Agricultural Development in Armenia: Overview of a Successful Extension Project

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Abstract
Armenia is an ancient land that once belonged to the former Soviet Union. A series of catastrophic events including independence from Russia in 1991 caused economic disaster for this small country. Many development projects have been started during the past fourteen years that have helped Armenia rebound from economic crisis. This article gives an overview of one of these successful projects. The information in this article comes from the author’s experience leading the USDA MAP Goat Industry Development Project (GIDP) from February 2002 to July 2004. The GIDP is a model for future projects in developing countries and became successful through dedicated specialists and by following basic Extension principles.

Keywords: Dairy, Goat, Development, Armenia, Cooperative, Youth, Cheese
Introduction

The Goat Industry Development Project (GIDP) is an agricultural development project funded and administrated by the United States Department of Agriculture’s Marketing Assistance Project (USDA MAP) and United States Embassy in Armenia. The GIDP has been operating since 1999 but the overview detailed in this commentary will cover the project from February 2002 to July 2004. The overall Goat Industry Development Project has the broad objective of assisting Armenian agriculture in developing an independent and economically viable dairy goat production, product manufacturing, and marketing industry through technology transfer and funding assistance (Memon, 2001). The GIDP headquarters is called the Armenian Improved Dairy Center or (ARID) Center and is based in the village of Yeghagnadzor, Vayots Dzor region of the Republic of Armenia. The ARID Center is a research, breeding, and extension center that houses all the specialists assigned to administrate and implement the Goat Industry Development Project. The ARID Center is the hub of the Goat Industry Development Project wheel. The project traditionally has one administrator from the United States and the rest of the staff are Armenian specialists. United States scientists and consultants are periodically contracted to provide specific technical assistance for the project. These administrators and consultants are generally chosen from land grant universities in the United States and have extensive animal science and/or extension backgrounds. Specialists of the ARID Center are assigned to provide technical assistance, determine funding needs, provide veterinary services, form and implement cooperatives, and provide all assistance possible to over 1,000 farmers living in 15 different villages located throughout Armenia. The author along with providing integral goat husbandry technical expertise to Armenian specialists, organized, implemented and administrated all areas of the ARID Center and Goat Industry Development Project from February 2002 until July 2004.

Country Overview

The Republic of Armenia is located in southwest Asia and is bordered by the countries of Turkey, Iran, Azerbaijan, and Georgia. Armenia was part of the former Soviet Union and gained their independence in 1991. Armenia is a small country comparable to the size of Maryland and has a population of 3 million people. Armenia is an ancient land where Noah and his ark are fabled to have landed on Mt. Ararat (Avakian, 2000). Mt. Ararat is now located within the boundaries of Turkey but is still a symbol of the Armenian culture and can be seen looming over Yerevan, the capital of Armenia. A series of events including deadly earthquakes, trade embargoes, the collapse of the Soviet Union, and an on-going conflict with neighboring Azerbaijan has crippled the Armenian economy. Enormous amounts of aid from countries all over the world has slowly helped the Armenian nation to recover. The rural areas of Armenia still suffer from severe poverty.

The Armenian landscape is one of rugged, high mountains with very little precipitation. The Vayots Dzor region where the GIDP is based is the most rugged and dry region of Armenia and suitable only for grazing goats and sheep, and growing small vineyards for wine making.

Extension Principles

The GIDP is a development project with success coming from many sources but the overall success of this project is owed to basic Extension principles. There are three basic Extension principles that were followed in administrating and
implementing this project. These principles are: reaching people where they are; teaching people to determine their own needs; and teaching people to help themselves (Prawl, 1984).

**Project Overview**

This project can be divided into four major areas and in each area the three basic Extension principles were applied. These areas were: creating an improved breed of goat; developing and implementing farmer milk cooperatives; developing and implementing milk collection centers and goat cheese factories; and developing and implementing youth goat clubs. This project was a massive undertaking that began from a small band of goats. Through Extension principles and dedicated Armenian specialists this project grew from being insignificant to becoming nationally and internationally respected.

**Improved Goats**

The indigenous Armenian goat is a unique breed of goat with no real breed name other than indigenous goat. The Armenian goat consists of many breeds of goats being crossbred and interbred for thousands of years to end up with what exists today. The goat that exists today throughout Armenia is small framed, has thick, long hair; and produces on average one liter of milk per day. This is a goat that has evolved to subsist on very little nutrition and is a hardy goat that can survive the harsh landscapes of Armenia.

The primary goal of this project was to improve the dairy operations for goat farmers, which in turn would provide income. In order to do this the indigenous goat had to be improved so that milk production could be increased. USDA MAP imported four breeds of goats from the United States to Armenia in the year 2000. These breeds were Saanen, Toggenburg, Alpine, and Nubian. Both bucks and does were imported. These breeds were housed at the ARID Center in Yeghegnadzor and genetic improvement programs began in 2001. Early on it was found that these imported goats could not survive the harsh village life.

To ensure our imported goats housed at the ARID Center would not die when placed in the villages a system was devised in 2002 where imported bucks housed at the ARID Center would be taken to a particular village and the buck would be left in the village for no more than two months during the breeding season. Specialists from the ARID Center along with the author would provide all the technical information necessary to the farmer receiving the buck so that the highest nutrition and care would be provided. With this system farmers were able to use ARID Center bucks to crossbreed with their indigenous does. Farmers also increased their overall goat husbandry skills by having ARID Center specialists give hands-on demonstrations and technical assistance.

Within two years of beginning this system of crossbreeding, there was a ninety percent conception rate in village does. Furthermore, milk production in the new crossbred does increased to two and a half liters per day compared to the one liter per day being produced by indigenous goats. Breeding programs increased from being in one village in 2002 to fifteen villages by the summer of 2004. Farmers were receiving more milk per goat which meant more income for the farmer. These new crossbred goats not only had increased milk production but maintained the hardiness and disease resistance of the indigenous goat. The new crossbred goat being produced in the villages was named “Yegheg” goat meaning goat from the reeds in honor of the Yeghegnadzor region. This is the name now used for all goats produced by crossing.
ARID Center imported bucks with indigenous does and subsequent offspring.

**Milk Cooperatives and Cheese Factories**

In 2001 USDA MAP financed the first goat cheese factory in a remote village called Goghtanik located about 30 kilometers from the ARID Center location. Genetic improvement of the goats of this village had started also in 2001 and the milk from the village goats began to be sold to the new cheese factory. The cheese factory then started producing exotic goat cheeses such as Armenian buried cheese, Feta in buckets, and Feta in oil. The project started off slowly but then in 2002 expansion of the GIDP Project began. Expansion started by creating goat milk cooperatives in villages that were located in close proximity to the Goghtanik village cheese factory. USDA MAP through the ARID Center funded the construction of milk collection centers. USDA MAP also equipped the centers with milk cooling tanks, milking machines, sanitation materials, and in general all materials needed to maintain these collection centers in three surrounding villages. The ARID staff under the leadership of the author then went to work conducting extensive educational seminars on how to properly use this equipment, how to form and operate a proper cooperative, and how to fiscally manage a cooperative and cheese factory. By the end of the summer of 2002 a system had been devised where each village collected their goats into a cooperative herd during the summer months. This cooperative village herd was then turned over to herdsmen and milkmaids that were hired by the cooperative board of directors. The goats were taken to the mountain pastures to graze during the day then brought back to the village milk collection center to be milked morning and night. The goats are held in pens at the collection center during the night. Each morning and night the milk would be put into the milk cooling tank for refrigeration and once a day a transport truck would pick up the milk from each village milk collection center and deliver it to the cheese factory. During the winter the goats are turned back to their owners to be cared for.

This first cooperative consisted of four total villages. The name of this first goat milk cooperative became Golden Goat and the name of the cheese factory Golden Goat Plus. The cooperative is owned by the village farmers and the cheese factory is owned by a private investor. All villages in the cooperative are administered by a general cooperative board of directors consisting of elected board members from each of the four villages. The role of the goat milk cooperatives are to provide an avenue for village farmers to pool their milk, provide transportation of the milk to the cheese factory, and then to serve as the financial and lobbying organization so that a fair sale price is received from the cheese factory. The cooperatives also serve as a tax shelter for village farmers to protect them from high government taxes associated with owning businesses.

The first milk cooperative and cheese factory proved to be successful. With this success, in the winter and spring of 2003 the ARID staff went to work duplicating and expanding the goat milk cooperatives and cheese factories. By the end of 2003 three more cooperatives consisting of eleven more villages had been created. Four more goat cheese factories were also created to service the newly formed cooperatives. USDA MAP under the recommendations and leadership of the author provided funding in the form of grants, loans, leasing programs, and credit clubs for these cooperatives and cheese factories to be implemented.

A great difficulty was found in creating and maintaining high quality milk
and cheese in impoverished villages to meet export market qualifications. In 2003 pasteurizer machines were imported into Armenia so that all the goat cheese produced would be pasteurized. This was the first time in Armenia these standards had been implemented.

Youth Clubs

In 2002 youth clubs in six different villages with ten youth participating from each village were organized by the author. These youth clubs were patterned after the 4-H youth program in the United States. The fundamental principle of “learning by doing” (Wessel & Wessel, 1982) served as the driving force behind this new program. The ARID Center purchased and donated one doe and her kid to each of these sixty youth so that they could start their own goatherds. The youth sell the milk from these goats to the local goat cheese factories that were created. They use this income to save money for a college education or to simply get a start in life. An annual goat show comparable to a youth livestock show in the U.S. was organized where these youth came together to exhibit their goats. Prizes were given to all and this was an opportunity for the youth to have fun. Each year this show receives national press coverage. The ARID Center employs a youth club coordinator to maintain this program in partnership with the Armenian Agricultural Academy (AAA), which is located in the capital of Yerevan. Each goat club has a club leader that works with the ARID Center youth coordinator and Academy specialists in implementing programs.

Conclusion

The success of this project was in the fact that so much was accomplished in a short period of time. In 2001, only five tons of goat cheese was being produced. In 2003, twenty-five tons were produced and in the year 2004 that amount was expected to double. The USDA MAP marketing team helped acquire export markets in Russia, Republic of Georgia, and the United States so that farmers have the avenues to sell their products.

In July of 2004, the project consisted of over 1,000 farmers and 4,000 goats in fifteen different villages throughout Armenia. Over seventy-five new jobs were created and this project became the second largest source of cash income for this section of Armenia second only to the Army and government. For the most part this project was the only source of employment and income in these villages.

The cooperative farmers involved in this project received cash income by selling their milk to the cheese factory. This was the first time since the collapse of the Soviet Union fourteen years ago that these farmers have received a cash income. An average goat farmer with ten goats involved in the project will make a net profit of thirty-three dollars per month. The more goats they have the more income they receive. This amount of income may not sound like much until one considers that the average monthly salary for the Vayots Dzor region is twenty-five dollars per month if a person has a job. The most important aspect of the entire project was that farmers were taught how to help themselves and to become self sufficient. There are many development and extension projects that succeed and fail. Through hard work, dedicated specialists, and by following time proven Extension principles, the Goat Industry Development project proved to be a project that succeeded and one that will continue to provide economic stimulus to the farmers of Armenia.
Acknowledgments

The author would like to thank Dr. Craig Infanger and Dr. Allan Lines for their tremendous support and guidance. Special recognition goes to Dr. Roger Merkel and Dr. Terry Gipson of the Langston University E. Kika de La Garza Goat Research Institute for their valuable technical assistance. Special recognition also goes to Mr. Terry Hutchens for starting the project in the right direction. A special thank you goes to Mr. Tim Grosser for having faith in the project.

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