

INTERNAL BARRIERS TO EXPORTING FRESH FRUITS AND VEGETABLES FROM MOLDOVA

Alexander Grushevsky Dan Vulpe

Chisinau, 2013



TABLE of CONTENTS

ACKNOWLED	GMENT	5					
ABBREVIATIO	NS	6					
EXECUTIVE SU	JMMARY	6					
INRODUCTIO	N	7					
1. Review of R	ecent Literature	11					
1.1 Internat	tional Approaches	11					
1.2 Analysis	1.2 Analysis of Moldova's Situation12						
2. Key Issues	in Export of Fresh Fruits and Vegetables	15					
2.1 What Ki	nd of barriers? Administrative versus Non-Administrative Ones	15					
2.2 Post-Ha	rvest Infrastructure Development	17					
2.2.1	Current Situation	17					
2.2.2	Case Studies	20					
2.2.3	Regional and International Experience	23					
2.2.4	Costing Assumptions	23					
2.2.5	Recommendations	25					
2.3 Support to Land Consolidation		26					
2.3.1	Current Situation	26					
2.3.2	Case Study: Unfinished Land Consolidation	27					
2.3.3	Regional Experience	27					
2.3.4	Costing Assumptions	29					
2.3.5	Recommendations	29					
2.4 State Su	bsidy Program Enhancement	30					
2.4.1	Current Situation	30					
2.4.2	Case Studies	30					
2.4.3	Regional and International Experience	31					
2.4.4	Costing Assumptions	32					
2.4.5	Recommendations	32					
2.5 Simplifie	cation of Access to Credit	32					
2.5.1	Current Situation	32					
2.5.2	Case Studies	33					
2.5.3	Regional Experience	35					
2.5.4	Costing Assumptions	38					
2.5.5	Recommendations	38					

	2.6 Professi	onal Associations' Capacity Strengthening	38
	2.6.1	Current Situation	38
	2.6.2	Case Study: "Associations Should Be Pro-Active!"	39
	2.6.3	Regional Experience	40
	2.6.4	Costing Assumptions	40
	2.6.5	Recommendations	40
	2.7 Support	to Cooperation in Post-Harvesting and Sales	41
	2.7.1	Current Situation	41
	2.7.2	Case Study: Natural Cooperation	41
	2.7.3	Regional Experience	41
	2.7.4	Costing Assumptions	43
	2.7.5	Recommendations	43
	2.8 Irrigatio	n System Development	43
	2.8.1	Current Situation	43
	2.8.2	Case Studies	44
	2.8.3	Regional experience	45
	2.8.4	Costing Assumptions	46
	2.8.5	Recommendations	46
	2.9 Simplifie	cation of new plant varietyes' Registration	46
	2.9.1	Current Situation	46
	2.9.2	Case Studies	47
	2.9.3	Regional Experience	48
	2.9.4	Costing Assumptions	48
	2.9.5	Recommendations	49
	2.10 Providi	ng State Support to International Marketing and Sales	49
	2.10.1	Current Situation	49
	2.10.2	2 Regional Experience	50
	2.10.3	3 Costing Assumptions	51
	2.10.4	Recommendations	51
3	. IMPLICATIO	ONS FOR HUMAN DEVELOPMENT	52
4	. CONCLUSIO	DNS	56
5	. LITERATUR	E	57
A	NNEXES		60
	1. Cost-Ben Exports	efit Analysis of Removing Constraints to Moldovan Horticultural	60
	2. Overview	of Recent in-Country Research of Barriers to Agricultural Export	
	3. List of Me	eetings	
	4. Standard	ized Questionnaire (English and Russian versions)	73



ACKNOWLEDGMENT

The research team appreciates the openness and cooperation of the MAFI officials, including the Deputy Minister Viorel Gutu, Department Heads Ion Sula, Mihai Suvac, Vasil Sarban, Tudor Robu, the Director of ANSA Gheorghe Gaberi, Director of the Directorate of General Trade Policies of the MOE. Inga Ionesii, and other public servants which we met during consultations and discussions. The team is also grateful to all private sector representatives, and national and international experts for their readiness to share their vision of the key domestic barriers to export of fresh fruits and vegetables form Moldova.

The field work was organized with the assistance and in ongoing consultation with the UNDP-Moldova office, and the study team would like to express its gratitude specifically to Alexandru Oprunenco, Dumitru Vasilescu, and Jana Midoni for the support they provided.



ABBREVIATIONS

ABM – Association of Moldovan Banks
AIPA – Agency for Agricultural Interventions and Payments
AHS - Anti-Hail Service
AM – Apele Moldovei (Water Agency)
ANRE – National Agency for Energy Regulation
ANSA – National Agency for Food Safety
ARD – Agency for Regional Development
ATP - Autonomous Trade Preferences
CS – Custom Service
CTI – Chamber of Trade and Industries
DCFTA – Deep and Comprehensive Free Trade Agreement
DP – Donor projects
DOP – Department of Privatization
FP – Fire Protection
GOM – Government of Moldova
HA – Health Agency
HMS - Hydro-Meteorological Service
LRO – Land Registry Office
MAFI – Ministry of Agriculture and Food Industry
MIEPO – Moldovan Investment Export Promotion Organization
MFAEI – Ministry of Foreign Affairs and European Integration
MOE – Ministry of Economy
MOEP – Ministry of Environmental Protection
MOF – Ministry of Finance
MOJ – Ministry of Justice
MRDC – Ministry of Regional Development and Construction
MTRI – Ministry of Transport and Road Infrastructure
NBM – National Bank of Moldova
PAR – Parliament of Moldova
PEA – Producer and Exporter Associations
PMO – Prime Minister Office
RENO – Rural Extension Network Operator
TI – Tax Inspection
WUA – Water Users Associations



EXECUTIVE SUMMARY

This study was initiated by the UNDP-Moldova in response to the request of the Moldovan Ministry of Agriculture and Food Industry targeting further development of the export of agricultural produce. The study was carried out in April-May 2013, and was based upon the desk analysis (of academic articles, analytical reports, statistical information, and other secondary sources) as well as structured and semi-structured interviews, group discussions and consultations with representatives of Moldovan private companies involved in the production and export of fresh fruits and vegetables, the public sector (MAFI, MOE, ANSA), agricultural experts and agro-economist consultancies, international organizations and donor-funded projects.

Initially oriented toward the consideration of existing administrative barriers, the study scaled up to the analysis of broader issues related to competitiveness of Moldovan companies in international markets.

Nowadays the trade regime of Moldova is overall liberal – the country is ranked 11th in the most recent World Bank Trade Tariffs Restrictiveness Index (against the average ranking of 36 applicable to Europe and Central Asia).¹ Exports have no taxes or any other restrictive measures, such as export quotas, prohibitions or other limitations to export (with the exception of licensing of limited number of specific goods, which is in line with the international trade regulations). The country is a WTO member since 2001, and signed a series of bilateral and multilateral trade agreements, including CIS, Central European Free Trade Agreement of Moldova (GOM) continues to negotiate a Deep and Comprehensive Free Trade Agreement (DCFTA) with the EU.

The export of fruit and vegetables, which according to official statistics was worth \$280 million in 2012, represents a significant share of Moldova's total exports (13% in 2012)². The vast majority of fresh fruit go to the traditional markets of the Russian Federation and Belarus; other markets still do not play an important role in this segment of Moldovan export.

Despite some issues of corruption and complicated administrative practice (procedures of getting sanitary certificates, occasional excessive paper work requirements from fiscal service and custom authorities reported in the year 2012), the administrative domestic barriers overall are not considered by the private sector to be a main obstacle to the expansion of the export of fresh fruit and vegetables, especially taken into consideration the recent initiatives of the current GOM to ease the obtaining of food safety certificates, development of sub-national network of accredited laboratories, decision to open additional custom posts at shipment consolidation points during the harvesting season, etc. The biggest challenges are not administrative, but structural barriers affecting the international competitiveness of Moldovan horticulture in the mid and long-term perspective, and specifically:

- 1. Difficulties with meeting growing requirements of perspective buyers of fresh fruit and vegetables with respect to product's quantity, quality, appearance, packaging, etc.
- 2. Insufficient infrastructure and skills available for servicing modern distribution channels and provision of shipments according to a fixed schedule.
- 3. Limited knowledge of the whole range of current international opportunities for exporting fresh fruit and vegetables, lack of updated and coordinated information on supply and demand in the various markets, insufficient knowledge and skills of Moldovan entrepreneurs in the area of international marketing and sales.

Based on the sales figures of 2012, the cost of these structural barriers to Moldovan horticulture could be roughly estimated at \$37 million in annual losses and missed opportunities (which is comparable with the what the State pays instead of subsidies in agriculture).

Based on the international and regional experience, a set of recommendations to public authorities, private sector and donor community was developed, addressing three of the abovementioned challenges to competitiveness and related top 10 barriers discussed in detail in the main body of the report.

Key emphasis focuses on the following approaches:

1. Development of cooperation in horticulture (production groups) to ensure consistent quality of the product and to strengthen the market positions of Moldovan companies through consolidated marketing and sales.

¹/http://info.worldbank.org/etools/wti/2b1.asp?pillarlD=1&indList=66,118,152,161,190&cid=128&vr=Rank&timeperiod1=t1&timeperiod2=t2&timeperiod3=t3&timeperiod4=16 ²/ National Bureau of Statistics: http://www.statistica.md/category.php?l=en&idc=336

- 2. Strengthening the consolidating role of professional associations, to encourage a switch to proactive marketing and sales in the interest of their members.
- 3. Facilitation of access to markets through dissemination of market information and building the skills of Moldovan entrepreneurs.
- 4. Strengthening the capacities of Government agencies in promoting Moldovan agricultural products in both traditional markets (Russia, Belarus, Kazakhstan) and new perspective markets (the EU, Middle East, North Africa).
- 5. Development of infrastructure for post-harvesting operations and better servicing of distribution channels (pre-cooling facilities, cold storages and consolidation centres, sorting lines, modern packaging, etc.).
- 6. Creation of a more favorable environment for horticultural production, including simplification of the registration of plant varieties, better access to irrigation, support to land consolidation, etc.

7. Facilitation of access to finance through the revision of collateral policies of commercial banks, development of a credit rating system for agricultural producers and exporters, building financial management skills of local farmers, simplification of procedures of interest rate reimbursement by the state subsidy fund, and a possibly increased role of the state in the form of specialized Rural Development Fund.

Combined efforts of the private sector, state and international donor community should help alleviate the negative impact of administrative and non-administrative barriers to exports of fresh fruits and vegetables and strengthen the competitiveness of Moldovan horticulture in the mid- and long-term which in turn, should have a positive and lasting impact on rural development, as well as on the wider socio-economic indicators and environmental sustainability due to dissemination of technological innovation, increased productivity, effectiveness and efficiency of agricultural production.



The "National Study of Internal Barriers to Export of Fresh Fruits and Vegetables from Moldova and Their Implications for Poverty Reduction and Human Development" is based on the information, gathered through a desk review of relevant literature, as well as of data gathered during structured/semi-structured interviews, group discussion and consultations with the key stakeholders.

The desk review covered both:

- a/ recent analytical literature studying typical non-tariffs barriers to international trade, and
- **b**/ recent reports of in-country research carried out by national and international experts.

The interviews, group discussions, and consultations were organized with the representatives of the following groups of respondents:

- Private sector (small and medium companies in horticulture, Moldovan exporters of fresh fruits and vegetables, and professional associations leaders),
- Public sector representatives (from the Ministry of Agriculture and Food Industry, Ministry of Economy, National Agency for Food Safety),
- Local and international agricultural and agribusiness experts,
- International organizations and financial institutions.

The target audience, representing private sector, was selected with an attempt to get an opinion of various groups of producers, including the followings:

- Producers of different varieties of fruit and vegetables: apples, plums, cherries, berries, tomatoes, cucumbers, pepper, etc.;
- Producers of different sizes;
- Companies involved in production and trade, focused exclusively on production or international trade;
- Exporting and non-exporting companies;
- Producers from different regions of Moldova.

Interviews, group discussions and consultations consisted of two major parts:

- **a**/ broad and in-depth discussion of the issues in developing Moldovan exports of fresh fruits and vegetables, and
- b/ more structured standardized questions (please, see *Questionnaire* in the Annex 4).

All the interviews, group discussions, consultations, and site visits took place from April 8 – 22, 2013 in Chisinau and in rural areas of Moldova (please, see the *List of Meetings* in the Annex 3).

As a result of the desk review and preliminary consultations, more than 30 domestic barriers were identified and included into the questionnaires for consideration of respondents (please, see Annex 4). These barriers were prioritized as a result of field study on the basis of:

- 1. Frequency of occurrences in the responses by the respondents; and
- 2. Allocated importance by respondents.

Two major groups of respondents were considered for this purpose:

- Horticulture producers and exporters (in some cases, specialization on production or export was obvious, in other cases respondents are involved in both types of activities; having overall limited number of respondents in this category - 16, the decision was taken to consider producers and exporters as one group), and
- 2. Experts in the community.

Overall, both major groups of respondents included the same barriers into the top list, with the following exceptions:

- Producers/exporters put a higher value on a/"difficulties in getting access to credit", and b/ "limited capacities, functions and political weight of professional associations";
- Experts put a higher value on: a/"difficulties with registering new varieties", and b/"insufficient support from the state in facilitating access to global markets".

The prioritization list was also supported with a rough assessment of various barriers' impact on profit/margin of local producers.

With consideration of the criteria mentioned above, the top priority barriers included:

- 1. Underdeveloped agribusiness infrastructure cold storages, sorting and packaging lines, modern greenhouses; inadequate packaging;
- 2. Land fragmentation, difficulties with land consolidation;
- 3. Limitations of State Subsidy Programme;
- 4. Difficulties in getting access to credit;

- 5. Weak associations;
- 6. Lack of cooperation in post-harvesting, marketing and sales;
- 7. Difficulties with irrigation.

Two more barriers indicated by experts in the community were also considered:

- 1. Difficulties with registering new plant varieties, even those included into the EC catalogue, and
- 2. Insufficient state assistance in facilitating access to international markets.

These barriers are discussed in more details in the sections below with considerations of:

- Current situation with each specific barrier;
- Case studies/observations from the site visits;
- Assumptions for the costing exercise and assessment of selected barriers impact expressed in monetary terms;
- Review of relevant regional practice with a special focus on the three regional competitors – Turkey, Serbia, and Ukraine;
- Recommendations for barriers alleviation/removal.



1. REVIEW OF RECENT LITERATURE

1.1 International Approaches

With the increased globalization of the economy and a higher level of international trade, the phenomenon of non-tariff barriers has caught the attention of economists and practitioners operating in different regions of the world. The list of recent publications analyzing various types of barriers to trade is lengthy and continues to expand regularly.³

Most regional economic research to date focuses on the relationships between performance and organizational or environmental factors, as well as on the importance of specific barriers to trade, which could be categorized as follows:

- 1. State policy and administrative practice;
- 2. Organization of the trade sector and business;
- 3. Access to finance;
- 4. Availability of labour, agricultural knowledge and skills; and
- 5. Sales and marketing skills, linguistic and cultural barriers to approaching potential customers.

In general, export barriers can be understood as the attitudinal, structural, operational and other constraints that hinder a company's ability to initiate, develop or sustain international operations (Koksal and Kettaneh, 2011).⁴

An overview of the regional economic literature was offered in the article of *S.H. Jalali* (2012)⁵ investigating the relationship between export barriers and export performance in the trade between Greece and Iran. According to Jalali, one of the most cited regional sources is a *Leonidou's* work (2000)⁶, which, based on analysis of 100 Cyprus-based exporters, considered 20 factors affecting exporting, including the following domestic ones:

- inability to offer satisfactory prices,
- lack of government assistance,
- limited information to locate and analyze foreign markets,
- perception of high business risks and costs abroad,
- shortage of working capital,
- inadequate transportation and infrastructural facilities,
- restrictions imposed by rules and regulations,
- difficulty in locating and obtaining representation,
- unfavorable foreign exchange rates,
- different product standards and specifications,
- insufficient and untrained staff,
- unfamiliarity of foreign business practice,
- different cultural traits and languages used abroad,
- difficulty in handling documentation and procedures.

Leonidou's study categorized these barriers in six groups:

- 1. Corporate resource constraints,
- 2. Environmental differences,
- 3. Export bureaucracy and legislation,
- 4. Government apathy,
- 5. Foreign market entry and operating difficulties, and
- 6. Competitive pressures.

³ / An extensive reviews of economic literature on barriers and analysis of new trends are well presented, for example in the following publications: Murat Hakan Altintas, Tuncer Tokol, Talha Harcar, (2007) "The effects of export barriers on perceived export performance: An empirical research on SMEs in Turkey", EuroMed Journal of Business, Vol. 2 Iss: 1, pp.36 – 56; Richard Kneller, Mauro Pisu, (2007) "Export Barriers: What are they and whom do they matter to?", University of Nottingham, research papers Series: Globalization, Productivity, and Technology; Overcoming barriers to export: A guide for growing businesses (2011)/ by Parcelforce Worldwide and UK Trates & Investment; Constitution Interim Interim (2012).

Seyed Hossein Jajaji (2012) "Export barriers and export performance: Empirical evidence from the commercial relationship between Greece and Iran" Allameh Tabatabai University, Tehran, Iran -South-Eastern Europe Jour-nal of Economics 1 (2012) 53-66;

Discovering the Barriers to Exporting (2012), Chamber and University of Chester, 15/10/2012 [http://www.wcnwchamber.org.uk/news/october-2012/discovering-the-barriers-to-exporting.htm]; Amjad, Rashid & Ghani, Ejaz & Din, Musleh ud & Mahmood, Tariq, 2012. "Export Barriers in Pakistan: Results of a Firm-Level Survey," MPRA Paper 41978, University Library of Munich, Germany; Erik Pages (2013) Barriers to Export Success [http://entreworks.net/blog/barriers-to-export-success/]

⁴ / Koksal, M.H., and Kettaneh, T., 2011, "Export problems experienced by high- and low-performing manufactur-ing companies: A comparative study", Asia Pacific Journal of Marketing and Lo- gistics, 23, 1, 108-126.

⁵/) "Export barriers and export performance: Empirical evidence from the commercial relationship between Greece and Iran" Allameh Tabatabai University, Tehran, Iran -South-Eastern Europe Journal of Economics 1 (2012) 53-66.

⁶ / Leonidou, L.C., 2000, "Barriers to export management: An organizational and internationalization analysis", Journal of International Management, 6, 2, 121-148.

According to Leonidou, in the case of Cyprus-based companies, the greatest obstructing effect was related to the inability to respond to international competition and offer competitive prices. Research of export barriers was also done by Ahmed, Craig, Baalbaki, and Hadadian in Lebanon (2004)⁷. This study was based upon interviews carried out with 61 Lebanese exporting and non-exporting companies. The researchers reached the conclusion that the five most important factors affecting export are:

- 1. Lack of government assistance,
- 2. Competition from firms in overseas markets,
- 3. Pricing and promotion policies,
- 4. High foreign tariffs, and
- 5. Lack of financial capital.

The study of *Altinas, Tokol and Harcar* (2007)⁸ was focused on export barriers existing in Turkey. The researchers identified 20 factors brought in five key groups of barriers:

- 1. Diversity barriers,
- 2. Administrative barriers,
- 3. Companies low efficiency barriers,
- 4. Competition barriers, and
- 5. Government policies barriers.

According to the conclusions of this study, the most challenging barriers in Turkey are complicated administrative procedures, followed by the insufficient capacity of Turkish companies to face competition in foreign markets.

S.H. Jalali (2012)⁹ investigated the relationship between export barriers and export performance analyzing Greek companies. Based on expert opinions and desk study of regional literature he selected 18 factors, which were categorized in the following six groups:

- Environmental dimension (strong international competition, high business risk, different customer culture and required quality standards);
- 2. Operational dimension (insufficient production capacity, non-competitive prices, limited information about foreign markets, unfamiliar foreign business practice);

- 3. Resource dimension (financial resources and human resources).
- 4. Legal dimension;
- 5. Financial dimension (financial risks, exchange rate risks); and
- 6. Logistic dimension.

Jalali concluded that the most important barrier to Greek firms that exportis is the operational dimension, followed by the environmental dimension, and lastly - by the resource dimension. Staff who are unqualified in the export business is the most critical component of the resource dimension - it is "widely believed that limited marketing expertise is one of the key barriers for international trade."¹⁰

A brief overview of the regional studies allow us to conclude that the key barriers to exporting are usually associated with the insufficient competitiveness of local firms on international markets, where "competitiveness" is understood in a broad sense, as a capacity of local business to supply a product of required quality and in sufficient quantity, at competitive price and according to a delivery schedule acceptable to buyer; to be competitive internationally, local firms should have a good understanding of international markets and their reguirements, and their employees should possess skills that permit them to find and approach international clients, negotiate contracts, and deal with established exporting procedures. State support in strengthening international competitiveness and in promoting national products abroad is usually helpful for the development of export of national products .¹¹

1.1 Analysis of Moldovan Situation

Taking into consideration an important role of Moldovan horticulture in the national economy, the analysis of opportunities and challenges for the Moldovan horticulture production and export became a focus of a series of recent publications, including the following analytical reports:

- CIBER (Competitiveness Impact of Business Environment Regulation) Final Report: Priority Regulatory Constraints for Moldovan HVA Sector and Recommendations for their Removal. ACED, USAID, Chisinau, September 2012
- End Market Study for Fresh and Dried Fruits in Moldova, ACED, USAIAD, Chisinau, 2011

¹⁰ / Ibid.

¹¹ / Ibid.

⁷ / Ahmed, Z.U., Craig, J.C., Baalbaki, I., and Hadadian, T.V., 2004, "Export barriers and firm interna- tionalization: A study of Lebanese entrepreneurs", Journal of Management and World Business Research, 1, 1, 11-22.

⁸ / Altintas, M.H., Tokol, T., and Harcar, T., 2007, "The effects of export barriers on perceived export performance: An empirical research on SMEs in Turkey", EuroMed Journal of Business, 2, 1, 36-56.

^{9/) &}quot;Export barriers and export performance: Empirical evidence from the commercial relationship between Greece and Iran" Allameh Tabatabai University, Tehran, Iran -South-Eastern Europe Journal of Economics 1 (2012) 53-66.

- End Market Study for Fresh and Dried Fruits in Germany, ACED, USAIAD, Chisinau, 2011
- Apple Value Chain Study: Analytical Report. Chisinau, ACED, USAID, 2011
- Tomato Value Chain Study ACED, USAID, Chisinau, 2011
- Grape Value Chain Study, ACED, USAID, Chisinau, 2011
- Transportation Study, ACED, USAID, Chisinau, 2012
- Analysis of HVA Constraints, Opportunities and Requirements, Chemonics International, Millennium Challenge Corporation, 2009
- Moldova's Court of Accounts Report on Horticultural Exports to Russia, 2012
- Moldova National Human Development Report 2012: Assessing the Impact of Moldova's Signing of the Deep and Comprehensive Free Trade Agreement (DCFTA) with the European Union, UNDP, Chisinau, 2012
- Binding Administrative Procedures for Agribusiness Starting and Unfolding. Centre of Sociological Investigations and Marketing Research "CBS-AXA" for the International Finance Corporation, Moldova, Chisinau 2012
- Moldova's Agribusiness Regulatory Impact Overview, IFC, 2012
- Trade and Transport Facilitation Assessment, World Bank, Chisinau, 2012
- Fresh Fruit Sector in Moldova: Baseline Study for the Aid for Trade Project, UNDP, 2012
- Feasibility, Perspectives and Potential Impacts of a Free Trade Area Between Moldova and the EU, Expert-Group, Chisinau, 2009
- Strategic Comparison of Moldova's Integration Options: Deep and Comprehensive Economic Integration with the EU versus the Accession to the Russia-Belarus-Kazakhstan Customs Union, Expert-Group, Chisinau, 2012

These studies were initiated and supported primarily by donor-funded technical assistance projects dealing with the issues of agricultural competitiveness and trade, namely:

- USAID's Agricultural Competitiveness and Enterprise Development (ACED) Project.
- USAID's Competitiveness Enhancement and Enterprise Development (CEED) Project.
- UNDP-Moldova Aid for Trade (AFT) Project.
- IFC's Moldova Investment Climate Reform Project.
- World Bank' Transport and Trade Facilitation Project.

A review of the main findings of these studies reveals the following common understanding of the key limitations to the production and export of Moldovan fresh fruit and vegetables.

- **Poor quality** resulting from a lack of pre-cooling, cooling, sorting, and packaging infrastructure; obsolete plant varieties, and insufficiently skilled agricultural specialists and workers.
- **Insufficient quantity** resulting from the fragmentation of production, lack of producers' cooperation, and small share of intensive/super-intensive orchards.
- Inability to meet scheduled deliveries year round

 resulting from a lack of cold storages and limited cooperation among producers.
- **Obsolete agricultural technologies** resulting from limited access to innovations in this area and predominance of low quality inputs in the local market.
- **Complicated new plant varieties registration** – due to existing regulatory barriers, limiting import and dissemination of modern varieties and export of their produce.
- Difficulties with land consolidation due to regulatory barriers and lack of incentives for exchange of land plots (taxation of land plot exchange, inadequate local cadastral services, etc.).
- Lack of effective and efficient system of water use for irrigation – due to the past issues with funding and maintenance, the centralized irrigation systems, inherited from the Soviet period, were abundant and were not replaced with modern irrigation projects; a new water management system for agriculture stimulating effective, responsible and sustainable water use was not yet established in the country.
- Problematic and costly access to the power grid – resulting from insufficiently developed power grids for industrial purposes in rural areas and complicated administrative procedures.
- Lack of producers' cooperation mainly due to a combination of historical and cultural factors but also because of a lack of legal and financial incentives and 'role models' i.e. successful producer groups.
- Tax regulation not fully considering specifics of agricultural production the capital gain tax on land consolidation, a 6 -12 month long lag in VAT refund leading to the need to raise additional funds for working capital, etc.
- Limited access to information about international markets due to insufficient marketing and language skills, limited contacts with international buyers, "inertia" in business orientation almost exclusively to the CIS.

- Insufficient marketing role of professional associations of local producers and exporters - due to the "top-to-down" approach of the formation of these associations, mostly following the MAFI initiative of registering for local companies interested in exporting to Russia; limited capacities of these associations.
- Difficulties with seasonal labour this is mainly due to the migration and an aging population in rural

areas and a lack of simplified procedures for hiring seasonal workers (according to current labour regulations, there is no difference in length and cost of procedures required for hiring labour for a permanent or temporary positions).

The summary of relevant studies is presented in the Annex 2.



2. KEY ISSUES IN EXPORTING FRESH FRUITS AND VEGETABLES

2.1 What Kind of Barriers? Administrative versus Non-Administrative Ones

Moldova has one of the most liberal trade regime in the CIS – the country is ranked 11th in the most recent World Bank Trade Tariffs Restrictiveness Index (against average ranking of 36 applicable to Europe and Central Asia).¹² The country has been a WTO member since 2001, and signed a series of bilateral and multilateral trade agreements, including CIS, Central European Free Trade Agreement, and the EU Autonomous Trade Preferences. The Government of Moldova (GOM) continues to negotiate a Deep and Comprehensive Free Trade Regime Agreement (DCFTA) with the EU, and in 2013, as a pilot measure, the entry price system should be removed for 20 000 tons of Moldovan apples. ¹³

Exports have no taxes or any other restrictive measures, like export quotas, prohibitions or other limitations to export (with the exception of licensing of a limited number of specific goods, as per the international trade regulations). Customs procedures and requirements are clearly defined and are in general in compliance with the majority of International Conventions in this field.

Administrative requirements for exporting are available at the Custom Service website in three languages: Romanian, Russian, and English (see: http://www.customs.gov.md).

According to current practice, the processing of goods for export consist of several stages:¹⁴

- Preparation of export documentation, including export declaration, copy of contract, invoice, certificate of origin, a phytosanitary certificate, packing list, CMR consignment note, a T1 transit form for the transit from the Inland Customs Terminal to the border of the country, and when needed additional transport documentation. Preparation of this documentation package took in August 2012 on average a full working day (up to 8 hours).
- Checking procedures at Inland Clearing Depot (ICD), which could be time consuming because of a long waiting time before reaching ICD itself (2 – 4 hours), especially during the harvesting season, and admin-

istrative requirement to clear a shipment at the ICD closest to the location of business registration, which in the majority of cases differ from the location of business operations (could require additional 2 - 4 hours)

Border crossing at a specialized custom point (BCP), time which is often unpredictable because of possibility of facing long-lines at the roads leading to the specific BCP. In August 2013, border crossing procedures took 30- 45 minutes, and all the custom documents were often requested again by the officers for additional revision despite the recent clearance at the ICD.

Since the publication of the "Trade and Transport Facilitation Assessment," additional administrative measures were taken by the GOM, MAFI and Custom Agency to ease and improve the export and custom administrative practices:

- Introduction of new procedures for obtaining sanitary certification by the Agency for Food Safety (created in April 2013) and development of a regional network of certified laboratories easing the access to this service for provincial companies (previously such certificates were available exclusively in Chisinau);
- Faster processing of custom documents due to better skilled custom officers, the introduction of information and communication technologies, and procedures simplification (in 2012 the time for custom papers processing was shortened byhalf – from 1 hour on average to 0.5 hour);
- Extension of working hours of ICDs, work of custom officers over weekends during high exporting season, and the opening of additional temporary posts at the locations convenient for exporters upon their request;
- Possibility of skipping IDCs in Chisinau and process the whole package of custom documents at BCP;
- Granting the status of "conscientious company" to local producers with the right to use simplified custom procedures and "green corridor," and negotiating the recognition of such a status by the EU and CIS customs.

 ¹²/http://info.worldbank.org/etools/wti/2b1.asp?pillarID=1&indList=66,118,152,161,190&cid=128&vr=Rank&timeperiod1=t1&timeperiod2=t2&timeperiod3=t3&timeperiod4=16
 ¹³/Moldova has recently negotiated a 20 000 tons no-minimal-entry-price quota for accessing the EU markets within the negotiations for the EU-Moldova Deep and Comprehensive Free Trade Agreement expected to be signed in November 2013 in Vilnius.

¹⁴ / please, for more details refer to Trade and Transport Facilitation Assessment, Transport and Logistics Strat-egy Preparation, the World Bank and Government of Moldova, November 2012.

An important step in the custom services improvement is related to the establishment under the Custom Agency of a consultative body, representing the private sector, usually through professional associations. This council should bring the most urgent issues to the attention of Custom's management and offer solutions. The further improvement of custom procedures could be ensured with the introduction into administrative practice of electronic One-Stop-Shop system, based on information sharing by representatives of various public Agencies through access to data-bases with relevant information and electronic processing of export documentation.

Overall, here are the major players which export fresh horticulture products from Moldova:

- 1. Micro and small producers, who usually are not directly involved in exporting and prefer to sell their products domestically to other business clients/wholesalers; they do not have post-harvesting equipment and sell the majority of their products during the harvesting season, often without proper documentation (proof of purchase, phytosanitary certificates, documents needed for obtaining a certificate of origin);
- Medium and large horticulture producers (with orchards about of 50 - 100 hectares), which deal with wholesalers domestically or directly export their products; usually they have established bookkeeping and records of agro-technical procedures and are able to provide all necessary documentation for exporting;
- 3. Large agricultural companies (having more than 100 ha of orchards), tend to operate in full compliance with legal and regulatory requirements and usually have no administrative issues with export of fresh fruits and vegetables;
- 4. Moldovan wholesalers specializing in exporting horticulture products include both: well established companies with clearly defined and transparent operational procedures and companies operating in the "grey area." If the former have their own production base or buy the product from the modern businesses and have capacities to prepare all the needed documentation in a timely manner, the latter deal mostly with a wide range of small agricultural producers and systematically face issues with consolidation of shipments of consistent quality, provision of documents needed for obtaining certificate of origin, sanitary certificates, etc.
- 5. Small importers and individual buyers from abroad (Russia, Ukraine) who also often operate in a "grey area" and face administrative barriers with export.

According to the Moldovan Custom's data compiled by MAFI¹⁵, in 2012, micro and small producers accounted for 59% of apple exports, while larger producers, members of producer and exporter associations – for just 41%. Since not all large producers belong to exporter associations, a more realistic split, according to MAFI, would be 50:50. No reliable data are available for production, but one can assume a similar split to that of exports, of around 50:50.

Interviews and group discussions with Moldovan producers, exporters, and experts in May 2013 also revealed the following:

- 1. Although Moldovan respondents have reported cases of corruption and several large-scale attempts to use administrative measures to monopolize export of fruits from Moldova, in the opinion of interviewees, administrative barriers do not represent a systematic issue in the foreign trade organization. Usually, obtaining documentation to support export shipment and the border crossing itself are manageable procedures if all the initial documentation is kept in order (records of agro-technical interventions, purchase acts, invoices, etc.).
- 2. Administrative barriers and related incidents of corruption often emerge when there are issues with a traceability of the product – usually when the shipment is organized by a middleman buying products from a large number of micro-farmers without proper documents of origin and phytosanitary documentation.
- 3. Willingness of the GOM to support Moldovan export of fresh fruits and vegetables, and to harmonize export administration with the good international practice should lead to new initiatives aimed at easing administrative barriers, including a growing introduction of principles and tools of e-Governance into Moldovan public services.

At the same time, Moldovan producers, exporters, and experts expressed their concerns regarding non-administrative difficulties, related to the current low productivity and insufficient international competitiveness of Moldovan companies (even in traditional markets of Russia and Belarus). The variety of issues, affecting the ability of local producers and exporters to compete effectively in the segment of fresh fruits and vegetables, were analyzed in a series of studies presented in the section "Review of Recent Literature" above¹⁶.

In the context of competitiveness analysis of Moldovan horticulture, the following three major groups of domestic barriers could be discussed:

¹⁵/ Calculations of export volumes of association members was performed by MAFI's Horticulture Division based on the 2012 data from the foreign trade database of the Moldovan Customs Service and the lists of association members.

¹⁶/ For the analysis of specific barriers for Moldovan horticulture see, for instance, "Priority Regulatory Con-straints for Moldovan HVA Sector and Recommendations for Their Removal". CIBER Final Report, DIA, September 2012.

- a. Difficulties with the product (insufficient quantity of marketable varieties, quality consistency, poor appearance, inadequate packaging, etc.);
- b. Difficulties with access to markets and effective distribution (lack of modern consolidation centers, cold storages at logistics centres, long-term contacts with perspective buyers related with modern distribution channels);
- c. Difficulties with product promotion (a lack of cooperation in international marketing and branding, insufficient information about Moldovan products and perspective counterparts, low presence at major horticulture trade shows, etc.).

These barriers are closely related with the underlying issues of:

- Organization of agriculture (predominance of small and micro, land fragmentation, lack of cooperation of Moldovan producers)
- Insufficient infrastructure development (irrigation, on-field and post-harvesting equipment)
- Difficulties with agricultural inputs (plants varieties, fertilizers, means of plants' protection, tec.)
- Difficulties with the marketing information, knowledge and skills
- Difficulties in obtaining credit and attracting investment for agricultural projects.

The barriers the most frequently mentioned by the respondents in May 2013 and the highly ranked by the experts are discussed in the sections below.

2.2 Post-Harvest Infrastructure Development

2.2.1 Current Situation

During interviews with Moldovan producers and exporters the lack of post-harvesting infrastructure was highlighted as a major obstacle for both maintaining the current market share in the traditional markets of Russia and Belarus (given the pressure of competitors) and expanding exports to new potential markets. Producers mentioned the following types of lacking equipment and infrastructure:

- Pre-cooling units;
- Cold storages;
- Washing, calibration and sorting equipment;
- Packaging lines;
- On-field networks (power grid, water supply, feeder roads) for all of the above.

PRE-COOLING FACILITIES

This type of equipment is required to prolong storage life and resistance to the transportation of, primarily, stone fruits, such as cherries, plums, and apricots, as well as table grapes. Pre-cooling is beneficial to pome fruits as well (apples, pears, etc.), but is less critical than for stone fruits.

"I am building a pre-cooling unit to meet the requirements of my clients. They don't have refrigerated transport and when they ship the grapes to Ukraine, pre-cooling is essential for avoiding spoilage and increasing the shelf-life of the product." Vitalie Luchin, Manager, Luchin-Prod SRL

All interviewees mentioned that the length of storage depends on how guickly the stone/kernel of the fruit is cooled to a refrigeration room temperature. Special air-conditioning units with air-blowers are required to complete the task. The respondents (primarily policy makers, TA projects and business service providers) complained that a vast portion of Moldovan producers have the common misconception that loading the fruit in refrigerated trucks does the job of pre-cooling. In fact, the refrigerated truck only maintains the temperature of the fruit at the moment of loading, and does not cool. Few Moldovan fruit and vegetables sold in-season pass the pre-cooling stage: up to 10% of in-season sales by some estimates¹⁷. According to this study's results, precooling could reduce losses by up to 10% for apples and up to 20% for grapes, plums, cherries, apricots and others.

COLD STORAGES

This type of equipment is used for storing fruit and vegetables, either long-term for off-season sales, or short-term, for amassing larger-scale shipments and for pre-sale washing, calibrating, sorting and packaging. Although there has been a serious upgrading of facilities from 2005-2009, when 45 new cold storage units were built¹⁸, bringing the total operational capacity to 100,000 tons, no more than 50% of Moldovan apples pass through a cold chain at the moment¹⁹. A reason for the insufficient use of cold storage is the high cost of such facilities, ranging from 0.75 to 1.5 million Euros for a 2,000ton unit²⁰. Investment costs of 200 USD per ton and operating costs of 5 USD per ton/month have to be returned from profits of 16.3 USD per ton/month for apples and 23.4 USD per ton month for grapes, corresponding to 3.3 years and 4.7 years of payback (cost

^{17 /} USAID's PBDA (2008): "Current State of Moldovan Cold Storages for Fruits and Vegetables". Analytical Report. p. 7

^{18/} USAID's ACED (2011): "Apple Value Chain Study". Analytical Report. Chisinau. p. 27

¹⁹/ MAFI's Marketing Information Center (2013): "Information Note on Apple Exports". Information Note. May 2013. Chisinau. p. 3.

²⁰/ USAID's PDBA (2008): "Current State of Moldovan Cold Storages for Fruits and Vegetables". Analytical Report, Chisinau, p. 5

recovery rates). For rates between 4 and 7 years, the state support programme consisting of reduced interest rates, investment guarantee programs, etc. might be supportive²¹. Investments in cold storage facilities should also take into consideration the time periods when additional price gains from the prolonged storing are not covering variable costs (as for electricity) and opportunity costs of non-working capital.

WASHING, CALIBRATION, AND SORTING EQUIPMENT

This type of equipment is required for entering more demanding segments of export markets, including the supermarket channel in the traditional Eastern markets (Russia, Ukraine, Belarus, Kazakhstan, etc.), where Moldovan producers are currently selling their products mainly in wholesale or street markets, and all channels in Western Europe (Romania, Germany, UK, etc.) and other potential markets (North Africa, Middle East). Modern conveyer type lines use water as a means of locomotion and provide automatic washing, calibration and colour sorting of fruits. A modern hard fruit (apples, pears) grading line can start at 150,000 USD²², or double that amount (300,000 USD) if automatic sorting is included – an investment that is too high for the majority of small and fragmented local agricultural producers, who do not have a big enough production to justify such an investment. According to a recent study²³, just five modern grading lines exist in the country.

This small number runs contrary to the economic rationale of a installing a grading and sorting lines. At an investment cost of 300,000 USD and a capacity of 2,000 tons per season (approximately 600 tons/month), the cost of grading and sorting for one ton of hard fruit is 150 USD. In comparison, the lost profit on sales to EU markets (apples sold in the supermarket channel), which require grading and sorting, is 270 USD per ton (a cost recovery rate of 0.6 years), while the lost profit on apple sales to the Russian supermarket channel is 54 USD per ton (a cost recovery rate of 2.8 years).

PACKAGING

A lack of adequate packaging is also mentioned by Moldovan producers and exporters on their list of top barriers to foreign trade, although sometimes it is difficult to separate issues with "packaging" itself and a wider issue of pre-sales preparation - sorting, pre-cooling, homogeneity of quality. Overall, the adequate packaging of fresh fruits and vegetables should ensure three key functions:

- a) protection
- b) convenient containment for post-harvesting, handling , transportation, and
- c) identification.

For some varieties (berries, table grapes, peaches) the packaging is also important to improve appearance and increase visual attractiveness of the product on store shelves.

"I've brought various samples of modern packaging currently unavailable in Moldova from Italy – to be able to deal with serious customers you should offer a competitive product"

Iurie Bivol, Director, "Fructagrocom"

The importance of packaging increases constantly due the rising expectations of international customers, and because of the introduction of new post-harvesting technologies. Horticulture packaging must be strong and durable as the goods are packed in conditions of high moisture and often - low temperatures. Although in international markets the cost of packaging has escalated sharply in recent years, poor quality, not recyclable, lightweight containers, which can be easily damaged by handling or moisture, are no longer tolerated by buyers. In the Russian Federation, one of the leading export markets for Moldova, buyers are less and less ready to accept produce in wooden boxes from Moldova because of additional fees taken by local authorities for their utilization.

The share of the packaging in the producer costs varies dramatically, depending on the type of packaging, product, price fluctuation, volumes, target market segment, and requirements of the customer. In the UK, for example, some supermarket chains recommend specific packages' suppliers, what often doubles the cost of packaging for a farmer. In Moldova, the share of packaging in the apple sector (mostly wooden boxes for 12-18th kg) represents 15 – 30% of the producer costs (depending on the market price for apples).

The key function of packages in Moldova is *protection*. For this purpose, the following major types of packages are currently in use in Moldovan horticulture:

²¹ / Expert opinion of Joern Rieken from UNDP.

^{22/} USAID's ACED (2011): "Apple Value Chain Study". Analytical Report. Chisinau. p. 29.

^{23 /} IdemUSAID's ACED (2011): "Apple Value Chain Study". Analytical Report. Chisinau. p. 29.

- wooden boxes of various standards (mostly, produced locally)
- cardboard boxes (mostly imported often "second hand", or made of imported cardboard)²⁴
- returnable plastic crates (imported, often provided by purchasers)
- small non-returnable retail plastic boxes (produced locally).

Large *containers* enclosing horticulture products in units convenient for handling and distribution, with widespread use in modern import-export operations; returnable plastic trays and boxes; fruit bags (usually used for table grape, cherries, etc.); produce socks (for delicate fruits); soaker pads (for moisture and juice absorption) are currently barely used in Moldova as almost 90% of its horticulture products are still sold in bulk at open markets in Russia and Belarus.

As a result of using a low quality, non-standardized packaging, Moldovan companies involved in the production and trade of fresh fruits and vegetables, face substantial losses from spillage and reputational risks, and are not able to approach modern distribution channels. Almost all the companies visited reported cases of partially and even fully spoiled shipments due to packaging failure. Several respondents mentioned issues with using boxes, produced with local cardboard: because of its insufficient density and low durability, the shipments of fruits completely lost their trade value en route to foreign markets. That is why, some companies, such as members of "MoldovaFruct" association, have already tested out the possibility of producing fruit boxes locally from imported cardboard, despite the fact that such a cardboard is of the subject of a 12% import-duty.²⁵ Overall, the losses of Moldovan exporters because of damaged packaging may be assessed in 5% - 10% of the total export volume.

According to the modern *identification* requirements in the international trade of fresh fruits and vegetables, the package must identify and provide useful information about the produce. It is customary (and may be required in some cases) to provide information such as the produce name, brand, size, grade, variety, net weight, count, grower, shipper, and country of origin. It is also becoming more common to find included on the package, nutritional information, recipes, and other useful information directed specifically at the consumer.²⁶ Universal Product Codes (UPC or bar codes) may be included as part of the labeling. UPCs are used more and more by packers, shippers, buyers, and retailers as a fast and convenient method of inventory control and cost accounting.

In Moldova, traditional, small, black and white labels, with limited information on product and producer are usually used for identification purposes. Overall, the marketing and promotional function of the packaging is currently at a very early stage of its development although local producers and exporters understand the importance of functional, attractive and durable packaging for accessing new potential markets in Europe and Middle East, and in getting into the higher market segments in the traditional markets of Russia and Belorussia.

ON-FIELD NETWORKS: POWER GRIDS, WATER, FEEDER ROADS

This type of infrastructure is required to service the post-harvesting equipment mentioned above. Building new on-field post-harvesting units is problematic if the current constraints regarding projects approval and especially connection to networks are not removed. For instance, the producer has to finance all the costs of extending a power line from the main grid to the onfield site of the post-harvest unit, with the power grid operator having zero participation, and then has to pass the new power line to the balance sheet of the power grid operator (Moldova's current safety regulations in the energy sector prohibit non-specialized companies, e.g. agricultural producers, from running power grid equipment and networks), which can then add its depreciation to costs and compensate the depreciation through increased tariffs, according to methodology currently applied by ANRE, the Moldovan power sector regulator.

The producer can build an artisanal well to ensure a water supply, which is also costly, but cannot then use the water for irrigation (this is specifically forbidden by the Water Code and the Law on Water which replaces it in October 2013).

Finally, the producer can build feeder roads at its own expense (roads linking the town to the site of agricultural producers), but then if cooperation with neighbouring land owners is lacking, the producer can face a situation of the road being used by others without paying or a situation where no road will be authorized since it

²⁴/ As noted in Value Chain Analysis and Market Study in the Fruit and Vegetable Sector in Moldova

Final Report: Analysis of HVA Constraints, Opportunities and Requirements, Chemonics International, Millen-nium Challenge Corporation, 2009, Moldovan packaging producers "Moldcarton" and the "Chisinau Cardboard Factory" do not yet produce open-type high-quality cardboard packaging materials, what represents constraint for Moldovan exporters [p. 78].

²⁵/ In Turkey, the materials used in the production of good that will be exported are exempt from the import-duty.

^{26 /} North Carolina Agricultural Extension Service: http://www.bae.ncsu.edu/programs/extension/publicat/postharv/ag-414-8/

is a 'capital' construction and requires approvals from local authorities and land owners which take a long time (according to current Moldovan laws and regulations, building permanent constructions (roads, buildings) on agricultural land requires the transfer of land from agricultural to industrial use, with the preliminary approval from local and, occasionally, central authorities). Local authorities themselves rarely build local infrastructure and feeder roads, given the existing tax structure where few tax receipts are available at the local level because they are primarily used for medical and education purposes. Except for a small project by IFAD that has provided up to 1 million US dollars per year in the last 5 years which was primarily used for the construction of feeder roads, there has been no other major investments in feeder roads.. Given this constraint, producers are faced with the only option of building the post-harvest infrastructure in urban areas.

2.2.2 Case Studies

PRE COOLING FACILITIES

The Davidescu farm is building a pre-cooling unit in Southern Moldova for its apricot, cherry and plum or-chards.

"We realize the importance of pre-cooling. Actually, this is why we almost completed the pre-cooling unit even before our orchards have given the first fruit."

Mr. Vitalie Gorincioi, Director, Farmprod SRL

The Luchin farm near Budesti village in Central Moldova is currently building a pre-cooling unit for post-harvest processing of its table grapes. The Zaharia farm in North-Central Moldova has a pre-cooling unit at its cold-storage. The Gorncioi farm in Southern Moldova is currently building a pre-cooling unit too.

COLD STORAGES

The Trancanu farm in Edinet, Northern Moldova has built in 2011 a 2 000 tons unit for storing apples for about 800 thousand USD. The unit has no controlled atmosphere. The unit was built by a Moldovan engineering company on a greenfield site. The producer mentioned design errors causing 10% of cold storage space to remain unused.

The Gorasov farm in the same town has built a controlled atmosphere storage for 1,200 tons that costs more than 600,000 USD. The unit was built by a Romanian engineering company on a former industrial site.

Both farmers mentioned the small value added from controlled atmosphere and instead used special sprays for extending the storage life of apples (they cover the apples with a thin hermetic film).

"Having a cold storage is an element of control. You are not forced to sell the apples in season, you can choose the buyers, you can store other farmers' apples to amass larger shipments. It's a win-win situation."

Anatol Trancanu, Nic-Ol SRL

The Jembei farm in Boscana, Central Moldova, also has a 1,500 ton unit built by Moldovan companies. During visits in April only a few apples remained in the three cold storages, all of good quality. Other interviewees, such as the Davidescu farm in Southern Moldova, Zaharia farm in Orhei, Central Moldova, and Chilianu farm in Central Moldova, also have 1 000 and 2 000 tons cold storage units. Mr. Trancanu mentioned that in 2012 at harvest the price of apples was 3 Moldovan lei (24 US cents) per kg, while in March-April 2013 he was selling apples even on the local market at 10 Moldovan lei (80 US cents) per kg. The export price was even higher.

Many of the interviewees mentioned being approached by buyers from Russian supermarket chains, but complained that due to the limited capacities, Moldovan producers could not provide required volumes of supply. Respondents mentioned the Italian experience, where regional wholesale centres amass up to 20,000 tons of fruit in cold-storage complexes, as a potential solution for the entry to the Russian supermarket channel.

Picture 1. Cold storage unit at Trancanu farm (apples)



WASHING, CALIBRATION, AND SORTING EQUIPMENT

Only one interviewee, the Gorasov farm, had a washing and grading line installed, although the unit had no sorting ability. Many producers are using obsolete mechanical (not-water-based) lines, which damage the fruits. Many respondents, including Mr. Chilianu, Mr. Davidescu, and Mr. Zaharia, stated the intention to buy sorting lines, primarily as a response to market pressure - better-looking Polish apples filling the Russian whole-sale markets, and the need to access to supermarket channels with higher requirements.

So far, only one respondent, the Gorasov farm, has attempted to export apples to the UK in 2012. Another respondent, Mr. Chilianu, had a test-exporting to the Middle East (UAE). In both cases apples had to be manually calibrated and sorted. Lack of adequate packaging and sorting, combined with the inadequate storage practices, lead to substantial losses during transportation in both cases.

All respondents stated that the entry to the EU and other new international markets is almost impossible without good sorting lines.

"The grading/sorting line we are using, I have seen it in Holland in the agricultural museum. They told me they were using them in the 30s and 40s (smiles)."

Nicolae Trancanu, Agronomist, Nic-Ol SRL

"This is probably the first and only water-based automatic grading line in Moldova. I may be wrong, but I am not aware of other producers in Moldova using one."

Mr. Cornel Sitaru, Manager, Gigagom AG SRL

PACKAGING

Nic-OL, SRL a medium-size apple producer from the "apple belt" in northern Moldova – received a request in the autumn of 2012 to prepare a test shipment to a new market in the Middle East. The customer – a middle-man company – explained in detail how the shipment should be prepared to be in compliance with the retail chain requirements. The XYZ owner used wooden 12-kg boxes but separated each layer of apples with a light cardboard sheet. Also, each apple was marked with a label, ordered locally specifically for this shipment (please, see pictures below).

As a result of having an adequately packaged and labeled apples, the shipment was sold 30-50% above average market price, what with consideration of extra packaging expenses still leaves a reasonable 25-40% price increase.



Picture 2. Old sorting line at Trancanu farm



Picture 4. Apple labeled for export sale



Picture 3. New grading line at Gigacom farm



Picture 5. Formation of export shipment

ON-FIELD NETWORKS: POWER GRIDS, WATER, FEEDER ROADS

In fact, all of the cold storages visited during the interview process (those at Trancanu, Gorasov, Jembei, and Zaharia farms) were located in-town, at least 3 km away from the actual orchards.

"Had I not used the site of a Soviet-era industrial cold storage, and had I wanted to build a cold storage on a green field, away from the village, I would have never obtained all the permits and gained access to all these networks (power, water, sewage, roads n.a.). Not to mention the transfer of land from agricultural to industrial use, which has to pass through the Government."

Mr. Gheorghe Jembei, Director, Ecou-Meridian SRL

On the other hand, one of the interviewees, Mr. Luchin, was building a pre-cooling unit on-field and did not mention any significant problems with connection to networks, but this was mainly due to a small size of operations and a very good location: close to main roads (the farm is 100 m from the Chisinau-Vadul-lui-Voda high-way), water pipeline (the Nistru-Chisinau water supply pipeline passes through his land), and the power grid.

2.2.3 Regional and International Experience

COLD STORAGES, CALIBRATION, SORTING

In **Serbia**, most new apple orchards are a recent phenomenon – the country doubled its apple production in the last 5 years and has an annual production of about 240,000 tons. The cold storage capacity has not kept pace, but the situation is likely to change considerably in the next 5 years.

Overall, Serbia has a very large storage capacity for frozen fruit and foods (600 000 tons), including 90 000 tons for frozen raspberries (a third of world production and 65% of imports to the EU). With fresh-fruit cold storage, the situation is different: Serbia has 50 000 – 60 000 tons of modern cold storage capacity for apples, pears, and other fruits²⁷, 25% of the output may be stored in the facilities with controlled atmosphere (CA). There is little data available on the number and percent of fruit that passes packing houses with grading, sorting and packing lines, but one can assume a similar percentage to that of fresh fruit passing the cold chain, given that most packing house are built together with cold storages.

Croatia has a 34 000-ton cold storage capacity²⁸ and 95,000 tons of annual apple output, plus 50,000 tons of plum, peach and nectarine production. Depending on what fruit are stored for off-season sales, the share of fresh fruit passing through the cold chain ranges from 25% to 35%. The data on packing houses is missing, but one can make a similar assumption to that for Serbia – that the share of fruit passing through grading, sorting and packing is similar to the share of fruit passing through cold storages.

Ukraine has 58,000 tons of modern cold storages, uniformly spread around the country, with the Southern region holding a slightly higher share (21,000 tons or roughly 1/3 of the total)²⁹.

The total fruit production in the country was estimated at 298,000 in 2010, which brings the share of fruit passing the cold chain to 19%. There are no data on the share of fruit passing sorting and grading, but the share of supermarkets in total food sales has reached 43% in 2011-2012³⁰. Given that the inertia of buying fresh fruit and vegetable on open street markets is higher than for other food products, one can estimate a 1/2 of that amount for fruit and vegetables, or roughly 20%. This figure, consistent with the share of fruit passing the cold chain, can be used as a rough estimate of how much fruit and vegetable production is passing sorting and grading.

Canada has 170,000 tons of cold storage capacity, mostly (130,000 tons) with controlled atmosphere (CA). In comparison to 2011 apple harvest of 390,000 tons, the cold storage capacities could accommodate 44% of the total output.

PACKAGING

Packaging fresh fruits and vegetables is one of the more important steps in the long and complicated journey from grower to consumer. Bags, crates, hampers, baskets, cartons, bulk bins, and palletized containers

²⁷/ Tomislav Jemric, Zoran Ilic (2012): "Present State of Cold Chain and Postharvest Loss of Fruits and Vegetables in Croatia and Serbia". Agriculturae Conspectus Scientificus | Vol. 77 (2012) No. 1 (1-4). University of Zagreb. p.

²⁸/ Idem

²⁹/ USAID (2011): "Study of the current state and development tendencies of wholesale agricultural markets and logistical centers in the Southern region of Ukraine". Kiyv. pp. 18-19.

^{30/} USDA GAIN Report (2012): "Ukraine Exporter Guide 2012". Report Number UP1241. Kiev. p. 14

are convenient containers for handling, transporting, and marketing fresh produce. More than 1,500 different types of packages are used for produce in the U.S. and the number continues to increase as the industry introduces new packaging materials and concepts. Although the industry generally agrees that container standardization is one way to reduce cost, the trend in recent years has moved toward a wider range of package sizes to accommodate the diverse needs of whole-salers, consumers, food service buyers, and processing operations.³¹

The following packaging requirements are becoming more and more important in the export-import operations:

- Recyclability/Biodegradability many export markets have waste disposal restrictions for packaging materials, which are becoming stricter; many of the largest buyers of fresh produce are also those most concerned about environmental issues; the tendency is to switch to recyclable or biodegradable packages, or both.
- Sales appeal buyers give preference to packaging with high quality graphics, multicolor printing, distinctive lettering, and logos.
- Shelf Life it is expected that the product intended to be in a high market segment should have a packaging (often custom engineered) to extend shelf life and reduce waste.

Among the regional competitors the obvious leader in applying these requirements to fresh fruits and vegetables packaging is Turkey, followed by Serbia (please, see pictures below). Ukrainian producers of horticulture are in a similar situation to Moldovan.

2.2.4 Costing Assumptions

Pre-cooling. According to producers, lack of precooling leads to a 10% spoilage rate for in-season shipments for apples and 20% for table grapes and stone fruit (plums, cherries, apricots). Spoilage also leads to the need of disposal of the compromised load at destination markets, which implies extra costs. The Zaharia farm has shipped apricots to Belarus and has lost a truck-load of apricot due to the lack of precooling. Mr. Luchin mentioned that pre-cooling table grapes could increase the shelf life of its table grapes, mostly shipped to Ukraine in non-refrigerated minitrucks, by at least a week. Irrespective of whether the producers organize the shipment themselves or pass the risk of spoilage to the buyer, the lost margin stavs at 10-20%, from either loss in quantities during transportation or lower prices paid by the buyers to account for such losses. Spoilage losses due to the lack of pre-cooling affect only in-season sales. Based on producer estimates and data from MAFI, 50% of apples and 70% of table grapes and stone fruit are exported in-season, mostly right from the orchards, and the remaining are stored and sold off-season. Avoiding spoilage is a benefit. The cost of avoidance consists of investment in pre-cooling units. In the costing table at the end of this paper, the number of units is calculated based on a 2,000-ton capacity per unit per season and a unit cost of 300,000 USD. The table below provides additional calculations regarding the efficiency of pre-cooling units. The cost recovery rate for apples is the highest, due to lower spoilage rates, and is equal to 7.6 years. For table grapes and stone fruit the rate is around 2 years. To justify an investment in a pre-cooling unit, a producer has to sell 15,000tons of apples and 4,200-4,300 tons of table grapes or stone fruits. A producer that ships 1,000 tons of apples inseason would recoup its investment in 15 years, while a group of 5 similar-size producers – in just 3 years.



Picture 6.
Samples of Turkish Packaging:



³¹/ North Carolina Agricultural Extension Service. http://www.bae.ncsu.edu/programs/extension/publicat/postharv/ag-414-8/





Picture 6. Samples of Turkish Packaging:





Picture 7. Samples of Packaging Serbian Fruits

Fruit	In-Ship. Loss %	Export Price \$/ton	Lost Sales \$/ton	Unit Operat. Costs \$	Lost Profit \$	Pre- cooling Invest. \$/ton	Payback (cost recov.) years	Invest. Cost \$	Break- Even tons
Apples	10%	272	27	7.5	20	150	7.6	300,000	15,228
Table Grapes	20%	390	78	7.5	71	150	2.1	300,000	4,255
Stone Fruit	20%	381	76	7.5	69	150	2.2	300,000	4,367

Table 1. Calculation of Efficiency of Pre-Cooling Units for Various Fruits

• Cold storage. Insufficient cold storages lead to lost margins from off-season sales. Late off-season prices (April) can be 3 times higher than in-season prices, as was the case in 2012-2013. The price differential is shaky, however, and depends, beyond the supply/demand ratio, on other, non-economic factors, such as the Russian admission to WTO and the consequent lower import duties for Polish apples. Based on producer interviews, a 50% conservative additional margin is estimated for off-season sales in comparison to in-season sales. Currently, only 1/3 of fruit is exported off-season, which implies a lost 50% margin for the 2/3 exported in-season, at lower prices. Earning higher margins from off-season sales is a benefit. The cost of avoidance consists of investment in cold-storage units. The number of units is calculated based on a 2

000 tons capacity per unit per season and a unit cost of 1 million USD.

Washing/Grading/Sorting lines. Insufficient washing/grading/sorting lines result in lost sales (with higher profit margins) through the supermarket channel of the Russian market and lost sales (with even higher profit margins) to the EU markets. The Russian supermarket channel offers prices 20% higher than the wholesale markets³². It is assumed that 30% of sales can be re-directed to the supermarket channel in the next 5 years, primarily to offset the declining share at wholesale markets due to a Polish 'invasion'. The EU markets have prices 100% higher or more compared to the current Moldovan export prices. It is assumed that 20,000 tons of apples can be re-directed from

32/ ACED (2011): "Apple Value Chain Study". Analytical Report. Chisinau. Annexes C1 and C2.

Russia toEU markets in the next 5 years following the negotiation of a 20,000 tons quota for non-minimumentry-price access to the EU market within the framework of EU-Moldova Deep and Comprehensive Free Trade Agreement. Gaining access to higher prices in the Russian and EU supermarket channels is a benefit. The cost of access consists of investment in automated calibration and sorting units. The number of units is calculated from a 2,000-ton capacity per unit per season and a unit cost of 500,000 USD.

- **Packaging**. Currently, losses of Moldovan producers related to failure in packaging may reach up to 5-10% of export value (more than \$3 million based on 2012 sales figures). Better packaging helps ensure the guality of the product, facilitates marketing and opens better market opportunities as described above. Currently, approximately 1/3 – 2/5 of the total apple harvest could be sold as a high quality product (1 sorting grade) worth sophisticated packaging; for the table grape this share may be higher, as well as for stone fruits, which is reflected in the Costing table in the Annex 1. For costing purposes, the costs and benefits associated with the improved packaging are reflected in the "improved grading and packaging for the new channels". However, what is perhaps even more important is this: without modern packaging Moldovan producers and exporters will not be able to keep and expand their market share in the international markets, so investment into modern packaging lines and materials is a prerequisite of being an active market player in the current fresh fruits and vegetables global markets.
- Networks. Difficulties in connecting to existing networks and the need to build new networks in some cases can add up to 20% to the cost of the new investment, according to producers. Such costs represent a mark-up to the blueprint cost of the investment. A conservative 10% mark-up will be used for the cost-benefit analysis. Per calculations in p. 2.2.1 above, washing/grading/sorting has the shortest cost recovery ratio, followed by cold storages. Correspondingly, power networks and water supply networks will have the highest impact on producer incomes. Feeder roads will have the lowest impact, although the payback for roads will always be the longest due to their high costs. Cooperation among producers and partnerships with local authorities are necessary to reduce the cost recovery rate of feeder roads.

2.2.5 Recommendations

 Consider supporting post-harvesting infrastructure development (pre-cooling, sorting/calibration lines, cold storages) among the top priority areas of the subsidy fund; foresee the possibility to increase the share of subsidies allocated to this activity (currently, 11% of AIPA funds goes to the purposes of supporting post-harvesting infrastructure - MAFI³³, AIPA).

- Increase the percent of refund from the state subsidies fund for post-harvesting investment from the current 10% of the cost of equipment to at least 30% by the end of 2020 (MAFI, AIPA).
- 3. To establish platform for public-private partnership (MAFI, professional associations, private companies) to support the development of cooperation in postharvesting and effective resource management; provide advice on post harvesting processing and quality management, effective management of post-harvesting facilities, consolidation of shipments and sales organization, contract negotiation, etc.; strengthening capacities of professional associations and extension services in the area of support to post-harvesting cooperation (MAFI, RENO, PEA, DP).
- 4. Consider an opportunity to create additional incentives for modern post-harvesting infrastructure development; analyze the possibility to remove VAT on the imports of the main post-harvesting equipment and its components (MAFI, PAR, MOF, TI, CS); support the creation of producer groups aimed at post-harvest infrastructure development through preferential access to state subsidies, support of donor-funded projects, elimination of VAT for business transactions between members of producers groups (MAFI, AIPA, DP, PAR, MOF, TI);
- 5. Support the dissemination of information about technological innovations in the post-harvesting operations on the MAFI website, through professional associations and extension services. Raise awareness of small and mediums farmers about the opportunities in post-harvesting operations available in their locations using capacities of professional associations, MAFI, and industry leaders; disseminate through local media and agricultural extension services success stories and lessons learnt regarding importance of modern post-harvesting for international marketing and sales (MAFI, AIPA, RENO).
- Identify possibility of municipal/state co-financing of feeder roads' construction to on-field clusters of producers that possess post-harvest infrastructure (MAFI, MRDC, ARD).
- 7. Simplify the administrative procedures related to construction permits and on-field infrastructure connection to electric grids: a/ For construction permits: expertise clearance could be requested just for the projects of specific categories (with anticipated adverse impact on health, work safety, environment); other construction projects could be cleared following simplified procedures); several location clearance procedures (from FP, HA, and MOEP) could be replaced with one document issued by the Municipal Planning Department on the basis of planning and zoning documents; the construction completion act may be issued by one special commission. The time for pro-

³³/ It is anticipated that the first organization mentioned in the list of key stakeholders will take a leading role in im-plementation of recommendation.

cessing requests by the HA and municipal services, as well as for new object registration could be considerably shortened with a more efficient work organization and introduction of e-Government systems with shared data-bases. b/ Connection to electric grids: similarly to issuing construction permits, the administrative procedures could be streamlined and the processing time shortened. For example, the contract with an electrical company (processing time normally requires 5 working days) may be prepared during the submission of application for electricity connection, and automatically activated upon obtaining a permit from ANRE; time needed for obtaining an operation permit may be shorten to 5 calendar days, etc. (MRDC, MOE, ANRE, HA, FP, AM, MOEP, municipalities). In close consultations with professional associations to carry out assessment of modern requirements to the packaging og fresh fruits and vegetables in the perspective markets; start developing packaging improvement action plan (MAFI, MOE, PEA, CTI, DP).

- 8. Organize a business-to-business platform, consisting of "Moldcarton", "Chisinau Cardboard Factory", "SimcoEuro", and other packaging producers, and fruits producers and exporters; identify key opportunities and barriers to local industry development, and to elaborate relevant action plan, including possible financial and non-financial incentives for local production of modern packaging with special preferences to recyclable and biodegradable materials (PEA, MOE, MAFI, CTI, DP).
- 9. Consider an opportunity to eliminate import duties on modern packaging and packaging materials (MAFI, MOF, TI, CS).
- 10. Support the dissemination of the latest innovations in the packaging sector, making available studies on packaging at ministerial websites, conduct trainings, modern packaging demonstrations through the channels of professional associations, extension services, and by promoting participation of Moldovan participants in packaging trade fairs and other professional events, like for instance Fruitech Innovation "Processing, Packaging, and Logistics to Consumer" to be held in November 2013 in Milan, Italy, "Fruit Logistica", Feb. 2014, Berlin, Germany, etc. (PEA, MAFI, MOE, MIEPO, DP, PEA).

2.3 Support to Land Consolidation

2.3.1 Current Situation

The land reform in the 1990s and post-land reform development has resulted in a polarized agricultural structure with few large corporate farms and many very small and fragmented family farms. The average land holding size was 1.56 hectares, normally distributed in 3-4 parcels. In practice, however, many landowners received more than three plots of land against their land shares. According to the 2003 World Bank survey of household plots, 53% of respondents had more than three plots of lands and the same year survey of the USAID-funded Private Farmers Assistance Programme, revealed that 55% of farmers reported 3-6 parcels and 19% reported more than 6 parcels.³⁴ The inherently small holdings were further fragmented into still smaller parcels in scattered locations.³⁵

During interviews of Moldovan agro-companies carried out within this National Study, respondents mentioned a land fragmentation and related difficulties with a land consolidation among the top constrains limiting expansion of Moldovan horticulture export, mostly because of their negative impact on the possibility to create homogenous plots of land large enough to introduce modern agriculture technique and to build post-harvesting facilities. Among other reasons, the cross-pollination with inappropriate varieties, the spread of weeds, soil contamination with low quality fertilizers and chemical means of plant protection were also mentioned. Overall, land consolidation, which is needed for more effective horticulture organization, was time and resource consuming for the respondents.

"It took me more than 10 years to form land plots big enough for modern orchards – landowners are often absent, not willing to cooperate, ask incredibly high prices. You still can see this alien semi-abundant land plot inside my orchard. And I should keep a land reserved for a road to this land plot. Hopefully, the new legislation will help to manage land better although it's not clear yet how effective its enforcement will be"

Gheoghe Jembei, "Ecou-Meridian"

These concerns of agro-producers are supported with a deeper economic research: economists underline the advisability of reducing the number of plots in a farm of a given size through a land consolidation based upon a registered negative correlation between the number of parcels and productivity of farms measured as farm's income per hectare and farm's income per worker. The research in Moldova revealed that number of plots has a negative effect on farms' income. The share of the sold output clearly increases with farm size. Thus, the commercialization rate of farms smaller than 1 ha is close to

³⁴/ Zvi Lerman and Dragos Climpoies. Land Consolidation as a Factor for Successful Development of Agriculture in Moldova. The 96th EAAE Seminar "Causes and Impacts of Agricultural Structures" 10 – 11 January 2006, Tänikon, Switzerland, The Hebrew University of Jerusalem, Discussion Paper No. 10.05
³⁵/ D. Cimpoies. The Economics of Land Fragmentation in the Individual Farm Sector of Moldova. Stința agricolă, nr.2/2010.ISSN1857-0003, p. 102. zero and these very small farms can be regarded as pure subsistence operations. On the other hand, farms larger than 5 ha can be regarded as practicing commercial farming: they sell more than 30 percent of their output. Moreover, research in Moldova revealed that the number of parcels held by an operator, also affects the level of commercialization. As the level of fragmentation increases (parcels per ha), the commercialization rate decreases: for example, family farmers operating one consolidated plot sell about 30 percent of their output, whereas those with highly fragmented holdings sell less than 5 percent of the output. These results suggest that relatively large consolidated holdings stimulate commercial farming, while small fragmented plots lead to subsistence operation, with farm output used entirely for family consumption. Other statistically significant factors affecting farm income are farm costs and the number of employed workers: larger revenues are generated by larger farms, which involve more workers.³⁶

2.3.2 Case Study: Unfinished Land Consolidation

The owner of the company "Ecou-Meridian", located in central Moldova, has started his entrepreneurship as a wholesaler in the import business, and after earning a certain capital, switched his attention to agricultural production, and specifically to fruit production. Currently he has more than 100 ha of orchards, producing mostly apples, cherry, and plums, a waste portion of which is exported through intermediaries. His agricultural business is well-organized and supported with the necessary equipment and infrastructure. The company has a cold storage, and the owner is planning to install a modern sorting line and to organize its own production of the necessary packaging. The company is currently working on the rehabilitation of an irrigation pond, which is necessary for powerful irrigation system. Planting materials were prepared by the Moldovan experts under the company's supervision, and the owner does not see any issues with getting quality inputs domestically (the company uses M-26 orchards). He also created a reasonable team of permanently employed workers (about 15 persons), and does not face difficulties with labour. In the opinion of the "Ecou-Meridian" owner, the company currently has two major issues:

- access to credit (the owner cannot provide enough collaterals to ensure needed volume of credit for fast growing company); and
- difficulties with land consolidation.

The consolidation of land plots has already taken more

than 10 years and it's is still not finished.

a/ The "Ecou-Meridian" orchards are widespread on a relatively large geographic area, what complicates and increases expenses due to:

- increased transportation costs for transporting personnel, moving equipment, collecting harvest, etc.;
- extra costs for local electric grids and irrigation network;
- extra expenses for guards.

b/ within the company's orchards there are still plots of land owned by other farmers, what:

- diminishes the land available for "Ecou-Meridian" production as the roads should be organized to provide an access to "alien" plots;
- undermines quality of "Ecou-Meridian" products because of pest, weeds spread and cross-pollination.

The owner of the company will continue his efforts to consolidate land further, and hopes that recent changes in regulations (fines for not cultivated agricultural land) will help him to accomplish his task.

2.3.3 Regional Experience

The creation of a commercial structure of households that meet the modern market-economy requirements is considered by the government of **Serbia** to be among top strategic priorities, including creation of preconditions leading to grouping up of small land-owners and family commercial holdings, particularly through creation of specific land consolidation programme.³⁷ Unlike other countries in the region, Serbia has a long tradition in land consolidation (starting in the mid of 19th century in northern Serbia) but it was only in 1974, when the Law regulating land consolidation works was adopted, and nation-wide consolidation began to be implemented in the whole territory of Serbia, and it was mostly compulsory consolidation.³⁸ In 1992, a Law on agricultural land was enacted, but its progress was limited by the lack of continuity in rural planning, the lack of economic principles and the lack of democratic participation of all actors. Three years later the government, through the Ministry of Agriculture, introduced another Law on territorial planning, enabling a simple form of land consolidation, however, results were still modest. To deal with the multi-dimensional task of land consolidation, the Serbian Minister of Agriculture, Forestry and Water Management requested technical assistance from FAO (considering the Organization's expertise and

³⁶/"The Economics of land Fragmentation"... p. 103, 105.

^{37 /} Stevan Marosan, Maja Trajkovic, Aleksandar Andric, Zoran Knezevic.. Land Consolidation and Rural Develop-ment. (2008), p. 2

^{38/} Vladan Đokić, Stevan Marošan. New Model of Land Consolidation and Rural Development in Serbia. Spatium, 711.3 (497.11), [p. 61-67], p. 61.

experience with land consolidation in Central and Eastern Europe) with the following aims:

- Preparation of a draft of a national strategy for land consolidation;
- Capacity building in land consolidation;
- Design and implementation of a small land consolidation pilot component.

The National Strategy for was finalized in 2007, and it:

- Suggested on needed amendments in legal and regulatory framework;
- Identified agencies and institutions to be involved into the land consolidation process and their responsibilities;
- Established long-term and short-term priorities and implementation schedule;
- Provided assessment of needed budget and funds allocation.

The Strategy for Land Consolidation in the Republic of Serbia recommended to entrust the Agriculture Land Administration (under Ministry of Agriculture, Forestry and Water Management) with a full responsibility for organizing and managing the consolidation process.³⁹ As a result of these efforts, by 2012 the consolidation has been carried out on more than 1.8 million ha of agricultural land or about a third of agricultural area in Serbia.⁴⁰

Similar approaches were implemented in other countries in the region, with a focus on formulation of land consolidation strategy (coordinated with other national agricultural and rural development strategies), development of operational plans, and capacity building for scaling up land consolidation. Operational plans usually foresaw the following interventions:

a/ development of institutional and organizational frameworks (definition of roles and responsibilities of national, sub-national/regional and local governments, and private sector);

b/ legal and regulatory changes (amendments of existing legal framework and new laws and regulations development);

c/ allocation of funds (coming from the EU, specific countries-donors, national, municipal budgets, project own funds other donor-funded programmes);

d/ capacity building, training program design and delivery; and

e/ information and motivation of landowners (incentives, public awareness).⁴¹

In *Lithuania*, the FAO pilot land consolidation project, side by side with the territorial readjustment of plots of land, aimed at the development of sustainable land consolidation mechanism as an essential tool for the development of the integrated rural development. During the period of 2008-2013, it is expected that the average size of the land holding will increase from 12 to 20 hectares.⁴²

In **Armenia** the land consolidation strategy, developed with FAO assistance, was based on the following principles:

- Voluntary implementation of land consolidation;
- Active participation of landowners in decision making concerning land consolidation and its implementation;
- Guarantee of owners' rights as a result of consolidation;
- Informational, technical and legislative support to the landowners;
- Transparency in the land consolidation process.

The strategy also stipulated that land consolidation should be initiated by landowners, the head of the municipality or the head of the region. More than 100 landowners signed preliminary land consolidation agreements where land size and land value were taken into account and land consolidation was implemented via the following mechanisms:

- Exchange of land parcels between landowners;
- Purchase, sale and donation of land plots between landowners;
- Exchange of private land with community land;
- Purchase of community land bordering the private land;
- Lease of community land bordering private land.

The value of land under discussion was identified as a result of:

- Negotiations between private land owners;
- Discussions with the committee of land-owners;
- Valuation of land plots (in cases of private land and

³⁹/ Ibid., p. 2-4

⁴º/ Siemen van Berkum and Natalija Bogdanov. Serbia on the Road to EU Accession: Consequences for Agricul-tural Policy and the Agri-food Chain. CABI, 2012, p. 5

⁴¹ / Land Consolidation in Central and Eastern Europe: a Regional Approach, FAO (2006), p. 2

⁴²/ Birute Kavaliauskiene, Marite Elene Tarvydiene. Problems and Perspectives of Land Consolidation Projects in the Republic of Lithuania. BalticSurveying'11, [p91-98]. p. 91.

community land exchanges) by licensed valuators;

- In the case of alienation of community land, cadastral values were applied.

Further progress with the agricultural land consolidation was slowed down in the country due to political and administrative difficulties and both a lack of funds and political will. Only in 2011, the Government of Armenia approved the farmland consolidation concept, which goes in line with the previously approved Strategy of Sustainable Rural Development (2010-2020), and foresees three stages:

1/ two-year stage, a legal framework and conditions for the promotion of land consolidation should be created,

2/ three-year phase is focused on voluntary land consolidation, and

3/ five-year stage, is focused on establishment of small and medium enterprises and provision of their technical equipment to them (like for instance, within the framework of Japanese donor-funded project).

According to the Minister of Agriculture Sergo Karapetyan, "the main goal of the concept is to address the process of consolidation of farm land, increase the investment attractiveness of the sector and create favorable conditions for improving the competitiveness of exporters and large trade organizations."⁴³

2.3.4 Costing Assumptions

It is not so easy to estimate the value of losses/lost income related with land fragmentation because of varied and often indirect links between different factors affecting organization of production and sales, but also because of the difference in specific conditions and distances in different locations. The productivity gap between operations on technologically optimal land plots and fragmented parcels, which is a factor mentioned by economists who analyze the impact of land fragmentation on agricultural production⁴⁴, also adds uncertainties to the costing exercise.

In a very rough form, the following repetitive costs/ losses of horticulture producers related to the land fragmentation could be considered (with allocation of certain percentage to capital, operational costs, and unearned income):

allocation of agricultural land to internal roads – 2% of land surface;

- increased transport expenses 2-3%;
- extra time for relocation of equipment, labour, etc.
 2-3%;
- additional expenses related to the spread of weeds, land contamination, etc. – 2-3%.⁴⁵

It means that operations on fragmented agricultural lands may be 5-10% more expensive than operations on optimal for certain type of agricultural production land plot.

On average, production costs represent 60-75% of sales in Moldova, or based on 2012 export figures, this production costs represent \$39-48 million. Let us assume, that the land fragmentation affects 50% of horticulture surfaces with associated operational costs equal to \$18,5 – 24 million. Additional costs/losses related with land fragmentation in this case could be assessed in at least \$1.85 - 2.4 million per year.⁴⁶

2.3.5 Recommendations

- 1. Approve and implement the National Land Consolidation Strategy developed in Moldova in cooperation with FAO in 2010-2011 (GOI, MAFI, LRO).
- 2. Create a platform for developing an institutional framework for land management, (possibly building up on the capacities of the State Planning Institute for Land Management) and considering the possibility of creating a network of local land banks, managing state/village land (MAFI, PMO, LRO).
- 3. Create a physical and/or Internet based institutional framework to support land market activities and transactions/leasing registration (possibly within the Electronic Government concept) (LRO, DP).
- 4. Within the framework of the new institutional framework to be created, initiate changes in the legal/regulatory base providing direct and indirect incentives for land consolidation, for example, through the introduction of a new tax regime for agricultural producers based on anticipated crop production (similarly to the 2013 changes in the taxation system of Romania); declaration of "tax registration fee" cancellation for a limited period of time (as was done on a pilot basis in Armenia); exemption from the capital gains tax in case of land plot exchange (currently, both sides involved in the exchange should pay tax on income generated by the land plot appreciation over time); or introduction of a "tax on uncultivated agricultural land", starting from year 3 onwards, with annually gradually increasing tax rates (successfully applied in some Latin American countries), etc. (MAFI, LRO, MOF, TI, DP, PEA).

⁴³ / ARKA, 03.11.2011

^{44/} see for example: D. Cimpoies. The Economics of Land Fragmentation in the Individual Farm Sector of Moldova. Stiintä agricolä, nr.2/2010.ISSN1857-0003

⁴⁵/ own calculations based on data obtained during interviews with local producers.

⁴⁶/ own calculations based on data obtained during interviews with local producers.

2.4 State Subsidy Programme Enhancement

For obvious reasons, local producers and exporters ranked this specific constraint highly. They mentioned both the low level of subsidies but also the low predictability of financial compensation coming from the subsidy fund, what has a negative impact on financial planning and management. Speaking about government support for agriculture, local producers were focused almost exclusively on subsidies overlooking other governmental interventions such as road infrastructure rehabilitation, subsidized extension services and so on.

2.4.1 Current Situation

Moldova has an annual agricultural subsidy programme worth 400 million Moldovan lei (32 million USD) allocated through a specialized payment agency, AIPA, subordinated to the Ministry of Agriculture and Food Industry. This programme is supplemented by per-case additional allocations, such as the 2011 drought-mitigation programme

The purpose of subsidies is established annually by a Government resolution. The subsidies are directed primarily to a partial compensation of investments (after such investments have been made). Only investments made during the calendar year covered by the specific Government resolution are eligible for subsidies. Starting from 2012, the total annual subsidy budget is allocated equally to all eligible applicants, which usually leads to a compensation of a smaller than eligible portion of actual producer's costs. There are no landarea based subsidies (lei per ha), but the Government plans to introduce such practice beginning in 2014 (100

MDL/ha or 8 USD/ha), in spite of a broad analyst consensus⁴⁷ (based on EU practice) that subsidies per ha do not necessarily boost efficiency or promote best practice, but just increase the cultivated areas. The chart below displays the subsidy allocations in 2012. It's worth noting that only 11% of total subsidies were allocated to support investments in post-harvest infrastructure, whose under-development is identified as the number one impediment to expanding Moldovan horticultural exports.

2.4.2 Case Studies

The Trancanu farm has 40 hectares of primarily apple orchards near the town of Edinet, in northern n Moldova. The farm also has a cold-storage unit with a capacity of 2,000 tons. Mr. Trancanu has applied for subsidies for 10 hectares of new orchards planted in 2011 and for the cold storage unit built in 2011-2012. According to the subsidy regulations for the corresponding years, Mr. Trancanu was eligible for 7.4% or 1,130 USD for each ha of new orchards (the average cost per hectare of a new intensive orchard is 15,000 USD). After the subsidy fund's distribution to all the applicants, Mr. Trancanu has received just 4.8% or 730 USD per ha or 65% of the eligible amount⁴⁸. Similarly, Mr. Trancanu has applied for a refund of the cost of his cold storage. The eligible subsidv for a cold storage was 17.8% in 2012, or 125 thousand USD. After the dilution of subsidies, the producer has received just 10%, or 70,000USD. The subsidy that was actually paid was just 56% of the eligible amount.

Such a practice of receiving less than the 'promised' compensation was reported by all the respondents, including, for example, the Moscul and Bivol farms that grow



⁴⁷ / Expert opinion of Daniele Gelz, UNDP.

⁴⁹/ In 2012 producers were receiving 75% of the eligible amount and the remaining was equally distributed after 1 November 2012 based on availability of funds. Since the number of applications was high, almost nobody re-ceived more than 75%. Equally, since many applications were submitted in the last quarter of the year, late applicants did not even receive 75%, but moved directly into the 'equal-distribution' bracket and received whatever was available, such as 65% mentioned here. In 2013, the procedure changed again [this would add to the produc-ers' dissatisfaction with changing rules], stipulating that each producer is entitled to 100% of the eligible amount for applications submitted before the moment when 70% of the subsidy fund is consumed, and to a proportional distribution of the remaining 30% of the subsidy fund after 1 November 2013.

vegetables in greenhouses. With greenhouses, the eligible refund in 2012 was 31% of investment costs, while in reality only 18% (or 58% of the anticipated amount) were compensated. Although the possibility of receiving less than 'promised' is stipulated in the regulation on subsidy and in the subsidy application forms and contracts, producers are complaining about Government 'lying' to them regarding the subsidies.

"We are constantly getting less subsidies than promised. First, they transfer 60-75% of the eligible amount, then they say that the remainder will be paid by the end of the year, if enough money will be left in the Subsidy fund. What kind of investment planning can I make if I am not sure if I will be receiving 60% or 100%? I wish they could change their procedures and selected the best applicants from a list of producers, whom they would pay 100%, instead of spreading the subsidies to everybody, like in Communist times."

Medium-sized Apple Grower

Several producers, have expressed their dissatisfaction with the fact that the subsidy is calculated without consideration of VAT paid by the producer. In defense of AIPA and the Government, the VAT is later refundable from the sale of products, but given the existing practice of hiding real sales figures, much of the VAT is never recovered.

A reasonable complaint regarding the interest rate subsidies was voiced by several producers – Trancanu, Gorasov, Zaharia, Jembei – about the method of calculation of refunds for the interest rate subsidy. According to the methodology valid in 2012, only the accrued interest on the principal repaid in the current year is eligible for refund. It is worth noting that not all interest is refunded, but only the difference between the annual interest rate (15% on average) and the central bank's refinance rate (5% on average, recently reduced to 3.5%). Thus, from a 10 million Moldovan lei loan whose principal repayment constituted, let's say, 1 million lei in the corresponding year, only 10% of interest is refunded, or 100,000lei, although the producer is paying 1.5 million lei in total interest payments in the corresponding year.

Given the peculiarities in the calculation of subsidy refunds and the 'dilution' rule, the complaints of the interviewed agricultural producers about unclear and unfair subsidy rules may be partially granted.

2.4.3 Regional and International Experience

The *European Union* heavily subsidizes its farmers. Agricultural spending, in the form of the Common Agricultural Policy (CAP), is the only national spending item that is completely delegated by member states to the EU Commission in Brussels. In 2007-2013 EU budget roughly 40% of funds were allocated to agriculture. The annual amount of spending can be as high as 40-50 billion Euros. Despite the fact that the CAP represents just 1% of Government spending in all EU member states, it is dwarfing agricultural subsidies of most EU neighbouring countries. Notwithstanding the heavy share of agri-subsidies in the EU budget, CAP has been largely criticized for not maximizing efficiency in agricultural practices and for sustaining non-environmentally practices⁴⁹.

The EU support to agriculture is granted in three major forms:

- Direct payments per hectare (200 Euros/ha in average, depending on country and year);
- Direct subsidies/refunds for various forms of agricultural investment (up to 75% of the cost of orchards or equipment); and
- Market interventions, when CAP guarantees to purchase crops at a certain price, in case falling prices due to the oversupply.

The CAP also includes protectionist measures, such as minimal entry prices for certain agricultural products applied in certain periods of the year, and calculated as the average of internal EU prices in the same periods.

The new common policy for 2014-2020 targets to cap all the payments up to 300,000 Euros per beneficiary to make the programme more inclusive.

Given future competition with heavily subsidized producers from EU member countries, agricultural producers in pre-accession countries are given a CAP-like support in the form of grant programs such as SAPARD or IPARD. Beginning in 2013, countries in the neighbourhood of the EU that sign free trade agreements with EU will also be supported through agricultural grant programmes, such as ENPARD.

Overall, EU agricultural subsidies amount to \$130 per capita (for comparison, Moldova's subsidies are represent just \$8 per inhabitant, or 16 times less).

Ukraine also provides support to local producers in a form of investment subsidies (subsidy fund was equal to \$1.5 billion in 2012). Unlike the EU, the Ukrainian govern-

^{49 /} Expert opinion of Daniele Gelz, UNDP.

ment does not make direct payments to producers (per hectare). The subsidies are directed toward rural development, agricultural education upgrade, livestock, orchards, and agricultural machinery. Priority directions include orchards, vineyards, berry fields, and new cattle and pig farms. Agricultural subsidies per capita are just \$30, or 4 times less than in the EU. Compared to Moldova, Ukraine gives 4 times more agricultural subsidies per capita.

In 2013, **Serbia** adopted a new "Law on Incentives for Agriculture Production and Rural Development," setting a minimum guaranteed amount for incentives to support agriculture and rural development. The Law is associated with a "Rulebook on Payment of Agricultural Subsidies" aimed at setting clear rules for allocation of subsidies and avoiding of potential corruption⁵⁰. The subsidies will be channeled through the Agency for Agrarian Payments to qualified farmers that have registered with the Agency. The Law allocates 5% of Serbia's future budgets to agriculture. In 2013, subsidies make up \$330 million of a total agricultural budget of \$530 million. The main forms of incentives are as follows:

> (1) direct payments (i.e. production subsidies, compensation for agriculture inputs, and credit support);

> (2) rural development payments (i.e. incentives to improve agricultural competitiveness and investments in sustainable rural development); and

(3) specific incentives (i.e. funds to develop a marketinformation system in agriculture, provide extension services, and support science-based projects in agriculture).

Direct payments per ha (\$70/ha, up to 100 ha) will consume \$124 million, or 40% of the subsidy fund. Milk payments (\$.08/liter) for extra-class milk will consume \$52 million (roughly a third of total production qualifies, in line with EU norms). Support for meat and dairy (\$235/ cow) cattle, sheep, swine, poultry and turkey will take up \$50 million.

Other payments will include interest rate subsidies, storage cost subsidies, insurance premium subsidies, support of investments in agricultural production (especially in new orchards, vineyards and hop production), processing and marketing of agricultural products, and assistance for sustainable rural development. A small amount is granted to support organic production and to improve the overall rural economic development of Serbian villages (rural infrastructure and some non-agriculture activities like rural tourism).

The subsidy amount per capita in Serbia is thus amounting to \$45, 50% higher than in Ukraine, 6 times higher than in Moldova, but still 3 times lower than in the EU. **Canada** has an agrifood support budget of \$7.5 billion in 2011/12, or 27% the agricultural GDP. Recalculated per capita, the state support for agriculture amounts to \$214, one of the highest in the world (roughly twice the amount of support per capita in the EU).

2.4.4 Costing Assumptions

1. Subsidies can be treated as a reduction in the investment costs, with consequent downward pressure on operating costs (less depreciation) and producer prices, and higher price competitiveness of Moldovan products on foreign markets. Insufficient subsidies imply higher investment costs. A 12.8% reduction in investment costs to the producers is used in the costbenefit analysis at the end of the study to measure the impact of subsidies.

2.4.5 Recommendations

- 1. Consider agricultural production as a top development priority in Moldova with appropriate budget funds allocation with special focus on strategically important sub-sectors and technological innovations (use of modern agricultural techniques and inputs, post-harvesting, packaging); foresee an increase of the subsidies distributed by AIPA for these sub-sectors (PAR, GOM, MOF, MAFI, AIPA).
- 2. Explore the opportunity to attract funds of the EU "Eastern Neighborhood Programme for Agriculture and Rural Development" (ENPARD) to support an expansion of the state subsidy fund (GOM, MAFI, MOE, MOF).
- 3. Manage AIPA clients' reimbursement expectations regarding reimbursement from the state subsidy fund, pay more attention to the clarification of AIPA policies and rules in this area (AIPA).
- 4. Consider the possibility of revising the distribution of state subsidies: to avoid financial resources dispersion and to support strategically important investments to allocate at least a portion of AIPA subsidy fund (as a pilot initiative) to a fixed amount compensation provided to the strategically important investments on a competitive, tender basis (GOM, MAFI, AIPA).

2.5 Simplification of Access to Credit

2.5.1 Current Situation

Difficulties in getting access to financing were mentioned among top barriers by the local horticulture producers and in a lesser degree – by exporters. The major issues for the potential borrowers are the excessive collateral requirements and lengthy (and costly) bureaucratic procedures related to them. High interest rates and limited and not fully predictable state compensation for agricultural loans' interest rates were also mentioned by the respondents.

⁵⁰/ USDA GAIN (2013): Serbia Adopts Law on Incentives for Agriculture Production. Report No. RB1303. Belgrade. pp. 1-4.

The macroeconomic data seem to confirm producer grievances. At the end of 2012, the share of agricultural loans in the total portfolio of commercial banks was 18%, roughly in line with the sector's share in the country's GDP. At the end of the year, total loans outstanding to the agrifood sector amounted to 5.8 billion Moldovan lei, or 480 million US dollars (see the figure below). Assuming that half the loans are working capital loans, outstanding investments, loans reach 240 million US dollars. Assuming that the average duration of an investment loan in Moldova is 3 years, the amount of new investment loans granted in 2012 was 80 million US dollars. At the same time, 3.1 billion Moldovan lei (or 258 million USD) were invested in agriculture⁵¹. In other words, bank loans financed under 1/3 of total investment needs. The remaining 2/3 were financed through profits, producers' savings and informal financing.

This conclusion is generally confirmed by MAFI through its calculation of the finance gap (working capital and investment needs together) in Moldova's agriculture, as part of the work for its Agro-rural strategy for 2014-2020. According to these calculations, bank loans cover only 1/3 of the needs, supplier credit and subsidies – another 1/3, and the remaining is a financing 'gap', or the deficit in 'external' funding (the difference between demand and supply) that is covered either from profits and private investment, or not covered at all.

2.5.2 Case Studies

A well established farmer with a significant entrepreneurial experience from central Moldova, who has orchards and a cold-storage unit, had taken bank loans to finance both investment in new orchards and working capital needs. Discussing the availability of credit, he pointed out primarily excessive collateral requirements of a commercial bank. Side by side with accepting as collaterals the equipment financed with the loan (at half of the book value), the bank was also requiring extra collaterals - residential and commercial real estate, and other assets belonging to the borrower, such as a personal car. The bank is typically valuing this extra-collaterals at 50-70% of market value, probably considering the option of a 'fire' sale in case of non-repayment.







(Source: MAFI Agro-rural Strategy 2020)

⁵¹/ According to data from the subsidy applications (source: AIPA).

The producer deemed such practices as pure 'abuse' from the banks and mentioned that unfortunately all banks have the very similar approach to collaterals. The farmer mentioned that he could use the services of non-bank financial institutions (such as Pro-Credit Bank, Easy Credit and others, specializing in small business and consumer finance), which have much milder collateral practices but they charge higher interest rates (20-25%), and have a shorter credit tenure.

Moreover, according to the current procedures, potential borrowers have to pay themselves for the services of appraisers.

A young farmer from Ungheni, Central Moldova, has offered as guarantees her 3-room apartment in the capital as well as her parents' house to secure a loan to build a 5-ha super-intensive apple orchard near her native town in central Moldova. Her comments mirrored the complaints of Mr. Jembei regarding the collaterals demanded by the banks, and added the short-term periods (up to 5 years) and high-interest rates (she secured at loan at 16%) as major constraints in securing a loan. She could not understand why the banks are charging such high interests if they are already secured with the collaterals.

"In addition to the equipment that I'm buying with the loan, the bank has required me to put up almost everything I have – cars, a large residential house, and even the dormitory room that I have bought when studying in college a long time ago and that is currently worthpractically nothing. I literally don't understand these kinds of policies."

Gheorghe Jembei, Director, Ecou-Meridian SRL

Ms. Mosul, a small farmer from central Moldova who has one hectare of greenhouses growing cucumbers, tomatoes and bell (?) peppers, was planning to expand her operations and build another greenhouse. In February 2013, she applied for an IFAD credit through a local commercial bank. Borrowing from IFAD provides the advantage of VAT-exempt equipment purchases. In anticipation of the VAT exemption, the farmer cancelled the contract with the local supplier of equipment and signed a direct contract with the Italian supplier of greenhouses. However, the processing of a loan lasted much longer than expected due to the delays in securing the next tranche of IFAD funds to Moldovan commercial banks and, by the time of the interview in the middle of April, the loan had not been disbursed. The farmer was concerned with such a development as she had missed the new tomato season and considered postponing the credit till next agricultural season.

To secure a loan, the producer had again pledged large collaterals. On the positive note, the lending conditions of IFAD credit lines are much milder than that of regular commercial bank loans: 5 years tenure, 13% interest rate, and VAT exemption on purchases of new equipment.

Mr. Furculita is a farmer in Racovat, northern Moldova, with 20 ha of super-intensive orchards. Mr. Furculita has several loans with commercial banks, and his comments were mainly related to the management and risk assessment practices of commercial banks. Mr. Furculita expressed surprise at how easy a commercial bank usually authorizes the leasing of luxury car in comparison with agricultural equipment.

"Agricultural producers don't have the financial literacy for proper accounting of costs and correct calculation of payback and other performance indices. Training them in accounting is as important as training them in technology."

Constantin Furculita, Director, Vitalitifruct-Expo

In the banks' defense, Mr. Furculita also mentioned that many producers do not have adequate bookkeeping, operate in a "grey area," do not show their real incomes, and therefore do not have a credible credit history.



Picture 8. Ms. Moscul's Greenhouses



Picture 9. Mr. Furculita's Super Intensive Orchard

2.5.3 Regional Experience

The major channels of access to credit capital in the region are usually the following:

- 1. Specialized state agencies and funds;
- 2. Commercial banks;
- 3. Non-commercial institutions (credit unions, leasing, insurance companies).

In **Serbia**, financial services for agro-producers have grown and improved significantly in recent years.⁵² Although Serbian farmers used to face standard constrains: limited trust in banking institutions, difficulties with presenting business plans, too high interest rates, issues with collaterals, etc., they have been gradually overcoming due to a more proactive role of the state in implementing agricultural policy, higher engagement of banks and non-banking institutions, development of advisory services and farmer's education. The biggest limitations – a high risk of agricultural production and volatile situation of financial sector are still in place, which seriously limits large, long-term investments.

To increase producers' access to credit markets, the Serbian Ministry of Agriculture established a formal model of a short-and long-term lending programme for agriculture under conditions more favorable than credits available from banks in 2004.

According to the Regulation for Establishing the Programme of Measures for Stimulating the Development of Agricultural Production, funds were variously distributed: partly through the Serbian Development Fund and banks for short term and long-term loans; and partly through the Fund directly in order to finance agricultural processing facilities.

Credit beneficiaries of this system, from 2004-2008, were usually registered agricultural companies (natural and legal persons).

Short-term loans were granted wholly from the budget. The loan amount depended on the amount of land reported in the Register of Agricultural Holdings, and loans were exclusively provided to the natural persons. For the beneficiaries of short-term loans, the interest rate was 5% with a repayment period of 12 months.

Long-term loans were disbursed by commercial banks. Loans were given for specific purposes: building and purchasing of irrigation systems and equipment, purchasing of agricultural machinery, establishing plantations, establishing greenhouses, as well as investing in livestock production. Under this system, banks contributed 10-30% of the capital, and the Ministry of Agriculture provided 70-90% of the capital (in 2004, banks contributed 30% of the capital, and in other years provided 10%). This model of lending was very popular with both banks and agricultural entities, and was available each year through 2007, while from 2008 it continued with minor changes until 2010.

In 2010 a new model of credit support by the Ministry of Agriculture was introduced - interest-rate subsides are provided in order to encourage banks to lend to the sector. The Ministry of Agriculture facilitates very low interest rates to individuals, agricultural households and SMEs via a number of partner commercial banks. Gradually, this new model became less popular with banks, due to its focus on subsidizing only interest and not principal. It is also important that, all subsidized loan programmes have had significant "negative marketing" effects against the commercial banking sector. If annual interest rates of 6-8% for dinar-denominated loans are available from government subsidy programs, commercial (unsubsidized) banks charge 18-26%. Nevertheless, such a tool could be successfully used during the transition period for more economically viable models of agricultural production.

There is also a developed network of non-banking institutions in Serbia, consisting of specialized state funds, integrators, leasing companies, and microfinance institutions (MFIs).

The most important *state funds* in Serbia include:

Serbian Development Fund - 100% state-owned organization created with a goal of encouraging economic development, facilitating balanced regional development, improving the competitiveness of the economy, and encouraging employment. The Fund generally provides very favorable loans, including start-up loans, to businesses and (in a small number of cases) to individuals on a tender basis. The Fund's sources of lending capital, approximately 1 billion Euros, consist of government allocations from earlier years (mainly before 2003), the collection of its outstanding loans and credit lines, as well as income from "commission business" on behalf of the state.

The estimate of agricultural lending by the Fund totals 134 million Euros (approximately 13% of the total lending).

The terms and conditions of these loans are very favorable, up to 5 years provided for debt servicing, a grace period of 6-18 months, and significantly lower interest rates than those for commercial bank loans.

52/ Siemen van Berkum and Natalia Bogdanov. Serbia on the Road to EU Accession: Consequences for Agricultural Policy and the Agri-food Chain. CABI, 2012, p. 55.

The *Indemnity Fund of Serbia (IFS)* - a government entity, established in 2009 responsible for the management of a network of public warehouses for agricultural products, and issuing and trading of warehouse receipts. The IFS does not issue loans directly but rather supports financing through the system of warehouse receipt financing under the MoA. These receipts are guarantees of the quality and quantity of stored goods, and are accepted by banks as collaterals. This type of financing allows lenders to immediately sell off the underlying commodity if a processor or farmer defaults on the loan. The provision of credit products focused on warehouse receipts is open to all banks in Serbia.

The Export Credit and Insurance Agency (AOFI) - an official export credit agency of the Republic of Serbia established in 2005 for the purpose of export promotion through export credit insurance and financing for Serbian export-oriented companies although AOFI also offering two additional financing products: factoring and short-term financing. The Agency's base capital is 60 million Euros. Officially, agricultural loans are deemed to amount to 5% of all AOFI lending.

Vojvodina Guarantee Fund (VGF) – credit guarantee agency, established by the provincial government, which provides guarantees to banks by entering into cooperation agreements with commercial banks. The VGF regularly announces tenders for guarantees for the provision of loans intended for financing small businesses, start-ups, and agriculture, which are applied for by prospective borrowers. To date, the VGF has guaranteed a portfolio of approximately EUR 20 million in the agricultural sector, of which EUR 10 million is current.

Vojvodina Provincial Fund for Agricultural Development (*VPFAD*) - a non-profit loan fund established by the Vojvodina provincial government to contribute to the development of agriculture in the province. The Fund has approximately 15million Euros in its portfolio, which are lent through two commercial banks mainly to farmers and some SMEs. It is able to collateralize loans with a focus on suppliers and customers, and it currently has about 1,000 borrowers who have borrowed at lowerthan-commercial rates (approximately 4-6% effective annual interest rates) by meeting certain conditions that are roughly equal to those imposed by the commercial banking sector.

The second biggest actor among non-banking organizations is a community of *integrators* with a total capital estimated at 100 million Euros. Usually, they are larger food-processing or exporting companies providing finance and inputs to smaller producers under the anticipated crop. An estimate of their interest rate is in the range of 10-30%. Integrators are mainly involved into sectors with a developed system of contracting, such as wheat, sunflower, sugar-beet, corn, although raspberry producers and some fruits growers (plums, cherries) also are incorporated into this system.

Estimated agricultural portfolio of *leasing organizations* roughly totals 40 million Euros, they provide equipment equivalent to up to 1 million Euros under 9-15%. Leasing has grown substantially over the past several years as a number of new companies have entered Serbia and established branches outside of Belgrade. There are 16 registered leasing companies in Serbia, of which 10 lessors are 100% or majority owned by foreign legal entities, five lessors are 100% or majority owned of domestic entities (of which four are owned by domestic banks with foreign capital), while one lessor is jointly owned by a domestic bank with foreign capital share and a foreign legal entity.

There is also a network of *microfinance institutions* (MFI) in Serbia with a combined agricultural portfolio of more than 11 million Euros, issuing small loans both secured (up to 5,000 Euros) and unsecured (up to 1,000 Euros) at 30-35% (in Dinars). They provide needed working capital and trade loans but MFI cannot support bigger investment projects.

Ukraine is also trying to ease an access of agricultural producer to credit and investment through budget support of agricultural borrowers, development of agricultural credit provided by commercial banks, and activities of non-banking organizations (credit union, leasing companies).

State policy on support of agricultural financing is mainly aimed at reduction of interest rates paid on commercial bank credits and credit unions via partial compensation of interest rate, improvement of legislation on leasing operations, insurance etc. For instance, in 2009 and 2010, the Government planned to compensate up to 90% of interest of loans covering expenses related to construction of storages for grain, fruits and vegetables, and wholesales markets; in 2011 and 2012 subsidized interest rates were applicable for the loans financing purchase of gasoline and diesel, seeds and planting materials, fertilizers produced domestically, means of plants' protection, spare parts for agricultural and irrigation equipment, and repair/maintenance services.

An important role in financing of Ukrainian agricultural producers belongs to the *commercial banks* (often supported in this area from the side of international financial institutions). The total amount of agricultural credit reached at the end of February 2013, 35 billion UAH (4.375 billion USD). Average interest rate for these credits represents 19.4% in national currency and 7.4% in USD and EUR.⁵³

⁵³ / Статистичнии випуск Кредитування сільськогосподарських корпораціи іншими депозитними корпораціями (банками), Національний банк Україне, 02 квітня 2013 [Statistical Bulletin, National Bank of Ukraine, April 4, 2013.

The system of *credit unions* gradually became developed in Ukraine. There is a large number of local credit unions (more than 600), and their associations, like, for example, National Association of Credit and Savings Unions (UNASCU). The working group on agricultural credit is created under UNASCU with the support of USAID-funded project Agro-Invest (2011-2016). This group consists of 24 credit unions from all across Ukraine and is focused on developing its network and providing new products to the micro and small agro-producers. Only in the first 3 quarters of 2012, they issued 2244 loans for a total amount of more than 19 million UAH (more than 2 million USD).⁵⁴ These loans provide highly needed access to finance for farmers but the terms and conditions of credit unions are not suitable for larger and longer rural investment projects: the loans from 1000 UAH to 100 000 UAH (USD 125 - 12,500) are available for the period from 1 to 60 months (at interest rate of 17-33% in UAH).55

The *leasing* services were introduced in Ukraine in late 1990s, and in 1999, a state enterprise "Ukragroleasing" (UAL) was created, which changed its legal status to a national join stock company in 2001. UAL provides leasing exclusively for Ukrainian equipment under the following conditions: at least 17% of down payment, 7% - annual payments, the length of agreement 3 – 7 years. The total amount of transactions in 1998 – 2010 was equal to 2.8 billion UAH (350 million USD)⁵⁶

To support leasing of agricultural equipment in Ukraine, the Government established a special programme financed by the state budget, which usually compensates 30% of the cost of equipment from the budget after the buyer has paid 70 % of the total value. In the 2013 state budget 8.8 million UAH (1.1 million USD) is allocated, significantly lower than in the previous year – 30 million UAH (3.75 million USD).

Overall, the widespread of new tools of agricultural financing is still low in Ukraine: agricultural insurance represents a very modest segment; the system of warehouse receipts (which are used as collaterals) is in its early stage of development. Moreover, due to the structure of Ukrainian agriculture and presence of large agricultural companies focused on production of cereals, oil-seeds, sugar-beats and similar commodities, the share of horticulture in the agricultural finance is minimal.

In **Turkey**, for the second half of the 20th century up to 2001, the Agricultural Bank of Turkey – Ziraat Bankasi

(TCZB) - the oldest and largest bank in the country directly and indirectly supported by the state, and Agricultural Credit Cooperatives (ACC) provided the vast majority of agricultural credit and various types of payments subsidized by the public sector. TCZB dealt mainly with state-own enterprises, large agricultural producers, and Agricultural Sales Cooperatives Unions. The ACC was channeling agricultural credit and subsidized products to smaller farmers. Farm credit subsidy was eliminated in 2001, and since that date, credit became available to farmers with sufficient collaterals.

To facilitate an access to finance for agro-producers in high priority segments of agriculture, the Government of Turkey offers 25% - 100% subsidies to interest rates of agricultural loans provided by TCZB and ACC. For example, credit for irrigation system (drip and sprinkler irrigation) had been offered by the TCZB since 2007, and by ACC since 2009, with a 100% subsidy rate, and for other irrigation projects - with a subsidy covering 60% of interest rate payments. In January 2011, the subsidy rate for other irrigation credits was also increased from 60% to 100%. ⁵⁷ Another example of this sort is a current incentive for organic producers. Based upon the Decision of the Cabinet of Ministers dated February 25th, 2004, farmers making organic products and entrepreneurs producing organic inputs could apply for a short, oneyear long, working capital loan, or longer, 3-years long investment loan with a subsidy to cover 60% of interest rate payment. Initially issued for one year, this Decision was later amended, with the extension of length of loan to eighteen months for working capital loans, and to and 5 years for investment loans (in 2005-2011), and to 7 years for investment loans in 2012.

Although TCZB is still issuing about 90% of agricultural credit in the country, starting from the beginning of 2000-s more private banks, leasing companies, etc. are becoming more involved into agricultural financing.

An important role in increasing competitiveness of Turkish producers and exporters, including SME in agricultural sector, belongs to Turk Eximbank, which provides export credits, guarantees, and export insurance.⁵⁸ The bank was established in the early 1980s, following the implementation of export development strategy. Togther with supporting Turkish producers and exporters, Turk Eximbank now provides insurance and guarantees to Turkish commercial banks to encourage them to finance export transactions. In this way, Türk Eximbank

^{54 /} www.unascu.org.ua

^{55 /} Ibid.

⁵⁶/ www.ukragroleasing.com.ua/index.php?/pro-kompaniyu.html

⁵⁷ / Evolution..., p. 49-50.

^{58 /} www.eximbank.gov.tr
channels some portion of commercial banks' funds into export financing. Overallthe bank provided 6.67 billion USD as loans, and 5.75 billion USD of insurance/guarantee contracts in 2011. The share of agriculture represents 7-10% in the Turk Eximbank's portfolio.

2.5.4 Costing Assumptions

- 1. In the absence of measures to fix the collateral issue and other issues restricting agricultural lending, the current 2/3 gap in bank financing of new agricultural investments is likely to persist for the next 5 to 10 vears. For historic reasons (Soviet collectivism, wars), Moldovan citizens in general and agricultural producers in particular are 'undercapitalized' and do not have 'historic' wealth in the form of inheritances. They are also faced with 'illiquid' markets for most assets that banks would accept as collateral: agricultural land (undervalued and fragmented, hard to sell, and, if leased, not usable as collateral), residential real estate (declining in value, illiquid), or the financed equipment itself (typically valued at half price). Part of the problem lies in insufficient bank competition: 80% of the assets in the Moldovan banking sector are currently controlled by a single individual, according to some sources⁵⁹.
- 2. The conclusion from above is that just 1/3 of investors in Moldovan horticulture will have unrestricted access to bank loans, required to finance the postharvest investments recommended by the study. The remaining 2/3 would have to either secure their own funds (from personal savings, family members, equity funds) or face extra costs to 'persuade' the banks to lend with insufficient collateral or higher risk perception. Such costs may consist of (1) a 3% annual loan guarantee fee used as a proxy for solving the collateral issue, corresponding to 15% of the total investment cost over 5 years (an average payback period for a post-harvest investment), or (2) a 5% interest rate premium to account for higher risk assessment due to the status of a 'first-time borrower' or some industry risk, corresponding to 25% of total investment cost over 5 years. An average 8% premium per year of investment life typically corresponds to the 10% markup over the typical bank lending rates of 15% charged by non-bank financial institutions (those offering just loans without accepting deposits) in Moldova, such as Pro-Credit Bank, Microinvest, lutecredit or Easycredit. The 40% (8% over 5 years) mark-up to the blueprint investment cost for 2/3 of potential investors is used in the costing table for at the end of this study to account for difficulties in accessing 'regular' bank financing, even at the high rates practiced today (15% nominal interest rate for agricultural loans per annum, corresponding to a 14.3% real rate if a 5% yearly inflation rate is taken into account).

2.5.5 Recommendations

- Consider the possibility of creating a special Rural Development Fund or Rural Loan Guarantee fund to ease the access to agricultural credits, including addressing the issue of collaterals. Promote low fees for their services based on an efficient risk management and cheaper loan or grant resources for financing the fund(s). Secure the required financing from the Government, World Bank, IFC, EBRD, EU (EIB, NIF, ENPARD), and other international financial institutions and donors. (MAFI, AIPA, MOF, NBM, DP).
- 2. Given the high borrowing costs faced by agricultural producers, consider the possibility to subsidize the full amount of interest rate on agricultural loans, as opposed to a partial subsidy today (MAFI, AIPA).
- Create a donors coordination group to develop a platform for cooperation and information sharing with the commercial banks about donor-funded agricultural grants' programmes; establish links between the donor-funded grants distributed to agricultural producers and the commercial bank lending (DP, MAFI, AMB, AIPA).
- 4. Support the creation of a unified database of agricultural borrowers with information on credit history, agricultural grants and subsidies received, and other information important for collateral requirements and easing of administrative procedures (ABM, NBM, MOE, AIPA, DP).
- 5. Encourege the development of the regional brouch network of non-bank financial institutions (including such institutions as Rural Finance Corporation, Microinvest, Easy Credit, etc.) through their participation in implementation of Government-supported agricultural finance programs of the World Bank, IFAD, EBRD, European Investment Bank and others, as well as facilitation of their access to district centres' premises and some other incentives, including tax benefits (MAFI, MOE, MOF, DOP, DP).
- 6. Strengthen capacities of Moldovan horticulture producers in the bookkeeping and financial management to enable them be in compliance with financial institutions requirements, build their skills in communication with potential lenders (MAFI, RENO, DP).

2.6 Professional Associations' Capacity Strengthening

2.6.1 Current Situation

Insufficient strength of professional horticulture associations in Moldova was mentioned among the key barriers for export development of fresh fruits and vegetables.

⁵⁹/ interviews with banking experts, media reports.

Currently there are several associations representing specific sub-sectors of Modovan horticulture: fruits, table grape, berries, etc. The most active among them are the following:

- Fruit Growers and Exporters' Association "Moldova-Fruct" (APEF)
- Association of Fruit producers of Moldova (APFM)
- Table Grapes Growers and Exporters' Association (APESM)
- Association of Berry Producers "Bacifera".

In the commonly shared opinion of respondents, professional associations were focused mostly on dissemination of agricultural knowledge and know-how so far but lack the capacities, resources, and legal rights to play more active role in promotion of horticultural export and providing direct assistance to their members in international marketing and international sales organization, for example, through approaching potential customers, negotiating contracts, and consolidating shipments of fruits and vegetables.

"Associations could play an important role – in quality control, in sales organization; unfortunately today they have neither experience in these areas, nor sufficient skills".

Anatol Placinta, General Manager, "Fortina-Labis SRL"

According to the current legislation [Law on Public Association No 837 of 17.05.1996], citizens and organizations are allowed to form "mutual associations ... for fulfilling private and corporate interests of their members" [Chapter I, Art. 2 (4)]. These associations can "implement productive-economic activity as well as other types of entrepreneur activities...to make bilateral and multilateral agreements with natural and juridical people on scientific, technical, economical, financial and production collaboration ... to fulfill in full powers granted to legal persons by Civil and Civil Procedure Code [Chapter III, Art. 26]. Public association "has the right to found enterprises and economic organizations, ... acquire property" [Chapter III, Art. 28], establish international contacts, etc. At the same time, the Law on Public Associations cannot be applied "to... cooperative and other organizations, pursuing commercial goals or assisting in gaining profit by other enterprises and organizations" [Chapter I, Art. 1 (3). "The income obtained from productive-economic and other entrepreneurial activity of public associations cannot be redistributed between the members (participants) of these associations and are used exclusively for implementation of goals and objectives specified by the Charter of the public association" [.Chapter III. Art. 28 (4)].

It means, that even within an existing legal environment, professional associations could play a more active role in international marketing and sales organization of their members, and possible amendments to the Law on Associations could strengthen the export potential of Moldovan producers.

2.6.2 Case Study: "Associations Should Be Pro-Active!"

Mr. Gorincioi, an owner of 90 ha of cherry, plum, and peach orchards in southern Moldova believes that, insufficient skills in international marketing and the inability to meet expectations of big wholesalers and supermarket chains (with regard to volume, consistent quality, and agreed schedule of supply) seriously limit the promotion of Moldovan agricultural products on international markets. Even in the traditional Russian market, where Mr. Gorincioi company still has good business connections, Moldova faces growing competition from players such as Turkey, Chile, Serbia, and, gradually – Ukraine.

The owner is a member of one of the leading agricultural associations of Moldova but he does not feel that it really assists in international marketing and sales organizations. Obviously, participation in international trade fairs and conferences of fruit producers are useful but they should be supported with practical steps in organizing groups of producers within professional associations.

Mr. Gorincioi's company is among the industry leaders – it uses high quality planting materials and advanced agricultural technologies, modern types of fertilizers and means of plant protection, an irrigation system needed for modern orchards is in place, cold storage is built, and currently pre-sales cooling facility – critical for stone varieties, is under establishment.

Mr. Gorincioi believes that the number of technologically advanced companies with high quality products is already sufficient (and still growing) for starting organizing them in a sort of groups of producers for consolidated marketing and sales. And the key role in this process should belong to professional associations. An important first step in this direction could be the creation of consolidated database of producers with indication what products will be produced, where, in which quantity, when, how they will be processed for pre-sales purposes, etc. The next step could be negotiating agreements between association members to market and sale their products together, and the search for optimal logistical and administrative measures to support them.

Unfortunately professional associations currently lack the knowledge, skills, resources, and, sometimes, strategic vision and political weight to initiate these changes. In the rough assessment of Mr. Gorincioi, his company could target a more sophisticated market segment, which could lead to a 30% price increase if it consolidated its marketing and sales skills.

2.6.3 Regional Experience

Turkey: Aegean Fresh Fruits and Vegetables Exporters' Association - one of the professional associations in Turkey - was founded in 1966 to bring together all the exporters of fresh fruits, vegetables and their products from the Aegean Region. Among its main tasks, the following should be mentioned:

- Promotion of the sector;
- Coordination of communication between the private sector and the government;
- Support to exporters in the domestic and international markets
- Organizing trade delegations to the new markets.

The association is a member of the Turkish Exporters' Assembly, and its activities are coordinated with the Ministry of Economy.

Another example of Turkish regional associations involved in the export of fresh fruits and vegetables is the *Turkish Mediterranean Exporters Union (MEU)*, located in Mersin, in southern Turkey, and founded in 1940 as a non-profit professional organization affiliated with the Under-Secretariat for Foreign Trade.

The MEU has three key functions:

- To strengthen members export capacities and to increase their income
- To organize and control the export activities, and
- To coordinate relations between the MEU members and the Under-Secretariat for Foreign Trade.

As the national coordinator of fresh fruit and vegetables sector, MEU provide support to the sector development and market expansion for Turkish producers.

Serbia: In Serbia, the *Group of Associations of Fruit and Vegetable Producers* ("Fruits of Serbia") was established in 1999 in order to improve production, processing and marketing of Serbian companies, to represent the interests of members in communications with the governmental authorities and third parties, to jointly access both domestic and foreign markets, and to facilitate development of a unified information system.

Currently, it includes nurseries, research institutes, producers, processors and other companies in this sector, interested in business development and improving Serbian positions in the regional and wider international markets, including the following major categories:

- Apple and stone fruit growers,
- Producers and processors of vegetables,
- Cold storages for frozen fruit,
- Cold storages for frozen vegetables,
- Processors of forest fruits and mushrooms, and
- Producers of planting materials.

Through coordinated activities and actions of its members, the Association seeks to contribute to a significant increase in levels of production and to effective and professional marketing of Serbian fruits and vegetables, paying special attention to the ensuring high quality products and the use of modern packaging. Association also supports introduction of the EU standards into Serbian agricultural practice, dissemination of integrated and organic methods of production, with a special emphasis on the concept of sustainable development.

With the support of the Government of Serbia, the Association plans to set up its representative offices in Moscow, Prague and Berlin, which will primarily be focused on monitoring market trends and on promotion of Serbian fruits.

Side by side with national associations, there are also regional initiatives. For instance, the regional Chamber of Commerce in Kraljevo is supporting an *Export Association of fruits and vegetables producers from Central and Western Serbia*, assisting its members with international marketing and promotion, sharing information about important regional and international events, and improving networking with potential domestic and international buyers.

2.6.4 Costing Assumptions

The attempts to assess the impact of more active role of professional associations in raising productivity and in facilitating access to new markets/markets segments in monetary terms is scarcely meaningful unless the functions of associations are revised, the legal framework is amended, and the associations' capacities strengthened. Currently, it may feasible to assume that the possible impact of more effective associations are already taken into account in the other costing assumptions of this study; together with these effects, a strengthening of the association will lead to more operational institutional arrangements and to higher productivity and a greater profitability of Moldovan horticulture.

2.6.5 Recommendations

- 1. Initiate horticulture associations' capacity strengthening programme with special focus on:
 - i. association's consolidating role possible functions, responsibilities, and limitations;

- ii. required organizational, administrative, and regulatory measures to support the marketing and sales functions of existing associations (MAFI, PEA, RENO, DP).
- 2. Improve access of associations to market information. To establish on a basis of a leading association (possibly, in cooperation with the MAFI) an Internet portal for provision of information of potential export markets, current prices, key actors, major trade fairs, conferences, etc. (MAFI, PEA, MOE, MIEPO, DP).
- 3. Provide technical assistance (pilot project) to a leading association or group of professional associations in the following areas:
 - i. development of the association-based marketing and sales plan;
 - ii. creation of database of producers-members of association;
 - iii. development of model agreement on joint marketing and sales;
 - iv. development of the logistical plan to support joint marketing and sales;
 - v. search of potential customers, trade negotiations, legal advice (MAFI, PEA, DP).
- 4. Continue supporting associations in participation in key international and regional trade fairs and other professional events, leading to establishing of trade contacts (MAFI, AIPA, MIEPO, CTI, PEA, DP).
- Strengthen capacities of associations' management and association members in the following areas: a/ entrepreneurial and business skills development; b/ understanding of international markets; c/ business communication; d/ Four Ps of international marketing; e/ understanding international contracts (MAFI, PEA, DP).
- 6. Carry out consultations with the Ministry of Justice regarding amendments of the Law on Public Associations, with the aim to support more proactive role of professional horticulture associations in organization of international marketing and sales (for example, by the way of introducing 'production association" in addition to "social useful" and "mutual associations", and by making revision of the Articles 1, 23, 28 MAFI, MOJ, PEA).

2.7 Support to Cooperation in Post-Harvesting and Sales

2.7.1 Current Situation

Because of a complex combination of cultural and historical reasons, a lack of relevant experience and gaps in regulatory base, the cooperation between Moldovan producers is currently in the very early stages. A lack of cooperation in the post harvesting operations and sales were mentioned as key barriers both by experts and by agricultural producers. Small and even medium-size producers, even those which have quality products in their orchards, greenhouses, and fields cannot ensure pre-sales processing and storage to meet market requirements, and being fragmented they have no negotiation power to get an adequate price. That is why the support for cooperating in agriculture has received a lot of attention from the public and private sector, as well as the donor community.

"We plan to use our sorting line to bring together local producers for mutual benefits – it should help us get higher prices in the end"

Cornel Sitaru, Manager, "Gikacom AG".

2.7.2 Case Study: Natural Cooperation

The company "Luchin-Prod", located approximately in 50 kilometers from Chisinau, is a compact and well-managed enterprise, created 5 years ago, when a group of 5 friends (former high ranked civil servants and businessmen) together purchased a compact plot of agricultural land (50 ha) and allocated each member of this informal cooperative a land plot in accordance with his/her financial contribution.

Today, the whole land plot is surrounded with a common fence, common electric grid links the vineyards to the national grid, and a common irrigation system is installed. Usually, members of this informal cooperative independently manage the grape production on their parcels although certain tasks, such as plant protection measures, are organized commonly. With respect to post-harvesting grape preparation - sorting, cooling and storage, community members combine their efforts around facilities built by the informal leader of this group. Obviously, these post harvesting services are not provided free but costs are shared and there is a fair contribution allowing for additional resources to be allocated for anti-hail nets, which should be installed in the future seasons, and to common production of grape packaging (so far, the grapes were packaged into used cardboard boxes from imported bananas). With a naturally increasing production due to the maturity of the vineyard y (this season more than 200 tons may be produced), and better pre-sales preparation, "Luchin-Prod" and its neighbours are expecting to gain an access to big exporting company or establish working relations with a local supermarket chain.

2.7.3 Regional Experience

Everywhere in the region, small producers have to adjust their production patterns to the demands of the

market, locally, regionally and internationally. The cooperation of producers play an important role in this process..

In **Turkey**, the Agricultural Strategy implemented in 2006 - 2010 emphasized agricultural competitiveness as a crucial goal, and elaborated various mechanisms of strengthening of farmers' competitiveness through improved access to markets due to the development of farmers associations and cooperatives.⁶⁰ A set of legal and economic incentives was developed to support cooperation of overall highly fragmented agricultural production in Turkey. Due to these efforts, about 10% of small farmers currently participate in professional associations/cooperatives.⁶¹Further development of cooperation is limited by the low educational level of the majority of small farmers, the misunderstanding of cooperative system and cooperation benefits, insufficient trust in associations/cooperative managers, and a lack of effective local leaders. To overcome these barriers, a widespread public information campaign is recommended by Turkish experts with a targeted dissemination of information successful associations/cooperatives models.62

Serbia has a long history in the movement of coop-

eratives and currently there are about 2,000 agricultural organizations registered in the form of cooperatives and cooperative associations.⁶³ The work of national cooperative unions is focused almost exclusively upon the dissemination of agricultural information among its members and business functions of cooperatives are still lacking. To fill this gap, a "new generation" of cooperatives – which are market oriented, with a strong entrepreneurial culture and professional management - is gradually emerging in the country, often with the support of donor initiatives. Interestingly enough, these new cooperatives operate mainly in the fruit and vegetable sector.⁶⁴

Similarly to Turkey, the further development of cooperation in agriculture has been slowed down by inappropriate education of the members of co-operatives on contemporary agriculture and role of agricultural co-operatives; lack of motivation for joining co-operatives; and insufficient state support for the movement.⁶⁵

The Serbian experience proves that the national cooperatives development policy should foresee a whole set of motivating and supporting measures, including:

- The formation of cooperatives around strong local leaders and around strong post-harvesting facilities (storage, calibration, sorting, packaging, etc).
- stimulating tax policy;
- facilitation of access to finance;
- investment support for cooperatives managed by producers;
- establishment of cooperative support centers (facilitation of access to markets, advisory services, legal support, etc.);
- development of entrepreneurial skills of farmers and basic business skills.

In **Ukraine** the need for enhancing cooperation in agriculture is recognized by the government, and was specifically underlined in the State Program of Ukrainian Rural Development (2008 – 2015).⁶⁶ In the opinion of Mr. Mykola Prysyazhnyuk, the Ukrainian Minister of Agriculture, cooperatives remain one of the most effective mechanisms in rural areas, and the state will stimulate the creation of cooperatives in animal, horticulture and the berry industries, forage purchase, harvest, primary processing and sale of production. Currently, there are more than 850 agricultural cooperatives in Ukraine and their number should grow further in the immediate future.⁶⁷

The key barriers to production and export of horticulture products in Ukraine are similar to those in Moldova:

- insufficient development of agricultural extension services;
- low levels of personal capital savings and lack of available financial services;
- ineffective pricing system for horticulture produce grown by smallholder farmers;
- insufficient access to post harvest processing capacities, such as cooling, sorting, packaging and so on;
- dependence on market prices fluctuation and lack of sustainable trade relationship;

60 / Rural Poverty Approaches, Policies & Strategies in Turkey, IFAD

⁶¹/Turkish Agriculture Industry Report, Investment Support and Promotion Agency – Deloitte, July 2010, p. 14

⁶²/ Hacer Celik Ates and Mustafa Terin. Farmers' Perceptions of Farmer Organizations in Rural Areas. - African Journal of Business Management Vol. 5(1), pp. 179-186, 4 January, 2011 Available online at http://www.academicjournals.org/AJBM

^{63 /} Miladin M. Ševarlić, Marija M. Nikolić, Richard Simmons. Agricultural Cooperatives and Their membership in Cooperative Unions in Serbia - Applied Studies in Agribusiness and Commerce – APSTRACT Agroinform Publish-ing House, Budapest, 2010, p. 26

⁶⁴/ Ivana Dulić Markovic. Serbia: Policies and Programmes to Support Small Farmers' Organizations. The EC-FAO Food Security Information for Decision Making Programme.

⁶⁵/ The strategy of development of agricultural cooperatives in the Republic of Serbia (Strategija razvoja zemljoradnićkog zadrugarstva u Republici Srbiji) (Serbian). SAAE, 2011, Belgrade.

^{66/}ДЕРЖАВНА ЦІЛЬОВА ПРОГРАМА розвитку українського села на період до 2015 року, (2007) III. 2, 10

⁶⁷/ Ukrainin Grain Association, http://uga-port.org.ua Apr. 04, 2013.

- inadequate farm business skills between smallholder farmers,
- rejection of mutually beneficial cooperation forms and business alliances;
- growing competition from imported produce, and
- an inability to comply with a tendency for produce consolidation; forming big batches for selling through supermarkets in the retail sector.

To deal with these barriers, international and local experts recommend focusing on the following strategic goals:

- 1. Strengthening farmer groups' marketing functions;
- 2. Value chain development and establishing commercial contacts with big wholesale enterprises to improve horticulture logistics and ensure fair and predictable pricing;
- 3. Supporting farmer groups' management to develop efficient marketing channels through consolidation of different participants of agricultural market in one chain.

In 2009 – 2012 a pilot project financed by Canadian International Development Agency and implemented by Mennonite Economic Development Agency (MEDA) was implemented in Southern Ukraine and Crimea, proving effectiveness of cooperation and cluster-based business model in horticulture (please, see: http://en.uhdp.org. ua/) As a result its activities, in the fall 2012, more than 1,600 local farmers participated in consolidated sales for a total amount of \$6.6 – 10 million (depending on methodology of estimates). Starting in2009, the project assisted farmers with the joined acquisition and installation of 17 cold storage units with total net volume 742 m3; and by the end of 2012, 1,035 sales were processed though them, with prices on average 9% higher in comparison than products coming from the field.

2.7.4 Costing Assumptions

The costing assumptions related to the impacts of development of cooperation for jointed marketing and sales are highly speculative because of difficulties in meaningfully differentiating impacts of joint activities in this specific area and the impacts of cooperation in post-harvesting operations, use of better packaging, and other similar factors, which are already taken into account in costing assumptions above. From this perspective, the results of joint marketing and consolidated sales (in monetary terms) are already reflected in the previous costing assumptions.

2.7.5 Recommendations

1. Raise awareness of Moldovan producers and exporters about possible organizational, technical, and legal solutions to develop cooperation for coordinated marketing and sales through media, extension services, professional associations (MAFI, PEA, DP).

- 2. To establish platform for public-private partnership development in the area of cooperation in post-harvesting, including:
 - Development recommendations on financial incentives (preferential provision of compensation of expenses related with attending international professional trade fairs, facilitation of investment support for cooperatives, etc.), and
 - Non-financial incentives (preferential access to the facilities of agricultural wholesale center to be created in Chisinau (?) Kishinev, consulting and training assistance; facilitation of access to major trade fairs, etc.);
 - Provision of advice on post harvesting processing and quality management, shipments consolidation and sales organization, contract negotiation, etc.;
 - Strengthening capacities of professional associations and extension services in the area of support to post-harvesting cooperation (MAFI, PEA, RENO, DP).
- 3. Implement consolidated marketing and sales promotion pilot project in close collaboration with existing professional associations and/or on the basis of early initiatives of naturally growing cooperation around production leaders (MAFI, PEA, MIEPO, CTI, DP).

2.8 Irrigation System Development

2.8.1 Current Situation

According to Moldovan producers, this top ranked constraint includes a lack of access to underground water for irrigation purposes, a lack of access to central irrigation systems, administrative difficulties in connecting to central irrigation systems where existing, difficulties in getting access to ground water and difficulties in receiving authorization for construction of new irrigation ponds.

Sustainable management of irrigation system in Moldova is a multidimensional issue closely related to effective natural resources/water management, protecting environment, and disseminating technological innovations for the purpose of ensuring lasting rural development and food security. Rehabilitation and development of Moldovan irrigation requires well coordinated policies and approaches of local private and public sectors involving the academic community and possibly the support of international organizations. Ideally, the strategic planning of water management and irrigation system development in Moldova should be put in a wider regional context (with consideration of possible transboundary impacts), and UNDP could play an important role in launching such an initiative. Moldova is prone to extreme weather events, including droughts, frosts, floods, thunderstorms and hail. From weather-related constraints, droughts are the most severe. A recent World Bank study⁶⁸ has forecast an increase in the average annual temperature by 2% until 2050 and an increase in the probability of extreme droughts, currently occurring every 5 years. Studies have also highlighted the unpreparedness of Moldovan agricultural producers and of the inhabitants of rural areas to withstand the consequences of extreme weather, particularly droughts. In the 1990s, Moldova was irrigating 193,000ha of agricultural land. By 2005, the amount had decreased to 25,000 ha. Current estimates place the areas under irrigation to 15,000ha. Central irrigation systems pumping water from the two major rivers - the Prut and Nistru, have fallen into disrepair. The Millennium Challenge Corporation's project launched in 2010 and financed by the US Government is aiming to allocate 60 million USD for the rehabilitation of 11 centralized irrigation systems over the next 5 years. In May 2013, after a series of delays with formation of local associations of water users and transferring on their balance sheets the remaining assets of centralized irrigation systems, five water users associations became operational opening an opportunity to financing the rehabilitation of local irrigation systems.

Irrigation is more important to annual crops than to perennials, as proven by the drought of 2012 when the corn and wheat yields fell by more than 50%, while horticultural yields – by less than 25%. However, for the new type of orchards – intensive and super-intensive – due to their rootstock type (closer to a bush than to a tree) irrigation plays as important part in the technological process as cutting and spraying.

"I literally don't know what to do. I have built the orchard near the lake, and now local authorities decided to dry the lake out."

Olga Serbusco, Owner, GT Olga Serbusco

Despite the critical role of irrigation in the development of horticulture, existing Moldovan regulations pose major constraints to agricultural producers' access to irrigation water. Use of underground water for irrigation, either shallow or artisanal, is prohibited due to falling water tables and concern for human access to drinking water. Use of ground water for irrigation (public ponds and lakes) is also restricted, the reserve being kept for human consumption in case of droughts and for fish farming in the intervals. The procedure for allocating land and authorizing the construction of new ponds is lengthy and complicated. The rebuilding and connection to centralized systems is being delayed. Where river irrigation systems are available, the price per cubic meter is excessively high (10 Moldovan lei or 8 US cents and more), higher than for domestic water consumption in the capital city of Chisinau. The state subsidies compensate only a small part (14% in 2012) of the investment costs in the equipment (pumps and pipes) and do not cover the land works required to make dams for irrigation ponds or for laying irrigation pipes.

2.8.2 Case Studies

The representative of ACSA national extension agency that is providing grants for building small irrigation ponds, has mentioned that several of their applicants have withdrawn their grant applications (for the amount up to 30,000 USD for the works which are not eligible for the state subsidies) because they were not able to complete in time all the administrative procedures needed for obtaining construction permits.

The Furculita farm has built a new irrigation pond for its super-intensive orchard in Racovat village. Despite the fact that the pond was established on the privately owned land plot, administrative procedures needed for approving the project took more than one year.



Picture 10. Irrigation Pond at Furculita's Farm



Picture 11. Irrigation Pump at Furculita's Farm

⁶⁸ / World Bank (2012): "Reducing the Vulnerability of Moldova's Agricultural Systems to Climate Change: Impact Assessment and Adaptation Options". Analysis Report. Washington, DC, p.5. "Instead of begging everybody for water, I decided to build an irrigation pond myself. It's costly, but at least you have the independence and confidence. You can't maintain a super-intensive orchard without irrigation.

Constantin Furculita, Director, Vitalitifruct-Expo SRL

The Serbusco farm has planted its new super-intensive orchard near a general purpose water pond close to the town of Ungheni in central Moldova. Ms. Serbusco has signed water supply agreements with the local authorities authorizing it to pump water from the pond. By the time the orchard was finished, the pond was drained by local authorities in March 2013 without warning or advance notice.. Ms. Serbusco has to urgently find an alternative source of water supply for the drip irrigation system that it just installed at its super-intensive orchard.

The Luchin farm has 20 hectares of table grape vineyards and a pre-cooling unit in central Moldova. Mr. Luchin has negotiated access to water from the Nistru-Chisinau pipeline that is supplying the main city of Moldova with drinking water from the river Nistru. The pipeline is passing exactly under Mr. Luchin's land. Mr. Luchin has built a concrete accumulation pond aiming to provide and accumulate a buffer reserve for his drip irrigation system that he had just finished installing. Mr. Luchin has been partially compensated with subsidies for the pipes and pumps, but did not receive any refund for the concrete reservoir, which consumed the bulk of the costs (in excess of 15,000 USD).

The Davidescu farm has cherry, plum, apricot and other stone fruit orchards in southern Moldova, most of them with M-26 intensive rootstock (requires less irrigation than the M-9 super-intensive rootstock). Mr. Davidescu has tried to build an artesian well to supply water for its drip irrigation system, with limited results so far. Mr. Davidescu has mentioned that the use of artesian wells that stem from the same aquifer is allowed in neighbouring Ukraine and Romania, both countries no more than 50 kilometers away from his orchards in southern Moldova.

2.8.3 Regional experience

For several decades (over 50 years) the Government of **Turkey** had been implementing an ambitious water resource development programme, heavily investing in water storage facilities and large-scale irrigation systems. Starting in 1991, with technical assistance from

the World Bank, the centralized water management was gradually transferred to water users' associations, which were organized at the local level, to decrease budget expenses and improve water utilization. The central state agency – General Directorate of State Hydraulic Works (DSI) continues monitoring the standards of systems' operation and maintenance. As a result of these efforts, more than a quarter of arable lands in the country are currently irrigated; with the great majority of water (more than 90%) coming from the surface water sources, and the rest from ground water sources.⁶⁹

Ukraine has also been investing in rehabilitation and development of national irrigation system for several years, and the share of irrigated lands has reached 7% of arable land. For instance, according to the State Programme of Rural Development approved in 2007, irrigation should be rehabilitated at 2 million hectares by 2015⁷⁰ but this level was achieved earlier.

At the same time a lot of additional work still needs to be done to streamline a complicated system of water rights and water management, and to deliver water to the end-users, especially to small and medium horticultural producers. It is anticipated, that special attention at this stage will be paid to the development of water users associations (WUA) and their capacity building.

A flexible programme of subsidies could be involved to ensure gradual switch to the new system of water management and irrigation.

Romania is facing the need of urgent irrigation system rehabilitation, which became especially obvious after the big losses of national agricultural sector in the summer 2012. To alleviate the effects of the drought, the Government cut the price of irrigation water to \$13 per 1,000 cubic meters and allocated an extra \$35 million for irrigation projects across the country. By the end of April 2013, the state irrigation company ANIF had already signed contracts with farmers to irrigate 0.4 million hectares in2013 – up from 0.17 million ha that were contracted the previous year, when the dry weather began to cause damages.⁷¹ Romania also expects to resume construction of the Siret-Baragan irrigation canal in the country's southeast, investing initially 50 million euro and plans to raise co-finance from the EU funds.

Similarly to other countries, the creation of effective WUAs represents a critical component of restructuring Romania's irrigation systems aimed at increasing the efficiency of water management through farmer participation and the delivery of irrigation water on demand.

^{69 /} Mark Svedsen, Turkey: Irrigation Management Transfer, IMT Case Study, p. 8

⁷⁰/ ДЕРЖАВНА ЦІЛЬОВА ПРОГРАМА розвитку українського села на період до 2015 року, ІІІ-7.

⁷¹/www.blackseegraine.net, April 24, 2013.

This type of technical assistance is supported in Romania by international donors.

At the same time, the Government of Romania is looking for alternative cost-effective solutions, including the involvement of Chinese companies in rehabilitation projects for irrigation systems in Romania.

Serbia is also trying to raise funds internationally for irrigation rehabilitation and development. In March 2013, the Serbian Ministry of Finance and Economy signed a \$400 million binding contact on joint investment in Serbia with the leading UAE agriculture company Al Dahra and additional \$400 million secured from the Abu Dhabi Fund for Development for further support of Serbian agriculture.

The contract envisages the establishment of the joint SRB-UAE company investing in 10 state-owned agro companies with 9,000 hectares of arable land and leasing from the state an additional 16,000 hectares. All 25,000 ha should be put under the irrigation system to be established in the near future.

2.8.4 Costing Assumptions

- 1. The lack of irrigation leads to a 25% fall in yields and fruit quality (weight, organoleptic qualities) every 5 years from catastrophic droughts, or 5% fall per year on average. Some extra 5% in weight or yield loss can be added for 'regular' water shortages in normal years. Authors estimated the aggregate annual losses from lack of irrigation at 10%. Avoiding a 10% loss in yields/ weight is a benefit. Building irrigation networks represents a a cost. Building local irrigation systems will cost 35 million US dollars, calculated from the 210,000 tons of horticultural output in 2012, an average 30 ton yield per hectare, and a 5,000-US dollar investment cost per hectare. The additional 60 million US dollars planned to be invested by the US Government's Millennium Challenge Corporation in centralized networks was taken into account, but not included in the cost-benefit analysis given that it's a grant.
- 2. The lack of access to irrigation precludes building new orchards with intensive and super-intensive methods and precludes replacing the existing supplies from 106 rootstock which lack in homogeneity and quality with the supply from new and better quality orchards. Given that insufficient investment in new orchards has not been mentioned as a top-10 constraint by agricultural producers, the differential in yields between old and new orchards will not be taken into account in this costing exercise.

2.8.5 Recommendations

 Organize a multidisciplinary working group to update sustainable and inclusive water management and irrigation planning, including a pricing policy for irrigation water, access to underground water sources, streamlining and simplification of procedures currently required for accessing water sources (MAFI, MOEP, AM, AIPA, WUA, PEA, DP).

- 2. Consider subsidizing responsible irrigation water use (within technologically optimal limits); include into the state subsidy programme the irrigation systems' construction works, as opposed to the current practice of subsidizing only irrigation equipment (MAFI, AIPA, AM, WUA, PEA).
- 3. Support technological innovation in the area of irrigation, including use of alternative energy sources, drip irrigation systems, etc., through public awareness campaign and preferential support of the state subsidies fund (MAFI, AIPA, MOEP, AM).
- 4. Speed up the launch of Millennium Challenge Corporation's investment programme targeting the rehabilitation of the central irrigation systems: transfer the assets of the remaining six central irrigation systems to the balance sheets of water user associations (WUA); provide needed support in the further capacity building of WUA in sustainable water management, technological update, financial aspects of WUA operations (WUA,MOEP, AM, DP).

2.9 Simplification of new plant varieties' Registration

2.9.1 Current Situation

In interviews with policy makers, representatives of TA projects and business service providers. difficulties in the registration of new plant varieties were mentioned as an export constraint, The producers themselves recognized the issue as well, but only after being asked specific questions.

Moldova is restricting the import and use of new varieties of plants. Only varieties included in the official Catalogue of Plant Varieties are allowed to be cultivated. This restriction is outlined in the Law on Seeds no. 659 from 1999. Article 7 prohibits the cultivation of locally produced seeds that are not included in the catalogue. Article 8 introduces the same restriction for imported seeds. The amendments to the law which were passed by Parliament in May 2013 did not touch on the core restrictions and the law continues to restrict the use of non-registered varieties. The annually updated Government Regulation on Subsidies also stipulates that farmers can get subsidies for planting vineyards and orchards only with seedlings registered in the official catalogue.

The list of varieties in the Moldovan Catalogue of Plant Varieties is small in comparison to those in neighbouring countries. The main reason is the lengthy procedure required for registering new varieties. Testing and registering seeds may take one or two years, while testing and registering seedlings – up to five years. All expenses related to seed and seedling registration must be borne by the importer/registrar. Given these constraints and the small size of the market, many international seed and seedling producers are ignoring Moldova altogether. ticides, herbicides, insecticides, growth stimulators, etc. Using fake names allows producers to both import nonregistered seedlings and claim subsidies for the planting of orchards and vineyards. There is also a variety control

Table 1.	Number of New Varieties in 2	2009-2011 (reprod	duced from ACED's C	(IBER study)
----------	------------------------------	-------------------	---------------------	--------------

	Moldova	European Union	Moldova as % of the EU
Apples	7	56	12%
Table Grapes	0	27	0%
Tomatoes	42	168	25%

Table 2. Estimated annual size of the Moldovan seed and seedling market from an importer point of view (reproduced from ACED's CIBER study)⁷²

Plant Type	Seeds and seedlings (an- nual), thousand	Royalty per plant, Euro	Size of the market (annual), million Euros
Apple	4,500	0.50	2,25
Grape	2,000	0.50	1,00
Tomato	72,000	0.03	2,16
Total			5,41

The experts' main concern with the lack of new varieties was the impact on competitiveness, particularly with regard to the new, dwarf, varieties for pome and stone fruit (apples, plums, cherries, etc.) In a recent study, authors mentioned the following 'export' advantages of new varieties⁷³:

- Apples, cherries, plums: better disease resistance, higher yields and better cosmetic appeal.
- Grapes: better disease resistance, frost resistance, cosmetic appeal, organoleptic qualities (seedless).
- Tomatoes: resistance to long-distance hauling, new shapes (cherry, tomato-on-vine, plum), new colors (yellow, black), organoleptic qualities (non-leaking).

Interviewed experts backed such conclusions, arguing that planting 'old' rootstock places Moldovan horticultural producers in a long-term disadvantage in comparison to their competitors from the EU and elsewhere.

2.9.2 Case Studies

Moldovan producers are successfully circumventing the plant registration issue by importing seedlings under different variety names or by simply 'smuggling' seeds and seedlings. Such a practice is common not only with respect to the planting stock, but also with all kind of inputs, which require official registration: fertilizers, peswhen exporting (when issuing SPS certificates or certificates of origin), and producers are typically forced to use faked names of varieties to be in compliance with the official varieties catalogue.

When asked about varieties used in their orchards, some producers interviewed for this study mentioned issues with the following varieties: Golden Delicious (Clone?) Reindeers, Gala, Granny Smith for apples and Gisela for cherries. The problem is that none of these varieties are listed in the Moldovan Catalogue of Plant Varieties. According to a recent study⁷⁴, Golden Delicious Reindeers is a hybrid of Golden Delicious (25% of Moldovan apple orchards) that is immune to russeting (developing a rough reddish-brown or yellowish-brown skin, or patches of such). Gala is a popular international early variety with 18% of orchards worldwide whose registration in Moldova started in 2009 and has not been completed to this day. Granny Smith is an international green apple variety not registered in Moldova, where there is only one green apple variety registered in the catalogue: Renet Semerenko. Finally, producers wanting to plant non-apple intensive orchards are faced with the situation that none of the dwarf varieties for cherries, such as Gisela, or those for plums and apricots are registered in the Moldovan plant catalogue.

72 / Idem

73 / Idem

74 / Idem.

"We are no longer paying attention to these restrictions. We are planting new varieties even if they are not registered in Moldova, by importing the seedlings and selling products under different names. These restrictions are made up, and are remnants from Soviet times. We should adopt the European varieties automatically, without restrictions."

MediumSize Agricultural Producer

Not all producers though are ready to violate registration rules. For instance, Mr. Chilianu from Chilianu farm mentioned the restrictions on the legal import of seedlings of the high-yielding elite ('club') varieties of apples from Italy as a barrier.. He argued that, since many importers in Russia are aware of the Moldovan situation with plant variety registration (similar to that in Russia itself), importing seedlings under a different name and then exporting under original name will have no credibility – Russian importers will not believe that the apples were grown in Moldova and, moreover, all export certificates will have fake variety names anyway. The vast majority of producers interviewed considered the issue of new variety registration to be 'totally gratuitous' and 'annoying'.

2.9.3 Regional Experience

Neighbouring countries have different approaches to variety registration, but most of them have bilateral or multilateral treaties recognizing varieties from other countries, without the need to pass through lengthy internal procedures. The following is a list of plant registration practices in the region (cited from IFC's Regulatory Constraint Study):

Unconditional recognition of varieties registered in other EU countries. As EU member states, Romania, Bulgaria, Poland, the Czech Republic, etc. unconditionally recognize varieties registered in the European Union catalogue and the catalogues of every other member state. Albania plans to introduce automatic recognition of EU varieties as well. The unconditional cross-recognition of varieties of EU members is stipulated in EU Council's Directive 2002/53/EC of 13.06.2002 on the common catalogue of varieties of agricultural plant species. The main clauses of this directive are: creation of a common catalogue based on the catalogues of member states; common standardized criteria and minimum rules for variety testing among member states; free trade of plant varieties included in the catalogue; and the right of the member state to object to specific plant varieties. The paradox of the situation with non-recognition of EU varieties in Moldova is that modern plant varieties successfully grown, let's say, in lasi, Romania, 25 kilometers from the Moldovan border, are prohibited in Moldova.

- Recognition of foreign varieties based on bilateral agreements. Macedonia has signed an agreement with Netherlands on recognition of all potato and some vegetable varieties.
- Recognition of foreign varieties with equivalent registration procedures. Romania authorizes the registration and imports of plant varieties from non-EU countries if the originating country has certification requirements similar to those in Romania.
- Non-recognition of foreign varieties. Countries like Ukraine and Russia have laws and regulations on plant registration similar to those in Moldova. No foreign plant varieties are automatically recognized, and each variety has to pass through a sometimes lengthy local testing procedure.

2.9.4 Costing Assumptions

Difficulties with plant variety registration generates additional costs to producers. Following are estimates of potential impacts on costs and revenues.

- Impact on investment costs. Ignoring the practice of importing varieties under different names, if importing non-registered seedlings legally, with a temporary import authorization, a Moldovan producer will not be able to claim State subsidies. The actual paid subsidies amounted to 5% for orchards and 7% for vineyards.
- Impacts on the cost of planting stock. Artificially reducing the competition on the Moldovan planting stock market by limiting the supply to a short list of varieties has led to the 'oligopolization' of supply by a limited number of local and foreign nurseries. Estimates of potential savings on the cost of seedlings from liberalization range from 10% to 30%. With regard to seeds, the same 'oligopolization' leads to a 40% hike in prices. ACED's CIBER study compared tomato seed prices in Moldova and Ukraine and concluded that Moldovan farmers pay \$135 for 1.000 seeds of Abellus F1 hybrid (for greenhouse cultivation) from RijkZwaan, as opposed to just \$95 USD in Ukraine, simply because RiijZwaan is not selling directly in Moldova.
- Impacts on yields. Using hybrids such as Golden Delicious Reindeers can avoid 10-15% of crop losses from russeting, since russeted apples have to be sold for processing (juice) at a fraction of price. Similarly, using higher-yield new varieties can increase orchard productivity by the same 10-15%.
- Impacts on prices. Using new varieties can improve the cosmetic appeal (shape, colour), organoleptic qualities (taste, smell, seedlessness, resistance to leaking) and shelf life of apples, grapes, tomatoes and other fruit and vegetables. Price gains from new variety fruit, all other conditions being equal, could range from 10% to 50%, where a conservative estimate would be 30%.

- Loss of potential export revenues. According to ACED's CIBER study, Moldova is not exporting tomatoes simply because its plant catalogue does not include tomato varieties suitable for long-range transportation. They cite the fact that Ukraine is exporting 30 times more tomatoes than Moldova, although Moldova is exporting twice as many apples as Ukraine. The logic of 'lost' export sales can be extended to all producers interviewed in this study: Bivol and Moscul farms are 'losing' tomato exports to EU and Russia; Chilianu farm is 'losing' exports of high-value 'club' varieties of apples to the EU; Davidescu, Zaharia and Gorincioi farms are 'losing' cherry, plum and apricot exports, etc.
- Common for all constraints. It would be a realistic assumption to estimate that only 5-10% of the current orchards could be replanted annually with new varieties, given the financial and other constraints mentioned in this study. Correspondingly, in a 5-year framework, only a quarter of the orchards could benefit from improved varieties (meaning that all benefits from new varieties should be calculated from ¼ of the current Moldovan output at most).

2.9.5 Recommendations

- Adopting the EU catalogue of varieties of agricultural plants, to make the transfer and cultivation of modern varieties easier and less costly. This recommendation is also included into the draft of "Agrifood and Rural Development Strategy of the Republic of Moldova for 2014-2020" and into the Action Plan "Republic of Moldova - European Union", approved by Government Decision no 356 from 22.04.2005, which foresees harmonization of Moldovan legislation with the EU, including the plant registration procedures (MAFI, ANSA), or
- 2. Following the practice of EU countries and Moldova's commitment to harmonizing national legislation with that of the EU, automatically register in the Moldovan Catalogue of Plant Varieties those varieties that are present in the EU Catalogue (MAFI, ANSA), or, alternatively,
- 3. Sign bilateral agreements on recognition of varieties with countries from where the majority of the planting stock is originating (following an example of Macedonia) (MAFI, ANSA), or, alternatively,
- 4. As recommended in the World Bank Discussion Paper no 367 "Easing Barriers to Movement of Plant Varieties for Agricultural Development", limit compulsory registration to a limited number of key varieties and allow voluntary registration of the varieties not included in this list (MAFI, ANSA).

2.10 Providing State Support to International Marketing and Sales

2.10.1 Current Situation

The need for state support in assisting Moldovan companies to gain access to international markets was not ranked high by the producers and exporters, but it was mentioned among the serious limitations to export development by the local associations' leaders and agricultural experts.

In general, state support to facilitate access of domestic agro-producers to international markets may have several dimensions:

- policy formulation,
- international agreements and trade regime facilitation,
- legal and regulatory framework development,
- assistance to private sector in logistical infrastructure development,
- financial incentives, and
- non-financial measures covering such initiatives as development of institutions supporting national export and organization of various kinds of information and promotion campaigns.

"It would be great to get support from the state in sales organization. If the Ministry (of Agriculture) just could organize a data base of producers or could build a large cold storage unit and use it as a base for consolidated sales, we would all benefit from it."

Vitalie Luchin, Manager, "Luchin-Prod" SRL

The Government of Moldova provides a lot of policy, legal, and regulatory support to integrate the country into the global trade. Moldova has been a member of WTO since 2001 and has a liberalized export regime for goods.⁷⁵ The Ministry of Economy (Directorate for Trade Policies) keeps expanding the list of countries with preferential trade regime for Moldovan exporters. Ministry of Agriculture and Food Industry actively support positions of Moldovan producers in the traditional Russian market. Overall, according to the recent OECD assessment of trade facilitation indicators, Moldova performs better than the average lower middle income countries of Europe (non OECD) and Central Asia specifically in the following areas:

- involvement of the trade community,
- streamlining procedures,
- border agency co-operation (internal and external).⁷⁶

⁷⁵ / For more details, please see, for example: Trade and Human Development: Aid for Trade Needs Assessment for the Republic of Moldova. UNDP, 2011 ⁷⁶ / http://www.oecd.org/tad/facilitation/Moldova_OECD-Trade-Facilitation-Indicators.pdf. At the same time, unlike neighbouring countries, Moldova has made less significant progress in the institutional support, and development of system of financial and non-financial incentives to promote Moldovan agricultural export (please, see boxes below, representing regional experience in this specific area).

2.10.2 Regional Experience

The Government of *Georgia*, in an attempt to promote export of Georgian fruits and vegetables, in 2012 started I to develop a network of export collection centres with simplified custom procedures, and was considering last autumn the creation of a special State Company for Export of Fruits and Vegetables targeting Ukrainian and Central European markets. According to Vano Merabishvili, who at the time was Prime Minister of Georgia, "the purpose of the company is to assist farmers in selling their products. The company should help producers in transporting and exporting their goods." For this purpose, the centres for the collection of fruit and vegetables, equipped with modern technologies of sorting, packing and storage should be created all over in Georgia.⁷⁷ After the change in government in late 2012, the current leadership of the country is providing significant administrative and political support to bringing Georgian fruit and vegetables to the Russian market.⁷⁸

In **Ukraine**, the state programme for rural development for 2008 - 2015⁷⁹ foresees the following measures:

a/ support to geographic diversification of agricultural export, b/ strengthening of positions on traditional markets; c/ strengthening of cooperation in the area of international marketing; d/ re-establishment of the position of Agricultural Advisor at Ukrainian embassies in the countries with high export potential; e/ creation of information system to support export operations; f/ use of international technical assistance for harmonization of quality standards, standards of phytosanitary control, products classification system, etc.

In May 2012, the Ukrainian Parliament passed the law on state support for export activity. This new law contemplates establishment by the Cabinet of Ministers of Ukraine of the Ukrainian state-owned export credit agency ("Ukrainian ECA") for purposes of insuring commercial and non-commercial risks of Ukrainian exporters and providing guarantees in relation to performance by foreign purchasers of their obligations under export contracts. However, due to the continuing financial crisis and the current budget deficit, the implementation of measures mentioned above could be seriously delayed if not cancelled During the past decade several attempts to pass the bill on state financial support to export activities have been undertaken, yet have not been successful.

In **Serbia**, a specialized Export Credit and Insurance Agency (AOFI) has been operational since 2005. The purpose of this institution is export promotion and development of foreign economic relations through export credit insurance and financing for Serbian exportoriented companies.⁸⁰ As an export promotion agency, the AOFI acts jointly with development, financial and other public institutions, but also with relevant foreign companies and institutions to finance export-oriented production while sellers are waiting for payments from foreign buyers.⁸¹

Taking into consideration that national producers and exporters need working capital for foreign trade operations, the AOFI additionally positioned two financing products:

- a) factoring, and
- b) short-term financing.

Due to the long-term comprehensive measures of horticulture production and export development, **Turkey** became the leading exporter of fresh fruits and vegetables in the region. The public authority responsible for export promotion is a special **Under-Secretariat of the Prime Minister for Foreign Trade**, which covers various subjects including:

- Regulations, which are harmonized with Turkey's international obligations, especially with requirements of WTO and Customs Union between EU and Turkey;
- Support to export in the framework of the official development policies;
- Elaboration of general export policies or more specific subjects, like regulation of transit trade;
- Determination of principles and procedures for establishment of free zones.

Another important public sector actor in the area of foreign trade is the *Ministry of Economy*, with the main tasks in international trade as follows:

- Determining main policies and targets concerning foreign trade;
- Managing diversification of products and access to new markets with the purpose of increasing Turkey's share in world trade and ensuring sustainable growth in export;

^{77 /} http://1tv.ge/, August 03, 2012

⁷⁸/http://consumer.einnews.com/news/fruits/georgia

^{79/} ДЕРЖАВНА ЦІЛЬОВА ПРОГРАМА розвитку українського села на період до 2015 року, 2007.

⁸⁰ / Official Gazette of the Republic of Serbia, No. 61 / 2005.

⁸¹/ www.aofi.rs.

- Developing Turkey's bilateral, regional and multilateral economic relations with foreign countries and international organizations;
- Ensuring the safety and compliance of the products export and import products with regulations and standards and making import and needed inspections for this purpose.

Following the regulations and requirements of WTO and Customs Union with the EU, Turkey has reshaped incentives provided to exporters, eliminated direct subsidies, and increased transparency of indirect export subsidy programmes, such as:

- export finance and insurance, and
- promotion and marketing assistance.

Turkish exporters of agricultural products, including fresh fruits and vegetables, also benefit from export insurance, guarantees, and credits of up to 50% of the F.O.B. (free-on-board) value of the consignment at interest rate that are frequently well below the rate of inflation. These export instruments are available to all sectors through specialized Turk Eximbank and commercial banks cooperating with this institution.⁸²

2.10.3 Costing Assumptions

The impact assessment of this specific barrier in monetary terms represents a complicated task due to the complex and multidimensional nature of the state support system to agro-export promotion, obvious difficulties with direct linkages attribution, and insufficient statistical data. In this specific case, emphasis should be made not just on increased sales and facilitation of access to new markets/market segments but also on externalities: introduction of new technologies and quality standards, contribution to rural development, improved international image of the country, promotion of Moldovan agricultural products in perspective markets, etc.

From these perspectives, a relatively limited investment in the strengthening of state's capacities of promoting and supporting Moldovan export abroad, and development of related institutional network should be considered as a feasible option, especially taken into consideration an anticipated sales figures increase, reflected in the abovementioned assumptions.

2.10.4 Recommendations

- Based on conclusions of the National Study and recommendations of other recent donor-funded projects and local experts, as well as recent experience of Moldovan wine industry, and in consultations with key national stakeholders to develop an Action Plan/Programme for the strengthening of Moldovan horticulture competitiveness and sustainability, and export development (linked to the National Rural Development Strategy, which is currently under consideration).
- 2. Create a platform for promoting Moldovan horticulture products on international markets based on coordinated actions of leading professional associations and government agencies including MAFI/Marketing Information Centre, AIPA and other organizations involved in the support of export promotion.
- 3. Provide technical assistance in international marketing and sales skills development of participants in such areas
- 4. Strengthen the capacities of the Marketing Information Centre at MAFI, establish in cooperation with leading professional associations an Internet portal providing key market information on horticulture on a regular, timely basis (MAFI, EPA, DP).
- 5. Consider establishing the position of Agricultural Advisor at Moldovan Embassies in countries where there is a potentially large consumption of Moldovan agriculture products, or, as an alternative variant, to assess a feasibility of creation by the leading professional associations of trade representative offices in key target markets (with state support) after strengthening capacities of professional associations in promoting Moldovan fruits and vegetables abroad, approaching potential buyers on behalf of its members, establishing working relations, negotiating general terms and conditions of supply, facilitate negotiations between buyers and suppliers, etc. (MAFI, MFAEI, PEA, DP).
- 6. Initiate consultations regarding creation of state Agricultural Export Fund to provide trade finance, guarantees, and insurance for Moldovan agricultural export (GOM, MAFI, MOE, DP).
- 7. Include financial compensation to Moldovan companies and farmers attending international trade fairs, specialized conferences, and professional conventions in the Programme of state subsidies for agricultural producers (GOM, PAR, MAFI, AIPA).

⁸² / Evaluation of Agricultural Policy Reforms in Turkey. OECD, 2011, p. 53.



3. IMPLICATIONS FOR HUMAN DEVELOPMENT

"The objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives."

Mahbub ul Haq, Founder of the Human Development Report.

Moldovan horticulture traditionally represents one of the leading sectors of the national economy. According to the MAFI data, fruit orchards currently cover 89 million hectares (seed fruits - 57 million ha, and stone fruits - 32 million ha), and vegetables – 75 million ha. In 2012, 380 million tones of fruits and 459 million tons of vegetables were produced, respectively 52% and 3% of which were exported as a fresh product.⁸³ In monetary terms, it exceeded \$280 million and represented about 15% of total Moldovan exports.. However, from the perspectives of human development, the role of this specific sector goes beyond contribution to the GDP or export generated income - the modernization of the horticulture production and post-harvesting operations, stimulated in a vast degree by the growing requirements to the quality and appearance of fresh fruits and vegetables in the international markets, has its impacts on a wider range of human development indicators.

The human development approach emphasizes three areas of concern:⁸⁴

- First, it underlines the need for the inclusion of a broader group of governmental and non-governmental actors in decision-making processes.
- Second, the human development approach broadens the scope of indicators used to monitor development and consider a wider range of human and social indicators that track the human situation: life expectancy, nutritional status, social development, etc.
- Third, the urgency of human development needs requires stronger international action and more rapid and flexible support – financially, in knowledge sharing, in access to markets, and in other forms of technical assistance targeting inclusive and sustainable socio-economic development.
- 1. To be lasting and sustainable, the anticipated expansion of Moldovan export of fresh fruits and vegetables and the development of its production base require a involvement of key interest groups in the decisionmaking on needed coordinated measures targeting:

- Improvement of the business environment
- Dissemination of marketing information
- Strengthening capacities and skills of local producers and exporters
- Facilitation of access to finance to support agricultural projects
- Improvement of agricultural infrastructure
- Promotion of sustainable irrigation
- Improvement of logistical base, etc.

These groups include as a minimum: private sector, often represented by the specialized professional associations; representatives of the MAFI and its Agencies (ANSA, AIPA) but also other governmental Agencies involved into provision of public services affecting the export of fresh fruits and vegetables. Because of obvious impact of horticulture production and export on the rural communities, representatives of local authorities and non-governmental organizations, operating in the field of rural development, also should be a part of the inclusive decision-making process. The public-private platform recommended by this study for elaboration of coordinated course of actions in the area of horticulture could become a tool for the inclusive decision-making.

2. Rehabilitation and modernization of horticulture sector in Moldova and related development of export potential should have an overall positive and lasting impact on strengthening the base of the national economy and rural development, as well as on wider socio-economic indicators.

A comprehensive assessment of impacts of horticulture development on the environment requires a complex evaluation of a wide range of factors – from increased use of water resources, to impacts on soil productivity and chemical elements migration, to the CO2 emission. The general assumption is that an introduction of new, more productive and environmentally sustainable agricultural practices and techniques, use of less harmful fertilizers and means of chemical protection of plants should contribute to the diminishment of adverse impacts of agriculture on the environment. Increased effectiveness of the use of natural resources (first of all, of land and water, but also of energy resources due to the increased energy efficiency and use of alternative energy sources) also should contribute to the positive impact on the environmental sustainability of rural areas of Moldova.

^{83/} Ştefan Chitoroagă, SITUAȚIA ACTUALĂ ÎN SECTORUL AGROINDUSTRIAL, 2012

⁸⁴/ Richard Jolly, Louis Emmerij and Thomas G. Weiss. United Nations Intellectual History Project, Ralph Bunche Insti-tute for International Studies, The CUNY Graduate Center, Briefing Note #8, July 2009, www.UNhistory.org.

All of Moldova's neighbours pay a lot of attention to increasing the share of renewable energy (including solar) in their energy balances, and to promoting technical solutions applicable for agricultural facilities - for water pumping and irrigation, heating green-houses, and other purposes.

According to the Ernst & Young Solar Index, in November 2012, *Turkey* was ranked 22d in the world, and *Ukraine* and *Romania* both 24th in the development of solar energy legal and institutional framework, and technical infrastructure.⁸⁵

The success of these countries is based upon the following three pillars:

- Liberalization of the energy market, adoption of policy, which stimulate development of renewable energy, including setting of a guaranteed price for a certain period of time at which small producers can sell renewable power into electricity network and ensure grid access to electricity generators;
- 2. Creation and enforcement of legal and regulatory framework foreseeing an easy licensing of producers of energy from renewable sources, and acceptance of power supply arrangement that allows a two-way flow of electricity between the electricity distribution grid and customers that have their own generation system;
- 3. Direct investment or creation of incentives for investments into alternative energy generation and in installation of equipment based upon use of renewable energy (capital subsidy, grant, or rebate or Investment or production tax credit).

An important role in the increased attractiveness of solar energy belongs also to targeted information dissemination about available technical solutions and best practices in this area.

In *Ukraine*, due to changes in the legal base, big local potential and support from international financial institutions (IFC, EBRD) and donor agencies, the production of energy from solar sources increased by 400 MW in 2012 and will be increasing by additional 400- 500 MW per year in 2013 – 2015.⁸⁶

A favorable regulatory environment in *Romania*, combined with a lack of investment outlets in other sectors, has already led to a rapid increase in renewable energy capacity; uptake of solar projects in the country is still relatively slow, with only 5MW of installed capacity. However, the sector is expected to experience significant growth in the medium term due to the attractive incentive scheme (6GCs/MW), shorter construction schedule and smoother development process.⁸⁷ Several projects were already initiated, as part of research development and demonstration programs, including autonomous water pumping systems and systems connected to the electrical grid.⁸⁸

Renewable energy has become a priority for *Turkish* policymakers in recent years. A new Renewable Energy Support Mechanism (YEK Mechanism), which went gone into effect on 1st December, 2011, establishes special rules for small electricity producers representing special interest for agricultural producers: the energy facilities with an established capacity of less than 500 k. We are not required to receive a generation license or start a company. According to the Regulation on Unlicensed Production in the Electricity Market, such unlicensed producers should apply to the distribution company in their region. Distribution companies are required to offset the consumption and production amounts and buy the excess energy at the prices specified in the YEK Mechanism for 10 years.⁸⁹ It is anticipated that a total of 70 MW of new photovoltaic capacity will be added in 2013 by small projects, especially taking into account decreased costs of commercial-scale solar systems, which currently may be installed in Turkey for under \$ per Watt.⁹⁰ In a parallel way, due to state support, the solar-powered irrigation system with a daily capacity of 30-50 tons of water may be purchased for \$2,000 (see picture below).91



⁸⁵/ Renewable Energy Country Attractiveness Indices, Ernst & Young, # 35, Nov. 2012, p. 25

⁸⁶/ www.infosolar.ro, Nov. 26, 2012

^{87 /} Renewable Energy..., p. 31

⁸⁸/Investing in solar energy in Romania, Romania- Belgium Business Club, 21 January 2011

⁸⁹/Turkey's Renewable Energy Sector from a Global Perspective, PWC, 2012, p. 34

^{90 /} www.pv-magazine.com; Apr. 11, 2013

^{91/}www.PortTurkey.com; Oct. 05, 2012.

On the other hand, intensive and especially super-intensive orchards and berry plantations require more water for irrigation, more chemicals are used in the production, and the green mass of modern orchards is much lower than in traditional orchards with eventual consequences for CO2 cycle. Moreover, additional cold storages, pre-cooling equipment, heating elements of green houses, and transportation flows needed to serve increased production and export could lead to a bigger emission of "greenhouse gases", neutralizing positive environmental impact of new technologies. Obviously, the assessment of environmental impacts of horticulture modernization in Moldova goes beyond the tasks of this study but even a brief discussion of human development implications of the removal of key barriers for export of fruits and vegetables from Moldova should mention changes in environmental practices and natural resources management. Within the context of human development concept, a better environmental situation, more sustainable agricultural practices usually

mean increased food safety and healthier lives for the population and longer life expectancy.

Socio-economic impacts of horticulture rehabilitation and development are also numerous and varied. Their scale will change over time, following anticipated modernization of the sector. The current impact of barriers to the export of fresh fruits and vegetables is assessed at \$37 million of annual losses and missed opportunities, what is comparable with the annual budget of the state fund of agricultural subsidies. Being used for the purposes of national socio-economic development, these resources could contribute substantially to the improvement of the socio-economic situation in the rural areas of Moldova. To overcome the current structural barriers to horticulture export, at least \$157 million of investment are needed according to the assessment presented in the Annex 1, with a payback period equal to 4 years.

The key socio-economic impacts and their eventual contribution to the human development are briefly presented in the Matrix below:

Socio-Economic Impacts	Implications for Human Development
Increased income in rural areas due to bigger sales figures and higher profits of local farmers	Poverty alleviation; creation of preconditions for the local socio-economic development; alleviation of depopula- tion of Moldovan villages; higher life expectancy
Multiplication effect of horticulture development on other sectors along supply chain – from inputs supply, to post harvesting operations, and to logistics and transportation of fresh fruits and vegetables	Increased income and employment
Expansion of taxation base	Possibility to increase public expenditure on education and health; strengthening the social infrastructure in ru- ral areas; positive impact on life expectancy
Optimization of the use of public funds because of more ef- fective allocation of agricultural state subsidies - to the high value added segments with anticipated high returns on in- vestment	Possibility to expand state support to other strategically important areas of agricultural/rural development; im- prove food security and diminish poverty levels
Dissemination of technological innovation	New standards and skills brought to the rural areas; new, higher standards of labor are in demand; improved food security
Decreased seasonality in rural employment because of intro- duction of continuing post-harvesting operations, necessity to provide year around maintenance for agricultural infra- structure and equipment, etc.	Alleviation of the depopulation of Moldovan villages; in- creased income of rural population
Creation of permanent full-time employment positions needed for the smoothly operations of super-intensive and intensive orchards, greenhouses, plantations of berries, etc., and for effective and efficient post-harvesting, marketing and sales. Although a modern horticulture production does not require a large labour force (with a certain exception of the harvesting season), each interviewed company tends to have a core of qualified, reliable, and loyal permanent workers with a salary higher than average in the area (usually 10 – 15 peo- ple in case of a small/mid-size farm).	Alleviation of depopulation of Moldovan villages; in- creased income of rural population, creation of condi- tions for the local socio-economic development; better nutrition; higher life expectancy

Table 3. Socio-economic Impacts of Horticulture Modernization and their Implications for Human Development

Streamlined regulatory base and simplified administrative procedures for agricultural projects	Contribution to administrative reform, improvement of business climate; creation of conditions for income and employment generation; increased food security
Improved public services delivery for agricultural businesses in production and export	Contribution to administrative reform; improvement of business climate; increased income of Moldovan popula- tion
Easier access to credit for agricultural producers and exporters	Creation of conditions for income and employment gen- eration, and rural development
Improved cooperation among local farmers and companies; horticulture clusters and groups of producers created on local and sub-national levels	Positive impact on rural development; creation of new jobs; income generation; strengthening of local socio-economic development
Strengthened professional associations	Positive impact on knowledge and skills dissemination; income and employment generation; strengthening of local socio-economic development

3. International organizations, international financial institutions, and the donor community support the modernization of Moldovan agriculture and horticulture: over recent years a wide range of initiatives in these areas were implemented with the support of the World Bank Group, UN Agencies, USAID and the EU-funded projects, contributing not only for the improvement of the national economy but also ensuring positive impact on a wider socio-economic development of the country.

4. CONCLUSIONS

- The current Government of Moldova pays a lot of attention to supportin local companies producing and exporting fresh fruits and vegetables. This industry, whose share in total doller value of exports exceeds 10 %, is one of the key pillars of the national rural development. The GOM provides financial support to the local producers, improves business environment and initiates simplification of export procedures in compliance with relevant international conventions and good international practices, and negotiates bilateral and multilateral trade agreements opening new export opportunities.
- 2. The further development of Moldovan export of fresh fruits and vegetables depends on the coordinated actions of private and public sectors targeting elimination/alleviation of excising administrative and nonadministrative barriers, and the overall strengthening of production and marketing potential of Moldovan horticulture.
- 3. The various aspects of existing barriers to export are comprehensively analyzed in a series of recent donor-funded studies, and a number of recommendations have been developed by international and local experts for the public agencies and private sector.
- 4. For consideration and implementation of measures needed for building up the international competitiveness of Moldovan horticultural producers and exporters, as well as for linking an export promotion with larger strategic initiatives, such as the Rural Development Strategy and administrative reform, information sharing and better coordination of actions are needed between:
 - a/ Ministries and Agencies of the GOM,
 - b/ public and private sectors, and
 - **c/** international financial institutions, international organizations, and donor-funded projects.
- 5. Participation of the private sector in the decision making process and decisions' implementation is critical for effectiveness, efficiency and the sustainability of

recommended measures. Professional associations could be considered as legitimate representatives of Moldovan horticulture producers and exporters.

- 6. As proven by the recent experience in the area of Moldovan wine industry, creation of a platform for public-private partnership building aimed at the development and implementation of export supporting may be an effective organizational solution. Participants of such a platform could address the key barriers to export and develop a relevant action plan to overcome them with a special focus on the following areas:
 - Development of recommendations for the amendments in the legal framework in the interests of agricultural producers and exporters;
 - Streamlining and simplifying administrative norms and procedures, including registration of agricultural inputs, irrigation and water management, construction permits for agricultural projects; certification of agricultural products, land consolidation, etc.;
 - State policy in horticulture development and support to export of fresh fruits and vegetables;
 - Facilitation of access to finance for Moldovan agricultural producers and exporters, including wider introduction of new tools like warehouse receipts, insurance, leasing, etc.;
 - Facilitation of access to market information, dissemination of information about international market opportunities on the one hand, and the promotion of Moldovan products in the global markets – on the other.
- 7. A special role in the development of Moldova's horticulture potential should be initiated by increased cooperation of local producers and exporters on the basis of professional associations and/or local producers groups to be formed around industry leaders. Support for a joint public-private agricultural cooperation development programme could be recommended in this respect.



5. LITERATURE

Access to Agricultural Finance in Priority Development Regions in Turkey. March 2012

Agricultural Finance in Serbia – Status and Recommendations. Business Enabling Project. USAID. January 2013

Agro-Industry Brief, FAO, 2011

Ahmed, Z.U., Craig, J.C., Baalbaki, I., and Hadadian, T.V., 2004, "Export barriers and firm interna- tionalization: A study of Lebanese entrepreneurs", Journal of Management and World Business Research, 1, 1, 11-22

Altintas, M.H., Tokol, T., and Harcar, T., 2007, "The effects of export barriers on perceived export performance: An empirical research on SMEs in Turkey", EuroMed Journal of Business, 2, 1, 36-56

Amjad, Rashid & Ghani, Ejaz & Din, Musleh ud & Mahmood, Tariq, 2012. "Export Barriers in Pakistan: Results of a Firm-Level Survey," MPRA Paper 41978, University Library of Munich, Germany

Analysis of HVA Constraints, Opportunities and Requirements, Chemonics International, Millennium Challenge Corporation, 2009

Apple Value Chain Study: Analytical Report. Chisinau, ACED, USAID, 2011

ARKA, Erevan, 03.11.2011

Burrell, Alison and Marianne Kurzweil. Distortions to Agricultural Incentives in Turkey. Agricultural Distortion Working paper 10, December 2007

Binding Administrative Procedures for Agribusiness Starting and Unfolding, Centre of Sociological Investigations and Marketing Research "CBS-AXA" for the International Finance Corporation, Moldova, Chisinau 2012

CIBER Final Report: Priority Regulatory Constraints for Moldovan HVA Sector and Recommendations for their Removal. ACED, USAID, Chisinau, September 2012.

Cimpoies, D. The Economics of Land Fragmentation in the Individual Farm Sector of Moldova. Ştiinţa agricolă, nr.2/2010.ISSN1857-0003

Current State of Moldovan Cold Storages for Fruits and Vegetables: Analytical Report. Chisinau, PDBA, USAID, 2008

Department of Information and Communication of the Cabinet of Ministers of Ukraine, 13.03.2013

Discovering the Barriers to Exporting (2012), Chamber and University of Chester, 15/10/2012 [http://www. wcnwchamber.org.uk/news/october-2012/discoveringthe-barriers-to-exporting.htm] Dulić Markovic, Ivana. Serbia: Policies and Programmes to Support Small Farmers' Organizations. The EC-FAO Food Security Information for Decision Making Programme

Emerging Market Economics' Moldova Trade Diagnostic Study: Fruit and Vegetable Sector Case Study, World Bank, 2003

End Market Study for Fresh and Dried Fruits in Germany, ACED, USAIAD, Chisinau, 2011

End Market Study for Fresh and Dried Fruits in Moldova, ACED, USAIAD, Chisinau, 2011

Evaluation of Agricultural Policy Reforms in Turkey. OECD, 2011

Evolution of Agricultural Policies in Turkey. OECD, 2011

Export Barriers and Export Performance: Empirical Evidence From the Commercial Relationship Between Greece and Iran" Allameh Tabatabai University, Tehran, Iran -South-Eastern Europe Journal of Economics 1 (2012) 53-66

Export Barriers: What are they and who do they matter to? By Richard Kneller (GEP, University of Nottingham) and Mauro Pisu (National Bank of Belgium)

Export Marketing Survey: Ukrainian Market of Fruits and Vegetables. TACIS, 2009

FAOSTAT, 2011

Feasibility, Perspectives and Potential Impacts of a Free Trade Area Between Moldova and the EU, Expert-Grup, Chisinau, 2009

Fresh Fruit Sector in Moldova: Baseline Study for the Aid for Trade Project, UNDP, 2012

Gaudesius, Rimvydas. Sustainable Land Consolidation in Lithuania – The Second Wave of Land Reform. Environmental Research, Engineering and Management, 2011, # 3(57), [p. 39-45]

Grape Value Chain Study, ACED, USAID, Chisinau, 2011

Jemric Tomislav , Zoran Ilic. "Present State of Cold Chain and Postharvest Loss of Fruits and Vegetables in Croatia and Serbia". Agriculturae Conspectus Scientificus | Vol. 77 (2012) No. 1 (1-4). University of Zagreb

Hacer Celik Ates and Mustafa Terin. Farmers' Perceptions of Farmer Organizations in Rural Areas. -African Journal of Business Management Vol. 5(1), pp. 179-186, 4 January, 2011 Available online at http://www.academicjournals. org/AJBM Information Note on Apple Exports. Chisinau, MAFI's Marketing Information Center, May 2013

Investing in solar energy in Romania, Romania-Belgium Business Club, 21 January 2011

Kavaliauskiene, Birute and Marite Elene Tarvydiene. Problems and Perspectives of Land Consolidation Projects in the Republic of Lithuania. BalticSurveying'11, [p91-98]

Koksal, M.H., and Kettaneh, T., 2011, "Export Problems Experienced by High- and Low-Performing Manufacturing Companies: A Comparative Study", Asia Pacific Journal of Marketing and Logistics, 23, 1, 108-126

Land Consolidation in Central and Eastern Europe: a Regional Approach, FAO (2006)

Leonidou, L.C., 2000, "Barriers to Export Management: An organizational and Internationalization Analysis", Journal of International Management, 6, 2, 121-148

MAFI Agro-Rural Strategy for Moldova, 2014-2020

Moldova's Agribusiness Regulatory Impact Overview, IFC, 2012

Moldova's Agricultural and Rural Development Strategy for 2014-2020: Draft Report. MAFI, May 2013. Chisinau, May 2013

Moldova's Court of Accounts Report on Horticultural Exports to Russia (2012)

Moldova National Human Development Report 2012: Assessing the Impact of Moldova's Signing of the Deep and Comprehensive Free Trade Agreement (DCFTA) with the European Union, UNDP, Chisinau, 2012

Murat Hakan Altintas, Tuncer Tokol, Talha Harcar, (2007) "The effects of export barriers on perceived export performance: An empirical research on SMEs in Turkey", EuroMed Journal of Business, Vol. 2 Iss: 1, pp.36 – 56

North Carolina Agricultural Extension Service. http:// www.bae.ncsu.edu/programs/extension/publicat/ postharv/ag-414-8/

Official Gazette of the Republic of Serbia, No. 61 / 2005

Overcoming barriers to export: A guide for growing businesses (2011)/ by Parcelforce Worldwide and UK Trade & Investment

Pages, Erik. Barriers to Export Success [http://entreworks. net/blog/barriers-to-export-success/] (2013)

Potential for Agricultural Finance in Ukraine. Study Paper. Develop-ment Facility of the European Fund for Southeast Europe, 2011

Reducing the Vulnerability of Moldova's Agricultural Systems to Climate Change: Impact Assessment and Adaptation Options. World Bank , 2012

Renewable Energy Country Attractiveness Indices, Ernst & Young, # 35, Nov. 2012

Richard Kneller, Mauro Pisu, (2007) "Export Barriers: What are they and who do they matter to?", University of Nottingham, research papers Series: Globalization, Productivity, and Technology

Rural Poverty Approaches, Policies & Strategies in Turkey, IFAD

Serbia Adopts Law on Incentives for Agriculture Production. Report No. RB1303, USDA GAIN, Belgrade, 2013

Ševarlić, Miladin M. and Marija M. Nikolić, Richard Simmons. Agricultural Cooperatives and Their membership in Cooperative Unions in Serbia - Applied Studies in Agribusiness and Commerce – APSTRACT Agroinform Publishing House, Budapest, 2010

Seyed Hossein Jajaji (2012) "Export barriers and export performance: Empirical evidence from the commercial relationship between Greece and Iran" Allameh Tabatabai University, Tehran, Iran -South-Eastern Europe Journal of Economics 1 (2012) 53-66

Siemen van Berkum and Natalija Bogdanov. Serbia on the Road to EU Accession: Consequences for Agricultural Policy and the Agri-food Chain. CABI, 2012

Stevan Marosan, Maja Trajkovic, Aleksandar Andric, Zoran Knezevic.. Land Consolidation and Rural Development. (2008)

Strategic Comparison of Moldova's Integration Options: Deep and Comprehensive Economic Integration with the EU versus the Accession to the Russia-Belarus-Kazakhstan Customs Union, Expert-Grup, Chisinau, 2012

Study of the Current State and Development Tendencies of Wholesale Agricultural Markets and Logistical Centers in the Southern Region of Ukraine. LINC, USAID, Kiyv, 2011

Svedsen, Mark. Turkey: Irrigation Management Transfer, IMT Case Study

Tomato Value Chain Study ACED, USAID, Chisinau, 2011

Transportation Study, ACED, USAID, Chisinau, 2012

Trade and Human Development: Aid for Trade Needs Assessment for the Republic of Moldova. UNDP, 2011

Turkey's Renewable Energy Sector from a Global Perspective, PWC, 2012, p. 34

Turkish Agriculture Industry Report, Investment Support and Promotion Agency – Deloitte, July 2010

Ukraine Exporter Guide 2012. Report Number UP1241. USDA GAIN, Kyiv, 2012

Ukrainin Grain Association, http://uga-port.org.ua Apr. 04, 2013

Value Chain Analysis and Market Study in the Fruit and Vegetable Sector in Moldova

Vladan Đokić, Stevan Marošan. New Model of Land Consolidation and Rural Development in Serbia. Spatium, 711. 3 (497.11), [p. 61-67]

World Bank's Trade and Transport Facilitation Assessment, Chisinau, 2012

Zakic Ń., S. Vukotić, M. Laketa and L. Laketa. Agricultural Cooperatives: Researching Member's Perception of Important Issues of Co-operatives on the Example of Serbia. The Journal of Animal & Plant Sciences, 23(1): 2013, Page: 290-297

Zvi Lerman and Dragos Climpoies. Land Consolidation as a Factor for Successful Development of Agriculture in Moldova. The 96th EAAE Seminar "Causes and Impacts of Agricultural Structures" 10 – 11 January 2006, Tänikon, Switzerland, The Hebrew University of Jerusalem, Discussion Paper No. 10.05

* * *

The Strategy of Development of Agricultural Cooperatives in the Republic of Serbia (Strategija razvoja zemljoradničkog zadrugarstva u Republici Srbiji) (Serbian). SAAE, Belgrade. 2011

ДЕРЖАВНА ЦІЛЬОВА ПРОГРАМА розвитку українського села на період до 2015 року, III-7

Статистичнии випуск Кредитування сільськогосподарських корпораціи іншими депозитними корпораціями (банками),Національний банк України, 02 квітня 2013 [Statistical Bulletin, National Bank of Ukraine, April 4, 2013] http://en.uhdp.org.ua/

http://www.oecd.org/tad/facilitation/Moldova_OECD-Trade-Facilitation-Indicators.pdf

www.aofi.rs

www.blackseegraine.net, April 24, 2013

www.ebrd.com/pages/project/case/eastern/ukraine_umlp.shtml

www.eximbank.gov.tr

www.infosolar.ro, Nov. 26, 2012

www.PortTurkey.com; Oct. 05, 2012

www.portturkey.com/agriculture/3185-agriculturalexport-of-turkey-surpasses-world-average-in-10-years

www.pv-magazine.com; Apr. 11, 2013

www.ukragroleasing.com.ua/index.php?/prokompaniyu.html

www.unascu.org.ua



1. Cost-Benefit Analysis of Removing Constraints to Moldovan Horticultural Exports

1.1 Model Assumptions

Annex 1 includes the Cost-Benefit Analysis of removing the constraints to the development of the Moldovan horticultural sector. The analysis is based on the following assumptions:

- **Cost-benefit analysis (C-B analysis)**. Each export constraint implies costs to Moldova's horticultural sector. The costs consist of losses, extra costs and lost opportunities. If 'avoided', such losses become benefits. However, there are significant investment and operating costs related to 'avoiding' the losses, i.e. creating benefits. These investments are treated as costs in the C-B analysis. Section A in Table X includes the benefits to the sector from removing the constraints. Section B includes the current costs required for removing the constraint. Section C calculates the current benefits, if the constraint is removed. Section D calculates the investment costs required for removing the constraint. Finally, Section E calculates the payback period, where possible, of removing the constraint, by dividing section D by section C.
- **Type of constraints**. There are two type of constraints: 1) those related to current activities and 2) those related to investments.
- Current activity constraints. Such constraints generate 1) losses and 2) lost opportunities. Losses include extra operating costs from land fragmentation, losses in weight and yield from insufficient irrigation, losses from inadequate packaging and losses during shipment and storage from lack of pre-cooling. Lost opportunities include a 'lost' profit margin from not selling off-season and from not selling to the EU and to the Russian supermarket channel.
- Investment constraints. Such constraints generate 1) extra costs required to conduct 'regular' investments and 2) lost investment opportunities. Extra costs result from various inefficiencies in the organization of the sector: the need to build engineering networks to the on-field site of the agricultural producer, expensive bank financing, investments in land consolidation, costs of supporting producer groups and associations, and costs related to export promotion. Lost investment opportunities derive from smaller subsidies compared to neighbouring countries: the current 11 million USD in subsidies reduce investment costs by the same amount, but if subsidies were

higher, they could have further reduced the costs to the producer and decreased the payback period of investments.

- **Products in the model**. The analysis is limited to three groups of commodities: 1) apples, 2) table grapes, and 3) apricots, cherries, peaches, and plums. Authors use the 2012 export data from the Moldovan customs service regarding guantities and price. There are some drawbacks related to the data. Quantities are underestimated since a large percentage of exports, particularly of grapes and stone fruit (groups 2 and 3) are exported unofficially in private cars and small trucks to Ukraine via Transnistria. Prices are equally underestimated, custom invoices showing prices consistent or below the indicative 'tax' prices of the Russian Customs Service, from which VAT and duties are calculated. Given the absence of reliable data on actual guantities and prices, the official Moldovan customs data have been used in calculations.
- Quantitative estimates. Calculations are based on the level of exports, not the level of output: cca 50% of total output is exported fresh, 25% is sold on the local market, and 25% is used in processing based on 2012 data. About 50% of apples and 70% of grapes and stone fruit are exported in-season, off-the-field. The calculations are based on the current level of exports: both losses and costs of removing losses are calculated from the 2012 level of exports.
- Loss and investment estimates. Each constraint chapter in this paper has a section called 'Costing assumptions' which describe in detail the justification behind loss and investment estimates.
- Overlapping benefits. For some constraints (grading and sorting, packaging, cooperation in post-harvesting and sales, capacity of associations to promote exports, state support to export promotion) the benefits are overlapping. For these constraints, a common C-B Analysis is performed and a common payback period is calculated.
- Capitalization of annual costs related to constraint removal. With some constraints, the cost of removal is annual. These costs include those related to State support to export promotion, land consolidation, cooperation in post-harvest and sales, and capacity-building of associations. Authors preferred to capitalize these costs over a period of 5 years instead of accounting them as current costs to both stress the need of long-term state support programmes (at least 5 years long) aimed at constraint removal, and the non-permanence of these costs. Once the entry to new market channels is achieved, there is no need

for further capacity building of associations, stimulation of cooperation, etc.

- Estimation of current costs. The annual costs of the cold-chain and grading and sorting equipment were estimated as 5% of total investment costs. Testing this assumption with more exact calculations for cold storages (kWts, other operating costs) produced results consistent with the assumption.
- External factorss. This C-B Analysis does not take account of positive and negative external factorss, given the relative small non-cash impacts it produces. The Human Development Impact section in the study highlights the potential positive and negative external factorss, without giving monetary estimates.

1.2 Results of the Cost-Benefit Analysis

Annex 1 presents the results of the C-B Analysis. The following table summarizes the main findings:

Following is a description of these findings:

Inefficiencies in the horticultural sector lead to unwarranted losses and missed margins on export sales worth 37.4 million USD per year. The main elements of these losses are missed margins on off-season sales due to lack of cold storages (30%), missed margins on new export channels – Russian supermarkets and new markets in the EU (25%), and missed crop from insufficient irrigation, that could have been potentially been exported (17%). The following chart displays all major categories of losses.

Export and Production Constraint	Opera-ting benefits	Current Costs	Net Opera-ting Benefits	Regular Invest-ment Costs	Extra Invest- ment Costs	Total Invest- ment Costs	Payback Period in Years
	А	В	C = A - B	D	E	F = D + E	G = F/C
Land Consolidation	1 936		1 936		2 500	2 500	
Irrigation	6 454	1 760	4 694	35 203		35 203	
Packaging	3 227	3 520	-293			0	
Pre-cooling	5 385	1 096	4 289	17 700		17 700	
Cold Storages	11 120	2 950	8 170	59 000		59 000	
Grading and Packaging for New Channels	9 311	3 319	5 993	10 800		10 800	
Engineering Networks					8 750	8 750	
Subsidies					-11 200	-11 200	
Bank Financing					23 333	23 333	
Capacity of Associations					2 500	2 500	
Producer Cooperation in Post-harvesting and Sales					2 500	2 500	
State Support to Exports					5 600	5 600	
TOTAL	37 434	12 646	24 788	122 703	33 983	156 687	6,32

Table A. 1 Summary of Cost-Benefit Analysis (thousand USD)



Figure A. 1

Losses to Moldovan Horticulture from Export Constraints (thousand USD, %) 'Avoiding' these losses implies significant costs, primarily it means investments in irrigation and post-harvesting equipment, and associated operating costs. Required investments would be 122 million USD at the current level of exports. Cold-storage equipment consumes the bulk (48%) of the costs (see chart). Current costs required to operate the equipment amount to 12.6 million USD per year.



Again, due to the inefficiencies of the sector, producers and exporters will need to invest more than 122 million USD in new equipment. Extra investment costs can add up to 34 million USD, or roughly 1/3 of the baseline cost. These extra-costs are primarily linked to expensive bank financing (55%) and to extending engineering networks to the new post-harvesting units (see Figure A.3 below).



Even with the extra-costs linked to new investments, the payback period for the new infrastructure is 6.3 years. This relatively short period, in comparison with the 10-15 years production life of the new equipment, provides a financial rationale to the upgrading of infrastructure, which, intuitively, was implied in most of the previous sections of this study.



Figure A. 3

Extra-Investment Costs Associated with Inefficiencies (thousand USD, %)

Table A. 2 Full Results of the Cost-Benefit Analysis

	E	xports in 20	012	Water, Power and Sewage Networks (Post- Harves- ting)	State Subsi- dies	Bank Finan- cing	Land Consoli- dation	Irriga- tion	Packa- ging (PH)	Pre- cool- ing (PH)	Cold- Storage (PH)	Grading an (P Packagi Capad Associ Cooperat & S State Su Exp	nd Sorting H) ing (PH) city of iations cion in PH ales pport to orts	Total
Indicators	Quant	Unit Price	Total Export Value	10% of extra- costs for connect- ing net- works	Reduc- tion invest- ment costs by 12.8%	40% of extra invest- ment costs for 2/3 of bor- rowers	10% in extra costs due to frag- menta- tion (40% prod margin) on 50% of lands	Loss of 10% of crops due to insuf- ficient irriga- tion	5% lost quan- tity in ship- ment due to inadeq. packag- ing	10- 20% lost quant. in ship- ment due to lack of pre- cool- ing	30% lost margin for 50-70% of in- season sales	100% lost margin on possi- ble sales in EU for 20,000 tons of apples	20% lost margin for 30% shipped to Russian super- markets	Total an- nual ben- efits and invest costs
	tons	USD /	000 USD	000 USD	000 USD	000 USD	000 USD	000 USD	000 USD	000 USD	000 USD	000 USD	000 USD	000 USD
A. ANNUAL LOS	SES/BENE	FITS FROM	AVOIDING	LOSSES	050	050	030	050	050	050	030			
Apples	149 137	272	40 558				1 217	4 056	2 028	2 0 2 8	6 084	5 439	2 434	23 285
Table grapes	36 343	390	14 167				425	1 417	708	1 983	2 975		850	8 3 5 9
Apricots, cher- ries, peaches, plums	25 741	381	9814				294	981	491	1 374	2 061		589	5 790
TOTAL	211 220	0,31	64 540	0	0	0	1 936	6 454	3 2 2 7	5 385	11 120	5 439	3 872	37 434
B. ANNUAL CUP CONSTRAINT R	RRENT COS	TS FOR						1 760	3 520	1 096	2 950	3 3	19	12 646
	IEEITC									4 9 9 9			~~	24 700
C. AITTOAL DEI	IEFIIS		38724				1 936	4 6 9 4	-293	4 289	8170	59	93	24 /88
D. INVESTMENT	COSTS RE	QUIREDT	38 724 O AVOID LO	SSES AND	ACHIEVE E	BENEFITS	1 936	4 694	-293	4 289	8 1 7 0	59	193	24 /88
D. INVESTMENT	COSTS RE Units	QUIRED T	38 724 O AVOID LO Blueprint Costs	Extra cost	ACHIEVE E	BENEFITS	1 936	4 694	-293	4 289	8 1 7 0		93	24 /88
D. INVESTMENT Pre-cooling (2000 tons per season)	Units	QUIRED T 000 USD 300	38 724 O AVOID LO Blueprint Costs 17 700	Extra cost	ACHIEVE I s from cor -2 266	BENEFITS Instraints 4 720	1936	4 694	-293	21 924	8 170			24 788
Pre-cooling (2000 tons per season) Cold storages (2000 tons)	Units 59 59	2QUIRED T 000 USD 300 1 000	38 724 O AVOID LO Blueprint Costs 17 700 59 000	SSES AND A Extra cost 1 770 5 900	ACHIEVE I s from cor -2 266 -7 552	BENEFITS astraints 4 720 15 733	1936	4 694	-293	21 924	73 081		93	21 924 73 081
D. INVESTMENT Pre-cooling (2000 tons per season) Cold storages (2000 tons) Grading and sorting lines (2000 tons per season)	Units 59 36	QUIRED T 000 USD 300 1 000 300	38 724 O AVOID LO Blueprint Costs 17 700 59 000 10 800	SSES AND / Extra cost 1 770 5 900 1 080	ACHIEVE F s from cor -2 266 -7 552 -1 382	BENEFITS Instraints 4 720 15 733 2 880	1936	4 694	-293	21 924	73 081	13	378	21 924 73 081 13 378
D. INVESTMENT Pre-cooling (2000 tons per season) Cold storages (2000 tons) Grading and sorting lines (2000 tons per season) Land consoli- dation costs (over 5 years)	COSTS RE Units 59 59 36	QUIRED T 000 USD 300 1 000 300	38 724 O AVOID LO Blueprint Costs 17 700 59 000 10 800	SSES AND / Extra cost 1 770 5 900 1 080	ACHIEVE F s from cor -2 266 -7 552 -1 382	BENEFITS Istraints 4 720 15 733 2 880	2 500	4 694	-293	21 924	73 081	13	378	24 788 21 924 73 081 13 378 2 500
D. INVESTMENT Pre-cooling (2000 tons per season) Cold storages (2000 tons) Grading and sorting lines (2000 tons per season) Land consoli- dation costs (over 5 years) Capacity of associations (5 years)	COSTS RE Units 59 59 36	QUIRED TO 000 USD 300 1 000 300	38 724 O AVOID LO Blueprint Costs 17 700 59 000 10 800	SSES AND / Extra cost 1 770 5 900 1 080	ACHIEVE F s from cor -2 266 -7 552 -1 382	SENEFITS Instraints 4 720 15 733 2 880	2 500	4 694	-293	21 924	73 081	13	378	24 788 21 924 73 081 13 378 2 500 2 500
D. INVESTMENT Pre-cooling (2000 tons per season) Cold storages (2000 tons) Grading and sorting lines (2000 tons) Grading and sorting lines (2000 tons) per season) Land consoli- dation costs (over 5 years) Capacity of associations (5 years) Cooperation in PH & Sales (5 years)	COSTS RE Units 59 59 36	QUIRED TO 000 USD 300 1 000 300	38 724 O AVOID LO Blueprint Costs 17 700 59 000 10 800	SSES AND / Extra cost 1 770 5 900 1 080	ACHIEVE F s from cor -2 266 -7 552 -1 382	BENEFITS Istraints 4 720 15 733 2 880	2 500	4 694	-293	21 924	73 081	13:	378	24 788 21 924 73 081 13 378 2 500 2 500 2 500
D. INVESTMENT Pre-cooling (2000 tons per season) Cold storages (2000 tons) Grading and sorting lines (2000 tons) Grading and sorting lines (2000 tons) Der season) Land consoli- dation costs (over 5 years) Capacity of associations (5 years) Cooperation in PH & Sales (5 years) Irrigation networks (central)*	COSTS RE Units 59 59 36	QUIRED TO 000 USD 300 1 000 300	38 724 O AVOID LO Blueprint Costs 17 700 59 000 10 800	SSES AND / Extra cost 1 770 5 900 1 080	ACHIEVE F s from cor -2 266 -7 552 -1 382	BENEFITS Istraints 4 720 15 733 2 880	2 500	4 694	-293	21 924	73 081	13:	378	24 788 21 924 73 081 13 378 2 500 2 500 2 500 60 000
D. INVESTMENT Pre-cooling (2000 tons per season) Cold storages (2000 tons) Grading and sorting lines (2000 tons) Grading and sorting lines (2000 tons) D. Land consoli- dation costs (over 5 years) Capacity of associations (5 years) Cooperation in PH & Sales (5 years) Irrigation networks (central)* Irrigation net- works (local)	COSTS RE Units 59 59 36	QUIRED TO 000 USD 300 300 300	38 724 O AVOID LO Blueprint Costs 17 700 59 000 10 800	SSES AND / Extra cost 1 770 5 900 1 080	ACHIEVE F s from cor -2 266 -7 552 -1 382	BENEFITS astraints 4 720 15 733 2 880	2 500	4 694 	-293	21 924	73 081	13:	378	24 788 21 924 73 081 13 378 2 500 2 500 2 500 60 000 35 203
D. INVESTMENT Pre-cooling (2000 tons per season) Cold storages (2000 tons) Grading and sorting lines (2000 tons) Grading and sorting lines (2000 tons) per season) Land consoli- dation costs (over 5 years) Capacity of associations (5 years) Cooperation in PH & Sales (5 years) Irrigation networks (central)* Irrigation net- works (local) State support to exports (5 years)	COSTS RE Units 59 59 36	QUIRED TO 000 USD 300 300	38 724 O AVOID LO Blueprint Costs 17 700 59 000 10 800	SSES AND / Extra cost 1 770 5 900 1 080	ACHIEVE F s from cor -2 266 -7 552 -1 382	BENEFITS Istraints 4 720 15 733 2 880	2 500	4 694 60 000 35 203		21 924	73 081	13: 25 25 56	378 300 500	24 788 21 924 73 081 13 378 2 500 2 500 2 500 60 000 35 203 5 600
D. INVESTMENT Pre-cooling (2000 tons per season) Cold storages (2000 tons) Grading and sorting lines (2000 tons) per season) Land consoli- dation costs (over 5 years) Capacity of associations (5 years) Cooperation in PH & Sales (5 years) Irrigation networks (central)* Irrigation net- works (local) State support to exports (5 years) TOTAL	COSTS RE Units 59 36	QUIRED TO 000 USD 300 300 300	38 724 O AVOID LO Blueprint Costs 17 700 59 000 10 800	SSES AND / Extra cost 1 770 5 900 1 080	ACHIEVE F s from cor -2 266 -7 552 -1 382 -1 382 -1 382	SENEFITS Istraints 4 720 15 733 2 880 2 880 2 880 2 880 2 880	2 500	4 694 	-293	21 924	8 170 73 081	13: 25 25 25	378 378 300 300 500 500 978	24 788 21 924 73 081 13 378 2 500 2 500 2 500 60 000 35 203 5 600 156 687
D. INVESTMENT Pre-cooling (2000 tons per season) Cold storages (2000 tons) Grading and sorting lines (2000 tons) per season) Land consoli- dation costs (over 5 years) Capacity of associations (5 years) Cooperation in PH & Sales (5 years) Irrigation networks (central)* Irrigation net- works (local) State support to exports (5 years) TOTAL * Grant from US C	COSTS RE Units 59 59 36 36 Government	QUIRED TO 000 USD 300 300 300	38 724 O AVOID LO Blueprint Costs 17 700 59 000 10 800 10 800 87 500 mnted as cost.	SSES AND / Extra cost 1 770 5 900 1 080	ACHIEVE F s from cor -2 266 -7 552 -1 382 -1 382 -1 382 -1 200	SENEFITS istraints 4 720 15 733 2 880	2 500	4 694 	-293	21 924 21 924 21 924	8 170 73 081 73 081	13: 25 25 25 25 25	378 378 300 300 300 300 300 300	24 788 21 924 73 081 13 378 2 500 2 500 2 500 2 500 60 000 35 203 5 600 156 687

2. Overview of Recent in-Country Research of Barriers to Agricultural Export

Report or Study	Identified Internal Constraints	Identified Mixed (Internal/External) Constraints
End Market Study for Fresh and Dried Fruits in Moldova, ACED, USAIAD, Chisinau, 2011	 Issues affecting ability of national producers to export horticulture products: A very fragmented production base with parcelization of land and limited economies of scale - more so in the cultivation of vegetables than fruits. Consumers/farmers are reluctant to accept changes and prefer to do things as they used to do in the past. Producers need to improve their agricultural technique and meet food safety regulations (nitrates, pesticides use, sufficient time from spraying and handling of all agrochemicals). There is a need for better post-harvest handling, grading, cold chain management, packaging, labelling, certification, and consistency to improve overall quality and more effectively compete with imports. There is a need to improve productivity and diversification of products grown in greenhouses as well as extend the season to capture more market share from imports. There are currently no significant niches such as "organics". However, there are local market actors who are beginning to move in this direction, focused on export. 	
Analysis of HVA Constraints, Opportunities and Requirements, Chemonics International, Millennium Challenge Corporation, 2009 Following this study, MCC de- cided to focus on irrigation, and issue grants and loans to producers for post- harvesting equip- ment.	 The study has classified the constraints and problems faced by the horticultural sector In the following categories: Market Related: Lack of market information, especially related to what type and variety of products are in demand in targeted export markets Heavy reliance on some brands that are no longer highly marketable outside of Moldova No effective and sustainable programme in place to re-invest in replacing mature tree/vine stock Ineffective and limited network of wholesale markets in the country Lack of access to current market price information Cost of inputs for farmers in high relative to world prices Absence of pre-cooling facilities, which results in high pre-shipment losses and poor quality of goods in the market Heavy reliance on limited export market base – Russia and Belarus Lack of understanding and appreciation of phytosanitary standards and requirements, especially among the small farmers and producers Absence of a country branding strategy Governance Related: Absence of transit through Ukraine to Russia and Belarus High costs of transit through Ukraine to Russia and Belarus Poor road infrastructure, particularly in rural areas Access to parent seeds for key crops is limited because the only major institute with sufficient parent seed stock is in Tiraspol Institutional Related: Extension services available but a long-term funding and a lack of sustainability represent systemic problem Absence of growers cooperatives and little desire to band together Absence of effective industry associations aimed at supporting expanded markets for the industry Instificient research and development of high value agriculture varieties 	

Report or Study	Identified Internal Constraints	Identified Mixed (Internal/External) Constraints
	 Absence of an industry-wide strategic vision and a targeted strategy to promote Moldovan HVA goods in the international market Limited access to soil and other testing facilities Poor or non-existent irrigation infrastructure Lack of affordable and accessible credit facilities Human Resources Related: Shortage of skilled and unskilled labour creates a situation in which farmers are cutting back on amount of acreage farmed and in some instances abandoning farming and leaving the land fallow No clear, apparent strategy for dealing with the labor shortage and how to support farmers and companies that are dealing with it Lack of cooperation among groups of producers along the value chain impedes the industry's ability to grow. 	
Fresh Fruit Sector in Moldova: Baseline Study for the Aid for Trade Project, UNDP, 2012	 Most new orchards are planted using traditional technologies as opposed to intensive plantations (p. 16) Limited supply of local planting material (seedlings), particularly of M-9 intensive and M-26 semi-intensive varietals (p. 16) Lack of cold storage capacities and a small amount of fruit passing through the cold chain, particularly stone fruit (p. 17) Lack of grading (sorting) lines (p.17) Insufficient adoption of modern technologies, such as drip irrigation, anti- hail and anti-frost systems, despite their availability (p.19) Insufficient adoption of modern technologies, such as mechanical pruning and thinning, picking platforms, mechanized picking and grading (p. 23) Poorly schedule applications of pesticides and non-observance of prescribed periods between sprays and harvesting (p. 23) Lack of pre-cooling (forced-air, hydro-cooling) and cold storage again, just 1/3 of apples passing through the cold chain (p. 24) Non-use of modern packaging such as ventilated packaging, open-top cardboard trays, tray liners (p. 24) Insufficient role of producer and exporter associations in export promotion and marketing (p. 26) Lack of awareness about inexpensive but efficient modern technologies, such as weather stations, mechanical pruning machines, picking bags, pre- cooling, solar-powered water pumps (p.29) Lack of agronomy and technological skills, need to conduct extensive trainings (p. 30) 	 Trade advantage over Polish apples will decrease after Russia's accession to WTO (p. 13) Moldovan products in Russia are sold in open-air markets, not in supermarkets (p. 13) Russian market is sensitive to fruit sizes (calibration) and visual defects. Only fruits with specific diameters are preferred. (p.14) Russian ban on Moldovan fruit exports in 2005 and 2007 (p. 18) Excessive concentration on Russia (p. 18) Reluctance of Moldovan fruit producers to work with retail chain, particularly due to long period of waiting until payment and the requirement of scheduled round-the-year shipments (p. 18) Decreasing share of 'truck' market vs. retail chain market for fruits (p.19) Unawareness of Russia's maximal residue levels (MRL) requirements for fruit imports Almost no fruit is exported to EU countries (p.24) Lack of knowledge about EU markets (quality, trends, channels, tariff and non-tariff barriers) (p. 24)

Report or Study	Identified Internal Constraints	Identified Mixed (Internal/External) Constraints
		 The Russian market has a poor image of Moldova's fruit and vegetables, which needs to be improved (p. 24) Excessive emphasis on pome fruit (apples) for the Russian market, despite the expected increase in demand for stone fruit (characteristic of rich markets) (p.27) Lack of awareness about international best practices in fruit production and exports, need to organize study tours (p.32) Lack of international marketing efforts, non- participation in important international trade fairs (World Food, Fruit Logistica) (p. 34) Lack of promotional materials, such as brochures and exporter lists (p. 35).
CIBER (Competitiveness Impact of Business Environment Regulation) Final Report: Priority Regulatory Constraints for Moldovan HVA Sector and Recommendations for their Removal. ACED, USAID, Chisinau, September 2012 This study was commissioned by ACED to implement its in-house meth- odology of compet- itive impact assess- ment of restrictive Government regu- lations. As such, it has focused on regulations only, with calculations of the cost to producers for each major constraint.	 All on p. 8, the list is ranked according to the importance assigned to it by interviewees (around 30 producers) Poor regulation of access to lake water for irrigation purposes. Lakes belong to local authorities, which don't allow use of water for irrigation for various reasons. Although Parliament approved a law stipulating the priority of water use for irrigation (after drinking), it's not implemented. Building new lakes is costly. (p. 16) Compulsory variety registration. Locally registered varietals producer lower yields and quality and are less adapted to storage and transportation than imported ones. Registering imported varietals takes up to 5 years and costs money, making in most cases the varietal obsolete at the time of allowed registration (p.10). Just 7 new varietals registered for apples in the last 3 years vs. 56 in the EU (p. 11). No access to underground water for irrigation purposes. Use of underground water for irrigation is banned unless specifically permitted by Government (p. 18). 15% import tax for insulation panels used in cold storages. Expensive access to electricity grid. Compulsory registration of fertilizers. Bureaucratic procedures for seasonal hiring. Expensive access to natural gas. 10% import tax for greenhouses and accessories. Income tax on capital gains at exchange of land plots. Poor regulation of the financing for the anti-hail system. Compulsory registration of biological control agents. 	 Costly and complicated export phytosanitary certification procedure (p.8). Limited validity of the pesticide residue certificate (p.8). Each shipment has to be often re-certified. Gaps in legislation covering the marketing cooperatives (p.8). These gaps do not allow for amassing of large lots required for exports to supermarkets and for gaining bargaining power. Lost export opportunities from difficulties with new varietal registration. Small volume of tomato exports is due to lack of tomato varietals suitable for long-distance shipping (p. 14). Moldovan market is too small for foreign producers of seeds and seedlings to bother with Moldovan market as is, with complicated procedures for registration. Automatic registration of EU varietals will eliminate this issue altogether (p. 14).

Report or Study	Identified Internal Constraints	Identified Mixed (Internal/External) Constraints
Moldova's Agribusiness Regulatory Impact Overview, IFC, 2012. This study mirrors the CIBER study, with a slightly different results. The study was performed by the same consultant. The goal of the study is to identify those constraints that could be re- moved through the IFC Moldovan Investment Climate Reform Project.	 These constraints have been identified by 67 respondents to a farmer survey as long-term issues affecting their competitiveness. These are the constraints ranked in order of importance (p.4) Large and small irrigation. Farmers divided the issue in two: access to underground water is exhausted (falling below 100 m in some regions) but transit water is almost unused (p. 58). Given the controversy with underground water, the study identifies only lake water access as a problem. The study mentions that the use of sweat 'groundwater for purposes other than drinking is not allowed (p. 59). Besides this constraint, and even with a permit from local authroities, lakes are often rented for fish farming and owners of fish farms do not allow use of water for irrigation (p. 59). Seasonal hiring. A lack of legislation allowing seasonal employment (p.16). Producers can hire either full-time facing bureaucratic obstacles or hire illegally. Study recommends adoption of a special law allowing seasonal hiring (p. 17). The study evaluates lost income tax to the state at \$20 million per year (p. 23). Land consolidation issues. The study mentions that land exchange is treated as a capital transaction involving capital gains and both parties have to pay the capital gains tax (p.33, p. 35). Similarly, when buying land at official price, the farmer has to pay a capital gains tax (the farmer has received that land for fire? during mass privatization). The study mentions that Romania, the Caech Republic and others automatically register varietes (velowers eitherwise risking an excessive valuation from tax authorities) (p. 36). At an average market price of land of \$2,000 per ha and the land fast pay 15% out of \$1,750, or \$260 per ha in taxes alone. Mandatory variety registration. The study mentions that Romania, the Czech Republic and others automatically register varietes from other EU countries, while Macedonia has bilateral agreements with Netherlands on automatic registry value at privati	The study mentions only one 'export' constraint: Issuance of the "Certificate of harmlessness" for exports (p.4). This certificate is required for exports to the Russian federation (p.54). Two of 3 accredited labs to issue this certificate (Balti and Ceadar-Lunga) are, in fact, lacking the equipment to perform the tests, so the tests have to conducted only in Chisinau (p. 55). This increases the time required to authorized the export by the duration of the test and, given the existence of only one lab for the whole country, results in inevitable delays during the season (p. 55). The certificate of 'harmlessness' is, in fact, a pseudo-legal document since it is not foreseen for exports elsewhere. It has been introduced by the Memorandum on plant safety signed by the ministries of agriculture of both countries. A subsequent amendment to a government regulation to acknowledge the existence of certificate mandates 3 labs to conduct the test, despite the fact that 2 labs lack equipment. Ideally, to solve the issue, the stipulation in the memorandum should be cancelled or, at least, the labs should be equipped with the necessary equipment (p.56). The cost of the certificate, given the truck delays produced by the wait time of lab results from Chisinau, are estimated at \$6.7 million for the apple exporters alone.

Report or Study	Identified Internal Constraints	Identified Mixed (Internal/External) Constraints
	The study also cites previous work (not referenced) by IFC which has identi- fied the documents and procedures that have the highest (negative) impact on the competitiveness of agricultural producers (p.6): • Sanitary expertise • Registry of the use of fertilizers • Certificate on water use for irrigation • Registration with the Customs Office • Certificates of origin on production • Seed and seedlings registration • Seed and seedlings quality certificates	
Binding Administrative Procedures for Agribusiness Starting and Unfolding. Centre of Sociological Investigations and Marketing Research "CBS-AXA" for the International Finance Corporation, Moldova, Chisinau 2012 The goal of the study is to identify those constraints that could be re- moved through the IFC Moldovan Investment Climate Reform Project.	 The study was performed by a sociological company and is based on a questionnaire developed jointly with the IFC. The company has interviewed 20 agricultural producers with more than 30 people in staff. The questionnaire had several categories of questions: main problems, document preparation, procedures for opening and operating the business, lab tests, and others. According to the survey, the main problems of the Moldovan farmers are: Selling the product. The sales market is perceived by farmers as the biggest challenge for the agricultural sector. Few farmers sign sale contracts in advance and make their product decisions on the spot. The same applies with perennials when choosing the type of furit to plant. Insufficient quantities for exports. The Moldovan farmers are not specialized, and only produce small quantities, which are not attractive for large contractors; also, they are only able to supply the goods for short periods of time. (p. 5). Shortage of a labour force, a lack of qualified/skilled specialists and staff able to carry out certain works. Many entrepreneurs point to a shortage of a workforce and they therefore have to bring seasonal workers from other towns and providethem with accommodation and meals. They have given up growing time-consuming crops and growing grains and fruits is their priority. Some of the individuals who failed the medical exam in order to work with fertilizers and plant protection products offered is also low. Most farmers prefer to use seeds and seedlings from abroad in order not to risk the money they invested. (p. 6). Lack of trust in the verification and inspection bodies and institutions. The perception of entrepreneurs – participants to the Study is that the goal pursued by most verifications and certifications carried out by both the state and private ludy. (p. 6). Lack of trust in the verification and inspection bodies and institutions. The perception of entrepreneurs – participants to the Study is that the go	

Report or Study	Identified Internal Constraints	Identified Mixed (Internal/External) Constraints
	• General conclusion. Generally, farmers believe it becomes more and more difficult to work in agriculturein Moldova: the costly cultivation of the land (the cost of fuel has been mentioned most frequently), high risks (irrelevant quality of seeds, pests, force-majeure situations, etc.), small sales market, insufficient state support, and unsuitable tax policy with respect to agriculture. (p.8)	
Trade and Transport Facilitation Assessment, World Bank, Chisinau, 2012 Study commis- sioned to German- led consortium as a preparatory docu- ment for designing Moldova's transport strategy.	 Based on two case studies (apples and honey), the authors have identified several internal constraint to exports (p. 23): Shipment quantities and schedules. While Technical Barriers to Trade (TBT) such as certification and other documentation requirements do play a role in encouraging or discouraging international trade, these are not the major factors that limit the potential for success of Moldovan exports on the international markets. Moldovan farm gate prices are relatively high. The cost of collection, storage and processing for export (testing, certification and packaging) are not unreasonable and add only limited cost to the cost of the base produce. However, due to their relatively small scale and production volumes, Moldovan processors are not able to access export retail markets directly but most do this through trade intermediaries that are the main suppliers to the supermarkets. As a result, Moldovan honey and apple producers do not receive more than the commodity price for their goods in the case of apples, both trade volumes and reliability of delivery matter. The customers in export markets, which would be for example supermarket chains, are requiring a steady, year-round, supply of apples. These would need to be of a constant quality and delivery would be when needed. Moldovan apple producers do not have the scale of operations to finance cold storage, sorting or export packaging that would enable them to meet the demand of the customers. In addition, even the larger exporters are not able to provide a steady supply of produce all year round and must rely on middlemen to sell their produce in foreign markets to large market parties. Thus, unless they are themselves travelling to for example the fruit retail markets in Moscow they will always receive depressed prices for their produce as profits stay with the middlemen. Government bureaucracy. Government bureaucracy is a major issue that affects the economy in all areas. There are unnecessary documentation requirements	 The authors have also looked at some export specific constraints: Customs operation. Limited opening hours for customs operations at inland customs depots create peaks in the traffic flows that cascade throughout the entire chain, and is responsible for unpredictable waiting times at BCPs. (p. 24) Non-adoption of some international treaties. This is further reinforced by the absence of implementation of Moldova's existing commitments under international agreements such as the Harmonization Convention and the TIR convention. These conventions, which are applicable to Moldovan customs without any further need for domestic legislation explicitly envisage the use of risk based controls and expect transit operations, provided that there is no reason the vehicle has been opened, to be subject to minimal controls. (p.24) Aviation transport. Aviation is made more expensive by the lack of market liberalization of the aviation market, which is now being addressed by the accession of Moldova to the ECAA. However, the impact of further route liberalization will be affected to a large extent if the Government fails to divest from the commercial activities and ensures that tariffs for airport access (landing fees and related costs) are well regulated to make and keep them competitive. However, the situation in the aviation market, however, the situation market, however, do impact the wider economy as increased travel costs influence sub sectors such as tourism and related industries. (p.24).

Report or Study	Identified Internal Constraints	Identified Mixed (Internal/External) Constraints
		 Rail transport. Railway tariffs are a problem for exporters that rely on railway to transport their bulk cargos (few horticultural exporters use rail). Infrastructure is not the issue that makes rail transport in Moldova twice as expensive as in neighbouring Ukraine. The high tariff can be traced back to inefficiencies such as a bloated staff levels, excessive underused infrastructure, cross subsidizing of passenger transport and possibly, theft of fuel and other items. (p. 24) Authors did not find constraints or problems with road and maritime transport.
End Market Study for Fresh and Dried Fruits in Germany, ACED, USAIAD, Chisinau, 2011 In line with Moldova's sign- ing of DCFTA and attempts to penetrate the EU market, ACED has commissioned market studies for apples and dried fruit in Germany and Romania.	 The study identified the following problems of Moldovan apple producers accessing the German market: Very few Moldovan producers are Global GAP certified. Moldovan produce does not comply with minimum quality requirements imposed by the market with a key factor being the low level of cold chain management. Moldova lacks certain types of products demanded by the market such as white seedless or red grapes, round shaped plums and early big size sweet cherries. Moldova is not known in the market as a reliable supplier of fresh fruits and vegetables and building this reputation requires significant time and costs. 	 The study identified some constraints that are linked to the destination market: Competition from EU producing countries is fierce and Moldova is disadvantaged by being outside the common EU market. The distance factor for Moldovan product is greater than from the main EU supplying countries, such as Italy, Spain or France. The market is saturated and doesn't really look for new suppliers unless there is a product that is distinctly different. German consumers prefer regionally grown products (especially apples and tomatoes) along with a competitive price, which then becomes a secondary consideration. The Minimum Entry Price protection mechanism, (a measure imposed to protect EU farmers). In some cases and for certain products, minimum prices are set for imports to the EU and can represent a trade barrier for Moldovan fruits.

3. List of Meetings

NO	ORGANIZATION	PERSON	FUNCTION
		GOVERNMENT AGENCIES	
1	Ministry of Agriculture	Mr. Viorel GUTU	Deputy Minister
2	Ministry of Agriculture	Mr. Ion SULA	Head of Department
3	Ministry of Agriculture	Mr. Mihai SUVAC	Head of Department
4	Ministry of Agriculture	Mr. Vasile SARBAN	Head of Department
5	National Agency for Food Safety Agency (ANSA)	Mr. Gheorghe GABERI	Director
6	National Agency for Food Safety Agency (ANSA)	Mr. Andrei MIHALACHE	Head of Department
7	Ministry of Economy	Ms. Inga IONESII	Director, Directorate of General Trade Policies
8	Small and Medium Business Development Organization (ODIMM)	Mr. Petru GURGUROV	Legal Advisor
		BUSINESS ASSOCIATIONS	
1	Association of fruits producers and exporters "Moldova-Fruct"	Mr. Petru STRATAN	Executive Director
2	Association of Fruit Producers of Moldova	Mr. Iurie FALA	Vice-President
3	Grapes Growers and Exporters Association of Moldova	Mr. Sergiu ZABOLOTNAI	President
4	League of Importers and Exporters from Moldova	Mr. Viorel SARGHI	Former President
	LOCA	L PRODUCERS AND EXPORTERS	
1	Nic-Ol (Apples)	Mr. Anatol TRANCANU	Director
2	Nic-Ol (Apples)	Mr. Vasile IGNATIUC	Engineer
3	Nic-Ol (Apples)	Mr. Nicolae TRANCANU	Agronomist
4	Ursevcom (Fruit Trading)	Mr. Vsevolod URSACHE	Director
5	Gigacom AG (Apples)	Mr. Cornel SITARU	Manager
6	Codru-ST (Apples)	Mr. Ion CHILIANU	Director
7	Fortina-Labis (Apples)	Mr. Anatol PLACINTA	Director
9	Vinaria din Vale (Apples, Fruit)	Mr. Vladimir DAVIDESCU	Director
10	Luchin-Prod (Table Grapes, Pre-cooling, Irrigation)	Mr. Vitalie LUCHIN	Manager
11	GT Valentina Moscul (Greehnouse tomatoes, cucumbers, peppers)	Ms. Valentina MOSCUL	Director
12	Ecou-Meridian (Apples, cherries – Cold Storage)	Mr. Gheorhe JEMBEI	Director
13	Miacro (Berries, Trading – Cold Storage)	Mr. Oleg ZAHARIA	Director
14	Farmprod (Cherries, plums, apricots – cold storage, pre-cooling, sorting)	Mr. Vitalie GORINCIOI	Director
15	Vitalitifruct-Expo (Apples, Intensive Orchard Engineering)	Mr. Constantin FURCULITA	Director
16	GT Oleg larosevschi (Apples, Trading)	Mr. Oleg IAROSEVSCHI	Entrepreneur

NO	ORGANIZATION	PERSON	FUNCTION
17	Fructagrocom Cooperative (Greenhouse Vegetables)	Mr. Iurie BIVOL	Director
18	Paller Grup (Trading)	Mr. Viorel MINCIUNA	Director
19	Melivor-Plus (Trading)	Mr. Alexei POPRITAC	Director
20	Vamcomplex (Trading)	Mr. Gheorghe JOSAN	Director
21	GT Olga Serbusco (Intensive Apple Orchard)	Ms. Olga SERBUSCO	Director
	В	JSINESS SERVICE PROVIDERS	
1	Pro-Rural-Invest	Mr. Viorel GHERCIU	Director
2	ACSA	Mr. Constantin OJOG	Executive Director
3	ACSA	Mr. Eugen REVENCO	Program Director
4	ACSA	Mr. Anatolie FALA	Program Director
5	ACSA	Mr. Gheorghe CĂINĂREAN	Expert
6	Business Intelligent Services	Mr. Andrei CRIGAN	Director
7	Business Intelligent Services	Mr. Stelian ANDRONACHI	Head of Legal Department
8	European Business Association	Ms. Mariana RUFA	Program Director
9	Alternative Internationale de Dezvoltare	Mr. Igor GORASOV	President
	INTERNATIONAL ORGANIZATIO	NS, DONOR FUNDED PROJECTS, II	NTERNATIONAL EXPERTS
1	World Bank, Consolidated Agricultural Projects Management Unit	Ms. Olga SAINCIUC	Deputy Director
2	International Finance Corporation	Ms. Felicia PRICOP	Project Specialist
3	USAID's Agricultural Competitiveness and Enterprise Development project implemented by DAI	Mr. Ion PERJU	Deputy Team Leader
4	USAID's Agricultural Competitiveness and Enterprise Development project implemented by DAI	Mr. Andrei CUMPANICI	SPS Specialist
5	USAID's Agricultural Competitiveness and Enterprise Development project implemented by DAI	Mr. Alexandru BELSCHI	Marketing Specialist
6	USAID's Agricultural Competitiveness and Enterprise Development project implemented by DAI	Mr. Ulrich ERNST	Economist, Author of CIBER Methodology
7	European Union	Mr. Richard MOODY	High Level Policy Advisor to the Ministry of Agriculture
8	USAID's Business Regulatory, Investment and Trade Environment Program (BRITE) project implement- ed by Chemonics	Mr. Eduard SÎRBU	Trade Facilitation Advisor
9	USAID's Business Regulatory, Investment and Trade Environment Program (BRITE) project implement- ed by Chemonics	Ms. Lilia ȚAPU	Tax Advisor

4. Standardized Questionnaire (English and Russian versions)

Barrier	Importance (from 1 to 5: 1 not important; 5 – very important)	The top 5 barriers (select just 5 the most important barriers)
1. State Policies and Adminis	trative Practice	
1.1. Lack of national strategy for horticulture development (please, specify)		
1.2. Lack of state assistance in getting access to international markets (please, specify)		
1.3. Complicated process of registration of new varieties, even those included into the EU catalogue		
1.4. Costly process of registration of new inputs (fertilizers, chemical protection, etc. – please, specify)		
1.5. Insufficient government assistance (subventions) to national business in establishing infrastructure needed for modern production and post-harvesting support		
1.6. Not business-friendly taxation regime (please, specify)		
1.7. Not clear custom requirements and procedures		
1.8. Administrative difficulties in:		
a/ Obtaining phytosamitary certificate		
b/ Obtaining certificate of origin		
c/ Border crossing		
1.9. Other (please, specify)		
2. Sector's Organiz	ation	
2.1. Fragmentation of agricultural land, difficulties with land plots consolidation		
2.2. Predominance of small farmers with limited production capacities		
2.3. Low progress in cooperation of producers for post-harvesting and sales		
2.4. Insufficient political weight and capacities of associations		
2.5. Other (please, specify)		
3. Inputs and Infrastru	icture N ,	
3.1. Access to seeds and plants (limited variety, expensive, other – please, specify)		
3.2. Access to modern fertilizers and chemicals		
3.3. Expensive diesel and gas		
3.4. Expensive electricity		
3.5. Difficulties in getting access to electricity grids (for water pumping/heating/cooling)		
3.6. Difficulties in obtaining construction permits to build agribusiness infrastructure (please, specify)		
3.7. Insufficient access to centralized irrigation systems		
3.8. Legal barrier in using underground water for irrigation		
3.9. Underdeveloped agribusiness infrastructure - cold storages, sorting and packaging lines, modern greenhouses, etc. (please, specify)		
3.10. Difficulties with logistics and transportation		
3.11. Other (please, specify)		
Barrier	Importance (from 1 to 5: 1 not important; 5 – very important)	The top 5 barriers (select just 5 the most important barriers)
---	---	--
4. Finance		
4.1. Difficulties in getting loans (please, specify)		
4.2. Difficulties in attracting long-term investment		
4.3. Complicated of system of international transactions (foreign trade payments)		
4.4. Other (please, specify)		
5. Workforce		
5.1. Lost horticulture skills of local workers, lack of knowledge of modern techniques		
5.2. Not sufficient local supply of workforce during "high seasons"		
5.3. Complicated procedures for hiring seasonal workers		
5.4. Other (please, specify)		
6. Agricultural knowledge and practice		
6.1. Lack of knowledge of modern agricultural know-how at a local level		
6.2. Difficulties with obtaining qualified consultation in horticulture		
6.3. Difficulties with ensuring consistency of quality standards		
6.4. Other (please, specify)		
7. Business/marketing		
7.1. Limited knowledge in the area of business planning and management		
7.2. Limited experience in financial management		
7.3. Limited information about international opportunities and foreign markets		
7.4. Difficulties with identification of international counterpart in a new market		
7.5. Limited business communication skills, lack of knowledge about dealing with international wholesalers and distributors		
7.6. Low competitiveness of local products due to:		
a/Unmarketable varieties		
b/ Poor appearance of the produce		
c/Inability to supply required quantity of produce		
d/Inadequate packaging		
e/Non-competitive prices		
f/ Inability to supply product according to the schedule required by a customer		
g/ Weak logistics' infrastructure		
7.7. Difficulties with exporting varieties not registered in the Moldovan state catalogue		
7.8. Difficulties in obtaining effective support from business support organizations		
7.9. Other (please, specify)		