Moldova’s Dried Fruit Sector Assessment

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# Table of Contents

**Acronyms and Definitions** ................................................................. 3  
**Executive Summary** ........................................................................ 4  
  **Methodology** .................................................................................. 5  
  **Introduction** .................................................................................... 5  
**Section 1: Moldova’s Fruit Drying Sector Developments** .......... 6  
  **1.1 Product Groups** ....................................................................... 6  
  **1.2 Export and Import Activity** ....................................................... 8  
  **1.3 Prices** ..................................................................................... 12  
  **1.4 Players** .................................................................................... 16  
  **1.5 Production Systems** ................................................................ 17  
**Section 2: International Market Developments** ..................... 22  
  **2.1 EU Market** .............................................................................. 22  
  **2.2 Russia and Other CIS Markets** ............................................... 27  
**Section 3: Observations, Conclusions and Recommendations** ... 29
**Acronyms and Definitions**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADP</td>
<td>Agribusiness Development Project</td>
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<tr>
<td>ATP</td>
<td>Asymmetrical Trade Preferences (ATP) Agreement. European Union’s import tax incentive system for developing countries. ATP follows GSP+ system. See GSP+ explanations.</td>
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<td>CBI</td>
<td>Center for the Promotion of Imports from the Developing Countries (The Netherlands)</td>
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<td>CIS</td>
<td>Commonwealth of independent States</td>
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<td>Cluster</td>
<td>A grouping of value chains represented by raw material producers, value-adding enterprisesprocessors, traders, input suppliers and other related entities operating in one specific area of HVA (i.e. fresh products, dried products, canned products, etc.)</td>
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<td>EU-27</td>
<td>European Union</td>
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<td>HACCP</td>
<td>Hazard Analysis and Critical Control Point</td>
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<tr>
<td>GSP+</td>
<td>General Trade Preferences. EU’s incentive arrangement for Moldova’s sustainable development and good governance. GSP+ system offers special incentives for a group of 7,200 Moldovan products. All dried fruit products (prunes, apples, cherries, pears and apricots) enjoy 0% EU import tariff rate and no volumes quota. GSP+ is followed by the Asymmetrical Trade Preferences (ATP).</td>
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<td>Value Chain</td>
<td>A supply chain through which a specific product passes before it reaches final consumption. The value chain begins with production, moves through processing to exporters and finally to consumers.</td>
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<td>VCD</td>
<td>Value Chain Driver. A commercially-significant value-adding enterprise (e.g. cold storage facility, packinghouse, drying line, cannery, etc.) that holds a central place within a specific value chain [with clearly defined linkages to raw material suppliers, traders and/or exporters], thus holding important capacity to drive the development of all points along the value chain.</td>
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Executive Summary

Moldovan dried fruit has successfully competed in the higher quality EU markets over the past few years. The emergence of such players as Reforma, Monicol, Prometeu-T, Inmark, VM-Plumcom and others that bring a rich experience of operating in international markets and that have introduced international quality product processing and management systems at home, provides a solid foundation of excellence on which the dried fruit export industry can further expand. However, the next 3-4 years will be crucial in determining the sector’s long term development.

Over the past three years Moldova produced 2,000-3,500 tons of dried fruit per year, depending on the growing conditions for raw material. Export levels are usually about 70% of production and exceed imports of dried fruit, primarily crops not grown locally i.e. Moldova is a net exporter of dried fruits despite the sector operating under capacity.

The major constraint to further expansion of the fruit drying sector is the poor raw material production base. Decreasing and aging orchards, lack of varieties suitable for drying, high cost growing technologies, lack of irrigation, poor harvesting and post harvesting handling techniques and labor shortages are the issues that growers and processors have to address in the next few years.

The European Union (EU-27) now absorbs about 80% of the sector’s exports with CIS countries, primarily Russia, Belarus and Ukraine, accounting for the other 20%. Despite a relatively small presence on the EU markets, (694 mt of dried prunes in a market that absorbed more than 50,000 mt in 2007) Moldova has established itself as a visible player as the fifth largest exporter of dried plums outside EU. From this small base it is not unreasonable to project a doubling or tripling of the export volume over the next 10 years if the local production supply base is expanded and existing processing capacity can be upgraded or replaced. At this point, Moldova has created enough market awareness and technical processing experience in the mid-priced EU segments to move up to higher price segments within this time frame by increasing quality and perhaps beginning organic production.

In addition to the current lack of efficient orchard technologies and an adequate supply base, the major constraints to achieving the technologically possibly ten year growth curve for the dried fruit sector include:

- lack of affordable credit to upgrade or replace deteriorating processing infrastructure;
- weak production and processing R&D;
- Restrictive regulatory base that prevents easy introduction of new processing varieties;
- Lack of internationally recognized regulatory infrastructure to support organic production.
Methodology

Using the sectoral work performed by ADP during the last three years (market assessments, technical consulting, grants activities, etc.), the official statistical data available at UN’s Comtrade Database, EU’s Trade Statistics and Moldovan Bureau of Statistics, as well interviews conducted with various sector players from growers to processors and exporters, this report outlines the existing challenges and analyzes the current situation of the dried fruit sector. The report looks not only at the impediments existing at the micro-levels, but also identifies the macro-factors affecting the development of the sector.

Because of limited product processing data and the differences of opinion expressed by interviewees, this report provides a general assessment of the sector capacities, rather than an exact and exhaustive overview. The report does not include any discussion or estimates of any informal trade outside the official dried fruit data, nor does the report explain the difference of data from different statistical sources - it just assesses and explains the numbers available.

Introduction

Dried fruit is part of the preserved fruit and vegetables market that includes canned, frozen and dried fruit and vegetables, juice, jam and purees. According to CBI, canned fruit and vegetables are the largest and fastest growing segment of the fruit and vegetable product group. Dried fruit and vegetables is the smallest product group, however, consumption is growing.

There are two major market segments for dried fruits: the food processing market and the retail market. The food processing market is by far the largest segment accounting for an estimated 80% of world dried fruit imports. Major consumers are the breakfast cereal (muesli) and the confectionery industries. Dried fruit products for the retail market are mainly sold as ready-to-eat snacks.

The demand for high quality dried fruit continues to expand. In the face of global competition from larger producers in North and South America, Europe, and Asia, Moldovan products need improvement to stay competitive in world markets. Moldova’s exports of fruit and vegetable products will continue its unpredictable run (of ups and downs), unless changes are introduced in growing practices, marketing strategies, quality control, packaging, and distribution. The current conditions in Moldova represent significant challenges and opportunities for dried fruit products.
Section 1: Moldova’s Fruit Drying Sector Developments

1.1 Product Groups

Prunes

Prunes hold the major position in terms of production and sales among the dried fruits processed in Moldova. Presently, the Moldovan State Plant Registry lists 20 different varieties, of which Stanley and Anna Spath are the preferred varieties for drying. Nevertheless, according to most dryers, variety selection becomes secondary when the drying season starts, as timely supply, product ripeness, necessary quantities, and competition for suppliers become the priority issues for most processors. Typically, in a normal year, most processors operate with 3-6 different varieties. Each variety has a different size, color, and chemical composition leaving processors and exporters to address the issue of sizing and grading accordingly. Dried prunes can be sold pitted and unpitted. The industry’s preference is to add maximum value and sell at premium prices, which is why pitted prunes now represent 80-85% of all export operations. Most prune pitting is done manually using devices fabricated locally. An attempt to launch machine-pitting operations at one of the drying facilities failed because of an inability to ensure evenly-sized product.

The picture will not be complete without mentioning wood-smoke dried prunes (usually using wood from fruit trees) in improvised home conditions. Home facilities do not permit any significant value-adding activities and sanitary processing conditions are generally poor. There also exist many small scale drying facilities that are not equipped to pit, dice, peel, size, re-hydrate or grade the products. As a result, the market receives only low priced dried fruit of inferior quality and manual packing in corrugated cardboard boxes or plastic bags of various sizes is the only value-adding these products undergo before export.

Cherries

Cherry is the first orchard fruit to ripen in Moldova and dried cherries represent the second largest product group by production and export levels. Varieties are classified into three types depending on the ripening period (early, average and late) with a processing period of approximately 5-7 weeks around June. Vegetation period influences the sensory properties and the chemical composition of the fruit. Most of the old cherry orchards disappeared after the collapse of USSR with the result that most of the cherries marketed in Moldova are grown on private households. This makes cherries a vulnerable and “hard-to-plan” product because there is no possibility to apply agronomic and technological practices on orchard-size areas. New orchard establishment is an issue, but according to local growers, lack of labor for this labor intensive crop is the major constraint limiting establishment of new cherry orchards. Cherry products are pitted before drying and require special pitting equipment. Not every drying facility is able or wishes to process cherries given the logistical challenges in sourcing raw material, investments in pitting machines and a relatively short harvesting period.
**Apples**

Moldova’s apple production industry accounts for about 70% of the country’s total orchard area. In dried fruit production and export volumes, apples are positioned third. Presently, the Moldovan State Plant Register lists 64 different varieties, of which Banana de Iarna, Idared, Golden Delicious, Red Delicious, Mantuener, Speranta, Safran, etc. are used for drying. Depending on their processing mode dried apples are divided into two main categories: 1) “ring-type” - round peeled apples without the seed core in the center; and 2) round apple slices with skin and seeds. The first category requires special peeling, dicing and center-cutting equipment while the second category does not. “Ring-type” apples are normally priced at least 50% higher than the simple round apple slices and production is currently limited to only a few well-equipped companies.

There is currently an attempt to launch “Apple Chips” - a completely new product for the local market that is targeted for retail distribution. Production requires the highest quality raw material, special storage conditions and premium packaging – all of which make it a special “niche” product rather than an industrial use product.

**Pears**

There is no direct way to calculate the pear production and dried fruit exports. Dried pear exports to the EU-27 are included in the Harmonized Product Code System (HS) under the 081340 group that covers other products, including peaches and cherries, in addition to pears. According to EU-27 data, Moldova exported 22 tons valued at $39,886 or 9% of all products included in the HS 081340 group in 2006 i.e. about 2% of the 2006 dried fruit exports. The area under pear orchards has significantly decreased in recent years and now constitutes about 1% or 1,400 ha of the total orchard area. Pear orchards require more intensive maintenance and post harvest handling with high cost production inputs, scarce labor, and a lack of post harvest handling infrastructure making pear production and processing very challenging. In addition, when the pear supply is so limited on the market, the fresh market will always offer higher prices leaving little space for processor’s to source raw material.

Nevertheless, Moldova possesses the necessary prerequisites for re-launching pear production. The Moldovan State Plant Register contains 18 different pear varieties that are suitable for both fresh and dried markets. Some of the most commonly known varieties are: Untoasa Giffard; Zorica; Favorita lui Clapp, Beurre Precoce Morettini, Williams, Williams Delbard, Star Krimson, Moldovanca, Sokrovesce, Untoasa Bosc.

**Apricots and Other Dried Fruit and Vegetables**

Apricots are available in limited quantities in Moldova and are consumed primarily by the fresh market. The apricot orchard area has been in decline lately, and although there are individual attempts to establish apricot orchards, most growers are reluctant because most existing varieties in Moldova are vulnerable to early spring frosts – a typical phenomenon for in early May. According to fruit growers, apricots yield fruit only about once in 3-4 years when they survive the early spring frosts. Given this climatic challenge farmers choose other crops that are more frost resistant and require less intensive labor during harvesting.
There were insignificant exports of dried apricots from Moldova throughout the last decade, with the peak of 14 tons coming in 2004. Even though the official data shows that 17 tons of dried apricots were exported in 2005, this represents re-exports and not direct exports.

Moldovan processors have made some attempts to go into other dried fruit and vegetables, but nothing has gone beyond some insignificant quantities that were either contracted orders or new product trials. Issues related to organizing raw material supply, selecting and introducing varieties suitable for drying, establishing fruit drying parameters for specific crops, undergoing product registration and certification, and inexistent market research systems make launching new products unattractive and difficult.

1.2 Export and Import Activity

Moldova dried fruit exports have always been small in comparison to the canning and fresh market exports. At the same time, as shown in Figures 1 and 2, the dried fruit sector has always been a net exporter of dried fruit products that are grown in Moldova and the sector has enjoyed considerable expansion in the past few years. The sector reached its peak of production during 2005, primarily because of the emergence of several important exporters and processors that brought new management practices and business visions: adding value, upgrading technology, improving quality, controlling costs; and secondly thanks to favorable weather conditions that secured raw material at reasonable prices.

**Figure 1.** Moldova’s Dried Fruit Export Volumes (tons), 1994-2007

![Figure 1](image)

Source: UN Comtrade Database and Eurostat

One other factor that permitted the dried fruit export sector to grow during recent years was the favorable weather conditions that supported growth in the supply of raw material. Orchard farmers usually prefer the fresh markets as they offer higher prices (normally targeting 70% of their crop for the fresh market) and during the last 5-7 years focused on fresh market requirements (varieties, crop management,
etc.) when establishing new orchards. However, the good weather resulted in production levels that exceeded fresh market requirements.

Figures 1 and 2 show that the dried fruit sector is marked by significant fluctuations in dried fruit export volumes. These considerable fluctuations are indicative of the issues that the industry has been facing throughout the last decade: lack of clear marketing systems, lack of established processors, sporadic raw material supplies, competition with the fresh market and other processing segments.

**Figure 2.** Dried Fruit Export and Import (thousand of US dollars), 1994-2007

![Graph showing dried fruit export and import from 1994 to 2007. The graph displays a significant fluctuation in export values with peaks in 2000 and 2005, and a decline in 2006 and 2007. The imports are shown in blue, and the exports in orange.](image)

Source: UN Comtrade Database and Eurostat

Figure 2 shows the evolution of export and import of the dried fruit sector. It includes categories produced in Moldova, i.e. prunes, apples, apricots, cherries and pears. It does not include the imports of dried fruit products such as grapes, figs and currants. Dried grapes amount to about 50-60% of all dried fruit imports constituting $436,491 and 418 tons in 2006 and $524,283 and 505 tons in 2007. Some dried fruit imports for 2007 looked as follows: prunes ($202,516), apricots ($130,357), dates ($92,292), figs ($33,073) and other dried fruit ($69,082). Moldovan imports of dried fruit registered an average growth rate of about 70% between 1999 and 2007. The majority of the imports are imported in bulk and used for processing or for further packaging by Moldovan packers and distributors. There also exists a small quantity of retail products that are imported for supermarket sales. Major suppliers are Turkey and Iran, but the list also includes countries like Netherlands, Italy, Ukraine and Russia.

Export details of the dried fruit sector for the last five years are shown in Table 1. In 2002, the Moldovan exports of dried fruit constituted a little over $460,000. One year later in 2003, the exports grew by 73% amounting to almost $800,000, at the same time the volumes tripled primarily because of expanded prune exports.
The next two years (2004 and 2005) were marked by constant growth and in 2005 the total sector exports reached $3.76 million, with the lion’s share of exports accounted for by dried prunes, followed by cherries, apples and pears. In the last decade, 2004 and 2005 are the only two years that Moldova exported some dried apricots, even though in insignificant quantities. 2007 registered the highest value of exports during the last several years despite the fact that export volumes were 20% lower than in 2005 when Moldovan export volumes reached their peak of the last 15 years. The increase in value reflects the positive changes that happened in the sector and namely, the increasing share of the "value-added" in the production and export structure and the raising quality levels of the Moldovan products as a result of progressive management decisions based on good market understanding.

The significant growth that started in 2003 and continued up to 2005 reflects several important factors: first, the emergence of several companies like Monicol, Reforma, Inmark, VM-Plumcom, etc. that were heavily focused on adding value locally; second, the favorable weather conditions that ensured raw material at reasonable prices and, third, rising prices on the international markets. While these signs of progress are promising, existing challenges are still considerable and as indicated by the last years’ export fluctuations and the estimated 2008 levels as a result of the severe drought of 2007. Ensuring constant and quality supply of raw material will be the main challenge of the industry during next years. A detailed discussion of raw material supply issues follows below in the Production Systems section of this report.

Prune volume exports in 2004-2006 ranged from 81% of total dried fruit exports in 2004-05 to 75% in 2006 and to 66% in 2007 (Table 1). Monetarily, prunes constituted about 70% of the last years’ exports. In 2006, dried apples exports totaled 16% of the export value, followed by cherries with approximately 13% and pears with 2%. In 2007, prunes value was 55%, cherries and pears 23% and apples amounted to 22% in the total export structure.

Each dried fruit product also has its own export geography which builds into the overall export activities. The export geography of the Moldovan dried fruit extends to two main directions: European Union (EU-27) and Commonwealth of Independent States (CIS). Figure 3 represents the export destination structure of the Moldovan exports during the last twelve years. The EU has attracted significant amounts of dried fruit exports since the demise of the USSR. Present EU-27 countries dominated the sector’s exports throughout the last years and in 2005-2007 accounted for about 80% of the export destinations. European countries traditionally attracted higher quality products offering better prices for the value added products (pitted prunes and cherries, sliced and peeled apples, etc). Germany, Lithuania, Latvia, Poland, Slovakia and Czech Republic are among the top European buyers of Moldovan dried fruit.

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<th>2003</th>
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<th>2005</th>
<th>2006</th>
<th>2007</th>
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<tr>
<td>Prunes, dried</td>
<td>$508.196</td>
<td>541</td>
<td>$1.095.579</td>
<td>1.707</td>
<td>$2.745.217</td>
</tr>
<tr>
<td>Apples, dried</td>
<td>$64.977</td>
<td>58</td>
<td>$167.63</td>
<td>102</td>
<td>$289.73</td>
</tr>
<tr>
<td>Other dried fruit (cherries, pears, etc.)</td>
<td>$226.55</td>
<td>118</td>
<td>$459.88</td>
<td>287</td>
<td>$657.249</td>
</tr>
<tr>
<td>Apricot, dried</td>
<td>-</td>
<td>-</td>
<td>$56.009</td>
<td>14</td>
<td>$66.113</td>
</tr>
<tr>
<td>Total</td>
<td>$799.723</td>
<td>717</td>
<td>$1.779.098</td>
<td>2.109</td>
<td>$3.758.309</td>
</tr>
</tbody>
</table>

Source: UN Comtrade Database
The CIS accounted for about 20% of Moldova’s dried fruit exports during the last three years with other destinations attracting no more than 2% registered in 2006. The CIS market consists mainly of Russia, Ukraine and Belarus with Russia as the destination for the majority of the Moldovan fruit going eastwards (62% in 2004) until May 2005, when it banned Moldovan fresh and dried fruit and vegetables imports. In 2006, Belarus and Ukraine were the main CIS markets for Moldovan products accounting for 9.6% and 8% respectively of the total Moldovan dried fruit exports. In 2007, export to Ukraine, Belarus and Russia amounted to 13%, 9% and 2% of the total dried fruit exports.

**Figure 3.** Moldovan Dried Fruit Export Geography, 1994-2007

There have been several attempts to penetrate other new markets outside the traditional EU-27 and CIS: Sudan, Syria, Lebanon, United Arab Emirates, etc. during the last several years, but to date there is no regular demand from these countries. According to some exporters, limited supplies, quality demands and logistics to these predominantly Arab countries make any long-term relations difficult to maintain.

**Conclusions:** European countries have attracted significant amounts of Moldova’s dried fruit exports since the breakup of the USSR. Export quantities have gradually increased so that the EU-27 now dominates the sector’s exports. The EU-27 is expected to remain the dominant export market in the future for the higher value-added, best quality products. Non-EU European countries will be a market for a share of Moldovan exports as well, leaving the CIS market at a level of 20-30%.

CIS markets will continue demanding cheaper Moldovan products of lower quality: unpitted and smoked prunes, unpeeled apples, unpitted cherries, etc. In Russia, despite the increasing emphasis on quality in larger cities, the country’s tradition of consuming cheaper products of lower quality will take time to change which means that Moldova will be able to maintain its presence in this market through lower quality products. This is good news for small scale processors that are not able to ensure safety and quality standards and will give some time for larger-scale
processors to implement quality and food safety standards to ensure they meet the rising demands for quality in both Western and Eastern markets. A detailed analysis of price trends in European and CIS markets is available in the 1.3 Prices section below.

The European direction of Moldovan exports will be influenced not only by better prices, but also by the overall Moldovan growth of economic and trade activity with the western markets. The privileged trading regimes (present General Trade Preferences (GSP+) and coming Asymmetrical Trade Preferences (ATP)) that the EU has granted to Moldova will offer dried fruit exporters the possibility of exporting at 0% rate of value-added tax when entering European markets. The increasing trade flows to EU will also make transportation and overall logistics easier, which will be an important incentive for reducing costs and expanding trade. A more detailed discussion about EU's attraction for Moldovan processors and exporters follows in Section 2 of this report.

1.3 Prices

Domestic and export/import prices for dried fruit vary according to a number of factors:

- The quantities and the type of dried fruits in question.
- Harvest output in relationship to demand.
- Negotiations between the different chain partners and the number of intermediaries buying and selling.
- The quality of fresh fruit aimed at the consumer markets. When quality is good, the fresh market will consume most of the crop leaving the processing industry with a lack of raw material. When the products are not up to standard, the products will be diverted to the processing industry and put pressure on prices. Changes in supply (often weather-related) have a much larger effect on price levels than changes in demand.

There are several factors that influence price levels in Moldova. The major factor is the international market that establishes prices based on quality, grade, presentation (whole, pitted, sliced, etc.) and the method of drying which has been used prior to export. The major supplying country often determines the basic price reference point for a particular product worldwide. For example, the USA and Chile are the reference countries for prunes and apples, as Turkey is for apricots.

As a price taker, Moldovan exporters and processors set domestic prices for raw material suppliers and smaller-scale processors based on international market prices (Figure 4). At the same time domestic prices are influenced by domestic demand forces that reflect the size of the local harvest. In years of low production, domestic prices are bid up while they fall when production is high. Therefore, given annual production variability, the competition with domestic demand during low production years becomes the decisive factor in the amount of product available for export markets. For example, record high domestic prices for fresh produce in 2007 resulted from low domestic production due to the extremely high temperatures and low rainfall. Low domestic production combined with high domestic prices severely reduced the level of product available for the export market (Figures 4 and 5).

Figure 4 shows average prune prices over the last 10 years. It tracks the price per 1 kilo of dried prunes in US$ and the Lei prices for 1 kilo of fresh plums for export and the local processing industry. The diagram shows the interrelationship of fresh and
dried prices and helps explain some of the factors that influenced the development of the drying industry in Moldova.

**Figure 4. Average Per Kilo Moldovan Prices for Fresh and Dried Prunes, 1998-2007**

As shown in Figure 4, *dried export* level prices clearly reflect Moldova’s position as a price taker on the international markets. The price levels also show the quality changes that started to occur in Moldova during the last three years. *Fresh Export and Local Processing* prices were driven by export and processing industry (canning, juice making and drying) demand until 2005 when Russia imposed a ban on fresh Moldovan fruit and vegetable exports. Prices for fresh fruit plunged after the ban and enabled local processors to buy raw material at lower prices than in previous years. In 2003 and 2004, Moldova exported 9,500 tons and 18,500 tons of fresh plums against 7,776 tons in 2005 and 10,508 in 2006 (Figure 5). In 2007, the fresh plum export shrunk dramatically to 5,320 tons as a consequence of the poor harvest in very dry year. The destination of fresh plums was both fresh and processing markets. Depending on their destination, Moldovan fresh export prices were 10% to 50% higher than the prices for the local industry. Stable growth could be observed only in the *Local Processing* line. It reveals “the pressure” the local industry was under from the other segments of the market as well as the influence of annual production variation.

The fluctuating orchard production levels (Figures 5 and 8) makes planning throughout the industry difficult. Moldova harvested 55,600, 41,420 and 75,900 tons during the 2004-2006. The 2007 harvest was hit by a severe drought, and the projected levels range around 20,000 tons. The weather conditions had a dramatic effect on the industry, leaving the prices at the levels affordable only by the fresh markets. The effects of the 2007 harvest will be observed in 2008, when the processed product from 2007 plum harvest will come to the market.

One important fact is evident when comparing both graphs (Figures 4 and 5), the plum production in Moldova, even in years of high production, is much lower than demand from the fresh and industry markets both at home and abroad. In these
conditions of fluctuating and unpredictable harvests, planning for the processing industry becomes very challenging and makes future contracts hard to maintain.

**Figure 5.** Estimated Plum Harvest Distribution per Market Segments, 2003-2007

![Graph showing plum harvest distribution per market segment from 2003 to 2007, with 2007 projections.]

Other significant factors that influence dried fruit prices are the exchange rate and energy costs. Rising energy prices have a direct influence on the costs of drying and transportation, while the devaluation of the US dollar makes the local industry less competitive vis-a-vis US, Chile, Argentina and China products. In a normal year, the average margin per dried crop can vary from 10-30%. In a difficult year, some crops do not generate any profits or may even incur slight losses in maintaining the established contracts.

**Figure 6.** The Average Export Price Per Kilo of Moldovan Dried Fruit, 2004-2007.

![Bar chart showing the average export price per kilo of Moldovan dried fruit from 2004 to 2007, with prunes, apples, and cherries & others.]

*Source: UN Comtrade Database*
Figure 6 shows the price dynamics of the key Moldovan dried fruit products. **Dried prune** prices have increased significantly in the last several years with the average 2006 export price per kilo up by 35.8% versus 2005 and by 154% versus the 2004 levels. The $1.63 per kilo received by Moldovan exporters in 2006 is 31.8% lower than the average world price registered during the same year. In 2006, Moldova held the 11th and 12th positions among world prune exporters by volume (1,216 tons) and value ($1.97 million), respectively. The average price for Moldovan dried prunes slightly decreased in 2007 by (-1.3%) compared to previous year’s levels.

**Dried apples** had the highest average selling price among the dried fruits with prices having increased from $1.65 per kilo in 2004 to $1.91 in 2005, $2.99 in 2006 and $4.31 in 2007. This represents 15.7%, 56.5% and 44% growth, respectively. Moldova is the world’s 15th largest dried apple exporter with about 1% of world exports. The price per kilo differed greatly depending on the market destination and the intended use. For instance, Germany and Austria paid an average $5.93 and $6.56 per kilo of Moldovan dried apples in 2006, while Poland paid only $0.71. Germany and Austria bought Moldovan apples for further food processing, while Poland used the lower quality apples as animal feed ingredients. The average world price during the same year was $2.98 per kilo.

Dried fruit category (HS-081340) represents mainly **cherries and pears**. While no official database allows computing the exact segregation of cherries and pears in this category, this Assessment assumes, based on discussions with industry players and with the available EU import data, that cherries represent about 90% of volumes and about 85% in value. In 2006 Moldova exported to the EU **dried cherries** at an average price of $2.77 (€2.2) per kilo, while **pears’** average export price was $1.81 (€1.44) per kilo. In 2007, the average price for this category of products constituted $1.83 per kilo.

**Dried apricots** actually registered the highest per kilo price levels of all dried fruits produced in Moldova. Unfortunately, apricot exports cannot be considered very seriously in drying potential since in the short- and mid-term the growing and drying infrastructure does not appear to have any significant growth potential in the next 5-7 years. Nevertheless, for reference purposes it is noted that the prices for a kilo of dried apricots were $4.06 and $3.89 in 2004 and 2005.

**Conclusions:** For Moldovan dried fruit export products, western markets consistently provide higher prices than their eastern competitors who still want and will accept lower quality products. For example, Russia, Ukraine and Belarus accept lower-quality, wood-smoke dried prunes produced using improvised home drying equipment under poor sanitary conditions. Moreover, many small-scale drying facilities are not equipped to pit, dice, peel, size, re-hydrate and grade the products. This brings to the market low-priced dried fruit of inferior quality (unpitted prunes and cherries, unpeeled apples, etc) that CIS countries are ready to absorb. These markets, however, provide an outlet for small-scale operators that do not do any additional processing before exporting besides manual packing in corrugated cardboard boxes or plastic bags of various sizes.

While there are different levels of quality in Europe as well, good hygiene, good sanitation and attention to food safety are required and important at nearly all levels. Products must also be peeled and graded. The correlation between additional value-adding and better prices is strong: average EU prices are higher than CIS averages. In 2006, Germany paid an average price of $3.01 per kilo of prunes while
Ukraine and Belarus paid $2.36 and $0.81. Russia’s average 2006 import price was $0.71 per kilo. Similarly, dried cherries sold at $6.97 per kilo in Germany, $4.87 in Hungary and $1.71 in Latvia, while in Belarus paid only $0.77 per kilo.

**1.4 Players**

The Moldovan dried fruit sector consists of a few large and medium companies and a large number of small enterprises. No official data exists on the sector, but ADP estimates that out of 85 drying facilities existing in Moldova, only about 60% operate annually. Large and medium companies represent about 30% of the companies’ active in the sector and account for about two thirds of the total turnover. Several larger companies with the capacity to handle large product volumes dominate the export trade. Besides their own production these companies act as buyers and exporters for smaller processors. Some key players in the industry are:

- Reforma Natural Fruit and Nuts, a German investment operating in Moldova for about 9-10 years. In addition to processing activities, Reforma exports dried fruit and walnut kernel through sub-contracts with different processors around the country. Reforma operates along the entire product range of dried fruits existing in Moldova.
- Monicol ([www.monicol.md](http://www.monicol.md)), processor and exporter of dried fruit and walnut kernel. Started in 2003, Monicol became one the industry models during the last two years. Efficient drying systems, food safety compliance, a fairly-well developed export network and s modern management approach all help make Monicol a successful and profitable operation. Monicol’s business mainly consists of walnut kernels and dried prunes. Recently, the company launched Apple Chips as a local retail product. In addition to its own products, Monicol is acting as an exporter for other smaller-scale dryers.
- VM Plumcom ([www.plumcom.md](http://www.plumcom.md)), processor and exporter. Dried fruit represents about 50% of their turnover with the other half accounted for by plum paste. VM Plumcom’s dried fruit product line includes prunes, apples and cherries.
- Inmark, processor. Inmark’s main business is apples and cherries. It is well equipped to process these crops on a commercial scale. They also dry prunes but in smaller quantities. Inmark, is one of the major subcontractors of Reforma Natural Fruit and Nuts.
- Gordin ([www.gordin.md](http://www.gordin.md)), processor, exporter and drying equipment manufacturer. Gordin operates at both retail and wholesale levels. Its wholesale line includes all major dried fruit products: prunes, cherries, apples and pears. In addition, its retail line also includes dried squash and grapes of local varieties.
- Prometeu-T ([www.walnut.md](http://www.walnut.md)), major processor and exporter of walnut kernel in Moldova. Recently, launched fruit drying gas-tunnel operations. Prometeu-T owns plum, peach and apple orchards.

Most of the above-mentioned companies are exporters and processors of products destined for the EU markets. However, the picture will not be complete without mentioning another category of exporters that are mainly focused on the Russian and CIS markets. This category includes processors that are not equipped to meet safety and quality parameters of the EU markets and do not have the capacity to ensure proper communications with EU customers (linguistic barriers). It also includes traders or transporters that do not have any dried fruit processing facilities, but run export operation for various commodities to CIS countries. Dried fruit is one of many products on their trading list.
A number of fairly large drying facilities exist in the central parts of the country. Unfortunately, their business efficiency and other managerial and organizational abilities do not correspond to their physical capacities, placing them in the category of smaller dried fruit operators. There also exist a number of small scale operations around the country. They usually tend to process all possible fruits. Limited processing infrastructure does not permit any value-adding activities (pitting, dicing, peeling, etc) making them producers of lower quality products that require additional processing (washing, re-hydrating, sizing, grading, packaging, etc) before exporting. Limited human capital also does not permit them to operate at export levels, leaving them to play the role of suppliers to larger processors and exporters.

Processors and exporters regardless of their scale can be competitors and partners. They often partner up to meet different contracts, lend and source out equipment, and sometimes share information on raw material suppliers. They become competitors when sourcing out quality and scarce raw material and identifying buyers. Depending on the product, companies could either be competitors, buyers, or active in different trading channels.

1.5 Production Systems

1.5.1 Raw Material Supply

According to all interviewed processors, raw material is one of the key elements in the cost structure of the final product, and is also the most important in determining final quality. Availability of supply and quality are the main issues to be addressed by Moldovan processors in organizing successful operations.

The total area of fruit orchards has decreased dramatically during the last fifteen years. Figure 7 shows the declining trend in orchard area that Moldova has witnessed since 1993. The situation began deteriorating in the early 1990’s, when traditional markets collapsed triggering sharp falls in farm income and a change in the structure of the agricultural production system. Since 1993, the area under fruit orchards has fallen from 251,000 hectares to 109,000 hectares thousand (2006). Approximately 95% of orchards are fruit bearing.

Figure 7. Moldova’s Fruit Orchard Area Evolution, (thousands of hectares), 1998-2006

Source: National Bureau of Statistics
A further indication of the effects of this period is the significant reduction in yields. Figure 8 shows Moldova annual fruit production levels. A baseline for comparison is the total harvest of fruit between 1990-1993 that averaged 799.4 tons per annum.

**Figure 8.** Moldova’s Selected Fruit Production, Total (thousands of tons), 1998-2006

![Graph showing Moldova's selected fruit production](image)

*Source: National Bureau of Statistics*

The weather strongly affects production since a lack of modern production systems, especially irrigation, produces dramatic effects on the yield levels. This is particularly true for stone fruit plantations that are concentrated mainly in the southern and central regions of the country that register low annual precipitation rates of about 200-300 mm.

Some signs of improvement, however, have been witnessed during the last several years. Despite decreasing total area, new plantations continue to appear, replacing the old stock. New growing technologies, including irrigation, are being implemented on larger and larger areas. Farmers’ tendency is to make the business as efficient as possible once the initial investment in establishing orchards is made.

Table 2 shows the 2004 averages on distribution by area, volumes of production and yields per major fruit crops grown in Moldova.
Table 2. Selected Orchard Production Data, Average 2003-2006

<table>
<thead>
<tr>
<th>Crop</th>
<th>Area ('000 ha)</th>
<th>Total Volumes ('000 tons)</th>
<th>Average harvest (ton/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>67.9</td>
<td>321.4</td>
<td>4.88</td>
</tr>
<tr>
<td>Plums</td>
<td>22.03</td>
<td>55.93</td>
<td>2.64</td>
</tr>
<tr>
<td>Peaches</td>
<td>7.03</td>
<td>13.7</td>
<td>2.03</td>
</tr>
<tr>
<td>Cherries</td>
<td>5.63</td>
<td>10.14</td>
<td>3.75</td>
</tr>
<tr>
<td>Apricots</td>
<td>2.35</td>
<td>5.44</td>
<td>2.74</td>
</tr>
<tr>
<td>Pears</td>
<td>1.35</td>
<td>34.76</td>
<td>3.73</td>
</tr>
<tr>
<td>Other</td>
<td>4.84</td>
<td>27.83</td>
<td>4.23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>111,13</strong></td>
<td><strong>439.2</strong></td>
<td><strong>4.17</strong></td>
</tr>
</tbody>
</table>

Source: Moldovan National Bureau of Statistics

Orchard Development Perspectives - Varieties for Drying

**Apple** is the only fruit crop registering dynamic development in Moldova during the past few years. There are several reasons. First, the apple industry has a rich research and development tradition. Second, the apple industry is concentrated in the northern parts of the country with higher precipitation rates and a climate unsuitable for other fruit crops. Third, apples are less labour intensive than most stone fruits. Finally, the biological characteristics of apples allow storing and selling the fruit long after harvest. All the above factors make apples less risky to cultivate than most seed and stone fruits. Apple orchards offer a large variety of raw material for the drying industry. A total of fifty-seven different varieties are grown in Moldova, of which 7-8 varieties are used for drying including some fresh market-oriented varieties. Most apple dryers do not see any issues with varieties; their major complaints refer to the logistical challenges of organizing the supply chains.

Another issue that Moldovan dryers will have to address if they want to stay competitive in international market relates to the available varieties, especially in regard to prunes. **Prunes** cover about 21% of the total orchard area of the country and generate only about 13% of the country’s fruit value. The division of fresh and processing destination for plums varies every year depending on yields and quality but the distribution is approximately 70% and 30%, respectively. For instance, Moldova dried approximately 15% of its total production in 2004 with another 15% estimated to be consumed by the juice making and canning industry.

However, none of the existing prune varieties in Moldova are specialized drying varieties, leaving the fruit dryers to use the “leftovers” of the fresh and canning industry. Even Stanley, Anna Spath or Vengherca, the varieties that are widely preferred and used by Moldovan dryers, can not compete with European varieties. Stanley is a fresh market variety that has the largest plum size available in Moldova. When dried, the Stanley variety has little flesh and a large pit. Despite local dryers preference for its large fruit, European buyers classify the size of dried Stanley prune as average. Anna Spath and Vengherca provide a better balance of pit-size and flesh of the dried fruit, but their overall size is relatively small.

Some local drying companies are testing a few western plum varieties in Moldovan conditions. According to Jim Valentine, a California fruit drier who has been in Moldova several times, the primary varieties used in California for drying are French plum, the Improved French Plum and the Sutter. They are characterized by high Brix
content, thick flesh (when dried) and small pits – they are primarily designed for the drying industry.

The issue of selecting varieties for drying should also be tackled properly in relation to other fruit (cherries, pears, etc). The issue might not be as important as in the case of prunes, but should be seriously weighed when considering the technological and economic advantages of a product.

Raw Material Sourcing

Raw material for industrial processing is received from the following types of entities: 1) production cooperatives and limited liability companies (85-90%), 2) family farms (5-10%) and individual owners (5%). Nevertheless, while the aggregate quantity of the raw material is obtained per the above ratio, there is wide variation depending on the fruit. For instance, 85-90% of cherries come from individual owners while 90-95% of prunes and apples are provided by production cooperatives and limited liability companies. Not all producers follow good harvesting and post handling technologies, and therefore the quality of the raw material also varies significantly.

In organizing raw material supplies, most processors tend to contract supply-line growers upfront by either pre-paying some production costs or by getting involved in the actual growing and harvesting of the crops. There is also a tendency among most processors to “vertically-integrate” by launching their own orchard production activities. This approach provides more control over growing practices, fertilizers and pesticide usage and time of harvest.

1.5.2 Drying Capacities and Systems

Given that the many processors operate sporadically because of the present financial and supply-line constrains, it is estimated that about 40 to 50 different scale dryers operate in Moldova on an annual basis. It is hard to estimate the volumes that are processed by each individual facility as no official statistics exist, but according to interviewed processors and exporters, a part of the product dried during the harvest year is stored and marketed the following year. Monthly export statistics also suggest that a part of the last year’s product is exported during the next calendar/fiscal year. Further, each dried product has different monthly export cycles that also vary from year to year.

It is estimated that during the last four years about 15-35% of the product dried in the harvest year was sold during the next calendar year. Another 5-7% is consumed by the local market (bakeries, pastry, confectionary shops, etc.). The balance of 60-70% was exported. Based on this formula of computing Moldovan dried fruit production volumes, during the last several years, we obtain the following numbers:

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Export</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>717</td>
<td>2,109</td>
<td>2,841</td>
<td>1,623</td>
<td>2,293</td>
</tr>
<tr>
<td><strong>Local Market &amp; Stored Product (≈15-35% of export levels)</strong></td>
<td>248</td>
<td>741</td>
<td>994</td>
<td>567</td>
<td>344</td>
</tr>
<tr>
<td><strong>Total Production</strong></td>
<td>965</td>
<td>2,850</td>
<td>3,835</td>
<td>2,190</td>
<td>2,637</td>
</tr>
</tbody>
</table>
The numbers clearly indicate the major challenge of the industry: sporadic supply and production. Lack of modern fruit production technologies (especially irrigation) leaves crop size directly dependant on the weather conditions. As shown above in Figures 4 and 5 for plums, in a bad crop year (2007) production is limited and prices are high, and Moldovan processors find it hard to compete with the fresh market when sourcing raw material. The sharp increase in production levels in 2004 were conditioned by the emergence of a new generation of drying and export facilities such as Monicol, Camedones, Reforma, Inmark, VM-Plumcom, Alvisedo-Impex, Podgoreni that brought into the industry not only new modern drying technologies, but also new managing and business practices that completely transformed the industry.

Since 1990, the majority all of the companies use tunnel drying systems. There are a few cabinet and infra-red drying systems in Moldova, but given their small scale nature and share in the overall production, we will not comment about these drying systems.

Tunnel Dryers: Part of the legacy of the Soviet Union was a cumbersome and inefficient system for heating the air. Originally, the systems were designed for indirect radiant-heating, diesel-fueled driers because direct heating would have resulted in undesirable diesel fuel residues on the fruit. However, the indirect heating system is an inefficient use of fuel with a large amount of energy wasted. With the increasing availability of natural gas, the technology gradually changed to take advantage of the efficiencies achievable with gas burners.

To respond to challenges of making the drying systems more efficient, ADP, following the request of several industry players, undertook a series of assignments of a California fruit drying specialist, Jim Valentine. He introduced an efficient gas-fired burner that included a slight modification of the flue ventilation system on the diesel fuel dryers. Following his recommendations, several processors (Monicol, Prometeu-T, Agrovincom, Camedones, VM-Plumcom, etc.) switched to direct gas flame heating. Direct heating means that the gas distributor is installed directly in the upper level of the drying tunnel avoiding the chamber for burning. The savings estimates range from 20% to 40% depending on the characteristics of the tunnels, the drying temperatures, air velocity and the effectiveness of management in controlling drying parameters. Gas is used because it was cheaper than diesel fuel. In some cases however, processors continue to use diesel fuel because natural gas is not yet available.

With gas prices continuously increasing during the last several years, it is imperative that energy conservation be one of the primary considerations of the processors in order to stay competitive and remain in business, given that 30%-40% of their costs are related to heating.

Valentine made several other recommendations to support optimizing production processes and costs: 1) addressing fruit bleeding problem during drying to avoid loss of sugar content of the plums; 2) improving the overall sanitation levels of the facilities; 3) using wooden or fish-netted trays to avoid product caramelization and loss of heating energy; 4) establishing new orchards with varieties better suited for drying, etc. Valentine’s full report and technical recommendations are available in the CNFA office or website http://www.cnfa.md/report/712/index.html.
Section 2: International Market Developments

In this section the EU and CIS markets for dried fruit and developments that may affect Moldovan exports are assessed. EU markets are likely to continue dominating Moldova’s exports in the future, and we take a closer look at the internal developments of the EU market and the expected evolution that will influence Moldova’s export choices. At the same time, we recognize the tendencies and changes happening on the CIS markets and why they will continue to attract important shares of Moldovan dried fruit exports:

2.1 EU Market

The EU is a strong net importer of dried fruits. Total EU imports increased on average by 8% annually in value between 2002 and 2006, totaling €1.2 billion/762 thousand tons in 2006. The six major markets that account for about 76% of EU dried fruit imports in 2006 are: UK, Germany, France, Italy, the Netherlands and Spain. The difference between imports and exports is the smallest for France and the largest for the UK. Dried fruits are regularly imported to a centrally located EU country, often The Netherlands and Germany, and from there re-exported and distributed to other EU countries.

About one third (34%) of dried fruit supplies are produced in EU countries, 53% derive from developing countries and the remaining 13% from the developed countries. Imports from developed countries decreased on average by 2% annually between 2001 and 2005, mainly because of decreased imports from the US, the second largest supplier of dried fruit to the EU. Imports from intra-EU sources increased on average by 14% annually, mainly because of increased supplies from France and Germany, the third and fourth largest suppliers, respectively and The Netherlands, Italy and Slovakia. Imports from developing countries increased on average by 8% annually in the period reviewed, mainly because of increased imports from the largest supplier Turkey; on average by 6% annually.

The largest product group imported is sultanas (a product category in the dried grapes group that also includes dried currants), accounting for about 21% of total EU dried fruit imports in 2006. Between 2002 and 2006, EU imports of sultanas increased on average by 6% annually. Dried prunes account for 15% of EU dried fruit imports and dates and ‘other dry grapes’ for 13% each. Other dry grapes imports increased notably, on average by 12% annually. Figs, dried apricots and mixtures of dried fruit account for 8% of EU imports each. Between 2002 and 2006, imports of mixtures of fruit increased by 19% annually. ‘Other dried fruit’ account for 6% of EU imports, dried apples for 5% and currants for about 2.5%. Dried bananas, dried peaches including nectarines and dried pear account for about 1% of EU imports. Dried pears imports increased relatively the most on an average of 20% annually during the last several years.

The food processing industry is by far the largest market segment for dried fruits. Dried fruit is used as raw material for further applications in breakfast cereals, bakery, desserts and confectionery products. The combined market for bakery and cereal products in the UK, Germany, Spain, France and Italy (the largest bakery and cereal markets in the EU) reached €45.9 billion in 2006. Retail sector sales are dominated by the supermarket sector, but health stores increasingly are gaining market share.
EU production of dried fruits, excluding dried bananas and sultanas, totaled €1,1 billion/272 thousand tons in 2005. One must keep in mind, however, that total EU production of dried fruit is much higher than the number just given, as sultanas constitute the largest product group. Spain is the largest producer of dried fruit in the EU.

**Market Access**

Exporters and processors in developing countries should be aware of the market access requirements of their trading partners and the EU government. Requirements are established through legislation and through labels, codes and management systems. These requirements are based on environmental, consumer health and safety, social and economic concerns. Moldovan exporters need to comply with EU legislation and must be aware of the additional non-legislative requirements that the trading partners might request.

EU rules and regulations are strict for trade in food products. The most important ones for dried fruits are: 1) Maximum Residue Levels (MRLs)/ for Pesticides. The approved pesticide levels in imported dried fruits are in Council Directive 90/642/EEC (http://europa.eu.int/comm/food/plant/protection/pesticides/index_en.htm); and 2) Approved Additives Regulation. This regulation is based on Directive 95/2/EC and deals with the non-nutritive substances, which can legally be added to some or all food products. Sulphur dioxide (for lightening and to help preserve color) is permitted for certain groups of dried fruit, but limited to certain concentrations. Apricots, peaches, grapes, plums and figs may contain 2000 mg/kg; bananas 1000 mg/kg; apples and pears 600 mg/kg; and others 500 mg/kg (http://www.europa.eu.int). The additives must be mentioned in the list of ingredients on the label of the dried fruits in the consumer packs.

There also are a number of tariffs and tax codes that exporters have to satisfy and understand when operating in the EU markets. Presently, Moldova enjoys General Trade Preferences (GSP+) in its trade with the EU. GSP+ is EU’s incentive arrangement for Moldova’s sustainable development and good governance. The GSP+ system offers special incentives for a group of 7,200 Moldovan products. All dried fruit products (prunes, apples, cherries, pears and apricots) enjoy a 0% import tariff rate and no volumes quota. GSP+ changes into the Autonomous Trade Preferences (ATP) as of March 1, 2008. ATP expands Moldova’s list of preferential products that would enjoy special taxes and expanded quotas. As far as dried fruit is concerned, the ATP will preserve the same regulations of 0% import tariff rate and no volume quotas.

**EU Supplies of Processed Fruit**

In the following, the direct competition in EU markets for Moldovan products is assessed. Only categories that are direct competitors to Moldovan products are examined. It also provides an analysis of extra-EU imports as EU members enjoy special trade and production regimes.

**Dried Prunes** - The EU imports of dried prunes remained relatively stable throughout 2002–2005. As shown in Table 4, in 2006 imports registered a sharp increase of 31% amounting to $137 million (€108 million) or about one third of the world imports. According to 2006 data, the USA, Chile and Argentina held the leading
potions of suppliers to the EU markets with an approximate share of 42%, 34% and 16% respectively. Moldova’s exports to the EU-27 in 2006 amounted to 1% or €1.38 million (€1.09 million), making the country the 6th largest supplier. In total more than 40 non-EU countries exported dried prunes to EU-27 in 2006.

**Table 4. Selected EU Importers of Dried Prunes, 2006**

<table>
<thead>
<tr>
<th>Country</th>
<th>Import Value (€)</th>
<th>Import Volume (tons)</th>
<th>Average Price per kilo</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>46,550,130</td>
<td>16,713</td>
<td>€2.78/$3.5</td>
</tr>
<tr>
<td>Chile</td>
<td>37,795,790</td>
<td>17,430</td>
<td>€2.16/$2.72</td>
</tr>
<tr>
<td>Argentina</td>
<td>18,510,370</td>
<td>10,307</td>
<td>€1.79/$2.25</td>
</tr>
<tr>
<td>Turkey</td>
<td>1,217,220</td>
<td>1,034</td>
<td>€1.17/$1.47</td>
</tr>
<tr>
<td>Serbia</td>
<td>1,119,100</td>
<td>622</td>
<td>€1.8/$2.27</td>
</tr>
<tr>
<td><strong>Moldova</strong></td>
<td><strong>1,095,330</strong></td>
<td><strong>648</strong></td>
<td><strong>€1.69/$2.13</strong></td>
</tr>
<tr>
<td>Canada</td>
<td>996,130</td>
<td>372</td>
<td>€2.68/$3.38</td>
</tr>
<tr>
<td>China</td>
<td>611,280</td>
<td>221</td>
<td>€2.76/$3.48</td>
</tr>
<tr>
<td>Tunisia</td>
<td>318,880</td>
<td>660</td>
<td>€0.48/$0.61</td>
</tr>
<tr>
<td><strong>Total Extra EU-27</strong></td>
<td><strong>108,751,030</strong></td>
<td><strong>48,279</strong></td>
<td><strong>€2.25/$2.83</strong></td>
</tr>
</tbody>
</table>

Source: Eurostat

The average EU import price per kilo of dried prunes during 2006 was $2.83 (€2.25), Moldova’s average export price was $2.13 (€1.69) or 25% lower than the annual average. The price variations depend on the market segments, product quality and trading channels. In addition to these, country of origin can be another factor influencing the formation of price.

According to 2006 data, Germany is the world’s largest importer of dried prunes, followed by Japan, UK and Italy, respectively. Belgium, Poland, Netherlands and France are all among fifteen largest importers in the world. Table 5 provides information on selected country import activities in 2006. It also summarizes the evolution of these countries’ import activity over the last several years.

**Table 5. Selected EU-27 Import Activity for Dried Prunes, 2006**

<table>
<thead>
<tr>
<th>Importers</th>
<th>Imported Value, '000 $</th>
<th>Quantity imported (tons)</th>
<th>Annual growth in between 2002-2006, %</th>
<th>Annual growth in value between 2005-2006, %</th>
<th>Share in world imports, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>58,793</td>
<td>17,390</td>
<td>11</td>
<td>57</td>
<td>15</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>28,628</td>
<td>9,575</td>
<td>10</td>
<td>-3</td>
<td>7</td>
</tr>
<tr>
<td>Italy</td>
<td>24,171</td>
<td>7,331</td>
<td>7</td>
<td>-8</td>
<td>6</td>
</tr>
<tr>
<td>Belgium</td>
<td>16,028</td>
<td>4,886</td>
<td>12</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Poland</td>
<td>13,209</td>
<td>6,181</td>
<td>33</td>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>12,315</td>
<td>3,776</td>
<td>31</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>France</td>
<td>8,582</td>
<td>3,256</td>
<td>16</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>World Estimate</strong></td>
<td><strong>383,293</strong></td>
<td><strong>155,606</strong></td>
<td><strong>12</strong></td>
<td><strong>0</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: UN Comtrade Database

Of the EU member producing countries it is worth mentioning that France is the largest prune-producing country in Europe. Total planted area in France is about 14,850 hectares and the area under production is 10,638 hectares. France is a net
exporter and a major competitor in the European market, supplying more than half of the EU market. Algeria is the leading market for France’s dried prune exports, typically consuming around 20 to 25% of exports. France’s main markets in the EU are the UK and Germany.

**Dried apples** – EU imports of dried apples grew during the last two years by 9% and 28% respectively. The 2006 imports totaled $30.2 million (€23.95 million) or about one third of the world dried apple imports. Major exporters of dried apples to EU markets are: Chile - 40% of the total, China (32%), USA (8.9%), Turkey (8.6%), Albania (4.9%), Argentina (2.9%) and Moldova (1.6%).

<table>
<thead>
<tr>
<th>Country</th>
<th>Import Value (€)</th>
<th>Import Volume (tons)</th>
<th>Average Price per kilo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>9,634,250</td>
<td>3,127</td>
<td>€3.08/$3.88</td>
</tr>
<tr>
<td>China</td>
<td>7,588,770</td>
<td>4,012</td>
<td>€1.89/$2.38</td>
</tr>
<tr>
<td>USA</td>
<td>2,139,380</td>
<td>629</td>
<td>€3.4/$4.29</td>
</tr>
<tr>
<td>Albania</td>
<td>1,183,910</td>
<td>891</td>
<td>€1.33/$1.67</td>
</tr>
<tr>
<td>Argentina</td>
<td>699,500</td>
<td>254</td>
<td>€2.75/$3.46</td>
</tr>
<tr>
<td><strong>Moldova</strong></td>
<td><strong>391,630</strong></td>
<td><strong>358</strong></td>
<td><strong>€1.1/$1.38</strong></td>
</tr>
<tr>
<td><strong>Total Extra EU-27</strong></td>
<td><strong>23,947,830</strong></td>
<td><strong>11,288</strong></td>
<td><strong>€2.12/$2.67</strong></td>
</tr>
</tbody>
</table>

Source: Eurostat

The EU paid an average price of $2.67 (€2.12) per kilo of apples in 2006 which is 11.8% higher than in 2005. Moldova exported at $1.38 (€1.1) per kilo, while the USA’s average export price was $4.29 (€3.4). Table 6 provides other price and import details of the major suppliers of dried apples to the EU. Again, prices depended on concrete contracts, largely based on quality, market segment, trade channel and country of origin.

Major EU importers of dried apples are: Germany, UK, the Netherlands, France and Austria.

<table>
<thead>
<tr>
<th>Importers</th>
<th>Imported Value, '000 $</th>
<th>Quantity imported (tons)</th>
<th>Annual growth in value between 2002-2006, %</th>
<th>Annual growth in value between 2005-2006, %</th>
<th>Share in world imports, %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>value</td>
<td>quantity</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>23,308</td>
<td>8,556</td>
<td>13</td>
<td>5</td>
<td>34</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>14,895</td>
<td>6,181</td>
<td>16</td>
<td>19</td>
<td>54</td>
</tr>
<tr>
<td>Netherlands</td>
<td>4,968</td>
<td>1,922</td>
<td>21</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>France</td>
<td>4,000</td>
<td>885</td>
<td>15</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>Switzerland</td>
<td>2,865</td>
<td>489</td>
<td>12</td>
<td>3</td>
<td>-1</td>
</tr>
<tr>
<td>Austria</td>
<td>2,848</td>
<td>491</td>
<td>10</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td><strong>World Estimate</strong></td>
<td><strong>100,068</strong></td>
<td><strong>39,860</strong></td>
<td><strong>14</strong></td>
<td><strong>13</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

Source: UN Comtrade Database

**Dried Pears** – extra-EU imports for this product amounted to $3.6 million (€2.9 million) in 2006 which is 2.8% higher than in 2005. Seventeen different countries exported to the EU with Moldova accounting for 22 tons valued at $39,866 (€31,640) or about 1.1% of the total imported value. Moldova’s average selling price was $1.81
(€1.44) per kilo which was 3.6% higher the average EU price in 2006. The majority of the imports came from China (56%), South Africa (23%), Argentina (11%) and Turkey (6%).

Of the largest exporters, South Africa had the highest average selling price of $3.53 (€2.8) per 1 kilo, Argentina - $2.21 (€1.76), China - $1.38 (€1.09) and Turkey - $1.51 (€1.2).

**Dried Cherries** (Other Dried Fruit – HS 081395) – total extra EU imports amounted to $34.5 million (€27.4 million) for 8,142 tons, which is 19.9% higher than in 2005. Moldova accounted for about 1% or $340,767 (€270,450)/122 tons of the total imports. The average Moldovan selling price in 2006 was $2.78 (€2.2) per kilo which was 21% lower than the EU average. Major exporters to the EU are: Chile (24.3%), China (24.2%), USA (21%), Canada (7.2%) and Turkey (7.2%). Other competing countries at roughly the same export levels as Moldova are: Thailand (2.5%), South Africa (1.7%), Iran (1.4%), Argentina (1.4%) and Albania (1.4%).

**EU-27 member producers and exporters** - there are a number of important dried fruit producers and exporters among EU-27 members that significantly influence the world’s dried fruit activity. Table 8 summarizes their export activity:

### Table 8. Selected EU Member Countries Export Activities, 2006

<table>
<thead>
<tr>
<th></th>
<th><strong>Dried Prunes</strong></th>
<th></th>
<th><strong>Dried Apples</strong></th>
<th></th>
<th><strong>Other Dried Fruit</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$, 000</td>
<td>tons</td>
<td>% of world exports</td>
<td>$, 000</td>
<td>Tons</td>
</tr>
<tr>
<td>Germany</td>
<td>15,590</td>
<td>4,059</td>
<td>4</td>
<td>4,429</td>
<td>1,197</td>
</tr>
<tr>
<td>Netherlands</td>
<td>4,969</td>
<td>1,564</td>
<td>1</td>
<td>3,588</td>
<td>1,572</td>
</tr>
<tr>
<td>Poland</td>
<td>2,043</td>
<td>1,004</td>
<td>1</td>
<td>2,040</td>
<td>513</td>
</tr>
<tr>
<td>Spain</td>
<td>2,558</td>
<td>992</td>
<td>1</td>
<td>159</td>
<td>120</td>
</tr>
<tr>
<td>Italy</td>
<td>2,282</td>
<td>489</td>
<td>1</td>
<td>8,898</td>
<td>1,364</td>
</tr>
<tr>
<td>France</td>
<td>71,355</td>
<td>22,454</td>
<td>18</td>
<td>552</td>
<td>125</td>
</tr>
<tr>
<td>UK</td>
<td>1,227</td>
<td>256</td>
<td>&lt;1</td>
<td>2,321</td>
<td>1,935</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>876</td>
<td>440</td>
<td>&lt;1</td>
<td>456</td>
<td>437</td>
</tr>
</tbody>
</table>

**Source:** UN Comtrade Database

**Conclusions** – As the numbers above show, European and world exports are dominated by the USA, Chile, China, Argentina and Turkey. These four countries also dominate most of the product groups that directly compete with Moldova. Despite its relatively small export shares, Moldova has established itself as a visible player, especially in the prunes, cherries and apple groups, with good price levels obtained recently. Moldova also has needed momentum to either go into higher price market segments by increasing quality (and perhaps even organic production) or/and by increasing supply. If improving quality can be regarded as a short- to mid- term action, then expanding orchard planting of appropriate varieties is a mid- to long- term impact activity that needs to start immediately.

One other important observation relates to dried apples. It seems like Moldova could expand into this category relatively easily given its existing significant orchard growing potential. The possibilities of increasing processing and expanding markets for dried apples should be strongly considered.
2.2 Russia and Other CIS Markets

CIS markets, principally Russia, Belarus and Ukraine, traditionally attracted significant export volumes for the Moldovan dried fruit sector. Despite EU dominance during the last several years, CIS markets continue to attract important flows of Moldovan dried fruit products. In spite of a modest trend for higher quality, CIS will remain the market for Moldova’s low quality and limited value-added products (smoked and unpitted prunes, unpitted cherries, unpeeled apples, etc.). Limited value-added and low quality products have been inherited from the past and still retain some customer loyalty on this market. It also seems that low priced str the main or decisive factor that guides most Russian and CIS dried fruit importers. Low labor costs and the possibility of providing some value-added activities of their own makes most CIS importers prefer cheaper products. Nevertheless, the tendency to demand higher quality products is noticeable during the last few years, and Russia is gradually moving to higher standards. Table 9 summarizes the import-export activities for the key CIS markets in 2006.

Table 9. Selected CIS Countries’ Import and Export Activities, 2006

<table>
<thead>
<tr>
<th></th>
<th>Dried Prunes</th>
<th>Dried Apples</th>
<th>Other Dried Fruit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$, 000</td>
<td>tons</td>
<td>% of world activity</td>
</tr>
<tr>
<td><strong>Russia</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Import</strong></td>
<td>15,500</td>
<td>21,737</td>
<td>4</td>
</tr>
<tr>
<td><strong>Export</strong></td>
<td>94</td>
<td>19</td>
<td>&lt;1</td>
</tr>
<tr>
<td><strong>Belarus</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Import</strong></td>
<td>1,439</td>
<td>726</td>
<td>&lt;1</td>
</tr>
<tr>
<td><strong>Export</strong></td>
<td>2.2</td>
<td>0.5</td>
<td>&lt;1</td>
</tr>
<tr>
<td><strong>Ukraine</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Import</strong></td>
<td>723</td>
<td>250</td>
<td>&lt;1</td>
</tr>
<tr>
<td><strong>Export</strong></td>
<td>1,164</td>
<td>390</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

Source: UN Comtrade Database

The numbers clearly indicate that both Russia and Belarus are net importers of dried fruit products while for Ukraine’s exports exceed imports for dried prunes and apples. In 2006 Russia paid $0.71 per kilo of prunes which is 2.5 times lower than the world average. This price was the lowest paid by the 50 largest world importers in 2006. At the same time, with an import volume of 21,737 tons, Russia is the world’s largest importer of prunes in volume terms. Germany, the largest importer by value ($58.8 million/15%) imported only 17,390 tons of dried prunes and paid an average price of $3.38 per kilo. This suggests that Russia will remain an important future partner for Moldova, but mostly for lower quality, low value-added products. With relatively low labor cost available in country, some Russian buyers prefer to add-value themselves. The Free Trade Agreement between Moldova and Russia will continue to provide a serious incentive for Moldovan companies to improve quality and further access the EU-27. It is worth mentioning also that the Russian market for dried prunes has been increasing and the annual growth rate between 2002-2006 constituted 48% for value and 34% for volumes. The Belarus market for dried prunes has also registered a significant growth between 2002-2006 of 61% and 55% for value and volumes, respectively. Belarus paid an average price of $1.98 per kilo of dried prunes.
With respect to dried apple imports, Russia is in 20th position by value in the world with $623,000 and in seventh poison by volume with 991 tons. Out of the world’s 40 largest exporters, only Hong Kong (SARC) and Romania paid less per kilo of dried apples than Russia’s $0.63. Belarus paid $6.04 per kilo of dried apples. Its market grew impressively by 154% for value and 102% for volumes recently, but it remains relatively small.

With respect to the ‘other dried fruit’ category that includes but is not limited only to cherries and pears, Russia registered an average annual growth of 31% during the last four years. Belarus and Ukraine registered a 69% and 178% growth rate in value from 2002 to 2006. The average prices for this category are: Russia - $0.94 per kilo, Belarus - $1.65, and Ukraine – $3.98 per kilo. The World-average importing price for this category was $1.34 per kilo.

**Conclusions** - Most of the CIS markets discussed above have registered important growth rates over the past few years, but have a limited capacity and a lower paying ability compared to EU. Nevertheless, they will continue to occupy an important place in Moldova’s exports because of their proximity and the special trade regimes existing with these countries. High cargo traffic to these countries will also be a competitive advantage to cutting costs.
Section 3: Observations, Conclusions and Recommendations

Observations and Conclusions

• The food processing industry is the largest market segment for dried fruits both in the EU and CIS markets. They use dried fruit as raw material input for further applications in breakfast cereals, bakery, desserts and confectionery products.
• European countries have attracted significant amounts of dried fruit exports since the demise of the USSR. Currently the EU-27 is the major market for Moldovan dried fruit exports and is expected to maintain the dominant position (70-80%) in the future, being the market for the higher quality value added products. CIS countries will continue to be a market for 20-30% of Moldova’s exports attracting mainly cheaper products of lower quality: unpitted and smoked prunes, unpeeled apples, unpitted cherries, etc. It is clear that the majority of Moldovan dried fruit processors will prefer the EU market despite its requirements for high quality.
• Partner and business environment predictability, supported by EU’s favorable tariff regimes (0% tariff rate and no volume quota limits under both GSP+ and ATP) will continue to attract the Moldovan exporters of dried fruit.
• Despite its relatively small shares of the EU market, Moldova has established itself as a visible player, especially in the prunes, cherries and apple groups. This means that Moldova has created enough momentum to either go into higher price segments by increasing quality and/or by expanding its presence through increasing supply. Supply increases for the EU should be targeted at wholesale levels, since Moldovan companies in the near future will not be able to maintain any export retail activities.
• The EU market offers some distinct opportunities for: 1) producers and importers of organic products: and 2) processors and packers in countries of origin who are more cost-effective in value-adding because of the comparative advantage of lower labor costs. While adding value and taking advantage of low labor costs is already happening in Moldova, going “organic” will be a very large challenge because of a weak legal framework and poor or non-existent production infrastructure (inputs, technologies). Add to that the unfavorable bureaucratic and lengthy procedures of registering new production entities and the challenge that lies ahead for the first one(s) to launch organic production becomes daunting.
• CIS markets registered important growth rates during recent years but still are bound to lower quality and lower financial capacity compared to the EU. Nevertheless, they will continue to occupy an important place in Moldova’s exports because of their proximity and Free Trade regimes with these countries. High cargo traffic to these countries also provide a competitive advantage in cutting costs.
• The quantity and quality of raw material are the main issues to solve for Moldovan processors if they want to be competitive on international markets. The key challenges at the production level are:
  o Decreasing and aging orchards,
  o Lack of varieties better suitable for drying,
  o High cost of modern technologies (chemicals, fertilizer, etc.)
  o Lack of irrigation,
  o Poor harvesting technologies, etc.
• Unavailability or inadequacy of technologies and machinery for drying is a major issue, but should not be an insurmountable factor. Many processors chose not to make investments in equipment because limited raw material and sporadic
production schedules make investment recovery periods long and unpredictable. If raw material was available, the question of equipment could be solved, even in the conditions of high interest rates.

- Every processor strives to improve their cost structure by all other available means besides raw material: optimizing drying system parameters, better management of its human resources, transportation, etc.
- Other impediments/threats that exist to the development of the Moldovan dried fruit sector are:
  - Lack of affordable finance,
  - Weak R&D and regulatory bases for introducing new varieties and to ensure proper agronomic maintenance,
  - Weak regulatory basis and inexistent infrastructure (availability of organic inputs) for developing organic production,
  - Rising fuel prices that increase drying and transportation costs,
  - Poor storage infrastructure for off-season production,
  - Lack of a culture of quality,
  - Increasing demands on international markets for consistency of high quality and reliability of supply.

**Recommendations**

- **Consider increasing the marketed and processing volumes of dried apples.** It appears that Moldova does not exploit fully existing capacity in the dried apple category. Given the existing, significant orchard potential, expansion should be relatively easy. Possibilities of increasing processing and expanding markets for dried apples should be considered.
- **Get involved in orchard production.** Processors should either be launching their own orchards or establishing “special” agreements with supply-line growers. The first option usually is preferred to the second as it permits full control over the supplies of raw materials and concentrates the decision-making at one level, but an enterprise’s human and financial capacities may be limiting. Large processors are most likely to use both options as they will not be able to grow all the raw materials necessary for processing. By establishing “special” agreements processors will be able to participate in the raw material growing processes through sharing production expenses either by prepaying for the future harvest or by cost sharing the production activities when necessary. Determining the specific conditions of collaboration by providing sufficient decision freedom of choosing markets to each party at the time of harvest will be crucial to establishing the proper balance of offering growers guaranteed markets and processors guaranteed supply.
- **Test new varieties, especially plums and cherries.** The existing legal framework does not allow varieties that are not tested to be imported into Moldova for commercial production or sale. There is a special testing procedure to undergo before the new varieties are permitted for distribution in Moldova. Had the initiative come from the private sector (either individually or as a group), the local Fruit R&D Institute would have the expertise and would be the right place to address the issue of introducing varieties. Lack of proper financing does not allow the Institute to undertake these projects on their own, but they would be willing to contribute to testing promising new varieties. However, the initiative, funding and the call for change needs to come from the sector players.
- **Processors and exporters should take the lead in changing the sector.** They possess the market information, have access to finances and represent the markets for growers – every attribute needed to become the driving force of the
industry. It is a matter of organizing and taking initiatives at individual and group levels, sharing information, creating communication channels and establishing a trusting and transparent environment where every input supplier, grower, processor and exporter will have a role and a place. And, if it takes somebody to take the lead and serve the example it should be those that have the experience and the resources – medium and large exporters and processors.

- **Establish a Dried Fruit Sector Association to permit a permanent dialog, understanding and agreement by all parties to sector development goals.** Despite some collaboration between processors, exporters and supply-line growers, the lack of a continuous dialog is obvious. Building Moldova’s image of a quality and reliable supplier is in the interest of all players of the dried fruit cluster. Establishing permanent communications will permit focusing on solutions and streamlining the mechanisms necessary to achieve those solutions. A sector association would serve as the basis for the dialog and channeling the communications throughout the industry.

- **Develop a culture of quality and improving Moldova’s presence in the modern wholesale markets.** Most probably Moldova will remain in the same “industrial” segments for the next 7-10 years i.e. there will not be huge changes. There will be attempts to go retail and develop individual brands, but this solution is not feasible except in local and possibly neighboring markets and on a small scale. Developing a culture of quality and learning to operate in modern markets at the wholesale level is possible and should be the focus.

- **Diversify activities by processing the full range of commercial fruit available locally or launching other fruit and vegetable operations:** cold storage, fresh market production, nut processing, etc. Sporadic production and lack of storage infrastructure does not permit some processors to operate a fruit drying business throughout the year. Diversification of activities in order to generate additional cash flow is an obvious solution. For example, establishing refrigeration capacity could expand the drying season and/or be used for storing crop for the fresh market. Processing the full range of commercial fruit available in Moldova like plum, apple, cherry and nut could provide better stability for staff (limit the staff turnover) and improve cash flows. Obviously, investments that would be needed in the necessary processing equipment is an important consideration to pursing this strategy. Nevertheless, this option should be considered on a regular basis, otherwise many processors will find themselves either doing something else or bankrupt.

- **Explore organic opportunities.** This will be difficult to tackle because of a weak legal framework and a poor or non-existent production infrastructure (inputs, technologies). The currently unfavorable bureaucratic and lengthy procedures of registering new production inputs and lack of local expertise are additional problems. However, there are incentives to working in this segment because the prices of organic products are several times higher than those of the traditional products. For instance, dried organic apples sell in the EU for about $6 per kilo while traditional grown apples sold for about $2. Pooling together the government, the R&D, the input supply base, and other fellow businesses for the solution of this issue will be quite a task for an individual company, but could be something manageable for a sector association.