COMPETETIVENESS OF THE MONTENEGRIN FRUIT AND VEGETABLES SECTOR AND RECOMMENDATIONS FOR IMPROVEMENT

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Abstract: A number of facts, primarily including high fragmentation at all levels, weak vertical integration, limited dimensions in comparison to competitors, poor technological level and unbalanced quality/price ratio make the sector weak, low competitive and exposed to international competition, reducing its capacity to capture any existing market potential. Almost all opportunities are frozen by prevailing weaknesses and threat impacts are exacerbated by a largely prevailing number of weaknesses. High production unit cost appears to be a major constraint to local supply market competitiveness. This situation appears to be mainly caused by general low levels of productivity – provoked by not adequate and up-to-date cultivation practices, reduced levels of input use, utilisation of old and, therefore, less performing varieties, and also farm management shortcomings. High losses from reduced availability of post-harvest facilities and equipment add up to the problem. The improvement of the sector is not easy. In other words, there is a lot to do for the Montenegrin sector operators to increase sales: tackle imports and increase market shares in the domestic market and abroad. Based on our research, we suggest that the Montenegrin fruit and vegetable sector should primarily aim at substituting imports, increasing domestic consumption and developing exports to the region (CEFTA countries) primarily via promising market opportunities. Based on our analyses of the state of affairs of the sector, the competitiveness and the market potentials, the recommendations for improvement competitiveness are outlined.

Keywords: fruit, vegetables, competitiveness, strategy, sector improvement

1. Introduction

Montenegro is a small country (13,812 km² and 620,000 inhabitants) with one of the lowest population density in Europe (44.9 inhabitants/km²). The climate is Mediterranean, with more continental influences in the inner part of the country. Today Montenegro is at stage 2 of development out of the three stages (plus two transition stages) identified by the WEF and is positioned 49 in the Global Competitiveness Index 2010-2011, with significant weaknesses in infrastructures, market size and business sophistication that may have a negative impact on agriculture and the sector. Agriculture account for 10% of the GDP, almost 12,000 labor force and 49,000 rural households. Food production and agriculture still play an important role in the economic development of the Republic of Montenegro. Food production and agriculture play an important role in Montenegro’s economy, with the primary sector alone providing (source: EUROSTAT) more than 10% of total GDP (GDP (EUR 2.95 Billion in 2009), with respect to 2% in the EU27, together with processing industry shares around 20% of GDP, and 4.9% of total exports (Source: MONSTAT).

The place agriculture takes in the economy is hard to evaluate due to obvious flaws in the sector statistics. The discrepancy between the share of agriculture in GDP and the share of employed people in agriculture is evident, since statistics monitor movements of employees in agricultural enterprises, but not in agricultural households. Some tendencies of labour market movement and structure of the active population are presented through data on the share of active agricultural population in total number of active population. According to these data in period between 1961 and 2003, the share of the active agricultural population in the total number of active population has been reduced from 53,6% to 8,8%. There are also considerable changes in labour force structure, as well as large-scale migrations of population from rural to urban areas of Montenegro, economically motivated, above all.

Surveys reveal an agricultural labour force of 11,902 (World Bank – Montenegro Institutional Development and Agriculture Strengthening – MIDAS), while official estimates point to a total of around 55,000 rural households in Montenegro (now 49,000 – Agri-Census preliminary data). Agriculture has been growing steadily at an average 2.4% annually from 2002 to 2006, with certain sub-sectors generating significantly higher growth, such as fruit at over 10%.
2. Sector structure

The sector benefits from natural gifted conditions (good climatic and soil conditions, sufficient water resources to grow high quality fruit and vegetables and vines) that give fruit and vegetable production and viticulture a long tradition for cultivation of a wide assortment of produce and make it possible that a significant number of the Montenegrin households deal with horticultural and wine production, although at a small-scale.

The domestic horticultural production is on the rise, nowadays estimated at an overall 290,000 t/year: 160,000 t/year of fruit and vegetables and 130,000 t/year of potatoes. Looking at the key production area of Malesija and Zeta plans, it can be observed that after 10 year of decreasing, the production of vegetables has recovered and today this region has many active producers.

The domestic production of grapes is estimated (2008) in 43,989 tons (MONSTAT, 2008). The domestic production of wine is estimated (2009) at over 15 million litres (16,9 million litres in 2008, MONSTAT), out of which 1,2 million produced by small-scale wineries and the majority by “13 jul Plantaze”, the largest wine producer in the country. The processing yields in private farms are limited as a result of the low technology: 50% for wine and 18% for brandy. The production of grape brandy is significant, as in 2008 it was reported by MONSTAT at over 1.1 million litres, with strong declining trend after variable productions in the past years and a stable contribution of the private farms just below 1 million litres/year. According to MONSTAT, potato area is stable, orchards and vineyards are on the rise, vegetable area is recovering after years of decline of the cultivated area (Chart 1).

The available data sets are not always consistent; hence estimations were required to design the sector structure. We estimate the sector value (farm prices) at approximately 155 million Euro/year according to the break-down of sub-sectors included in table 1.

The structure of the sector is highly fragmented, as the production area is divided into thousands of rural households, always not specialised as they are producing several kinds of produce, often for self-consumption, in addition to other crops such as cereals and feed for animals. We estimate that approximately 44,000 rural households and private farms are involved in the sector (90% of total rural households according to Agri-Census preliminary data), with a small average dimension that we estimate, for the rural households, at 0.20 Ha/each of horticultural/vine area, often in combination with other cultivations (livestock, dairy, etc.), particularly in the inner regions of the country. Rural families often have other sources of income, thus farming is a secondary economic activity aimed at self-consumption and at preserving the land property in an economy where the real estate market and trade of land are rather limited.

The average dimensions of the cultivations operated by private farmers are larger than the above estimated average, although the majority of them are included in the smallest dimension category (< 2.00 Ha). As in the pure rural families, also the small-scale farmers are not specialised, usually cultivating all products: potatoes, vegetables and fruit/vines in small areas (estimated mode: 0.40 Ha for fruit, 0.70 Ha for vegetables and 0.85 Ha for potatoes), often scattered in different plots (Table 2).
The expected trend is for an increase in size of potato and largest horticultural producers, while grape producers should also grow in number due to the increasing interest in the profits the sub-sector may provide.

The registered grape and wine producers are 122. However, we estimate their number at almost 1,000. The majority of the grape producers also process grapes into wine: we estimate that the number of family wineries is over 500 in the country with the largest part making use of rudimental technology and producing less than 4,000 litres per year from an estimated mode acreage of 0.35 Ha each. Additionally, production of brandy is very popular across grape producers.

### Table 2. Dimension categories of private farmers active in the Fruit and Vegetable (including Wine) Sector in Montenegro (estimated number of farmers per size category)

<table>
<thead>
<tr>
<th></th>
<th>&lt; 2 Ha</th>
<th>2 - 5 Ha</th>
<th>&gt; 5 Ha</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potatoes</td>
<td>1,500 – 1,700</td>
<td>80 – 120</td>
<td>20 – 30</td>
<td>1,600 – 1,850</td>
</tr>
<tr>
<td>Vegetables</td>
<td>1,900 – 2,200</td>
<td>350 – 400</td>
<td>200 – 250</td>
<td>2,450 – 2,850</td>
</tr>
<tr>
<td>Fruit</td>
<td>1,000 – 1,300</td>
<td>350 – 400</td>
<td>25 – 30</td>
<td>1,375 – 1,730</td>
</tr>
<tr>
<td>Vine grape</td>
<td>600 – 800</td>
<td>120 – 150</td>
<td>25 – 30</td>
<td>745 – 980</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5,000 – 6,000</td>
<td>900 – 1,070</td>
<td>270 – 340</td>
<td>6,170 – 7,410</td>
</tr>
</tbody>
</table>

Source: Author’s calculations

In the horticultural sector we have approximately 100 processing factories in the country, with 10 of them having significant dimensions and market role and the others, mostly active in production of low quality fruit juices, without a strong market presence. Only 35% of processing factories achieve year income more than 1 million (table 3). In fact, the domestic market of processed fruit and vegetables and fruit juice is still dominated by imported goods. It is difficult to estimate the number of traders that might venture into supply chain agreements with primary producers: we calculate them in not more than 10 at a national level, with Plodovi, Red Commerce and Mont-Valery topping this list.

### Table 3. Horticultural processing and wine sector in Montenegro

<table>
<thead>
<tr>
<th></th>
<th>&lt; 200,000 €/year</th>
<th>&gt; 200,000 €/year</th>
<th>(&gt; 1 mil €/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing factories</td>
<td>55%</td>
<td>45%</td>
<td>(35%)</td>
</tr>
</tbody>
</table>

Source: author’s calculations

3. Competitiveness of the sector

With the exception of “31 jul Plantaze”, a number of facts, primarily including high fragmentation at all levels, weak vertical integration, limited dimensions in comparison to competitors poor technological level and unbalanced quality/price ratio make the sector weak, low competitive and exposed to international competition, reducing its capacity to capture any existing market potential. In fact, as confirmed by our SWOT Analysis, almost all opportunities are frozen by prevailing weaknesses and threat impacts are exacerbated by a largely prevailing number of weaknesses. As highlighted by the findings of the various investigations carried out to prepare this strategy and the collected documents on the subject, high production unit cost appears to be a major constraint to local supply market competitiveness. As already mentioned, this situation appears to be mainly caused by general low levels of productivity -provoked by not adequate and up-to-date cultivation practices, reduced levels of input use, utilisation of old and, therefore, less performing varieties, and also farm management shortcomings. High losses from reduced availability of post-harvest facilities and equipment add up to the problem.

Montenegro has a significant and increasing trade deficit in agricultural products with the EU. For instance, EU imports from Montenegro (Average 2006/08) about €1.1 millions (mio) of fruits, €2.1 mio of vegetables and €0.5 mio of wine. On the other hand, EU export to Montenegro (Average 2006/08 in 1000 Euro) about €0.3 mio of fruits, €38.8 mio of vegetables and €3.8 mio of wine. However, while vegetables shows an increasing trend in export, fruit show a decreasing trend in export and increasing import from EU countries. This represents a sign of better competitiveness of the vegetable sub-sector while the fruit sub-sector in suffering in a broad market like EU. Wine sector is gradually increasing export to EU, meaning a quite good competitiveness, primarily achieved thanks to the organisation of Plantaze.

These limits should be considered seriously as competition at an international level is increasing fast and significantly and the market is more and more segmented, comprising several market segments and niches that need to be carefully considered, also because the consumption will likely grow more in value than in volume and a consequence the markets will require more added-value and quality products rather than mass-products. Supply concentration and consistency are crucial factors for an adequate response to these market challenges along with innovation of product and process, a necessary tool to compete in the global market.

If we consider the European Union, the internal market of fruit and vegetables shows signs of saturation with increasing imports from major producers such as Egypt, Morocco and Turkey. The global wine sub-sector is undergoing a number of significant changes, too. New World producers like USA, Chile, Australia, South Africa and Argentina have expanded very dynamically and the share of Europe within the global production and exports has declined. World consumption and especially exports have been growing continuously. Among the biggest markets, USA, China and Russia are expanding, while Germany and the UK are stagnating. The key drivers of change for the international wine sub-sector are the growing impact of brands, shifting demand from bulk to premium wines and growing competition between wine countries and firms.
Distribution of wine and horticultural produce has become dominated by retail chains in developed countries and this trend is likely to appear soon in Montenegro, too. Supermarket chains retain extremely strong positions and bargaining power against suppliers. Their more and more global sourcing system creates a great challenge, but also opportunities, for growers. Major retailers prefer working with a limited number of big suppliers, thus increasing competition at a primary production level and on the other hand stimulating impetus to concentration and size of suppliers increase.

Because of the above reasons, the improvement of the sector is not easy. In other words, there is a lot to do for the Montenegrin sector operators to increase sales: tackle imports and increase market shares in the domestic market and abroad.

Considering the above state of affairs, the major weaknesses of the sector that should be addressed by any investment programme are the following:

- **High fragmentation at all levels**
- **Weak vertical integration**
- **Limited dimensions and reduced economy of scale**
- **Poor technological level**
- **Unbalanced quality/price ratio**

### 4. Market potential

Within the next five years, domestic consumption of fruit and wine is expected to increase, while vegetable and potato consumption is likely to maintain the current high level. With the gradual elimination of the remaining Montenegrin border protection and with the foreseen advance of foreign owned retail chains into the country, competitive imports are likely to soar. Domestic demand, particularly for high added-value products will increase following the growing purchase power of Montenegrin households and the lower real prices as a result of increasing competition (hazards for domestic producers: imports, new retail chains) and more efficient logistics. Also regional markets will increase imports and consumption as a result of the increased purchasing power of the domestic consumers.

These expected trends would suggest that the Montenegrin fruit and vegetable (including wine) sector should primarily aim at substituting imports, increasing domestic consumption and developing exports to the region (CEFTA countries) primarily via promising market opportunities.

The total market potential for the next 10 years is estimated at over 45 million Euro/year at farm prices (factory price for fruit juice).

In order to achieve the above sales potential, also benefiting from trade liberalisation and from the process of integration into the EU, the Montenegrin sector has to strengthen its competitiveness by focusing on a limited number of strategic options: high quality of production, market differentiation and strengthening of supply.

### 5. Recommendations

Based on the analyses of the state of affairs of the sector, the competitiveness and the market potentials, the following recommendations are outlined.

#### 5.1 Strategies

Owing to the above described conditions, several measures should be taken to shift the Montenegrin horticultural sub-sectors from the current status of commodity-oriented supply to more attractive high-value product supply and to improve efficiency and marketing of the Montenegrin wine sub-sector:

Montenegro needs an efficiency strategy, including concentration of supply, strengthening of vertical co-ordination to manage the integration of the supply chain, improved management and increased productivity to reduce costs in order to enhance the efficiency of supply and address the impediments connected to the not adequate price formations schemes. The adoption of integrated supply chain agreements, partnerships among stakeholders and co-ordination and integration at all levels of the chain is necessary for higher efficiency and competitiveness.

At the same time, Montenegro needs to increase the value of the sector outputs through a market differentiation strategy, including market diversification, promotion of sales and improved marketing, better quality and safety of products, development of value-added products, branding and differentiation of products, expansion of additional market opportunities for the rural communities (tourism). The potential of high quality products is explicitly expressed in the Ministry of Agriculture strategic outlines. There is a strong awareness in the Ministry to improve product quality in the fruit and vegetable and wine sector directed towards EU standards. For processors and distributors the HACCP and for farmers the Good Agricultural Practice (Integrated Crop Management) is necessary and government control institutions are in place. Selected investment measures will foster the farmers and processing enterprises to meet the EU-standards. However, it will require efforts to raise the quality levels in production, processing, distribution and sales. The increase of consumer awareness shall play a crucial role in this process of quality improvement and will need investments and care through education and promotional schemes. The consistent conduct of retailers in the domestic market and wholesale traders in export markets will facilitate this process.

As co-ordination at all levels is felt to be crucial for the development of the sector, a Sector National Board with representatives of institutions (Ministry, Biotechnology Institute, etc.) and experts from the agricultural associations and enterprises should be established with the main target to integrate and to address marketing, promotion and the general development of the sector as a co-ordinating and representative body of all the interests co-existing within the
sector market. The National Board should give consistency and co-ordination to the implementation of a national innovation strategy, which needs specific actions (table 5) and investments.

Specific policy recommendation: A sector strategy followed by long-term and well planned export and marketing initiatives is necessary for the successful development of the sector under the guidance provided by a proposed Sector National Board and utilising the domineering position of Plantaze with their international market know-how and contacts for smaller private niche marketers in the wine sub-sector, along with a national policy with focus on small wine producers and the reform of controls and laboratories.

Specific policy recommendation: As innovation is a key issue in the sector development, R&D strategies should be developed and implemented to support long-term initiatives with strong focus on product-process- and packaging development. The domestic Competence Centre in the Biotechnology Faculty and the advisory services should be extended to support farmers and enterprises in a proactive way and via vocational training programmes offered to farmers and the first processing level. Limited resources should likely be shared in co-operation between the Biotechnical Faculty, the Chamber of Commerce, the Municipalities and other organisations.

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As for the proposed “efficiency strategy”, the sector efficiency shall increase through the establishment of Producers’ Organisations, the implementation of supply chain agreements along the value chain, the improvement of primary production and the development of adequate post-harvest practices, including sorting, grading, packing and processing of the products. This component of the interventions should be implemented via national schemes or under other programme. For a balanced development of the chain, investments at both primary production level and post-harvest stage are necessary in this domain. The current absence of a specific measure for Producer Organisations is a constraint that needs to be addressed quickly, as the organisation of primary producers is one of the most urgent actions for the sector development. Thus, the support to the establishment and the operations of producers’ organisations (PO) is strongly recommended.

Specific policy recommendation: A flexible legal framework for establishing organisations that foster co-operation among farmers needs to be developed.

The implementation of the proposed market differentiation strategy will increase the value of Montenegrin products thanks to improved quality and marketing of the products and market differentiation.

Specific policy recommendation: Initiatives for quality improvements should be proposed in close co-operation with retailers and consumers. These schemes should also address organic farming and geographical indication products. The adoption of a supply chain approach should direct investments subsidies to the suppliers of packaging material, machinery, irrigation and cooling technology, agricultural input material (seed, fertilisers and pesticides) and logistics suppliers to further improve quality and to reduce prices of the agricultural products. The labelling of wine and horticultural products as „Product of Montenegro” should be strictly implemented and controlled not to mislead the awareness of the consumers by meeting the origin of raw materials and the production location.
Training, technical assistance, R&D and consumer education will be necessary to support the sector development, facilitate the development of a Montenegrin cuisine, target the promising Ho.Re.Ca. channels and increase the level of education of Montenegrin consumers. The development of human resources through technical assistance and training is one of the bases of the proposed strategy of development. This target requires the enhancing of the scientific capability of technical staff and extension specialists through specialised training courses with national and international experts and networking with international scientific communities. Support to entrepreneurs at local level combining training and technical assistance and promoting R&D schemes is recommended.

If we look at the sub-sectors, we see that the wine sub-sector is showing a constant growth during the last years, the export is also increasing (+27% in the triennium 2009–2007 vs. the previous period) and at significant level, the domestic market is growing too, the investments in new machineries and new processing facilities are evident, the overall production is increasing, the number of labour forces that are employed by the sector is increasing. However, some financial constraints in terms of lack of working capital and investment capacity along with serious marketing and technology constraints need to be stressed and addressed through investments that the wine sub-sector should direct to primary production (enlargement of vineyard dimensions and renovation of vines, adoption of integrated crop management principles), to wine making practices (cellar technology, quality standards and HACCP) and marketing (branding, sales, promotion). Considering that tourism and environment are major drivers for the sector development, environmentally sound practices should be promoted at all levels, among market-oriented farmers, micro-scale farmers and rural households.

Thus, an improved competitiveness of the wine sector requires innovation and a better use of natural resources (vocational areas) through new vineyards by using controlled planting material. The production should also be organised by supporting farmers’ initiatives for establishing associations and developing joint actions in production and marketing. This would contribute to achieve higher efficiency through vertical integration of agricultural production and processing. On the other hand, the focus of production on specific and traditional products of high quality would contribute to develop the horizontal integration between the wine sub-sector and tourism and make the tourist offer more attractive. This would also help to establish better conditions for developing the sector and for diversifying economic activities in the rural areas. The development of the existing Wine Route and its integration with other food thematic networks is considered crucial for the growth of the sub-sector. In fact, the integration among different product routes/tours (an olive oil route, the upcoming cheese route, honey and ham tours, etc.) will enhance the offer of typical food to tourists, make tourist resorts more attractive and increase the attraction power of the rural communities. These latter will highly benefit from the combination of food with rural heritage, natural parks and other environmentally-featured sites.

Specific actions for the horticultural sub-sectors shall improve the competitiveness by modernising agricultural holdings, through better utilisation of assets and human resources and thanks to the introduction of new technology and innovation, with particular focus on the market-oriented farmers. This requires also a better use of natural resources through setting up modern orchards by using planting material of controlled quality and using quality seeds also based on local biodiversity. This will specialise production aiming at market niches. Competitiveness could benefit from the enlargement of the supply season through greenhouses and plastic tunnels and improving market infrastructure that enables the storage and keeping of fresh produce for the market, thus improving the market quality and reducing the seasonal character of those products. Greater efficiency can be acquired through vertical integration of agricultural production and processing according to quality schemes and farmers’ initiatives to establish associations and implement joint actions in production and marketing.

The link between tourism and the sector is a further asset for market development that requires stricter commercial connections with the Ho.Re.Ca. channels and the development of a sustainable and territory-based production consistent with the “Montenegro as an ecological state” project. In addition to the already commented enrichment of the tourist offer with specific and traditional products of

![Chart 2 Territory-based networking](image_url)
high quality, this will include additional assets such as actions for the preservation and sustainable use of biodiversity, the development of the organic production and the consistent land management. Biodiversity, in particular, may become a starting point to differentiate the sector production for niche markets, increase the sector products’ attractiveness and support the enhancement of the rural communities.

Specific policy recommendation: Migration of predominantly young people from the rural areas to the cities is a constraint to the development of the sector and the economy of the rural areas that attractive offers developed by the Rural Development programme might contribute to reduce and make reliable workforce available throughout all seasons. To this end, dissemination and communication initiatives for policy and strategy issues should be elaborated and implemented.

The improvement of sector products’ attractiveness and the enhancement of rural communities are crucial objectives, as an increase in tourist and quality food demand could lead to a growth of imports if the local agri-food system is not properly organised in term of quality of products and services.

To tackle a possible increase in imports, the proposed interventions must primarily refer to the market-oriented farmers through the activated measures and national schemes. The further activation of the measures shall incorporate a wider number of rural households in the programme and give more dedicated focus to the “Montenegro as an ecological State” programme, thus increasing the sector attention to sustainability and territory-based production.

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