

## ANALYSIS OF AGRICULTURAL PRODUCTION AND PROGRAMS IN ARMENIA

*Davit Alaverdyan<sup>1</sup>, Olagunju Kehinde<sup>1</sup>, and Ira Panosyan<sup>2</sup>*

<sup>1</sup>Faculty of Economics and Social Sciences,  
Szent Istvan University,  
Godollo, Hungary

<sup>2</sup>Department of Extension and Agricultural Policy,  
Armenian National Agrarian University,  
Yerevan, Armenia

Copyright © 2015 ISSR Journals. This is an open access article distributed under the ***Creative Commons Attribution License***, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**ABSTRACT:** Agricultural sector plays a very important role in Armenian economy as it employs large share of the entire population and also has a large contribution to the national GDP while it agriculture employs large proportion of the population. In governmental projects and budgets the sector is given high priority. Despite this, the sector is encounters various challenges. This study attempts to examine the trends of agricultural production and to review the agricultural policies, programmes and projects implemented over a period of time in Armenia using a secondary data from various statistical agencies. Policies and projects implemented over the last decades had their big contribution to the overall agricultural output. It was found that there has been a considerable increase in agricultural output from both crop and livestock subsectors in Armenia. Despite this, the study found that Armenian agriculture is yet to attain its potential in crop production and animal husbandry in feeding the growing population and also attending to international market. Therefore, it is recommended that agricultural policies planning and implementation should be participatory and should be directed at supporting and encouraging farmers on export oriented products, application of new technologies and seed varieties. Also, an effective link should be established between research institutions and farmers with the help of agricultural extension services while farmers should also have access to credit facilities.

**KEYWORDS:** Agriculture, Planning, Projects, Production, Armenia.

### 1 INTRODUCTION

Historically, Armenia's economy has been based on agricultural production, especially in fresh and processed vegetables and fruits. In Soviet times, the Country managed to internally satisfy milk and meat demand both for primary use and processing. Armenia was also well known for its leather and shoes production, the raw material of which was mainly supplied locally. After the dissolution of the Soviet Union, the central market economy collapsed, large Soviet Kolkhoz and Sovkhoz were broken up into small farm plots, input drivers became increasingly more expensive, and supply lines to international demand were broken [1]. Combining these factors with the degradation of irrigation systems throughout the country led to a decrease in domestic production. This made it necessary to rely upon imported products from abroad, during those periods. Out of total 915 communities of Armenia 866 are rural (around 36.0% of the country population resides in villages), hence agriculture plays an important strategic role also in terms of rural area development. As of 2012, agriculture employs 457.4 thousand people, which accounts for 38.9% of the country's total employment and 75.2% of rural area employment [2]. In the foreign trade turnover structure the share of agricultural-origin and processed food products in 2013 was 21.1%, and in the structure of exported goods- 28.5%. In 2013 the value added of agricultural sector in GDP of Armenia amounted to 19.54%. This figure has started to increase since 2009. The average share of Agriculture in GDP during the period of 2010-2013 was about 19% [2].

In agricultural sector the most active Marzes(provinces) of Armenia are Armavir, Ararat and Gegharkunik, the cumulative gross production of which in 2013 constituted 464.9 billion Armenian drams, which makes 50.6 percent of gross agricultural output of Armenia [1].

However, the sector is experience significant challenges, not only in production, but also in market access and competitiveness. There is a lack of economies of scale, increased input costs, and Armenian farmers have not invested in the appropriate food safety certifications, such as Global GAP, that would allow them to enter higher-value markets like the EU [1]. As cited by [1], Armenian farmers are also facing increased regional competition from other CIS and Eastern European countries. Other factors conditioning the limitation of Armenian agricultural products are:

- Price of raw materials and fertilizers
- Technological limitations
- Lack of highly qualified personnel
- Lack of irrigation systems
- Lack of infrastructure (on harvesting and further stages, storage/ cold storage, processing, etc.)
- Interruption of supplies, seasonality.
- Absence of insurance from natural disasters, etc. The development of agriculture is hindered also due to the following factors:
  - There are problems with coordinated and targeted use of natural feeding areas particularly pastures and hayfields.
  - Poor use of arable lands is essentially dependent on the lack of financial resources of businesses employed in agriculture, low profitability, difficult access to machine works, fragmented land parcels, difficulties in marketing agricultural products, etc. In some boarder communities, designated use of arable lands is affected by dangers associated with borderline land cultivation.
  - Due to a number of factors, marketing of agricultural products continues being a problem. The level of agricultural product marketability during the past years varies around 56%. The existing situation is the result of the lack of agencies responsible for marketing of agricultural products or their imperfect activities.
  - Currently, around 95% of agricultural machinery has expired term of use, which resulted in low functioning and productivity and high maintenance costs.

Further to the socio-economics and environmental challenges limiting against increased agricultural production and associating sectors are highlighted below:

- Environmental risks (misuse of resources, cutting forests, land degradation).
- Migration from rural areas.
- Closed borders and road obstacles for export.
- Unequal development of rural areas (adverse demographic dynamic).
- Less developed infrastructure of public institutions.
- Separated land areas.
- Natural diseases: droughts, frost and hail.

### 1.1 AGRICULTURAL PRODUCTION AND STRATEGIC POLICY DOCUMENTS IN ARMENIA

Taking into account the importance of agriculture for the country's economy as well as its crucial role for the country's food safety issues, Armenian Government emphasizes the importance of State support for agriculture. Besides, recognizing agriculture as a priority sector is dwelled on two principle reasons.

In order to improve and develop a more efficient and sustainable agriculture, the Ministry of Agriculture, together with FAO, designed a "Strategy for Sustainable Agricultural Development" [3]. This document laid the ground for adopting the "2010-2020 Sustainable Strategy Program for Agricultural and Rural Development" by the Government of Armenia and the Ministry of Agriculture which is aimed at the restoration of the financial crisis circumstances and through formulation of anti-crisis mechanisms contributes to the modernization of the agri-food system and raise its competitiveness [4].

Agriculture and rural development vision of GoA includes but not limited to:

1. Development of commercial agricultural organizations, cooperatives and family farms integrated with market infrastructures through application of intensive technologies;
2. Stable food security of the population and meeting demands of agriculture processing raw materials through realistic combination of food security interests and comparative advantage of external trade of agriculture and food products;

3. Increase of gross product in agriculture due to increase of labor productivity, comparative reduction of the number of people employed in agriculture and use of part of surplus workforce in non-agriculture sphere through agriculture service and trainings.
4. Processing of produced agriculture raw materials at SME production units;
5. Domination of production of agriculture products with high added value in the plant cultivation and animal husbandry intra-branch structure;
6. High level of food security of the country population, ensuring self-sustainability for basic foodstuffs, reduction of rural poverty and migration.

The focuses of the strategic policy document are:

1. Overcome the consequences of financial crisis and apply new anti-crisis mechanisms
2. Deepen agrarian reforms and develop agricultural cooperatives
3. High level of food safety in the country, self-sustainability in the vital food products
4. Increase the competitiveness of domestic products and development of export-oriented products
5. Sectorial specialization and the optimal distribution of products
6. Increase the land use efficiency
7. Development of organic agriculture
8. Development of crop production:
  - Investment of advanced technologies
  - Prevalence of value added agricultural products within the crop production
  - Development of seed production and selection systems, investment of new mechanisms for seed quality control
  - Crop protection and implementation of quarantines
  - Genetical diversity of crops and protection of wild spices
9. Development of animal husbandry:
  - Support for efficient and rational allocation of couples in livestock sectors,
  - Breeding development and implementation of complex activities for flock reproduction
  - Improvement the efficiency of veterinary projects and services
  - Development of animal feed base by creating small feed production units in all regions of Armenia
  - Support to the development of livestock trade organizations
  - Conservation genetic diversity of farm animal races
10. Processing of agricultural raw materials:
  - Development of the sphere by optimal distribution of processing companies
  - Application of advanced technologies and improvement of the products' competitiveness
  - Market support and development of contract relations among processing companies
  - Development of production technologies
11. Development of social infrastructures in rural areas
12. Reduction of risks in Agriculture
13. Improvement of access to credit facilities in agriculture
14. Improvement of knowledge, science and advisory system
15. Improvement of agricultural farm record system [5].

## **1.2 OBJECTIVES OF THE STUDY**

The overall goal of the research study is to examine the trends of agricultural production and growth overtime and also to review agricultural policies, programs and projects in RA. The specific objectives of this study are:

- to describe various agricultural projects and their successful implementation
- to review agricultural policies and strategies design to address current agricultural policies
- to examine the trend of agricultural production, food import and export under the projects implemented over the last decades.

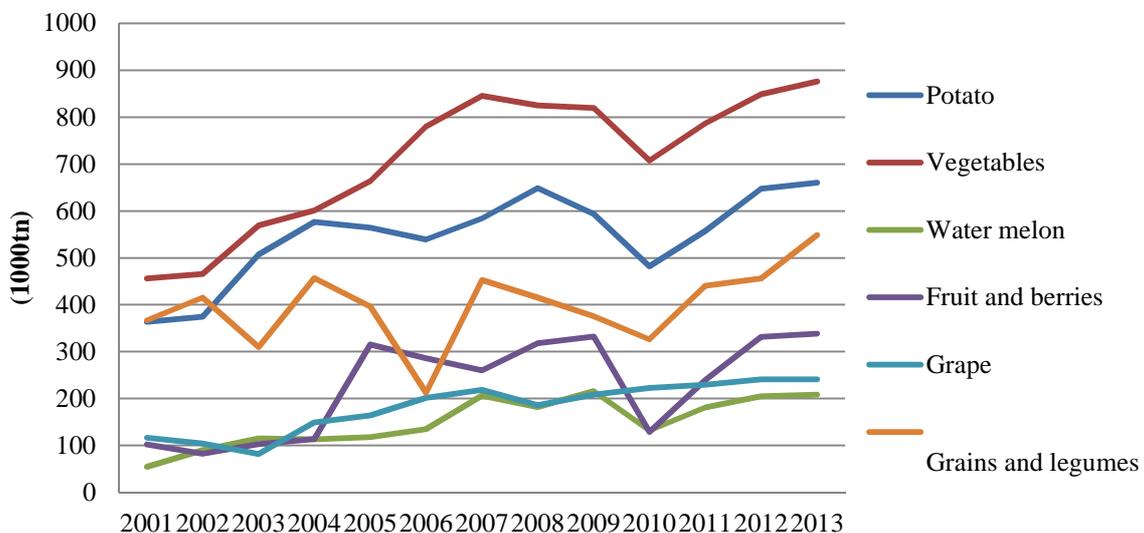
## 2 MATERIALS AND METHODS

The data used in the study was basically from secondary sources over the period of 2001-2013 (12 years), mainly from the statistical bulletin of Armenian National Statistical Service(NSS), State Service for Food Safety(SSFS) and Agricultural Support Republican Centre(ASRC). The selected years for the studies was chosen due to the scope of the study which is directed at agricultural production, the period of implementation of the program which spanned through 2001-2013 and availability of data. The publication is designed to serve as an easy reference for statistical information and sources. The dataset provides detailed records on total agricultural output, agricultural crops, livestock and poultry products, heads, land area for crop production, food import and food export. Descriptive statistics such as graphical illustrations, percentages, frequencies and pie charts were used to describe and examine the trends of the above mentioned parameters over the years under study. Furthermore, we employed narratives to describe the trends of agricultural production and various effects of the policies on agricultural sector in RA.

## 3 RESULTS AND DISCUSSION

### 3.1 STATISTICAL PRESENTATION (TREND) OF AGRICULTURAL PRODUCTION IN RA

As illustrated in Figure 1, agricultural crop production in RA experienced fluctuation in growth patterns from 2001-2013. Among main cultivated crops in Armenia, the highest growth was marked in vegetable production. In contrast, water melon showed slight increase by showing the lowest production. Main production falls happened during the period of 2010-2011. Only the grape production did not show sharp fluctuations during the last decade and grew steadily. In all, crop production sub-sector experienced an increase in the level of output across the years. This increase is largely connected with the high adoption of innovative technologies such as high yeald seed varieties, insectisides, pesticides and bio-fertilizers, which improved farmers' output in RA as contained as one of the major thrust of Rural Enterprise and Small-Scale Commercial Agriculture Development Project (RESCAD) and Technology Evaluation Program implemented in from 2001-2014, with the objective introducing innovative technologies and improved seed varieties to the farmers[6], [7].



**Figure 1 Trend of Agricultural crops in RA (2001-2013)**

Source: Authors' editing, 2015; [2]

Armenia is a country with lots of mountainous areas with lack of land resources. As a result of this condition, implemented projects made available various less-water demanding seed varieties that can be cultivated in sub-mountainous and mountainous areas feasible, therefore maximizing the use of available arable land area for agricultural purposes.

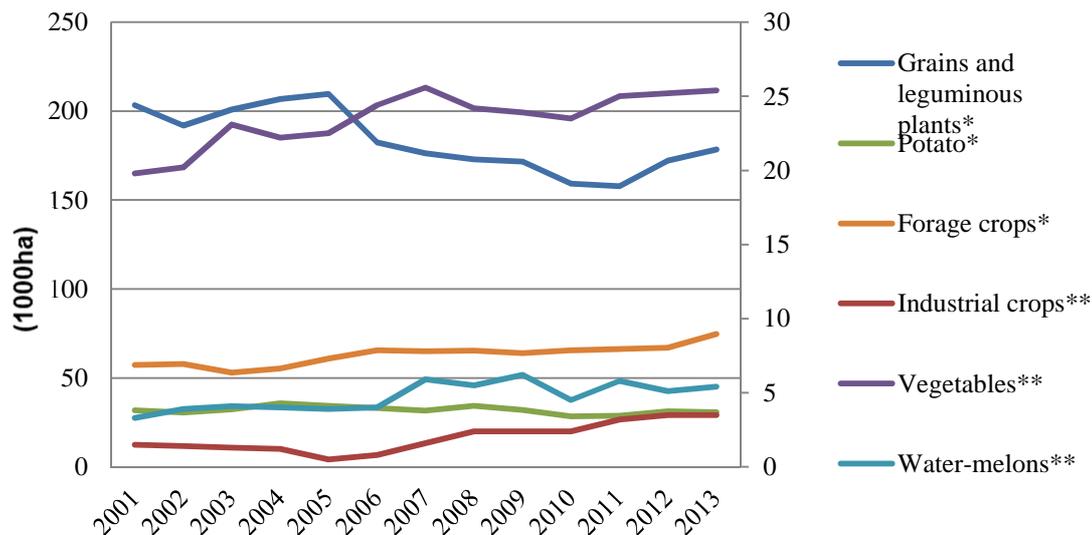


Figure 2 Land area for crop production in RA (2001-2013)

Source: Authors' editing, 2015; [2]  
 \*left vertical axis; \*\*right vertical axis

Figure 3 shows the trend of livestock and poultry heads across the project years. The number of poultry at the beginning of the project years grew at an increasingly proportion. There is a slight increase in the numbers of sheep, goat and cattle, while the number of pigs remained nearly the same. This considerable improvement in livestock sub-sector is as a result of ongoing Community Agricultural Resource Management and Competitiveness (CARMAC) project, which has aim to increase livestock productivity and efficiency of communal pasture management[8], [9]. As a result of lack of adoption by farmers, the number of horses does not record any significant change. In summary, variation in the growth of different animals in the livestock sub-sector is significantly affected by the rate of implemented projects.

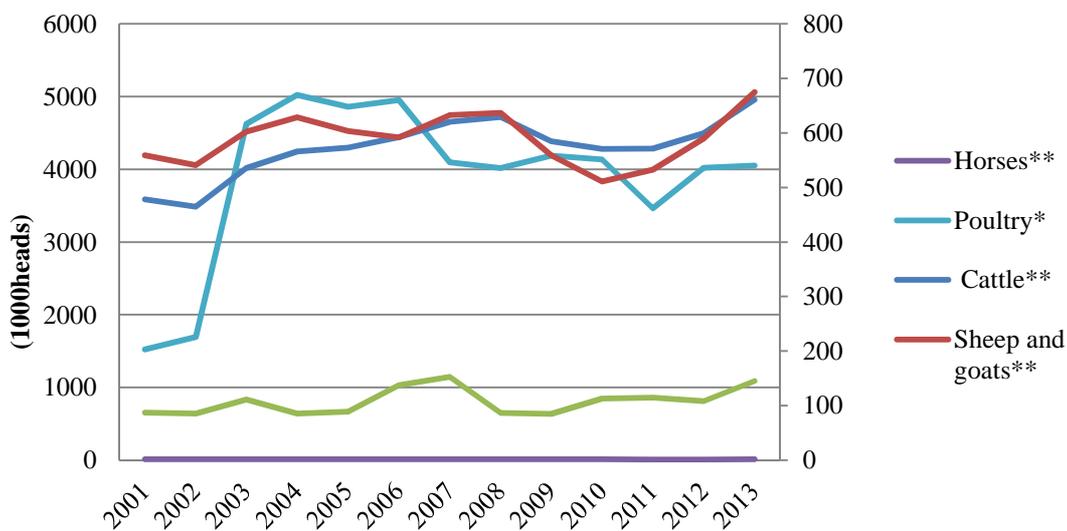


Figure 3 Trends of Livestock and Poultry heads in RA (2001-2013)

Source: Authors' editing, 2015; [2]  
 \*left vertical axis; \*\*right vertical axis

Figure 4 shows that there is considerable growth in the major products and by-products from livestock and poultry from the beginning of the project years and beyond. This increase can be attributed to the innovative technologies offered in the scope of different projects which were adopted by livestock farmers in all regions of Armenia.

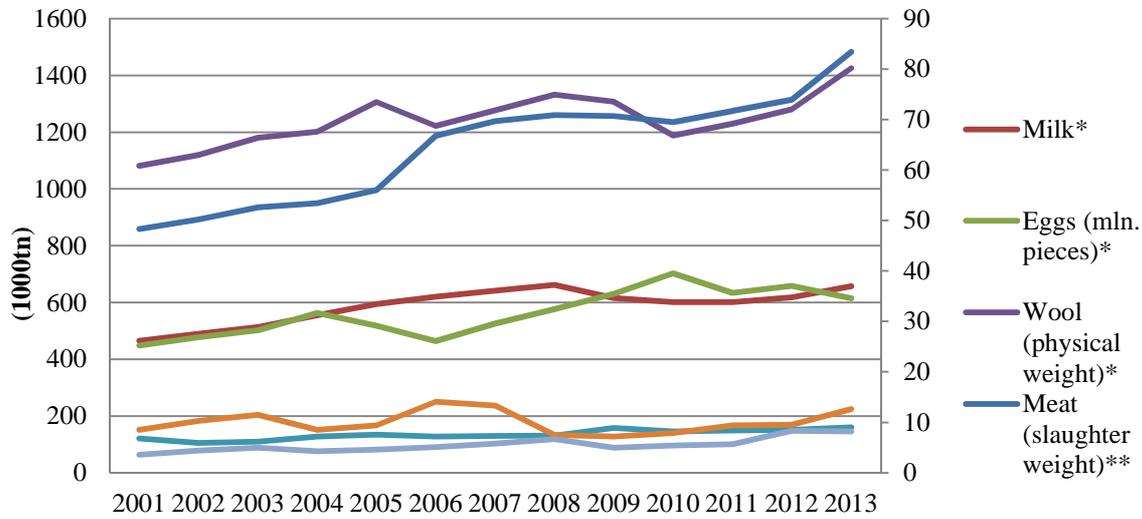


Figure 4 Trend of Livestock and Poultry products in RA (2001-2013)

Source: Authors' editing, 2015; [2]  
 \*left vertical axis; \*\*right vertical axis

Figure 5 shows that the import of wheat and other cereals constitute the largest proportion of food imports in Armenia. This is attributed to the fact that Armenia is not self-sufficient in wheat and other cereals production as improved seed varieties are not available. However, it is estimated that the household consumption and industrial use of cereals is very high, which necessitates import in order to satisfy this increasing demand. In order to reduce the import of cereals the Ministry of Agriculture included in the strategic policy for agricultural development the self-sufficiency of the cereals as a priority. It is predicted that Armenia will be 80% self-sufficient in cereal production by 2020. In the last 3 year, a sharp reduction in the import of fruit and vegetables was recorded due to huge investment of advanced technologies, which led to improvement in domestic production levels. In the same vein, the import of meat, milk, fish and processed products has not significantly changed as a result of consistent domestic production by local farmers.



Figure 5. Import of the main agricultural products

Source: Authors' editing, 2015; [10]

Dry and fresh fruit and vegetables show the highest quantity of agricultural products being exported across the years. In contrast export of meat and meat products have the lowest quantity over the years, because the quantity produced is only enough to serve the local consumers, therefore there is enough available for export.

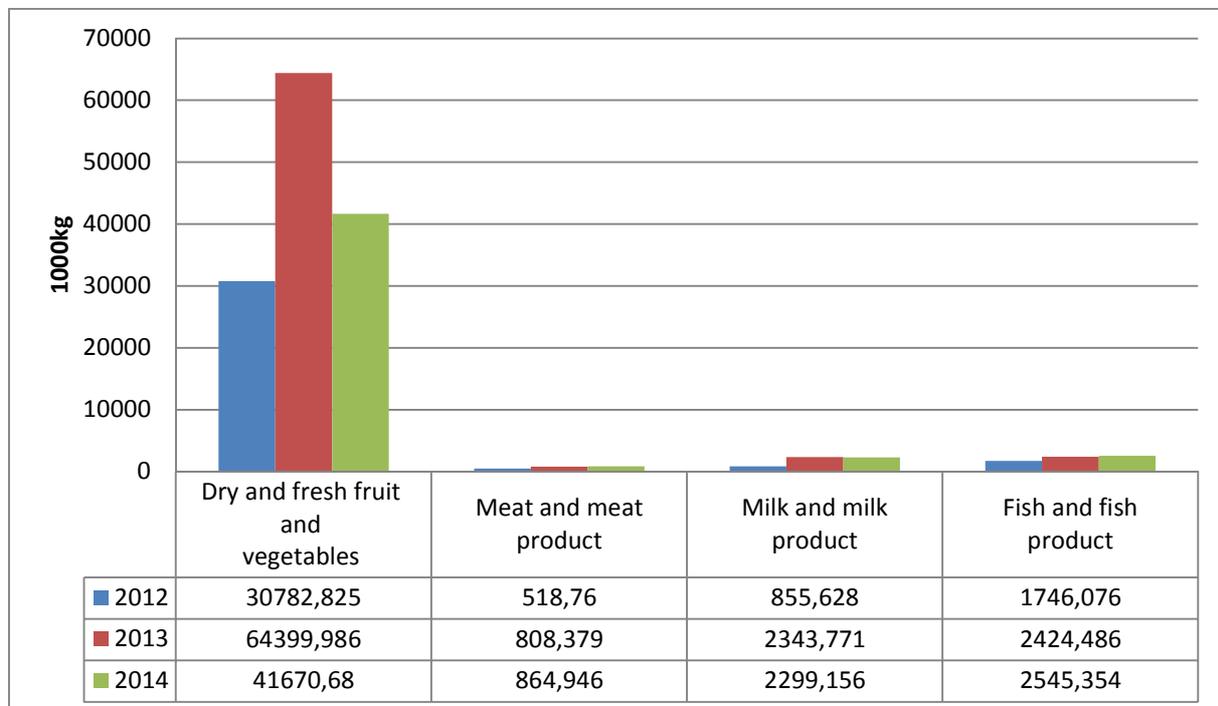


Figure 6. Export of the main agricultural products

Source: Authors' editing, 2015; [10]

#### 4 CONCLUSION AND RECOMMENDATION

Agricultural sector plays a very important role in Armenian economy as it employs large share of the entire population and also has its big contribution to the national GDP. In governmental projects and budgets the sector is given high priority. Despite this, the sector is encounters various challenges. Over the last decades government established relationship with international bodies and organizations to overcome obstacles of the sphere, which informs several policies, programs and projects aimed at addressing this challenges. Policies and projects implemented over the last decades had their big contribution to the overall agricultural output. However, Armenian agricultural sector has yet to attain its potential in crop production and animal husbandry in feeding the growing population and also attending to international market. Therefore, based on our findings the following recommendations are made to further improve this sector:

- Development of infrastructure in agricultural institutions in order to create a good structure and environment for research and development.
- In order to create a strong network among farmers and consumer the government should provide a marketing platform that is affordable for the farmers.
- To improve the knowledge and skills of farmers a strong link should be established between research institutions and farmers with the help of effective agricultural extension services.
- Policies should be directed at supporting and encouraging farmers on export oriented products, application of new technologies and seed varieties.
- Access to credit facilities and low interest loans should be made available to farmers, particularly farmers that produce export oriented products and products that Armenia has comparative advantage, such as Armenian Apricot, grapes etc.
- Farmers located in isolated areas should have easy access to city markets in order to ensure effective marketing and stable production.

#### REFERENCES

- [1] Avenue Consulting Report. Agriculture in Armenia Snapshot, 2014. [Online] Available at: <http://www.avenuiconsulting.am/resources/avenue/uploads/pdf/aafab24852e8b106fd66818c0349bf8e.pdf> on 01/04/2015 (April 1, 2015).
- [2] RA National Statistical Service Reports(NSS), 2014. [Online] Available at: [www.armstat.am](http://www.armstat.am) (December 15, 2014)
- [3] Ministry of Agriculture(MoA), (updated in 2006). A Strategy for Sustainable Agricultural Development. Consistent with the Government program on "Poverty Reduction Strategy Paper", 2004.
- [4] Government of Armenia(GoA), "2010-2020 Sustainable Strategy Program for Agricultural and Rural Development", 2010.
- [5] ARLIS 2010-2020 Strategy of sustainable development of rural areas and agriculture: The act of Government of Armenia, 2010. [Online] Available at: <http://www.arlis.am/DocumentView.aspx?DocID=63109> (December 1, 2014).
- [6] Agricultural Project Implementation Unit-APIU: Report on RESCAD project, 2013. [Online] Available at: <http://www.arspiu.com/RESCAD.45.0.html?&L=0>, (November 8, 2014).
- [7] Agricultural Support Republican Centre-ASRC. Official bulleting of Technology Evaluation Program 2014. [Online] Available from: <http://asrc.am/index.php?id=4151>, (November 1, 2014)
- [8] Agricultural Project Implementation Unit-APIU: Report on CARMAC project 2013. [Online] Available at: <http://www.arspiu.com/CARMAC.17.0.html?&L=0>, November 8, 2014).
- [9] Agricultural Project Implementation Unit-APIU: Report on CARMAC II project. [Online] Available at: <http://www.arspiu.com/CARMAC-II-PROJECT.55.0.html?&L=0>, November 8, 2014).
- [10] State Service for Food Safety (SSFS), Report on export and import, 2015. [Online] Available at: <http://ssfs.am/en> (February 7, 2015)