



National Green Export Review of the Republic of Moldova: Walnuts, honey and cereals



REPUBLIC OF MOLDOVA

© 2018, United Nations Conference on Trade and Development

This work is available open access by complying with the Creative Commons licence created for intergovernmental organizations, available at <http://creativecommons.org/licenses/by/3.0/igo/>.

The findings, interpretations and conclusions expressed herein are those of the authors and do not necessarily reflect the views of the United Nations or its officials or Member States.

The designation employed and the presentation of material on any map in this work do not imply the expression of any opinion whatsoever on the part of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

This document has not been formally edited.

UNCTAD/DITC/TED/2018/6

Contents

Figures.....	iv
Tables	iv
Abbreviations	v
Acknowledgements	v
EXECUTIVE SUMMARY AND INTRODUCTION.....	vi
I: Organic agriculture – overall trends and legal framework in the Republic of Moldova.....	9
II: Export trends and support policies	13
III: Existing support programs.....	15
CHAPTER 1: THE REPUBLIC OF MOLDOVA’S WALNUT SECTOR	1
1.1. Introduction.....	1
1.2. Global trends in walnut production and trade	2
1.3. Current status and performance of the Republic of Moldova’s walnut sector	5
1.4. Brief overview of stakeholders and the value chain in the walnut sector.....	7
1.5. Potentials of market diversification, upgrading the value chain and generating added value in the Moldovan walnut sector	8
1.6. SWOT analysis for the walnut sector	10
1.7. National Action Plan for the walnut sector	12
CHAPTER 2: THE REPUBLIC OF MOLDOVA’S HONEY SECTOR.....	13
2.1. Introduction.....	13
2.2. Current status and performance of the Republic of Moldova’s honey sector	14
2.3. Brief overview of stakeholders and the value chain in the honey sector.....	15
2.4. Potentials of market diversification and upgrading the value chain in the Moldovan honey sector .	15
2.5. SWOT analysis for the honey sector	18
2.6. National Action Plan for the honey sector	19
CHAPTER 3: THE REPUBLIC OF MOLDOVA’S CEREAL SECTOR.....	20
3.1. Introduction.....	20
3.2. Global trends and market characteristics for cereals products.....	20
3.3. Current status and performance of the Republic of Moldova’s cereal and grains sector.....	23
3.3. Brief overview of stakeholders and the value chain in the cereals and grains sector	25
3.4. Potentials of market diversification, upgrading the value chain and generating added value in the cereals and grains sector	26
3.5. SWOT analysis for the cereals sector	27
3.6. National Action Plan for the cereal sector	28
CHAPTER 4: POSSIBLE INTER-LINKAGES AMONG THE THREE SECTORS AND THE TOURISM SECTOR.....	29
CHAPTER 5: RESULTS FROM THE SECOND NATIONAL STAKEHOLDER WORKSHOP.....	30
References	32
Annexes.....	34
Notes.....	35

List of figures

Figure 1.	Area registered as organic agriculture in the Republic of Moldova, 2003–2017	x
Figure 2.	Number of economic agents registered in organic agriculture in the Republic of Moldova, 2003–2017	xi
Figure 3.	Regional export trends for goods from the Republic of Moldova	xii
Figure 4.	World walnut production, 2007–2017	1
Figure 5.	World walnut exports, 2016–2017	2
Figure 6.	Top 12 world importers of walnuts, 2016, cumulatively in-shell and shelled.	3
Figure 7.	Overall exports of Moldovan shelled walnuts 1994–2016.....	5
Figure 8.	Exports of shelled walnuts to the European Union 28+, 2008–2017	6
Figure 9.	Top 9 export destinations for walnut kernels from the Republic of Moldova, 2007–2016.....	6
Figure 10.	Evolution of the number of bee families in the Republic of Moldova, 2007–2017	13
Figure 11.	Evolution of overall exports of Moldovan honey, 2009–2016	14
Figure 12.	Top 10 destinations for export of Moldovan honey, 2016	15
Figure 13.	Global production, consumption and exports of cereals, 2012–2016	20
Figure 14.	European Union import of cereals (wheat, maize and barley) from developing countries and intra-European Union	21
Figure 15.	Main suppliers of cereals from developing countries to the European Union	22
Figure 16.	Size of land area cultivated with wheat, maize and barley, 2012–2016.....	23
Figure 17.	The Republic of Moldova's total exports of cereals, 2012–2016.....	24
Figure 18.	European Union import of wheat, maize and barley from the Republic of Moldova, 2012–2015.....	24

List of tables

Table 1.	Amount of subsidies in organic agriculture available under the National Agriculture and Rural Development Strategy, 2014–2020	xi
Table 2.	Production of walnuts by countries, 2012–2017, tonnes (kernel basis).....	2
Table 3.	Estimated world walnut consumption, 2012–2017	4
Table 4.	Key figures of the European supply and demand of walnuts 2016	4
Table 5.	European Union-28 imports of walnuts by origin, in-shell basis, tonnes	4
Table 6.	Major countries-producers: production, export and import, as of 2016–2017 season.....	20
Table 7.	European Union total grains supply and demand, 2008–2017 (millions of tonnes)	21
Table 8.	Cereal production in the Republic of Moldova, 2012–2016. Forecast 2017	23
Table 9.	The Republic of Moldova export potential for common cereals and specialty cereals.....	26

Abbreviations

AIPA	Agency for Interventions and Payments in Agriculture	MDL	Moldovan Lei (official currency of the Republic of Moldova)
ANSA	National Agency for Food Safety	MEI	Ministry of Economy and Infrastructure
ANARM	National Beekeepers Association of the Republic of Moldova	MIEPO	The Moldovan Export and Export Promotion Organization
CAGR	Compound Annual Growth Rate	MOLDAC	National Centre of Accreditation of the Republic of Moldova
CBI	Centre for the Promotion of Imports from developing countries	MOVCA	Moldovan Organic Value Chain Association
CIS	Commonwealth of Independent States	NAP	National Action Plan
DANIDA	Danish International Development Agency	NBS	National Bureau of Statistics
DCFTA	The Deep and Comprehensive Free Trade Area	NDS	National Development Strategy
EAEU	Eurasian Economic Union	NGER	National Green Export Review
FPC	Firma de Producție și Comerț (Production and Commerce Company)	OECD	The Organisation for Economic Co-operation and Development
GDP	Gross Domestic Product	RCA	Revealed Comparative Advantage
GEF	Global Environmental Fund	SDGs	Sustainable Development Goals
IFAD	International Fund for Agricultural Development	SRL	Societate cu răspundere limitată (Limited Liability Company)
INC	International Nut and Dried Fruit Council	UNCTAD	United Nations Conference on Trade and Development
IGC	International Grains Council	WGA	National Walnut Growers' Association (Full name: Union of Nut Growers' Associations of the Republic of Moldova)
MADRE	Ministry of Agriculture, Regional Development and Environment	WTO	World Trade Organization
MAFI	Ministry of Agriculture and Food Industry		

Acknowledgements

This National Green Export Review (NGER) report was prepared by the project's team of National Experts: Mr. Artur Nadcrinicinii (team leader) and Ms. Valeria Șvarț-Gröger.

Close collaboration was provided by designated focal points of the Republic of Moldova's NGER: Ms. Marcela Stahi, Chief of Organic Production and Products with Designation of Origin, Ministry of Agriculture, Regional Development and Environment; and Ms. Alexandra Popa, Chief of Trade and Bilateral Economic Relations, Directorate for International Cooperation, Ministry of Economy and Infrastructure.

The Republic of Moldova NGER was undertaken through cooperation by the Ministry of Economy and Infrastructure; Ministry of Agriculture, Regional Development and Environment; and United Nations Conference on Trade and Development (UNCTAD).

Through interviews and consultations, inputs and perspectives were provided by: Mr. Alexei Micu, Executive Director of the Moldovan Organic Value Chain Association (MOVCA); Mr. Stefan Condration, President of the National Association of Beekeepers of Moldova; Mr. Oleg Tîrsînă, President of the National Union of Nut Growers' Associations; and selected producers, processors and exporters of walnuts, honey and cereals.

Technical support was provided by UNCTAD staff members including Mr Robert Hamwey, Economic Affairs Officer, and Mr Malick Kane, Program Support Specialist, of the Trade, Environment, Climate Change and Sustainable Development Branch, Division on International Trade and Commodities.

Desktop formatting was done by Mr Rafe Dent of UNCTAD.

Financial support for the project was provided by the United Nations Development Account (project 1415L) and by UNCTAD.

EXECUTIVE SUMMARY AND INTRODUCTION

The Republic of Moldova is a small country in Eastern Europe landlocked between Romania and Ukraine. The overall territory of the Republic of Moldova is 33,846 square kilometres and the size of population is 3.5 million. The country's GDP was €6.75 billion in 2016 (NBS, 2018).

Agriculture is a key sector of the national economy, accounting for approximately 14.5 per cent of the Republic of Moldova's GDP (World Bank; CIAT, 2016) and employing more than a quarter (28 per cent) of the country's working population, half of which are women (FAOSTAT, 2016). Approximately 70 per cent of the population from rural areas rely on agriculture for their livelihoods (World Bank; CIAT, 2016). Agriculture and the food processing industry together account for approximately 17 per cent of GDP, but both sectors' full potential remains largely unexploited. Still the promotion of these sectors remains as one of five priorities for Moldovan Investment and Export promotion (MIEPO, 2017a). Agri-food exports accounted for roughly 45 per cent of the country's total exports in 2016 with major commodities such as walnuts, apples, and cereal/grains (especially wheat, maize, and barley) (MIEPO, 2016).

As the world agreed on the new 2030 Agenda for Sustainable Development, including the United Nations Sustainable Development Goals (SDGs) in 2015, the green economy approach has gained even more attention and momentum worldwide. Countries that rely on agriculture to a large extent are considering prioritizing a large-scale transition towards ecological agriculture (i.e., organic agriculture). This process is reflected in most of the Republic of Moldova's framework documents, starting with the National Development Strategy (NDS) Moldova 2020 which is currently being revised into NDS Moldova 2030. The Green Economy package, newly adopted by the Government of the Republic of the Republic of Moldova in February 2018, and the National Strategy on Agriculture and Rural Development of the Republic of Moldova 2014-2020 also recognize the urgent importance of promoting added value and organic agriculture in national agri-food activities.

The above considerations make it evident that focusing on green and value-added agricultural products for export is one of the key paths for the Republic of Moldova's economic and environmental resilience in the long run.

Through National Green Export Reviews (NGERs) the United Nations Conference on Trade and Development (UNCTAD) responds to growing demand in developing countries and countries with transition economies for assessments of national potential to advance the development of green sectors in order to generate new employment and export opportunities while promoting sustainable development.

In cooperation with the Ministry of Economy and Infrastructure of the Republic of Moldova (MEI), UNCTAD has presented a baseline discussion paper on 25 August 2017, which identifies several promising green sectors / products. Product space methodology applied to the full set of the Republic of Moldova's export data from 2012 till 2016 indicated that oilseeds, grapes, honey, fruits and measuring equipment had the highest revealed comparative advantage (RCA) for export. The report suggested to consider ways to enhance exports of these products through discussions with stakeholders, and to additionally take into consideration walnuts as a product of special interest, that was initially not included in the NGER methodology analysis.

On 7 September 2017 the MEI and UNCTAD jointly held the First National Stakeholder Workshop (NSW) where results of the baseline discussion paper were presented. During the workshop the high RCA sectors were discussed in depth. A focus on agri-food commodities and value-added products was identified as a most suitable approach to take, especially so that the development of the priority sectors can be mutually reinforcing. The wine and fruit sector already receive a significant measure of attention from diverse donors and national institutions. Therefore, it was decided that the Republic of Moldova's NGER would focus on the following 'green' sectors: walnuts, honey and cereals/grains.

Cereals and grains are the major crop under organic production and the agricultural commodities export to

General SWOT analysis for all three sectors:	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Favourable pedo-climatic conditions. • International Trade Agreements, especially DCFTA, that facilitate access to important markets. • Opportunities for organic production. • Geographic proximity to one of the main walnut / honey / cereal markets – the European Union – for both non-organic and organic products. • Processing industries with sufficient capacities. 	<ul style="list-style-type: none"> • Weak legislative and institutional framework; not yet fully adapted to the European Union legislation. • Limited coordination mechanisms for generating increase in scale and quality of production and supply. • Limited value-added production, reliance on raw commodities exports to foreign markets. • Insufficient infrastructure for storage for smallholders and small intermediaries. • Limited availability of effective micro-financing instruments for small farmers. • Rural youth leaving farms and farming for cities and abroad. • Low performance of the peripheral service sectors (packaging, consulting). • Non-existence of Moldovan walnut, honey and cereal brands and little recognition for the Republic of Moldova geographical origin.
Opportunities	Threats
<ul style="list-style-type: none"> • Expand the organic certification, especially in the honey sector. • By creating jobs, growth in the organic agriculture sector will reduce rural unemployment. • Higher margins can attract youth to entrepreneurship opportunities in the sector. • A national organic label can enhance visibility and demand for organic produce. • Training program for farmers can bring new farms into organic production. • Target higher value buyers with more value and convenient products. • Improve linkages to tourism sector to tap local market for artisanal walnut products. • Improve quality and food safety to meet growing world quality standards. • More focused research and investment for market diversification and value addition across the entire value chain. 	<ul style="list-style-type: none"> • Adverse climate change effects on crops. • Poor production and storage management promoting pests and disease for some farms/ plantations. • Slow adaptation of government policy. • Rising quality standards of markets and increasing competition from other countries.

date. Also, walnuts and honey play an important role as they already have a successful history of export to the European and others markets during the last decade and are examples of products with relatively high returns on investments. Walnut plantations have registered a 6-fold increase in 2000-2015, mainly due to high demand in the European Union; the suitable pedo-climatic conditions of the Republic of Moldova; relative pest-, disease- and drought-resistance; and limited resources needed for their maintenance. The overall trading value of walnut exports was \$100 million in 2016. According to the National Beekeepers Association of the Republic of Moldova (ANARM), the export of honey experienced more than 10-fold

increase from 2006 to 2016, reaching almost \$9 million (United Nations Comtrade, 2016). Although this trade value does not represent a big number in comparison to other export sectors, like fruits and vegetables, cereals, wine or walnuts, the honey sector remains a very promising development option due to positive effects that beekeeping has on agriculture in general and to growing demand worldwide and especially in the European Union.

The Republic of Moldova NGER examined the three selected sectors in a participatory and collaborative manner, while involving and consulting the relevant stakeholders all along the process. The NGER report reviews the economic, regulatory and institutional and trade policy environments characterizing the three sectors, underlining their export and value-added potential. It describes several examples of successful entrepreneurial developments in the form of mini case-studies, featuring organic walnut production and export, organic and bottled honey export and tentative efforts for granola bar production. The study also attempts to identify potential synergies among the sectors and the potential to enhance their exports through ecotourism.

The NGER draws upon SWOT analyses for each sector. The overall SWOT findings (elements shared by all three sectors of NGER focus) can be summarized as above.

The National Action Plans (NAPs) in general and specifically in the three sectors focus on a limited number of selected actions in order to ensure a realistic step-by-step approach to implementation while avoiding overwhelming long lists of actions/measures. These NAPs have been discussed and validated with the national stakeholders during individual interviews and during the Second National Stakeholder Workshop held in April 2018. The main recommended actions identified as priority interventions can be summarized in the following points below. Broader list of actions can be found in the respective sector chapters.

General:

- ◇ Harmonization of the National Legislation in accordance with European Union Organic Agriculture legislation.
- ◇ Development of the national organic agriculture inputs market (seeds and seedling materials, fertilizers, crop protecting products).
- ◇ Instituting a large-scale training program and extension services on organic production and certification.
- ◇ Support for market research and the creation of effective trade partnerships for the added-value products.

For walnuts:

- ◇ Creation of a strong national walnut brand, including for organic walnuts.

For honey:

- ◇ Creation of a strong national honey brand, including for organic honey.
- ◇ Instituting a subsidy program for organic honey producers (100 per cent financing during the conversion period (12 months)).

For cereals/grains:

- ◇ Facilitation of accreditation and recognition of foreign certification bodies by national authorities.
- ◇ Support and further development of certification through subordination (i.e., group certification).

With the combination of a general sector overview, specific examples of successful organic or other value-added approaches, SWOT analysis and NAPs, the NGER assists policymakers to design policy packages to support the development of productive capacity and tap external markets for the three green sectors in which the Republic of Moldova has a demonstrated comparative advantage.

I: Organic Agriculture – overall trends and legal framework in the Republic of Moldova

The importance of organic agriculture worldwide has been growing over the past two decades, driven by a growing awareness about progressing resource degradation and climate change, but also due to consumers' demand for healthier alternatives. The Swiss Research Institute for Organic Agriculture (FiBL, 2017) estimates that over the past fifteen years, in the period 2000-2016, the global market for

organic products has more than quadrupled from \$17.9 billion to nearly \$90 billion. Meanwhile the value of European Union's organic market amounted to \$30.5 billion in 2016, which is 10 per cent more than in 2015. The largest European Union market for organic products in 2017 was Germany, worth €8.6 billion, France (€5.5 billion) and the United Kingdom of Great Britain and Northern Ireland (€2.3 billion). At the same time, the organic markets of other European countries, such as Denmark, Sweden, Norway but also Switzerland, Austria, Italy and Spain are growing fast.

The Republic of Moldova, like many other countries that rely to a significant extent on agriculture, recognizes this global trend and tries to adapt to it in order to create necessary conditions to tackle problems related to conventional agriculture, as well as to increase its export value to established markets and penetrate the new ones.

The first step to build organic agriculture into the national legal framework was the Government Decision no. 863 in 2000 which approved the National Concept of Organic Agriculture, Manufacturing and Marketing of Environmentally Friendly and Genetically Unmodified Products, followed by Law no. 115 from 09/06/2005 on organic agri-food production (Monitorul Oficial, 2005). This law has enabled private control for organic agriculture, accredited in the EN 17065 system and authorized by the Ministry of Agriculture and Food Industry. This ensured an organic system harmonized with the requirements of the European Union at that time.

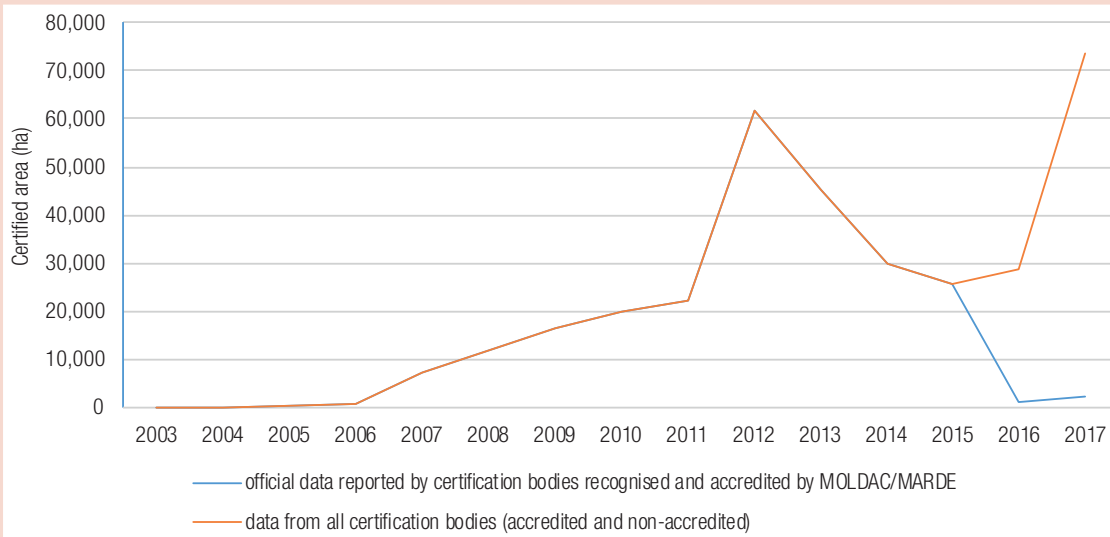
The following legal acts govern the context of the organic agriculture in the Republic of Moldova:

- ◇ Law No. 115 of 09/06/2005 on organic food production.
- ◇ GD No. 149 of 10/02/2006 on the implementation of law on organic food production.
- ◇ GD No. 1078 of 22/09/2008 on adoption of technical regulation on organic food production and organic food labelling.
- ◇ MAFI Regulation No. 179 of 10/09/2008 on rules of bookkeeping of Land history records.
- ◇ MAFI Regulation No. 9 of 19/01/2010 on establishment of the commission authorizing Inspection and Certification Bodies.
- ◇ MAFI Regulation No. 16 of 05/02/2010 on rules of registration of companies manufacturing organic food.
- ◇ Law 26 of 24/02/2011 regarding modification to the Law 115/2005 for harmonization the Moldovan legal framework with the new changes in European Union regulations.
- ◇ GD No. 884 of 22/10/2014 for approving of the regulation regarding use of the national label "Ecological Agriculture – Republic of Moldova".

At the same time, the European Union legal framework on Organic Agriculture has been changing in a more dynamic manner while the Moldovan legislation has not been able to adapt due to various factors, including an extremely limited human resource base at the responsible authority - Ministry of Agriculture, Regional Development and Environment (MARDE). Therefore, currently there is a large gap between the current European Union legislation and the Moldovan legal base. In 2016 the Ministry of Agriculture and Food Industry reported a 40 per cent level of harmonization. Some examples of missing elements are regulation of exemptions, regulation of authorization of use of certain products and substances allowed in organic agriculture, provisions assuring control mechanisms are equally efficient as in the European Union framework, etc. At the moment the core document regulating organic production and labelling in the Republic of Moldova (Law nr. 115-XVI from 09/06/2005 on organic farming) does not include the latest amendments to the European Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91. It also does not include the Regulation (EC) No 1235/2008 of 8 December 2008 laying down detailed rules for the application of Council Regulation (EC) No 834/2007 regarding the import arrangements for organic products from third countries. Even though some parts of the new European Union regulations have been reflected in the newer legislative acts from 2009 and 2011 there is a strong need of a complete transposition in one coherent law, and not in several subordinated legislative documents. Hence, a draft new law on organic agri-food production and labelling of organic products from 28.06.2017 with the goal of implementing art. 68 from the Association Agreement between European Union and the Republic

of Moldova has been presented for public consultations in September 2017. The current plan at the MARDE is to finalize the elaboration and passing of fully harmonized legislation by the end of 2019 with the support of the Czech Development Agency through the People in Need Moldova organization.

Figure 1. Area registered as organic agriculture in the Republic of Moldova, 2003–2017



Source: data communicated by MARDE 2017.

Not only from the legal perspective but also in terms of production, there is a long way to go in order to give organic agriculture a more prominent place in the sector. According to data obtained from MARDE and presented in figure 1, the surface allocated to agriculture is about 65 per cent (around 22,000 km²) of the Republic of Moldova's land area, most of which (19,000 km²) is currently in use. At the moment, only 75,686 hectares (ha) are certified as organic, which represents 3.9 per cent of the total area in use. Out of these 2,261 (3 per cent) are certified by national certifying bodies and 73,425 ha (97 per cent) are under international certification.

The apparent drop in the overall area is not a real reflection of the situation. In fact, the overall area of organically certified production has increased. Because of the problems with acceptance of equivalence of Moldovan organic certification many enterprises have stopped registering their lands in the national organic certification system and rather they became certified by international organizations, whose certificates are recognized in the European Union. Unfortunately, MARDE does not have access to the data of the externally certified areas and on-going attempts to collect this data delivers sporadic results.

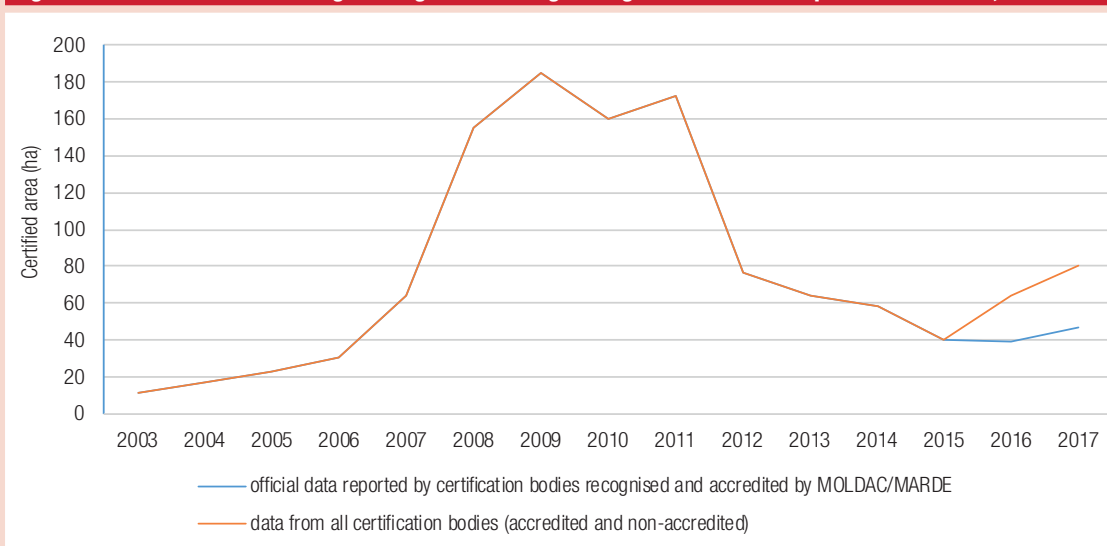
Since accredited private certification bodies have started certifying Moldovan producers in 2003 the number of economic agents under the national organic label grew rapidly. This increase is evident from data obtained from MARDE and presented in figure 2. The diminution of the number of economic agents around 2012 happened due to the fact that many small enterprises went out of business or became merged – in general there is a tendency of increased concentration in this sector. Also, the loss of equivalence recognition of the Moldovan organic certificate in the European Union has played its role as with the cultivation area.

Nevertheless, for the upcoming years it is expected that Moldovan organic agriculture sector will grow. The National Agriculture and Rural Development Strategy 2014-2020 recognizes the importance of environmentally friendly agriculture management, by setting "Sustainable Management of Natural Resources" as one of its three strategic priorities, specifically priority 2. The Strategy includes three supporting measures:

- ◇ Measure 2.1. Support for the land and water management practices, including land consolidation, crop rotation, irrigation systems and equipment;
- ◇ Measure 2.2. Support for environmentally-friendly production technologies and approaches,

- including organic farming, biofuels, and reforestation of eroded land;
 ◇ Measure 2.3. Support for adaptation and mitigation of climate change risks.

Figure 2. Number of economic agents registered in organic agriculture in the Republic of Moldova, 2003–2017



Source: data communicated by MARDE 2017.

The Strategy foresees an allocation of around 30 per cent of total available financial resources to this strategic priority, with Measure 2.1 receiving 20 per cent, and the other two 5 per cent each.

The following table summarizes opportunities for receiving subsidies under the above-mentioned strategy:

Table 1. Amount of subsidies in organic agriculture available under the National Agriculture and Rural Development Strategy, 2014-2020

Crop type	Payments per 1 ha of land under conversion in 2016-2017		
	1st year	2nd year	3rd year
Orchards and vineyards	1,500 MDL / €71.42	2,000 MDL / €95.23	2,500 MDL / €119.04
Medicinal and aromatic plants	1,300 MDL / €61.90	1,600 MDL / €76.19	
Vegetables	1,500 MDL / €71.42	2,000 MDL / €95.23	
Field crops	800 MDL / €38.09	1,000 MDL / €47.61	

A significant problem with accessing these subsidies is that to be eligible for this particular support farmers must be certified by a certification body accredited by MOLDAC/MARDE. There are currently two such bodies “Certificat Eco” SRL and “Bio Cert Tradi ional” SRL. As described above a large number of Moldovan organic farmers who mostly produce for export have shifted to certification by international certification bodies, because the national organic label has no use for the export. The foreign certification bodies in turn are unfortunately not recognized by MOLDAC / MARDE and therefore, farmers contracting these international services have no access to the national subsidies.

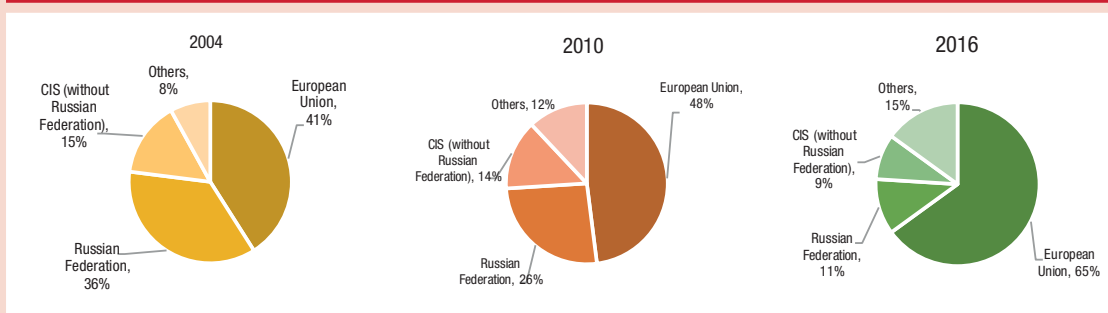
According to Marcela Stahi, Head of the Service for Organic Production and Products with a Designation of Origin at MARDE, the short-term solution would be for one of the Moldovan certification bodies to request recognition of the equivalence from the European Commission. However, this is a long process which involves a risky investment of human and financial resources, that neither “Certificat Eco” SRL nor “Bio Cert Tradi ional” SRL are not willing to assume. Especially in the current context of European Union legislation changing again in 2021 which will result in the ending of the system of equivalence recognition and introduction of the

obligatory conformity to European Union standards. Ultimately, the long-term solution for many problems of the organic agriculture sector is the final transposition of European Union legislation and ensuring its rigorous implementation.

II: Export trends and support policies

Pursuing a liberal trade regime, in 2001 the Republic of Moldova became a full-right member of the World Trade Organization (WTO). This step caused a gradual advancement in external trade and also increased efforts of adopting international standards in the production processes. The Republic of Moldova has signed Free Trade Agreements (FTAs) with 43 countries to date. The one that influences the Republic of Moldova's trade the most is the Deep and Comprehensive Free Trade Area Agreement (DCFTA) with European Union member states. Also, there are FTAs with the Commonwealth of Independent States (CIS) member-states, Balkan countries (Albania, Bosnia-Herzegovina, Montenegro, Serbia, the Former Yugoslav Republic of Macedonia, and Kosovo (United Nations Administrative Region, Security Council resolution 1244 (1999))) and Turkey. Additionally, the Republic of Moldova has signed preferential trade agreements with Canada, Japan, Norway Switzerland, and United States of America (MIEPO, 2017a).

Figure 3. Regional export trends for goods from the Republic of Moldova



Source: German Economic Team Moldova, based on NBS 2018.

As shown in figure 3, in 2004 just over 50 per cent of Moldovan exports were destined for CIS countries including the Russia Federation. In 2010 the European Union accounted for 48 per cent and the CIS for 40 per cent, later by in 2016 almost 2/3 of Moldovan exports were already directed to the European Union. This trend demonstrates a clear regional re-orientation of exports towards the European Union in the past decade. At the same time, the CIS countries remain as important export destinations. The share of "other" export destinations has almost doubled since 2004 mostly due to increase in export and trade with Turkey, but also with other countries including China and Egypt (German Economic Team Moldova, 2017).

The evolution of exports of agri-food products to the European Union has been determined by both climatic conditions as well as by the trade restrictions imposed by the Russia Federation in reaction to the Republic of Moldova signing the Association Agreement with the European Union. Top trading partners of the Republic of Moldova in the European Union are Italy, Romania Greece and Germany both for imports and exports. Narrow geographic orientation with approximately 90 per cent of Moldovan exports and 86 per cent of imports in agri-food and agriculture-related trade with only 10 European Union member states out of the 27, is limiting the diversification of markets, creating risks, hampering the choice of market niches and reducing penetration capacity in new markets.

On 1 September 2014 the Republic of Moldova signed the Deep and Comprehensive Free Trade Area (DCFTA) Agreement with the European Union and in July 2016 it was fully enforced. DCFTA implies a complex process of adoption of European Union standards and directives. It applies free trade principles of the World Trade Organization (WTO) to trade relations between the Republic of Moldova and European Union member states. DCFTA facilitates trade in products and services by removing most import duties.

One of the key functions of DCFTA is aligning Moldovan trade-related laws with European Union legislation. This will enable the Republic of Moldova to become a more trustworthy trade partner through better governance

and the rule of law. As a result, more foreign investment will flow in and greater openness of the European Union market for exports can be expected. (MIEPO, 2017a).

According to the report by MIEPO and “Technical Assistance for the Implementation of DCFTA in Moldova” after two years of implementation of DCFTA, 65 per cent of Moldovan exports were oriented towards the European Union market and these exports amounted to €2.2 billion. Compared to the 2014-2016 period, overall exports of goods and services increased by 16 per cent (12 per cent only for goods). The share of agri-food commodities on European Union markets rose by 45 per cent (from €278–€504 million). The trade balance on agri-food products constituted approximately €174 million, which represents a 5-fold increase in comparison to the period before DCFTA.

Among the main agri-food products exported to the European Union are sunflower seeds which account for 25 per cent of food exports to the European Union. These were exported in a proportion of 44 per cent to Romania and 32 per cent to the United Kingdom. It is a spectacular increase of 2.8 times compared to the previous period. Walnut exports account for 15 per cent of agri-food exports to the European Union, with the main destinations being France (37 per cent), followed by Austria and Germany with 14 per cent each. Also, the evolution of exports is remarkable for honey (+ 40 per cent) – one of the few products of animal origin admitted for export to the European Union (Expert Grup, 2017).

At the same time, the lack of homogeneous, compliant, packaged and certified domestic products that would be accepted by European Union importers substantially reduces the capacities of Moldovan products to cover the contingencies and tariff concessions established by the DCFTA. The non-tariff measures established by DCFTA (sanitary, phytosanitary, quality standards, product certification and compliance) are currently the most serious barriers to increasing the export of Moldovan agri-food products to the European Union. The adjustment of the legislative/normative framework and the compliance of the local agricultural sector with these requirements and the exclusion of non-tariff measures in the future could have a much greater impact than the elimination of import tariffs on both sides.

The growth potential of agricultural and agri-food exports from the Republic of Moldova could suddenly slowdown in the short term if agricultural producers in the Republic of Moldova do not adopt and do not meet the relevant European Union standards. In this context, non-compliance with European Union sanitary-veterinary requirements and the European Union safety and quality standards could diminish competitiveness, and penetration, and thus slow down exports of domestic products to other world markets with similar requirements and standards.

Besides the positive effect on the trade with the European Union, in July 2014, the Russia Federation started to introduce restrictions on delivery of Moldovan products (especially wine, fruit and canned vegetables). Consequently, by August 2016 the export of Moldovan goods to the Russian market decreased by \$325 million.

III: Existing Support Programs

Multiple support programs exist that are aimed at supporting the Agricultural Sector in the Republic of Moldova. ANNEX 1 provides quite a long list, which does not claim to be exhaustive. Several examples are described below in this chapter.

The main support channel are subsidies offered through the Governmental Agency of Interventions and Payments for Agriculture (AIPA) subordinated to MARDE. The allocation of resources is aimed at achieving general and specific objectives established in the National Strategy for Agricultural and Rural Development 2014-2020, Government Decision No. 409 of 4 June 2014, as well as the Financing Agreement between the Republic of Moldova and the European Commission on the implementation of the ENPARD Moldova – support for agriculture and rural development, approved by the Parliament Decision no. 177 of 22 October 2015. In 2018 the overall amount of state subsidies amounts to MDL900 million or an equivalent of €45 million.

AIPA supports a very wide range of activities that can be summarized in the following overarching measures:

1. Investment in agricultural holdings for restructuring and adaptation to European Union standards.
2. Investments in the processing and marketing of agricultural products.
3. Training for the implementation of actions related to the environment and the rural space.
4. Improvement and development of rural infrastructure.

5. Consultancy and other training services.

One of the key support programs in this sector is the Moldova Agriculture Competitiveness Project implemented by the World Bank Global Environment Facility (GEF). Its main objective is to “enhance the competitiveness of the country’s agro-food sector by supporting the modernization of the food safety management system, facilitating market access for farmers, and mainstreaming agro-environmental and sustainable land management practices” (World Bank, 2018). It has been under implementation since 1 May 2012 and scheduled to run until 30 June 2019. The project consists of the following 5 components:

1. Enhancing food safety management (by improving capacity of the sector and ensuring regulatory harmonisation with European Union) – \$11.80 million.
2. Enhancing market access potential (especially for value added horticultural products) – \$38.34 million.
3. Enhancing land productivity through sustainable land management – \$9 million.
4. Project management (supporting integration of the costs and procedures across various government agencies) – \$2.60 million.
5. Compensatory sales support grants (for those who suffered from trade restrictions in 2014) – \$6.80 million.

Another important program is the Inclusive Rural Economic & Climate Resilience Programme (IFAD VI) implemented by the International Fund for Agricultural Development (IFAD). It aims at supporting poor rural entrepreneurs to grow their incomes and increase their resilience to economic and environmental shocks. The program operates from 2014 until 2020 providing a mix of financial instruments from IFAD, DANIDA and GEF amounting to \$16.1 million in loans and approximately \$10 million in grants. The program consists of the following components:

- ◇ Component I: Climate change resilience and inclusive value chain development.
- ◇ Component II: Inclusive rural financing and capacity development.
- ◇ Component III: Development of economic infrastructure for rural resilience and growth.

Under the first component, investment grants are provided to enhance the capacity of agricultural enterprises to adapt to climate change, as well as grants for the development of value chains under the program in the following areas: beekeeping, vegetable growing and table grapes production.

Specifically, for the beekeeping sector this program aims at the following results:

1. Supporting producer groups at local and regional level to form product batches for sale on the domestic market and for export to increase revenue, reduce spending and ensure product competitiveness.
2. Upgrading the procurement, storage, processing, packaging and batch formation system.
3. Increased exports of bee products at regional level.
4. Modernizing the communication and marketing system.
5. Income increased in the region by selling value-added products.
6. Maximizing the use of the melliferous potential of the region.

Through the support of the Czech Republic Development Cooperation, the People in Need Moldova organization is currently implementing a project aimed at creating institutional support for organic farming in the Republic of Moldova. Its main purpose is to increase the capacity, the transparency and the credibility of state institutions in the field of organic farming in the Republic of Moldova. The implementation period is June 2017–June 2021 and the overall cost of approximately €62,400. The project is implemented in close collaboration with MARDE and is aiming to produce the following results:

1. Reinforced institutional structure in the field of organic farming.
2. An operational system for unified approval of inputs to organic farming.
3. Strengthened competency of local laboratories in the field of organic farming.
4. An established system for recommendation of organic agro-technological procedures, species and varieties.

CHAPTER 1. THE REPUBLIC OF MOLDOVA'S WALNUT SECTOR

1.1 Introduction

Since adoption of the Walnut Law¹ in the Republic of Moldova in 1999 national attention towards walnuts as a crop has increased. Currently in the Republic of Moldova “walnuts are grown on 24,000 hectares of plantations, an area that has been consistently expanding” (MIEPO 2017a). The current yielding area of the orchards is 16,000 hectares according to the National Bureau of Statistics of the Republic of Moldova 2017. “Average productivity varies from 2 to 3 tonnes per hectare depending on the variety and climatic conditions. Walnut plantations have registered a rapid growth since the year 2000 from an area of 4,000 hectares and reaching an area of 24,000 hectares in 2014. Thus, the amount of exports grew from \$39 million in 2007 to more than \$100 million in 2014” (MIEPO Agriculture and Food Processing 2015). In 2015 and 2016 the export volume in tonnes grew, but due to a rapid price fall the overall export value has remained at approximately \$100 million. The top destinations for Moldovan walnut exports in the past ten years have been: France, Greece, Germany, Austria, Iraq, Turkey, Italy, United Kingdom and the Netherlands.

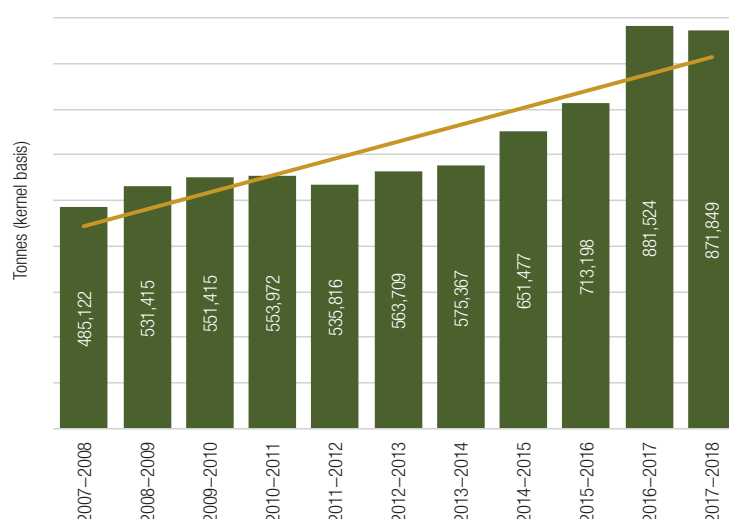
The Republic of Moldova has recently become known

as a walnut processing country (INC, 2017). Due to large investments in cracking and sorting, the Republic of Moldova is not only able to process almost all of its walnuts for export, but also to offer processing services for countries like France, for example. In this case in-shell walnuts are imported to the Republic of Moldova, processed and re-exported back to France.

The valued added products like walnut oil play currently a much less significant role in Moldovan export. For example, Prometeu-T company produces walnut oil, but in comparatively small quantities. According to the director of the company, there are not enough walnuts for commercially viable oil production, and if he does find more walnuts for export, he prefers to sell them as kernels due to high demand and established commercial relations. Still, if stable trade relations for walnut oil export were established, this product could represent a strong income potential since the retail price for organic walnut oil in different size bottles ranges from €40 to €60 per litre. Cases of walnut flower or pre-packed and branded walnut trail mix export have not yet been identified.

The International Nut and Fruit Council estimates that in 2016 walnuts were the second most preferred nut type in high-income countries with 18 per cent share, second to almonds (39 per cent). In middle-income countries walnuts were the most consumed nut in 2016 – 29 per cent share (INC, 2018). At the same time, world walnut demand is constantly growing. The wide gap of over 180 million tonnes in-shell basis between European Union walnut production

Figure 4. World walnut production, 2007-2017



Source: INC 2018.²

Table 2. Production of walnuts by countries, 2012-2017, tonnes (kernel basis)

	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017
China	307,692	333,333	384,615	427,350	452,991
United States	192,680	190,741	221,369	233,774	259,750
European Union	47,009	47,009	46,111	49,573	48,291
Ukraine	41,427	49,483	43,906	49,179	44,872
Chile	22,650	25,641	34,886	34,188	42,735
Turkey	36,325	32,051	17,094	25,641	26,923
The Republic of Moldova	9,701	9,872	13,675	12,821	13,462
Other	18,932	21,667	18,590	18,590	16,667
Total	676,415	709,797	780,247	851,115	905,690

Source: USDA 2017.

and consumption provides an excellent opportunity for Moldovan walnut exporters. Also, Turkey, Middle-East and Asia Pacific countries represent a promising export destination.

1.2 Global trends in walnut production and trade

Walnut is an increasingly important commodity in the international trade. Although the world market price fell in 2015, it still remains a product that brings relatively high margins in international trade.

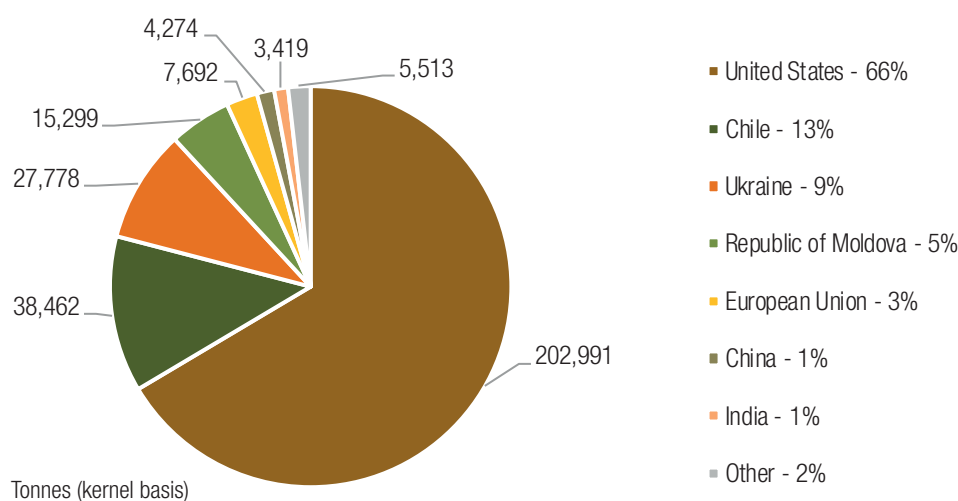
The overall global supply value of walnuts reached \$5.5 billion in 2016/2017 season (INC, 2017) which set it in the fourth place after almonds, pistachios and cashews. In 2014, walnut supply value was in second place but declined in 2015/2016 because the global

market price had dropped significantly due to high global yields.

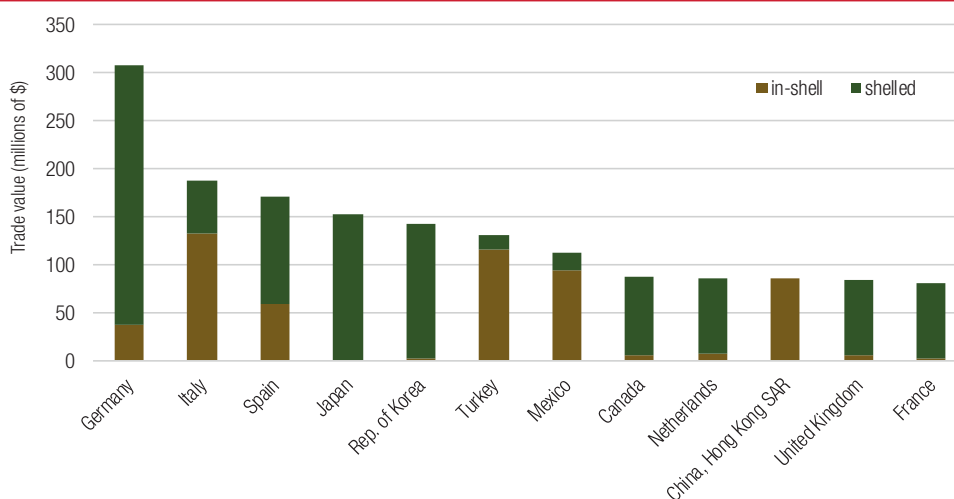
World production of walnuts

World walnut production was estimated at 871,849 tonnes (kernel basis) in season 2016/2017; up by 20 per cent from the previous season. The jump in higher supply from 2015 to 2016 was mainly explained by China's production that was increased by 55 per cent over 2015/16, followed by Chile and the United States, up 22 per cent and 11 per cent respectively. In the past 10 years the walnut production has increased by 80 per cent, as Figure 4 shows.

China and United States lead global production with 42 per cent and 29 per cent respectively (International Nut and Dried Fruit Council (INC), 2018). From a historical perspective demonstrated in Table 2 it becomes clear

Figure 5. World walnut exports, 2016–2017

Source: USDA 2017.

Figure 6. Top 12 world importers of walnuts, 2016, cumulatively in-shell and shelled.

Source: own representation based on United Nations Comtrade Database, 2017.

that China, United States and Chile have been rapidly expanding their walnut production. The Republic of Moldova experienced a moderate, and Ukraine a very modest increase, while the European Union – the main walnut importer worldwide has not increased its production in the past 5 years.

According to Oleg Tîrsînă, President of the Union of Nut Growers Associations of the Republic of Moldova (also referred to as the National Walnut Growers Association or WGA), Chile is one of the most important competitors for the Republic of Moldova walnut sector, especially regarding the European market. Chile has been extensively investing in expansion of walnut plantations at rates of almost 10,000 ha per year. This is a tremendous growth that the Republic of Moldova cannot keep up with.

World export of walnuts

In the decade between 2006 and 2016 world exports of walnuts have more than doubled reaching 300,000 tonnes. As shown in Figure 5, United States was the main exporter of shelled walnuts during 2015, accounting for more than half of global exports, with Germany as its main destination, but also having Japan and Republic of Korea as important trade partners. Ukraine and Chile marketed their walnuts mainly to the Middle East and Europe. The Republic of Moldova occupies fourth place in world walnut exports, mostly delivering to Europe. The Republic of Moldova is also known as the processing country, provided walnut cracking services mainly to French partners (INC, 2017).

Germany plays a significant role in the world walnut trade. According to both United Nations Comtrade Database, 2017 and International Nut and Dried Fruit Council, 2017 Germany is the world's leading importer of shelled walnuts. Also, if we consider the cumulative import amounts of shelled and in-shell walnuts – Germany is on the top of the list, followed by another two European Union countries, namely Italy and Spain. In 2016 Germany imported 25,978 tonnes of walnuts (kernel basis) almost double its import level in 2006 (INC, 2018).

World consumption of walnuts

International Nut & Dried Fruit Council (INC, 2018) estimates shown in Table 3 indicate that in 2016 walnuts were the second most preferred nut type in high-income countries³ with an 18 per cent market share after almonds (39 per cent). In middle-income countries walnuts were the most consumed nut in 2016 (29 per cent share).

European Union market

The European Union population totals about 500 million with an average GDP per capita of around \$30,000. Although European Union produces its own walnuts, the domestic consumption is covered to 65 per cent by imports. The trend in consumption growth has been accompanied by an increase in imports, but not in production (USDA, 2016). Table 4 presents the overview about supply and demand in European Union 28.

Table 3. Estimated world walnut consumption, 2012–2017

Countries	Total consumption (tonnes, kernel basis)					per capita consumption (kg/year)
	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017	average 2012–2017
China	347,094	365,085	408,718	459,487	491,453	0.18
European Union	98,376	112,009	119,017	131,068	138,889	n/a
France	16,271	21,907	18,333	24,998	21,680	0.32
Germany	12,085	12,154	14,763	17,922	16,856	0.18
Italy	9,124	8,596	8,707	12,748	13,829	0.18
Spain	7,951	8,955	8,815	11,202	13,746	0.22
Netherlands	2,944	3,632	4,455	9,894	10,650	0.35
United Kingdom	5,146	5,351	6,711	8,225	9,001	0.11
Greece	1,081	1,550	1,410	2,544	2,466	0.16
Austria	1,397	1,619	1,200	2,342	n/a	0.19
Turkey	50,214	49,188	43,205	60,470	63,547	0.30
United States	65,926	66,206	60,078	58,192	64,103	0.43
Japan	11,838	12,393	16,239	17,222	17,094	0.11
Republic of Korea	12,051	12,436	14,487	13,034	13,675	0.26
Ukraine	16,641	17,346	18,436	16,829	14,829	n/a
India	10,641	11,282	13,974	18,419	15,726	0.01
Canada	8,846	9,487	7,650	10,256	11,325	0.24
Iran	556	6,538	4,829	8,248	8,547	0.61
Other	48,504	46,966	45,274	47,457	56,218	n/a
Total World	670,686	708,937	751,908	840,683	893,568	0.09

Source: Authors' representation based on USDA, 2017 and INC, 2018.

Table 4. Key figures of the European supply and demand of walnuts 2016

	In-shell basis, tonnes	Kernel basis, tonnes
Production	113,650	48,568
Import	180,000	76,923
Consumption	275,650	117,799
Export	18,000	7,692
Stocks	40,000	17,094

Source: USDA, 2016.

For 2017-2018 European Union's production is forecast to be around 115,000 tonnes with modest reductions in France and Romania. Consumption is expected nearly unchanged following several years of strong growth. Demand is driven by snack foods and cooking ingredients on the retail side and pastries on the industrial side. Imports are expected to further increase.

The European Union market for walnuts is mature but continued import growth suggests that it has room to expand. Along with this wide gap between

consumption and production it represents an excellent opportunity for Moldovan walnut exporters. Table 5 shows that in 2015 the United States was the number one supplier of walnuts, both in-shell and shelled to the European Union, and the Republic of Moldova occupied second place with Chile being very close behind on the third place. However, taking into consideration Chile's rapid walnut industry growth it can be expected that in 2017 or 2018 Chile might outpace the Republic of Moldova.

Table 5. European Union-28 imports of walnuts by origin, in-shell basis, tonnes

Country of origin	2012/13	2013/14	2014/15
United States	72,552	84,839	97,651
The Republic of Moldova	21,262	23,280	24,452
Chile	16,464	21,710	24,041
Ukraine	18,041	19,855	22,206
China	3,617	5,014	3,404
Others	10,138	11,126	10,267
Total	133,350	156,408	175,317

Source: USDA Tree Nuts Annual 2016.

1.3 Current status and performance of the Republic of Moldova's walnut sector

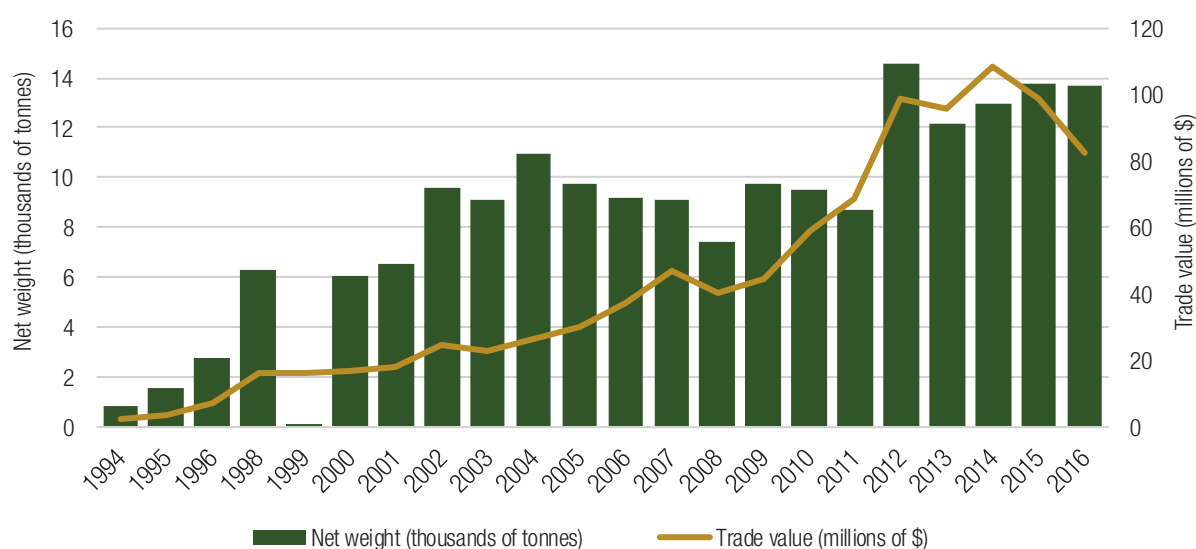
The Republic of Moldova has ideal climatic and soil conditions for the production of walnuts - it lies within the 7 per cent of the world territory that is best suited for the highest productivity of the superior *Juglans regia* variety of walnut according to the National Walnut Growers' Association. Having at least one walnut tree for personal use at home in the rural areas is ubiquitous in the Republic of Moldova.

Under the Soviet system walnuts lacked official recognition as a crop, and production was not a strategic priority. Some plantations were scattered around settlements and road verges. Still significant quantities of walnut trees were planted along many country roads in The Republic of Moldova. The overall area of road plantations is estimated to be over 100,000 ha. The walnut varieties planted in the 1950s were not genetically selected or well suited for commercial agricultural production, therefore they have rather low yields of not more than 1 tonne per ha (World Bank, 2003). According to Oleg Tîrsînă, the president of the WGA, walnuts collected from these country roads represent still the most significant source of Moldovan walnut production (private communication). He estimates that in 2018 harvesting season the proportion of walnuts collected from the roads will fall down to 60 per cent with the remaining 40 per cent deriving from industrial orchards.

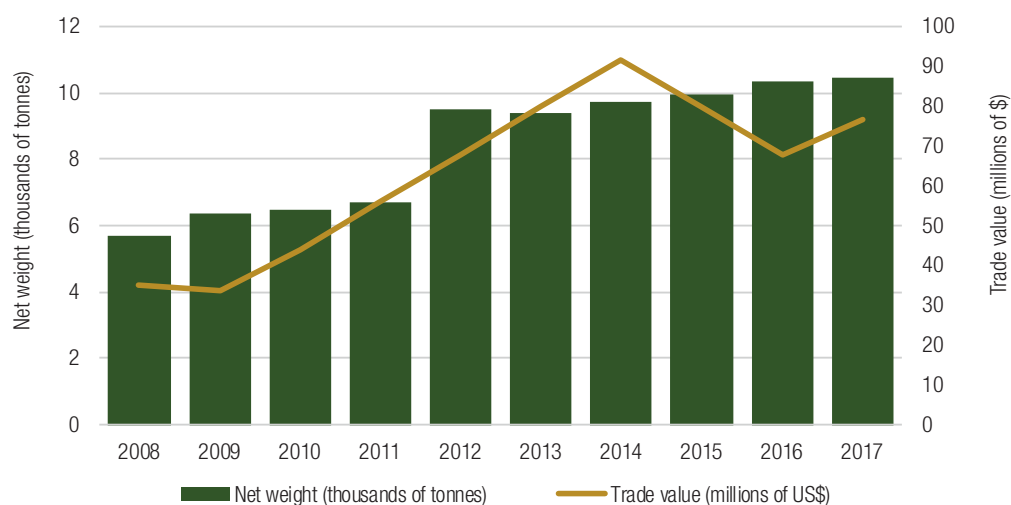
In the mid-1990s the walnut sector started growing rapidly from a very low base. Due to a low labour force costs it was possible to process walnuts manually with a much higher extraction rate of unbroken kernels than mechanized methods. In 1999 a so called "Walnut Law" was adopted, which strongly supported expansion of industrial plantations and subsidized economic activities connected to the walnut sector development. The preferential access to the European Union market with no tariff duties has boosted the export which led to fast development of the marketing and processing industry (World Bank, 2003).

Currently, walnuts are grown in orchards occupying 24,000 hectares, an area that has been consistently expanding (MIEPO, 2016). In 2017 the yielding area of the orchards was 16,000 hectares according to the National Bureau of Statistics of The Republic of Moldova. Average annual productivity varies from 2 to 3 tonnes per hectare depending on the variety and climatic conditions. Walnut plantations have registered rapid growth since the year 2000 from an area of 4,000 hectares and reaching an area of 24,000 hectares in 2014. Thus, the amount of exports grew from \$39 million in 2007 to more than \$100 million in 2014 (MIEPO, 2016) which represented 1.5 per cent of the GDP of \$6.57 billion), and around 40 per cent of the total agricultural income of the country (United Nations Comtrade, 2017). In 2015 and 2016 the export amount grew, but due to a rapid global price fall the overall export value has remained at approximately \$100 million.

Figure 7. Overall exports of Moldovan shelled walnuts 1994–2016



Source: Own representation, based on United Nations Comtrade, 2017.

Figure 8. Exports of shelled walnuts to the European Union 28+, 2008–2017

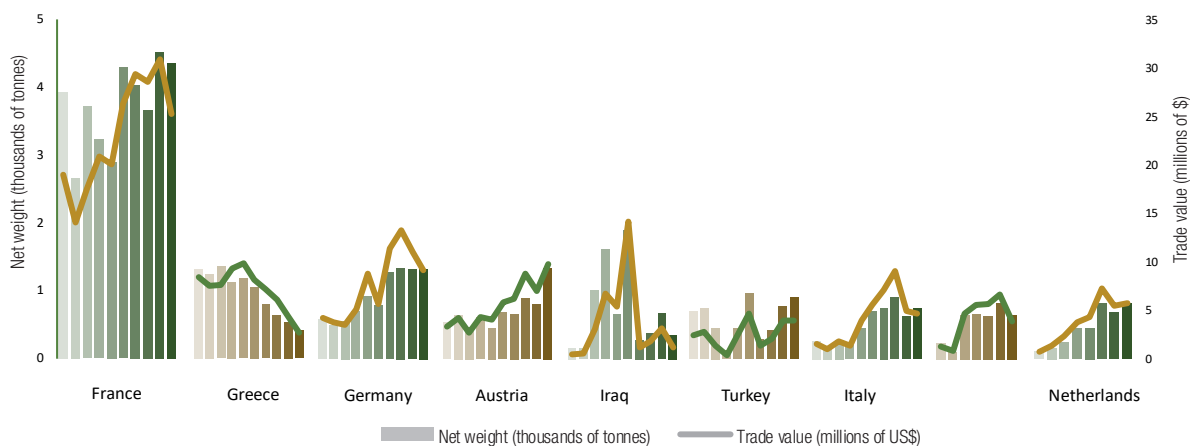
Source: Own representation, based on Eurostat Comext, 2018.

Significant export growth since the mid-1990s is shown in Figure 5. It is important to note, that the Republic of Moldova is currently exporting mostly shelled walnuts. The 2017 export volume of in-shell walnuts was very small: 1,842 tonnes (ANSA, 2018), which constitutes only about 1-2 per cent of the total walnut export value. This fact is easily explained by strong investments in the processing industry in the past years. But still the amount of in-shell walnuts grew by 17 per cent in comparison to 2016, and will be growing further, according to Oleg Tîrșină, president of the WGA (private communication).

There are already proven trade relations between the European Union and the Republic of Moldova in the walnut sector. As shown in Figure 7, the amount of

Moldovan shelled walnuts exported to the European Union grew significantly in the past 10 years, as the Figure 8 illustrates. Currently the Republic of Moldova is supplying approximately 12 thousand tonnes of walnut Kernel to the European Union, which is only 13.3 per cent of the European Union import value of approximately 90 thousand tonnes (USDA, 2017). The remaining import demand is covered mostly by from United States and Chile.

In order to better understand export relations to specific countries we can consult Figures 8 and 9, which shows the 9 most important export destinations for Moldovan walnuts over the past 10 years. The top countries have been selected by the cumulative net weight of exported walnuts for this period.

Figure 9. Top 9 export destinations for walnut kernels from the Republic of Moldova, 2007–2016

Source: Own representation, based on United Nations Comtrade, 2017.

Figure 9 shows that France is the major export destination for Moldovan shelled walnuts. This can to a large extent be explained by the fact that the Republic of Moldova imports French walnuts in shell, processes them and re-exports the shelled kernels. In 2017 for example the Republic of Moldova imported 2.57 thousand tonnes in-shell walnut from France with the overall value of €5.62 million (Eurostat Comext, 2018). This represents circa 8 per cent of the overall French walnut production (USDA, 2016). The second largest export destination, Greece has been on decline over the past 10 years due to the country's economic crisis, whereas Germany, Austria, Italy and Netherlands are seen as growing exports markets. The graph demonstrates a visible relation of the trade value to the net weight of exported kernels, suggesting that Iraq and Turkey seem to pay lower prices for the shelled walnuts. An open question remains whether Moldovan exporters are supplying their markets with lower quality kernels or they just settle for lower prices. The highest trade values in relation to the net weight can be observed in Germany and Austria. Also, organic certification has been on the rise. Organic walnuts from the Republic of Moldova can be found in German retail chains like "DM" and "Biocompany". In general Moldovan walnut quality is quite competitive, but a national walnut brand like in case of "Californian walnuts" is yet to be developed.

Organic and value-added activities in the sector

For the time being processing and organic certification are the main valued added-activities in the Moldovan walnut sector. Unfortunately, official data on cumulative organic walnut production and export is not available. The national registry of organically certified producers lists 16 walnut growers with the total area of 427 ha. It is important to note that only 91 ha are fully certified as organic, while the remaining 78 per cent are all still in conversion. This also implies that most of these orchards are young and not bearing market grade walnuts yet. The areas registered in the MARDE list make up to a small part of overall organic plantations, because they are mostly represented by small and medium farmers. The stakeholders with large industrial organically certified plantations are usually the ones who have vertically integrated with processing and export into international value chains. These large companies get certified externally in order to be able to export predominantly to the European markets. Through the study it was not possible to collect the

complete set of data, since only a half of these firms and only a small number of international certification bodies revealed exact numbers on certified areas. Based on these numbers, other information available on large firms, and a logical extrapolation, we infer that the area of externally certified organic orchards in the Republic of Moldova constitutes not less than 2,000 ha.

Apart from records of growing area only vague estimates of production volumes by different industry players and organisations exist. The International Centre for Organic Agriculture of Central and Eastern Europe - EkoConnect (2011) presents a figure of 4,414 tonnes of kernel export for 2010 in its report on the organic sector in the Republic of Moldova. A report on the greening of agriculture states that in 2014 the Republic of Moldova exported approximately 962 tonnes of shelled walnuts from organic orchards and those in conversion to Germany alone, with the overall trade value of approximately €4.2 million (UNDP / GEF, 2014).

Valued added products like walnut oil currently play a much less significant role in Moldovan export. For example, the Prometeu-T company produces walnut oil, but in comparatively small quantities. According to the Director of the company, there are not enough walnuts for oil production, and if he does find more walnuts for export, he prefers to sell them as kernels due to high demand and established commercial relations. Still if stable trade relations for walnut oil export were established, this product could represent a strong income potential since the retail price for organic walnut oil in different size bottles ranges from €40 to €60 per litre. Cases of walnut flower or pre-packed and branded walnut trail mix export have not yet been identified.

1.4 Brief overview of stakeholders and the value chain in the walnut sector

The overall value chain in the walnut sector is characterized by a large number of micro- and small size farmers and a small number of large industrial farmers (which have not all entered the yielding period yet), collectors, processors and exporters.

Collection of walnuts is undertaken by regionally based merchants who buy directly from small producers in the rural areas and sell to processing units mostly based in Chisinau. They in turn carry out hand-shelling and export to destination markets, mostly in the European

Union. In addition to the processing of domestic production the industry has attracted significant flows of imported unshelled walnuts in order to exploit the low-cost hand shelling for re-export to France and Germany (World Bank, 2013). Thus, the Republic of Moldova is also considered as a processing country offering processing services, especially for French walnuts.

Besides those involved directly in production, processing and trade there are supporting industries/ services of research, consulting and certification and other sector development actors, like growers' associations. The National Walnut Growers' Association (WGA) exists since 2006, dedicating its mission to uniting and supporting small producers and developing the sector. In most of the past years its activity was very limited due to scarce resources and other constraints. In 2015 with election of the new Board President, some new activities have been observed and it gives hope of upcoming innovations for more effectiveness and inclusiveness in the value chain.

Organic walnuts

The following operators on the Moldovan market have been certified for production and trade with organic walnuts by European certification bodies: Monicol SRL (Kiwa BCS ÖKO-Garantie, BIO Suisse, Naturland), AMG Kernel SRL (Bio-inspecta), Irida SRL and Nutsi International SRL (EcoCert France), Minunata Xenia SRL (Kiwa BCS ÖKO-Garantie) IM Nova Nut SRL and Maestro Nut SRL (CERES), Prometeu-T S.A, Fernuci SRL and Pronutconagro SRL (no data about the certification body). There are also 16 smaller operators certified by nationally accredited certification bodies (Certificat Eco and Biocert Traditional), but most of them are still in conversion and these certificates are not recognized as European Union organic equivalent in case of export.

Viorel Gherciu, a prominent Moldovan expert in organic agriculture brings an example of how an organic walnut exporter used to solve the collection and certification challenges before 2014. "Nova Nut is a German-Moldovan joint venture for organic walnuts, where the German partner is engaged in marketing and the Moldovan partner in supply. They have contracted 2,152 farmers, most of which have just a few trees. With a good tree yielding around 100 kg a farmer with three trees can earn around \$600 per year, a substantial contribution to the average

family's livelihood in the Republic of Moldova. In order to keep certification costs low – which otherwise would be prohibitive – the operators maintain a group certificate with an internal control system, by which they themselves visit all farmers and make inspection reports. The external certification body verifies the efficiency of this internal control. Total production is 300 tonnes of kernels graded into many different qualities and vacuum packed" (UNEP, 2011).

1.5 Potentials of market diversification, upgrading the value chain and generating added value in the Moldovan walnut sector

Market diversification

The European Union market and especially France and Germany are currently the main export destinations for Moldovan walnuts, but the sector would experience more growth and resilience if the exports were targeted to a more diverse group of countries and niches within those countries.

One of the key conclusions derived from consultations with Moldovan producers/exporters and European Union importers is that it is very difficult at the moment to export value added (processed end products) and sell them in the European retail chains or otherwise under a brand from the Republic of Moldova. Our research shows that European Union consumers, especially in Germany, are rather conservative preferring brands they recognize and trust. Therefore, the Republic of Moldova is likely to continue in the near future (5-7 years) its role as a supplier of raw material that is undergoing final stages of packaging and labelling in the country of consumption.

Walnuts are popular with many of the ethnic population groups in Europe and especially Germany, particularly those from Turkey, the Middle East and North Africa and targeting them can represent a promising niche. Also, timely adaptation to customer needs is important. The peak of walnut purchases in Europe is in the winter time – mostly before Christmas, but purchase throughout the year is growing. In the retail trade, almost 50 per cent of all walnuts are commercialized in classical supermarkets and 30 per cent go through the health and bio channel. The remaining 20 per cent are sold through outdoor markets and online (CBI, 2014).

Over the next decade, the Asia Pacific region and

Europe are expected to dominate in the walnut sector followed by the Middle East & Africa. More and more, walnuts are being consumed in the Asia Pacific region especially for snacks and in pharmaceutical formulations. This region is expected to become a prominent player by 2025 with a significant compound annual growth rate (CAGR) attributed to increase in the per capita consumption of walnuts (Transparency Market Research, 2017).

The Republic of Moldova may follow the example of Chile, which is very active in the Turkish market, but recently has also entered India, Morocco and the United Arab Emirates. The competition with Chile should not be too severe, since the harvest time in the Northern and Southern hemispheres occur in exactly opposite times of the year and could be complementary for a steady supply.

In order to upgrade the walnut value chain several options can be considered. Certainly, organic certification is of high value for the European market, but also value-added products become increasingly interesting in the global trade.

Organic certification

Oleg Țîrsină, the president of the Walnut Growers Association, affirms that organic walnut production represents the most promising option for the Republic of Moldova. In order to make Moldovan walnuts more visible and recognized for quality in the European market, the Association has recently initiated talks to create a Moldovan walnut brand: "Moldova Nut", similar to "Moldova Fruit" which already exists and seems to enjoy recognition and trust by a growing number of foreign trade partners.

We will briefly examine here the case of walnuts market trends in Germany, since this country is the world's largest importer and 5th largest consumer of walnuts and the largest organic market in the European Union. The Centre for the Promotion of Imports from developing countries (CBI, 2014) estimates that for fair trade branded organic walnuts, producers can achieve a higher proportion of the ultimate selling price and thus get 30-50 per cent more value addition than in case of conventional product despite the greater costs involved in certification.

In general, European consumers are interested in naturalness – "organic", "natural" or "additive-/preservative-free" feature strongly in marketed fruits and nuts, while "fibre", "protein" and "low sodium"

claims were also attracting buyers. Although many people perceive walnuts to be healthy anyway, there is a significant segment of consumers that is willing to pay a premium for organic walnuts (CBI, 2014). While mainstream retail prices in mid-market range from €1.50–2.00 per 100 g, the organic and premium segment can reach up to €3–4 per 100 g. Luckily Moldovan walnuts are already to be found on the shelves of organic shops in Germany, like Biocompany or DM Markt, selling under the local brands, like for example the premium "Rapunzel" segment.

Another strength of organic certification is that it can help cushion the price instability. The price for walnuts on the global market experienced a significant drop of almost 30 per cent in 2015 and 2016. Recently, the University of California Cooperative Extension Service documented that demand for organic walnuts remained steady and even increased, and organic walnut prices did not drop, even though all of these trends were reversed for conventional walnuts (Jeffries, 2016).

European consumers are often environmentally conscious in terms of recycling and disposal of packaging. There is a trend to larger pack sizes. Visibility of the product and the appeal of the packaging are important factors, because snacks are often purchased on impulse.

Walnut oil

Pressing walnut oil is the major value addition activity existing in the value chain. Walnut kernels contain a 60-70 per cent oil fraction. The current value of the worldwide walnut oil market is approximately €27.23 billion in 2016 according to Technavio Research with approximately €578 million for cold-pressed oil. It estimates the worldwide walnut oil market to increase at a compound annual growth rate of about 4.7 per cent between 2017 and 2021.

The global walnut oil market is segmented on the basis of application, distribution channel, and region. Based on its application, the global walnut oil market is segmented as nutritional supplements, cosmetics products, aromatherapy and others such as wood finish and paint thinners etc.

North America and the Asia Pacific region occupy the major share of global walnut oil market and are expected to grow at a steady rate. The Western Europe regional market is expected to grow at a relatively higher growth rate over the forecast period

Mini-Case – Organic walnuts export – “Fernuci”

F.P.C. “Fernuci” is a leading production, processing and exporting enterprise which started its activity in 2011 in the village of Ciuciulea, Glodeni district. Olga Petrovsky, originally from the village of Ciuciulea and a citizen of Austria since 2000, founded the company together with her Austrian husband. Olga Petrovsky is an active member of the Republic of Moldova diaspora, strongly believing in sustainable development potential of her country.



In recent years Fernuci has become the second largest employer in the area, employing more than 100 people. It is caring for over 20,000 walnut trees on approximately 110 ha of land. The main grown varieties of walnut are the internationally well-recognized Fernor and Chandler. The company operates in an environmentally friendly manner (e.g. drip irrigation for the largest part of the orchards) and is the holder of the European Union organic label. The price of organic walnuts in the European market is double to triple the price in the national Moldovan market. In the first years of investment, until their own orchards were ready for harvest Fernuci already was buying walnuts from the regional farmers and processing them for export.

The company has its own processing line with French equipment. Fernuci is mostly exporting shelled walnuts to Austria and France and is one of the rare actors on the Moldovan market that has a stable trade relation delivering to a supermarket chain in Austria. The company has ambitious development plans, which include both extending production and increasing social benefits in the village of Ciuciulea.

due to the increased demand driven by awareness among consumers about the health benefits of walnut oil (Transparency Market Research, 2017).

CBI states that in 2014 the walnut oil market in Germany alone was worth approximately \$20 million in retail price equivalent. This equates to approximately 1,200 tonnes. The market is fairly stable with most walnut oil being purchased by consumers for consumption at home (€10 million estimated to be 600 tonnes or 700,000 litres). Typical nut oil consumers tend to be in the 45-64 age group with above average income.

Walnut oil currently plays no significant role in Moldovan export. For example, the Prometeu-T company is already producing organic walnut oil, however, the preference is still to sell walnut kernels due to high demand and established commercial relations. Still, if stable trade relations for walnut oil export were established, this product could represent a strong income source since the retail price for organic walnut oil in different size bottles ranges from €40–60 per litre.

Other value-added products

The “cake” remaining after pressing walnuts can still be marketed as valuable walnut flower for different high-value preparations. Soaked in water and smashed until a creamy, fluid condition, walnuts create a non-dairy milk. Finely minced and homogenized with basil, salt and spices or other herbs walnuts can be used to produce a valuable vegan pesto.

Mixed with dried fruits, like raisins, plums, apricots or apples, walnuts create an excellent variation of the classical “trail mix” snack. Mixed with dried fruits, cereal and honey, walnuts can appear in granola energy bars. Several small producers are experimenting with these preparations, but cases of large scale production or export of such high value-added products made in the Republic of Moldova have not yet been identified.

1.6 SWOT analysis for the walnut sector

The following SWOT analysis is based on inputs made over the course of the NGER by the national team of experts and national stakeholders through interviews and workshop consultations.

SWOT diagram for the walnut sector	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Favourable climate and fertile soils. • Long tradition in horticulture. • Abundance of established trees and selected varieties suited to local conditions. • At least one walnut tree planted by majority of rural households. • Suited to intercropping due to large spaces between the trees. • Low maintenance costs for orchards. • Agricultural subsidies for walnut orchards. • Well-developed processing (kernel extraction industry). • Nearness to the European Union, the world's biggest importer of walnut kernels. • Benefits from FTAs with many importing countries. • Existing contracts for non-organic produce with foreign distributors. • Existence of the National Walnut Growers Association, and a recently established National Organic Value Chain Association. • Existence of organically certified producers. • Growing walnut consumption due to proven health benefits. 	<ul style="list-style-type: none"> • Non-existence of a "Moldovan" walnut brand and little recognition of the Republic of Moldova as a quality origin for walnuts. • Occasional poor quality of walnuts, especially those harvested along the roads too early before the harvest season. • Opaque, bureaucratic and long export procedures. • Lack of post-harvest processing management (at least washing and drying) and insufficient storage infrastructure for storage for smallholders and small intermediaries. • Lack of finance availability for smallholders. • Rural youth leaving farms and farming for cities and abroad. • Low performance of the peripheral service sectors (packaging, consulting). • Lack of understanding of technological necessities of walnut plantations.
Opportunities	Threats
<ul style="list-style-type: none"> • By creating jobs, development of the organic agriculture sector could significantly reduce rural unemployment. • Training program for farmers can bring new farms into organic production. • Higher margins can attract youth to entrepreneurship opportunities in the sector. • A national organic label can enhance visibility and demand for organic produce. • Target higher value buyers with more value and convenient products. • Improve linkages to tourism sector to tap local market for artisanal walnut products. • Improve quality and food safety to meet growing world quality standards. • Add value across entire value chain. • Harvest senile trees for furniture production. • Expand organic certification. 	<ul style="list-style-type: none"> • Climate change impacts generating less predictable frosts and more frequent drought periods. • Poor tree management promoting pests and disease. • Uncontrolled and too early harvesting of walnuts growing along the roads. • Change in Government policy. • Increase of the tax on acquisition of walnuts from the local population, which is already rather high (5 per cent) in contrast to neighbouring countries. • Increasing supply worldwide. • Further price fall. • Rising quality standards of markets and competition from a growing number of countries.

CHAPTER 2. THE REPUBLIC OF MOLDOVA'S HONEY SECTOR

2.1 Introduction

The UNCTAD baseline discussion paper employs green product space methodology and identifies honey as one of the five green sectors/products with a high level of export competitiveness. Honey demonstrates the highest annual growth rate of export out of all potentially green agricultural commodities - 54 per cent between 2012 and 2016. At the First National Stakeholder Workshop the importance of this sector/product was validated by stakeholders.

The following chapter address honey in bulk as a base product and bottled honey as a value-added product. In addition, a case study on creamed honey mixtures with berries is discussed. Other beekeeping products like natural wax and value-added derivatives like candles, pollen, propolis, royal jelly, honeycombs are not addressed in this report.

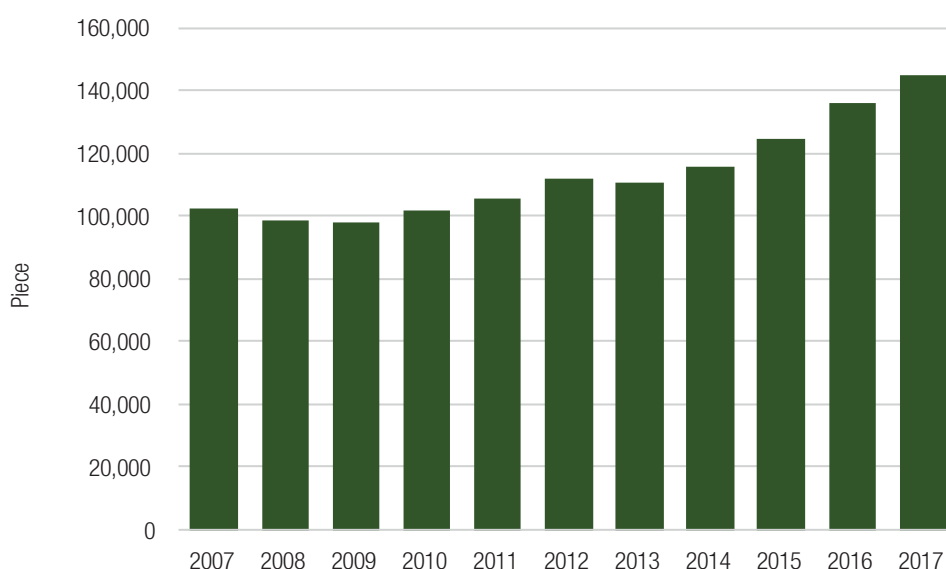
Global trends and market characteristics for honey

Honey is a green product on the rise. Since 2010, global honey demand grew at a high rate of 20 thousand tonnes per year (Philips, 2017). The global consumption is projected to reach 2.5 million tonnes

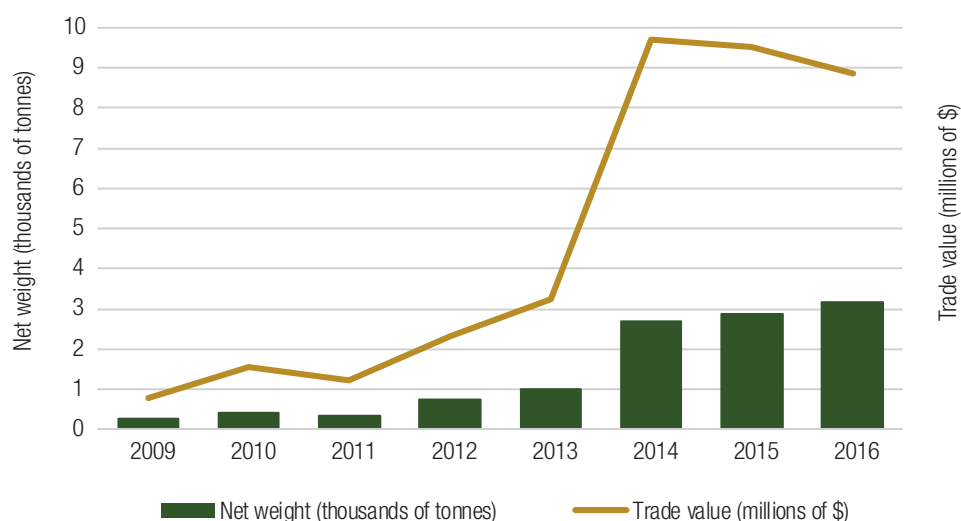
by 2025 (Global Industry Analytics, 2016). The European Union is the largest honey consumer in the world, amounting to about 20 per cent of worldwide honey consumption and followed by China, the United States and Turkey. The European Union is also the second largest world producer (234 thousand tonnes in 2016) after China (European Commission, 2016). But European Union honey production is decreasing. Currently, only 60 per cent of the European honey demand is covered by domestic production and this number is expected to decline further (CBI, 2016). The annual growth rate of European Union honey imports was 10.08 per cent over the ten-year period 2005-2015 (Eurostat, 2017). In 2016 the overall European Union import of honey reached almost 200 thousand tonnes. The main supplier of European Union honey import demand is China (around 30 per cent), followed by Ukraine, Argentina and Mexico. The Republic of Moldova is only supplying about 1.5 per cent of European imports. Among European Union countries, Germany is the leading market for honey with 23 per cent of European Union consumption (around 85,000 tonnes), followed by the United Kingdom (12 per cent), France (10 per cent), Spain (8 per cent) and Poland (7 per cent) (European Commission, 2016).

According to Eurostat, the European Union's average value for honey imported in bulk is 2.06 €/kg while Moldovan honey is imported with 2.36 €/kg on average. European Union member states have strong processing industries and export bottled honey with

Figure 10. Evolution of the number of bee families in the Republic of Moldova, 2007–2017



Source: National Bureau of Statistics of the Republic of Moldova.

Figure 11. Evolution of overall exports of Moldovan honey, 2009–2016

Source: Own representation based on United Nations Comtrade 2017.

an average price of 5.87 €/kg (European Commission, 2016). This is a clear sign, that adding value by bottling would be also a next logical step for the Republic of Moldova.

Organic honey consumption is growing. Globally, Brazil occupies the first place in organic honey export, while Germany is the world's largest importer. Europeans prefer monofloral honey varieties such as acacia, clover, manuka and pine. Their consumption is increasing at annual rates of 5-15 per cent and is expected to grow further compared to blended honeys (CBI, 2016). Thus, monofloral organic honeys are most likely going to grow in importance in world trade in the coming years.

2.2 Current status and performance of the Republic of Moldova's honey sector

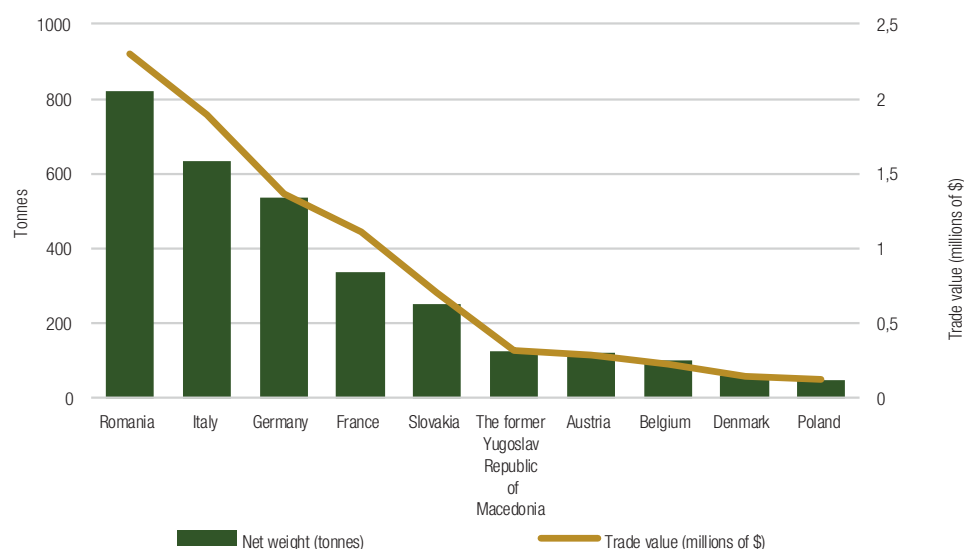
According to the National Bureau of Statistics the number of bee families in the Republic of Moldova has increased in the past ten years, as indicated in Figure 10. In 2017 almost 145 thousand bee families were registered in the country.

Estimations to the number of active beekeepers in the Republic of Moldova vary from 4,000 according to the National Beekeepers Association and 6,000 according to the Agency for Interventions and Payments in Agriculture (AIPA). Traditionally, the beekeeping business in the Republic of Moldova involves two family members, usually spouses, and it

is estimated that 6,000 to 8,000 people are engaged in this vocation in the country (private communication, Stefan Condratiuc, President, ANARM (National Beekeepers Association of the Republic of Moldova)). At the same time, the majority of the beekeepers have at least one other occupation, as currently, the beekeeping business alone is not a sufficient source of income for a Moldovan household. According to AIPA only 60 beekeepers applied for subsidies having cumulative value of approximately 6 million MDL in 2017. This suggests that many beekeepers may not be well informed about available support measures and opportunities for development.

ANARM estimates that current honey production in the Republic of Moldova is about 4 thousand tonnes per year. At the same time, according to existing melliferous base, the current production capacity is up to 12 thousand tonnes of honey per year (private communication, Stefan Condratiuc).

At the moment approximately 15 per cent of the current production volume is absorbed by the domestic market and 85 per cent is exported, mainly to the European Union, as the only animal-origin product from the Republic of Moldova. In 2006-2017 Moldovan honey exports grew from 245 tonnes to 3,440 tonnes (Moldpres, 2017). According to MIEPO, Moldovan exports of honey in 2016 were valued at €7.8 million (MIEPO, 2017b) but United Nations Comtrade data claims even a larger figure of €8.8 million, as shown in Figure 11.

Figure 12. Top 10 destinations for export of Moldovan honey, 2016

Source: Own representation based on United Nations Comtrade 2017.

As shown in Figure 12, the major export destinations for Moldovan honey in 2016 were Romania, Italy, Germany and France.

2.3 Brief overview of stakeholders and the value chain in the honey sector

The overall value chain in the honey sector is characterized by a large number of micro- and small size beekeepers and a small number of large industrial companies with established international trade relations which are at the same time both collectors and exporters. Some of these companies have also invested in processing capacities (bottling, labelling, etc.)

The global demand for organic honey is growing (Reuters, 2018), but the Republic of Moldova is currently hampered to address this opportunity. According to the National Beekeepers Association and confirmed the MARDE, there are currently no organically certified honey producers in the Republic of Moldova. This problem is attributed to the fact that in the Republic of Moldova it is almost impossible to fulfil the organic certification requirements at the moment (e.g. placing the bees within at least 3 km radius from pollution sources). The forests are treated with plant protection substances on a regular basis which is detrimental for bees. The territories under organic agriculture are very limited, but even those which exist are not known about by the beekeepers,

or the beekeepers do not cooperate with the farmers to place their bees on the organic lands. Only one Moldovan producer is currently at the end of the conversion period and is aiming to receive the organic certificate in 2018. The company – “The Beeproject” is a member Moldovan Organic Value Chain Alliance (MOVCA) and will be shortly described in the mini case study below.

Another obstacle in the development of organic honey producers is that there are no subsidies for the conversion period. AIPA only compensates 20 per cent of the final commercialized product, but not many beekeepers can wait for 4 years especially in conditions of a weak financial system.

2.4 Potentials of market diversification and upgrading the value chain in the Moldovan honey sector

Market diversification

Stefan Condratiuc, the president of the National Beekeepers' Association of Moldova stated that since winning golden medals at Apimondia (the Global Honey Congress) in 2013, the interest in Moldovan honey products has rapidly increased. “If previously we had traditionally exported our products to Germany and the Czech Republic, eight new importers from Italy have requested deliveries of our honey, while other new markets include France, Poland, England, the United States of America, Canada and even Japan”.

Turkey could have been a key export destination for the Republic of Moldova. Due a high level of consumption and a significant import demand it could easily absorb all the honey produced in the Republic of Moldova. However, the negotiations of the free trade agreement with Turkey did not include honey, although many other agricultural commodities are stipulated. This opportunity was missed and thus the import tax is

currently at 40 per cent, which makes it economically unreasonable to export Moldovan honey to Turkey.

Besides geographic diversification a market niche diversification could be taken into consideration. According to the National Beekeepers Association significant support is needed from the Moldovan authorities and the international development actors

Mini-Case – Bottled honey – “Apinatur”

Apinatur SRL is one of the largest Moldovan Honey producing and processing companies, instituted in 2013. It has been collecting honey from small producers and exporting it in bulk to multiple destinations France, Germany, Slovakia, Italy, Belgium, Poland, Romania, the Russian Federation and the Baltic Countries. In 2016 Apinatur had a turnover of approximately €1 million. The export potential of the company is currently up to 600 tonnes.



According to Stefan Condriatic, the manager of the company the most effective strategy of penetrating international markets was, and remains, to be present at international exhibitions, try to get in contact with potential trade partners, and to observe and learn from successful international competitors. Thanks to support by MIEPO, it was possible for Apinatur to present its products at key international exhibitions: in Dubai, Istanbul, Milan, Paris, Berlin and Bucharest. Another strategy the company is currently pursuing is the penetration of the European market from inside. “Apinatur Bucovina” has been recently registered in Romania. This counterpart of the Moldovan Apinatur can import Moldovan honey from Apinatur in bulk or bottled and then sell it to any country of the European Union avoiding thus some bureaucracy hurdles and mistrust towards the unknown source. This strategy improves also significantly the potential of on-line sales and direct shipments, which become much more accessible when the company is European Union based.

The problem with export in bulk is that the price of honey is rather low. Apinatur has invested in significant equipment capacities for bottling of honey but also for packaging in small 5-gram plastic envelopes and in diverse gift forms. In 2016 the company held multiple international trade negotiations on bottled honey exports. In mid-2018 Apinatur will already start the first exports of bottled honey to Germany and the United Arab Emirates. According to Stefan Condriatic, there are no other companies with significant and stable exports of bottled honey to foreign markets. It is a new business direction that is yet to be developed. Due to the fact that the Republic of Moldova is not a known honey producer and there is no developed national brand, international trade partners are not ready to pay a significantly higher price for bottled honey, even though the quality of Moldovan honey can be very high. According to Stefan Condriatic, a solution that needs to be pursued now is to institute a nationally recognized, rigorous quality control system that will add value to honey and become a strong argument for higher selling price of Moldovan honey. The system is to be developed in collaboration with ANSA and accredited by MOLDAC. For development of this system support from the Ministry of Economy is needed in accompanying the accreditation process but also in identifying potential source of financing of the project.

At the same time, Apinatur is certainly looking into another opportunity of adding value – that is through organic certification. Several years ago, the company was buying honey from a group of farmers that have been in the process of conversion to organic certified by a private certification body from Italy. Unfortunately, the foreign certification company has closed down which resulted in the certificate no longer being valid. Thus, Apinatur currently has about 10 tonnes of organic honey in their storage which they cannot export as organic. In the near future the company will try again to pursue organic certification through a German certification body which has an office in Romania.

The main challenges Apinatur is facing are related to penetration of European retail markets for bottled honey, lack of systematic quality control by small beekeepers and lack of domestic organic honey supply.

to allocate resources for the development of organic-certified honey production in the country. Furthermore, market research and further support is required to assist Moldovan honey producers aiming to penetrate alternative wholesale and retail niches, such as chains of organic and natural health product online and offline outlets (private communication, Stefan Condratiuc).

Bottled and branded honey

During the NGER consultations regarding value addition in the sector, Mr. Condratiuc mentioned, that most of Moldovan honey is exported in bulk and only a small fraction of Moldovan honey is exported pre-bottled for retail. Several enterprises,

e.g. Apinatur SRL, are currently preparing to export bottled and branded honey to the European Union. This represents a strong value adding potential for the whole sector which could generate approximately €24 million in added value products export as estimated by National Beekeepers' Association. This is very relevant especially in the context of the large investments already realized in the processing industry. According to Eliza Mamaliga, manager of a small-scale honey production company Dulce Plai, there are several large companies in the Republic of Moldova with bottling capacities that can cover all the Moldovan honey production. Small producers, such as Dulce Plai, can definitely benefit from their services

Mini-Case – Organic Honey – “Beeproject”

CS “Beeproject” SRL is a company founded in 2012 in Chisinau with the goal of promoting beekeeping in accordance to highest standards and practices existing in the European Union. It is the only Moldovan honey enterprise that has almost finished its 4-year conversion period aiming to receive the European Union organic certificate at the end of March 2018. The founder and general manager of the Beeproject Alisa Racu points out that 2 years ago the company attempted to work with an Italian certification body, but the costs were too high to bear. Beeproject estimates that the minimum yearly costs related to organic certification in the Republic of Moldova are: €2.5 per bee-family, €600 per inspectors' visit (more than 1 visit may be required per year) and €1000 for tests.



Beeproject used to manage 200 bee families, however a large part of them died last year because of an unannounced use of strong insecticides by neighbouring farmers. Nevertheless, the business has managed to recover by now to 100 from 60. By fall 2018 they plan to reach 200 beehives again.

According to Alisa Racu of Beeproject, the average yield from a beehive is hard to predict precisely. Their organic beekeeping approach is more aligned with natural processes outside of the beekeepers' control. Nevertheless, Ms. Racu estimates an average harvest of approximately 10 kg per beehive (without feeding sugar syrup to bees). This would amount to approximately 2 tonnes.

The company is managing 30 ha of land that they use for growing phacelia, a plant from the family of Boraginaceae. It is a very useful melliferous plant, flowering from May to October that can buffer the need for quality food for bees especially if the spring weather is not conducive to acacia flowering. Beeproject has procured organically certified phacelia seeds from Germany and is quite satisfied with this investment, since the quality and taste of the harvested phacelia honey is very good.

Until now Beeproject has been selling their honey for the price of conventional products, since the organic label is not applicable until the end of the conversion period. The company is aiming both for national marketing and export. After making significant investments in extraction, bottling (from 250ml jars to comprise 5-6 kg boxes) and storage equipment the company is ready to make a more visible appearance in the local and international markets.

Besides the organic production the Beeproject is active socially. They run a school for young beekeepers in the Ri canii district, which helps build capacity of a new generation of beekeepers based on organic principles and a nature-oriented approach.

The main challenges Beeproject is facing relates to high certification and investment costs for organic production as well as risks associated with uncontrolled use of agrochemicals.

and thus avoid the necessity of making their own large processing equipment investments. Unfortunately, these available capacities are not taken full advantage of by small producers.

Another company which is working on the export of bottled honey is “Kenvetov”. It is also registered at the international directory of organic food wholesale & supply companies (www.organic-bio.com, 2017). Bottled honey and honey with different nuts in jars can

be found at the duty-free shops of the Chisinau airport under the “Vladov” brand belonging to Moldovan producer “Vladov” SRL.

2.5 SWOT analysis for the honey sector

The following SWOT analysis is based on inputs made over the course of the NGER by the national team of experts and national stakeholders through interviews and workshop consultations.

SWOT diagram for the honey sector	
Strengths	Weaknesses
<ul style="list-style-type: none"> Abundance of melliferous base, and especially varieties for monofloral honeys (Acacia). Very positive effect on agriculture in general due to pollination. Considerable capacities of the processing industry. Growing global consumption due to health and consciousness trends. Nearness to European Union, one of the world's biggest importers of honey. Established trade relations in several European Union countries since 2012. Benefits from FTAs with many importing countries. Existing contracts for non-organic produce with foreign distributors. Existence of the National Beekeepers' Association and associations promoting organic agriculture, including the recently established National Organic Value Chain Association. 	<ul style="list-style-type: none"> Limited value-added production, reliance on bulk exports to foreign markets for processing. Very challenging conditions for organic certification. Lack of territories, where beekeepers could place their bees with at least 3 km radius from pollution sources. Lack of connections to organic farmers with suitable territories. Lower yields for stationery beekeeping. Limited availability of micro-financing for small-scale beekeepers. Rural youth not showing an interest in beekeeping. Non-existence of export standards for other value-added products besides bulk and bottled honey. Non-existence of Moldovan honey brands and little recognition for the origin.
Opportunities	Threats
<ul style="list-style-type: none"> By creating jobs, development of the organic agriculture sector could significantly reduce rural unemployment. Penetrating of alternative market niches for honey export (small retailers, online-marketing). Training program can bring new beekeepers into production. Higher margins can attract youth to entrepreneurship opportunities in the sector. A national organic label can enhance visibility and demand for organic honey. Target higher value buyers with more value and convenient products. Improve linkages to tourism sector to tap local market for artisanal honey products. Adding value through more bottling and other value-added products. Introducing organic certification. 	<ul style="list-style-type: none"> Climate change consequences which affect quantity and quality of honey and health of bees. Risk of reducing bee family population due to increased use of agrochemicals. Poor beehive management promoting disease Intense use of antibiotics can reduce export chances for Moldovan honey. Rising quality standards of markets and competing countries.

2.6 National Action Plan for the honey sector

The following NAP which is based on inputs made over the course of the NGER by the team of national

experts and stakeholders, was suggested for further consideration and adopted by national stakeholders at the Second National Stakeholder Workshop.

Item	Action	Year I				Year II				Year III				In charge
		I	II	III	IV	I	II	III	IV	I	II	III	IV	
H1	Support for and creation of a strong National Honey brand (incl. organic edition)													MARDE, MIEPO
H2	Creation of effective small producer cooperatives to make better use of the honey processing capacities													MARDE
H3	Instituting subsidies for organic honey production													MARDE
H4	Creation of a program that links large organic farmers with beekeepers in order to allow 3km nectar collection radius for organic honey production													National Beekeepers' Association, MOVCA
H5	Support in market research and creation of effective trade partnerships for the added-value products (e.g. bottled honey)													MIEPO
H6	Creation of standards for export of other beekeeping products													MEI, MARDE

CHAPTER 3. THE REPUBLIC OF MOLDOVA'S CEREAL SECTOR

3.1 Introduction

As concluded by the NGER First National Stakeholder Workshop, the cereals sector was selected to be further analysed and supported in the framework of the NGER, as one of the three “green” priority sectors where the Republic of Moldova has a competitive advantage.

Indeed, the cereal sector plays a significant role in the Republic of Moldova's economic and social development as it's called to ensure the food security of the country, uphold its employment level and contribute to the Republic of Moldova's trade balance.

Due to problems already mentioned earlier in this report, as well as more specific constraints existing in the sector, the Republic of Moldova's cereal production and export are not performing at full capacity and therefore, this part of the report presents a study of the general characteristics of the sector, its economic environment and explores the market potential, while considering the sector's strengths, weaknesses and opportunities.

The review concerns mainly wheat, corn and barley which are the main cereal crops (98-99 per cent of total cereals) produced in the Republic of Moldova. Other cereal crops and cereal based products are analysed in the review to identify broad market trends and diversification options.

3.2 Global trends and market characteristics for cereals products

Cereals are among the most significant agricultural crops traded on the world crop market. As projected by the International Grains Council (IGC), future global cereal production may not grow as fast as in the previous five years and it is expected to be outperformed by growth in demand. Increases in consumption will continue to come mostly from food, mainly wheat, and feed, mainly maize. After the relatively comfortable world supply and demand situation of recent years, the global outlook is somewhat tighter.

The evolution of cereal global production, consumption and exports presented in Figure 13 shows an increasing overall trend.

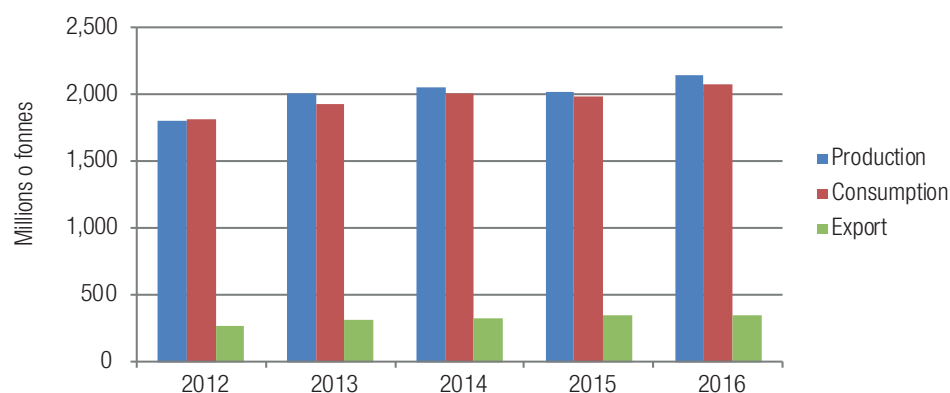
Table 6 presents the world's largest grains producers and their exports and imports as of 2016.

Table 6. Major countries-producers: production, export and import, as of 2016–2017 season

	Total grains (millions of tonnes)		
	Production	Export	Import
United States	465.9	93.8	7.2
China	356.6	353.2	20.1
European Union - 28	297.3	38.9	22.2
India	129.9	140.5	6.8
Russian Federation	114.3	36.5	0.8
Argentina	74.7	27.9	0
Ukraine	66.3	44.9	0.1
Canada	57.2	30.5	0.9
Australia	51.5	15.0	0.2
Kazakhstan	19.4	8.2	0.1

Source: International Grains Council, IGC.

Figure 13. Global production, consumption and exports of cereals, 2012–2016



Source: International Grains Council, IGC, 2018, <http://www.igc.int/en/markets/marketinfo-sd.aspx>.

Table 7. European Union total grains supply and demand, 2008–2017 (millions of tonnes)

	2008– 2009	2009– 2010	2010– 2011	2011– 2012	2012– 2013	2013– 2014	2014– 2015	2015 estimated	2016 forecast	2017 projected
Production	312.9	293.3	276.3	284.4	274.3	301.7	327.2	311.8	297.3	305.9
Imports	11.5	8.4	13.2	14.5	17.4	20.8	16.5	22	22.2	21.6
Food	62.3	62.8	62.9	62.9	62.8	63.4	63.4	63.8	64.5	64.6
Feed	170	168.5	163.8	163.4	154	161.8	172.2	166.1	168.1	173.4
Consumption	274.6	276.3	273.4	273.9	263.4	273.8	286.4	278.6	284.5	291
Exports	33.8	27.9	32.8	26.5	33.7	44	53	51.6	38.9	37.2

Source: International Grains Council, IGC.

For several reasons, including geographical proximity, and European Union import market capacity, for the Republic of Moldova the European Union represents the main focus export market for cereals, as well as many other agricultural products, as discussed earlier in this report.

Table 7 presents the evolution of European Union cereals production, consumption, imports, exports and other parameters over the past 10 years.

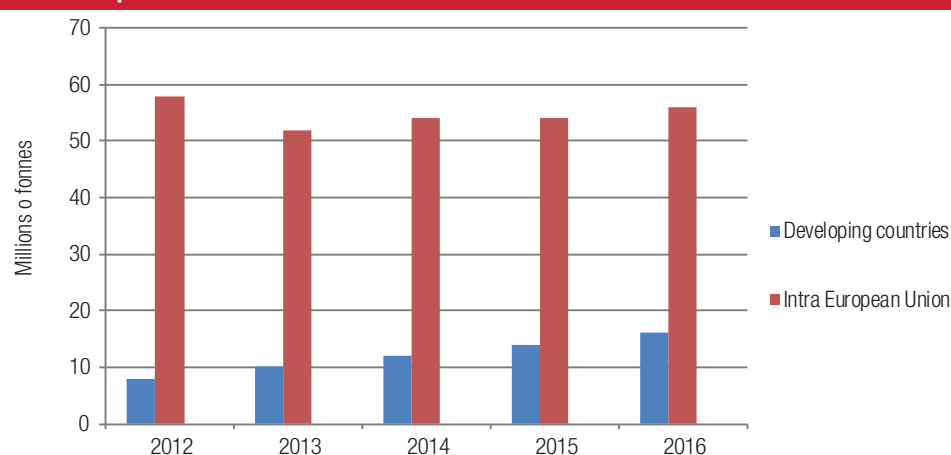
Cereals production in the European Union has been quite stable over the last decade at about 300 tonnes annually, with some minor fluctuations, mainly due to climatic conditions. It accounts for about 18 per cent of global cereals production. At the same time, cereals import to the European Union from third countries showed a growth pattern over the same period reaching 22 million tonnes or 9.27 per cent of the total production in 2017, thus constituting the highest import rate among the world's largest producers.

Figure 14 presents import of cereals (wheat, maize and barley) originating from developing countries⁴ and intra-European Union.

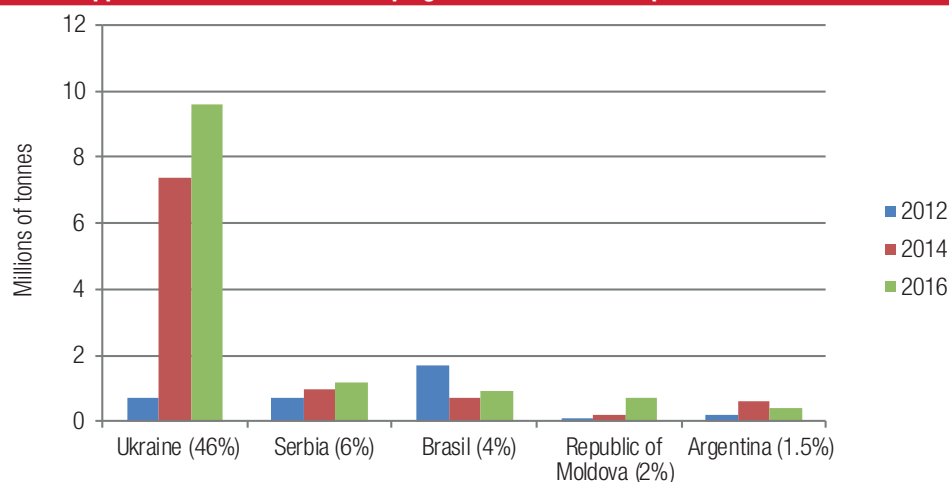
The European Union market for cereals is valued at nearly €19 billion as of 2016 (United Nations Comtrade, 2017). Although cereals are supplied mainly from within the European Union community, their import from developing countries is showing an increasing trend.

The primary cereals-supplying developing countries include Ukraine, which is leading the group with an impressive 46 per cent, Serbia with 6 per cent, Brazil with 4 per cent and the Republic of Moldova supplying 2 per cent of European Union cereal imports (United Nations Comtrade, 2017).

Figure 15 summarises the main suppliers of cereals (wheat, corn and barley) to the European Union from developing countries.

Figure 14. European Union import of cereals (wheat, maize and barley) from developing countries and intra-European Union

Source: United Nations Comtrade data.

Figure 15. Main suppliers of cereals from developing countries to the European Union

Source: based on United Nations Comtrade data, 2017.

The largest European Union importers of cereals from developing countries are Spain, the Netherlands and Italy, followed by United Kingdom, Portugal, Belgium and Germany. Wheat, corn and barley are typically supplied by nearby developing countries and therefore the Republic of Moldova is competing mainly with Ukraine and Serbia, however the competition goes beyond that and also includes European Union member states, such as Romania, for instance.

Wheat, maize and barley, are widely produced and traded within the European Union. The supply market for these commodities is locally oriented, with quite stable supply and demand levels. Suppliers from non-European Union countries, including the Republic of Moldova, have better chances to identify opportunities in smaller-scale products (other types of cereals), product differentiation (e.g. organic) and specific consumer trends (“ancient”, healthy, gluten-free).

Indeed, European consumers are becoming more concerned with environmental and health issues hence getting considerably interested in “green” products. For Moldovan producers, it is important therefore to consider the current and future trends which are outlined below:

1. Increasing demand for high-value cereals.

There are a number of high-value cereal crops that are demanded by the European Union market. Such cereals, suitable for Moldovan agriculture, are buckwheat and millet, however other specialty cereals, such as rye, oats and spelt, often referred to as “ancient grains” should be given serious consideration by the Moldovan producers, as their demand

in the European Union is outperforming supply.

2. Favourable consumer trends.

The fast-growing European Union consumption trends of cereals mentioned above are backed by consumers’ growing preferences for specialty grains, including ancient grains, as a healthier choice compared to other cereals, due to their high nutritional value and specific characteristics, such as gluten-free for instance. At the same time, these ancient grains are often used for product innovation, for example in cereal bars and new mixes.

3. Continuous growth of the organic market.

The increasing attention of consumers to health, food safety and quality, as well as environmental issues are the main reasons behind a rapid growth of the global organic market. The organic market in Europe grew by 7.4 per cent in 2014, 9 per cent in 2015 and 11 per cent in 2016 (FiBL, 2018). The market share for organic food in European countries varies between 2 and 8 per cent, with Denmark, Switzerland, Austria and Sweden as leading countries. In terms of market size, the total retail sales of organic products in 2016 were highest in Germany (€9.5 billion) and France (€6.7 billion), with increases of 12 per cent in 2016 (FiBL, 2018). Although still considered a niche, the organic food and drinks market is expected to grow over the coming years.

Organic cereals

According to the latest FiBL survey on organic certified agriculture worldwide, at least 4.1 million

hectares of cereals were under organic cultivation in 2016. Comparing this figure with that of the world's conventional cereals area of 718 million hectares in same year, provides for 0.6 per cent of the global cereals land area under organic cultivation.

Among the major cereals producing countries, in China 0.8 per cent of the total cereal area was organic in 2016, whereas in the United States the organic cereal area represented only 0.48 per cent of the total cereal area. The situation in the European Union is much more advanced compared to the global average rate of 0.6 per cent. In Austria, for instance, the organic cereal share is at 13 per cent, followed by Sweden (10.5 per cent), Estonia (9.8 per cent) and Italy (9.2 per cent). (FiBL, 2018).

Out of 4.1 million hectares under cereals organic management in 2016, 800,000 hectares (20 per cent) were in conversion which is likely to increase the global supply of organic cereals in the near future. (FiBL, 2018).

3.3 Current status and performance of the Republic of Moldova's cereal and grains sector

The Republic of Moldova's fertile soils and natural conditions favour cultivation of cereals offering opportunities for agricultural sector development as a true promoter of economic growth of the country.

Of the total surface area of the Republic of Moldova's land area, that is 3384.6 thousand hectares, the total agricultural land area is estimated at 2040 thousand hectares, which represents 60.27 per cent of the

total land fund. According to the National Bureau of Statistics (NBS), out of the total cultivated area of about 1520 thousand hectares 62.6 per cent is planted annually with cereals, mainly wheat (38 per cent), corn (49 per cent) and barley (8.75 per cent).

The land area cultivated with conventional cereals has shown a trend of stability with some fluctuations over the past five years. The figure below shows the land area cultivated with wheat, maize and barley for the period of 2012-2016.

As shown in Table 8, the average production of cereals (wheat, maize and barley) in the Republic of Moldova in 2012-2016 was 2,438 million tonnes. Total production of cereals in 2017 is expected to reach 3.3 million tonnes, which represents an 11 per cent rise compared to the level of 2016. The increase is mainly due to a 30 per cent growth in maize production, estimated at 1.8 million tonnes.

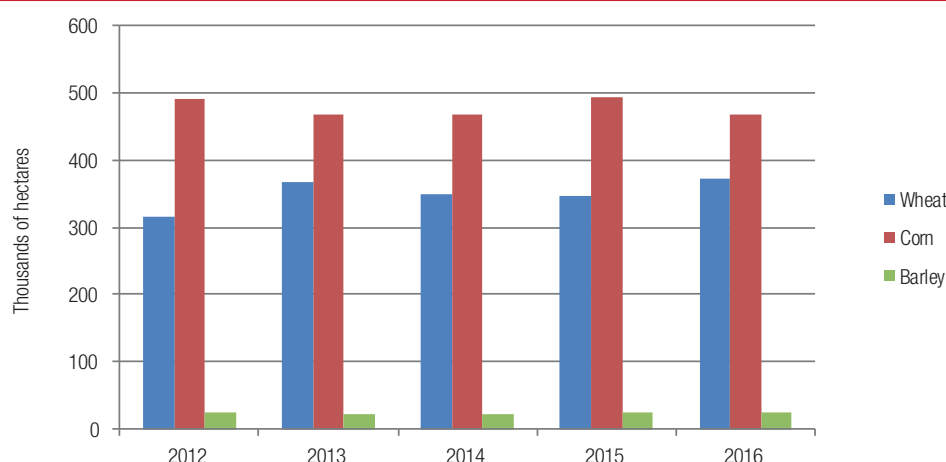
Table 8. Cereal production in the Republic of Moldova, 2012–2016. Forecast 2017

Republic of Moldova	Cereal production (thousands of tonnes)	
	2012–2016 average	2017 forecast
Wheat	961	1,249
Maize	1,269	1,762
Barley	208	246
Other	26	26

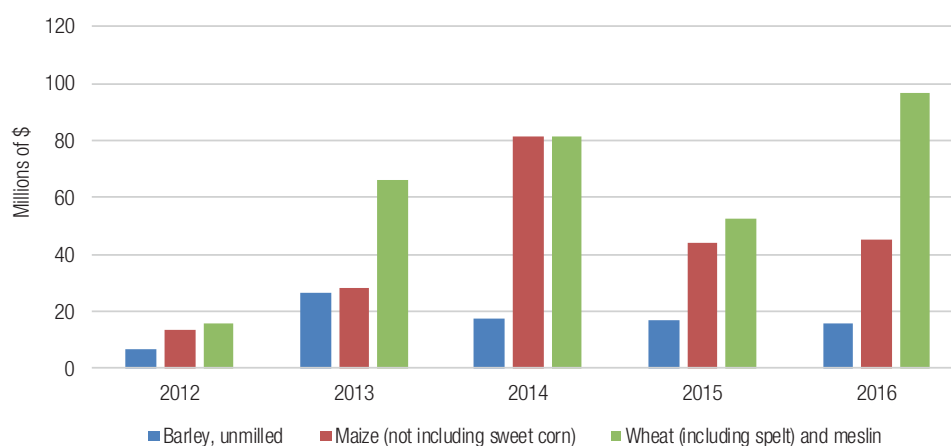
Source: FAOSTAT, <http://www.fao.org/faostat>.

Exports of cereals ranked third in 2016, accounting for 27.5 per cent of the total value of agricultural products exported from the Republic of Moldova. Within this

Figure 16. Size of land area cultivated with wheat, maize and barley, 2012–2016



Source: National Bureau of Statistics, Republic of Moldova, <http://www.statistica.md>.

Figure 17. The Republic of Moldova's total exports of cereals, 2012–2016

Source: United Nations Comtrade, <https://comtrade.un.org>.

section of commodities, wheat represented 69 per cent, corn 28.4 per cent and barley 12 per cent, adding to the Republic of Moldova's trade balance \$95 million, \$45 million and \$15million respectively.

The evolution of the Republic of Moldova's total cereal exports over the period of 2012-2016 is presented in Figure 17.

Exports of wheat and corn have increased, with some fluctuations, over the last five years, whereas barley showed a negative trend after a record high volume of export achieved in 2013. In terms of volumes, the average total cereal export was at 509,000 tonnes over the period 2012-2016.

Main export destinations of the Republic of Moldova's cereals are European Union countries, followed by, Switzerland, Turkey, Belarus and Lebanon, and recently, countries of South-East Asia. Within the

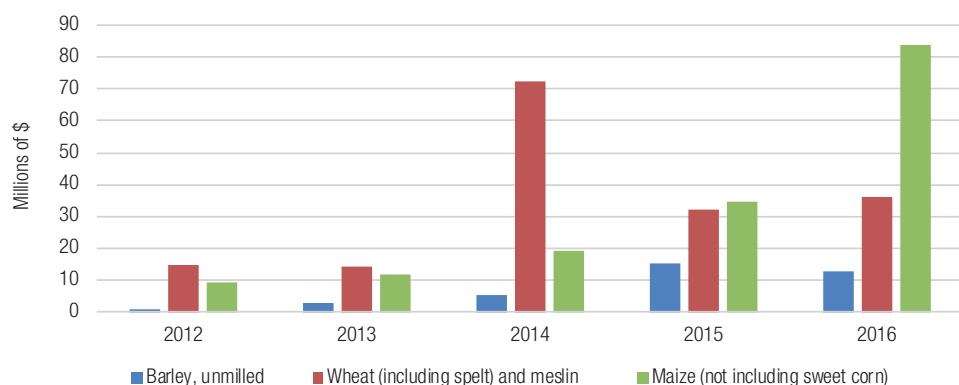
European Union, corn from the Republic of Moldova is mainly imported by Italy, Romania, Greece, Cyprus, United Kingdom and the Netherlands; wheat is traditionally destined to the same group of European Union countries. The United Kingdom and Switzerland play a significant role as importers of Moldovan barley with a nearly 40 per cent combined volume. (United Nations Comtrade, 2017).

Figure 18 shows the evolution of European Union imports of wheat, maize and barley from the Republic of Moldova over the period of 2012-2015.

Export of all three main categories of cereals showed a positive trend over 2012-2015. Export of maize was significantly high in 2014 compared to the two previous years and the following year.

Organic cereals

Organic farming in the Republic of Moldova has risen

Figure 18. European Union import of wheat, maize and barley from the Republic of Moldova, 2012–2015

Source: United Nations Comtrade, <https://comtrade.un.org>.

from 2003 to 2012. During that time, the number of farmers involved in organic farming grew from 11 to 172 and the area increased from 80 to 61,644 hectares. However, between 2012 and 2015, organic farming has experienced a considerable decline reaching 25,000 hectares and 40 farmers in 2015. Since then, both indicators have grown rapidly extending to 73,425 hectares and 80 farmers respectively, according to the data collected by MARDE from all certification bodies operating in the Republic of Moldova.

According to the same source, 3.33 per cent of the total agricultural land is organic as of 2017. There is no official data on the share of each crop, however consultations with the stakeholders and organic producers have revealed that since 2012, the land cultivated with organic cereals (wheat, maize and barley) has been maintained at approximately two thirds of all organic land area, reaching nearly 50,000 hectares.

The organic cereal producers and exporters from the Republic of Moldova benefit from the Association Agreement (AA) and the DCFTA signed in 2014 between European Union and the Republic of Moldova which has reduced trade barriers for Moldovan exporters. We cannot accurately calculate the amount of organic cereal exports due to the absence of official data, however following consultations with organic producers, we conclude that about 75,000 tonnes of organic cereals are harvested annually in the Republic of Moldova with an average of 1.5 tonnes per hectare. Since the local organic market is not yet developed to a considerable size, organic cereals from the Republic of Moldova are exported to other markets, mostly in the European Union. Even though the Republic of Moldova is not a European Union member state international certification bodies operating in the country certify local producers only according to the European Union organic production methods, Regulation (EC) No 834/2007 and Regulation (EC) No 889/2008. The Netherlands, Germany and Italy are currently the main destinations for the Republic of Moldova's organic cereals.

3.4 Brief overview of stakeholders and the value chain in the cereals and grains sector

The overall value chain in the cereals sector is characterized by the following groups of stakeholders and issues surrounding each group:

- **Farmers:** a large number of small and medium size farmers, as well as a small number of large agricultural companies.
- **Inputs suppliers:** suppliers of seeds, fertilizers and plant protection products from both international and local companies.
- **Organic agriculture input providers:** organic principles require utilization of local resources, including local seed varieties. A series of seed varieties for some major crops, including corn and wheat, with resistance to diseases has been released by Moldovan researchers. Still, these varieties do not cover the entire spectrum of crops, and there are problems with the availability of high quality seedling materials of these seed varieties. As result, there is a need to import the seed material from nearby countries. The Moldovan regulations do not allow the grower to import seeds of varieties that are not included in the Catalogue of Plant Varieties. The process of variety testing and registration should be initiated by the breeder; in the case of the Republic of Moldova most international breeders are not interested in the Moldovan market, and as result Moldovan farmers do not have access to new crop varieties tailor-made for organic farms.
- **Certification bodies:** According to the information provided by MARDE, there are currently 12 certification bodies operating in the Republic of Moldova, of which only 2 are accredited and authorized by MOLDAC/MADRE. As mentioned earlier in the report, there are several problems related to the organic certification in the Republic of Moldova. Consultations with cereals producers revealed that the costs associated with certification are high enough (up to €30 per hectare) to be unacceptable by small scale farmers. At the same time, a significant problem with accessing public subsidies (currently at €38 per hectare) for conversion to organic land is that to be eligible for the support farmers must be certified by a certification body accredited by MOLDAC/MARDE. From the two such bodies neither is recognized by the European Union which means their organic products cannot be exported to the European Union as organic. Therefore, Moldovan organic cereal producers/exporters who can afford organic certification by international certification bodies choose to be certified by the latter but then they have no access to the national subsidies. This represents a serious constraint in the development of the cereals sector and organic agriculture in the

Republic of Moldova.

- **Logistics:** Logistics services represent a critical link between producers and markets, including export markets. Although the transport infrastructure in the Republic of Moldova is fairly developed, it requires significant investments for its modernization. Even though, there is sufficient capacity for transport and logistics when it comes to conventional grains, there is a problem with transporting organic cereals. One of the requirements in the organic sector is the organic certified transportation. One of the most encountered problems is the cross contamination of organic cereals in the moment of transportation with conventional cereals being carried at the same time or remaining from previous loadings.
- **Processors and exporters:** A part of conventional cereals is processed for the local market consumption or international export. At the same time, processing of organic cereals practically does not yet exist in the Republic of Moldova and therefore, organic cereals are exported as unprocessed grains.

Consultations with stakeholders revealed that the export of conventional cereals is dominated by a small group of large exporters and a number of smaller companies. There are 4 large exporters of cereals that collectively account for about 50 per cent of the total cereal export. This oligopolistic market creates a number of issues that influence the choice of cereal crops to be cultivated in the whole country, limiting those to wheat, corn and barley. This situation, present in the Republic of Moldova for nearly two decades, resulted in a rapid decrease of fodder crops production on arable lands which in turn contributed to the disruption of crop rotation patterns, lower yields and less opportunities for export market diversification.

3.5 Potentials of market diversification, upgrading the value chain and generating added value in the cereals and grains sector for the Republic of Moldova

Despite the growing volumes of conventional cereals export from the Republic of Moldova to the European Union presented earlier in the report, it is a fact that cereals, including wheat and barley, are widely produced and traded within the European Union and the supply market for these commodities is locally oriented with stable supply levels provided by European Union producers and traders.

Furthermore, as shown in the table 9 below, the European Union is a net exporter of all “common” cereals (wheat, barley, rye and oats), apart from maize which suggests that only the latter commodity has high potential for future exports to the European Union. At the same time, the net trade balances of European Union countries differ when compared to each other and, when negative, could point out to specific cereal export potential from the Republic of Moldova to those countries.

Although the European Union is a net exporter of rye and oats, these commodities’ net trade figures (165,000 tonnes and 146,000 tonnes respectively) are quite low which suggests that the Republic of Moldova could enhance production capacity of those cereals to provide for a supply of rye and oats to the European market.

When it comes to specialty cereals, millet, sorghum and buckwheat, the European Union negative net trade balance clearly indicates high potential for exports of those cereals from the Republic of Moldova

Table 9. The Republic of Moldova export potential for common cereals and specialty cereals

Product	Republic of Moldova net trade (thousands of tonnes)	European Union net trade (thousands of tonnes)	Export potential
Wheat	330	20,558	No
Maize	156	-8,875	Yes
Barley	137	7,334	No
Rye	0	165	Yes, if production increases considerably
Oats	0	146	Yes, if production increases considerably
Millet	0	-56	Yes
Sorghum	0	-356	Yes
Buckwheat	0	-23	Yes

Source: United Nations Comtrade, <https://comtrade.un.org>.

provided that a reliable level of supply could be secured by Moldovan producers and exporters.

Therefore, suppliers from the Republic of Moldova have better chances to identify opportunities in the European Union market for specialty cereals (millet, sorghum, buckwheat) while following specific consumer trends, for example, gluten-free cereals. Another strategy to diversification is serving a market niche, such as organic, for instance.

3.6 SWOT analysis for the cereals sector

The following SWOT analysis is based on inputs made over the course of the NGER by the national team of experts and national stakeholders through interviews and workshop consultations.

Main issues:

- **Inconsistency in public policy/support measures:** Certain hopes were created and subsequently disappointed in the past when the Government introduced subsidies for conversion to organic agriculture (2012) but revoked them within the next 2 years. Recently adopted European Association Agreement and DCFTA create a

constructive context for the development of organic agriculture and export of Moldovan products.

- **Underdeveloped internal organic market does not lead to the increase in consumption and consequently, does not contribute to organic cereal sector development:** There is production of organic cereals in the Republic of Moldova at present. There are organically certified farmers that produce organic cereals in small quantities that are being already exported to the European Union. However, the volumes of the production are too low to ensure a constant presence on the international market. In terms of the national market, Moldovan organic cereals are offered in small quantities and seasonally, which hampers the development domestic consumption.
- **Limited organic storage and processing:** There is very limited organic cereals storage capacity in the Republic of Moldova, limiting farmers' ability to meet large orders. At the same time, international buyers of organic grains refuse to make deals unless suppliers are able to ensure stable delivery and considerable volumes of products. Such deals are expected to be transparent in terms of the paperwork required (certificates, etc) – conditions which many small farmers currently are not able

SWOT diagram for the cereals sector

Strengths	Weaknesses
<ul style="list-style-type: none"> • Fertile soils, favourable climatic conditions for grain cultivation and high agricultural potential. • Traditions and experience in cereal cultivation. • Available capacities for the production, processing and storage of conventional cereals. • Existing trade relations with the European Union countries and proximity to developed country markets with high demand for cereals/specialty cereals. 	<ul style="list-style-type: none"> • Large numbers of small and non-performing farms. • The dominance of small-value crops in the production of cereals and restricted crop rotation. • Local organic market is not yet developed. • Dependence on raw materials export model. • Conventional cereal market oligopoly. • Farmers' lack of knowledge and experience in organic cereals farming. • Lack of organic certified inputs (certified seed material, fertilisers, plant protection products). • Lack of certified processing, storage and transportation capacity for organic cereals.
Opportunities	Threats
<ul style="list-style-type: none"> • Cultivation and export of specialty cereals (buckwheat, sorghum, millet) and smaller-scale „common” cereals (rye and oats). • Converting to organic farming of cereals. • Development capacity for organic certified storage and processing facilities for cereals. • Installing value-added cereal processing lines and obtaining finished organic products for export. 	<ul style="list-style-type: none"> • Increasing costs of agricultural inputs (fuels, fertilizers, treatment, etc). • High migration of labour force from rural areas. • Monopolistic behaviour of major cereals trading companies / large processors of raw materials. • Increasing competition from large producers of cereals. • Inconsistency in public policy/support measures.

CHAPTER 4. POSSIBLE INTER-LINKAGES AMONG THE THREE SECTORS AND THE TOURISM SECTOR

Walnut with honey in jars

Several companies already have this product in their assortment. For example, “Vladovlad” offers honey/walnut jars at the duty-free shop of the Moldovan airport. But such a preparation is not bought and consumed in large quantities – usually it is intended just as an occasional gift/souvenir.

Cereal bars with honey and walnuts

These products represent an excellent value-adding potential inter-linking all three sectors. The global cereal bars market is projected to grow at a compound annual growth rate of 8.64 per cent during the period 2017-2021 according to “Research and Markets”. This trend is reinforced by urbanization and the need for quick energy snacks and growing awareness for healthy food.

Until now there are no cereal bars produced in the Republic of Moldova for export. Our research has revealed two cases of small-scale enterprises currently investing in granola and energy bars production and both are currently in an experimental stage.

In 2017 “Dulce Plai”, a small beekeeping company, decided to focus its efforts on cereal bars and started investments in honey-nut-cereal based cereal bar production mainly for export. The company is

seeking for investments on the order of approximately €800,000 in order to build a mini-factory with a ready line of energy bars production. They plan to first export to the Romanian market due to geographic proximity and well-established trade relations.

Another economic agent “VerdeGo” SRL is also in the process of experimenting with cereal and energy bars, but with a stronger focus on raw, vegan, gluten-free, organic options. They use green buckwheat, honey, dried fruits, almonds and other ingredients. Walnuts are not the easiest ingredient to use in such preparations according to Steal Babii-Fetescu, Director of “VerdeGo”. In contrast to almonds, they get oxidized faster and lose their taste and nutritional qualities. The enterprise has already purchased some units of equipment and is producing mostly for their own restaurant operations, one of the largest coffee & snack chains in Chisinau “Tucano”, and also selling through an online healthy foods retailer.

Tourism services

Several rural tourism destinations offer possibility of honey and walnut-based agrotourism. For example, “Casa Mierii” in the Calarasi district and “Hanul-lui-Hanganu” in the Rezina district provide honey tasting, beekeeper visits, etc. “Eco-village Moldova” in the Criuleni district is offering walnut-tasting, churchkhella-making (a Georgian walnut-fruit-juice preparation) workshops and is currently developing a walnut museum. There is a big potential for development of this sector in the Republic of Moldova, including foreign groups visits in cooperation with local high-end hotels both through artisanal product marketing and agrotourism offers.

CHAPTER 5. RESULTS FROM THE SECOND NATIONAL STAKEHOLDER WORKSHOP

As part of NGER methodology, the Second National Stakeholder Workshop (NSW) of the Republic of Moldova's NGER was convened by MARDE and UNCTAD in Chisinau on 17 April 2018.

Following up on the First NSW conducted in September 2017, the objective of the Second NSW was to consider recommendations and sectoral NAPs suggested by the team of the national experts and decide upon a final NAP aimed at enhancing value added and export capacity for the walnut, honey and cereal sectors.

To support the Second NSW discussions, the national team of experts had prepared and presented a draft of the current report analysing the three sectors

Item	Action	Year I				Year II				Year III				Responsible agencies
		1	2	3	4	1	2	3	4	1	2	3	4	
GENERAL - ACTIONS RELATED TO ALL THREE SECTORS														
G1	Harmonization of the national legislation in accordance with European Union Organic Agriculture legislation													MARDE
G2	Development of the national organic agriculture inputs market (seeds and seedling materials, fertilizers, crops protecting products)													MARDE MOLDAC Private sector
G3	Instituting a large-scale training program and extension services on organic production and certification													MARDE MOVCA Sectoral Associations
G4	Support in market research and creation of effective trade partnerships for added-value products													MIEPO
WALNUTS														
W1	Creation of a strong national walnut brand, including for organic walnuts.													National Walnut Growers Association / MARDE / MIEPO
HONEY														
H1	Creation of a strong national honey brand, including for organic honey													National Association of Honey Producers / MARDE / MIEPO
H2	Instituting a subsidy program for organic honey producers (with 100 per cent financing during a 12 month conversion period)													MARDE/AIPA
CEREALS														
C1	Facilitation of accreditation and recognition of foreign certification bodies by national authorities													MARDE/MOLDAC
C1.1	Support and further development of certification through subordination (group certification)													MARDE/MOLDAC

and recommending NAPs for each of the sectors under review. The proposed NAPs, stipulated in the respective chapters of this document, considered conclusions derived from interviews and consultations with the national stakeholders and the sectoral SWOT analysis. The proposed NAPs were thoroughly discussed in sectoral working groups of the Second NSW, refined and presented to and discussed by all national stakeholders present at the event.

As a result of these discussions, the NAP has been

selected as sectoral priorities by national stakeholders.

All stakeholders agreed on the priority actions G1-G4 overarching all three sectors.

In addition to these cross-cutting actions, the workshop participants also supported sector specific actions as indicated in the table above. MARDE, MIEPO, MOLDAC, MOVCA, sectoral associations and the private sector were all viewed as the key stakeholders to implement these actions.

References

- ANSA – National Agency for Food Safety of the Republic of Moldova, (2018), The results of the export of vegetable products in 2017, retrieved from <http://www.ansa.gov.md/ro/comunicate/comunicat-ansa-rezultatele-exportului-produselor-vegetale-%C3%AEn-anul-2017>.
- CBI - Centre for the Promotion of Imports from developing countries, (2014), *Product Factsheet - Walnuts in Germany: Processed Fruit and Vegetables and Edible Nuts - Walnuts in Germany*, Retrieved from <https://www.cbi.eu/market-information/processed-fruit-vegetables-edible-nuts/walnuts/germany/>.
- CBI - Centre for the Promotion of Imports from developing countries, (2016), What is the demand for honey in Europe?
- EkoConnect, (2011), *Country Report Moldova*, Dresden, retrieved from http://www.ekoconnect.org/tl_files/eko/p/14-Laender/Laenderbericht-Moldawien.pdf.
- European Commission, (2016), Honey Market Presentation, Agriculture and Rural Development.
- Eurostat, (2017), Eurostat Comext, Retrieved May 7, 2018, from [http://epp.eurostat.ec.europa.eu/newxtweb/Eurostat Comext](http://epp.eurostat.ec.europa.eu/newxtweb/Eurostat%20Comext), (2018), Statistics, Retrieved May 15, 2018, from http://trade.ec.europa.eu/tradehelp/statistics##node_2608.
- Expert Grup, (2017), *Evolution of commercial flows RM-UE after 2 years of implementation of DCFTA*, Chisinau.
- FAOSTAT, (2016), Food and Agriculture Organization of the United Nations - Republic of Moldova, Retrieved May 7, 2018, from <http://www.fao.org/faostat/en/#country/146>.
- FiBL, (2017), *The World of Organic Agriculture 2017 - Media Kit*.
- FiBL, (2018), *The World of Organic Agriculture 2018*.
- German Economic Team Moldova, (2017), *Moldovan exports and the impact of the DCFTA*, Berlin, Chisinau.
- Global Industry Analytics, (2016), The Global Honey Market, Retrieved May 7, 2018, from http://www.strategyr.com/MarketResearch/Honey_Market_Trends.asp.
- INC - International Nut & Dried Fruit Council, (2018), *Nuts & Dried Fruits Statistical Yearbook*, Retrieved from https://www.nutfruit.org/files/multimedia/1510229514_1497859419_Statistical_Yearbook_2016-2017.pdf.
- INC - International Nut and Dried Fruit Council, (2017), International Nut&DriedFruit Statistics Database, Retrieved April 12, 2017, from <http://www.nutfruit.org/what-we-do/industry/statistics/>.
- Jeffries, A. M., (2016), Growing Produce, retrieved May 7, 2018, from <http://www.growingproduce.com/nuts/understanding-the-walnut-price-drop/>
- MIEPO, (2016), Agriculture and Food Processing - Republic of Moldova, retrieved from http://miepo.md/sites/default/files/Agriculture_report_!_0.pdf.
- MIEPO, (2017a), Country overview | MIEPO - Moldova Investment and Export Promotion Organization, retrieved May 7, 2018, from <http://miepo.md/about-moldova/why-invest-moldova>.
- MIEPO, (2017b), *Impact After 2 Years Of DCFTA Implementation Between The European Union And The Republic Of Moldova On Trade In Agricultural And Agri-Food Products*, Chisinau.
- Moldpres, (2017), Export of honey from Moldova increases 14-fold in last ten years, especially to EU market, <https://www.moldpres.md/en/news/2017/12/01/17009384>.
- Monitorul Oficial, (2005), Monitorul Oficial Nr. 95-97, Chisinau: MOLDPRES, retrieved from <https://www.monitorul.md/monitor/v-1034-v/>.
- NBS (2018), Statistical databank - National Bureau of Statistics of the Republic of Moldova, retrieved May 7, 2018, from <http://www.statistica.md/pageview.php?l=en&idc=407&nod=1&>.
- Philips, R, (2017), International Honey Market Update, *American Bee Journal*, retrieved from <https://americanbeejournal.com/international-honey-market-update-2/>.
- Reuters, 2018, Organic Honey Market: 2018 Global Opportunity, Strategic Analysis, Industry Demand, Status, Outlook and Statistical Forecast to 2025, <https://www.reuters.com/brandfeatures/venture-capital/article?id=25026>.
- Transparency Market Research, (2017), Global Walnuts Market, retrieved May 7, 2018, from <https://www.transparencymarketresearch.com/walnut-market.html>.
- United Nations Comtrade, (2016), United Nations Comtrade: International Trade Statistics Database, retrieved May 7, 2018, from <https://comtrade.un.org/data/>.
- United Nations Comtrade, (2017), International Trade Statistics Database, retrieved April 2, 2017, from <https://comtrade.un.org/>.
- UNDP / GEF, (2014), *National Study on Organic Agriculture and Greening of Conventional Farming*, Chisinau.
-

-
- UNEP, (2011), *Organic Agriculture-A step towards the Green Economy in the Eastern Europe, Caucasus and Central Asia region: Case studies from Armenia, Moldova and Ukraine*, 52.
- USDA, (2016), *European Union-28 Tree Nuts Annual*, *Global Agricultural Information Network*, retrieved from gain.fas.usda.gov.
- USDA, (2017), *Tree Nuts: World Markets and Trade*, USDA Foreign Agricultural Service. <https://www.fas.usda.gov/data/tree-nuts-world-markets-and-trade>.
- World Bank; CIAT, (2016), *Climate-Smart Agriculture in Moldova, CSA Country Profiles for Africa, Asia, Europe and Latin America and the Caribbean Series*, Washington D.C.
- World Bank, (2003), *Moldova trade diagnostic study*.
- World Bank, (2013), *The Republic of Moldova: Trade Diagnostic Study*, Washington, DC, retrieved from <https://openknowledge.worldbank.org/handle/10986/14576?show=full>.
- World Bank, (2018), *Moldova Agriculture Competitiveness Project* | The World Bank, retrieved May 7, 2018, from <http://projects.worldbank.org/P118518/moldova-agricultural-competitiveness-project?lang=en>.
-

Annexes

Annex 1 - Sources of financing for the development of the agricultural sector.

Name of the program	Type of funding	Available through	Donor	\$ (millions)	€ (millions)	MDL (millions)
Overall State Subsidies For Agriculture	Grants and subsidies	Agency for Interventions and Payments in Agriculture (AIPA)	National Public Budget			900.0
Livada Moldovei	Credits and preferential leasing	B.C. "Mobiasbancă" Groupe Societe Generale - Mobias LEASING, BC "COMERȚBANK" S.A.	EBRD		120,0	
Inclusive Rural Economic & Climate Resilience Programme (Ifad VI)	Grants / Subsidies, Preferential credits	BC "Moldova-Agroindbank" S.A., BC "Fincombank" S.A.	The International Fund for Agricultural Development (IFAD)	12.7		
Programul Dezvoltării Sistemelor De Irigare La Scară Mică (2kr)	Preferential leasing	Implementation and Administration Unit for the Project of Food Production Growth (UIAPCPA)	Uniunea Europeană			24.9
Programul De Vânzări În Rate În Agricultura Performantă Irigată (2kr)	Preferential leasing	UIAPCPA	Guvernul SUA	4.6		
Proiectul Securității Alimentare Pentru Fermierii Neprivilegiați (2kr)	Preferential leasing	UIAPCPA	Guvernul Japoniei			157.9
PROIECTUL AMELIORAREA COMPETITIVITĂȚII: PAC-2 (Componenta De Grants De Cofinanțare)	Grants / Subsidies	Unitatea de Implementare a proiectului Băncii Mondiale de Ameliorare a Competitivității (UIPAC)	International Development Association	3.0		
PROIECTUL AGRICULTURA COMPETITIVĂ (MAC-P): "Sporirea Productivității Solurilor Prin Intermediul Managementului Durabil Al Terenurilor (MDT)"	Grants / Subsidies	Agency for Interventions and Payments in Agriculture (AIPA)	World Bank, Global Environmental Fund	3.0		
Proiectul De Ameliorare A Competitivității, Faza Ii (Pac 2), Linia De Credit	Preferential credits	BC "Fincombank" S.A. BC "COMERȚBANK" S.A.	World Bank	29.4		
Programul Rural De Reziliență Economico-Climatică Incluzivă (Ifad Vi) - Infrastructură	Grants / Subsidies	UCIP-IFAD	IFAD	3.8		
Programul Rural De Reziliență Economico-Climatică Incluzivă (Ifad Vi) – Pentru Îmm	Preferential credits	BC "Moldova-Agroindbank" S.A., BC "Fincombank" S.A.	IFAD, Guvernul Republicii Moldova	4.8		
Programul Rural De Reziliență Economico-Climatică Incluzivă (Ifad Vi) – Finanțare Rurală Incluzivă	Preferential credits	Asociații de economii și împrumut	IFAD	3.7		
Programul Rural De Reziliență Economico-Climatică Incluzivă (Ifad Vi) – Agricultură Conservativă Și Lanțuri Valorice	Grants / Subsidies	UCIP-IFAD	IFAD, Global Environmental Fund (GEF)	4.6		
Programul De Stat De Stimulare A Participării La Tîrguri Și Expoziții	Grants / Subsidies	Organisation for development of SMEs (ODIMM)	National Public Budget			

Proiectul Pentru Competitivitatea Agriculturii În Moldova Sectorul Horticol	Grants / Subsidies	AIPA	World Bank, Guvernul Suediei	7.0
Proiectul Pentru Competitivitatea Agriculturii În Moldova Practici Conservative	Grants / Subsidies	AIPA	Global Environmental Fund, World Bank	3.0
Institutional support within organic farming in Moldova	Grant to MARDE	People in need Moldova	People in need Moldova	0.63

Source: finantare.gov.md and own research

Notes

- 1 Law No. 658 of 29.10.1999 - <http://lex.justice.md/index.php?action=view&view=doc&id=311709>.
- 2 The difference in total production amounts is attributed to deviating data collection methods of INC and USDA. The in-shell to kernel basis conversion ratio used for USDA data is 2.34.
- 3 Defined by OECD.
- 4 According to OECD, 2016.

