



Working Paper No. 04/09

The Development of Armenian Agribusiness through Transfers of Skills and Technology

Linda Aines
Extension Associate Professor Emerita
University of Vermont
Linda.aines@uvm.edu

Tim Grosser
Program Manager, USDA-
Armenia MAP Project
USDA/CSREES International Programs
tgrosser@csrees.usda.gov

January 2004

Abstract

The break-up of the former Soviet Union accelerated the collapse of industrial and agricultural production in Armenia. Farm inputs, machinery, capital, large and medium sized farms disappeared or became obsolete while the market for farm products changed radically. At the same time, critical technical knowledge and understanding of how to participate in a market economy was inadequate or lacking. Armenian agriculture went from being high output and export oriented to subsistence level within five years. The rural population experienced a serious degradation in their quality of life and began to flee the countryside. The USDA Marketing Assistance Project in Armenia is a program initiated by the U.S. Embassy in 1992, in partnership with US Aid, the Armenia Ministry of Agriculture, and other important Armenian agricultural institutions. During the past 12 years, these partners have created economic opportunities using technical assistance and economic assets that can lead to a successful private agricultural economic enterprise. By pairing technical expertise of U.S. university advisors to Armenian farmers, agribusiness owners, and educators, a process of experiential learning takes place which ensures the work continues after US partners leave. These economic entities continue to fuel the engine around which research and extension/outreach systems can be built and where these systems, in turn, continue to create successful enterprises within the agricultural sector.

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the Armenian International Policy Research Group. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

Keywords: Agribusiness, Agriculture, Marketing, International Development

Purpose of Presentation:

The purpose of this presentation is to describe a developmental approach to improving an agricultural sector in a developing country, and creating successful agribusinesses. Sharing the success and failures of setting up and nurturing the Extension Service/Technical Assistance capabilities and Credit availability in a developing region, can help colleagues in other countries who are trying to achieve the same.

Introduction:

In 1992, Armenia's business and agricultural sectors were stagnant and non-functional. Farm inputs, machinery, farm size, and capital either disappeared or became obsolete while the market for farm products changed radically. In a period of five to ten years, Armenian agriculture went from being high output and export oriented to subsistence level with a rural population that experienced a serious degradation and decline in their quality of life. No country can survive long under such conditions. There was a need for radical change in the institutions which provide research, education and outreach to keep pace with the private sector. There was a critical need for necessary assistance and credit programs to make farms, businesses and agricultural enterprises become viable. Just as critical, was the need for an understanding of how to participate in a market economy. By making credit available, building the existing technical knowledge and agricultural sector resources, and then engaging the rural population in agribusiness, Armenia can move towards a viable agriculture and towards greater stability.

The Challenge:

The development challenge for assistance organizations like the U.S. Department of Agriculture (USDA) is not necessarily to help create additional public institutions but rather to promote a service and work ethic that will help to foster and sustain economic change. Establishing research and extension roles and structures based on outside (non-Armenian) models during 1992-95 was a necessary first step to ensure that relevant research, technical assistance and extension work continue to be addressed. A second step, taken in 1996, for USDA was to transition into a Marketing Assistance Project (MAP) that would make Armenian Agriculture and agribusiness competitive and efficient in producing domestic food supplies and exports. For the past 8 years MAP has assisted farmers and agribusinesses in production, marketing exporting food or related products and provided much needed credit. The goal: to create jobs, raise personal income, raise the standard of living for Armenians working in the agro-processing sector, and helping to create additional markets for farmers and viable agribusinesses.

Methods:

By pairing technical expertise of U.S. university advisors to Armenian farmers and agribusiness owners, a process of experiential learning takes place including the training of Armenian counterparts to ensure the work continues after US partners leave. USDA makes partners of the 75 US Land Grant Universities and their many agricultural and rural development specialists. The American specialists train Armenian counterparts during their 3 – 10 month tour of duty in Armenia. After returning to the US and to their University or Extension System jobs, specialists become part of an electronic resource base that continues to be available for technical help, information, training, through their trained Armenian counterparts and the staff of the Extension Service in Armenia. As more Armenians are acquiring access to computers and the Internet, the electronic network has grown to include lessons learned, research exchanges, resource development and other means of sharing information via computer. This system of transferring expertise, improving existing institutions for rural development and maintaining the ongoing network are some of many tools, which have the potential to help sustain the agricultural and rural development work that is currently taking place in Armenia.

The Impact

In post –soviet transition agriculture, numerous economic opportunities exist for starting both small and medium sized enterprises. Using a combination of timely technical assistance, financial resources and agribusiness, or marketing experience, USDA-MAP is helping to revitalize Armenia’s economy by removing market barriers, opening pathways and markets for traditional and new agribusiness products.

The premise of USDA assistance is that meaningful institutional development can take place only around existing economic opportunities where the application of technical assistance and economic assets can lead to a successful private economic enterprise. In Armenia, almost every village household has an agricultural asset that is underutilized and with a little help, has the potential to develop into a successful enterprise or agribusiness. There also exist knowledgeable and well-trained professionals who at one time did produce agricultural products for both domestic and export markets for Armenian products. USDA has been providing technical and financial assistance, as well as marketing support to Armenian farmer groups, small ag enterprises and agribusinesses for the past 10 years. The sub sectors that have been served by USDA MAP and the 200+ U.S. short and long-term consultants from American agricultural universities and private sector include: wineries, food, fruit and vegetable processors, dairy cow and goat cheese makers, livestock breeders, seed and feed producers, meat processors, water bottlers, herb/tea producers, poultry producers and processors, fish producers and processors, and other agribusinesses. In 1995, these agribusinesses were neither in production nor generating any sales revenues; in 2002, gross revenues amounted to \$28,241,034. (See Table 1 and 7.)

Identifying quality products, using new or existing information to ameliorate those constraints has led to producers being able to sell their products, and created successful agribusinesses and increased demand for farmer products representing an increase of total farm revenue of 52% (Table 3 and 7.) One example of this is the USDA dairy collection and market association initiative in Armenia. MAP has been instrumental in establishing 19 milk collection units throughout Armenia, repositories for both cow and goat milk leading to high demand for their clean premium milk by Ice Cream manufacturers and Cheese producers. This access to new market channels is yielding more than \$20,000 income for certain villages. This initiative has brought revitalization and hope to some remote villages and more than 950 farmers (Table 10.) This is an example of a specific initiative where a process has successfully been applied and replicated. There are many more examples. The function of research and extension, pairing of US specialists to Armenian counterparts, and experiential learning is applied to this process. Further examples:

- MAP helped with strong support to help SMEs develop products with export potential. This has resulted in increased demand for products from Armenia by countries such as Russia, Belarus, Latvia, and the European Union. Products exported: wines, cheeses, natural fruit juices and nectars, wild herbal teas, processed meat, dried fruits, canned fruits and vegetables. Clients’ exports have grown from \$0 in 1996 to nearly \$6 million in 2002 (Table 8.) USDA also encourages development of products for import substitution and helps with shipping.
- A trained Armenian “Marketing Team” assisted clients with Export Development by promoting Armenian food and beverage products in major export markets in Russia, England, the Middle East, the Baltics and Armenia. This Team provided intensive market promotion assistance to Armenian SMEs through packaging and label design enhancements, radio/TV advertising, participation in international food shows and exhibitions, marketing brochures, posters, and food events. They also produced an electronic version of the Armenian Food Products catalogue, and a Wine Atlas.

- Training Sessions/Workshops held by American specialists on topics such as “Packaging, Labeling,” “Product Cleaning and Sanitization,” and “International Branding” are especially helpful to members who want to distinguish their products from the competition.
- An Armenian “Quality Assurance Team” was created and is an effective instrument in raising the level of food quality. (Clients are required to meet certain minimum quality and sanitation standards before further technical, financial or marketing assistance will be extended.) In-house Testing Laboratories have been installed or upgraded for food quality testing.
- New product development incentives have resulted in a beef jerky pilot project, pomegranate juice and carrot juice production, development of new cheese varieties such as French Chevre, and buried Goat Cheese. New product technologies were introduced to help cheese makers make European hard and goat cheeses, balancing out overstocked traditional Armenian Lori and Chanakh cheeses, contributing to import substitution and exports. This has contributed growth in farmer and agribusiness sales receipts and improved employment and wages. (Table 1, 2,7, 9.)
- Goat milk is often the only source of cash income for many village farmers. A goat breeding center (ARID) established in 1998 has facilitated cross-breeding, research and improvement of Armenia’s goat herds. The improved breed delivers crossbred kids with increased milk production genetics. This has brought increased earnings and created many jobs in the milk sector. The goat breeding program is helping that sub sector of Armenia’s agriculture become more sustainable. A meat slaughter facility is being developed at the site and new products like goat meat sausages are being developed bringing new opportunities to rural households.
- A Small Farm Water Management Research Center implemented new projects to ease farms and households from hardships created by droughts: village well monitoring, field soil moisture monitoring, drip irrigation demonstrations, furrow irrigation, and training and education for extension agents. These initiatives helped provide health and food security to 17,800 households by the end of 2002 and clearly demonstrated the economic and environmental benefits of efficient water management. (See Table 13.) The Center, now totally under Armenian management shares its research and technology with other Armenian institutions such as the Armenian Agricultural Academy and Extension Service.
- In addition to Agribusiness Strategic Loans and Micro-enterprise loans, MAP provides financial assistance to targeted farmer groups. Production Credit Clubs provide needed credit for 700+ farmers in 37 locations in 2003. The clubs involved milk producer’s cooperatives, hogs, seed potato growers, tomato, wheat, fruit or vegetable processing industry groups, and a small business incubator for women. Credit clubs offer peer lending, business management, marketing, financial management and business planning as well as small loans. The credit in Club revolving accounts and other strategic small loan programs has grown to over \$731,000 during 2003. (Table 11 and 12.)
- An innovative new credit program, Agro Leasing, LLC, was launched in 2000. This company was formed to circumvent the obstacles to agricultural financing presented by the weak financial condition of many Armenian banks. Agro Leasing has provided much needed equipment to milk collection centers, agribusinesses in the fruit/vegetable and wine industry, and cooperatives making it possible to achieve sustainability.

- Collaboration with the Armenian Agricultural Academy (AAA) has helped improve its educational and research facilities and enhanced the productivity of faculty, students, farmers and agribusiness. An Agribusiness Teaching Center, founded by USDA-MAP is helping train students to lead Armenia's future agribusiness sub sector in the future, and to create new Armenian agribusiness faculty. This Center provides the first English language, western-style curriculum in AAA. Students complete a degree program in Agribusiness (taught by US Univ. faculty) after completing the first two years at the Academy. Internships in MAP-supported agribusinesses are a key feature of this program and are unique to AAA. Students intern in Armenian agribusinesses and observe the management, financial and marketing practices of these companies.
- An AAA Extension program provided assistance to farmers with workshops leading to better management practices, increase in quality and quantity of their outputs. Successful programs stimulate local innovation or ownership, and also assist in building extensionists skills and research.
- The Youth Club Program has been a hallmark of successful rural areas initiatives across Armenia. Youth Clubs have exceeded 100 servicing over 2000 youth and 120 community volunteers throughout the country. Some clubs target disadvantaged youth from needy and/or single-parent families. Programs such as "Learning Agribusiness Skills Through Lamb Raising" and "Learning Agribusiness through Calf Raising" have shown youth to study and implement proper nutrition, housing, health and record-keeping for their animals. In addition, 60 local youth are involved in goat projects in youth clubs. A "Baby Goat Raising" project targets disadvantaged youth to receive a kid-goat to care under direction of project leaders and U.S. advisors. A project-sponsored auction demonstrated the sales and income potential of well-cared for animals.

The work of the USDA-MAP project is made possible by short and long-term consultants who are in Armenia to bring expertise and management assistance to the many program areas and to pass on their expertise to Armenian counterparts. Another challenge is making research and extension activities sustainable and non-dependant on continuous USDA and U.S. dollars infusions. Therefore, a new phase of our project has begun in 2003, transferring leadership from USDA American managers to Armenian management of the Marketing Assistance Project.

Table 1. Agribusiness clients in the Client Annual Review, grouped in sub-sectors, 2002

<i>AGRIBUSINESS Industry sub-sector</i>	<i>Total Sales, AMD</i>	<i>Total Sales, USD</i>
Dairy Goats & Goats Cheese	30,495,560	\$52,218
Dairy Processors	2,241,103,362	\$3,837,506
Dried Fruits & Herbs	77,236,400	\$132,254
Food Processing Total	61,716,000	\$105,678
Food Wholesale, Retail & Storage	17,000,000	\$29,110
Fruit & Vegetable Processing	3,011,150,000	\$5,156,079
Meat Processing	375,579,360	\$643,115
Packaging	111,000,000	\$190,068
Poultry Processing	1,930,374,000	\$3,305,435
Wineries	8,595,991,400	\$14,719,163
Other	41,117,800	\$70,407
Grand Total	16,492,763,882	\$28,241,034

Table 2. Employment in USDA MAP assisted agribusinesses, by regions in 2002.

Region	<i>Permanent Employment</i>			<i>Seasonal Employment</i>			<i>Total Employment</i>
	Total	Males	Females	Total	Males	Females	
Aragatsotn	404	167	237	136	54	82	540
Ararat	951	460	491	120	35	85	1,071
Armavir	510	304	206	195	70	125	705
Gegharkunik	128	117	11	255	65	190	383
Kotayk	123	42	81	40	4	36	163
Lori	49	31	18	30	24	6	79
Shirak	25	17	8	12	6	6	37
Syunik	43	22	21	7	5	2	50
Tavush	38	24	14	10	3	7	48
Vayots Dzor	80	51	29	35	24	11	115
Yerevan	258	132	126	272	33	239	530
Grand Total	2,609	1,367	1,242	1,112	323	789	3,721

Figure 1. Employment by regions in 2002 (percent of total)

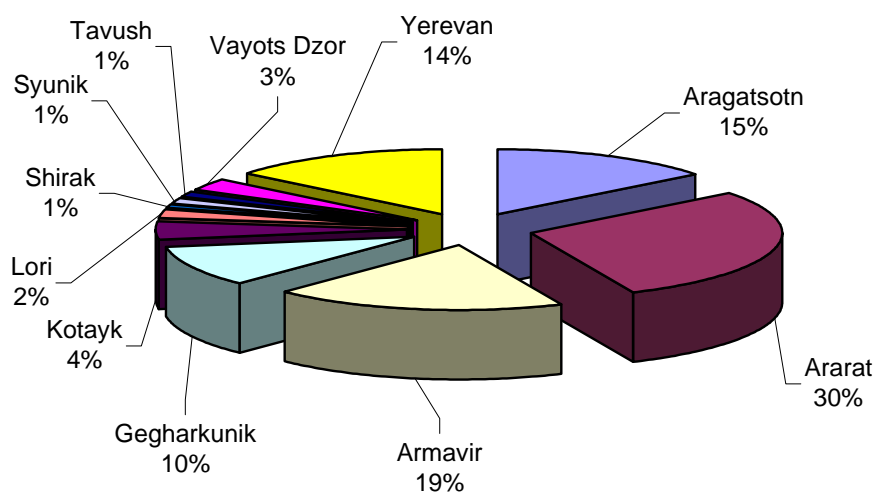


Table 3. Farmers and total receipts by farmers in 2001 and 2002 by regions.

<i>Region</i>	<i>Farmers, 2001</i>	<i>Farmers' receipts, USD 2001</i>	<i>Farmers, 2002</i>	<i>Farmers' receipts, USD 2002</i>	<i>% Increase</i>
Aragatsotn	2,075	\$365,753	2,759	\$525,562	43.7
Ararat	5,464	\$1,110,274	7,536	\$1,982,937	78.6
Armavir	417	\$81,284	130	\$186,824	129.8
Gegharkunik	14	\$11,986	33	\$39,812	232.2
Kotayk	103	\$151,156	105	\$221,404	46.5
Lori	1,063	\$181,862	1,566	\$329,469	81.2
Shirak	513	\$97,500	446	\$138,099	41.6
Syunik	1,270	\$84,289	1,470	\$89,983	6.8
Tavush	100	\$143,821	177	\$150,596	4.7
Vayots Dzor	328	\$90,411	247	\$77,738	(14.0)
Yerevan	186	\$514,983	759	\$589,763	14.5
Grand Total	11,533	\$2,833,321	15,228	\$4,332,186	52.9

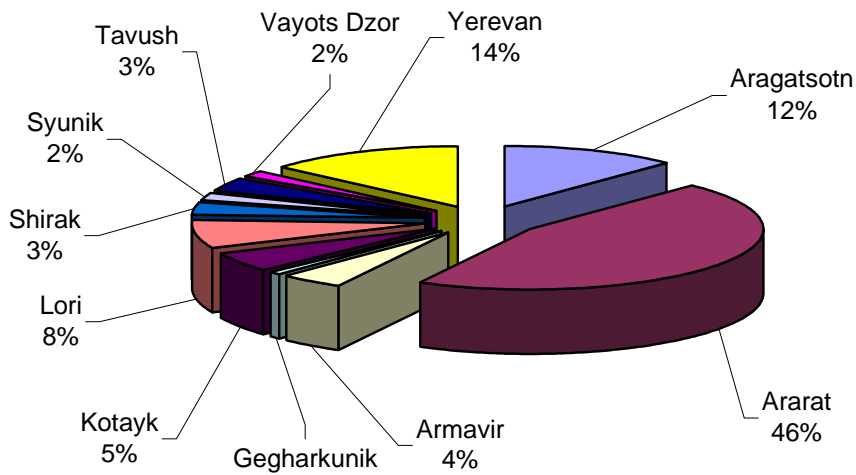


Figure 2. Farmers' receipts in 2002 by regions

Table 4. Farmers and total receipts by farmers in 2001 and 2002 by subsectors.

<i>Agribusiness sub-sector</i>	<i>Farmers' Farmers, receipts, USD</i>		<i>Farmers' Farmers, receipts, USD</i>		<i>% Increase</i>
	<i>2001</i>	<i>2001</i>	<i>2002</i>	<i>2002</i>	
Dairy Goats & Goats Cheese	32	\$5,565	140	\$20,538	269.1
Dairy Processors	3,165	\$682,303	4,175	\$1,007,171	47.6
Dried Fruits & Herbs	745	\$74,606	997	\$118,574	58.9
Food Processing	43	\$321	166	\$6,164	1820.2
Food Wholesale, Retail & Storage	0	\$0	0	\$0	0
Fruit & Vegetable Processing	6,346	\$1,354,092	8,837	\$2,237,774	65.3
Meat Processing	8	\$306,678	98	\$413,577	34.9
Other	14	\$6,507	14	\$6,062	(6.8)
Packaging	12	\$38,664	12	\$39,932	3.3
Poultry Processing	50	\$16,053	50	\$33,390	108.0
Wineries	1,118	\$348,530	739	\$449,004	28.8
Grand Total	11,533	\$2,833,321	15,228	\$4,332,186	52.9

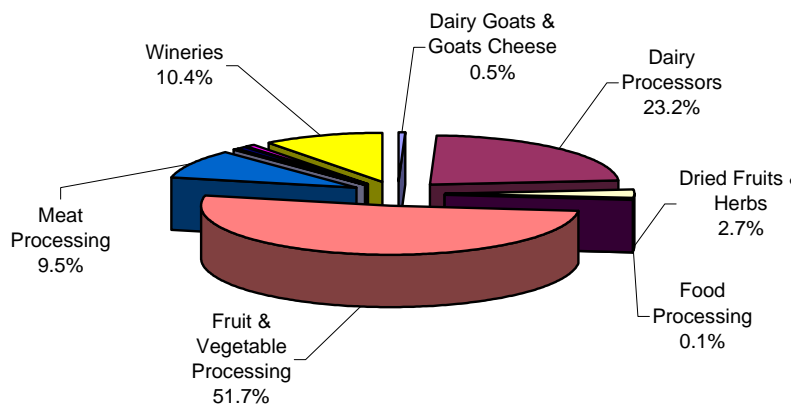


Figure 3. Farmers' receipts, USD by sub-sectors 2002

Table 5. Total Exports and Sales by USDA MAP clients in 2002, grouped by sub-sectors.

Industry sub-sector	<i>Exports,</i>		<i>Total sales,</i>	
	<i>AMD</i>	<i>USD</i>	<i>AMD</i>	<i>USD</i>
Dairy Goats & Goats Cheese	17,817,670	\$30,510	30,495,560	\$52,218
Dairy Processors	108,282,450	\$185,415	2,241,103,362	\$3,837,506
Dried Fruits & Herbs	47,163,000	\$80,759	77,236,400	\$132,254
Food Processing	1,490,400	\$2,552	61,716,000	\$105,678
Food Wholesale, Retail & Storage	0	\$0	17,000,000	\$29,110
Fruit & Vegetable Processing	2,093,318,186	\$3,584,449	3,011,150,000	\$5,156,079
Meat Processing	0	\$0	375,579,360	\$643,115
Other	0	\$0	41,117,800	\$70,407
Packaging	1,092,000	\$1,870	111,000,000	\$190,068
Poultry Processing	0	\$0	1,930,374,000	\$3,305,435
Wineries	1,219,239,230	\$2,087,738	8,595,991,400	\$14,719,163
Grand Total	3,488,402,936	\$5,973,293	16,492,763,882	\$28,241,034

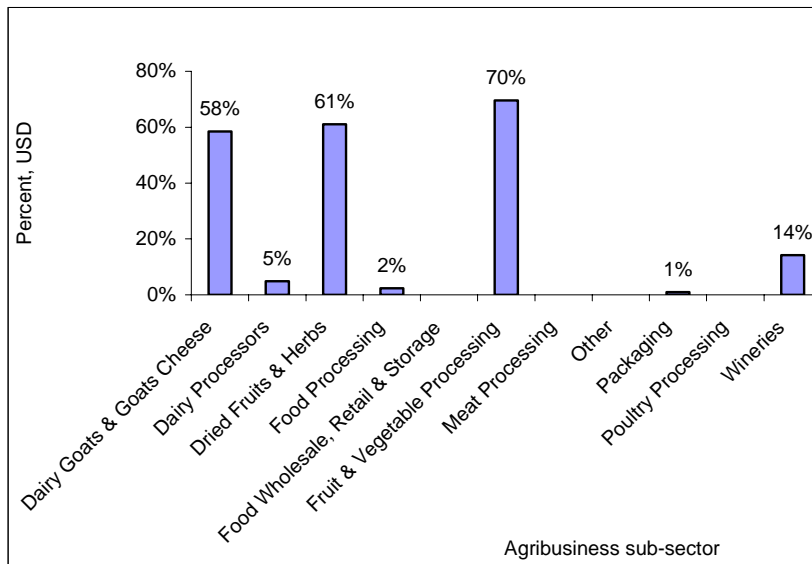


Figure 4. Exports as ratio of total sales (by sub-sectors, 2002).

Table 6. Permanent and seasonal employment and average salary in 2002 (grouped by sub-sectors).

<i>Industry sub-sector</i>	<i>Annual salary paid to all permanent workers in USD</i>	<i>Permanent employment</i>	<i>Average salary, USD/month</i>	<i>Annual salary paid to all workers in USD</i>	<i>Seasonal employment</i>	<i>Average number of months worked during the season</i>	<i>Average seasonal salary, USD/month</i>
Dairy Goats & Goats Cheese	\$15,308	40	\$31.89	\$10,582	20	6	\$83.5
Dairy Processors	\$354,966	492	\$60.12	\$75,531	186	6	\$63.2
Dried Fruits & Herbs	\$6,986	17	\$34.25	\$39,349	90	6	\$70.0
Food Processing	\$172,192	195	\$73.59	\$40,000	262	3	\$50.9
Wholesale, Retail & Storage	\$2,466	6	\$34.25	\$0	0	0	\$0.0
Fruit & Vegetable Processing	\$340,603	402	\$70.61	\$155,863	354	6	\$70.4
Meat Processing	\$121,295	71	\$142.36	\$2,226	10	2	\$111.3
Other	\$36,719	32	\$95.62	\$1,592	5	4	\$79.6
Packaging	\$19,603	18	\$90.75	\$1,288	2	8	\$80.5
Poultry Processing	\$461,301	470	\$81.79	\$14,384	40	6	\$59.9
Wineries	\$611,199	866	\$58.81	\$14,991	143	5	\$23.3
Grand Total	\$2,142,637	2,609	\$68.44	\$355,807	1,112	6	\$58.0

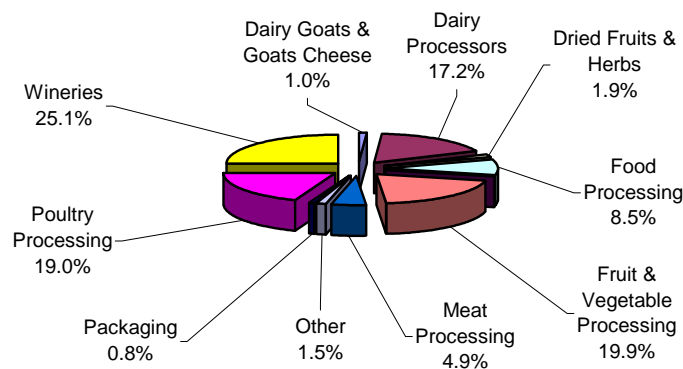


Figure 5. Annual Salary paid to all permanent and seasonal workers, percent of total salary paid, by agribusiness sub-sectors, 2002

Table 7. USDA MAP assisted milk marketing cooperatives.

<i>Cooperative</i>	<i>Marz</i>	<i>Number of members</i>	<i>Number of villages</i>	<i>Milk Sales, tonnes</i>	<i>Gross Receipts, USD</i>	<i>Farmers' Receipts, USD</i>
Elita	Lori	320	5	719.6	\$98,570	\$94,527
Vahan	Gegharkunik	57	1	278.4	\$36,709	\$34,226
Pushkino	Lori	131	2	229.8	\$32,418	\$28,483
Lejan	Lori	210	3	192	\$30,493	\$25,841
Tolors	Syunik	54	1	117	\$15,445	\$14,627
Akhlatyan	Syunik	34	2	114.1	\$15,012	\$14,277
Khosrov Kat	Ararat	21	1	10.2	\$1,716	\$1,541
Golden Goat	Vayots Dzor	132	4	50.3	\$11,197	\$8,846
Total		959	19		\$241,560	\$222,368

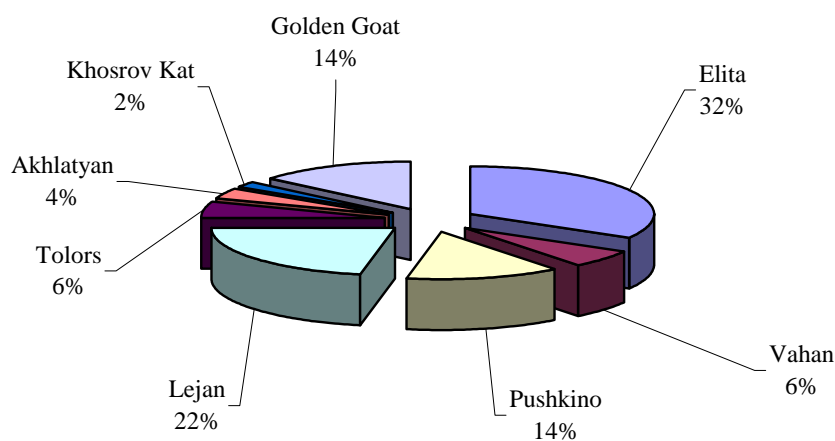


Figure 6. Number of members in Milk Marketing Cooperatives (percentage of total).

Table 8. Credit club membership and portfolios by the type of activity

<i>Activity</i>	<i>Number of members</i>	<i>Credit portfolio</i>
Apple	23	\$12,760
Apricots/Peaches	10	\$7,770
Dried Fruits	16	\$11,779
General	26	\$26,100
Grape	114	\$45,313
Hogs/Wheat	8	\$8,400
Milk	296	\$300,735
Milk/Forage	15	\$13,894
Milk/Potato	35	\$59,755
Seed potato	15	\$21,517
Tomato	56	\$82,779
Wheat	39	\$40,106
Wheat/Potato	52	\$100,340
Grand Total	705	\$731,248

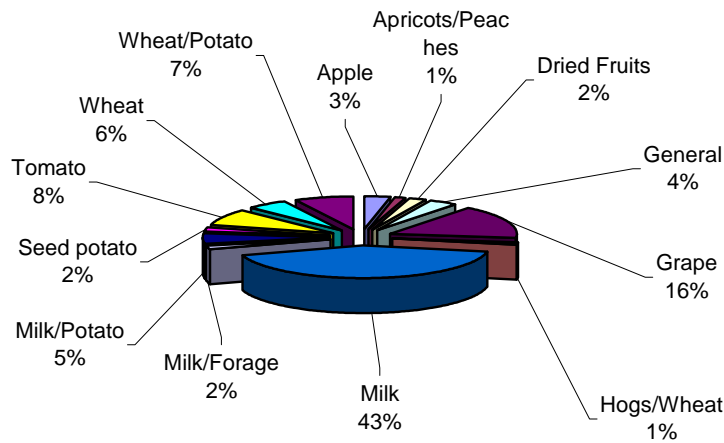


Figure 7. Credit club membership by the type of activity

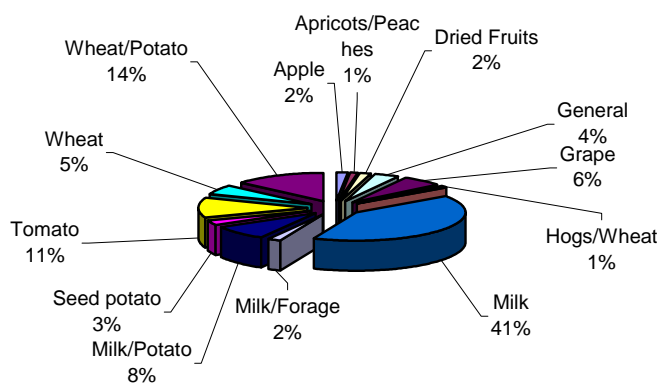


Figure 8. Credit portfolios by the type of activity.

Table 9. Credit club membership and portfolios by region.

<i>Region (marz)</i>	<i>Number of members</i>	<i>Credit portfolio</i>
Aragatsotn	43	\$53,279
Ararat	48	\$24,828
Armavir	58	\$90,884
Gegharkunik	41	\$49,645
Kotayk	19	\$27,200
Lori	220	\$268,721
Shirak	132	\$151,809
Syunik	17	\$8,400
Tavush	22	\$14,802
Vayots Dzor	105	\$41,680
Grand Total	705	\$731,248

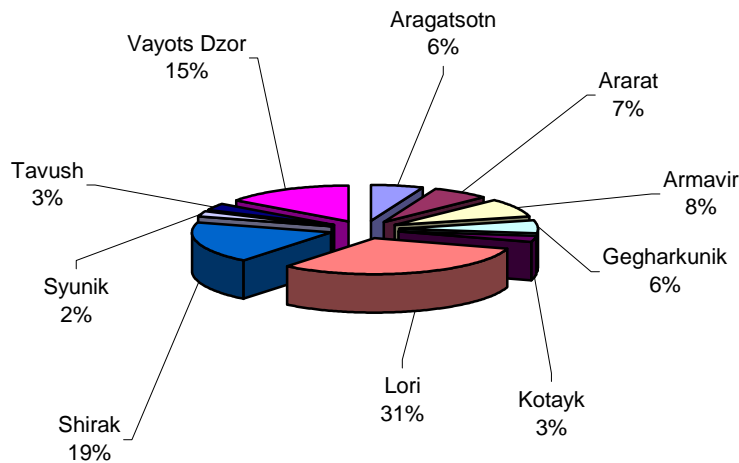


Figure 9. Credit club membership by region

Table 10. USDA MAP Village Well program: households, number of villages and total cost of projects grouped by regions (as of September 2003).

<i>Marz</i>	<i>Number of households</i>	<i>Number of villages</i>	<i>Cost, USD</i>
Aragatsotn	4,806	10	\$111,618
Ararat	224	2	\$27,062
Armavir	1,780	7	\$205,805
Gegharkunik	2,977	19	\$262,671
Kotayk	870	3	\$25,013
Lori	2,425	13	\$183,869
Shirak	336	3	\$57,974
Syunik	889	8	\$115,476
Tavush	2,945	7	\$112,923
Vayots Dzor	550	2	\$41,846
Grand Total	17,802	74	\$1,144,257

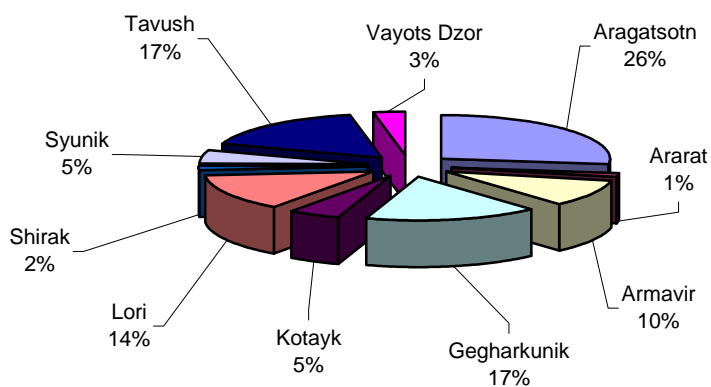


Figure 10. Households benefiting from Village Wells grouped by region

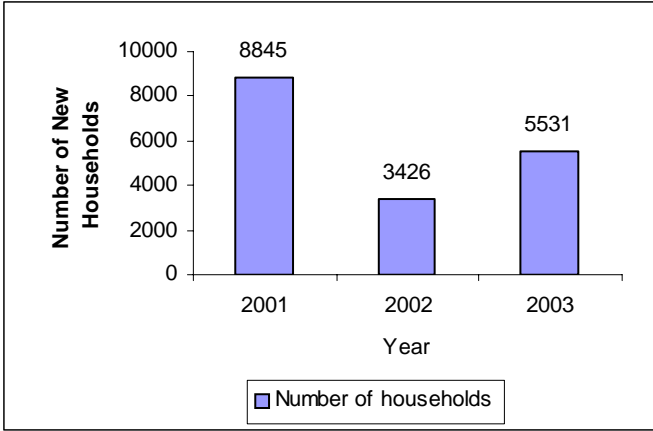


Figure 11. Number of new households added each year to the Village Well Program.

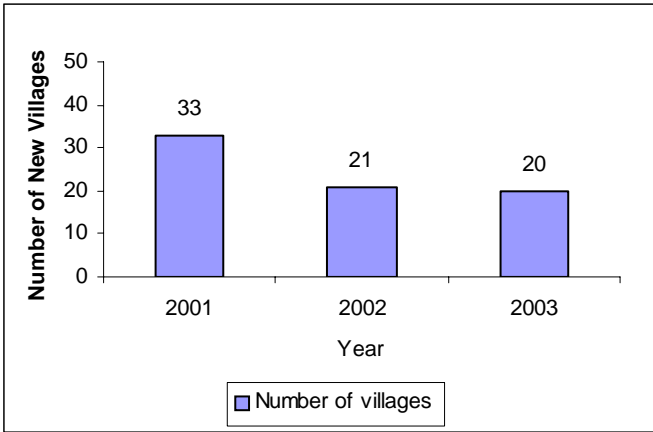


Figure 12. Number of new villages added each year to the Village Well Program