moment nearly 2000 households – apple producers are registered in the region of Prespa which enables existence of nearly 8000 members of their narrowest families. Prespa is ranked among the first 20 countries in the world by average production of apple per inhabitant. Approximately, Prespa produces about 80% of the apples in Macedonia. The estimated total annual income that could be made from apple is from 15 – 20 million Euro, which of course depends on the organization of sale.

### Farmers

About 70% of the Prespa inhabitants are apple producers who have different sizes of orchards. Almost 90 % of the apple is produced by the so called Small Farmers, who in reality are not so small since apple production constitutes a major component of income for them but still they do not consider this business as theirs most important source of revenue. The majority of them market their production on their own since lots of interested buyers come to their doors to purchase their apple. Most of the apple is stored in inadequate storage contributing to major losses of the quality and price.



**Picture 5 – Apple Storage**

## Firms

Considering the volume of apple production in Prespa there should be more firms that deal with the apple trading business. However the number of specialized firms in this business is rather small since each producer take cares about sales of their own production. Traders from neighboring countries as well as the domestic ones purchase directly from farmers. The lack of specialized companies that deal with the apple trading business contributes to a big extent to the low quality of the apples as well as to the low price they get.

The main companies that deal with the apple business in Macedonia are:

- ✚ DOO Swiss-Lion Agrar – Agroplod – production of 3,000 tons of apple of different varieties and 7 cooling facilities [www.agroplod.com.mk](http://www.agroplod.com.mk)
- ✚ BB Mane, Grncare – Resen, production of apples in 10 hectares (250 tons), Red delicious Ida Red, Gold Delicious, consolidator and exporter of 2-3,000 tons and trade with pesticides. Completed construction of 1300 m2, planning to use it as cold storage.
- ✚ Ibro Fruit – 150,000 tons production, consolidator and up to 5,000 tons of export.
- ✚ Dooel „Rumko 91, Resen –different varieties of apple is kept and as requested by the customer are calibrated and packed.
- ✚ Pro-Impex, CD fruit in village Carev Dvor – production of fruit concentrate (mainly apple) and also apple and other fruit juices. [www.proimpex.com.mk](http://www.proimpex.com.mk)
- ✚ Kevil Komerc DOOEL, Resen – apple trading company, 1500 m2 of warehouse. Upon request apples are sorted and packaged. [www.kevil.com.mk](http://www.kevil.com.mk)
- ✚ ArsFruit DOOEL, apple trading company. [www.arsfruit.com](http://www.arsfruit.com)
- ✚ Biofruit, Radovis, fruit (apple) trading company [www.biofruit.com.mk](http://www.biofruit.com.mk)
- ✚ Petrov Company, Kavadarci, fresh and frozen fruit (apple) trading company. [www.petrov-ffq.com](http://www.petrov-ffq.com)

## Issues in the Apple Business

### Variety of Apples

As mentioned before, the variety that is mostly represented in Prespa with up to 70%, of the total production is Ida Red, which unfortunately is ranked as 11<sup>th</sup> in the scale of consumers preferences. Other varieties produced in Macedonia constitute only a small part of the production as it follows: 10-15% of Gold and Red Delicious, around 10% of Jonagold, Mutcu and 5% other varieties. Introducing new varieties that are more wanted in the export markets could increase both the export and the value of income, for the present variety is among the ones with lowest price in the market.

### Post-Harvest Handling

Inadequate post-harvest handling and lack of storage facilities with modern technology for grading, sorting, and packing fresh fruit represent one of the bottlenecks within the apple sector. Local buyer-traders usually buy fresh fruit from farmers at the assembly points and sell it directly to distributors, green markets, or even foreign importers, without previous sorting and pre-packing. However, there are some exceptions. Firms such as Swiss Lion Agrar (Agroplod), Rumko 91, Kevil Komerc, Arsfruit take care of post-harvest handling and storing of fresh fruits. Swiss Lion besides of production of 3,000 tones has also cold storage for storing fresh fruit, Rumko 91 possesses cold storage of 12,000 m2 and Kevil Komerc owns a cold storage for 1,000,000 tons of apple. Neither the less, these capacities are far from being enough and therefore there is a need for additional capacities both for storage as well as for sorting and packing the apple fruits.

## Lack of Apple Processing Facilities/companies

At the moment the only apple processing company in the Prespa region is CD Fruit that is in the business of production of fruit concentrate (mainly apple) and also apple and other fruit juices. Most of the industrial apple is sold to the neighboring markets with low price. Production of concentrate could be introduced as another way of adding value to the not consumable apple which presently is sold to the neighboring markets in a very low price. .

## Lack of Organization and Marketing

There are several organizations that are mentioned in the Resen Municipality Development Strategy. However there is no information as to how strong they are and what types of activities they are or planning to undertake. Organization of farmers into producer organizations would be beneficial to the apple sector.

## Support Provided to Apple Business by International Organizations

### Placement of meteorological stations<sup>8</sup>

#### UNDP (2006-2007)

The project provided support to the apple growers in Prespa through introduction of a integral way of apple production protection in order to use preparations for apple plantation treatment in optimal way. Through this project usage of pesticides will be reduced and not only that the environment will be protected but also the production costs will be reduced which will directly affect the price and the competitiveness of the products. Receiving a product which will satisfy the increasingly rigorous European quality criteria, imposed by the market, is of particular significance. The project includes placement of 30 pheromone traps on 5 locations and 2 agro-meteorological stations, which together with the already existing ones will enable coverage of 900 hectares land under apple plantations. The two agronomists included in the project will be trained for their use, which will directly improve the capacities of the Service for prognosis and signal system. The everyday following of the condition with the diseases and pests will enable well-timed apple plantation treatment on the defined locations, which will is expected to result in 25% decrease of the number of treatments. At the same time and as a result of the appropriate preparation use, it is expected that the production costs by unit of product and the treated land will decrease for 10 to 15%, considering that pesticides participate with 25-30% of the product price. The Service for prognosis and signal system will establish direct communication with the direct users, and the others will be informed through regular reports in the local electronic media and through the agricultural pharmacies in the Prespa region. The photo below shows placement of the agro-meteorological stations.



Picture 1 – Meteorological station placement by UNDP project

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<sup>8</sup> Integral protection of the apple production in Prespa – [www.sgp.undp.org](http://www.sgp.undp.org)

## Introduction of new technologies and Cultivars in apple orchards<sup>9</sup>

### GTZ (2004)

The project included introduction of new technologies in apple cultivation and introduction of new varieties. According to the report the following impact has been achieved:

- ✚ Introduction of intensive dense systems of apple cultivation and forming of slender spindle crowns. This system will enable early fruiting of apple and in the fourth year the step into full bearing period, with the yield over 50 t/ha. With introduction of these systems in the apple production the yield and quality of fruits will rapidly increase, and also the economics of the orchards. A great number of the farmers who visited demonstration of forming of slender spindle crown are trained for pruning and cultivation on dense apple orchards.
- ✚ Grassing of the surface soil is widely applied in intensive orchard in more developed countries. With grassing of inter row soil surface the cost for remaining of the orchards decreases, the soil enriches with organic matters, its structure and microbiological activities are improving. The fruits are with better quality and in coloration, the fallen fruits remain clean and can be used also for fresh consumption, e.g. to be sold with a higher prices. The positive effects of the grassing will give even better results in next 3-4 year when will start mineralization of the soil organic matters.



Picture 3 and 4 – The difference between the grassed and plain soil

- ✚ The bringing of bee societies into orchards insures the pollination and fertilization of the flowers as a first precondition for getting high and quality yield. This increases the yield for 10-15 %, depending on the variety and the same time improves the fruit quality.
- ✚ With introducing of new high quality varieties will be done the first step towards possibility for export of apples in EU countries. High quality varieties have much higher prices

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<sup>9</sup> Introduction of new technologies and cultivars in apple orchards project report 2004, implemented by GTZ

compared to the variety Ida Red which covers over 65 % in our apple production. At the moment this variety in our wholesale market is being sold for 13-15 denary/kg and more quality varieties Red and Golden delicious for 25-30 denary/kg. The fruits of high quality varieties such as gala, Fuji, Breaburn Jongold are being sold for much higher prices at the world market with comparison to the Ida Red. For example at the stock market in Nord Italy in 1999 year the prices for kilograms apple were: Breaburn 0.85 DM, Gala 0.70 DM, Red and Golden delicious 0.58 DM, Gloster 0.28 DM and Idared 0.18 DM.

## Ideas for Enhancement of the Apple Business

All of the following ideas have been extracted from the assessments, studies and strategies that have been prepared for Resen and in general for the apple growing and business in the past, mainly from the Development Strategy of Resen, prepared by the Municipality of Resen for the period 2007-2011.

### Ideas for Enhancement of Apple Growing

- ✦ Reconstruction of the existing irrigation system and introduction of new modern techniques (drop by drop), sprinklers etc
- ✦ Establishment of a wholesale market;
- ✦ Expanding the agro chemical laboratory into a Center for agro chemical analyses of soil and green MASA with a separate department for pedologic analyses;
- ✦ Introduction of EUREP GAP standards in the primary production;
- ✦ Expanding the network of automated meteorological stations with high coverage of agricultural fields as well as maximum coverage of pheromone monitoring of some pests and formalization of the service for prognoses and signalization;
- ✦ Diversification of apple varieties currently produced in order to meet the demand of consumer for different types of apples. Currently Ida Red variety is dominant, making it more difficult to sell;

### Ideas for Enhancement of Sale and Export

- ✦ Forming an collection/distribution center, with supporting units in bigger villages for developing the market;
- ✦ Improve sorting, grading, classification and packaging;
- ✦ Preparation of a feasibility study for usage of the non consumable apple with ideas for new product development;
- ✦ Expanding the capacity of the Carev Dvor processing plant for processing of the industrial apple as well as initiation of small family businesses for processing of non consumable apples and the surplus apple;
- ✦ Feasibility studies for construction of cold storage facilities;
- ✦ Construction of cold storage facilities;
- ✦ Expanding sales in the existing markets and expanding to new ones through organized marketing and participation in trade fairs;
- ✦ Improve storage facilities and storage practices in order to have better quality apples and longer period of storage which will ensure better prices;
- ✦ Establish consistent packaging for all the producers in order to increase the awareness of consumers for the Prespa apples;
- ✦ Monitor development and prices in different regional markets to improve networking and understand markets better;
- ✦ Strengthen group work through joint purchase of inputs and joint marketing in order to reduce the cost of production and increase presence in other markets as a brand;

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