



COUNTRY REPORT: ARMENIA

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Abbreviations

ACDI VOCA	Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance
AMD	Armenian Dram
ANAU	Armenian National Agricultural University
ARD policy note	Agriculture and Rural Development policy note
ARDI	Advanced Rural Development Initiative
ASC	Agricultural Support Centers
CARD	Center for Agribusiness and Rural Development
CARMAC	Community Agricultural Resource Management and Competitiveness
CBA	Cantral Bank of Armenia
CIS	Commonwealth of Independent States
DAI ASME	Development Alternatives Incorporated - Armenian SME Development Project
DAP	German Accreditation System (Deutsches Akkreditierungssystem Prüfwesen)
DCFTA	Deep and Comprehensive Free Trade Area
EDMC	Enterprise Development nd Market Competitiveness
FAA	Federation of Agricultural Associations
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investments
FREDA	Fund for Rural Economic Development in Armenia
GIZ	German Agency for International Development
GoA	Government of Armenia
GSP	Generalized System of Preferences
HACCP	Hazard Analysis and Critical Control Points
HoReCa	Hotels, Restaurants, Cafes
HS	Harmonized System
ICARE	International Center for Agribusiness Research and Education
IFAD	International Fund for Agricultural Development
IFCN	International Farm Comparison Network
ISO	International Organization for Standardization
MoA	Ministry of Agriculture
NGO	Non-Governmental Organization
NSS	National Statistical Services
OECD	Organisation for Economic Co-operation and Developmen
PRP	Partnership for Rural Prosperity
RA	Republic of Armenia
RBHS	researchers for Bio Heating Solutions
RESCAD	Rural Enterprise and Small-Scale Commercial Agriculture Development Project
SARD	Sustainable Agricultural and Rural Development
SDA	Swiss Development Agency
SGS	Société Générale de Surveillance - global cerifying body
SME DNC	Small and Medium enterprise Development National Center
UCO	Universal Credit Organization
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USDA MAP	United States Department of Agriculture Marketing Assistance Project
WTO	World Trade Organization

1. MACROECONOMIC ENVIRONMENT AND POLICIES

1.1 Background data

Armenia is a mountainous country located in the South Caucasus with an area of about 30 thousand square kilometers.

The climate in most parts of the country is continental – with dry, hot summers, when the temperature can reach up to 40°C. The weather in winter may vary from +5°C to -30°C. During this time it is common to have heavy snowfalls and the snow cover may not melt throughout the winter.

More than 90% of the country is more than 1000 meters above the sea level. Considerable part of Armenia's plain land is located in the Ararat valley, in the south-west of the country. The southern part of Armenia – Meghri region has rather sub-tropical climate and milder weather. The variety in geology and altitudes explains the variability in biodiversity, including many endemic species. More than 3500 vascular plants are to be found in Armenia, which given the size of the country is amongst the highest density in the world.

From the Table 1, it can be seen that Armenia has nearly 100 people living per one square kilometer.



Table 1 Main country view 2013

Armenia – Year 2013	
Population (1st January) (000 inhabitants)	3,017.4
Area (sq. km)	29,743
GDP growth rate (% change on previous year)	6.7%
Unemployment rate (%)	16.2
Total Agricultural Land (thous.ha)	2,051
Agriculture, hunting and fishing (% of total GVA)	21.94 %

Source: NSS

1.2 Macroeconomic developments

Armenia's GDP was nearly 10.4 bln. USD in 2013 and almost 20% of the value was generated by the agricultural sector. This fact highlights the importance of agriculture for the country. Nearly 40 % of Armenia's population is employed in agriculture, even though the migration rates are very high in the rural areas of the country.

The average annual inflation has been nearly 6% in recent years. The unemployment rate was reported to be 16.2% in 2013. There was a notable change in the unemployment rate dynamics from 2007 to 2008. This difference is due to the change in the methodology for calculating the unemployment rate. Until 2007 a person was considered unemployed by the National Statistical Service (NSS), if he/she was registered in the State Employment Service as unemployed. After 2007 methodology used by the International Labour Organization (ILO) was adopted - a person is now considered unemployed if he/she

did not have any job or income during the 4 weeks prior the survey and was actively looking for a job and was ready to start the job within 2 weeks once he/she gets an offer.

Armenia is a net importer – total imports were about 3 times higher than the total exports for 2013.

Table 2 Main macroeconomic indicators in 2004–2013

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Population (1000 persons)	3215.8	3219.2	3222.9	3230.1	3238	3249.5	3262.6	3274.3	3026.9	3017.4
Real GDP growth rate (% change on previous year)	17.5%	17.6%	18.4%	18.6%	13.3%	12.0%	10.1%	9.2%	5.8%	6.7%
GDP at current prices (mln. NC)	1907945	2242881	2656190	3149283	3568228	3141651	3460203	3777946	3997631	4266799
GDP per capita at current prices (NC)	593303.5	696720	824161.4	974980.2	1101985	966810.6	1060566	1153818	1320701	1414065
GDP per capita at purchasing power (PPS; USD)	1112.1	1522.2	1981.2	2849.9	3601.3	2661.2	2838.0	3097.5	3286.9	3452.3
GVA at current prices (mln. NC)	1772230	2076259	2458817	2878126	3217959	2859677	3135306	3461808	3648814	3766562
GDP deflator (%)	106.3	103.2	104.6	104.2	105.9	102.6	107.8	104.3	98.8	103.2
Inflation (annual average, % change on previous year)	7.0%	0.6%	2.9%	4.4%	9.0%	3.4%	8.2%	7.7%	3%	5.8%
Total employment (1000 persons)	1081.7	1097.8	1092.4	1101.5	1183.1	1152.8	1185.2	1175.1	1172.8	1164
Unemployment rate (%)	31.6	31.2	27.8	28.7	16.4	18.7	19	18.4	17.3	16.2
Total export of goods (mln. USD)	772.9	973.9	985.1	1152.3	1057.2	710.2	1041.1	1334.3	1380.2	1480
Total import of goods (mln. USD)	1350.7	1801.7	2191.6	3267.8	4426.1	3321.1	3748.9	4145.3	4261.2	4476.8
Consumer price index of food (% change on previous year)	10.9%	0.8%	3.3%	6.7%	11.1%	-0.9%	9.4%	12.3%	2.0%	6%
Exchange rate, annual average (NC/EUR)	662.3	570.4	521.2	467.8	450.2	507.4	496	518.7	516.4	544.1
Exchange rate, annual average (NC/USD)	533.5	457.7	416	342.1	306	363.3	373.7	372.5	401.8	409.6
Total government budget (mln. NC)	333970	417506	481183	634735	810575	929109	954317	986509	1006102	1024985

Source: NSS

1.3 Macro-economic and other general policies

After gaining independence Armenia has gone through significant changes and has transformed its economy from planned to market-oriented, with small and medium size enterprises prevailing.

The World Bank report “Doing Business 2014” ranked Armenia as 37th out of 189 countries¹. This report ranks the economies in 10 areas of business regulations, such as starting a business, registering property or getting credit. Armenia is ranked 6th in starting a business and 5th in registering the property. Indeed, during recent years Armenia has been continuously improving regulations pertaining to the process of registering a business. Since 2010 it is possible to register a business electronically, and the procedures for registration, business name reservation and issuing a tax payer identification number have been merged and are implemented as one transaction. Also during the same year the Credit

¹ <http://www.doingbusiness.org/~media/GIAWB/Doing%20Business/Documents/Annual-Reports/English/DB14-Full-Report.pdf>

Reporting Agency had access to the databases of utility companies (providing water, electricity, etc. to public) thus making the credit check process faster and easier.

Armenia is among the countries that have eliminated the minimum capital requirement for registering a business. Effective from 2013, Armenia has eliminated the social tax that was attributable to employers (around 24% from gross salary for each employee) and introduced one unified tax instead of income tax and social security payments. This fact really contributed to having employees registered and pushed Armenia very close to the frontier in the category “paying taxes”, since the unified tax is withheld by the employer before the net salary is transferred to the employee’s account.

On the other hand Armenia was ranked 117th in trading across borders. This rank is especially low, as Armenia is blockaded by the neighboring Turkey and Azerbaijan. Trade is, therefore, largely dependent on the expensive and low capacity rail and road transportation through Georgia. Problematic relations between Georgia and Russia (Armenia’s main trading partner) do not make the situation any easier.

The World Bank (WB) also ranked Armenia quite low (112th) in enforcing contracts. The guide to doing business in Armenia by PWC 2011-2012 states that, although laws on Protection of Economic Competition, State Registration of Legal Entities, Labor Code or Laws on LLC’s and CJSC’s are in place, there is a big gap between the quality of these laws and their implementation by the governmental agencies and courts. The PWC report states that even a court decision may not be enforced. There are numerous projects and donor sponsored programs aiming at enhancing the business environment in Armenia.

The Enterprise Development and Market Competitiveness (EDMC) project was initiated by the USAID in 2011 and lasted until September 2014. The goal of the project was to support fast growing small and medium enterprises in Armenia that will eventually lead to increased employment and ensure economic growth. The EDMC provided training aimed at creating better skilled labour to meet the market demand for workforce; worked with banks to develop services the business community needs and contributes to the improvement of the business environment by drafting amendments to laws and enhancing public institutions’ capacity through streamlining procedures to ensure work efficiency.

“Small and Medium Entrepreneurship Development National Center of Armenia” Fund (SME DNC of Armenia) operates since 2001. This body was created by the Government of Armenia and aims at elaborating SME-related policies and strategies through the State and donor support. Also two USAID funded projects - Advanced Rural Development Initiative (ARDI) and Partnerships for Rural Prosperity (PRP), are implemented to foster the country’s broader development and address the economic challenges in rural communities. Both projects are run by local partner-organizations, such as Fuller Center for Housing Armenia, Heifer Project International Armenian Branch Office, CARD, SME DNC, etc.

The Asian Development Bank in Armenia launched the Women Entrepreneurship Development Program in 2012. In collaboration with the Small and Medium Entrepreneurship Development National Center of Armenia, this program helps to small businesses owned and run by women in obtaining business loans and also provides technical assistance to improving business management and marketing skills.

The United Nations Industrial Development Organization (UNIDO) has a primary goal of promoting industrial cooperation across the world and helping developing countries to accelerate the industrial development. Like many projects in the UN Armenia portfolio, this one also contributes to small and medium enterprise development and supports trade capacity building.

World Vision Armenia and Junior Achievement Armenia have programs that help to enhance entrepreneurial skills in high schools through experiential learning, when students not only theoretically learn how to set-up their own business, but also get a chance to do it practically. These high-school students learn about the importance of corporate social responsibility and set their NGO to implement a community project.

Foreign Direct Investments

The level of foreign direct investments relative to the country’s GDP was slightly over 7% in the period from 2006 to 2013. This indicator was the highest in 2009, when FDI amounted to nearly 9% of the GDP.

The economic policy of Armenia today highly encourages FDI in any sphere and by any entity – be that a private company or a governmental organization².

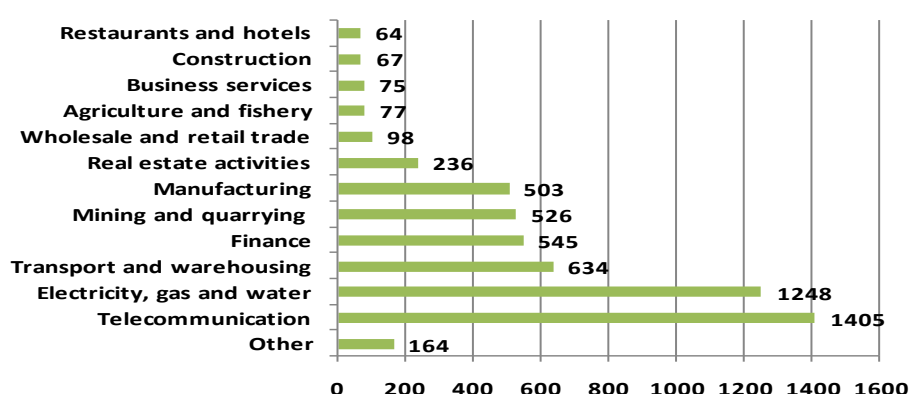
Table 3 Foreign Direct Investment dynamics in Armenia

Republic of Armenia	2008	2009	2010	2011	2012	2013
FDI (mln. NC)	281565.7	292339.5	208641.9	248794.9	199188.6	94710.0
FDI in agricultural sector (mln. NC)	n/a	n/a	n/a	n/a	n/a	n/a
FDI in food-processing sector (mln. NC)	n/a	n/a	n/a	n/a	n/a	n/a

n/a – not available ; Sources: NSS

FDI inflows or directions by sectors for 12 years from 2000 to 2012 are presented in Figure 1. Nearly 47% of all foreign investments were implemented in the telecommunications and utilities sectors.

Figure 1 FDI Inflows by Sector, 2000-2012 Cumulative for Armenia (mln. USD)



Source: EV consulting – National competitiveness report of Armenia 2014, p. 22

The dominant part of FDI in Armenia was directed towards building the infrastructure. Although this is very important, nevertheless it is not considered as productive capital, and may not contribute directly to the growth potential in the future.

The biggest investor into the Armenian economy as of the end of 2011 was Russia with 3,170 million USD, followed by France with 727 million USD, Greece with 479 million USD, and the US with 378 million USD.³

1.4 Institutional environment of the agro-food sector

The Ministry of Agriculture of the Republic of Armenia is the body of an executive authority, which develops and implements the government's policies in the field of agriculture and forestry management. The Ministry develops and implements projects in the fields of forestry, animal breeding, plant protection, irrigation and efficiency of soil use. The ministry acts in accordance with the laws and regulations of the Republic of Armenia. Separate departments within the ministry are the State Inspectorate of Agricultural Machinery, State Committee for Water Management, State Food Security Service and «Licensing Center» Agency.

The Ministry creates and implements Sustainable Agricultural Development Policy that is updated periodically to comply with changes in the agricultural sphere. The policy has to reflect the current state of the agriculture and address certain priority issues, such as food security, rural areas development and

² Investment guide, Armenia, 2013, p. 60, <http://mineconomy.am/uploads/20120211155136922.pdf>

³ <http://www.investinarmenia.am/en/component/content/article/84-contents/investment-environment/110-foreign-direct-investment>

state support, creation of legal framework and favorable conditions for investment in agriculture, rural infrastructure development, agricultural research and development promotion.

The Sustainable Agricultural Development Strategy 2010-2020 of Armenia recognizes that the development of rural areas is a national priority and implements programs aimed at poverty reduction in rural areas, such as:

- Infrastructure development in rural areas
- Development of rural production and markets
- Provision of vocational and business training for existing businesses
- Land consolidation and farm efficiency, including creation of agricultural cooperatives
- Introduction of agricultural insurance

Considering these and many other needs, the Ministry of Agriculture implements its own programs or seeks international assistance to address different issues. In particular, being aware of the need to develop new economic forms in farm management, the Ministry delegated ICARE Foundation to study international experience and draft law on Agricultural Cooperatives in May 2014.

The “Agricultural Project Implementation” unit, State agency of the Ministry of Agriculture, implements Community Agricultural Resource Management and Competitiveness (CARMAC), as well as initiated CARMAC 2 - projects that are designed to improve productivity of pasture-based livestock farms. The projects highlight innovative practices in livestock production and are aimed at developing pasture management skills, increasing milk production and dairy farm product sales⁴.

Within projects implemented by the Armenian Project Implementation Unit it is worth to mention the disbursement of loans by the Rural Areas Economic Development Program, “Rural Enterprise and Small-Scale Commercial Agriculture Development Project” (RESCAD), and “Food Safety Capacity Building Project” funded by the World Bank⁵.

Food and Agriculture Organization of the United Nations (FAO) in collaboration with the Ministry of Agriculture developed the country program framework for 2012-2015⁶ where programs with a specific focus on infrastructure development are proposed, such as road improvement and supplying gas and water to rural areas. In addition, this program is aimed at developing of non-farm activities in rural areas and providing advisory services for the preparation of business proposals and applying for loans. Development of organic agricultural production is also included within the main targets of FAO projects in the upcoming years.

USDA Marketing Assistance Project (MAP) has established and developed over 60 food processing enterprises, over 25 agricultural marketing consumer cooperatives, 50 credit clubs and has helped to create Agricultural Support Centers (ASC) in every region of Armenia; over 2,500 permanent jobs in agribusiness, with over 40,000 farmers directly benefiting from its projects. Within the scope of this project organizations were created that successfully operate until now, such as Farm Credit Armenia, International Center for Agribusiness Research and Education (ICARE), and the Center for Agribusiness and Rural Development (CARD). CARD assists farmers and businesses in the production and marketing of agricultural products. It has invested over 50 million USD in technical assistance during the first 5 years of its operation. These investments were implemented in food processing, new product development, food safety and packaging, market research, lending and product promotion.

Access to credits

Agricultural credit is a very important growth factor for countries in transition. Although agricultural loans are considered high-risk and are quite costly, the value of loans provided for agricultural purposes both by commercial banks and by universal credit organizations has been steadily increasing (see Figures below).

⁴ <http://www.arspiu.com/Projects.4.0.html?&L=0>

⁵ <http://www.arspiu.com/FSCB-Project.67.0.html?&L=0>

⁶ ftp://ftp.fao.org/TC/CPF/Countries/Armenia/Armenia%20CPF_FINAL_English.pdf

Figure 2. Agricultural credits provided by commercial banks in Armenia

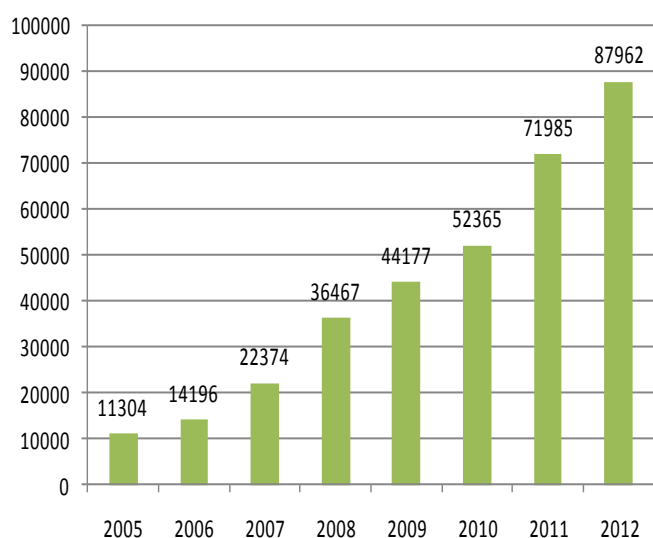
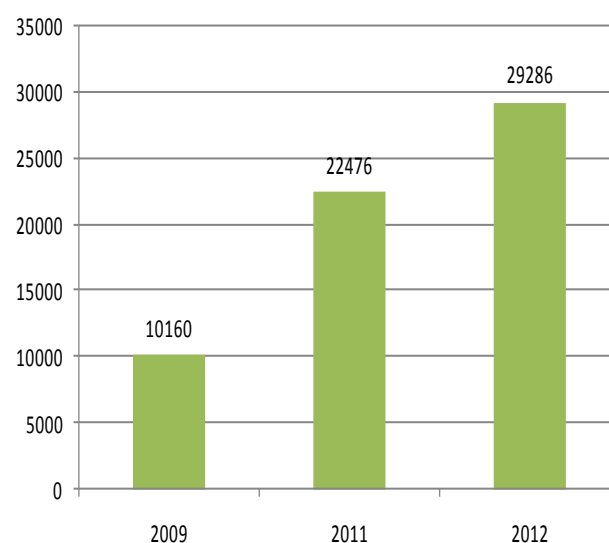


Figure 3. Agricultural credits provided by credit organizations in Armenia



Source: Central Bank of Armenia

Dependency on weather conditions, the absence of insurance and the low profitability of agricultural production increases the chances of failure and makes agricultural loans very risky, thus keeping interest rates high. Because of the high risk only a few banks and UCO's provide loans for agriculture related activities. For reference, in 2008 the share of agricultural loans of the total loans portfolio was the highest and accounted for 7% in total credits volume. Agricultural loan interest rates in Armenia range between 8-22% and agricultural loan maturity can be up to 84 months, usually collateral is required⁷.

Since 2011, soft loans are provided to farmers at an annual interest rate of 14%, and 4-6% of the latter is subsidized by the Government. The maximum size of these loans is 3 million AMD with 1-24 months maturity. The value of subsidized interest rates for agricultural loans was 578 mln AMD in 2012, and increased to 872 mln AMD in 2014.

The agriculture sector in Armenia has received significant support from donor organizations. Areas promoted include rural credit markets development, establishment of institutions to support agriculture and government-funded activities. Among the main sponsors of these types of activities is the World Bank group, IFAD, the UN and several EU countries.

Agricultural land ownership issues

There are restrictions on the purchase of pastures in Armenia; this type of land can only be rented from rural communities the pasture belongs to. The land can be leased for up to 99 years in Armenia. Unless they have Special Residency Status in Armenia or are ethnic Armenians and have dual citizenship, foreign citizens are not allowed to purchase any land in Armenia. Foreigners are allowed to use land through long-term lease contracts; they are also entitled to own a building on the land he/she leases and can use natural resources as regulated by a contract signed with the State.⁸

Provision and access to other public goods such as infrastructure, education, research

Since 1999, the Government of Armenia established Regional Agricultural Support Centers (Regional ASC) in all marzes of Armenia. Regional ASC's provide consultancy, information and marketing support to individual farmers, agricultural producers and cooperatives, as well as practical support in organizing

⁷ CBA periodical no 185, released in January 2014 https://www.cba.am/AM/ppperiodicals/tex_I_14.pdf (in Armenian)

⁸ Investment guide, Armenia, 2013 http://globalspc.am/download/Invest_Guide_web.pdf

efficient production with the use of innovative technologies. These Centers are technically supported and coordinated by the Agriculture Support Republican Center that links all Agricultural Support Centers under the umbrella of a common national-level AGRO.AM platform.

Starting from 1993, several farmer associations and unions were created (mainly with the support of the Government) that were called to improve the infrastructure, assist farmers in the marketing of agricultural products, exchange the information among farmers and provide support to farmers in any stage of farm related activities. The “Armenian Farmer” association, the Armenian Agricultural Union, the Water Users association and the Agrarian Union were created in ‘90’s. After these first steps, donor organizations supported the establishment of the Association of Potato producers, the Milk Marketing consumer Cooperative, the Federation of Agricultural Associations and many other unions. Unfortunately most of those projects were donor driven and did not continue after the donor funding ended. Besides Armenia did not have a necessary legal base for functioning of cooperatives, thus, the members could not clearly understand their rights and responsibilities and did not feel protected.

Food Safety Capacity Building project funded by the World Bank became effective in late 2012. This project was initiated by the existing need to improve food safety control along the whole food chain and by growing demand towards high quality agricultural imports in European countries. Within the scope of this project, the legal framework improvements have been implemented to approximate EU food safety requirements and the corresponding personnel, mainly at State Food Security Service of the Ministry of Agriculture has been trained⁹.

In addition to numerous trainings organized for those involved in the agricultural sphere by international organizations such as CARD, FAO, ICARE, USAID, UNDP, there are also a total of nine agrarian colleges in different parts of Armenia that provide vocational education. In response to the needs of the market, some colleges recently introduced departments of tractor operators, as well as fish production technology departments. The Armenian National Agrarian University (ANAU) has more than ten¹⁰ thousand students and provides BS, MS and PhD degrees in Agronomy, Veterinary services, Food Security, Agribusiness and Marketing, Agrarian Policy and Regional Development and many other specializations.

Several scientific centers that operate under the Ministry of Agriculture as the State non-commercial organizations implement research aimed at the improvement of plant varieties and livestock breeds. The list includes “Agronomy and Plant Protection Scientific Center”, “Grape and Wine Production Scientific Center”, “Agrichemistry and Melioration Scientific Center”, “Livestock Breeding and Veterinary Scientific Center”, as well as “Agribiotechnologic Scientific Center”.

As suggested by the new directions in Agricultural research and education, GoA prioritizes fields where Armenia may have a comparative advantage - industries to be promoted the most are wine making and agricultural tourism. The Ministry of Agriculture also foresees movement from peasant farms towards rural enterprise and small scale commercial agriculture development. This implies that the number of farms has to decrease and the size of each individual farm has to increase (Tspnetsyan interview)¹¹. Small farms can also form agricultural cooperatives or producer groups to be sustainable and to be able to make profits. The draft law on Agricultural Cooperatives is currently under revision.

⁹ Agricultural Project Implementation Unit – a state agency of the RA Ministry of Agriculture.
<http://www.arspiu.com/FSCB-Project.67.0.html?&L=0>

¹⁰ <http://www.anau.am/hy/about-us/info>

¹¹ Interview with H. Tspnetsyan, head of development programmes for the Ministry of Agriculture of the RA

2. SITUATION AND DEVELOPMENT OF THE AGRICULTURAL SECTOR

2.1 Role of agricultural sector in the economy

Agriculture has a strategic role in the provision of food security in Armenia, which is included in the National Security Policy of the Republic of Armenia. It provides 36.3% of the total employment in the country, with 422.1 thousand people employed in agriculture in 2013.

Table 4 Employment statistics and share of people employed in the agricultural sector

	2007	2008	2009	2010	2011	2012	2013
Total population	3222.9	3230.1	3238.0	3249.5	3262.6	3026.9	3017.4
Employed	1101.5	1117.6	1152.9	1185.1	1175.2	1172.8	1163.8
in agriculture	506.9	493.5	454.8	457.4	457.4	437.2	422.1
in agriculture, %	46.0%	44.2%	39.4%	38.6%	38.9%	37.3%	36.3%

Source: NSS

Since the 1990's, after the collapse of the Soviet Union, Armenia overcame economic difficulties and was on a sustainable growth path. In recent years (2005 onwards) the share of agriculture was about 20% of the GDP, although it was increasing in absolute terms. In 2013, the share of agriculture was 19.3% of the GDP, while the share of agriculture and food processing was nearly 25% of the GDP. The gross agricultural output was 918.6 bln. AMD in 2013, what is 7.1% more than in 2012 (Tspnetsyan, 2012)¹².

Agriculture plays an important role in the trade balance of the country: nearly 28% of all exports in 2013 were agri-food goods, and about 19% of all imports were agri-food imports (see Table 29). During the last decade the share of agri-imports was relatively stable (ranging from 16 to 19.4% of total imports), but the share of agri-food exports increased from 11.7% in 2005 to 28.1% in 2013.

2.2 Land use

Nearly ¾ of Armenia is located in the range of 1000-2500m above the sea level. Agricultural land accounts for about 70% of the total land base of the country. Half of the agricultural land are pastures. Even though arable land is only about 22 % of agricultural land, one third of it is not used because of various reasons, such as being located far from populated areas, having irrigation issues or not being very profitable¹³.

Table 5 shows that the use of land under pastures increased dramatically after 2004. This was a result of the increase in the total agricultural land by 52%. The reason for this was the alienation of community reserves in late 2004. Auctions were conducted and community land was sold at a price lower than a market price for the land.

¹² H. Tspnetsyan report-presentation

¹³ Government of Armenia, Food Security Concept Paper, May 2011.

Table 5 Agricultural land use in 1995–2013, ha

	1989	2004	2007	2010	2013
Land area, total	2974.3	2974.3	2974.3	2974.3	2974.3
Agricultural land, total	1391.4	1391.4	2122.1	2100.9	2048.4
Arable land	483.5	494.3	452.1	448.5	448.9
Land under permanent crops	n/a	49.6	53.9	55.1	57.7
<i>Orchards</i>		34.7	38	37.7	40.2
<i>Vineyards</i>	n/a	14.9	15.9	17.4	17.5
Permanent grassland	n/a	832.9	1245.8	1231.4	1173.4
<i>Meadows</i>		138.9	127.5	127.1	121.1
<i>Pastures</i>	693.5	694.0	1118.3	1104.3	1055.3
Other agricultural land	n/a	14.6	370.3	365.9	368.4

n/a – not available ; Source: armstat.am

The Table 35 in Appendixes shows that areas used under vineyards increased after 2007 by nearly 10%. This increase indicates some investment made in grape production, since the wine making industry was promoted as a strategic sector for Armenia.

Agricultural outputs by regions for 2013 (see Table 36 in Appendix 2) show that 61% of the total agricultural output is attributable to plant growing, and the rest – to animal husbandry. The sown area under grains and leguminous plants increased by 3.5 % in 2013 as compared to 2012, and the gross harvest grew by 20%. The highest yield in this category is recorded in Ararat marz (nearly 62% higher yield than the country average). The fertile land makes this region of Armenia the most suitable for nearly anything; per hectare yields of potatoes, vegetables, watermelons, grapes are the highest there, but the land is mainly used for high value crops - vegetables, grapes, fruits and berries. Animal products – meat and milk mainly come from Gegharkunik and Shirak regions. Gegharkunik is also a well known area for growing potatoes – about 47% of potatoes grown in Armenia comes from this region, since the cool climate and strong winds make this area non-suitable for such delicate plants as grapes and water-melons.

2.3 Farm structures (including land properties)

After the collapse of the Soviet Union land privatization took place and each adult registered in the rural area was entitled to a plot of land. As a result of land privatization, about 340,000 family farms were formed in early 1990's. Due to high rates of migration especially from rural areas, the number of farms is expected to be much less now. The FAA interview conducted by ACDI/VOCA suggests that the number of operating farms is around 200,000¹⁴. Out of which nearly half are operating on subsistence basis. About 20,000-30,000 farms have at least 3-5 hectares of land and larger farms with more than 10 hectares of land are estimated to represent only 6% of all farms. The actual number of farms as well as their size is expected to be published after the Agricultural Census to be conducted in late 2014. Unfortunately, this will be the first agricultural census conducted in the Republic of Armenia since its independence, so no previous data is available. According to the World Bank country study conducted in 2007, the average farm size in Armenia was 1.4 ha¹⁵; 97 % of agricultural output is produced by these

¹⁴ "RAPID ASSESSMENT OF VALUE CHAIN OPPORTUNITIES IN ARMENIA" published by the USAID
http://www.rciproject.com/rcicaucasusarmenia_files/Armenia_USAID_Rapid%20Assessment%20of%20Value%20Chain%20Opportunities_10.pdf

¹⁵ World Bank Group – "Integrating Environment into Agriculture and Forestry Progress and Prospects in Eastern Europe and Central Asia – Armenia, country review", November 2007

family farms. However, today as a result of low profitability of farming, many families from rural areas migrate from Armenia, letting neighbors cultivate their land or selling it. This allows estimating that the total number of farms could be about 200,000 and the size of an average farm about 3 ha. As of 2011 about 84% of arable land and only 1% of pastures belong to family farms and agricultural enterprises. The rest is state or community owned¹⁶. The MoA has declared that farm consolidation is very important – this will contribute to more productive farming because of a higher level of specialization and economies of scale.

Table 6 Agricultural holdings by type of ownership

Agricultural holdings by type of ownership	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
TOTAL (thous. ha)	325.2	331.8	310.2	306	304.5	300	283.6	286.7	304.2	318.1
Private (peasant farms) (thous. ha)	322.3	329.7	308.6	304.2	302	298	281.1	285.3	302.9	316.8
Commercial (thous. ha)	2.9	2.1	1.6	1.8	2.5	2	1.5	1.4	1.3	1.3

Source: NSS RA

The situation is nearly the same with animal production, where nearly 93% of output is produced by households. The only outlier in this field is **poultry** production, where the majority of output is produced by commercial farms. As opposed to this, in 2011 more than 99% of raw **milk** was produced by smallholders.

Small farms producing **fish** increased dramatically since the 1990's; if in 1991 there were only 14 fisheries, by 2013 the number increased to 233 (68% of these are small farms with less than a hectare of production area). This number is expected to decline due to concerns about underground water quantity and water pollution. New regulations will be set forth, and obtaining a license for fish production will be much harder¹⁷.

Wheat production is also implemented by smallholders, since it has not proved to be a very profitable business in Armenia, and there are no big plots available.

The average **vegetable** producing farmer has up to 2 hectares of land and usually balances the production between different crops to reduce risks. Commercial farming in this field is very well developed during the recent years. As of 2012 there were around 300 hectares of land under greenhouse production¹⁸ mainly in the Armavir and Ararat regions. The average yield from one square meter of greenhouse is estimated to be nearly 10-12 kg. The Armenian Harvest Promotion Center (AHPC) has initiated a greenhouse building project in Armenia since early 2013, and is planning to equip up to 500 hectares with modern greenhouse construction¹⁹. During the last two years intensive greenhouse construction has been taking place in the Kotayk region. Some of these producers are specialized in the production of **berries** and utilizes hydroponics to cultivate plants.

2.4 Production and output (including major sectors and yields)

Both plant growing and animal husbandry are important part of Armenian agriculture. The distribution of output between these two groups is largely defined by weather conditions and the price of imported

¹⁶ Ministry of Agriculture, Agricultural Land Consolidation Concept Paper, November 2011.

¹⁷ FAO (2011), "[Review of fisheries and aquaculture development potentials in Armenia](#)"

¹⁸ CARD website – greenhouse management project, <http://card.am/effective-greenhouse-management/>

¹⁹ <http://www.greenhousecanada.com/energy-edge/efficiency/construction-of-small-efficient-greenhouses-in-armenia>

goods, as well as the price of agricultural products during the previous season. The general trend suggests that animal husbandry has remained nearly at the same level for several years, but experienced sizeable growth in 2011. The reason was increased exports of live animals (specifically sheep) to Iran. Crop production patterns, despite a higher dependency on the weather, have provided stable growth during 2004-2013 (see table below). Crop output in 2013 was 2 times higher compared to the crop output in 2004. In general, 2009 was the only year when both animal and crop output was lower compared to the previous year.

Table 7 Agricultural output (mln. NC, at current prices)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Crop output	283.9	288	356.2	429.9	405.9	346.7	392.7	465.1	516	572.9
Animal output	220.2	205	199.7	204	222.2	205.4	244	329.9	325.5	345.7
Total agricultural output	504.1	493	555.9	633.9	628.1	552.1	636.7	795	841.5	918.6

Source: NSS

Armenia is composed of ten regions and Yerevan city. Nearly 74% of all agricultural output in 2010 was produced by 5 regions (see Table 8). Armavir and Ararat are the main producers of fruits and vegetables in the country, because they are located in Ararat Valley and have favorable climatic conditions and fertile land suitable for this. Gegharkunik and Shirak are the main producers of cereals and potatoes, and have alpine meadows that are just right for cattle breeding.

Table 8 Agricultural land and output distribution by regions of Armenia

Region	Agricultural land (ha)	Arable land (ha)	Agro-output value (2010), incl. processing	Main agricultural outputs
Yerevan	n/a	n/a	0.8%	<i>Poultry, cattle, livestock, meat processing, fruit and vegetable processing and canning, alcoholic beverages (brandy-wine-vodka, brewery), tobacco fermentation</i>
Aragatsotn	217770.2	53904.8	9.6%	<i>Cereals, potatoes, fruits, forages, animal husbandry</i>
Ararat	156542.3	26120.0	17.0%	<i>Grapes, horticulture, vegetable growing, fruit and vegetable processing and canning, alcoholic beverages, tobacco fermentation</i>
Armavir	96976.1	41980.3	16.5%	<i>Fruits, cereals, legumes, vegetables, melons, cattle, sheep, pig, poultry, alcoholic beverages</i>
Gegharkunik	348286.8	80966.7	19.7%	<i>Cereals, potatoes, vegetables, livestock, fish, food processing, beverages</i>
Lori	250794.0	41992.3	6.6%	<i>Cereals, potatoes, vegetables, animal husbandry, meat processing</i>
Kotayk	161571.4	37878.2	6.3%	<i>Poultry, fruits, dairy cattle, cereals</i>
Shirak	229449.6	79838.2	11.2%	<i>Food and beverage production, textile industry, cereals, animal husbandry, beekeeping</i>
Syunik	333855.8	43790.4	5.7%	<i>Livestock, cereals, potatoes</i>
Vayotsdзор	209193.3	16203.8	2.2%	<i>Animal husbandry, poultry, grape, fruits, vegetables</i>
Tavush	111933.2	25288.9	4.4%	<i>Cattle, pig, cereals, grapes, beekeeping, wine, brandy, tobacco</i>

Source: Business & Finance Consulting GmbH feasibility study

2.4.1 Crop production and yields

Potatoes, tomatoes, grapes, wheat and melons are the top five crops in Armenia in terms of production volumes. Yield of grains and leguminous plants have increased nearly twice in the period from 2006 to 2013, therefore, despite the reduction of the sown area, production volumes have increased. Very good yield improvements were observed towards potatoes (33% yield increase from 2004 to 2013), vegetables (25% yield increase from 2004 to 2013), and watermelons (15% yield increase from 2006 to 2013). Table 9 shows production and areas under cultivation for high-yield products. According to the table, there was a considerable decline in the production volumes of these products in 2010 due to the late frost.

Armenia is self-sufficient in potato production, so since the productivity has increased, the sown areas have somewhat decreased. Areas under fruits, berries and grapes have been increasing, mainly because of increased demand for export and for processing needs.

Armenia has low yields in the production of apples, quince and apricots because of aging orchards and the change in climatic conditions during the recent years.

Cereals

Production volumes of wheat are the highest among all cereal categories in Armenia, though the quantity of wheat produced show a considerable decrease since 2005. The limited land resources are being increasingly used for higher yield and higher value added crops. As opposed to this, there was an increase in the production of barley that is mainly used as animal feed and in beer production. Although in terms of production volumes wheat is the 4th main agricultural product, the volumes produced cover only 29% of the wheat needed for the country.

The average yield of wheat per hectare of land for recent years was around 3.1 tons. Compared to the main wheat producing countries this is a rather low indicator, but it is acceptable for Armenia, since the location of most wheat fields is such that there are probably no alternative crops to be sown. The highest average yield for wheat (4.1 tons per hectare) was recorded in Ararat region, but wheat volumes produced in this part of the country are not big, since the land is reserved for higher value added crops.

Statistics of cereal production by marzes show that the Gegharkunik and Shirak marzes produce nearly half of all cereals in the country (see Table 10).

Oilseeds

There is no oilseed production in Armenia.

Fruits and vegetables

Production of fruits and vegetable is the largest in terms of volumes produced in Armenia; total production for 2013 was 1376.4 thousand tons (potatoes and melons excluded).

Within the total output of fruits grapes had the highest share (around 42%) in 2013. Within the total output of vegetables (potatoes excluded) tomatoes accounted for the largest share (32%), followed by cabbages (17%) in 2013. Over the past years grape production has experienced considerable growth; areas under cultivation and productivity have increased, particularly for technical varieties of grapes that are demanded by wineries and brandy factories. Apples provide secure income for farmers throughout the year (they are easy to store and can be sold during winter months when most of the other fruits are not available). Apple production declined in volume in 2010 and 2011 because of fewer new apple orchards and weather conditions, but slowly picked up by 2013 (112 thous. tons). Tomato production has experienced noticeable growth; there are high-yield varieties cultivated and greenhouse industry development makes them available on the market throughout the year.

The volume of berries produced in Armenia increased more than 2.5 times since 2005, reaching 13.5 tons in 2013. This includes both wild and cultivated berries. The most popular crops in this group are raspberries, strawberries and currants. As berries are considered among the high value added products,

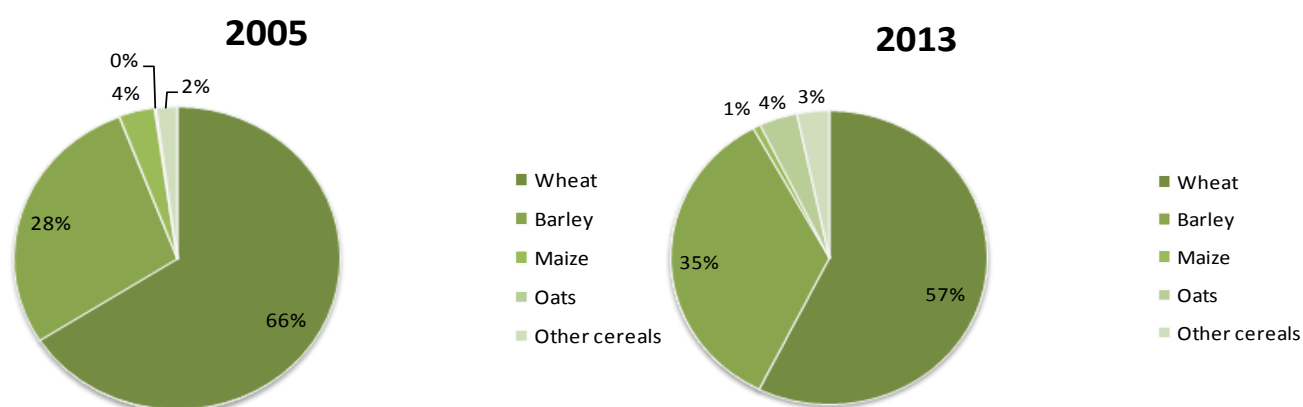
considerable investment has been made in berry production, especially in greenhouses. There is a high demand for berries from processing plants (for juices, jams and preserves), as well as from sellers of organic products both in Armenia and abroad.

Table 9 Areas and production volumes for high-yield agricultural products.

<i>Grains and leguminous plants</i>	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Sown areas under grains and leguminous plants	n/a	n/a	182.4	176.2	172.8	171.6	159.3	157.8	172.2	178.4
Yield of grains and leguminous plants	n/a	n/a	13.3	25.9	24.1	22.6	20.7	27.9	26.5	30.8
Gross harvest of grains and leguminous plants	456.9	396.2	212.5	452.5	415.4	374.9	326.4	440.7	456.1	548.8
<i>Potatoes</i>										
Sown areas under potatoes	35.7	34.4	33.1	31.7	34.3	32.0	28.4	28.7	31.2	30.7
Yield of potatoes	161.5	164.5	163.4	183.3	188.7	184.4	170.1	194.3	206.7	214.3
Gross harvest of potatoes	576.4	564.2	539.5	583.9	648.6	593.6	482	557.3	647.2	660.5
<i>Vegetables</i>										
Sown areas under vegetables	22.2	22.5	24.4	25.6	24.2	23.9	23.5	25.0	25.2	25.4
Yield of vegetables	266.3	289	309.8	324	321.4	327.1	294.2	306.7	325	333.7
Gross harvest of vegetables	600.8	663.8	780	845.3	825.3	819.8	707.6	787.1	849	876
<i>Watermelons</i>										
Sown areas under water-melons	4.0	3.9	4.0	5.9	5.5	6.2	4.5	5.8	5.1	5.4
Yield of water-melons	n/a	n/a	335.2	350.6	334.5	350.6	296	313.8	399.9	388.5
Gross harvest of water-melons	n/a	n/a	134.9	206.3	182.2	216.1	132.5	180.9	205.1	208.1
<i>Fruits and berries</i>										
Planting areas of fruits and berries	n/a	n/a	35.4	38.0	36.7	37.0	37.7	37.1	39.3	40.2
Yield of fruits and berries	n/a	n/a	93.9	79.7	101.2	104.4	39.2	73.5	97	95
Gross harvest of fruits and berries	n/a	n/a	286	260.2	317.8	332.2	128.5	239.4	331.7	338.1
<i>Grapes</i>										
Planting areas of grape	n/a	n/a	15.8	15.9	16.8	16.5	17.4	16.3	17.4	17.5
Yield of grape plantations	n/a	n/a	141.2	153.6	128	144.9	151.5	158	151.3	149.8
Gross harvest of grape	n/a	n/a	201.4	218.9	185.8	208.6	222.9	229.6	241.4	178.4

Units: Sown areas (ha), Yield capacity (100kg from 1 ha), Gross harvest (1000 tons) - Source: NSS

Figure 4 Cereals production structure in Armenia in 2005 and 2013



Source: NSS RA

Table 10 Production of grains and leguminous plants in Armenia in 2004–2013, thous. tons

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Republic of Armenia	459.9	399.1	212.5	452.5	415.4	374.9	326.4	440.7	456.1	548.8
Yerevan City	n/a	n/a	0.6	0.9	1	0.6	0.3	0.2	0.6	0.4
Aragatsotn Marz	n/a	n/a	28.6	58.7	45.2	51.3	42.1	60.5	65.4	73.4
Ararat Marz	n/a	n/a	29.5	26	21.2	19.9	17.2	20.2	19.7	23.2
Armavir Marz	n/a	n/a	36.4	28.7	30.6	27.4	18.9	20	18.9	22
Gegharkunik Marz	n/a	n/a	35	114.5	114.8	111.1	108.9	127.2	121.5	125.1
Lori Marz	n/a	n/a	12.9	27.8	21.8	16.3	14	22.1	21.2	36.8
Kotayk Marz	n/a	n/a	9.3	24.3	19.8	18.1	11.6	21.5	19.2	27.9
Shirak Marz	n/a	n/a	36.9	102.5	90.5	74.7	80.1	98.3	102.2	130.6
Syunik Marz	n/a	n/a	12.3	45.2	46	30	14.6	38.3	53.8	67.8
Vayots Dzor Marz	n/a	n/a	1.1	2.2	3.9	4.8	4.1	6.1	6.1	6.2
Tavush Marz	n/a	n/a	9.9	21.7	20.6	20.7	14.6	26.3	27.5	35.4

Source: NSS RA

Table 11 Volumes of main types of vegetables produced in Armenia from 2004-2013, thous. tons

RA	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Tomatoes	229.5	234.9	319.3	321.5	293.8	278.6	251.9	275.5	265.2	271.5
Cucumbers	60	64	73	72	82	81	63	74	75	63.5
Cabbage	93.8	107.2	116	132.4	122.7	115.9	114.3	128.5	131.8	142.6
Carrots	14.4	17.1	16	27.2	27	23.4	20.4	23.9	22.9	23.9
Onions	42.8	48.8	62.2	56.8	61.4	50.4	38.3	40.6	44.5	45.4
Garlic	7.3	8.7	9.2	9.1	9.2	9.3	8.8	10.6	12.3	13.0

Source: NSS RA

Other crops

Potato is one of the essential crops in Armenia in terms of food security. Not surprisingly the production volume of potatoes is the highest as compared to other individual crops. Potato production has been experiencing growth during the last decade, although the areas under cultivation did not increase -

improved seed varieties are responsible for the increase in the productivity. Nearly 6.5 % of arable land in the country is used for growing potatoes. Most of the potato producers are smallholders that grow potatoes both for self-consumption throughout the year and to generate some income for the family. Like in the case of cereals, most of the potatoes produced in the country is coming from two regions – Gegharkunik and Shirak. The lowest volumes of production are recorded in Yerevan and Vayots Dzor.

Table 12 Potatoes production by regions from 2004 to 2013, thous. tons.

POTATOES (including seeds)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Republic of Armenia	576.4	564.2	539.5	583.9	648.6	593.6	482	557.3	647.2	660.5
Yerevan City	n/a	n/a	1.2	0.9	1.3	1.4	1.7	1.6	2.1	0.9
Aragatsotn Marz	n/a	n/a	33.5	33.6	34	34.2	34.3	36.2	38.1	39.3
Ararat Marz	n/a	n/a	26.6	26.8	32.8	28.9	24.3	24.5	27.5	24.2
Armavir Marz	n/a	n/a	47.1	53.5	63.5	53.2	32.3	42.9	52.3	35.2
Gegharkunik Marz	n/a	n/a	260	271.3	278	254.3	233.1	255.5	295.2	307.5
Lori Marz	n/a	n/a	43.5	56.9	54.5	55	31.8	38.9	54.5	72.7
Kotayk Marz	n/a	n/a	13.5	18.2	17.3	16.1	14.1	15.8	17.5	16.3
Shirak Marz	n/a	n/a	72.5	68.1	104.9	89.7	69.3	91	103	105.5
Syunik Marz	n/a	n/a	27.4	31.3	33.3	32.4	23.6	27.6	29.7	30.6
Vayots Dzor Marz	n/a	n/a	3.5	3.5	3.5	2.9	3	3.1	3.2	3.2
Tavush Marz	n/a	n/a	10.8	19.8	25.5	25.5	14.5	20.2	24.1	25.1

Source: NSS, 2004 and 2005 aggregate data is obtained from FAOSTAT database.

2.4.2 Animal production

Animal husbandry is responsible for about 40% of the gross agricultural output in Armenia, 93% of the animal output is generated by households, while the remaining 7% (mainly poultry) is produced by commercial farms. This explains why Armenia has a limited supply of fresh meat, which often is not very homogeneous; therefore meat processors cannot rely on locally produced meat and need to import raw meat from other countries.

Over the past 10 years the total number of animal heads has increased in all subcategories, except for horses, there was 11% decline in their numbers. The greatest increase is observed among pigs (70%), but this trend has not been stable throughout the 10 years. There was a noticeable decline in the number of pigs in 2008-2009 due to the outbreak of African swine fever in the northern area of the country.

The number of sheep steadily declined until 2010, and then increased by 32% in just 3 years. The reason for the decline was the falling demand for mutton in Armenia coupled with the growing exports of live animals to Iran (142,000 heads were exported only in 2009). This raised the price for mutton more than 2 times from 2007 to 2011. In response to the increased prices the production also grew.

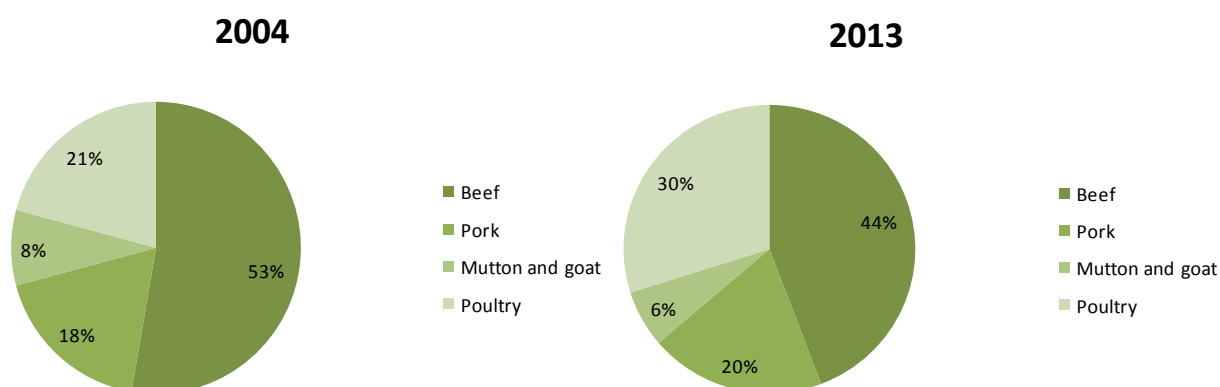
The general trend suggests that in 2013 people in Armenia consumed about 150% more meat than they did in 2004. Annual per capita consumption of beef increased from 14.7 kg in 2004 to 21.1 kg in 2013. Poultry per capita consumption nearly doubled during the same period (See Table 37 in Appendixes for production volumes and self-sufficiency).

Table 13 Livestock numbers in Armenia, 2004–2013

Number of animals (thous. heads)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Cattle (total)	565.8	573.3	592.1	620.2	629.1	584.8	570.6	571.4	599.2	661
of which cows	291	290.1	297.1	307.1	310.6	283	273.9	272.6	283.3	303.3
Pigs (total)	85.4	89.1	137.5	152.8	86.7	84.8	112.6	114.8	108.1	145
Sheep	628.5	603.3	591.6	632.9	637.1	559.2	511	532.5	590.2	674.7
Horses	12.2	11.9	12.3	12.6	11.8	11.3	10.8	10.1	9.9	10.8
Poultry	2052.6	1950.6	2003.3	2276.1	1915.3	2159.1	1966.6	1800.7	2310.5	2162.2

Source: NSS RA

Figure 5 Shares of meat consumption in 2004 and 2013.



Source: NSS RA

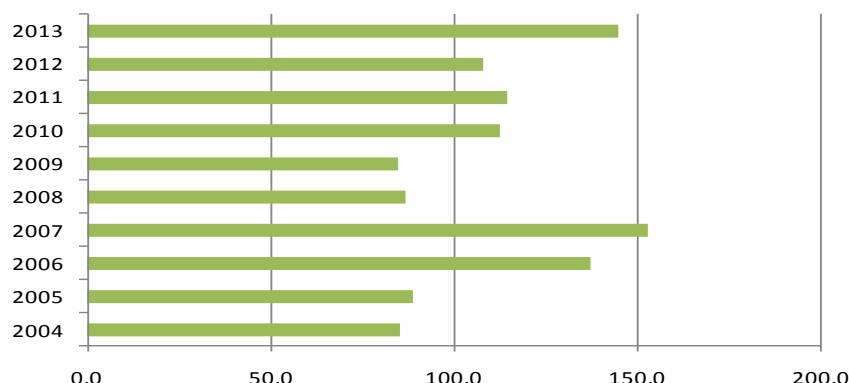
Animal production also includes milk, eggs and wool. Since 2004 milk production increased by nearly 10%, but this increasing trend was rather irregular. It lasted for the first few years until 2008, but then the difficulty of delivering milk to the collection points or to the final users, accompanied by growing beef prices acted as an incentive for slaughtering dairy cattle. So there is a noticeable decrease in cattle heads as well as a decline in milk production starting from 2009. The survey conducted for IFCN (International Farm Comparison Network) shows that the cost of milk production on an average sized dairy farm is much higher than the costs associated with other animal outputs (beef fattening). The decline in milk production also led to a decline in self-sufficiency for milk in the country. **Eggs** are mainly produced by poultry factories, although some village eggs can be found in the market. Nearly 30% of eggs on the local market are imported from abroad. The consumption of eggs has increased from 25.5 thousand tons in 2005 to 32.6 thousand tons in 2013. The egg consumption peak was recorded in 2010 (36.1 thousand tons), when the prices for eggs was artificially lowered nearly two times in order to draw the competing companies out of the market.

Cross-regional analysis shows that the two main regions for beef and milk production are Gegharkunik and Shirak. There are more sheep and goats in Gegharkunik and Syunik (Southern part of the country bordering Iran, where the number of sheep heads increased sharply after 2010 due to the exports of live animals to Iran). Two leading regions of pork production are Armavir and Kotayk - these two regions are located close to the capital where it is easier to find a market for pork. The following section presents a detailed discussion on animal output by separate product groups.

Pork

There are few large pig farms in Armenia, but the main producers of pork are smallholders.

Figure 6 Number of pigs in the RA from 2004 to 2013, in 1000 heads



Source: NSS RA

As mentioned above, in 2008 and 2009 there was a sharp decline in the number of pigs in the country caused by the swine fever outbreak. The disease affected the area of Northern Armenia (namely – Tavush and Lori) the most, since pigs are grazing in the wild there and were easily infected with the disease. The detailed distribution of pigs by region of Armenia can be found in Appendix 3 – Livestock in Armenia.

Table 14 Pork production and self-sufficiency in 2005-2013, thous. tons

Pork	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	9.4	14.1	13.3	7.5	7.2	7.9	9.4	9.5	12.6
Import	7.2	7.5	10.8	15.8	13.1	11.4	12.4	15.5	15
Export	0.2	0	0.1	0.1	0.1	0.1	0.1	0.2	0.4
Consumption	16.1	21.5	23.9	23	20.1	19	21.5	24.6	26.9
Self-sufficiency	57%	66%	55%	32%	35%	41%	43%	38%	46.3%

Source: NSS RA

The highest volumes of pork imports were observed in 2008, and the production volumes were the lowest in 2009. Table 14 above also shows that compared to 2006, the self-sufficiency of pork production declined from 66% in 2006 to 46.3% in 2013.

Pork consumption is not very stable throughout the year, it is moderate in the beginning of the year and is mainly consumed by the HoReCa sector. Pork consumption declines in spring, but increases during summer (pork barbeque is the main course during picnics and holidays). The volumes of pork consumed decline in fall, but then pick up during Christmas and New Year holiday season.

Poultry

Armenia used to be self-sufficient in poultry production during the Soviet period – the volumes of production were more than 6 times higher than in 2009²⁰. The self-sufficiency rate in 2013 was about 20% (See Table 15 below). More than 80% of poultry consumed in the country is imported mainly from the US and Brazil. During recent years volumes of poultry imported from China and Ukraine have increased.

Local poultry production underwent some changes in early 2010. The largest poultry and egg producer dumped egg prices by 50 %, which forced several smaller producers out of the market.

²⁰ EDRC publications, Issue 9 Feb. 2012, Prices and vulnerability in Armenia.

Table 15 Poultry production and self-sufficiency in 2005-2013, thous. tons

Poultry	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	4.6	5.1	5.8	6.7	5	5.4	5.7	8.3	8.2
Import	20	10.6	28.4	40.7	30	38.3	41.1	35.3	33.4
Export	0	0	0.1	0	0.1	0	0.1	0.1	0.2
Consumption	24.2	15.9	33.8	47.3	34.8	43.6	46.6	43.3	41.2
Self-sufficiency	19%	32%	17%	14%	14%	12%	12%	19%	19.8%

Source: NSS RA

Per capita poultry consumption in Armenia was 14.2 kg in 2013. The same indicator used to be 5.2 in 2006. The low levels of consumption were explained by the avian influenza panic during that year, when many consumers refused to buy poultry and farmers slaughtered their chickens (also after the panic). The decline in the consumption greatly affected poultry imports (decreased by nearly 50%). Production of local poultry has increased by 45% from 2011 to 2012. This is explained by the fact that although locally produced meat is high in price (a result of expensive imported feed), local consumers have a strong preference towards the locally produced poultry.

Beef and Veal

Beef production and consumption volumes are the highest in comparison with other categories in the meat market. Beef per capita consumption in 2013 was 21.1 kg. Almost all fresh meat consumed in Armenia is of local origin, while all processed meat products (sausages, hams, etc.) are made from imported meat.

Table 16. Beef production and self sufficiency in 2005-2013, thous. tons

Beef	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	34.4	40.4	43.3	49.3	49.6	48	48.2	47.6	53.6
Import	11.2	12	9.6	19.3	13.9	8.7	13.4	11.3	8.8
Export	0.8	1.7	1.9	0.9	0.4	0.3	0.1	0.6	0.2
Consumption	44	50.3	50.3	66.9	62.2	55.7	60.8	57.5	61
Self-sufficiency	77%	80%	85%	73%	79%	85%	78%	82%	86.2%

Source: NSS RA

Table 16 shows that during recent years beef consumption was the highest in 2008 (66.9 thousand tons), when people substituted some pork meat with beef. In 2010, the beef consumption was 55.7 thousand tons, and then steadily increased, reaching 61 thousand tons in 2013. The self-sufficiency ratio for beef is the second highest among other categories of meat (after mutton).

The consumption volumes of beef are not stable across the year – people consume relatively large volumes of beef in the beginning of the year until mid-spring. Then beef consumption declines and stays low throughout the late spring and summer, because of the availability of vegetables and due to the increase in the seasonal pork consumption. From autumn beef consumption increases again, reaching its peak in December.

Milk production

There are around 180 thousand dairy farms in Armenia, and 95% of milk (fresh cow milk) is produced by farms that have less than 7 cows. This means that there are very few big dairy producers that operate on a commercial basis, and most of the milk production can be characterized as subsistence farming. There are several milk collection points across the country, where the farmers can bring their milk and store it in refrigerated containers and where dairy processors can pick up milk in larger volumes.

Table 17. Milk production and self-sufficiency, 2005-2013, thous. tons

Milk	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	594.6	620	641.2	661.9	615.7	600.9	601.5	618.2	657
Import	113.7	81.8	79	125.3	66.4	94.3	128.8	134.8	133.6
Export	19.6	8.4	5.2	5.1	3.3	4.5	4.3	9	17.8
Consumption	613.1	623.8	616.1	673	579.1	692.1	675	673.3	672.7
Self-sufficiency	86%	89%	90%	85%	91%	87%	83%	83%	85%

Source: NSS RA

Milk production is highly seasonal – starting from the late spring until mid-September the production volumes may double, because cows are sent to pastures high in the mountains for grazing. Calving is also timed for spring in order to maximize milk production that uses cost free or low cost grass inputs. This contributes to the excess production of milk during the summer months and the shortage of milk during the winter months. As a result, milk prices are inversely correlated to the production - milk prices rise in winter and drop significantly during the grass growing season – from the late spring to the early fall.

Although there are many milk producers, Armenia is still not self-sufficient in milk production; most of the milk or milk powder imports occur in the winter months, when local production volumes decline. There was a decline in dairy exports from 2005 to 2009 due to stricter regulations towards food safety both in Armenia and abroad. After 2009, more and more local producers implemented HACCP to be able to compete for the market share in foreign countries, so dairy exports increased more than 5 times from 2009 to 2013.

Sheep and goats

Sheep and goat production is highly concentrated – the main producers are profit-oriented family farms. This is the only type of meat where Armenia is self-sufficient.

Table 18. Sheep and goat meat production and self-sufficiency, 2005-2013, thous. tons

Sheep and goats	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production	7.6	7.2	7.3	7.4	8.9	8.2	8.4	8.5	9
Import	0	0	0	0	0	0	0	0	0
Export	0	0	0	0	0	0	0	0	0
Consumption	7.5	7.1	7.3	7.3	8.6	8.2	8.3	8.4	8.8
Self-sufficiency	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: NSS RA

Table 18 above shows that the consumption of lamb/mutton has slightly increased over the past years. According to the statistics, there are no lamb and mutton exports from Armenia. Although there were no exports of the meat itself, nearly 25% of live sheep is being exported to Iran. Iran is a large consumer of lamb, but the animals have to be slaughtered according to the “halal” (permissible) Islamic ritual, that is why they prefer importing live animals. Mutton/lamb consumption volume is somewhat high in the beginning of year, reaching its maximum in spring, and sales are mainly implemented by restaurants. The consumption of particularly young lamb increases in the spring, reaching its maximum, then it slowly declines to minimum at the end of the year.

2.4.3 Organic production

After the collapse of the Soviet Union, the volume of chemical fertilizers used in agriculture in Armenia has decreased 6-7 times²¹, mainly due to the high prices of imported fertilizers. This hindered the development of organic agriculture, since the quality of food produced by farmers was very close to the organic production, and so there was no demand for organic food in the local market. Therefore the introduction of organic food for foreign markets was more reasonable. On the other hand, farmers have to use technologies and procedures that comply with the Codex Alimentarius requirements to be able to export organic food. As there was need for organic certification in the country, it led to the establishment of Ecoglobe (the first Organic Certification body in Armenia) in 2002. It provides organic control and certification services based on international requirements and standards. In 2008, Ecoglobe received an international recognition certificate issued by the German DAP agency, and in 2009 it was recognized by the USDA National Organic Project. This opened European and US markets for Armenian organic food producers. High value added production creates an incentive for processors to make investments in farming operations. Ecoglobe's list of certified crop producers, food processors and beekeepers includes: the Tamara Fruit CJSC, the Organica State non-commercial organization, ECOFARM demonstration farm, the Yerevan Beer CJSC, the SIS Natural CJSC and many others.

As a result of increasing awareness of organic food on the local market and abroad, during last two years Shen NGO recorded a noticeable increase in the prices of certain organic products; the price of apricots increased by 20%, the price of raspberries - by 65%, and the price of peaches – by 15%.

As of today there are numerous organizations that promote organic food production and marketing in Armenia. Shen benevolence NGO (Rural Development Agency in Armenia) and Green Lane agricultural development NGO provide consultancy and training for specialists in the fields of plant protection, animal husbandry and general quality control activities; CARD foundation, Swiss Development Agency and German GIZ have implemented several projects to support the organic producers' marketing activities.

To demonstrate the growth of organic agriculture in Armenia - in 2003 only 110 hectares of land were reported as cultivated under organic crops, in 2009 it reached 1695 hectares. Out of this, 300 ha are certified areas of agricultural land, 450 ha – in transition towards certified agricultural areas, and 800 ha – wild collection areas by Ecoglobe. The remaining 145 ha is certified by SGS Organic (which has been active in Armenia since 2011²²). Shen NGO reports 30 varieties of organic crops produced by 57 farms in Armenia that include apricots, peaches, plums, apples, grapes, cherries, pomegranates, berries, tomatoes, peppers, eggplants, cucumbers, cabbages and more. Mint, buckthorn and rosehip are mainly collected in the wild.

Nevertheless organic production in Armenia is in the infancy state. Nune Darbinyan, General Director of Ecoglobe believes that the volumes of organic production will increase with an increased awareness of the existence of organic products in the country and abroad. "International experience proves that at this stage organic producers and processors need some support from government", Ms. Darbinyan says, - "whereas in our case the organic production purely nests on the enthusiasm of producers". She can see sluggish, but rising interest towards organic products on the local market, and expects the volumes of production to increase in the future²³.

2.5 Prices, costs and income

2.5.1 Prices

Agricultural prices in Armenia are highly volatile because of weather conditions and the high dependency on temperature fluctuations. Armenia is located in the mountains of the South Caucasus and has a fairly even distribution of all four seasons throughout the year. The temperature in winter

²¹ Samvel Avetisyan "Agriculture and Food Processing in Armenia" p.85, Yerevan, 2010.

²² "Milestones of Organic Agriculture in Armenia" by Shen NGO, Yerevan, 2012 - <http://www.shen.am/PDF/Milestones%20of%20Organic%20Agriculture%20in%20Armenia.pdf>

²³ Interview with Nune Darbinyan, General Director of Ecoglobe, organic certification body in Armenia.

may be as low as -25 degrees Celsius, and in summer may go up to 40's. There is a high possibility of late frosts in March-April, when plants and trees are in bloom. Table 19 shows changes of agricultural output prices compared to the previous year. The striking difference in prices is noticeable in 2010, when a late frost in April almost destroyed most of fruits and the spring harvest of wheat and barley. Further increases in feed prices led to the increased costs in animal rearing and provided the incentive for slaughtering livestock. This tendency caused a shortage of milk on the market and resulted in increased dairy product prices in 2011. In 2012, however, most of the agricultural product prices went back to normal.

Table 19. Agricultural output price indices; nominal (previous year=100)

Republic of Armenia	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total agricultural output	109.6	90.7	111.9	103.4	99.2	87.8	132	117.1	95	99
Animals and livestock products										
Meat	117.7	106.6	99.5	100	113	102.1	140.7	120.7	100.3	97.3
Milk and dairy products	102.9	102.3	104.4	104.8	104.1	92.2	109.6	142.4	88.3	100.7
Eggs	105.5	101.1	104.3	105.7	98.4	99.3	97	119	97.1	110.2
Wool	111.5	108.5	117	121.9	113.9	88.3	103	131.5	89.6	97.2
Crop products										
potatoes and vegetables	99.1	95.7	137.6	106.8	91.8	78.8	142.4	114.2	87.5	110.1
Fruit, berries and grape	114.2	52.4	127.2	105.7	78.4	80.6	154.9	87.9	87.9	90.2
Watermelons	148.8	70.8	134.6	93.2	158.7	56.5	200.6	83.4	95.8	180.2

Source: NSS RA

The average consumer prices for mutton show a steep increase due to the increasing demand by the Iranian market. Consumer prices for such fruits as apricots and cherries stay fairly high because of the high demand for fresh fruits in Russia. The increase in the beef price in 2010 was caused by the increased demand for beef; people started using it instead of pork (consequences of Swine fever outbreak and the resulting shortage in the number of pigs).

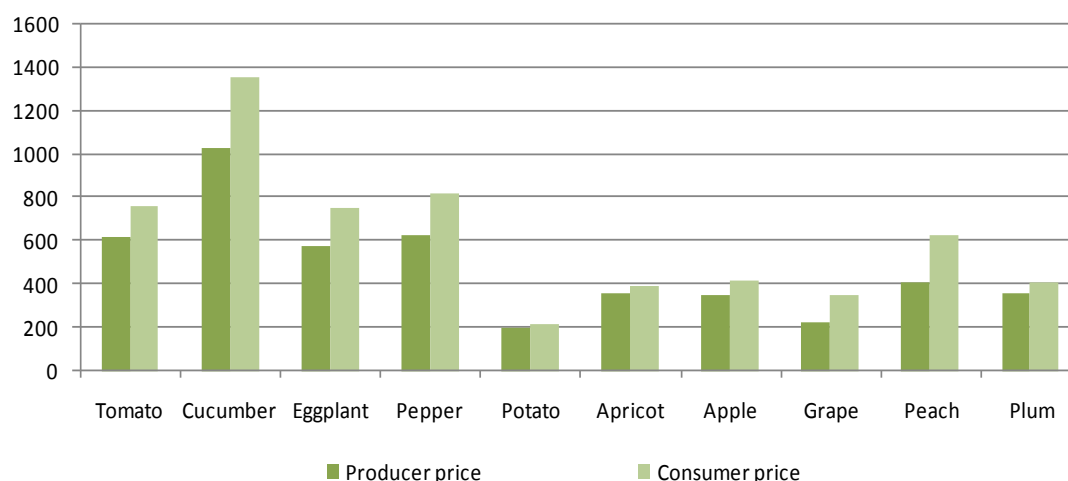
Producer and consumer prices for animal products are presented with the example of pork in the Figure 8. The highest gap in the prices was observed in 2009, when in response to African swine fever producers were ready to sell pork at a lower price than in the previous year. Consumer price also decreased slightly, but not more than producer price. Consumers' response to the epidemic and their willingness to substitute pork with some other meat lowered consumer price a little more in 2010. The industry recovered quickly and the consumer price for pork in 2012 soared up (43% increase compared to consumer price in 2010).

Figure 7 below shows the differences between producer and consumer prices for certain fruits and vegetables in Armenia in 2012. These data were collected within the scope of "Value chain analysis of selected farm food products in Armenia" conducted by ICARE Foundation for FAO in 2013²⁴. Surveys with supermarket managers revealed that on the average supermarkets impose higher margins on cucumbers and peaches, and lower margins on apricots and potatoes. The average consumer price of fruits and vegetables is 25-30% higher than the price paid by the supermarket to obtain those goods. This study also revealed that supermarkets prefer buying fruits and vegetables straight from the farmers to gain higher profits from the sales.

²⁴ FAO/ICARE, 2013 - Value chain analysis of the selected farm food products in Armenia.

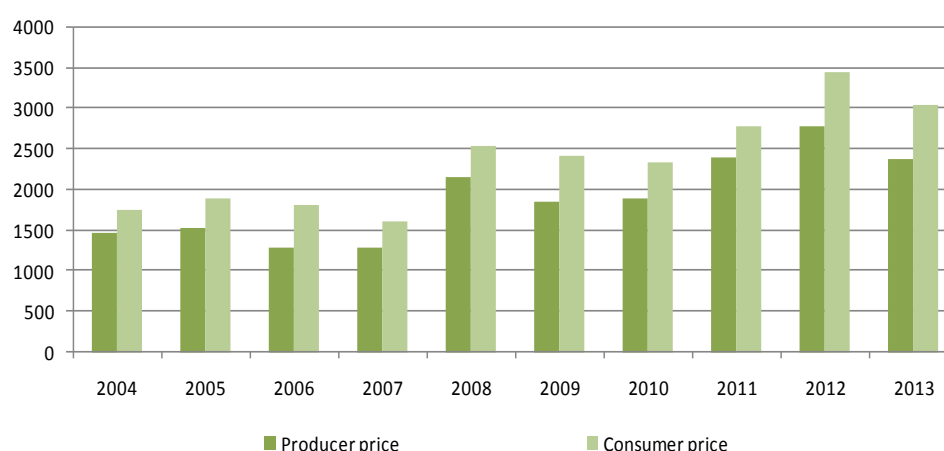
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Figure 7. Producer and consumer prices for selected fruits and vegetables in 2012 (410 AMD = 1USD)



Source: FAO/ICARE

Figure 8. Producer and consumer prices for pork from 2004 to 2013 (410 AMD = 1USD)



Source: NSS RA

2.5.2 Costs

Unfortunately official statistics in Armenia do not provide any data on farm costs, but relatively recent data on costs were obtained from the ICARE value chain analysis report²⁵. The study contains data on producer costs acquired through farmer surveys and expert interviews. The limitation of the study is that farmers did not include labor costs, unless the labor was outsourced. Costs per one kg of a particular agricultural product in Armenian Drams were calculated as follows:

- Potatoes – 47.2 AMD/kg (0.12 USD)
- Cucumbers – 44.8 AMD/kg (0.11 USD)
- Eggplant - 22 AMD/kg (0.05 USD)
- Pepper - 23 AMD/kg (0.06 USD)
- Apricot- 61.1 AMD/kg (0.15 USD)
- Peach – 61.1 AMD/kg (0.15 USD)
- Plum – 61 AMD/kg (0.15 USD)
- Grapes – 84 AMD/kg (0.20 USD)
- Wheat – 88.5 AMD/kg (0.22 USD)

²⁵ FAO/ICARE, 2013 - Value chain analysis of the selected farm food products in Armenia.

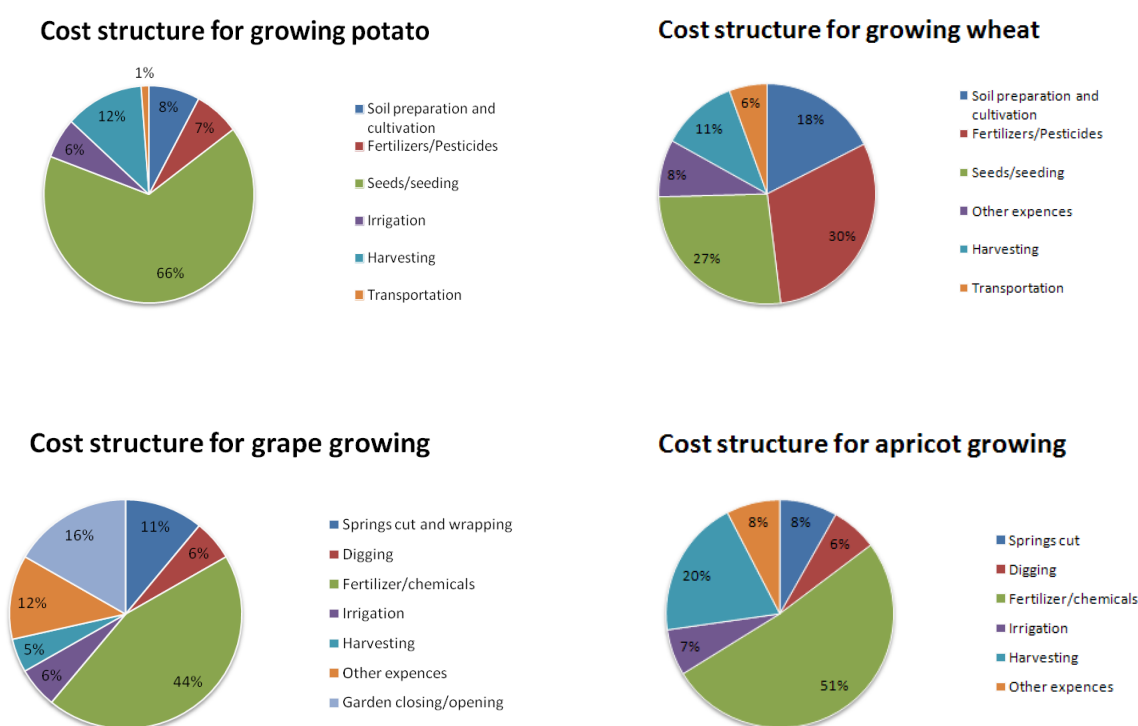
A study on milk prices was conducted by ICARE for the International Farm Comparison Network (IFCN) in April-May, 2014. The methodology for the data collection was provided by IFCN, and TYPICAL software was used to calculate milk costs for a farmer. The shortcoming of this study is the individual farm approach that gives different costs for different farmers (even the same size farmers). Within the scope of this study, the costs for producing 1 liter of milk (including family labor and opportunity costs) is to about 0.4-0.45 USD for a farm with 5-6 cows, and to about 0.23-0.24 USD for a farm with 35-50 cows.

The costs of honey production were assessed by the EV consulting value chains study in 2014, but the cost of 1 kg of honey referenced in the study (1.09 USD) was calculated by the DAI ASME project in early 2000's²⁶. The EV Consulting report mentions that experts believe the costs for producing 1 kg of honey today will be from 1.2 to 2.4 USD.

Crops

Several commodities were selected to present a detailed cost structure. As the figure below illustrates, nearly 66% of the material cost for growing potatoes refer to seeds and the sowing process, while in the case of another vital commodity, wheat, the seeds and sowing costs account for only 27% of the total material costs, furthermore, wheat requires higher expenses for fertilizers and pesticides as well as for soil preparation and cultivation.

Figure 9. Cost structure for selected agricultural products



Source: ICARE Foundation and FAO survey

Agricultural sector in Armenia is characterized by a large number of small farms, which does not enable an average farmer to utilize economies of scale. Cost calculations will have to be very different for a big commercial farm versus small farmer. A study conducted in 2011 by ICARE research team implemented cost structure analysis for certain agricultural commodities, including wheat and tomatoes. Wheat and tomato growers were asked to identify individual cost components and the corresponding amounts in AMD for one hectare of land (average farm in Armenia is estimated to have 1.4 hectares of land). The results of the study are presented in the tables below.

²⁶ "Armenian Honey - The Status of Honey Marketing, Honey Quality and Quantity in Armenia - http://pdf.usaid.gov/pdf_docs/PNADD004.pdf

The application phosphate and potash fertilizers are preferable, but not implemented. This would add another 100,000 AMD to the cost, and would make fertilizers the most expensive category in the most structure of growing wheat. Given the application of the fertilizer the total expenses would add up to 454000 AMD and expected harvest would be about 5 tons of wheat from one hectare. The cost for one kg of wheat would be 90 AMD. At the average selling price of 130 AMD per kg of wheat, the farmer will have 200 000 AMD, which is equivalent to about 500 USD. It has to be mentioned that the proposed productivity (5 tons per hectare) is not possible to achieve in any region of the country. The cost structure and components will look different for other products. The numbers for tomatoes (the most planted vegetable in Armenia) are presented below.

Table 20. Cost structure for growing one hectare of wheat

Cost elements	Cost (AMD) 2011
Till, cultivation	65000
Fertilizers	49000
Seeds	60000
Sowing	20000
Preparing the bed	25000
Irrigation expenses	40000
Pesticides and herbicides	18000
Land tax	12000
Harvesting	45000
Transportation	10000
Total expenses	354000

Source: own survey

Table 21. Cost structure for growing one hectare of tomatoes

Cost elements	Cost (AMD) 2011
Tilling	40000
Double-tilling	40000
Cultivation	45000
Fertilizers	290000
Manure and turf mixture and labor for laying it	80000
Seeds (35000)	175000
Sowing	10000
Irrigation	20000
Plant treatment & herbicides	11000
Weeding	40000
Replanting small plants on the field	96000
First irrigation on the field	20000
Irrigation (10-15) times	190000
Cultivation (3 times)	60000
Weeding	180000
Spraying and applying pesticides	105000
Harvest	350000
Sorting and transporting (labor included)	480000
Land tax	12000
Other expenses (not to exceed 10%)	200000
Total expenses	2444000

Source: own survey

Planting and harvesting this commodity requires higher level of human involvement, so cost components such as harvesting, sorting and packing, weeding and replanting add up to nearly 30% of the cost. The proposed expenditure will result in 70 tons of harvest, which means that the cost for one kg of tomatoes will be about 40 AMD. At 45 AMD producer price, the farmer will have 350000 AMD profit (an equivalent of 860 USD).

Animal production

Dairy farm cost data obtained through a typical farm study implemented within the scope of the data collection for IFCN (International Farm Comparison Network) in 2014 divides the costs for milk and beef production into fixed and variable costs. Fixed costs include:

- the rental value (or opportunity cost) of the land for feed crops or pastures,
- depreciation and maintenance for barn building and farm machinery,
- Land and property taxes,
- Management expenses, including phone and transport.

Examples of variable costs were:

- Purchase of feed or time spent for harvesting the feed,
- Veterinary products and fees,
- Per cow fees paid for herd management.

Some costs including electricity, milking supplies, barn cleaning and manure removal had both fixed and variable components.

2.5.3 Farm income

Data on farm income have been omitted by official statistics, but the survey conducted by the ICARE foundation within the scope of the value chain analysis in 2013 makes an attempt to calculate farm income from one hectare of land under a specific product. Since the average farm size in Armenia is estimated to be about 1.4 hectares, this calculation should reflect a fairly good estimate of farm income. Although it needs to be mentioned that the results are not representative for the country, since only a few farmers were surveyed. Table 22 below summarizes farm incomes for selected products per 1 ha (ranked by profitability).

Table 22. Farm incomes for certain products (calculated for 1 hectare of land)

Product type	Harvest from one hectare (kg)	Farm income (USD)
Peach	30000	11387
Pepper	35000	10563
Apricot	30000	9978
Grape	25000	7066
Eggplant	50000	5707
Plum	30000	3137
Cucumber	20000	2185
Potato	35000	701
Wheat	2600	570

Source: ICARE foundation survey, 2013

As regards incomes of livestock production and milk producing farms, the survey conducted for the IFCN revealed that a farm with 5 cows selling only milk will cover the costs of animal rearing and milk production, but will have negligible profits (roughly 40 USD). After 3-4 years of operation the farm will be able to sell 2-3 cows per year, which makes an average of 400-600 kg beef per year. The estimated average dairy farm income will be almost 3000 USD per year²⁷.

²⁷ Own calculations

Both crop and livestock farm incomes were estimated for small sized farms only. The IFCN survey proves that a farmer with 35 cows was able to generate higher incomes, so it can be inferred that larger size farms will utilize economies of scale and will have higher productivity and, correspondingly, higher incomes.

3. SITUATION AND DEVELOPMENT OF UPSTREAM AND DOWNSTREAM SECTORS

3.1 Input production and use

3.1.1 Input production

Input industries for **animal products** include:

- Feed producers or importers
- Veterinary services
- Breeders / import of breeds

In the market of feed producers the obvious leader is Manana Grain Holding. The influence of this company has increased even more after the acquisition of Yeghvard Compound Feed Factory in 2009. The company is planning to expand and open a grass flour factory, where they will start the production of corn cuttings.

There are several feed importers, such as ASTI Trading LLC, Arndane LLC and Papoghli industrial chemicals importer. There is also Arax poultry factory LLC that has its own poultry and pig compound feed production.

Veterinary services are provided by individual private veterinarians, and by a community veterinarian who may be responsible for the state funded vaccinations. The CARD Foundation has farm and veterinary service centers in the regions that are providing artificial insemination services. The Government of Armenia has the program on improving the local breeds; within the scope of this project pure breed cows are imported and distributed to partner farms that act as breeding agents.

Input industries for **crops** include:

- Seed providers,
- Providers of fertilizers, pesticides and herbicides,
- Irrigation systems,
- Equipment/machinery.

Most small grain producers use part of their produced grains as seed in the next growing season. There are also seed producers' associations that supply locally produced seed to farmers. In 2012, the Ministry of Agriculture started the program for subsidizing grain production in Armenia; within the scope of the program farmers can get a kg of seeds and need to return 2 kg of grain upon the harvest. Large importers of seeds are the Mancho group (wheat imports) and Artargo LLC (crops, vegetables seeds, plants for nursery). Local producers of wheat seeds are Gyumri and Sisisan Breeding Stations, Scientific Center of Agriculture state non-commercial organization as well as Armenian Technology Group with its Seed Producers Association. There are relatively few control mechanisms for high quality seeds and plant imports, which is the reason why sometimes farmers end up getting infected seeds or plants, as was the case in the Kotayk region where a nursery growing raspberries was infected and had to discontinue its operation. Vegetable seeds and plants are also produced locally in greenhouses; particularly seeds for tomatoes, cucumbers and peppers. Pland Production Scientific Center is the largest supplier of locally produced vegetable seeds.

Data on the production of fertilizers, pesticides and herbicide in the country is not available, so the volumes of production should be negligible (with exception of organic fertilizer/manure). There are several companies that import agricultural chemicals - the largest one is Artargo LLC that imports fertilizers, herbicides and pesticides. Other fertilizer importers are Chemimpex, Healthy Plants LLC and Agroinput. Among the stores that only sell fertilizers, pesticides and herbicides are Abio, Magic Flora, My garden and Brabion Flora Service.

Irrigation in the country is mainly available in the Ararat and Armavir regions where farmers mainly grow high value added crops - vegetables and fruits. Areas that are not irrigated mainly concentrate on wheat growing, since this crop has minimal water requirements, but the productivity is very low. The FAO Aquastat estimate of water requirements for Armenia in 2006 was 0.624×10^9 cubic meters per year²⁸. The land composition did not change much since then, so the estimate may still be valid, but data on actual water used for irrigation are not available.

Agricultural machinery in Armenia is getting obsolete. The majority of the tractors in use were produced during the Soviet times. There are several importers of tractors listed in the country, namely IKO Machinnery , Megeryan Shin CJSC, CARD, Belaz Caucasus TransService LLC, Galopper and SpetsMash. Armavir Machine-Tool Factory is listed in yellow pages as a mini-tractor producer, but after initial contact with them, it was clear, that their production is suspended. The “Chinvan” enterprise that operates in Vanadzor, Armenia, is a joint Armenian-Chinese venture that imports tractor parts to Armenia and assembles the machines here, but the volumes of production are very small. The MoA has imported some tractors from China and Japan within the scope of the aid project.

3.1.2 Input use

During the Soviet times the fertilizer use was about 500 kg per hectare of land. Today this number is estimated to be around 200 kg per hectare. There is no production of either type of fertilizer in Armenia, so all fertilizers used in the country are imported. Data on imported fertilizers were provided by the Ministry of Agriculture.

Table 23 Fertilizer imports to Armenia in 2004-2013 (tons)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
N. total	48697.5	46208.2	57921.1	26808.4	24331.3	39541.3	29775.6	35946.9	57446.8	58599.4
P2O5.total	0	0	0	0	23	0.3	34.2	415.5	65.6	559.4
K2O. total	9	15.5	0.5	12	36.3	5.2	4	3.9	514.2	39.3
Complex	2359.3	228.8	471.5	373.6	212.2	528.7	1699.3	466.2	1643.5	1416.4

Source: Ministry of Agriculture, internal reports

All fertilizers are used for agricultural needs, with the exception of nitrogen fertilizer that is used by mining sector companies as an explosive. In 2012 and 2013 the Ministry of Agriculture provided nitrogen fertilizers to farmers through government subsidy program. Farmers were entitled to get nitrogen fertilizer for nearly 15 USD per 50 kg bag, and the rest (about 4.5 USD) was subsidized by the Government. Ministry of agriculture reports that this subsidy was provided in total for 23.3 tons and 37.6 tons of nitrogen fertilizer in 2012 and 2013 respectively²⁹. From the interview with Karine Yesayan, who heads the Department of Horticulture Development, it was clear that since the prices for subsidized nitrogen fertilizer is lower than the market price, farmers do not have incentives of buying nitrogen fertilizers from other sources.

Herbicide and pesticide use is much lower than required³⁰. Some data on insecticide, herbicide and rodenticide imports was extracted from the FAOSTAT database. Since there is no production of either chemical, again, we may assume that quantities imported may represent quantities used.

Table 24. Import of insecticides, pesticides and rodenticides (tons)

	2004	2005	2006	2007	2008	2009	2010
Insecticides	30.68	41.27	43.09	63.8	73.02	46.67	51.95
Herbicides	18.45	41.94	28.14	21.06	32.84	48.7	56.81
Rodenticides	9.79	15.2	18.4	16.0	14.4	n/a	33.16

Source: FAOSTAT- Official data reported on FAO Questionnaires from countries

²⁸ FAOSTAT database - <http://www.fao.org/nr/water/aquastat/data/query/results.html>

²⁹ <http://minagro.am/public/uploads/2014/04/ajakcutyan-cragir.pdf> - ministry report on subsidies in Agriculture.

³⁰ World Bank (2012), “Armenia. Agriculture and rural development policy note”

Most of the agricultural machinery in Armenia has not been replaced since the Soviet times. There are some imports of tractors and machine parts in the recent years, but the quantities are very small. “Chinvan” a joint Armenian-Chinese tractor manufacturing plant in Vanadzor³¹ started its operation recently and has somewhat managed to contribute to the replenishment of tractors in Armenia (nearly 1000 tractors assembled, 40-50 of which is intended for export to Georgia). BelAr Armenian Belorussian JV is importing tractors and spare parts and giving them to farmers on a cost basis. The data on tractor availability and numbers obtained from the FAOSTAT show that in 2004 the total number of tractors was 14,295 and it has slowly increased to 14,777 by 2010. More recent data on agricultural machinery and the share of those in working condition is presented in the table below.

Table 25. Agricultural machinery in the country as of 01/01/2013

Type of the machinery/equipment	Number	% of those in working condition
Cultivator	2210	85.9
Plough	3809	89.9
Seeder	1866	86.5
Tractor	14683	79.2
Truck	15294	75.9
Combine harvester	1362	73.8
Tractor trailer	6075	87
Tractor lawn mower	1971	85.9
Winnowing machine	432	84.3
Baler	1524	86.2

Source: NSS

The last, but not least important component of inputs is irrigation. In 2010 the total area equipped for irrigation was 208 thousand hectares, out of which only 155.2 thousand hectares are actually irrigated³². Nearly 73% of all water used in agriculture was rain water and collected rain water or snow (ARD policy note). Only about a quarter of water used in agriculture comes from irrigation canals. Furthermore, nearly 80% of the irrigation systems currently in use were established during the Soviet times and were meant to be used by large farms (up to a few hundred hectares), whereas after land privatization the average farm size was about 1.4 hectares. In addition, most of the irrigation systems is based on large electric pumps that are rather inefficient for small farms because of high electricity costs associated with pumping. Needless to say that most of the water supply system has deteriorated and needs to be replaced.

Cost of irrigation water in Armenia is estimated to be from 17 AMD (0.04 USD) to about 30 AMD (0.073 USD) for the cubic meter of water, but the government subsidizes all irrigation expenses that are above 11 AMD (0.026 USD). This fact does not really contribute to the efficient use of irrigation water. Agriculture and rural development policy note composed by the World Bank in 2012 prioritizes water usage effective practices and suggests the need for urgent changes both in water usage schemes and in the infrastructure:

- The big pumps are to be replaced with the smaller, more energy efficient pumps that will also minimize irrigation water losses for small farms,
- Current irrigation and drainage systems need to be rehabilitated to be more efficient

³¹ World Bank (2012), “Armenia. Agriculture and rural development policy note”, page 46.

³² World Bank (2012), “Armenia. Agriculture and rural development policy note”, page 31.

- Building new reservoirs, such as Marmarik Reservoir (that has the capacity of 25 mln cubic meters) completed with the support of the World Bank, can be vital in the light of the anticipated climate changes
- Water price subsidies need to be gradually removed to create an incentive for efficient water use and bring forth innovative technologies such as drip irrigation system.

3.2 Food industry

Agriculture and food processing generate around one third of Armenia's GDP. Traditionally climate conditions in Armenia are favorable for fruit and vegetable growing, which implies that developed agricultural processing can boost the country's economy.

The food industry can be divided into 2 big sub components:

- Food production and marketing: players of the value chain from the farm gate to the consumer,
- Support activities.

Support activities include education, legislation, financial services and credit, and were discussed earlier in this study.

Food production and marketing starts at the farmer level; it is important to remember that subsistence farming is not included in the food industry, so farm production will be represented by big commercial farms. The number of these farms is not big and neither are the volumes produced. Big commercial farms can be found only in poultry production, some in pig-breeding and some also in growing of berries and vegetables (greenhouses). Large volumes of activities and incomes generated within the food industry are dispensed to food processing and marketing. During the Soviet period Armenia had large food processing plants in the Tavoush, Lori and Syunik areas. Armenia has produced canned fruits and vegetables, as well as beverages, including vodka and brandy for many years. The volumes produced were exceeding self-sufficiency levels, so production was exported to other Soviet Republics. Several years after the collapse of the Soviet system, food processing levels were very low, but today this becomes one of the leading sectors of the economy.

The employment and turnover dynamics for different sectors of the food industry analyzed in Figure 10 and Figure 11 show that employment in crop and animal production, hunting and related activities declined by nearly 12 % from 2010 to 2012. This could be caused by very high migration rates, especially from rural areas. The turnover in these sectors increased in the same period – which could be the result of increasing prices and movement towards higher value-added production. If we consider the employment as an input for value creation and the turnover in the industry as an output, then looking at the figures we could conclude that crop and animal production related activities are becoming rather productive. Employment in the wholesale and retail sectors increased in recent years and so did the turnover. There was a significant decline in the turnover of retail and wholesale sectors in 2009, caused by the global financial crisis, and supported by production fluctuations in the country.

The two figures below illustrate that the highest employment and turnover are associated with crop and animal production. Manufacturing and service activities lag behind and still have room for improvement. If we compare the employment in the first two sub-sectors, we can see that the number of people involved in crop and animal production is 4-5 times more than in manufacturing, but the turnover is only about 1.5-2 times higher. This suggests that farm labor is not used efficiently and some of it could be substituted by machinery for better results.

Figure 10. Employment distribution by food industry sectors (1000 people)

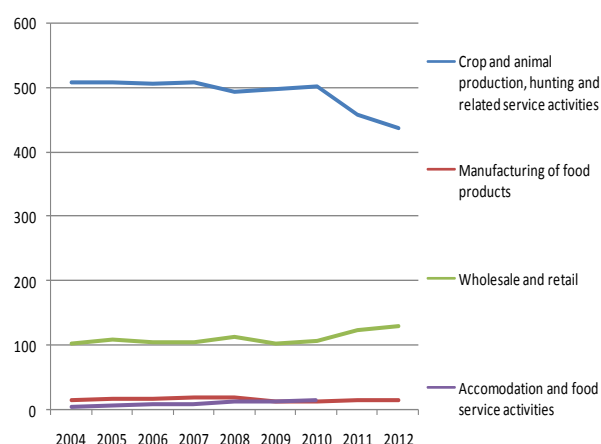
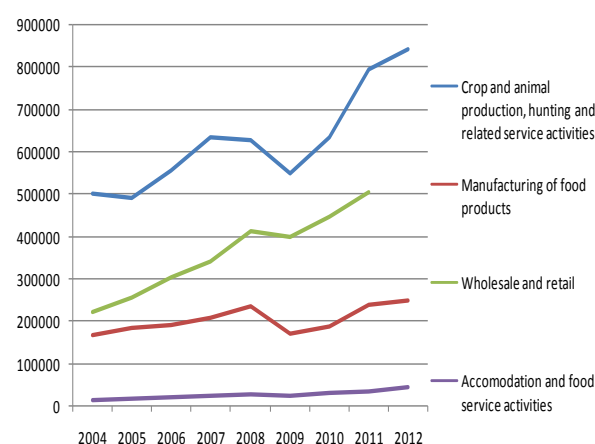


Figure 11. Turnover by food industry sectors (mln. AMD)



Source: NSS

3.2.1 Food production

Based on NACE Rev.2.0 at three digit level the food production and processing is divided into 11 categories:

10.1 – Processing and preserving of meat and production of meat products.

10.2 – Processing and preserving of fish, crustaceans and molluscs.

10.3 – Processing and preserving of fruit and vegetables.

10.4 – Manufacture of vegetable and animal oils and fats.

10.5 – Manufacture of dairy products.

10.6 – Manufacture of grain mill products, starches and starch products.

10.7 – Manufacture of bakery and farinaceous products.

10.8 – Manufacture of other food products (sugar, tea and coffee, seasoning).

10.9 – Manufacture of prepared animal feeds.

11.0 – Manufacture of beverages.

12.0 – Manufacture of tobacco products.

Manufacturing of prepared animal feed (10.9) is not performed in Armenia yet, although some poultry producers manufacture their own feed and are able to even sell some. The Manana Grain company has recently announced an intention to produce fish feed³³, as this has very high import taxes and buying locally produced feed will be more cost efficient in the future.

The other 10 categories were analyzed by America Consulting in 2012³⁴. The state of the food processing sub-sectors and the development potential are summarized by America Consulting in Table 25.

Due to the increase in the processing of metals, minerals, chemicals, rubber and plastic (after 2005), the share of food, beverages and tobacco manufacturing in the total processing dropped from 54% in 2004 to 47 % in 2005. By 2013, the previous position was recovered due to the increases in the processing volumes of high value agricultural product (brandy, wine industry, dried fruit production, fruit preservation and vegetables). Manufacturing volumes of food, beverages and tobacco have showed an increasing trend over the recent years, but the year-on-year volumes are quite volatile. Naturally, in the years of low yield (2010) the processing volumes are also low. Record high levels of fruits and vegetables

³³ <http://aquaculturedirectory.co.uk/armenia-starts-fish-feed-production/>

³⁴ http://www.america.am/img/Food_processing_sector_Research_Report_eng.pdf

were procured by processing plants in 2012, when the weather conditions were favorable for fruit and vegetable growing.

Table 26. State of the food processing sub-sector and the development potential

Developed sub-sectors (large exports, minor imports)	Developing sub-sectors with high growth potential	Sub-sectors covering only domestic market	Import prevailing subsectors
11.0 Manufacture of beverages	12.0 – Manufacture of tobacco products	10.5 – Manufacture of dairy products	10.1 – Processing and preserving of meat and production of meat products
	10.3 – Processing and preserving of fruit and vegetables	10.6 – Manufacture of grain mill products, starches and starch products	10.4 – Manufacture of vegetable and animal oils and fats
	10.2 – Processing and preserving of fish	10.7 – Manufacture of bakery and farinaceous products	10.8 –Manufacture of other food products (sugar, tea and coffee, seasoning

Figure 12. Share of food processing and tobacco industry in the total processing

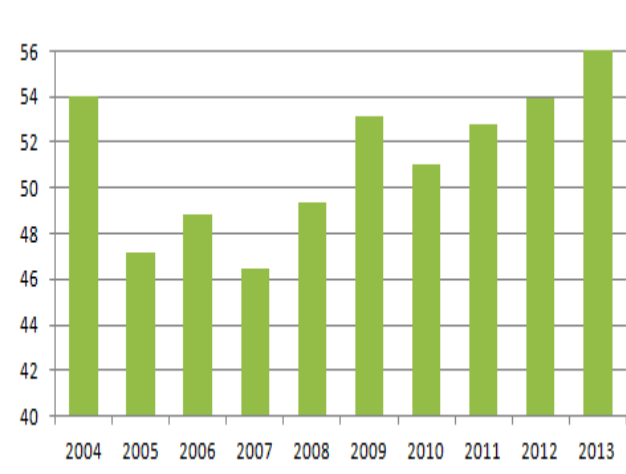
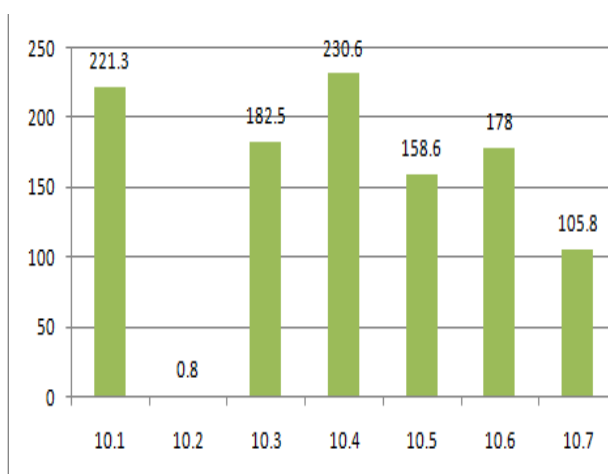


Figure 13. Changes in processing volumes from 2005 to 2011



Source: NSS RA

Compared to 2005, in 2011 processing volumes of vegetable and animal oils and fats, as well as meat and meat products have increased more than 2 times, while the processing of fish has nearly stopped. Most of the fish exporters simply export fish in refrigerated containers packed in boxes with ice.

3.2.2 Structure of the food sector

Beverages

Main industry that generates the highest revenues among agricultural production and processing is the manufacture of beverages. Sales of brandy, vodka and wine are contributing greatly to Armenia's trade balance and agri-food GDP. Among the biggest players are "Ararat" Yerevan Brandy Company that was taken over by Pernod Ricard, and Yerevan Ararat Brandy Wine Vodka factory that is well known for its "Noy" brand. Wine production has accelerated during the recent years. Government of Armenia

considers wine production as strategically important sector of the industry, thus encouraging new entrants through low licensing fees (wine producer pays about 60 USD per year, while brandy or vodka producers pay about 33,000 USD per year).

Beverages industry is not limited to strong alcoholic beverages; Armenia has a long history of beer production. Today Armenian beer producers “Gyumri”, “Kilikia”, and “Kotayk” are mainly selling on the local market, although “Kilikia” has moderate exports of beer and non-alcoholic beverages mainly to Russia.

Euroterm CJSC was established in 1998 and nowadays is one of the leading manufacturers of natural juices, nectars and drinks, as well as fruit preserves and canned vegetables in Armenia under NOYAN trademark.

SIS Natural CJSC is another well-known producer of juices in Armenia. Since its foundation this company had introduced wide variety of soft drinks, including “Yan”, “SIS” and “Jusis”, which are well-known and popular by consumers. Each brand is focused on various target audience. Company claims to be distributing drinks to the USA, Russia, Ukraine and other CIS countries; also some of European countries such as Hungary, Belgium, France and the Czech Republic.

Yerevan Zovq Factory OJSC is another leader in the production of beverages in Armenia. The most popular product of this Company is “SIL Maaza” mango juice (manufactured from imported mango fruit pulp). The company also produces tomato, rose-hip, apricot, peach and grape natural juices using the domestic raw materials. All of these products are produced under the brand name “Zovq”.

Jermuk Group CJSC (founded in 1999) is the largest producer of mineral and spring water in Armenia. At present, the company bottles mineral and spring water of the brands “Jermuk” and “Byuregh”. Jermuk Group is the only water producer in Armenia, who has obtained EU certificate of conformance allowing to export production to the EU countries. Jermuk mineral waters are also known in Russia, Ukraine and Georgia.

“RRR” Mineral Waters Plant CJSC acquired the famous mineral water plant “Bjni” in 2010 and became one of the leaders in the Armenian market, offering higher quality range of products. The most popular brands of this company are mineral water “Bjni” and spring water “Noy”.

Dairy

The biggest dairy producers in Armenia are “Ashtarak-Kat” and “Doustr Marianna”. These two producers occupy the biggest share of the dairy market in Armenia³⁵ The state commission for the protection of the economic competition reports that the share of these two companies accounts for 85% of sour cream sales, 60% - of pasteurized milk sales and 68% - of traditional yogurt sales³⁶.

Ashtarak-Kat (founded in August 1995) is one of the leaders in Armenian dairy sector, it has 3 factories in different locations. Ashtarak Kat Company cooperates with several thousand farms in Armenia, from which they collect milk for processing. Company produces wide variety of dairy products, including milk, sour cream, traditional yogurt (matsoun), strained traditional yogurt, curd, butter, glazed curd, kefir, tan, ice-cream and a variety of traditional Armenian cheeses.

“Doustr Marianna” LTD (founded in 1997) stands out brightly for its new assortments of dairy products, and at the same time matches all dairy products produced by its closest competitor “Ashtarak-Kat”.

LTD “Tamara” (founded in 1988) shares the Armenian market of dairy products with previously mentioned companies. The production of this company has a great demand both in Armenia and abroad. The production is exported to the USA and Russian Federation. The Company produces about 90 types of ice-cream, 30 varieties of pastry, 15 types of dairy products and yoghurts.

³⁵ <http://www.yerkirmedia.am/?act=news&lan=en&id=4279>

³⁶ http://competition.am/uploads/resources/cucak_dominant_20_10_13.pdf

Sweets

Grand Candy JV Co LTD is the largest chocolate producer in Armenia, and can be considered among the largest companies in the Armenian food industry. This company operates in many food sectors such as dairy products (ice cream), confectionery, bakery and so on. The company produces 38 names of pomade, praline, wafer and crème chocolates. With 17% market share “Sovrano” LLC has the second place on the market, according to the state commission for the protection of the economic competition.

Pastry

“Talgrig” is the Armenian largest pasta producer. This company introduced the brand name “Pasta Imperia” which consists of 30 types of pasta, including the most popular type of macaroni products, the “Tatarboraki” and “Sovetskaya”.

“Shant” company initially was producing ice cream “Shant” and chocolate products, but after 2007 the founder of this company spun out a new enterprise - “Elit Shant” that operates in 6 major sectors: ice cream, flour confectionery, sugar confectionery, production of drinking water and lemonade.

Processed meat

Fresh meat supplied by local meat producers is not sufficient to cover demand by meat processors and this is the reason why all meat processors rely on imported frozen meat, which is cheaper and also more homogeneous.

The leading meat processing companies in Armenian market are “Bacon Product” Co. Ltd, “NatFood” meat processing factory CJSC, and “Bari Samaratsi” LLC.

“Bacon product” Company (founded in 1995) is one of the largest providers of processed meat products. Since 2006 this company is operating using a high-tech production machinery and the whole production process is controlled by computer programming which minimizes the human factor in the production process. Its main products are sausages, small sausages and convenience food. Along with the manufacture of traditional meat products, “Bacon Product” also produces specific types of Italian and Spanish sausages.

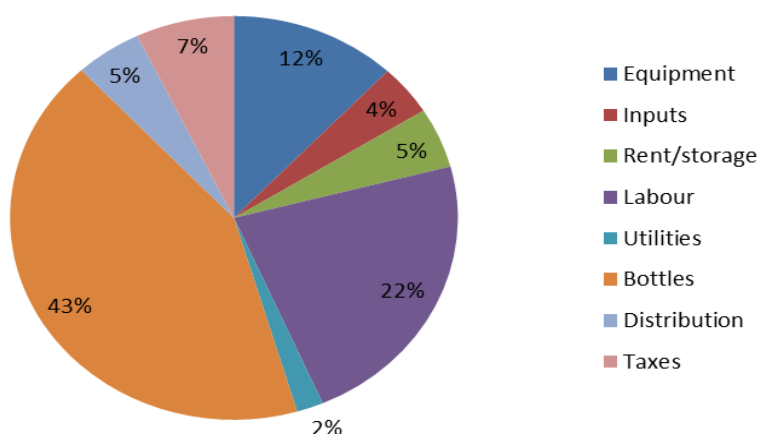
“NatFood” meat processing factory has the brand “Biella” (sausages) that is well known on the local market for 12 years. The other popular brand of this company is “Ferma” (raw meat products).

3.2.3 Prices, costs and performance indicators

Processing costs and prices for finished goods vary greatly even within the same commodity groups. For the purpose of this study a small bakery in the suburb of Yerevan and a winery were approached.

Cost structures for the winery are presented in the Figure 14 below.

Figure 14. Cost structure of the winery



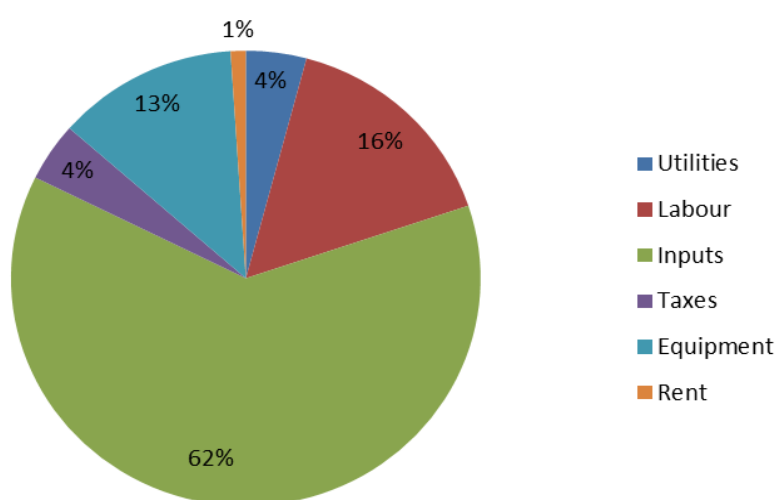
Source: own research

The figure shows that the sizeable portion of costs is caused by expenses on bottles. The winery management recognized that the types of bottles used did not have the best design, otherwise the proportion of costs on bottles could reach as high as 60% in total cost structure. Next biggest cost category is the labor. Workers are paid an average of 10 USD daily, and the salary of the chief wine-maker can be as high as 100 USD per day in the local winery. It can also be mentioned that some wineries in Armenia invite wine technologists from abroad.

At an average price of 1500 AMD for one bottle of wine, running the winery would allow entrepreneurial profit that is a little higher than the costs. In general price for local wine in Armenia ranges from 2 USD to 50 USD per bottle.

As opposed to the winery, the biggest cost category in the bakery is inputs (See Figure 15). Inputs make up 62% of total costs.

Figure 15. Cost structure of the bakery



Source: own research

Here also the second largest category is labour. Labour costs highly depend on experience. Bakery employee can be paid starting from 8-10 USD per day for non-skilled works up to 60 USD per day for designing and making cakes.

Prices for 1 kg of finished goods in Armenia can range from 1.8 USD to 25 USD. Profits in the bakery studied were much lower than in the winery.

3.2.4 Food law

The Republic of Armenia law on Food Safety is the main document that sets food safety requirements and regulates all activities regarding food production, packaging and inspection. It was put into force in 1999 and was amended in 2005 after Armenia became a member of the WTO. The law on Plant Protection & Plant Quarantine (accepted in 2000) regulates the relationship between farms, organizations and the state agencies in the process of importing, exporting and managing plants of products of plant origin.

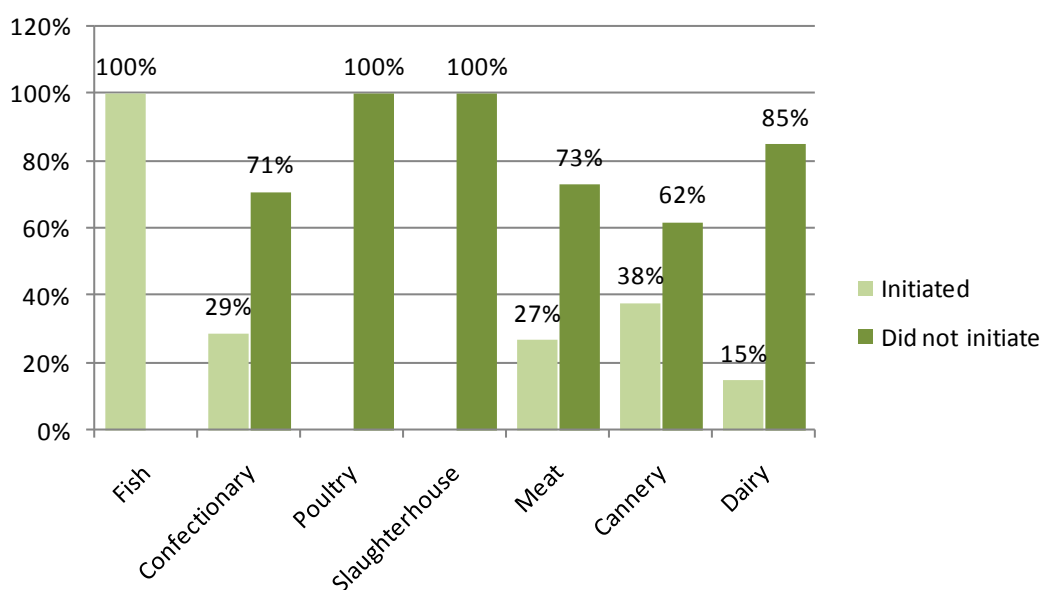
Veterinary law sets legal control schemes in the field of veterinary medicine, and defines relationships between the state inspectorate and other legal entities and individuals, as well as defines procedures for animal import and export.

The law of the Republic of Armenia on Organizing and Carrying Out Inspections in the Organizations in the Territory of the Republic of Armenia was adopted on May 17, 2000, and the Law of the Republic of Armenia on Protection of the Consumers Rights was adopted on November 24, 2004

In addition to the laws, there are numerous systems of standards that a operator in the food industry must comply. First of all, there are National Conformity Standards of the Republic of Armenia; only qualified companies are able to enter into the food market in Armenia. There are also ISO – international and EU – European Standards, companies need to comply with them, if they want to export agricultural products to other countries.

The Government of Armenia prioritizes the implementation of the Food Safety System Development Strategy that aims to minimize food risks for consumers and promote exports. This in turn requires HACCP (Hazard Analysis Critical Control Points) implementation by a food producing company. This benchmark cannot be achieved in the near future, since HACCP implementation is costly and obligatory, application of it will drive many small companies out of business. So far it has been implemented by several big processors that are exporting products to European countries, Russia or the USA. According to the Food Safety Practices survey of 60 food processing companies conducted by ICARE in 2012, fisheries are in a very good position, since all surveyed fisheries had initiated HACCP. It is worth to mention that in total there were 20 companies (out of 60 companies surveyed) that had initiated HACCP. At the same time, none of surveyed poultry factories or slaughterhouses had initiated HACCP. The reason for this can be the fact that they serve mainly local markets and do not need to worry about exporting their products or services. For the same reason HACCP implementation is very low among dairy companies (see Figure 16).

Figure 16. HACCP initiation as of 2012 for selected companies



Source: ICARE survey

The main institution that sets and implements legislative control is the State Food Safety Service of the Ministry of Agriculture. They draft and execute food safety laws and regulations and monitor their implementation. The Ministry of Economy of the Republic of Armenia provides certificates, licenses and accreditations to companies and their employees. The Licensing and Permits Agency provides licenses for operation in particular areas or permissions for export or import of controlled goods.

Organic certification in Armenia is provided by Ecoglobe Ltd. As of July 2014, the organic food producers list consists of 25 companies and another 11 companies are in conversion³⁷.

The adoption of Food Safety Standards and the availability of certification are crucial for entering foreign markets and will provide Armenian companies with an opportunity to obtain more customers that are willing to pay a premium price for better quality products.

³⁷ <http://www.ecoglobe.am/eng/operators/>

3.3 Bioenergy production

Studies proving that Armenia has a potential for bio-energy production are being implemented since 2007 (Afrikyan, Darbinyan)³⁸. In 2007, a group of researchers of the National Academy of Science stated that Armenia has a good potential for bio-fuel production from topinambur tubers. Topinambur contains enough inulin (nearly 20% of the topinambur matter is inulin) that can serve as a raw material for bio-fuel production. Topinambur is a plant that can grow on areas that are not well irrigated (or are not currently cultivated) and does not require a lot of effort. Another study was conducted by Armenia Renewable Resources and Energy Efficiency Fund in 2009, it revealed detailed calculations of bio-fuel production from corn and topinambur tubers. The feasibility study pointed out the possibility of producing about 14 thousand tons of bio-ethanol annually from these plants, which will allow implementing about 5-10% displacement (saving) of total petrol consumption in the Republic.³⁹ Within the scope of this study it was assumed that fertile lands of Ararat Valley will not be wasted under crops for producing the bio-fuel, so this will not affect the volumes of other crops produced. Instead it was suggested that unused land in remote areas on the height of 1000-2400 m that is hard to irrigate can be set under bio-fuel production. Even assuming an average yield of 40 tons per hectare and the maximum price of 88 USD paid for one ton of topinambur tubers the processing plant can achieve 15 % of Return on Investment. In September 2014 the Government adopted a decision to eliminate import tax of 10% for imported topinambur seeds⁴⁰.

Another feasibility study on bio-energy production was conducted by researchers for Bio Heating Solutions (RBHS) NGO in 2012-2013. RBHS studied the possibility of establishing biomass pellet production and utilization in domestic settings in Armenia. Pellets can be produced from wood, certain types of crops and straw. The research shows that biomass pellets will be especially useful in greenhouse business. The company is willing to fund 10% of the pellet production (100000 USD), and is currently looking for co-sponsors⁴¹.

Another organization that implements research work in the sphere of alternative energy is Barva (www.barva.am). Currently the company is working on research, development and manufacturing of biomass briquetting equipment that will press pellets out of straw, cane and wood chips.

Lusakert Biogas Plant (LBP) was built by the Lusakert Poultry factory in 2008. The poultry factory received the support of the Danish Ministry of Environment for building biogas plant which sizably reduces emissions of CO₂ in the air as a result of plant operation. In return, the LBP can sell the CO₂ reductions to the Danish State for the period 2008-2012⁴². The LBP can process daily 220 tons liquid poultry manure coming from Lusakert Pedigree Poultry Plant LLC.

There is a big interest towards the alternative sources of energy, and the Ministry of Agriculture is discussing the need for bio-fuel production. Nevertheless, these types of projects have not been financed yet.

3.4 Food retail and consumption patterns

3.4.1 Food retail sector

Food distribution in Armenia is organized through supermarkets, open air markets, small specialized kiosks, neighborhood shops and the HoReCa sector. Food distribution chains may differ depending on the type of food in question. Processed food or imports are mainly sold through supermarkets and small shops, whereas fresh food produced in the country (fruits and vegetables) are mainly be distributed through open air market and specialized fruit/vegetable kiosks. The fruit and vegetable distribution by

³⁸ Afrikyan E.G., Goginyan V. B., Darbinyan K. A. "Content of inulin in different sorts of topinambur tubers" Biolog. J. Armenia, National Academy of Sciences of Armenia, 3-4 (59), 2007, 275-282

³⁹ <http://asbarez.com/64999/a-bio-ethanol-fuel-program-for-armenia/>

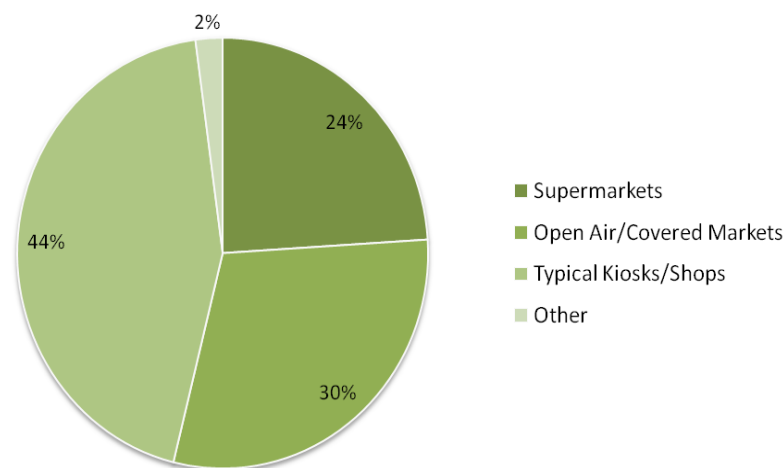
⁴⁰ <http://news.am/arm/news/228481.html>

⁴¹ <http://www.b2match.eu/expoenergy2014/participants/82>

⁴² <http://www.lbp.am/index.php>

sales agents in the city of Yerevan was assessed during the value chain analysis of selected farm food products in Armenia conducted in 2013 by the ICARE Foundation⁴³. Surveys with market managers and vendors conducted by ICARE researchers in the capital of Armenia revealed that in 2012 the lion's share of fresh fruit and vegetables was purchased through specialized shops and kiosks, followed by open air markets.

Figure 17. Fruit and vegetable sales by the type of distribution agent in Yerevan in 2012



Source: ICARE publications

The National Statistical Services of the Republic of Armenia claims that during a year each person in Yerevan consumes more than 121 kg of vegetables (including potatoes) and about 49 kg of fruits. Since the population of Yerevan is estimated to be 1.2 mln people (including tourists and workers that come from the regions), the annual fruit and vegetable consumption of the capital is more than 240 thousand tons. The volume of fresh fruit and vegetables sold in Yerevan in 2012 was less than 150 thousand tons. This suggests that the city could realize higher volumes of fresh produce.

There are several big **open markets** in Yerevan: the Malatia market, the Massiv market, the Gum market, the Komitas market and a market by the train station. The Malatia market is the biggest open air fresh food market in the country and has both retail and wholesale sections. The retail part operates 7 days a week from early morning to the evening. The wholesale market operates 7 days a week mainly during the morning hours (starting as early as 5 am). Traders from across the city go there to get fresh produce to be resold in small shops and kiosks. Another wholesale market is the market by the railway station, where trains and busses from the regions arrive. Farmers may come early in the morning, sell their harvest to resellers or small shop owners and leave with the next train. All other open markets operate on a retail basis.

The volumes of fresh fruit and vegetables sold through **supermarkets** in Yerevan are increasing, and have not yet reached their full potential. The biggest supermarkets are Yerevan City (currently has 9 branches across the city), Krpak (has 10 branches), SAS and the Moskvichka retail chains. Yerevan City - the largest supermarket in terms of turnover, has its own cars that drive to the nearby regions and collect fresh produce. According to the official statistics, large supermarkets (those that have more than 31 employees) account for 57% of the retail trade turnover in Armenia, and there is a growth tendency, since many small and medium stores are going out of business⁴⁴.

⁴³ FAO/ICARE, 2013 - Value chain analysis of the selected farm food products in Armenia.

⁴⁴ <http://hetq.am/eng/news/54607/carrefour-and-yerevan-city.html>

3.4.2 Consumption

Observations of consumption dynamics are made with examples of several agricultural products that are important in terms of food security and nutrition, as well as considering volumes of a particular item consumed.

Wheat (including items produced from the wheat), **potatoes** and **milk** (including all dairy products) are food security items and not surprisingly their consumption exceeds the consumption volumes of other agricultural products. Among all vegetables, consumption of **tomatoes** exceeds all other types and accounts for nearly 28% of the total vegetable consumption in Armenia. Annual **beef** per capita consumption is 21kg, which is nearly 43% of the total meat consumed.

Table 27 shows detailed analysis of the annual per capita consumption of selected items over the recent years. It is interesting to note that potato consumption has steadily declined during the observed period. In 2013 per capita consumption of potatoes was 17% lower than in 2005. As opposed to the staple foods (wheat products and potatoes), the consumption of beef and eggs has increased by 35% and 46% respectively. Milk and tomato consumption has also increased but shows rather volatile patterns throughout these years. This volatility is attributable to the product availability due to animal diseases and weather fluctuations.

Table 27. Per capita consumption for selected food items

	2005	2006	2007	2008	2009	2010	2011	2012	2013	% change from 2005 to 2013
Wheat (kg/y)	161.3	160.9	160.5	156.7	150	144.9	147.4	149.5	147.8	-8%
Potatoes (kg/y)	52.9	56.7	46.8	46.7	47.1	46.5	43.9	43.5	44.1	-17%
Tomatoes (kg/y)	73.7	85.6	97.7	95.2	88.6	83	87.8	90	90.4	23%
Eggs (kg/y)	8.4	7.8	8.7	9.8	10.6	11.9	11.8	11.8	11.3	35%
Milk (kg/y)	202.9	206	204.8	224.6	190.8	228.3	230.6	234.4	232.6	15%
Beef (kg/y)	14.5	16.6	16.7	22.3	20.5	18.4	20.8	20	21.1	46%

Source: NSS

Data on food waste and losses along all levels of the supply chain was collected in 2013 for the study conducted by V. Urutyan for FAO⁴⁵. Within the scope of this study more than 500 consumers were surveyed regarding food thrown away or wasted for human consumption in 2012. Unfortunately the survey did not include consumption outside home, since the share of the total food eaten away from home was not available. The waste and loss percentages from the food consumed at home are presented in the Table 28. Previous research on the food waste and losses shows that in developed countries food waste and losses are the highest in the consumption stage, while in developing countries such as Armenia, the highest share of food waste and losses is recorded in the food production stage as a result of low levels of mechanization⁴⁶. Results for Armenia were perfectly aligned with these assumptions (the highest level of food waste and losses observed was for eggs, potatoes and wheat due to high losses at the food production or farm level).

⁴⁵ http://www.fao.org/fileadmin/user_upload/Europe/documents/Publications/FLW/Armenia_en.pdf

⁴⁶ Parfitt, J., Barthel, M. & Macnaughton, S. Food - 2010, waste within food supply chains: quantification and potential for change to 2050, Phil. Trans. R. Soc., vol. 365

Table 28. Food waste and losses in the consumption stage and throughout all stages of the supply chain

Agricultural product	Food W&L at the consumption stage	Food W&L along all stages of the supply chain (as % of food available for human consumption)
Wheat	5%	27.9%
Potatoes	1%	28.3%
Tomatoes	1%	10.1%
Eggs	0.1%	31.8%
Milk and milk products	1%	10%
Beef	1%	2.6%

Source: FAO/ICARE

Consumption preferences and patterns can be summarized as follows:

- A lot of consumers prefer convenience shopping, so there is an increasing trend for more food purchased in supermarkets. This tendency is expected to continue for the nearest few years.
- General trends in the consumption of food prepared away from home over recent years comply with the global trends; working women and preference for semi-cooked foods, as well as ready meals ordered and delivered to consumers.
- There are increased concerns about food quality and certain segments of the population shows a strong preference towards organic and naturally produced food
- Increased number of organic food producers also contributes to availability of high quality food in the market

4. AGRI-FOOD TRADE AND TRADE RELATIONS

4.1 Agri-food trade

Armenia is a net importer of agri-food products. Table 29 shows that in 2013 the value of agri-food imports was more than twice the value of agri-food exports. The trade dynamics suggest that agri-food imports during recent years show smaller year-on-year increases than agri-food exports.

4.1.1 Overall agri-food trade

Agriculture and food processing play an important role in the trade balance of the country: nearly 28% of all exports are agri-food goods.

Table 29. Trade statistics and share of Agri-food trade (mln. USD)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total export	961	965	1,121	1,043	696	1,022	1,311	1,368	1,479
Agri-food exports	113	119	169	196	126	156	223	313	416
Total import	1,725	2,092	3,053	4,116	3,192	3,624	3,974	4,076	4,489
Agri-food imports	305	335	525	732	594	654	760	790	849
Share agri-food exports,%	11.7%	12.4%	15.1%	18.8%	18.1%	15.3%	17.0%	22.9%	28.1%
Share agri-food imports,%	17.7%	16.0%	17.2%	17.8%	18.6%	18.0%	19.1%	19.4%	18.9%

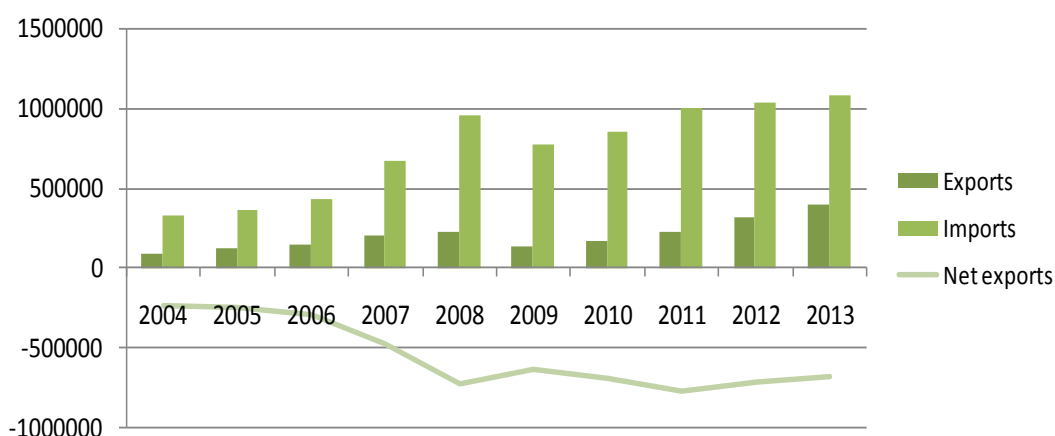
Source: NSS

Only fruits, including grapes, had a dramatic increase in export levels from 3,307 tons in 2002 to 27,599 (including nuts) in 2012⁴⁷. Nearly 78 % of all fresh fruit exports go to Russia and about 19% to Georgia.

Agri-food export and import dynamics show that while food imports remain in a range of 16-19.5% of the total imports, food exports' share in the total exports increased from 12% (in 2005) to 28% (in 2013).

Armenia has a large potential in dried fruit, organic fruit and vegetable production and export. Large emphasis is placed on agricultural processing - wine and cognac production as well as fruit preserves and juices.

Figure 18. Total agri-food trade in Armenia in 2004-2013, (thous. USD)



Source: customs.am

⁴⁷ The World Bank Report "Armenia, Agriculture and Rural Development Policy Note" p. 27

4.1.2 Agri-food trade by trading partner

Note: In the analysis of trade there is a major limitation: data availability and compatibility of data from different sources. Trade data are available in the FAOSTAT database (from 2004 to 2011) and in the Customs Service of Republic of Armenia (www.customs.am), but the latter provides data by countries and products only starting from 2010. The two databases yield somewhat different results for the years when a comparison is possible (2010 and 2011). Within the scope of this study FAOSTAT data until 2011 have been used, and for 2012 and 2013 data from the customs service website have been analyzed.

The most important trade partners for Armenia are Russia, Georgia, Iran, EU, Ukraine and Belarus, although trade dynamics in Armenia show a stable loyalty to Russia as the main trading partner. This is especially true when it comes to agri-food exports; Russia accounts for up to 80% of the total agri-food exports from Armenia. Nearly 7-8% of agri-food exports go to Georgia and about 5% to Ukraine. EU exports are negligible, mainly because of strict food safety regulations and required food certification (ISO, HASSP) by the EU countries. Very few Armenian producers are able to initiate the certification process because of the high costs associated with this procedure.

Figure 19. Total agri-food imports of Armenia by major partners in 2004-2013

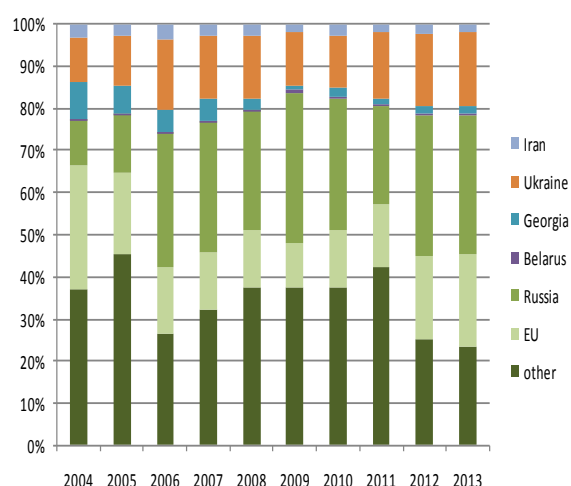
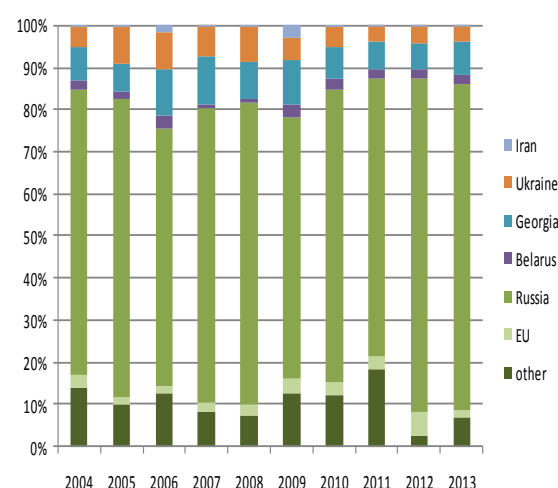


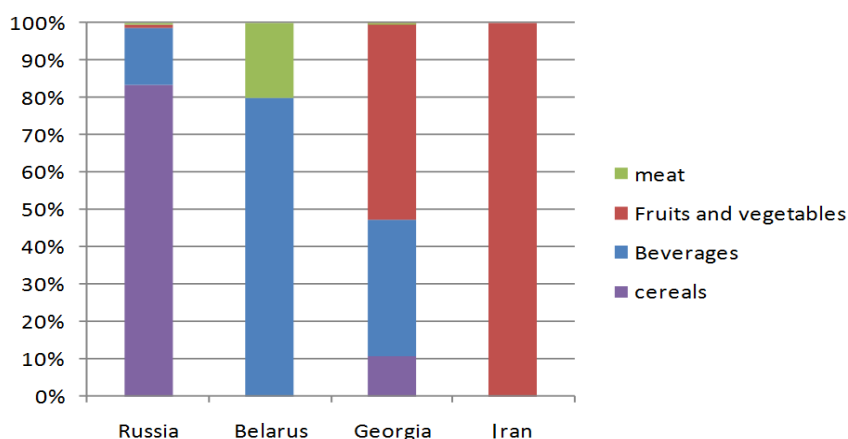
Figure 20. Total agri-food exports of Armenia by major partners in 2004-2013



Sources: FAO (2004-2011); customs.am (2012,2013).

The share of trade with Russia is fluctuating between 25-35% of the total imports of agri-food goods, EU and Ukraine have the next largest share and account for 17-20% of the total agri-food imports each. Most imported food products in Armenia in 2013 were cereals (wheat), meat, beverages and fruits and vegetables. Figure 21. Imports of the main products by trading partners in 2013. shows that in 2013 imports by the main products (four products mentioned) and by the main trading partners show that wheat accounts for nearly 80% of the imports of the main products from Russia, summing up to over 100 mln. USD. The share of beverages supplied by Russia is about 18 mln. USD. Iran supplies only fruits and vegetables (out of four main products) to Armenia. In 2013 Iran supplied Armenia with fruits and vegetables worth of 8.8 mln. USD. Although the volume of trade with Belarus is relatively low (only 276.2 thousand USD in 2013), most of it was beverages. Although meat imports are quite large, the main trading partners have very small shares of meat imports. Frozen meat mainly comes to Armenia from India, Brazil and the USA.

Figure 21. Imports of the main products by trading partners in 2013.



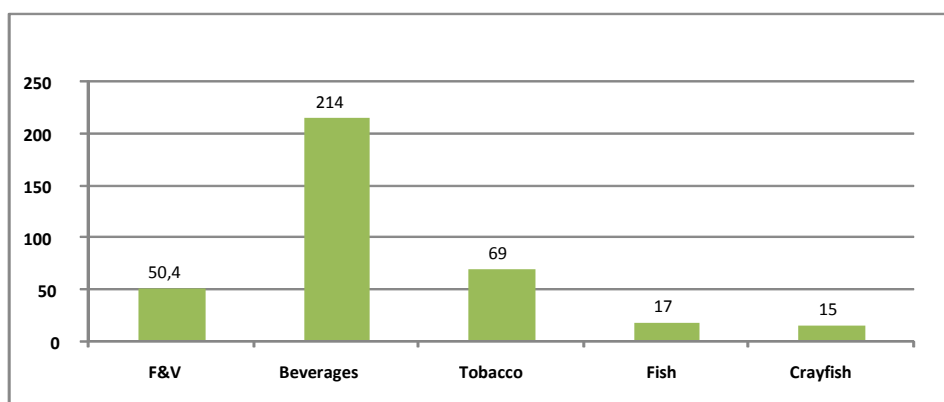
Source: NSS

4.1.3 Agri-food trade by products

Over the recent years Armenian imports of agri-food products have been 2-2.5 times higher than the corresponding exports. The composition of imports and exports by agri-food products has nearly stayed the same over the last 5 years. New and fast growing export industries are fish and crayfish production that were very insignificant or non-existent several years ago. Like 5 years ago, the largest share in agri-food exports belongs to beverages. In 2013, the value of beverages exported from Armenia was 214 mln. USD (Figure 22). All other products categories combined are not as large as beverages. The highest import share of the total value of agri-food imports in Armenia in 2013 (164.3 mln. USD) belongs to tobacco products, cigarettes, cigars, raw material for tobacco production and tobacco substitutes (HS codes 2402, 2401 and 2403 combined).

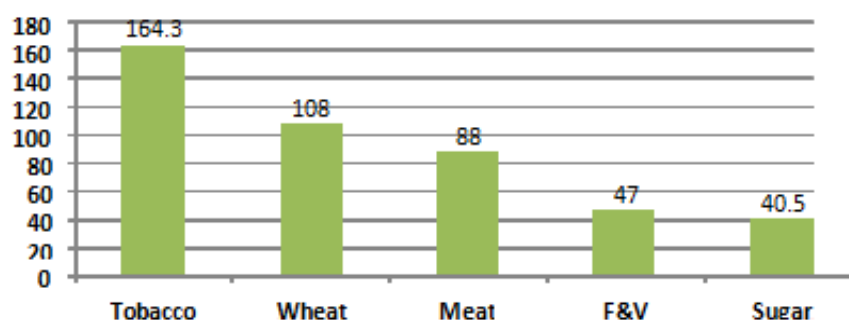
The next largest product imported is wheat. About 94.4% of the total wheat imports (total worth of 108 mln. USD) came to Armenia from Russia. Armenia imports nearly as much fruits and vegetables as it exports. Nearly 50% of the export revenues of this category belong to apricots. Imported fruits in 2013 were mainly tropical fruits and citruses.

Figure 22. Most exported agri-food products in Armenia in 2013 (mln. USD)



Source: www.customs.am

Figure 23. Most imported agri-food products in Armenia in 2013 (mln. USD)



Source: www.customs.am

The trade dynamics by years is presented in Appendix 6. The changes and trends can be analysed over the last four years. Data for the last five years could not be compared, since the available trade data in the FAOSTAT database covers only the period until 2011 and does not contain trade for the recent years. As already mentioned, other source for trade data, the Armenian customs web site (www.customs.am), contains trade data by countries and products only for the last four years (from 2010 to 2013). Data provided by the customs service of the Republic of Armenia have been used, since these are more recent data and will reflect trade development trends better.

Statistics in Appendix 6 on the trade development by main partner and main products show that the export of alcoholic beverages to **Belarus** nearly doubled from 2010 to 2013.

Imports of live poultry from **Iran** sharply increased and reached nearly 4 mln. USD in 2013. But imports of onions and garlic from Iran decreased by about 55% in 2013 compared to 2010. Exports of live sheep to **Iran** (the greatest category product in trade with Armenia) remains on a stable level above 10 mln. USD annually.

In 2010 alcohol was among the top 5 products imported from **Ukraine** while in 2013 alcohol imports halved, and this category dropped out of the top imported agricultural products' list.

Exports of alcoholic beverages to **Russia** nearly doubled during the last 4 years. The demand for Armenian brandy and wine has always been strong, but the capacity of this industry in Armenia was not sufficient for satisfying the demand. Beverage production and export volumes have increased in response to the existing need in the Russian market, but there is still a lot of potential in this field. Export volumes of fish and crayfish had record levels in 2013, reaching 16.7mln. USD (which is 7 times more than in 2010) and 12.5 mln. USD (which is 14 times more than in 2010) correspondingly. Volumes of apricots, cherries and peaches are also among the most exported products to Russia; export volumes were worth of 16.5 mln. USD in 2013, as compared to 1.5 mln. USD in 2010. In 2010, there was an early frost during the apricot and cherry vegetation period, so the harvest quantities were limited. For the reference it can be mentioned that in 2011 the value of apricots, cherries, peaches and plums exported to Russia was more than 7 mln. USD.

Russia is the main wheat supplier for Armenia. Volumes of wheat imported from Russia increased from 81 mln. USD in 2010 to 101 mln. USD in 2013. Although difference is 25%, it is totally attributable to wheat price changes, since the difference in import quantities of wheat was only 2%. Volumes of sunflower oil imports from Russia also increased (25% increase during last 4 years).

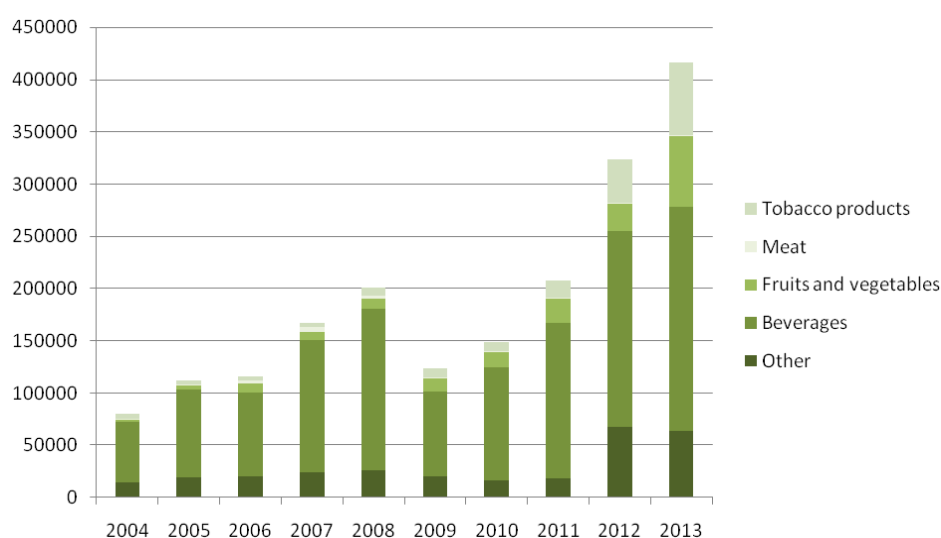
In general, trade volumes with **Georgia** have increased nearly two for all agri-food products. The export of cigarettes to Georgia has increased about 2.5 times. Ethyl alcohol is the top exported product to Georgia, whereas in 2010 the turnover was nearly 20 times less.

The trade with the **EU** has the greatest negative balance, compared to trades with other partners. In 2010 the top 5 agri-food products imported from the EU were totaling 36.8 mln. USD, while exports were nearly 10 times less (3.95 mln. USD). In 2013 the corresponding exports were only 5% higher, while

imports increased by 104%, and reached to 75.2 mln. USD. The reason for the large negative balance is the absence of food safety conformance certificates for most goods produced in Armenia on one side, and strict food safety regulations in the EU on the other side.

The general observation suggests that trade volumes of agri-food products in Armenia have increased in recent years. As it was already mentioned, the decline in Armenian exports in 2009 was attributable to the financial crisis, when consumer purchasing power declined around the world. The situation recovered by 2011 and a growth tendency could be observed again in 2012 and 2013. A great increase in export volumes was achieved due to the sharp increases in tobacco exports; the sales volumes abroad reached nearly 69 mln. USD in 2013. The share of beverages has been the highest for all 10 years depicted in Figure 24. The share of fruits and vegetables shows a significant increase in 2013, which is explained by the activities of Spayka LLC, which is the largest exporter of fruits and vegetables from Armenia.

Figure 24. Agri-food exports by products in 2004-2013 (thous. USD):



Source: *customs.am*

4.2 Trade policy and infrastructures

4.2.1 Measures directly affecting trade imports and exports

The Government of Armenia recognizes that negative trade balance does not contribute to the creation of jobs or increase in the GDP, so agri-food exports are highly encouraged. There are no export tariffs for agri-food goods. The import policy is aimed at protecting local production of goods, and is quite simple – there are 0% and 10% ad valorem import duties applied. For examples, there are no tariffs on imports of live animals or fish, but there is 10% duty on imported meat and fish, as well as dairy and processed meat and fish products; there is no tariff for potato and wheat seeds, but there are tariffs for vegetables and agricultural products made from these seeds; there is 10% import duty for items not grow in Armenia, such as tea, sugar and cocoa seeds, there is 10% tariff on imported alcoholic beverages, but ferments used for alcohol production are not taxed. The full list of imported items that are taxed is presented in Appendix 7..

There are obligatory payments (custom fees) paid in the process of importation. Payment procedures and amounts are defined by Chapter 17, Article 110 of the Customs Code of Armenia. The extract from this article is presented below:

1. 3500 AMD (8.5 USD) shall be paid as customs fees for carrying out customs formalities (except cargo processing) related to goods and other articles as well as to the remittance of currency and foreign currency transferred by banks, through the customs border of Armenia.

2. The amount of customs fees paid for the inspection and recording of goods (except goods transported by pipelines and electricity transmission) shall be as follows:
a) 1000 AMD (2.4 USD) for carrying out customs control of each cargo less than 1 ton of weight;
b) 300 AMD (0.7 USD) for each additional (or less) ton for cargo over 1 ton of weight.

3. Customs fees equal to 500000 AMD (1219.5 USD) shall be paid for Customs control of goods transported through pipelines and electricity cables and for their calculation.

4. When customs formalities, or some part of these formalities related to goods are carried out elsewhere than in places determined by the Customs Authorities, for each corresponding action Customs user fees shall be equal to twice the determined amount.

5. 1000 AMD (2.4 USD) shall be levied for each document (form) provided by the Customs Bodies. The State Revenue Committee of Armenia shall establish the list of documents mentioned above.

6. For carrying out Customs within the territory of Armenia, the amount of customs user fees shall be equal to 10000 AMD (24.4 USD) for each 100 km. Customs accompanying by transit shipment shall be compulsory except the cases stipulated in the Customs Code and in case it is impossible to implement the means of the customs security, and in all other cases it is left up to the carrier and shall be carried out on the basis of written request presented by the latter.

7. For providing Customs warehousing by the Customs Authorities, the amount of customs user fees shall be:

a) 1000 AMD (2.4 USD) daily for cargo under 1 ton of weight

8. b) 300 AMD (0.7 USD) daily per additional or full ton for cargo weighing 1 ton or more

9. For the purposes of Customs inspection of means of transportation, the amount of customs user fees is:

a) 2000 AMD (4.9 USD) for a car with not more than 10 seats;

b) 5000 AMD (12.2 USD) for all other means of transportation.

In addition to the laws, there are numerous systems of standards that operators in the food industry must comply. First of all there are National Conformity Standards of the Republic of Armenia; companies need to qualify to be able to enter into the food market in Armenia. Then there are ISO – international and EU – European Standards, companies need to comply, if they want to export agricultural products to other countries. Currently Armenia is in the process of joining the Eurasian Customs Union, which is expected to ease Armenian-Russian import and export procedures. Since Russia is the main trading partner when with agri-food products, this cooperation is expected to increase volumes of both imports and exports.

4.2.2 Logistics and infrastructure

Agri-food products are mainly imported (or exported) to Armenia by trucks. Since the borders with Turkey and Azerbaijan are closed, all imported goods arrive to Armenia either from Iran or from Georgia. Given that the largest trading partner for Armenia is Russia, Georgian border is responsible for most of the flows of goods coming to or from Armenia. Several years ago when there was a tension between Russia and Georgia, the export/import logistics organization was quite difficult. Since Georgia has an exit to the sea, it also connects Armenia to the rest of the world through its Batumi port.

The infrastructure in Armenia is far from being perfect. There is a railroad network that was set during the Soviet times and requires serious maintenance, so it is hardly ever used. So goods are mainly transported within the country just the way they are imported - by trucks.

Import procedures at the Customs are as follows:

1. Documents accompanying goods (can include information about title, quantity, package of the goods, information on the person/company implementing transportation of the goods, information on the addressee etc.) are checked and compared to the data filled in the computer system.

2. Customs personnel may check the cargo to make sure the content of the cargo corresponds to the documents.
3. For food that does not have a phyto certificate from the exporting country, a lab test needs to be conducted before the phyto certificate can be issued.
4. Transportation to the Customs warehouse, preparation of paperwork by importer, and payment of Custom duties and fees.

If there are violations of the Customs rules, the declaration of goods can be suspended and an action on violation will take place.

Steps of the phytosanitary control system are presented in the Appendix 8.

The steps for export procedures are not much different: the preliminary external examination of the seals and trunks is conducted, and the compliance of the content of the cargo with accompanying documentation is checked.

There is a list of items that need special permission for exportation or importation. Wild animals and wild plants need to have a special permission, and plants or plant origin items need to pass a phytosanitary control.

The list of documents necessary for the customs control (including information) are:

1. The documents necessary for the customs control of goods and transport facilities imported by the organizations and individual entrepreneurs:
 - a) Customs declaration, and in the cases provided by the Republic of Armenia customs legislation, CD 1 form of customs value detail declaration,
 - b) Goods acquisition invoice or contract, or the document proving the request for payment via Internet, or other corresponding substitute document,
 - c) The document proving the goods transportation (goods-transport consignment note).
2. The documents necessary for the customs control of goods and transport facilities exported by the organizations and individual entrepreneurs:
 - a) Customs declaration,
 - b) The invoice or the contract of goods acquisition, or other corresponding substitute document,
 - c) The document proving the goods transportation (goods-transport consignment note).
3. The documents necessary for the customs control of goods and transport facilities imported by the physical persons:
 - a) Customs declaration, and in the cases provided by the Republic of Armenia customs legislation, CD 1 form of customs value detail declaration,
 - b) Goods acquisition invoice or contract, or the document proving the request for payment via Internet, or other corresponding substitute document.
4. The documents necessary for the customs control of goods and transport facilities exported by the physical persons:
 - a) Customs declaration in the cases provided by the Republic of Armenia customs legislation.
5. The documents confirming the necessary authorities according to the Republic of Armenia customs legislation are:
 - a) Passport or other identification document,
 - b) Document confirming the necessary authority of person as an applicant (procurement or other similar document, the document confirming the customs expert qualification).

6. In the cases provided by the Republic of Armenia legislation, other documents can be required in the cases provided by the law while transporting separate goods by customs frontier, in particular, the original documents required for the non-tariff regulation - permission, conclusion, license, certificate, and certification while transporting separate goods by customs frontier by organizations, individual entrepreneurs and physical persons.

Main customs points that work 24 hours a day are

1. “Zvartnoc” airport customs point,
2. Meghri customs point,
3. Bavra customs point,
4. “Shirak” airport customs point,
5. Bagratashen customs point,
6. Ajrum-Jilizia customs point,
7. Gogavan-Privolnoye customs point.

4.2.3 Main trade agreements

Bilateral and Multilateral Agreements

During the Soviet times Armenia was among the member states with very high industrialization rates. The territory of the country is small and the land is not very fertile, so most of production means and raw materials were coming from other member states. After being manufactured the final goods were sent to other member states. So the country neither had a sufficient raw materials nor markets to realize the production. After the collapse of the Soviet Union countries like Armenia were left without trade partners and had a very hard time finding raw material, establishing production and finding markets for trade. Mutually beneficial conditions for trade were necessary to sustain production and to increase the GDP of the country. In 1995 Armenia signed bilateral trade agreements with Kirgizstan and Moldova. Later, similar agreements were signed with Turkmenistan (1996), Kazakhstan (2001) and Russia (2003).

Trade relations with the USA developed as follows:

- in 1992 the agreement on trade relations was signed; as a result the USA recognized Armenia as a separate country and considered the possibility of trade with Armenia,
- in 1996 the Bilateral Investment treaty was signed that relates to terms and conditions for making mutual investments,
- in 2005 Armenia received Permanent Normal Trade Relations Status that treats Armenia as an equal trade partner⁴⁸.

Although Georgia has signed the Trade and Investment Framework Agreement (TIFA) with the United States, Armenia has not been granted this status yet⁴⁹ (inclusion in the list of 20 countries that have a free trade agreement with the US is not realistic).

Since 2003, Armenia is also a member of the World Trade Organization (WTO), and has had to adopt sanitary and phytosanitary procedures that comply with the WTO membership requirements. During this process a lot of laws regarding animal health, plant health and food safety were adopted or brought into conformity with WTO disciplines. This step helped Armenia to progress in the trade relationships with the EU; Armenia was included in the list of countries that can export their products to the EU under

⁴⁸ http://www.anca.org/assets/pdf/misc/us_armenia_tifa.pdf

⁴⁹ <http://www.ustr.gov/trade-agreements/trade-investment-framework-agreements>

the Generalized System of Preferences (GSP). This method of trade provides developing countries preferential access to the European market with reduced tariffs. The main EU imports from Armenia under the GSP preferences are base metals (78%), textiles (18%) and foodstuffs (2%)⁵⁰, so the agri-food sector is not benefiting much.

Further negotiation led to a setting of a date for discussing the creation of a deep and comprehensive free trade area (DCFTA) between Armenia and the EU at the end of 2013. In September 2013, the President of Armenia signed an agreement with Russia about joining the Eurasian Economic Union that was initiated by Russia, Belarus and Kazakhstan in 2010. This move has clearly positioned the Armenian economy towards Russia, since the Eurasian Economic Union is incompatible with the DCFTA.

⁵⁰ <http://ec.europa.eu/trade/policy/countries-and-regions/countries/armenia/>

5. AGRICULTURAL POLICY AND INSTITUTIONAL ENVIRONMENT

5.1 Agricultural policy framework

5.1.1 Agricultural policy objectives and mechanisms

Agricultural policy and development strategies for 2014-2025 are defined in the Sustainable Agricultural and Rural Development (SARD) Policy⁵¹ that is currently in the process of adoption by the Government of the Republic of Armenia. This policy is largely built on the SARD 2010-2020, but in the light of recent political and economical developments, in particular, entry to the Eurasian Economic Union, it needs to be adjusted. The new Policy prioritizes certain development objectives and suggests actions to achieve the final outcome. The main objectives of the Policy include:

- Implementation of agricultural activities aimed at assisting smooth transition to the customs union. The main goal is sustaining and improving competitiveness of agricultural sector in Armenia in the light of the customs union membership. Protection of the rights local producers is listed among main issues
- Food security for population and productive utilization of agricultural inputs as well as increase in volumes of agricultural production and increased self-sufficiency levels for essential commodities. According to the data on food balances in the Republic of Armenia, in recent years self-sufficiency level for main products produced in Armenia was nearly 60%. High levels of self-sufficiency were recorded in potato, vegetable, berry, grape and mutton production. Low levels of self-sufficiency were registered in wheat, maize, poultry and pork production. The policy has to be directed towards improved competitiveness of mentioned products, increased levels of production that will result in replacement of imports by locally produced goods. The goal is to increase self-sufficiency levels of essential products to 80% and self-sufficiency of wheat to 60%.
- Continued assistance to rural communities in mountainous and bordering areas that are specialized in livestock breeding through:
 - recovering roads to remote pastures and recovering irrigation systems, as well as developing fodder production,
 - milk collection and processing capacity building,
 - creation and promotion of agricultural cooperatives, establishment of veterinary service centers,
 - assistance in animal breeding and cross-breeding.
- Another important issue is land management. Policies will be implemented towards increasing arable land area and towards effective utilization of this land.
- Food security is also among the primary objectives. Considering the fact that Armenia has closed borders with two of its neighbors, this problem might become vital and will raise the need for self-sufficiency.
- Farm productivity can be improved through the establishment of agricultural cooperatives and by promoting activities organized through the joint effort of several entities. This will support farm consolidation and will ensure more productive and profitable farming.
- High quality seed production is among the primary objectives outlined for the time period under consideration. In particular, wheat and animal feed seed production support will eventually lead to an increase in self-sufficiency in high quality seed production in the country.

⁵¹ www.minfin.am/index.php?fl=78&lang=3, page 49

- Animal breeding: Armenia has one prevailing breed of cattle, cross-breeding, as well as the introduction of new breeds becomes an important part of efficient farming. Improvement of beef or dairy cattle varieties and the introduction of efficient mechanisms and technologies in artificial insemination procedures, as well as veterinary system improvements, have to be considered in the nearest decade.
- The gradual implementation of an agricultural insurance system: steps towards implementation involve the creation of a necessary base: legislation, organizational infrastructure and farmer awareness.
- Overcoming damages caused by natural disasters is another important point highlighted in the agricultural policy. To prevent the effect of natural disasters, especially hail, it can be vital to place protective hail nets over the farms. This is expected to be implemented with the help of donor organizations and government assistance.
- Food Safety system improvement: consumer health requirements call for a sound system of food safety and the need for agricultural production certification. Improvements in this field will contribute to increased competitiveness of Armenian products abroad. Legislation improvements, personnel training and development of technically equipped labs are necessary in this field.
- Agricultural machinery renovation and repair are within the important objectives of agricultural policy in Armenia. Specific attention will be given to timely delivery of affordable wheat collecting combines. In 2013, 120 fully equipped tractors were imported from Belarus and were sold at prices lower than the market price or were leased out. From 2012 to 2013 within the scope of an agricultural loan program 367 units of farm machinery were imported to Armenia.

To create framework for meeting these objectives it is important to have accurate statistical agricultural data. In fall 2014, Ministry of Agriculture with the support of international organizations initiated the first Agricultural Census in Armenia since the independence. The census will provide information on structure of agriculture, land, machinery, available resources and their use on the national and regional level.

5.1.2 Institutional arrangements

The main institution that is responsible for implementation of policies aimed at development of agriculture is the Ministry of Agriculture of the Republic of Armenia. It carries out and enforces legislative amendments and policy implementation. The Ministry of Agriculture has separate Divisions and State Agencies, such as the State Food Security Service, “Licensing Center” and the State Inspectorate of Agricultural Machinery⁵².

The State Food Security Service by the Ministry of Agriculture ensures conformity of food products with the standards and controls veterinary and sanitary services. This agency undertook functions of several Ministries (including Ministry of Health Affairs and Ministry of Agriculture) to ensure that one body implements all activities involved in the process of food production and consumption. The prime Minister appoints the director and deputy directors of the SFSS, which reports to the Government “Licensing Center” Agency organizes the process of granting licenses for manufacturing biological preparations and licenses for manufacturing and sales of chemicals in the field of plant protection.

The State Inspectorate of Agricultural Machinery implements the control of the use of agricultural machinery and equipment. Administrative structures that are responsible for the implementation of agricultural policies are not limited to the state entities linked to the Ministry of Agriculture. There are also many international organizations and bodies that have an important role in this process.

Organic certification in Armenia is implemented by Ecoglobe, an internationally recognized certification provider that has an accreditation of the USDA National Organic Program. It provides certificates to organic food producers and constantly controls the conformity to the standards in place.

⁵² <http://www.gov.am/en/structure/6/>

Many donor-funded or international projects that are implemented in the field of agriculture usually have a Project Implementation Unit that closely collaborates with the Ministry and is responsible for the program management and facilitation.

For the last years, the Ministry of Agriculture sponsors extension services (Regional Agricultural Support Centers) as a part of the Ministry that operates on the regional level and provides advisory services to farmers and agricultural businesses even in the remote areas. In addition, there are a number of research institutions attached to the Ministry. These research organizations are the Research Centre for Agriculture and Plant Protection (RCAPP); the Research Centre for Vegetable and Technical Crops (RCVTC); the Research Centre for Soil Science, Agricultural Chemistry and Land Improvement (RCSSACLI); Research Centre for Horticulture, Viticulture and Winemaking (RCHVW); the Research Centre for Livestock Management and Veterinary (RCLMV); the Research Centre for Biotechnology (RCB); Technical Crop Experimental Centre (TCEC). These organizations employ around 249 research workers⁵³.

5.2 Main agricultural policy instruments and measures

There are some development directions for agricultural sector in Armenia that are considered rather long-term priorities and have not changed during the observed time period (from 2004 to 2013). At the same time, some recent developments have contributed to adding some new priority directions within the scope of the policy implementation.

Government of Armenia has selected a liberal way of supporting agri-food sector and prefers not to intervene in the market activities, and does not set any price limitations on agricultural goods. Instead, it can set some taxes (indirect) or tariffs to support local producers of agricultural products and stimulate the local processing. A common and widely used support mechanism is direct subsidies to farmers and allocation of money for on-farm restructuring and support.

After the collapse of the Soviet Union land was privatized in Armenia, but most of rural population was looking for employment possibilities in the capital or migration to other countries, mainly Russia. So youth from rural areas was leaving the country, and elderly people were not able to implement heavy agricultural work. Farm plots were small, so the farmers were not able to supply necessary volumes of agricultural products to the market. Instead, agricultural production was turned into subsistence farming - not very productive. The ministry of Agriculture and the Government of Armenia had concerns about the declining volumes of agricultural produces, so one of the first measures was exempting agriculture from taxes. Long period of time agricultural producers had income tax exemption, and did not have to pay land taxes and irrigation fees. This move made farmers return to the land and consider farming as a main activity.

About two decades ago the Government adopted a scheme of customs duties (tariffs) to promote exports of agricultural goods, since Armenian agri-food imports were nearly two times greater than the corresponding exports. The main goal was also to provide stimulation to agricultural processing - tariffs were set for import of finished agricultural goods, while imports of raw materials for agri-food processing were not taxed. Exports of agricultural products, whether raw materials or processed goods, are not taxed.

Due to land fragmentation many plots located remote from rural communities were not cultivated. This was a main concern for policy makers. As was mentioned in the Table 5, there was a reform of land use and areas of agricultural land increased from 1,391 to 2,122 hectares. Unfortunately, this did not make farmers use the idle land and the Ministry of Agriculture proposed subsidies for returning of non-utilized agricultural land into cultivation.

One of the long term objectives of the Ministry of Agriculture is improvement and expansion of irrigation network. A lot of work towards this objective was done within the scope of Millennium Challenges program (Water to market component) implemented by ACDI/VOCA in partnership with ARCADIS Euroconsult (Netherlands) and VISTAA (Armenia). Within the scope of the program from

⁵³ S. Avetisyan, 2010

February 2007 to October 2011 nearly 60,000 farmers received trainings on farm water management and high value agriculture.

The project's main objective was aligned to the aim of the Ministry of Agriculture - adopting productive agriculture practices through the following activities:

- Introducing and helping adopt best practices in irrigated agriculture;
- Encouraging usage of effective water management techniques;
- Switching to high value crops;
- Strengthening the post-harvest infrastructure and promoting farmers' access to local and international markets⁵⁴.

Human capital development has been among the most important priorities in the agricultural sector in Armenia. Higher and vocational education in this field is obsolete and teaching materials, as well as methods and techniques need to be improved. Nearly all donor projects implemented in the last 15-20 years have skills enhancement and capacity building sub-components. Farmers and processors often need advice on quality control, farming practices and marketing issues. The Ministry of Agriculture has started advisory extension services in rural areas (Regional Agriculture Support Centers) which will give possibility to farmers to get an advice on any agriculture-related issues.

During the last decade, funds were allocated for improvement of livestock breeds and plant varieties. High productivity wheat and barley seeds were imported and loaned to farmers on the condition of returning from the next harvest twice the amount taken. Unfortunately, this project was not very successful during the first year of implementation, since the early frost and drought in the year reduced harvested crop to minimum and many farmers were hardly able to return the borrowed crop. On the contrary, artificial insemination and import of new breeds of livestock have been quite successful. The Ministry of Agriculture also encourages private organizations (such as CARD) to implement artificial insemination with the purpose of breed improvement.

Strengthening of the agricultural sector will require the upgrading of national food control infrastructures (management, inspection and laboratory capacities) to provide a sound basis for farmers and agro-processors to gradually improve their levels of quality and safety. Relatively large processors and producers adopt internationally recognized food safety and control procedures to be able to export their production to the EU and the USA, but many small companies and individuals do not have sufficient funds for that and may not strictly follow food safety rules and regulations. The Ministry of Agriculture and the State Food Security Service will need to invest in food quality maintenance and control infrastructure.

The most recent developments in terms of agricultural policy are:

a) supporting agricultural cooperatives and

b) working towards implementation of agricultural insurance system.

a) Apart from having low productivity, small farmers are disadvantaged when it comes to dealing with processors and retailers as well, since most of them avoid working with large numbers of small suppliers. The need for intermediary organizations such as specialist wholesalers, village collecting stations and marketing cooperatives becomes crucial. Farmer cooperatives can undertake all those functions. Shared costs for marketing, leasing agricultural equipment and delivering produce to processors will contribute to the profitable farming practices and will increase the bargaining power of farmers. The International Center for Agribusiness Research and Education (ICARE) supported by Swiss Development Agency (SDA) and in collaboration with Euricse (European Research Institute on Cooperative and Social Enterprises) developed the law on Agricultural Cooperatives that is in process of finalization and adoption. This law develops guidelines and legal framework for activities of agricultural cooperatives.

⁵⁴ ACIDI VOCA web site - <http://www.acdivoca.org/site/ID/armeniaWTM>

b) Today Armenian farmers are not protected against natural disasters and unfavorable weather conditions. Corresponding body of the Ministry of Agriculture tries to evaluate farmer losses due to weather cataclysms every year, but the estimations are not very accurate and payments made to farmers are not sufficient to recover losses incurred. Following the international experience, the Republic of Armenia prioritizes farmer security and is on the way of considering provision of agricultural insurance by banks and universal credit organizations. ICARE Foundation partnered with Business & Finance Consulting GmbH, Switzerland and in January 2015 completed the first stage of the feasibility study “Agroinsurance in Armenia” funded by KfW group.

5.2.1 Market price support measures

The Government of Armenia does not implement direct measures that may influence agri-food prices and does not apply price-setting mechanisms, but protects local processors through trade policy measures.

For importation of goods, depending on the type of goods, two rates of ad valorem customs duties are applied – 0% and 10 %. Ad valorem duty is calculated as a percentage of the value of the goods being imported. The logic of applied duty rates is that zero duty is applied mostly to raw materials, and 10% to manufactured (ready-made) goods. This policy stimulates import of raw material and production of finished goods in the country that can be sold in Armenia or exported. There are no export tariffs applied for agricultural products. All agricultural goods that are subject to this regulation are presented in Appendix 7.

The implication of this support measure can be seen on the example of trade of tobacco and unmanufactured tobacco goods. In 2013, imports of unmanufactured tobacco were nearly 47 mln. USD, up from 8.7 mln. USD in 2008. Export of finished tobacco products (cigars, cheroots, cigarillos and cigarettes) was 68 mln. USD in 2013 as opposed to 6.2 mln USD in 2008.

5.2.2 Budgetary and other transfers to agriculture

Total budget for supporting agri-food sector in recent years is presented in the Table 30 below.

Exact measures of direct producer support include:

- Provision of mineral fertilizers at a price that is 25-30% lower than a market price
Provision of elitar wheat seeds on the condition of returning twice the quantity after the harvest, as well as provision of barley and maize seeds
- Provision of diesel fuel at a price that is 25% lower than a market price
- Subsidizing 4% interest rates on agricultural loans. During recent years the GoA addressed the concern that agricultural loans are very expensive (nominal interest rates are about 14-20%, effective interest rate can be up to 38-40% per year) and farmers taking those loans often are not able to repay. The Government policy states that a farmer has to pay no more than 10% interest rate for the loan, and if a farmer got loan for the interest rate of 16%, instead of 14%, then the Government covers 6%. In some cases the subsidized amount could be up to 6%. Since 2011, when this program started, 60,000 farmers have received loans in the total amount of 54.7 bln. AMD under this scheme.
- Another program was implemented to promote the use of idle land in 2007-2009. Farmers were paid for return of non-utilized agricultural land into cultivation. The support under the scheme was the following: payment of 35,000 AMD was distributed to farmers for 1 ha of annual crop cultivation and 17,500 for 1 ha of perennial feed crop cultivation.
- Another program that was designed to help with agricultural loans was implemented jointly with IFAD, and included creation of FREDAs – a UCO as well as creating equity fund for providing high-risk financial loans to farmers, who do not have access to bank loans (due to high interest rates)
- Partial subsidy for irrigation (that allows farmers to pay only 11 AMD for one cubic meter of water)

- Provision of veterinary services to farmers - some vaccines are provided by the State to the community veterinary officers, who go door-to-door and implement vaccination).
- In 2007, 2008 and 2009 payments of 35,000 AMD were provided for 1 ha of annual crop cultivation and 17,500 AMD for 1 ha of perennial feed crops cultivation

Table 30 Budget for supporting agri-food sector in Armenia from 2004 to 2013 (mln. AMD)

Description	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Seeds provision	na	na	37	365	1,631	1,602	0	1,420	1,175	1,184
Partial subsidy for irrigation	na	na	0	5,420	4,952	5,250	4,756	4,180	3,934	3,934
Creating equity fund for providing high-risk financial loans to farmers, who do not have access to bank loans (for 2012 and 2013 - agricultural loans interest rate subsidy program)	na	na	0	0	406	251	944	852	578	634
Provision of elitar wheat, corn, barley and alfalfa seeds for spring sowing	na	na	0	0	0	0	0	336	0	254
Provision of elitar wheat seeds on the condition of returning twice the quantity after the harvest	na	na	0	0	0	0	369	325	238	156
Provision of mineral fertilizers at a price that is 25-30% lower than a market price	na	na	0	0	0	0	0	0	1,230	1,772
Provision of diesel fuel at a price that is 25% lower than a market price	na	na	0	0	0	0	0	0	1,328	2,567
Provision of ag machinery and equipment to farmers (grant provided by the Chinese government)	161	0	290	0	286	0	0	0	0	0
Provision of ag. machinery and equipment to farmers (grant provided by the Indian government)	0	1,141	0	0	0	0	0	0	0	0
Provision of ag. machinery and equipment to farmers (grant provided by the Japanese government)	0	229	0	247	251	0	0	0	0	0
Activities aimed at provision of machinery to cooperatives, irrigation of pastures and improvement of veterinary services	na	na	0	0	0	0	0	0	408	295
Payments of 35,000 AMD for 1 ha of annual crops cultivation and 17,500 for 1 ha of perennial feed crops cultivation	0	0	0	166	564	1,578	0	0	0	0
Animal breeding and seed varieties improvement	na	na	711	1,796	666	449	412	51	603	673
Expenses for education and research	na	na	349	427	495	550	655	643	491	297
Veterinary and anti-epidemic activities	na	na	1,340	1,576	1,701	2,731	1,274	637	1,162	1,265
Plant protection	na	na	384	377	162	494	558	100	125	97
Expenses for food security and sanitary services	na	na	75	89	184	80	72	29	122	123
Improvement and maintenance of agricultural lands	0	0	515	988	1,008	788	425	109	48	49

Source: Ministry of Agriculture

Comparison of the distribution of direct producer support in 2008 and 2013 is presented in Figures hereafter.

Figure 25. Break-down of direct producer support by individual categories in 2008

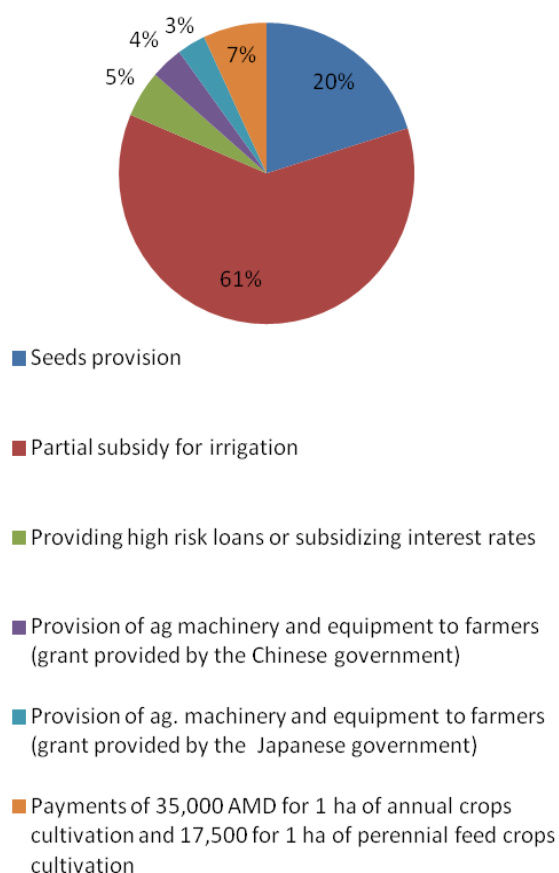
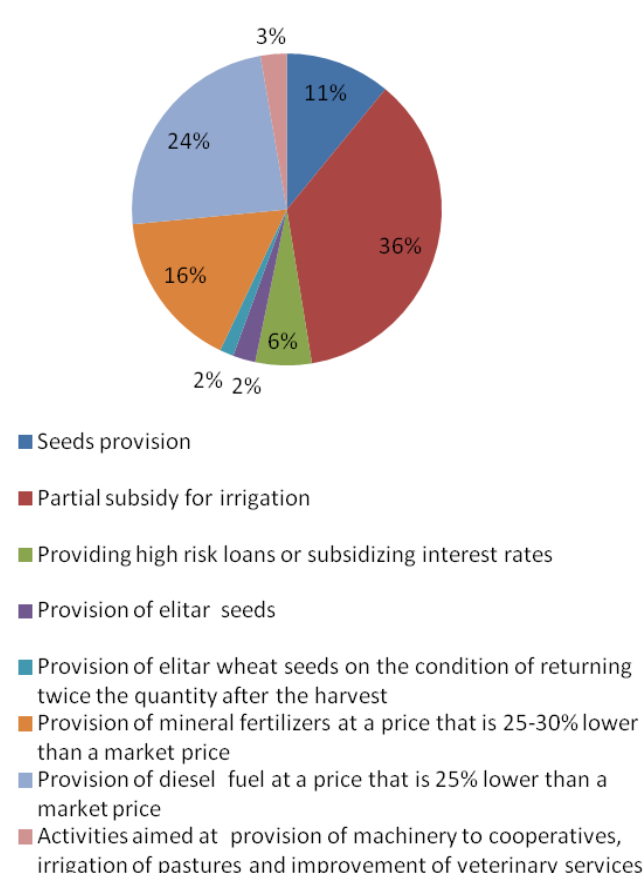


Figure 26 Break-down of direct producer support by individual categories in 2013



Source: Ministry of Agriculture

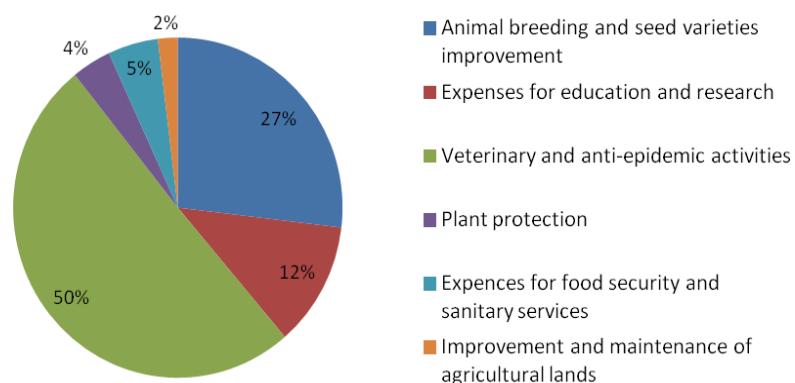
The figures show the policy developments during the recent five years. In 2008, 61 % of the support directed to agricultural producers was allocated to subsidies for irrigation, while in 2013 this number is down to 36%. This decline in the share is mainly due to the shift in priorities: in 2013 agricultural policies are targeted towards productivity in agriculture. 24% and 16% of producer support in 2013 were allocated correspondingly for subsidizing fuel (encouraging use of agricultural machinery) and fertilizers (increasing yield and productivity at the same size of agricultural land).

The main activities supported within the general support to agriculture are:

- Expenses for education and research, including higher and vocational education, as well as Regional Advisory Support Centers, specialists of which provides advice on wide range of agricultural issues;
- Plant protection;
- Animal breeding and improvement of seed varieties;
- Expenses for food security and sanitary services;

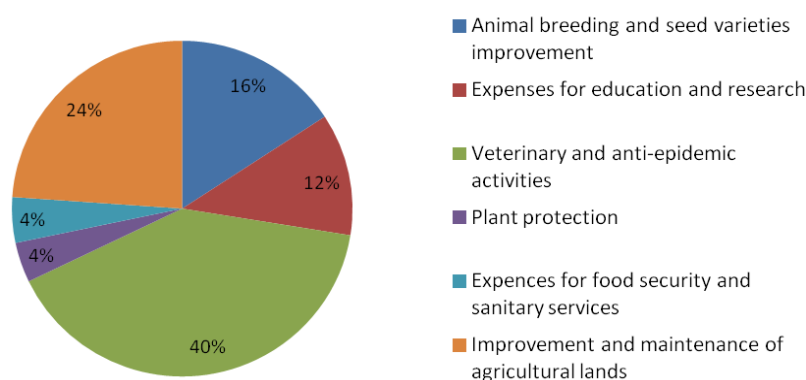
Distribution of the general support by the OECD categories is presented below.

Figure 27 Break-down of the general support by individual categories in 2013



Source: Ministry of Agriculture

Figure 28 Break-down of the general support by individual categories in 2008



Source: Ministry of Agriculture

The categories within the general support have not changed much. Increase in animal breeding and improvement of seed varieties from 16% in 2008 to 27% in 2013, as well as increase in veterinary and anti-epidemic activities once again prove the development towards more productive varieties in agriculture.

Striking difference is the decrease in improvement and maintenance of agricultural land from 24% to 2% (decrease from over 1 bln. AMD to about 49 mln. AMD), which may indicate the short-term orientation in the policy planning.

6. FUTURE PERSPECTIVES FOR THE AGRICULTURAL AND FOOD SECTOR

6.1. Strengths and weaknesses of the agricultural and food sector

Main strengths of the agri-food sector

Climatic conditions, sun and humidity provide good setting for growing a broad range of agricultural products, including early-season fruits and vegetables in Armenia. Alpine meadows and warm sun in the valley give a specific flavour to fruits and vegetables that are very famous and popular in the CIS countries.

The availability of cheap labour on farms is another strength for the sector. Cheap labour coupled with climatic conditions attracts a lot of investment in the greenhouse sector, where Armenian agronomists are successfully collaborating with foreign experts to identify high productivity varieties of vegetables.

Wine and brandy production is the largest sector of the food processing industry in Armenia. High quality inputs (both in terms of labour and raw materials - grapes) available in the country has made this sector one of the most attractive sectors for foreign direct investment. Since 1997, improved performance has been registered in the food processing sectors of Armenia where foreign investments have been made - vegetable and canned fruit production, wine, beer, vodka and tobacco production.

The agri-food sector has benefited from a variety of support programs from international donors.

Main weaknesses of the agri-food sector

As the result of land privatization, agricultural land was divided into small parcels and handed out to villagers who were only interested in subsistence farming and thus may not be considered farmers who do farming for profit. Small parcels of fragmented land do not provide economies of scale and do not lead to the increase in productivity. In animal production it is only poultry production that is characterized by large volumes of eggs and poultry produced by commercial farms. There are nearly 330 thousand cows and about 180 thousand dairy farms, which means that the average dairy farm has less than 2 cows. Calculations implemented within the scope of the Farm Data Comparison Network (using TYPICAL model software developed by IFCN) prove that a dairy farm can be profitable only when it is able to realize economies of scale. An Armenian farm of 35 cows was having significant profits, while a 5-6 cow farm was hardly breaking even. So land and farm consolidation or spreading costs through the creation of farmer cooperatives is one of the main requirements for productive agriculture that farms in Armenia lack today.

Another major weakness is the high cost of financing (agricultural loans have 14-16% interest rate). Even though the Government introduced loan interest rate subsidies, and covers 4% interest rate on agricultural loans, the remaining 10-12% can still be a big burden. Farmers are not able to make investments in farm machinery to replace depreciated tractors inherited from the Soviet times or borrow money for expanding their land and buying seeds.

Another issue that arises from the lack of financing is certification. Armenia is a country with a very small population, so the consumption volumes are not very large, therefore the focus on exports will be crucial for large producers. There are rather high volumes of raw material, such as copper or molybdenum exported to the EU, but volumes of exported food are rather low. Any food that is exported to the EU countries or the USA will have to have quality control and food safety certification, which is rather unaffordable for a farmer.

Infrastructure issues, such as the absence of irrigation and remote farm location can also present a big challenge. The irrigation system that farmers have today was initiated during the Soviet period and was not completed, so a lot of agricultural land is not irrigated. This fact automatically makes some land

plots not suitable for high yield products that require intensive irrigation and farmers have no choice but to plant low productive crops that will yield at least some harvest.

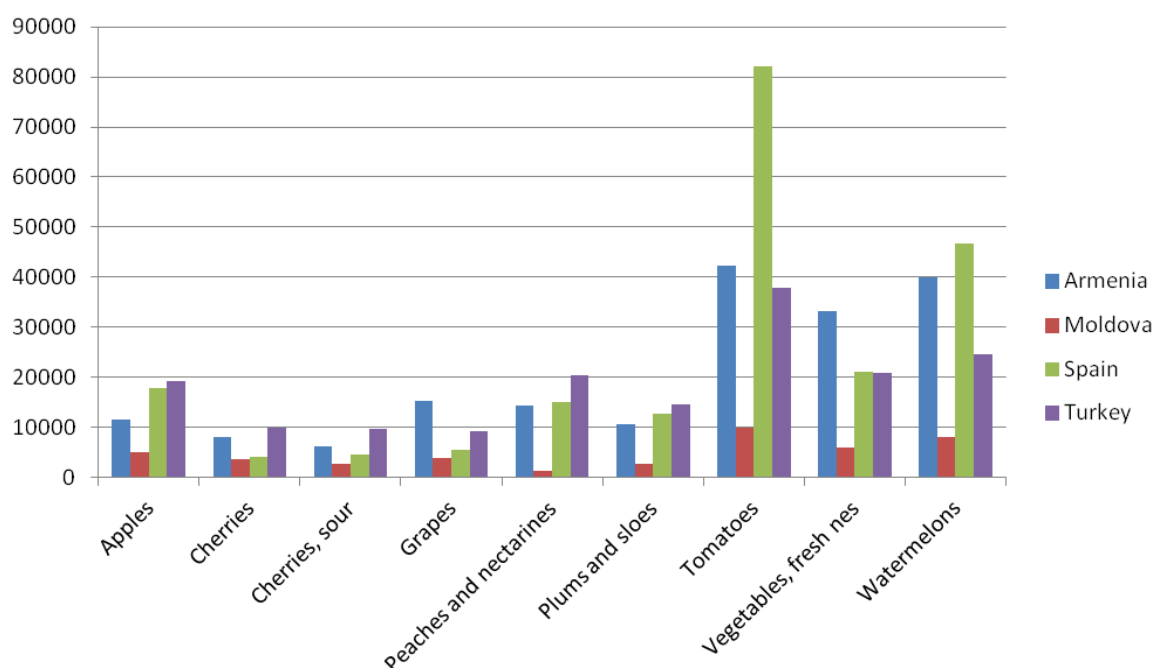
Last, but not least weakness is the lack of skills in horticulture, agronomy, veterinary, food processing and technologies. Education system moved from these specialties towards more demanded business and IT related skills, so agriculture and food processing got neglected. Vocational institutions providing agriculture related skills are under-funded, experimental laboratories do not exist and very little practical skills are taught.

6.2. Potential of production and yields by sectors

As illustrated in the report section 6.4, Armenian climate and the quality of the main agricultural goods produced can be compared to those produced by Spain, Turkey and Moldova. In general, yields per hectare of land in Armenia are not very high, although price is quite low for most products. Armenia can compete in production of tomatoes, cucumbers, peaches, apricots and grapes. Berries have very low price in Armenia mainly because of expenses of labour employed for collection. In any case Armenian producers may gain an edge through capitalizing on organic production. Berries collected in the wild can be claimed as organic, there are also several greenhouses that produce berries and try to get organic certification. Prices for organic production in large supermarkets in Moscow or in the EU are about 2-3 times higher than prices on the local market.

Armenian producers need to have relatively high yields and higher volumes of produce to be able to export and be competitive on the foreign markets. Data in the Figure 29 below provides comparative analysis of yields for main agricultural products in Armenia with countries that have similar climatic conditions. Armenia seems to have higher yields in grape and fresh vegetables production. These are products from which processing industry can benefit.

Figure 29 Main agricultural product yield comparisons with countries that have similar climate (kg/ha)



Source: FAOSTAT

Another category where Armenia is quite competitive is fish and crustaceans production. Low costs of production and availability of artesian water make fish produced in Armenia very demanded, and local producers respond very promptly to this demand, so volumes of export in this category have increased about 15 times during the recent years.

Tobacco production also relies on relatively cheap labor force, that is the reason why tobacco producing plants have increased the volumes of output during recent years. Local tobacco growers cannot satisfy this demand, so processing plants import unmanufactured tobacco and export cigarettes.

Last, but not least agri-food category where Armenia can be competitive is wine and brandy production. Armenia has large areas of grape fields and long-lasting traditions of making wine. These traditions gave birth to regions such as Areni that is well known for wonderful grape varieties and is recognized as a regional center for wine production. Every year Areni wine festival attracts a lot of tourists who enjoy wine testing and observe the traditions of wine production in Armenia. Brandy production highly relies on exports to Russia and other CIS countries where it is a well-recognized brand since the Soviet times.

6.3. Bottlenecks for the future development of agri-food sector

Although Armenia was recorded in the 37th position in the “Doing business global competitiveness ranking”, the country, however, still has issues with paying taxes – 103rd spot, enforcing contracts 112th spot, and trading across borders 117th spot. This implies that the situation is not very favourable for small and medium enterprises that are under threat of being forced out of the market by big monopolistic structures. Development of agri-food chains and their current state are defined by the level of financing and regulations in force.

During the interview, Deputy Minister of Agriculture Armen Harutyunyan mentioned that there are three primary issues which hinder development of agriculture in Armenia. These are:

- limited rural infrastructure,
- lack of skilled human resources e.g. agronomists and
- access to finance⁵⁵.

In agri-food production local producers need better infrastructure and equipment. Existing farm machinery is mainly left from the Soviet times and has completely depreciated. There is an established production of farm machines, but production volumes are still very low. Big financial investments are necessary for renewing the existing machinery, as well as for established warehousing/storage system for farm products. Agricultural products, such as wheat, potatoes, apples are priced very low during the harvest season, but since they are not highly perishable, they could be stored in warehouses or cold storages and be sold off-season at a higher price. This would also regulate the oversupply of production in the harvesting period and demand that is not met off-harvesting season.

Some important issues with farm productivity arise because of small farm size and agricultural land fragmentation. This results in subsistence farming and limited specialization on production of a particular product. In particular, wine and brandy producers would like to deal with fewer but larger **grape producers** to ensure homogeneous production and desired level of sweetness in the grapes⁵⁶. On the other hand small farmers do not have incentive to comply with these requirements because of the low bargaining power when it comes for price of grapes procured.

Some sectors such as **meat production** have high dependency on imported feed, since the local feed production is not well developed. Poultry production is highly concentrated – there are several big producers that import high volumes of feed and utilize economies of scale. But livestock production is based on small farms that will not be able to import own feed and thus incur higher costs. There is a clear incentive for them to use pasture-based feeding, which is not enough for high milk yields.

In crop production there is a weak linkage between production and science. Intensive technologies used in **fruits and berries production** could lead to higher yields. Lack of agronomy specialists that would be familiar with the recent developments is slowing down the industry. This of course is not applicable to greenhouse production, where well trained agronomy specialists (often from Europe) are hired.

⁵⁵ Interview with Armen Harutyunyan, Deputy-Minister of Agriculture in Armenia.

⁵⁶ Baseline study of the Armenian wine sector- ICARE Foundation, 2014

Another big bottleneck is the absence of phytosanitary laboratories. Many plant illnesses spread across the country because of unknown quality of seeds, plants and rootstocks. There are procedures for importing plant and seed varieties and regulations that need to be followed, but there is no infrastructure built for checking the quality.

It is also clearly seen that Armenian agriculture has high dependency on Russian market both in terms of exports and imports. The ban on imports of European agricultural products set by the Russian government caused a lot of damage to the economies of some EU countries. Armenia is much more vulnerable in this context and in a similar situation the industry may not recover for several years.

Factors influencing agricultural and foreign trade development

Agri-food trade patterns are developing towards high value added goods; increased production of brandy and wine, dried fruit, organic fruits, vegetables and honey are increasingly being demanded both by local consumers and consumers abroad. The developments in the wine industry are directed towards fundamental training and preparation of specialists in the wine business. The ICARE foundation in collaboration with the Geisenheim University in Germany, announced admission for Enology & Wine Business Professional Certificate program (duration- 18 months). For the first time since the Soviet period the new study practices are introduced to prepare specialists in the wine business. Chairman of the Union of Armenian winemakers, Areg Harutyunyan stated that the export of Armenian wine is showing an increase of about 30% 2014, compared to the same period of previous year. His expectations are that in 2015 wine exports will increase by another 30%. He was optimistic, because of increase in quality of Armenian wine and high demand for it abroad⁵⁷. Exports of beverages (mainly to Russia) account for nearly half of agri-food exports from Armenia. The export trends were not stable though, since alcoholic beverages are not primary necessity items, sales can decline due to the economic condition of buyers, which was the case in 2009. **Organic production** volumes in Armenia are increasing and thanks to Ecoglobe (the first Organic Certification body in Armenia), there is the opportunity for food to be labeled as organic and to be accepted and recognized in foreign countries. The growing demand for organic production in Europe presents new opportunities for Armenian producers who have already invested heavily in product packaging and quality improvements.

Investments made in greenhouse construction during the last 2 years are a response to off-harvest season demand for fresh **vegetables** in local markets and in the Russian market (where the main exports of fresh tomatoes, eggplants and peppers are sent). The recent withdrawal of Ukrainian and European products from the Russian market also creates an unmet demand in the Russian market that may lead to possible investment from Russia towards strengthening agri-food production in Armenia. Head of the Union of local manufacturers Vazgen Safaryan in his interview mentioned that fruit and vegetable exports are expected to double within the next 2 years (from 60-62 thousand tons in 2013 to 100-120 thousand tons by 2016) due to embargo on European agricultural products in Russia and entry of Armenia to Eurasian Customs Union⁵⁸. It is hard to tell whether these targets can be met, since Armenian agriculture operates close to its full capacity at the current level of efficiency.

The drawback of open borders with Russia within the scope of the Eurasian Customs Union is the effect of imported cheaper wheat from Russia and Kazakhstan on the local wheat producers.

The summarized evaluation of factors affecting agriculture and food sector in Armenia and their importance can be found in the Table 31.

⁵⁷ Interview with Areg Harutyunyan, the Chairman of the Union of Armenian winemakers - ARKA news

⁵⁸ Interview with Vazgen Safaryan, head of union of local manufacturers of Armenia

Table 31 Factors affecting agriculture and food sector in Armenia (1- least important, 5 – most important)

	(1-5)
Domestic market	5
CIS market	5
International market (outside CIS area)	3
National grants	2
International grants	2
National agricultural development policy	4
Policies of other countries	3
Competitiveness at national level	5
Competitiveness at international level	4
Bureaucracy in the national institutions	5
Corruption in the national institutions	5
Legal frameworks and regulation	5
Knowledge and information	4
Solidarity in society with agriculture/rural areas	3
Other (please specify)	

Source: ICARE experts

6.4. Growth attractiveness for specific commodities

The land for agricultural purposes in Armenia is highly fragmented, and some plots are located high in the mountains far from residential areas. This fact does not contribute to full utilization of the scarce agricultural land. The lack of irrigation systems in many areas across the country limits the choice of crops to be planted.

There is a high potential for growth in fruits and vegetables that are consumed in large volumes on the local market and are exported to Russia. The value chain analysis conducted by ICARE for FAO compares fruit and vegetable yields and producer prices in Armenia and 3 countries with similar climatic and soil conditions (Spain, Turkey, and Moldova). To identify the competitiveness of a particular commodity on the global market and to illustrate the position of Armenia across selected indicators, data (obtained from FAOSTAT) are summarized into Table 32 below.

There is a strong potential for the production of berries that are demanded both on the local market and abroad. The production volumes for berries have increased 2.5 times from 2005 to 2011. There has been increased investment in greenhouses for organic berry production; although wild berry cultivation is also welcomed by processors of jams and preserves.

Fish production is among those sectors showing the highest returns, but there are environmental concerns and issues related to artesian water pollution that were raised last year, which may result in increased environmental taxes and higher fees associated with opening a new fishery in the near future.

The brandy and wine sector has the largest potential for expansion. Large investments, especially in the procurement of new, advanced technology and improvement in the production processes, have been made in the wine sector over the past few years. Foreign investments have also been made to establish vineyards and wine production in Armenia, most of which have an export-orientation. The high demand for Armenian wine and brandy coming from Russia puts local producers under pressure to increase areas of vineyards, as well as the productivity of the grape.

There is also a high processing capacity – most of the fruit and vegetable processing plants use less than 30-40% of their production capacity.

Table 32 Yields and growth attractiveness for specific commodities in Armenia.

Commodity	Yield	Producer price	Growth attractiveness	Potential market
Grapes	Nearly 50% higher than the average for 4 countries	Lower than the average	Very attractive: Can contribute to high value added wine industry	Russia, local market (including local wine and brandy makers)
Potato	Below average	A little higher than the average	Not very attractive – is mainly planted for subsistence purposes	Local market
Tomato	Average	Close to the lowest	Has growth and export potential	Russia, local market (for fresh product), EU, Russia (for processed product, such as tomato paste, preserves or juices)
Apple	Below average	Average, volatile	Not very attractive	Local market
Cucumber	Nearly average	Lower than the average	Has growth and export potential	Russia, local market
Peach	Average (volatile)	Lower than the average	Has growth and export potential	Russia, local market

Source: own study

7. RECOMMENDATIONS

PROBLEMS	SOLUTIONS AND RECOMMENDATIONS
<i>Fragmented and small farms</i>	Farm and land consolidation is one of main conditions that will lead to higher profitability and increased production levels in the agricultural sector. This will ensure a concentration of capital at the farm level and will address issues regarding updated technologies and improved processes.
<i>Small local market and high dependency on Russian market</i>	Armenia depends heavily on the Russian market, so each downturn in Russia affects Armenian economy. Access to new markets needs to be ensured.
<i>Weak position in terms of food safety and food certification</i>	The EU market represents a very small share of Armenian exports, mainly due to the strict regulation of the EU in terms of food safety and food certification. Increased investment in improving food safety today will lead to higher profits earned in the foreign markets in the future.
<i>low productivity of farming practices</i>	• Knowledge and innovations need to be used to achieve productivity through intensive growth. New varieties of plants /trees that provide higher yields can be tested and used. • Pesticides and fertilizers need to be certified to ensure their effectiveness. In turn, farmers need to be trained when, what and how much to use pesticides and fertilizers. • Armenian farmers may not be very productive in producing certain goods. In these cases processing plants can import raw materials and export finished goods (like in the case with tobacco). The import taxation scheme in Armenia is favorable for these cases: 0 tariff is applied for import of agricultural raw materials, and finished goods for exporting are not taxed.
<i>Lack of technical skills for value-added industries</i>	Many sectors of the economy such as wine and brandy production, food processing lack high quality technical personnel and are forced to invite international experts to sustain their production. Special attention needs to be paid to capacity building, such as training technical personnel (vocational skills).
<i>Technological base in agricultural production and processing is obsolete</i>	Foreign investments can be attracted to stimulate application of new technologies in the agricultural goods production, storage and processing. New harvesters will reduce the losses of crops during the harvest, cold storage facilities will ensure effective storage of products and new production lines will enhance processing capacity.
<i>Low competitiveness of many agricultural products compared with neighbor states</i>	Exports should concentrate on high value-added products such as organic production and processed food. Niche marketing is the right strategy for exporting. The ban imposed by Russia on the imports from the EU, USA, Canada, Australia and Norway leaves the gap on the Russian market that needs to be filled, and Armenia has to use its resources not for the raw commodity exports, but for higher value processed food. Alpine climate in Armenia enables producing all types of cheese that will be demanded in Russia, while sun and soil, as well as cheap labor create perfect conditions for production of berries.
<i>Irrigation issues</i>	About two third of arable land in Armenia are not irrigated. Since Soviet times only some very small investments were implemented within the framework of Millenium Challenges project. Ministry of Agriculture is not able to make such investments on its own and in this regard has to rely on external support.

8. CONCLUSION

Agricultural sector in Armenia moves towards production of high value added goods. The promising industries in this regard are wine and brandy, tobacco, organic fruits and vegetables, processed/canned fruits and vegetables, as well as fish production. The country also experienced intensive greenhouse construction that ensures availability of vegetables in the local market throughout the year.

Although export volumes of mentioned products are increasing, Armenia is still highly dependent on food imports. In particular, imports of grains (wheat, rice, etc.), oil and butter, as well as meat (except for lamb). During the past 10 years covered by this study agri-food imports exceed agri-food exports about 1.5-2 times on average.

In October 2014 Armenia signed the final agreement for joining the Eurasian Customs Union in 2015. Even though the Ministry of Agriculture expects increase in the agricultural exports to the Eurasian Customs Union countries, the real impact of this action on agriculture is still unclear.

Russia represents a large potential market for agricultural goods (given the ban on imports of agricultural products to Russia from the EU countries). But volumes of current production in Armenia are very insignificant for meeting the requirements of Russian market. Besides, Armenian consumers may also be affected in a way that they will have more limited choice of food (the EU and the USA imports will have higher import duties than Russian products). Russia has always been the largest trading partner of Armenia both in terms of agri-food imports and exports. The past geopolitical events and scientific analysis lead to the conclusion that the state of Armenian agricultural sector and agricultural trade are not likely to have big shocks or changes in the near future.

The implication of Armenia's joining Eurasian Customs Union in 2015 is that Armenian food processors and producers will not need to worry about the certification of the products targeted to the Eurasian Customs Union. However, proper certification of product will be an issue when exporting products to the EU or the USA markets.

Armenian producers should remember that there are other member countries of the customs union, which can produce agricultural goods at low prices and higher quantities. So, the local producers have to strive to be more competitive in terms of price, consistent high quality and adequate quantities of products offered. One of the main limiting factors is the small scale of farming in the country. To be able to supply large volumes of quality agricultural produce at the right price, the country needs to promote structural changes in the farming sector with the aim of increasing the average farm size. In the short-run, however, Armenia will be able to competitively export only a limited list of agricultural products.

There are quite a few improvements to be made in the agricultural sector for achieving higher productivity and yields. These improvements can be summarized as follows:

- Land consolidation and farmer cooperatives development
- Improvement of factors of production, including agricultural machinery renovation and food production and processing skills development
- Rural infrastructure development (roads to provide access to the market, irrigation to be able to effectively use arable land)
- Development of agricultural insurance to balance the high risk of financing agricultural activities
- Food certification needs to be implemented and food safety labs established across the country

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10. APPENDIXES

Appendix 1: Agricultural loan portfolios of banks and universal credit organizations.

Table 33 Agricultural portfolio of banks

Agriculture loans (mln. AMD)	12/31/2008	12/31/2009	12/31/2010	12/31/2011	12/31/2012	9/30/2013
Byblos	0	0	1378	1508	2884	2205
BTA	41	30				
Arm Development Bank	15	40	388	378	1677	386
Arexim bank	37	305	1884	2651	4410	6559
Acba bank	26354	29446	27102	39435	45787	56164
Ardshininvest	1725	815	4369	6241	8108	3289
Ararat	98	77	61	154	994	1262
Artsakh	1092	2624	3054	2994	2747	1798
Armswiss	0	129	345	1701	2696	2866
Ameriabank	1650	1400	1520	2053	1489	2865
Anelik	767	1080	1054	940	750	618
Ineco	906	884	499	880	1301	1142
Procredit	59	263	231	3040	4688	6135
Prometey	61	110	76	138	467	453
Armeconom	39	2516	3663	4607	3478	2226
ArmBusiness	529	1474	2525	7037	4413	3905
HSBC	450	319	621	1972	2738	4020
Cascade	219	538	0	0	0	0
Converse	826	1429	1108	1178	1667	1881
VTB	1375	401	2126	3198	10520	14846
Mellat	0	0	0		67	59
Unibank	223	295	360	587	514	703
Grand Total	36467	44177	52365	80693	101396	113380

Source: CBA

Table 34 Agricultural portfolio of UCOs

Agriculture loans (mln. AMD)						
	12/31/2008	12/31/2009	12/31/2010	12/31/2011	12/31/2012	9/30/2013
Bless		0.0	0	52	55	85
Garni invest	43.7	86.7	55	52	59	62
Global Credit	0.0	0.0	0	0	111	109
Eclof UCO LLC	440.1	513.0	706	664	580	705
Express credit		0.0	21	18	89	68
Acba leasing	100.2	83.1	84	58	387	334
Agroleasing	3.8	11.0	41	40	36	45
Aregak	3906.4	4842.9	5520	6903	7438	8668
Avangard credit	0.0	0.0	0	0	3	4
Aniv	0.0	256.4	342	394	485	579
Izmiryan	28.8	0.0	0	0	0	0
G&A	0.0	0.0	0	0	5	14
GFC		254.7	449	606	698	760
Sef international	962.1	621.7	509	1334	2391	3294
Cascade credit	212.7	0.0	0	0	0	0
Kamurg	0.0	0.0	847	2993	4044	4249
Kilikia	0.0	0.0	0	0	25	29
Card Agrocredit	136.3	702.2	1068	1449	2205	2632
Malatia	10.1	16.1	28	44	46	97
SME investments	0.0	0.0	118	277	490	614
Farm credit	123.9	383.6	1022	2180	3238	3740
Fast credit	0.0	0.0	0	0	182	440
F,I,C,O	0	0	0	0	0	1
Nor Horizon	103	252	548	836	1090	1674
Norvik credit		0	0	0	0	
Finca	1963	2136	2857	4575	6453	7048
Grand Total	8035	10160	14215	22476	30107	35251

Source: CBA

Appendix 2: Agricultural land use

Table 35 Orchard and vineyard areas:

item	2005	2006	2007	2008	2009	2010	2011	2012
Apples	8300	8000	8942	8298	8811	9321	8962	n/a
Pears	3700	3600	2905	2727	2756	2788	2729	n/a
Apricots	5300	5700	8215	8140	7808	7928	7739	n/a
Peaches & nect.	5400	5700	4532	4269	4283	4317	4509	n/a
Plums & sloes	2600	2800	1446	1486	1536	1536	1596	n/a
Cherries	1200	1200	1041	952	997	1003	1085	n/a
Cherries, sour	n/a	n/a	737	737	763	756	740	n/a
Other fresh fruit	1500	1500	364	363	383	400	250	n/a
Other stone fruit	1000	450	215	205	207	300	200	n/a
Other tropical fruit	510	500	500	500	500	500	500	n/a
Grapes	13475	14098	14097	14390	14292	14613	14478	n/a
Hazelnuts	n/a	n/a	112	113	117	120	130	n/a
Walnuts	n/a	n/a	1396	1349	1440	1400	1347	n/a
Berries nes	1100	1500	2223	2069	2084	2089	2291	n/a
TOTAL (excl. grapes)	29510	29450	30405	29139	29601	30369	29787	n/a
TOTAL	44085	45048	46725	45598	45977	47071	46556	n/a

nes – not elsewhere specified / Source: FAOSTAT

Table 36 Agricultural outputs and yields by regions in 2013

Indicator	Total RA 2013	Yerevan	Aragatsotn	Ararat	Armavir	Gegharkunik	Lori	Kotayk	Shirak	Syunik	Vayots dzor	Tavush
Gross agricultural output, total (bln. AMD, current prices)	918.6	8.5	89.1	136.4	163.2	165.3	67.3	56.7	106.1	62.3	20.0	43.7
Plant growing (bln. AMD, current prices)	572.9											
Animal husbandry (bln AMD., current prices)	345.7											
Sown areas under grains and leguminous plants (ha)	178367	112	24424	5526	6041	41753	11268	12017	42381	23252	2495	9098
Sown areas under potatoes	30680	90	1605	781	1216	14109	3953	818	4219	1713	178	1998
Sown areas under vegetables (ha)	25403	312	1011	6330	9007	2023	1454	1327	1634	988	396	921
Sown areas under water-melons (ha)	5356	60	173	1515	3499	-	6	-	-	-	14	89
Planting areas of fruits and berries (ha)	40229	1328	6602	7394	8340	1488	2591	4690	503	2591	2148	2554
Planting areas of grape (ha)	17465	612	1698	5143	7136	1	64	336	-	185	935	1355
Yield of grains and leguminous plants	3.1	3.8	3.0	4.2	3.6	3.0	3.3	2.3	3.1	2.9	2.5	3.9

(ton./ha)												
Yield of potatoes (ton./ha)	21.4	10.0	24.5	31.0	26.8	21.8	18.4	20.0	25.0	17.9	18.2	12.3
Yield of vegetables (ton./ha)	33.4	14.9	34.0	47.1	35.8	30.8	16.4	16.8	27.6	17.4	16.9	11.3
Yield of water-melons (ton./ha)	38.9	13.3	37.5	43.2	37.9	-	15.0	-	-	-	21.9	27.8
Yield of fruit and berry plantations (ton./ha)	9.5	4.4	12.0	13.5	11.4	18.3	2.7	4.7	15.8	5.6	2.9	7.4
Yield of grape plantations (ton./ha)	15.0	6.9	8.7	21.1	15.7	0.0	3.4	2.7	-	6.4	5.8	10.8
Gross harvest of grains and leguminous plants (thous. tons)	548.8	0.4	73.4	23.2	22	125.1	36.8	27.9	130.6	67.8	6.2	35.4
Gross harvest of potatoes (thous. tons)	660.5	0.9	39.3	24.2	35.2	307.5	72.7	16.3	105.5	30.6	3.2	25.1
Gross harvest of vegetables (thous. tons)	876	4.6	34.4	306.2	342.4	62.3	23.9	22.4	45.1	17.2	6.7	10.8
Gross harvest of water-melons (thous. tons)	208.1	0.8	6.5	65.4	132.5	-	0.1	-	-	-	0.3	2.5
Gross harvest of fruits and berries (thous. tons)	338.1	5.9	69.9	91.8	75	25.6	6.3	19.3	7.7	14	5.7	16.9
Gross harvest of grape (thous. tons)	240.8	4.2	14.5	104.3	95.9	0	0.2	0.6	-	1.2	5.3	14.6
Realized livestock and poultry for slaughter (live weight, thous. tones)	146.8	1.8	15.6	9.8	15.4	23.5	16.3	14.7	21.4	13.9	5.6	8.8
Production of milk (thous. tones)	657	2.5	79.9	40.1	40.5	120.7	81.3	57.9	107.6	62.2	24.8	39.5
Production of eggs (mln. pieces)	615.2	28.7	59.4	54.7	127.7	58.2	43.7	117.3	40.1	26.3	17.4	41.7

Source: armstatbank.am

Appendix 3: Livestock in Armenia

Table 37 Livestock production and self-sufficiency from 2005 to 2013

		2005	2006	2007	2008	2009	2010	2011	2012	2013
MUTTON AND GOAT MEAT	Production	7.6	7.2	7.3	7.4	8.9	8.2	8.4	8.5	9.0
	Import	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Food consumption	7.5	7.1	7.3	7.3	8.6	8.2	8.3	8.4	8.8
	Export	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Self-sufficiency, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Per capita consumption, kg/year	2.5	2.3	2.4	2.7	2.8	2.7	2.8	2.9	3.0
FISH	Production	0.9	1.4	4.7	5.8	5.9	5.6	7.1	9.3	15.6
	Import	7.1	2.0	2.0	3.9	4.1	2.8	3.9	3.7	3.3
	Food consumption	6.8	2.4	4.6	7.3	8.2	6.1	6.8	7.2	9.9
	Export	0.9	1.1	0.9	1.0	0.7	1.4	2.7	4.0	6.9
	Self-sufficiency, %	12.7	60.9	81.0	66.7	63.4	80.0	85.5	103.3	130.0
	Per capita consumption, kg/year	2.2	0.8	1.5	2.4	2.7	2.0	2.3	2.5	3.4
POULTRY	Production	4.6	5.1	5.8	6.7	5.0	5.4	5.7	8.3	8.2
	Import	20.0	10.6	28.4	40.7	30.0	38.3	41.1	35.3	33.4
	Food consumption	24.2	15.9	33.8	47.3	34.8	43.6	46.6	43.3	41.2
	Export	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.2
	Self-sufficiency, %	18.7	32.5	17.0	14.1	14.3	12.4	12.2	19.1	19.8
	Per capita consumption, kg/year	8.0	5.2	11.2	15.8	11.4	14.4	15.9	15.1	14.2
BEEF	Production	34.4	40.4	43.3	49.3	49.6	48.0	48.2	47.6	53.6
	Import	11.2	12.0	9.6	19.3	13.9	8.7	13.4	11.3	8.8
	Food consumption	44.0	50.3	50.3	66.9	62.2	55.7	60.8	57.5	61.0
	Export	0.8	1.7	1.9	0.9	0.4	0.3	0.1	0.6	0.2
	Self-sufficiency, %	76.8	79.7	84.9	72.8	78.6	85.1	78.4	81.6	86.2
	Per capita consumption, kg/year	14.5	16.6	16.7	22.3	20.5	18.4	20.8	20.0	21.1
PORK	Production	9.4	14.1	13.3	7.5	7.2	7.9	9.4	9.5	12.6
	Import	7.2	7.5	10.8	15.8	13.1	11.4	12.4	15.5	15.0
	Food consumption	16.1	21.5	23.9	23.0	20.1	19.0	21.5	24.6	26.9
	Export	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.4
	Self-sufficiency, %	57.3	65.3	55.4	32.3	35.6	41.1	43.3	38.3	46.3
	Per capita consumption, kg/year	5.3	7.1	7.9	7.7	6.6	6.3	7.3	8.6	9.3

Source: NSS

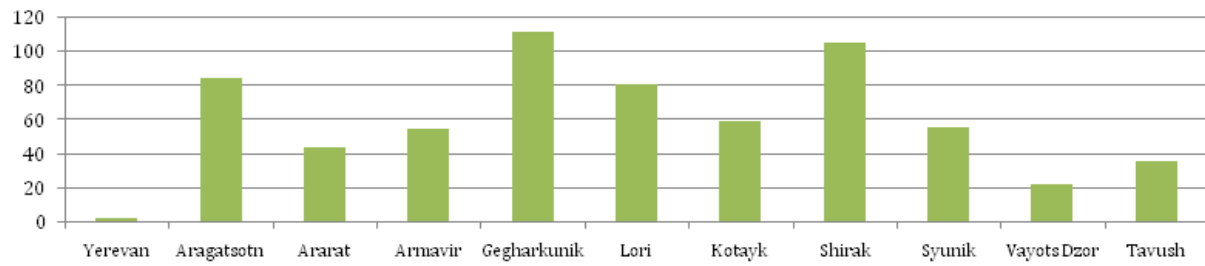
Table 38 Livestock by regions, types and year (in 1000 heads)

		2007	2008	2009	2010	2011	2012	2013
Total RA	Cattle	620.2	629.1	584.8	570.6	571.4	599.2	661
	Cows	307.1	310.6	283	273.9	272.6	283.3	303.3
	Pigs	152.8	86.7	84.8	112.6	114.8	108.1	145
	Sheep and goats	632.9	637.1	559.2	511	532.5	590.2	674.7
	Horses	12.6	11.8	11.3	10.8	10.1	9.9	10.8
Yerevan	Cattle	3.1	3.2	2.5	2.3	1.7	2.5	2.7
	Cows	1.8	1.9	1.1	1.3	1.1	1.2	1.2
	Pigs	3.5	3.2	2.6	5.6	7.3	5.4	6.2
	Sheep and goats	4.2	4.6	2.5	1.5	2.2	1.9	2
	Horses	0	0	0	0	0	0	0
Aragatsotn	Cattle	74	74.4	70.4	70.2	70.8	75.7	85.2
	Cows	37	37.2	35	33.8	34.1	36.9	40.3
	Pigs	10	6.6	6.6	9.6	10.5	9.5	10.5
	Sheep and goats	94.7	93.4	78.9	71.4	73.5	82.2	95.9

	Horses	0.5	0.5	0.4	0.4	0.4	0.4	0.3
Ararat	Cattle	43.6	43.9	40.7	41.2	41.2	41.4	44.2
	Cows	18.9	19.1	17.4	16.9	15.7	16.5	17.3
	Pigs	16.3	14.7	13.5	15.3	12.5	12	18.1
	Sheep and goats	71.3	71.8	69.6	65.9	66.1	70.5	81.4
	Horses	0.5	0.6	0.6	0.7	0.6	0.5	0.6
Armavir	Cattle	47.8	49.3	43.9	41.5	42.1	47.7	55
	Cows	20.6	21.1	17.5	16.5	16.5	18.2	20
	Pigs	17.7	13.6	12.7	15.9	15.6	12.4	20.7
	Sheep and goats	64	64.6	59.8	58.8	61.3	71	92.5
	Horses	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Gegharkunik	Cattle	111.5	111.3	104.6	101.9	95.9	98.5	112.3
	Cows	57.8	59.9	53.4	50.6	51.9	52	54.3
	Pigs	13.2	7.6	6.8	8.4	8.6	8	11.9
	Sheep and goats	106.3	105.8	100.1	85.2	90.8	91.7	101.4
	Horses	1.7	1.6	1.7	1.5	1.4	1.3	1.4
Lori	Cattle	73.6	73.8	73.3	69	69.7	74.3	81.5
	Cows	37.7	39.1	37.1	35.1	33.7	36.2	39.1
	Pigs	16.4	5.6	6	9.5	8.5	7.4	13.7
	Sheep and goats	38.8	40.3	34.9	28.5	28.8	28.7	32.2
	Horses	3.2	3	2.9	2.7	2.5	2.4	2.6
Kotayk	Cattle	58.7	59.1	52.4	48.3	52	54.3	59.5
	Cows	30.8	28.5	25.9	24.2	24.6	26	27.4
	Pigs	21.1	12.9	12.4	12.7	15.1	14.6	19.2
	Sheep and goats	55	58.4	39.5	35.2	35.8	41	44.2
	Horses	1.3	0.7	0.7	0.5	0.4	0.4	0.5
Shirak	Cattle	96.2	104.5	93.6	95.9	96.7	99.7	105.7
	Cows	46.5	49.1	45.2	46.1	45.5	45.9	50.2
	Pigs	14.2	9.2	10.3	14.5	13.5	15.3	15.7
	Sheep and goats	85	86.1	71.6	68.4	69.1	82.3	86.5
	Horses	0.7	0.6	0.5	0.5	0.5	0.4	0.5
Syunik	Cattle	53.3	53.4	53.5	50.7	51.2	52.5	56.3
	Cows	26.3	26.5	26.5	25.3	25.3	25.7	26.7
	Pigs	9.6	4.3	4.1	6.3	7.6	7.8	10.6
	Sheep and goats	60.3	67.3	68.2	65	73.2	86.3	101.5
	Horses	2.5	2.4	2.4	2.3	2.1	2.1	2.4
VayotsDzor	Cattle	20.7	18.4	16.5	15.9	16.3	18.5	22.7
	Cows	10.4	8.8	8	7.8	7.9	8.3	9.6
	Pigs	1.8	1.1	1.2	1.4	1.9	1.4	1.9
	Sheep and goats	28.6	19.7	18	17	17.1	19.5	21.4
	Horses	0.5	0.5	0.4	0.4	0.4	0.4	0.4
Tavush	Cattle	37.7	37.8	33.4	33.7	33.8	34.1	36
	Cows	19.3	19.4	15.9	16.3	16.3	16.4	17.2
	Pigs	29	7.9	8.6	13.4	13.7	14.3	16.5
	Sheep and goats	24.7	25.1	16.1	14.1	14.6	15.1	15.7
	Horses	1.6	1.7	1.6	1.7	1.7	1.8	1.9

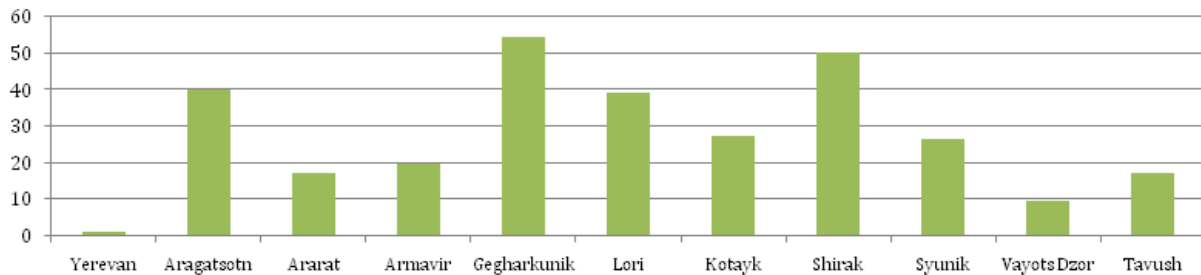
Source: NSS

Figure 30 Cattle distribution by regions of Armenia - figures based on 2013



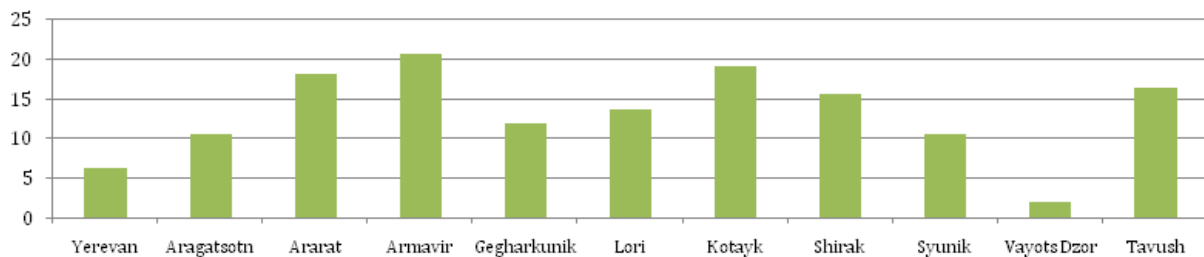
Source: NSS

Figure 31 Cow distribution by regions of Armenia- figures based on 2013



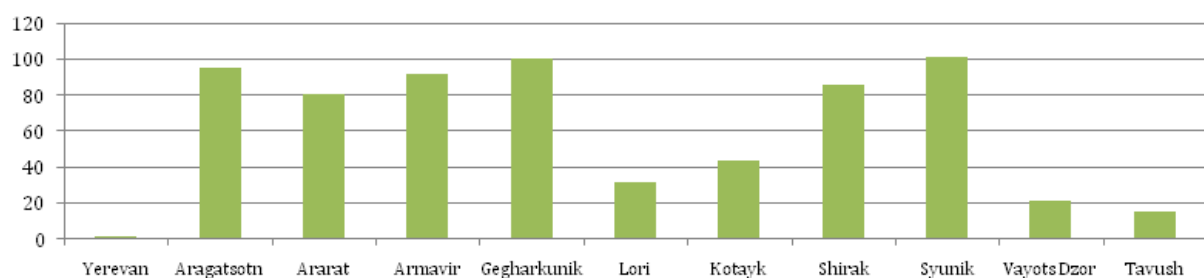
Source: NSS

Figure 32 Pig distribution by regions of Armenia- figures based on 2013



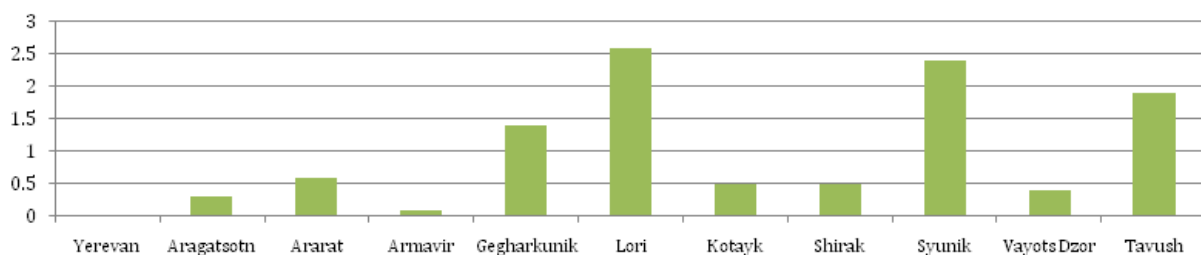
Source: NSS

Figure 33 Sheep and goat distribution by regions of Armenia- figures based on 2013



Source: NSS

Figure 34 Horse distribution by regions of Armenia- figures based on 2013



Source: NSS

Appendix 4: Average producer and average consumer prices for certain agricultural products

Table 39 Average producer (selling) prices for certain agricultural products (NC/kg)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Apples	150	138	186	186	158	141	290	258	219	203	237
Apricots	408	102	227	413	149	110	676	429	na	na	na
Barley	101	83	111	103	104	95	122	145	159	166	133
Beans, dry	369	394	602	647	694	677	922	1020	942	1019	1040
Cabbages and other brassicas	47	60	79	57	66	66	71	83	80	109	73
Carrots and turnips	71	71	101	113	89	79	115	200	195	220	187
Cherries	273	171	312	345	263	151	476	357	na	na	na
Chilies and peppers, green	115	98	115	135	125	121	153	226	na	na	na
Cucumbers and gherkins	87	103	131	135	126	124	125	156	158	177	na
Currants	376	266	315	465	384	488	759	480	na	na	na
Eggplants (aubergines)	100	49	116	114	126	97	101	138	na	na	na
Figs	244	150	197	203	251	214	278	296	na	na	na
Fruit, stone nes	2457	1662	1685	2408	2200	1881	2072	2846	na	na	na
Garlic	468	457	494	574	745	692	895	909	na	na	na
Grapes	187	154	161	165	169	131	206	185	181	175	185
Honey, natural	2572	2567	2652	2581	2663	2701	2851	2932	3175	3358	3602
Lentils	500	400	400	425	456	600	na	na	na	na	na
Meat indigenous, cattle	1073	1143	1200	1206	1263	1290	1815	2187	2199	2138	2054
Meat indigenous, chicken	1086	1072	1138	1182	1220	1433	1707	1665	1711	1717	na
Meat indigenous, pig	1479	1531	1288	1293	2170	1858	1901	2407	2795	2392	2845
Meat indigenous, rabbit	1043	1357	1137	1200	1275	1807	2491	2923	na	na	na
Meat indigenous, sheep	1063	1186	1282	1265	1505	1530	2282	2633	2600	2410	2355
Meat live weight, cattle	548	589	617	658	687	624	897	1174	na	na	na
Meat live weight, chicken	261	287	267	296	328	326	343	371	na	na	na

Meat live weight, pig	975	1189	1211	1213	1574	1569	1577	1815	na	na	na
Meat live weight, sheep	681	642	627	730	777	859	1378	1680	na	na	na
Meat, cattle	1073	1143	1200	1206	1263	1290	1815	2187	2199	2138	2054
Meat, chicken	1086	1072	1138	1182	1220	1433	1707	1665	1711	1717	na
Meat, pig	1479	1531	1288	1293	2170	1858	1901	2407	2795	2392	2845
Meat, rabbit	1043	1357	1137	1200	1275	1807	2491	2923	na	na	na
Meat, sheep	1063	1186	1282	1265	1505	1530	2282	2633	2600	2410	2355
Milk, whole fresh cow	100	101	107	112	115	105	114	163	143	145	162
Mushrooms and truffles	332	200	300	416	424	393	500	1000	na	na	na
Onions, dry	117	84	124	119	100	124	209	190	171	1145	na
Onions, shallots, green	433	424	415	575	686	448	719	1059	na	na	na
Peaches and nectarines	315	97	156	164	214	133	466	274	na	na	na
Pears	191	146	204	218	283	209	504	307	332	342	326
Peas, dry	300	400	500	534	572	500	700	na	na	na	na
Peas, green	145	142	210	230	245	227	300	na	na	na	na
Plums and sloes	156	94	187	178	155	138	428	225	na	na	na
Potatoes	73	77	122	133	101	71	130	184	112	119	159
Pulses, nes	158	140	na	na	na	na	na	na	na	na	na
Quinces	265	188	253	316	303	619	376	480	na	na	na
Rye	120	116	117	122	133	92	118	152	na	na	na
Strawberries	424	367	322	384	403	379	569	535	na	na	na
Tobacco, unmanufactured	545	419	478	519	114	63	65	65	na	na	na
Tomatoes	68	64	56	62	87	78	102	75	109	129	na
Vetches	158	140	140	145	155	150	179	na	na	na	na
Walnuts, with shell	1130	834	1027	1164	1208	1004	1032	1087	1303	1139	1923
Watermelons	70	49	67	63	82	45	105	88	82	148	na
Wheat	111	82	88	104	121	96	121	139	158	162	142

nes – not elsewhere specified / Source: NSS

Table 40 Average consumer prices for certain agricultural products (NC/kg)

Republic of Armenia	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Rice	325	349	354	362	498	608	648	651	714	395	767
Sugar	254	250	309	267	242	288	344	413	454	400	364
Potatoes	121	127	197	235	155	117	182	265	184	163	239
Dessert apples	336	351	402	459	373	368	509	885	467	520	611
Cattle (meat)	1352	1427	1533	1551	1582	1613	2067	2477	2544	2523	2423
Pig (meat)	1758	1895	1816	1619	2542	2420	2352	2783	3457	3058	3341
Sheep (meat)	1256	1349	1423	1439	1687	1979	3106	3308	3352	3088	3066
Poultry (meat)	1260	1158	1232	1286	1231	1336	1408	1452	1463	1615	1651
Milk	275	278	286	296	304	326	328	343	343	394	411
Eggs (in a shell, ten items)	512	533	543	578	559	516	484	588	583	698	699
Vodka	1515	1531	1543	1551	1573	1586	1657	1679	1696	na	na
Animal butter	1575	1634	1631	1769	2332	2355	2705	3267	3328	3772	3881

Source: NSS

Appendix 5: Trade in Agriculture, Forestry and Fishery

	Exports by commodity, total									
HS Code	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
0105	n/a	n/a	n/a	n/a	n/a	14	7	n/a	n/a	n/a
0106	n/a	2000	n/a	n/a	n/a	16	127	n/a	n/a	n/a
0202	n/a	136476	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
0203	n/a	21842	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
0210	n/a	875	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
0302	5112	44322	84868	13918	n/a	n/a	3769	32700	10156	9123
0303	n/a	n/a	5760	42930	72082	15008	46089	n/a	6903	n/a
0305	n/a	n/a	800	n/a	n/a	n/a	62	n/a	n/a	n/a
0306	174	7426	267665	417656	598752	654228	976131	1379808	1185405	1045783
0403	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6000	n/a	n/a
0406	123091	338000	22000	n/a	77805	n/a	473	n/a	n/a	n/a
0409	n/a	n/a	n/a	n/a	n/a	n/a	552	n/a	n/a	n/a
0602	495	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
0603	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	444	n/a
0703	n/a	n/a	n/a	n/a	n/a	n/a	15206	n/a	n/a	n/a
0704	n/a	n/a	n/a	n/a	n/a	n/a	23364	n/a	n/a	n/a
0711	n/a	n/a	n/a	n/a	9805	n/a	31007	n/a	n/a	n/a
0712	n/a	n/a	n/a	n/a	n/a	n/a	30	n/a	n/a	n/a
0802	5654	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
0806	n/a	6972	n/a	11400	30253	n/a	12705	39858	140920	38160
0809	n/a	n/a	n/a	n/a	59216	469323	168577	99305	598281	613862
0813	1116	8776	n/a	11865	n/a	13792	13834	13486	18465	20801
0901	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4555	n/a
0902	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	16080	n/a
0910	n/a	n/a	n/a	n/a	n/a	n/a	905	n/a	n/a	319
1211	n/a	n/a	n/a	n/a	n/a	n/a	15	n/a	n/a	255
1301	n/a	n/a	n/a	n/a	n/a	n/a	84	n/a	n/a	n/a
1515	n/a	n/a	n/a	n/a	n/a	n/a	n/a	341	n/a	n/a
1521	n/a	n/a	n/a	n/a	n/a	n/a	58	n/a	n/a	n/a
1602	n/a	23247	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1604	n/a	n/a	1241	1389	n/a	n/a	116	n/a	n/a	n/a
1605	n/a	n/a	n/a	n/a	65345	n/a	25619	128454	185712	265470
1806	n/a	n/a	n/a	n/a	n/a	n/a	190617	n/a	n/a	n/a
1905	n/a	n/a	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2001	n/a	n/a	124	205	9444	n/a	3910	5369	3838	10824
2002	1312494	2590524	1100607	988628	1631252	414201	18308	373047	323424	348209
2005	n/a	n/a	1027	211	35090	n/a	68042	4147	106829	130161
2006	n/a	n/a	n/a	n/a	n/a	n/a	137	n/a	n/a	n/a
2007	3277	1565507	1429393	1642843	1754226	171618	213440	422622	108970	60575
2008	29026	52414	95273	319804	184485	13345	40817	91987	237904	211132
2009	29	n/a	10688	21097	101883	96058	79462	160079	123976	153528
2102	n/a	n/a	n/a	23749	n/a	n/a	n/a	n/a	n/a	n/a
2103	n/a	n/a	134	n/a	n/a	n/a	32	576	18682	4973

2106	49534	20920	2664	n/a	13526	n/a	1579	n/a	n/a	128
2201	24854	21621	70516	155697	230388	184531	212323	153136	129475	173974
2202	n/a	n/a	11689	11705	16378	10618	10277	27100	42045	104867
2203	82	n/a	n/a	n/a	n/a	n/a	n/a	30239	12720	22830
2204	77257	n/a	n/a	n/a	66151	n/a	34258	22800	40193	n/a
2206	20760	n/a	n/a	n/a	6912	n/a	6264	217680	121950	140423
2207	27666	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2208	2171625	5326919	7338879	8633842	12289449	5509825	6672780	6435086	9092848	9344283
2209	n/a	n/a	n/a	n/a	n/a	n/a	36	n/a	n/a	n/a
2401	n/a	n/a	n/a	29382	215933	n/a	n/a	n/a	n/a	n/a
2402	30582	n/a	107600	n/a	n/a	n/a	n/a	n/a	n/a	125040
2403	19013	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2911	n/a	n/a	10	10	n/a	n/a	n/a	n/a	n/a	n/a
2915	100	234	4450	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2917	n/a	17000	n/a	47200	23	52714	85281	26611	79186	2410
2918	n/a	52396	n/a	103990	n/a	n/a	n/a	n/a	n/a	n/a
2933	43651	44096	25100	59000	n/a	n/a	21000	105000	n/a	47000
2934	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7440	2937	n/a
3301	n/a	n/a	n/a	n/a	n/a	n/a	n/a	249	n/a	n/a
3304	n/a	n/a	n/a	n/a	n/a	3600	n/a	n/a	n/a	n/a
3305	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	10000	n/a
3307	n/a	n/a	n/a	n/a	n/a	n/a	220	n/a	n/a	n/a
3506	n/a	595	n/a	n/a	n/a	n/a	700	n/a	n/a	n/a
3815	n/a	n/a	n/a	46649	n/a	n/a	n/a	n/a	n/a	n/a
4002	2465066	390196	639754	540325	631200	351749	452158	48477	28458	n/a
4009	n/a	n/a	n/a	880	n/a	n/a	n/a	n/a	n/a	n/a
4013	13500	80100	19279	n/a	n/a	n/a	n/a	n/a	n/a	n/a
4016	n/a	n/a	n/a	n/a	128	n/a	72	48	n/a	n/a
4408	n/a	13500	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
4418	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	53300
4420	n/a	n/a	n/a	n/a	240	n/a	n/a	n/a	44	n/a
4503	6278	27889	47437	14844	n/a	n/a	n/a	n/a	n/a	10
4504	n/a	1192	2596	7312	n/a	n/a	n/a	n/a	n/a	n/a

Source: customs.am

Imports by commodity, total										
HS code	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
0103	n/a	n/a	93945	n/a	n/a	n/a	n/a	n/a	n/a	n/a
0104	n/a	n/a	n/a	n/a	2227	n/a	3029	n/a	n/a	n/a
0105	106574	290628	338626	325283	206842	n/a	n/a	n/a	n/a	n/a
0106	n/a	n/a	3998	n/a	673	1008	332	n/a	12328	1678
0202	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	668058	377400
0203	n/a	n/a	n/a	n/a	176836	n/a	n/a	n/a	44319	n/a
0207	n/a	n/a	n/a	n/a	119900	547478	1353438	2247863	390335	2987373
0303	n/a	n/a	n/a	n/a	72410	n/a	n/a	n/a	n/a	n/a
0401	36000	n/a	n/a	n/a	n/a	n/a	3983	8176	3857	31887

0402	3555734	4085078	3668271	5988870	5325760	2350122	2908663	5996809	4643703	4710399
0403	n/a	n/a	n/a	n/a	n/a	n/a	163683	99904	116569	192096
0404	21250	56687	n/a	25000	21222	183996	299593	271026	498557	769816
0405	2293152	1414355	1257398	839592	1449645	n/a	6100	728366	n/a	618795
0406	n/a	n/a	180858	471742	352348	210880	168842	281975	76280	72728
0407	n/a	n/a	n/a	87696	n/a	n/a	n/a	2671292	n/a	909551
0408	n/a	n/a	n/a	n/a	n/a	55500	67750	89569	n/a	31564
0409	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	42955	n/a
0602	n/a	n/a	n/a	n/a	6300	n/a	n/a	n/a	n/a	n/a
0604	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	24471	n/a
0703	n/a	120	99	n/a	23625	61105	n/a	n/a	15833	385323
0706	n/a	n/a	n/a	n/a	n/a	10503	n/a	n/a	n/a	125
0710	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2400	n/a	n/a
0712	n/a	n/a	n/a	194	n/a	n/a	72	n/a	676	n/a
0713	339830	342997	429517	697828	1096941	854976	823100	988332	899781	905923
0801	n/a	n/a	n/a	n/a	143	285	160	n/a	n/a	n/a
0802	437498	n/a	9052	189971	313986	344401	112714	17400	94395	220259
0804	n/a	n/a	766	n/a	n/a	n/a	n/a	n/a	n/a	n/a
0813	n/a	n/a	n/a	n/a	n/a	n/a	1113	n/a	n/a	n/a
0901	n/a	8644	n/a	n/a	n/a	n/a	n/a	n/a	10934	n/a
0904	3362	6313	11417	10551	27622	1782	5000	n/a	n/a	n/a
0905	433	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
0906	310	393	885	n/a	994	n/a	n/a	n/a	n/a	n/a
0907	300	699	657	826	1394	n/a	n/a	n/a	n/a	n/a
0908	n/a	315	39	12	n/a	20	23	n/a	n/a	n/a
0909	55	54	27	69	n/a	30	n/a	n/a	n/a	n/a
0910	1336	2756	2241	2153	4861	123	413	3300	4	n/a
1001	25600	258626	2758814	1312448	2883109	3176216	80708	15140416	2402516	6022980
1003	311645	9050	352108	539549	434087	356615	366691	1515677	n/a	628070
1004	n/a	1288	8046	7186	5202	1298	2798	8741	n/a	n/a
1005	3357877	n/a	89415	4422436	5271295	1801941	3258952	6193163	2001309	8460532
1008	4195	2749	7319	945395	7190	5082	28478	110806	73334	20652
1101	8050	34450	n/a	n/a	2733351	762228	153968	187625	60750	65986
1102	29035	67572	53642	30376	63013	36830	30375	n/a	2109	n/a
1103	1082333	1092213	985539	979179	800116	1948813	252032	937804	141207	108700
1104	4719	1878188	3844140	897175	341432	109569	168684	471429	90360	101842
1107	n/a	n/a	335385	596925	818045	486963	1203976	1236079	4548	1612636
1108	423	110	940	n/a	n/a	589	15771	24673	100914	59240
1201	n/a	37820	n/a	n/a	n/a	179200	n/a	n/a	n/a	74027
1205	n/a	n/a	2915	1153	n/a	n/a	n/a	5421	2773	n/a
1206	n/a	22066	100617	928157	881336	1693525	3333821	4157899	1016870	230357
1207	235	n/a	n/a	n/a	n/a	n/a	28	n/a	n/a	1294
1209	n/a	n/a	n/a	75552	n/a	n/a	n/a	n/a	n/a	n/a
1211	n/a	n/a	n/a	n/a	27298	n/a	18256	1130	1394	n/a
1212	n/a	n/a	1202	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1302	n/a	n/a	n/a	n/a	n/a	n/a	1092	21	n/a	n/a
1404	n/a	n/a	n/a	n/a	n/a	n/a	n/a	54	n/a	n/a

1502	n/a	10107	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1504	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1078	n/a
1507	n/a	205704	338317	1392254	1300756	n/a	376152	431704	639037	674754
1508	n/a	n/a	n/a	n/a	n/a	n/a	280	30	n/a	n/a
1511	n/a	n/a	n/a	70400	368502	59157	1056579	651897	448043	333125
1512	2711645	2620160	5626874	4721585	8244514	8255546	8041255	10533083	11326624	10118760
1513	n/a	n/a	n/a	n/a	n/a	n/a	110408	260261	71694	20700
1514	n/a	n/a	n/a	n/a	n/a	n/a	182	n/a	n/a	n/a
1515	89391	n/a	58117	529	n/a	n/a	2315	967	n/a	n/a
1516	n/a	3957	17055	89191	411290	50387	n/a	392170	n/a	n/a
1517	305159	440302	1665999	2353243	6011633	6288623	7947076	9596137	9130515	9233115
1518	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3320	n/a	n/a
1520	n/a	n/a	n/a	n/a	n/a	n/a	1900	n/a	n/a	n/a
1601	n/a	n/a	n/a	n/a	n/a	13000	n/a	n/a	n/a	431
1604	243327	495924	364500	581009	661426	404093	411121	870740	437668	332010
1605	n/a	n/a	n/a	n/a	882	n/a	n/a	1512	n/a	n/a
1701	2144040	n/a	n/a	4906	n/a	n/a	81	120	1742	66938
1702	1592	n/a	n/a	n/a	5000	n/a	27124	4	n/a	3081
1703	n/a	n/a	817	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1704	947676	1240526	1478592	2551626	3812901	3297535	3748198	3878588	3405284	3929718
1803	n/a	n/a	n/a	n/a	n/a	n/a	5492	n/a	n/a	n/a
1804	n/a	457	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1805	2299	9175	14932	17511	24508	13448	14288	39871	21590	n/a
1806	1885974	2466650	2956455	6141444	11885187	10246308	9594584	9467036	10047284	10749331
1901	n/a	n/a	112766	136744	268859	236972	1325216	1190510	1444336	1185707
1902	51830	75835	23279	347872	415982	462595	516572	667346	390256	525490
1904	538	1887	2890	83204	17782	1554	48776	39314	100148	87182
1905	245728	366906	626414	1394703	3699097	2603202	2434882	2807215	4107354	3970295
2001	36040	n/a	3526	35580	n/a	33451	n/a	n/a	n/a	n/a
2002	1484	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2003	n/a	n/a	n/a	n/a	n/a	2486	n/a	n/a	n/a	n/a
2005	3092	20035	190413	188408	244221	36439	3892	17010	29129	2694
2007	n/a	n/a	n/a	50170	n/a	179	528	n/a	491	2673
2008	n/a	163	n/a	1628	432	n/a	93483	9776	35	n/a
2009	1118808	1068785	1303847	2585193	2881008	749528	1011583	744733	368118	519350
2101	1321	84181	24843	47670	27989	9249	94726	186617	160469	210684
2102	n/a	n/a	n/a	n/a	n/a	n/a	299	152	3813	2914
2103	21438	18294	85388	7532	10204	214344	470703	749764	782580	1026305
2104	n/a	n/a	4286	8028	7083	7093	4895	6814	1463	n/a
2106	5678	298797	439189	2416199	1835294	1013807	933088	1645434	409029	597905
2201	n/a	n/a	16	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2202	438439	1753102	2559622	4768967	7583700	2714554	4120676	3269920	2143041	2294020
2203	n/a	254760	1024861	2303808	3481501	1276799	693289	413889	188328	165481
2204	7761	n/a	n/a	n/a	84886	42724	114613	54073	48369	41116
2207	n/a	88011	n/a	24473	n/a	129694	327800	156117	197	n/a
2208	963692	1502258	3152852	6077568	8123025	5638337	5760259	3198558	2718956	2585780
2209	n/a	158	n/a	n/a	n/a	n/a	n/a	6480	n/a	n/a

2301	183464	198112	147600	250206	303884	336976	247844	286771	264905	67475
2302	n/a	718798	132495	325774	n/a	n/a	279491	n/a	n/a	n/a
2304	n/a	n/a	n/a	63224	n/a	n/a	n/a	n/a	n/a	n/a
2306	939087	568008	315481	624969	3038600	1145351	729265	1037389	721040	818937
2309	1139924	638485	n/a	n/a	66291	n/a	2756	922	1400	23057
2402	4274244	13718118	18374237	22268191	24023121	15651885	20388709	24096321	25791931	35222685
2901	1963	741	n/a	n/a	180	413	n/a	n/a	n/a	n/a
2902	2931	519	1752	3879	4208	2179	1547	n/a	n/a	n/a
2903	5999	466	3305	267	10040	778	670	n/a	n/a	n/a
2904	1208	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2905	8258	2202	194	n/a	n/a	4186	11	123	45	n/a
2906	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6	4	n/a
2907	192	402	195	347	n/a	2349	4110	916	12	2255
2908	n/a	19	n/a	n/a	11	14	14	n/a	n/a	n/a
2909	3434	n/a	n/a	732	6	n/a	3237	n/a	n/a	5214
2912	5883	3214	3475	1498	1217	460	1438	n/a	n/a	n/a
2914	940	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	143
2915	61473	58310	510550	449578	548592	63794	24313	102295	42171	2605
2916	2432	6136	1458	n/a	n/a	n/a	823	3	5	n/a
2917	1875	101	n/a	98	96	75	n/a	n/a	n/a	n/a
2918	1910	2835	3775	1415	2609	409	785	3763	130	n/a
2921	2471	1544	1414	1	5398	97	455	275	1395	28
2922	n/a	5	143	n/a	n/a	72	2	14	612	700
2923	n/a	n/a	n/a	n/a	5400	n/a	3001	n/a	n/a	n/a
2924	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	292
2926	208	67	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2928	32	35	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2930	n/a	82	n/a	n/a	n/a	n/a	n/a	4	182	88
2931	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	38000	n/a
2932	n/a	125	n/a	n/a	n/a	n/a	n/a	14	n/a	n/a
2933	2590	2477	2439	3709	11	5	n/a	42	3	n/a
2934	n/a	66	n/a	n/a	n/a	n/a	n/a	7	111	114
2935	n/a	5	n/a	n/a	n/a	n/a	n/a	n/a	2	n/a
2936	5560	9153	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2937	n/a	n/a	n/a	755	n/a	n/a	9	n/a	n/a	n/a
2938	n/a	10	4	n/a	n/a	n/a	3	30	55	n/a
2939	n/a	n/a	76	2	n/a	n/a	n/a	13	4	n/a
2940	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	80
2941	n/a	5	n/a	n/a	52	n/a	55	n/a	220	n/a
2942	n/a	75	159	189	n/a	n/a	360	n/a	392	n/a
3301	n/a	n/a	n/a	n/a	1250	n/a	n/a	n/a	n/a	n/a
3302	n/a	n/a	n/a	n/a	n/a	n/a	4523	18217	28808	12696
3303	5263	27885	20866	74517	9737	n/a	n/a	n/a	n/a	10296
3304	89049	21409	24024	27558	43876	37518	50480	67424	50310	19928
3305	80541	105277	45473	75961	153342	73908	123748	138386	39577	38639
3306	384	5892	440	17	121	466	n/a	494	804	4510
3307	1332	539	29741	166288	234094	199521	322929	203774	138016	180529

3502	n/a	n/a	n/a	n/a	6950	38000	n/a	28020	1220	21288
3503	n/a	107	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3505	n/a	n/a	n/a	n/a	n/a	n/a	22100	n/a	n/a	n/a
3506	183	409	236	60	639	n/a	4404	5818	6115	19905
3507	n/a	1938	n/a	n/a	22816	n/a	n/a	n/a	n/a	n/a
3801	134	n/a	19536	139492	59421	n/a	n/a	2657	128645	57163
3802	n/a	n/a	n/a	n/a	n/a	n/a	4500	5537	n/a	n/a
3806	14600	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3808	28175	19049	17007	36113	23076	70319	36085	182400	39819	48252
3809	1473	3562	2830	3367	13853	9450	11196	4800	13518	4255
3810	78	n/a	n/a	129	47496	n/a	n/a	n/a	n/a	n/a
3811	115	1332	826	2910	938	1359	892	n/a	3126	660
3814	n/a	6167	n/a	n/a	1704	n/a	n/a	2940	n/a	n/a
3816	n/a	n/a	n/a	n/a	n/a	28242	n/a	2977	n/a	13200
3819	n/a	n/a	307	40010	38351	27854	39749	13066	19119	n/a
3820	1395	55155	76496	200020	346202	49073	16790	36569	53105	102246
3822	2913	10565	3561	3654	3240	827	1365	1862	7538	6866
3823	n/a	n/a	n/a	n/a	n/a	n/a	450	n/a	25201	49428
3824	316	3623	7136	7326	1089	473	24604	17680	37196	50048
4005	n/a	n/a	124	n/a	3509	8061	547	n/a	3496	n/a
4008	487	579	n/a	n/a	n/a	381	1868	16687	3331	3815
4009	17145	57820	58591	174479	186238	123605	83885	115255	135461	154285
4010	89	1892	n/a	1939	5382	8314	71122	89864	1618	21549
4011	2954551	4740584	2654096	3532623	3352785	2961601	2101141	2488183	2412694	2811567
4012	16105	34265	17337	4297	10778	3803	1260	n/a	n/a	438
4013	179008	298820	127371	102538	178168	95299	118965	177870	151697	163198
4014	42679	63223	41345	79343	107596	80016	76553	80480	44751	47157
4015	2965	n/a	265	n/a	n/a	2982	1638	2498	956	1380
4016	15011	33567	25557	47787	115416	127718	125815	109628	281336	445692
4017	n/a	n/a	n/a	n/a	n/a	1631	n/a	n/a	n/a	n/a
4403	n/a	n/a	579156	454426	381041	705108	110011	87848	149589	179094
4406	10676	n/a	242354	650406	98189	191400	161441	1830733	1278513	217086
4407	17865	n/a	n/a	484748	197921	1449369	6538886	7796724	8291269	3352200
4408	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	40928
4409	n/a	n/a	n/a	n/a	n/a	n/a	n/a	83145	51951	n/a
4410	346462	405531	635757	747666	612187	186807	112943	16610	26100	n/a
4411	n/a	22199	n/a	31546	220477	311811	160684	565114	332418	757986
4412	48294	10817	113381	439862	931610	288907	402954	188742	201621	226966
4413	8099	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
4414	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	92
4415	n/a	n/a	n/a	620	n/a	1440	156	1370	309	34783
4418	380	n/a	n/a	n/a	99341	317941	131500	732819	814312	977002
4420	n/a	n/a	n/a	n/a	n/a	n/a	43	n/a	n/a	n/a
4421	n/a	n/a	n/a	173	332	1743	678	28237	5525	28559
4504	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1080	n/a	n/a
5205	n/a	n/a	n/a	41887	41887	n/a	n/a	n/a	n/a	n/a

Source: customs.am

Appendix 6: Agricultural products import and export dynamics over the recent years

Imports in 2010											
Belarus		Iran		Ukraine		Russia		Georgia		EU	
0402	22546	0703	36936	2402	203887	1001	811204	0805	67197	2402	11292
1107	14535	1516	27255	1806	96538	2402	253397	2202	31668	1806	8158
0405	9814	0810	25357	1512	80413	1806	166292	0604	7719	2208	6081
2208	4543	1001	19392	1517	79471	2208	163342	2302	7018	0805	5680
1602	171	2102	14305	2208	57747	1512	113669	0802	6997	1701	5644
Imports in 2013											
Belarus		Iran		Ukraine		Russia		Georgia		EU	
0402	10995	0105	39387	2402	352227	1001	1016034	0805	30756	2208	21363
2301	6017	0810	26183	1806	107308	1512	208102	2202	28732	2309	19264
0405	4356	0703	16984	1512	101188	1806	18415	1005	9104	2402	15698
1107	2844	2102	11897	1517	91914	2208	168467	0703	8863	1806	12970
0407	2434	0806	10038	1005	84605	1005	149822	1512	7206	2005	59432

Source: customs.am

Exports in 2010											
Belarus		Iran		Ukraine		Russia		Georgia		EU	
2208	35346	0104	132959	2208	68343	2208	785198	0901	37016	2208	2588
0806	1046	1701	55	0306	9761	2201	47179	1701	14199	2402	698
2204	311	0701	147	2007	2193	0806	47164	2402	13681	2007	370
2106	22	2009	64	2201	2123	2008	24037	1602	5382	2206	175
0306	173	2202	59	1806	1906	2204	21773	1601	4439	2204	121
Exports in 2013											
Belarus		Iran		Ukraine		Russia		Georgia		EU	
2208	66429	0104	124333	2208	93443	2208	1527887	2207	5472	2208	31365
2007	1261	0701	2214	0306	10458	0302	167739	2402	35605	0306	10215
0603	1076	2402	1616	0809	6139	0809	165329	2208	26714	2402	4731
0806	997	0707	10	2002	3482	0306	125184	0901	24071	2206	2867
2204	912	2301	82	1605	2655	2008	67489	0809	19756	2008	2739

Source: customs.am

Appendix 7: Import/export tariffs by HS codes

HS code	Import tariff	Export tariff
01	0	0
02	10	0
03	10	0
0301	0	0
04	10	0
0408 11	0	0
05	10	0
06	10	0
07	10	0
0701 10 000	0	0
08	10	0
09	10	0
10	0	0
11	10	0
1107	0	0
1108	0	0
1109 00 000	0	0
12	0	0
1206 00	10	0
13	0	0
1302	10	0
14	0	0
15	10	0
1515 30 100	0	0
16	10	0
17	10	0
1702 30	0	0
1703	0	0
18	10	0
1801 00 000	0	0
19	0	0
1902	10	0
1904	10	0
1905	10	0
20	10	0
21	10	0
2102	0	0
22	10	0
23	0	0
2309 10	10	0
24	0	0
2402	10	0

Source: customs.am

Appendix 8: Phytosanitary Control Steps

