



Development *Alternatives*, Inc.



Armenian Honey

The Status of
Honey Marketing
Honey Quality and Quantity
The Beekeeping Industry
In Armenia



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DAI-Armenian SME Market Development Project
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RECOMMENDATIONS AND OPPORTUNITIES

Armenian beekeepers produce good quality honey at a relatively low cost. However, beekeepers have been isolated from improvements in bee disease control, genetic improvements, and hive management. Geographic and economic isolation have slowed development of the internal and export market for Armenian honey.

Detailed Recommendations

- ✓ Armenian honey producers are low to medium cost producers relative to the major honey producing and exporting countries in the world. However, volumes produced at this time are too low to realize economies of scale necessary to consolidate, process, and export honey.
- ✓ Beekeepers have unrealistic price expectations for their honey due to isolation from global markets and an antiquated internal price structure.
- ✓ Beekeepers need technical assistance to learn to manage bee diseases, particularly to learn more natural (less drug and chemical dependent) techniques.
- ✓ Beekeepers need to learn queen production and regular queen replacement techniques, as well as selection for disease resistance, honey production, and other desirable traits.
- ✓ Honey yields should increase if the previous two recommendations are implemented.
- ✓ A two tiered marketing approach could be developed: Serving the traditional local market primarily through barter, and selling bulk honey wholesale for cash.
- ✓ Beekeepers will need assistance marketing honey on the cash market. The “consolidation” model would be an ideal implementation strategy.
- ✓ Beekeepers and small honey processors need to learn honey processing, packaging, and labeling techniques for bulk and direct consumer sales.
- ✓ Beekeepers and honey buyers need technical assistance in determining true costs of production as well as developing realistic pricing and profit margins for the Armenian and export market. They would also benefit from bulk purchasing of supplies.
- ✓ A honey quality assurance/brand identification program needs to be instituted to build Armenian consumer confidence in locally processed and packaged Armenian honey.
- ✓ A small amount of honey may be available for cash sale at this time in Armenia (50 – 100 tons), but prices are set artificially high in relation to prevailing world prices, and consolidation, processing, and packaging for export would be difficult.

BACKGROUND

Beekeeping and Honey Production

Beekeeping is a traditional agricultural activity world-wide. Beekeeping does not require land ownership, and bees can be gathered from the wild or multiplied from existing stock. Honey is not perishable, though to maintain highest quality it should be used within two years of production. Honey is used as a food and has many traditional medicinal uses, some authenticated in clinical trials. Value added products can be produced from other hive products such as candles from beeswax, cosmetics from a number of bee products,

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medicines from propolis (bee glue) and bee venom, and dietary supplements from pollen and royal jelly.

Beekeeping in Armenia

Beekeeping was “collectivized” during the communist era and large beekeeping collective farms produced honey and hive products for the state. Production quotas and prices were set by the state. Individuals were allowed to keep bees at home to produce honey for home consumption or barter. Collective bee farms were dissolved after independence. With the dissolution of state honey markets, hive numbers declined, though cottage industry beekeeping expanded to meet localized honey demand. Beekeeping is practiced throughout Armenia.

ACTIVITIES AND OBJECTIVES OF THE CONSULTANT

Beekeeping Survey

Meetings were held with individual beekeepers and beekeeping associations and honey markets and processing infrastructure were surveyed in southern, central, and northern Armenia. The objectives were to determine the status of beekeeping in Armenia, the quality and quantity of honey in the country, and the ability of the beekeeping industry to respond to market opportunities.

CURRENT BEEKEEPING SITUATION IN ARMENIA

Size of industry

- Beekeeping remains a cottage industry.
- Hive numbers range from 1 to 300 per beekeeper, with a median size of 50 hives.
- 5 – 6 hives are considered sufficient to maintain a family at a minimal living standard of \$30 per month (yield of 15 kg/hive sold @\$5/kg).
- Young men are entering beekeeping because it is viewed as a positive economic opportunity.

Honey prices and marketing

- Honey is sold privately to “friends and neighbors”. Surplus honey is taken to Yerevan to sell through family networks privately or is fed back to the bees.
- Customers provide containers for honey.
- Prices range from \$4 - \$6 per kg, usually depending on local supply and demand.
- There is no organized wholesale honey market and a fragmented retail market.

Honey quantity

- Honey yields range from 5 – 30 kg per hive per year, 15 kg per hive per year is a fair median yield.
- Bulk honey is stored in 10 – 30 kg aluminum milk cans.
- There is little bulk honey in storage.

Honey quality

- Polyfloral honey is produced, meaning it is a mixture of floral sources rather than being from one species of plant.

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- Little or no heat is used in honey processing so HMF levels should be low and diastase levels (chemical indicators of quality) should be high if the honey is less than 2 years old.
- Honey is sold strained (not filtered) in its raw state.
- Due to the dry climate, honey moisture content is generally low.
- Honey tasted by the consultant had good taste characteristics.
- Unregulated use of drugs and chemicals for disease and mite control could possibly cause contamination of honey.
- Artificial and or adulterated honey was observed on the market in Yerevan and other cities.
- There are no governmental honey quality controls being enforced.

Disease management

- Beekeepers have difficulty controlling bacterial diseases (European and American foul brood).
- Fungal disease (chalk brood) is a problem in some areas.
- Varroa mites appear to be under control with use of acids, herbal preparations, and “Bee Peen”, a chemical control imported from Russia.

Hive management

- In mountainous regions beekeepers move their bees 1 – 2 times progressively higher to follow plant bloom.
- Transportation costs are high for beekeepers.
- Bee supplies are only available in Yerevan and are purchased individually, raising transportation and product costs for beekeepers.
- Beekeepers use Dadant-Blatt and Langstroth hive types.
- Beekeepers practice yearly comb rotation (good disease prevention management).
- Ventilation is poor in hives, which contributes to disease problems.
- Regular queen replacement is not practiced.
- Queens are not produced for sale in Armenia.
- Used bee equipment is readily available in most regions due to lower hive numbers following collapse of collective farms. Several years of poor weather have reduced live hive numbers.
- Beeswax foundation is readily available and beekeepers are able to have their own wax processed into foundation.

Alternative/value added hive products

- With the exception of tincture of propolis (propolis dissolved in alcohol), no alternative or value added hive products were observed in production or use.
- One beekeeper in the Ijevan region claimed to be producing a honey with high iodine content.
- A beekeeper in Ijevan showed the consultant a high quality comb honey section professionally packaged in plastic. He stated he had a contract with a Swiss firm to produce 10,000 comb honey sections per year and the Swiss provided the

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production materials. He has not been able to meet the contract in the last few years.

PROBLEMS LISTED BY BEEKEEPERS BY REGION

Kapan

- Need for certification program for honey quality.
- Need for cash wholesale market for honey, beekeepers would be willing to accept lower prices for cash sales.
- “Main problem is people cannot pay for honey”.
- Beekeepers are interested in pollen collection technology.

Meghri

- Honey sales process is very long, takes a year to sell all of their honey (cash flow problems).
- No cash available to purchase drugs and chemicals to fight diseases and mites.
- No cash to purchase sugar to feed bees in spring.
- A 30 km bee exclusion zone has been established around Meghri from June 1 – Oct 1 to keep bees out of the cannery (cannery had open, unscreened doors and windows).
- Transporting bees to mountain locations is expensive.
- Problems with chalk brood and AFB.

Dilijan

- Beekeepers need help with disease management.

Alaverdi

- Beekeepers have “great difficulty” selling honey. Only small amounts sell for cash, most is bartered.
- Beekeepers have difficulty getting beekeeping equipment because of their remote location (transportation problem).

Ijevan

- Need for local cash honey market, according to one Ijevan beekeeper “local people are insolvent and can only barter for honey.
- Need help learning queen rearing.
- Need supplies for comb honey production.

COSTS OF PRODUCTION

Costs of production have been calculated for Armenian beekeepers who depend upon beekeeping for their living (Appendix I). Income projections were calculated based on a

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range of realistic honey yields using both prevailing Armenian and world prices. To illustrate the disparity in Armenian and world prices, a 50 hive beekeeper producing a median yield of 15 kg of honey per year would net \$255.81 per month selling for Armenian prices, and net \$27.06 per month selling at world prices. However, by increasing hive numbers and yields, Armenian beekeepers could develop a two tiered selling strategy: Selling or bartering honey at high prices to meet local demand, and selling excess production to consolidator/processors for export to generate cash flow.

Cost Values in the Global Honey Market*

Costs/kg	China	Argentina	Armenia	Alberta	U. S.
Beekeeper costs	\$0.53	\$0.88	\$0.91**	\$1.10	\$1.43
Internal collection (i.e., middlemen)	\$0.055	\$0.022	\$0.022***	Not applicable	Not applicable
Barrel cost assumed by exporter	\$0.088	Not applicable	Not applicable	Not applicable	Not applicable
Ocean and land freight	\$0.11	\$0.09	\$0.05****	\$0.044	\$0.022
Misc fees	\$0.13	\$0.11	\$0.11***	\$0.044	\$0.022
Total delivered cost	\$0.91	\$1.10	\$1.09	\$1.19	\$1.47

*Pg 68, Competition for World Honey Markets: An Alberta Perspective. April 2001

**based on 15 kg yield

***avg costs from table

****assume destination of Europe or Gulf states

HONEY PROCESSING

Canneries

The consultant visited food processing plants/canneries in Kapan and Megrhi. In order to process honey each plant would need:

1. Honey melting equipment, either by heated air or water, to liquefy granulated honey.
2. Specially “geared down”, slow speed honey pumps to move liquid honey.
3. Straining and filtering equipment to remove foreign matter from liquid honey.
4. Settling tanks to allow honey to settle after processing to remove introduced air or other impurities.
5. Bottling tanks and preferably automated filling machines to accurately fill honey jars.

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All equipment should be food grade stainless steel. While honey must be heated to facilitate processing, heating needs to be carefully controlled and monitored throughout the process. Both canneries had necessary facilities for jar handling, labeling, and storage of honey. The cannery at Meghri would need to have all outside openings screened against insects before attempting honey processing.

Small Scale Honey Processing

Small scale honey processing could be established at a relatively low cost using locally fabricated equipment and low cost labor to replace some equipment cost. The consultant left beekeeping supply catalogs detailing small scale honey processing and equipment. A sample budget is attached that estimates costs of small scale honey processing (Appendix II)

HONEY QUALITY

Because of the simple technology used by Armenian beekeepers to produce, process, and store honey, it should meet international quality standards. Because of the dryness of the climate, Armenian honey should meet international water content standards (< 18.6% water). The consultant is concerned about the unregulated and at times uninformed use of drugs and chemicals by beekeepers to control bee diseases and mites. Honey can be contaminated with drugs and chemicals if they are used at the wrong time, at the wrong dosage, or if improper drugs or chemicals are used. Honey should be stored in cool, dry, dark conditions for no more than 2 years to maintain maximum quality.

U.S. and International Honey Quality Standards.

Appendix III: Codex Alimentarius/FAO international honey quality standards

Appendix IV: United States Honey Standards

Appendix V: U.S. National Honey Board Honey Reference Guide

Basic honey standards for export

Moisture	maximum 18%
HMF	max 15 mg/kg
Diastase	min 15
Color	as per agreement
Antibiotics	< 10 ppb
Tetracycline	not detectable
Coumaphos	not detectable
Streptomycin	max 20 ppb
Fluvalenate	max 10 ppb
Glycerol	max 200 ppb
Yeast	max 200,000/10 gr honey
Starch content	max 10%
c-13 value	-23.5 or less
Protein difference	1.0 or more positive

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OVERVIEW OF HONEY MARKETS

Domestic Armenian Market

Current situation: According to surveys of beekeepers, honey supply is currently matching demand in Armenia. Prices swing from a low of \$4 per kilo to a high of \$6 per kilo depending on abundance of supply and perceived quality of certain specialty honeys. The majority of domestic production appears to be bartered, and surplus production from the countryside either finds its way to the Yerevan market or is fed to the bees. Evidence of the underground honey trade is obvious on the retail shelves of shops and kiosks in Yerevan and other cities. As a rule, honey selection on retail shelves is poor, quality is fair to poor, and prices are highly variable. Adulterated honey and sugar syrups clearly labeled “honey” are openly sold in wholesale and retail markets. Comb honey of variable quality is being sold in Yereran.

Potential market development: If a reliable domestic retail honey market is to develop in Armenia some form of quality assurance must be given to the honey consumer. The consultant has been advised that effective governmental regulation of food quality standards is unlikely in the near future. One way to build consumer confidence would be development of a quality assurance program. Quality standards would be developed, and those meeting the standards would be allowed to use a quality seal or standardized label to build consumer confidence. Such a program could be implemented through beekeeper associations, particularly the national beekeepers union. A similar approach from the private sector would be to market a quality honey in an attractive package in order to develop brand recognition in the Armenian market.

HONEY PRICING

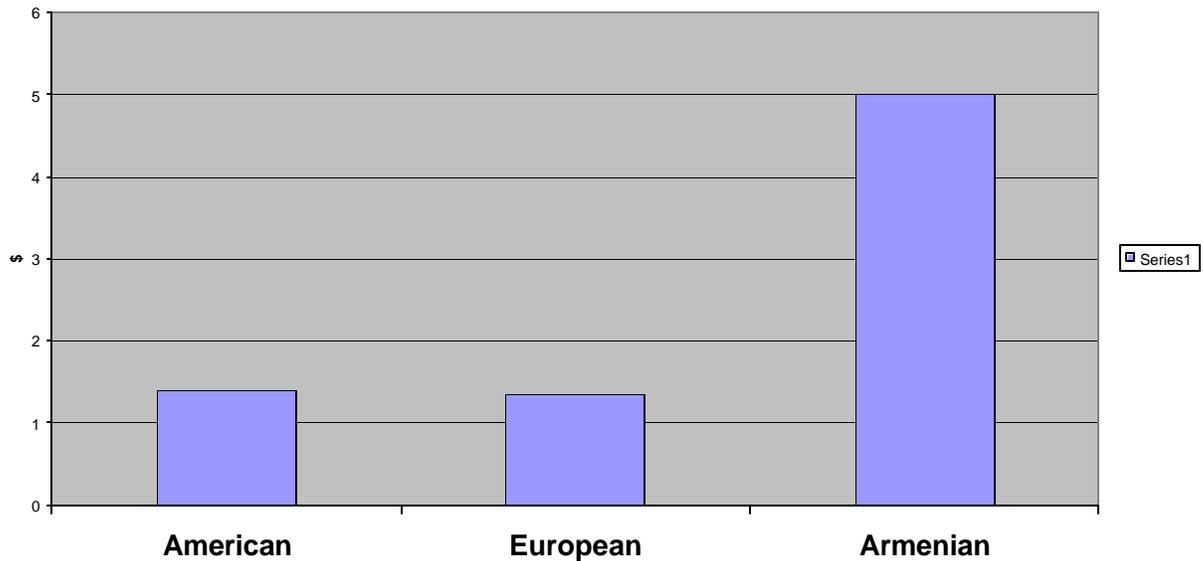
Domestic honey pricing: Honey prices are very high in Armenia. According to the USDA National Honey Report of August 10, 2001 (Appendix VI), prices paid to American honey producers for extracted, unprocessed polyfloral honey range from \$1.08 - \$1.43 per kg. Prices for similar Armenian honey in Sept. 2001 range from \$4.00 - \$6.00 per kg. Prices paid to importers in the US for bulk honey, duty paid, containers included range from \$1.19 - \$1.41 per kg. According to a Dutch honey broker acquaintance of the consultant, European honey packers are paying \$1.30 - \$1.34 per kg. for polyfloral honey in Sept. 2001.

Justification of honey pricing: Honey pricing is not cost or value based in Armenia. The value of honey is inflated relative to world prices and quality. There are no formal wholesale or retail marketing channels in place so marketing of honey is constrained. Residual Soviet thinking lingers in the form of fixed prices and margins that have no relation to true market forces. Compounding the unrealistic pricing structure are anecdotal accounts of high retail prices received for honey in American and European

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specialty shops, coupled with little understanding of the costs associated with marketing such honey.

Comparison of American, European, and Armenian Honey Prices



EXPORT MARKETS

Two potential export markets exist for Armenian honey: Bulk, unprocessed honey, and processed honey packaged for the consumer market.

Bulk honey: The majority of honey traded on the import/export market is bulk, unprocessed honey in 300 kg barrels. Loads are consolidated into 20' shipping containers with capacity of 20 MT, or into trucks with loads up to 22 MT. It is possible to ship partial container loads if freight forwarders can be located who are willing to consolidate different goods into shipping containers or trucks bound for the same destination. Honey should be packed in steel food grade drums in good condition. Quality parameters are listed in the previous section on honey quality standards, and should be tested by reputable laboratories that meet the specifications or approval of the buyers. A sample request for bulk honey from a German honey processor is attached (Appendix VII). The consultant is in contact with a Dutch honey broker who is interested in sourcing bulk honey from Armenia at prevailing world prices.

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Processed honey: Processed honey is shipped in consumer-ready glass or plastic jars, boxed, shrink wrapped, and palletized. Most buyers require testing of processed honey to ensure quality control, and processing, packaging, and labeling should meet all standards and regulations of the country of destination.

OTHER MARKETING OPTIONS

Organic Honey

There is growing demand for organic honey, which has been produced in chemical-free hives in a natural landscape. Organic products must be certified by third party certifying agencies, generally private sector firms or organizations that have approval from the country of origin and the country of destination. Organic/chemical-free production of honey is particularly challenging at this time because of the difficulty in controlling parasitic mites on honeybees. Armenian beekeepers use a wide range of chemicals and drugs to control bee diseases, but could adopt more natural pest control technologies. Because so few synthetic fertilizers and pesticides are used in Armenian agriculture, future production of certified organic honey should be looked upon as a possible option. European Union organic honey production standards are attached (Appendix VIII).

Max Havlaar

The Max Havlaar program is a fair trade trademark program administered by the Max Havlaar Foundation (www.fairtrade.net). The goal of the program is to ensure that the producer gets a fair price for his product. The program is based on a system of registration, checks, and promotion. Products are licensed in individual countries as fair trade licensed products and are labeled and promoted as such. Honey is one product that is being licensed by the Max Havlaar program.

Armenia Tree

Discussions have been held with Armenia Tree representatives in Armenia (Laura Gononian, Armenia, Regina Eddy, USA) about building mutually beneficial relationships between Armenia Tree and beekeepers in Armenia. In the short term, Armenia Tree needs help locating land for a linden tree/chamomile agroforestry project in Alaverdi and the local beekeepers may be able to help locate a suitable location as linden is an excellent honey plant. In the intermediate term, Armenia Tree sponsored fruit plantings will need pollination, and relationships could be built with local beekeepers to provide pollination in exchange for bee yard locations or possibly cash or barter payment, particularly if the fruit plantings are large. In the long term, Armenia Tree plans to market dried fruit to the Armenian community in the Boston area and have expressed interest in partnering with Armenian beekeepers/honey processors to sell Armenian honey too. Bees and trees have a symbiotic relationship, so the eventual partnership with Armenia Tree is a natural combination.

LIST OF CONTACTS

Kapan:
Kamo Gevorgyan, beekeeper

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Vladik Ghukasyan, beekeeper
Armen Movsisian, GTZ
Brent Braedt, GTZ
Rafael Asryan, head of Syunik Fruit Factory
Rob Anderson, Peace Corps business volunteer

Meghri:
Gagik Hambartzumyan, deputy mayor of Meghri
Armen Sargsyan, head of Community Union of Meghri
Raznik Tevoyan, head of agriculture department

Yerevan:
Gevorg Karakhanian, president National Beekeepers Union
Laura Gononian, Armenia Tree Project
Biktich Ayvazyan, coordinator Oxfam Armenia

Dilijan:
Dilijan Beekeepers Association

Ijevan:
Ijevan Beekeepers Association
Telman Nazaryan, beekeeper

Alaverdi:
Alaverdi Beekeepers Association

USA:
Regina Eddy, Armenia Tree USA

The Netherlands:
Wladimirov Trading, honey broker