

PART II – VALUE AND SUPPLY CHAIN ANALYSES - IDENTIFYING INEFFICIENCIES AND OBSTACLES

INTRODUCTION

Supply chains are the physical market and flow of inputs and goods from the producer to the final consumer. Value chains represent the value of each commodity as it passes along the supply chain to the final consumer³⁸. Examining the supply and value chains can reveal important obstacles and inefficiencies in an agricultural economy, particularly in an economy in transition, as the structures and links in the supply chain are continuing to be developed to replace the Soviet production and distribution system.

As with many other transition countries, the market in Armenia between producers and processors, or distributors was based on state order systems, with demand and supply being controlled and a payment system based on centralized clearing and the transfer of payments of limited cash and “paper” accounting money. One of the successes of Armenia – its total transition to a demand economy – has also been the cause of severe fragmentation of the production system. When the production base changed from 900 state farms to individual farmers, the market infrastructure and demand system collapsed overnight.

The impact on the agricultural processing industry illustrates the consequences of this disruption. As agricultural processing facilities went through privatization, they were plagued by debts, out of date equipment, lack of working capital and a collapse in their off-take markets. Unfortunately many of the newly privatized factories were still in the hands of their Soviet style management, who continued to produce in accordance with previous demand levels, purchased raw materials with no real thought as to how they would pay for them and then were unable to sell their production – which meant that they were unable to pay for the raw materials. It was this lack of payment, rampant inflation and loss of non-farm rural income that led many producers to switch their production to food staples in an effort to ensure food security. The marketing problems that ensued were aggravated by the importation of lower priced dairy and meat products from other countries.

Now, more than a decade after the end of the Soviet system, the agricultural supply chain is being created on an ad hoc basis, largely by entrepreneurs that have enough capital to finance the purchasing, processing, and transport of agricultural products. A detailed analysis of the value chain for agricultural commodities reveals that these middlemen are currently capturing much of the value in these transactions.

The study identifies a number of inefficiencies that, if addressed, could allow primary producers of agricultural products to realize more value for their products, and encourage the expanded production and distribution of these products. The following section discusses each product sector; specific export opportunities were identified in each sector, as well as obstacles that must be overcome to realize opportunities for each sector. The concluding section provides some broader proposals for improvements in the value chain.

³⁸ A schematic description of the supply and value chain for fruits, vegetables, the dairy sector and livestock/meat is included in the Annex D.

A. EXPORT POTENTIAL FOR ARMENIAN AGRICULTURE

Armenia has the potential to be a competitive producer in several sectors. Within each commodity sector examined -- vegetables, fruits, dairy, and meat, there are products with export potential. Some of these products have strong demand abroad with the Armenian Diaspora, and in Russia, (basturma and other cured meats, brandy, Armenian style cheeses), while other products represent new market opportunities (exports to Russia of non-traditional high value vegetables such as broccoli, asparagus, and capers).

Despite the apparent under-reporting of trade, official data show export increases in recent years. Exports of all merchandise reported in official statistics more than doubled from 2000 to 2003. Anecdotal evidence from discussions with traders, though, suggests that official trade data is not reliable. The main reason for anomalies in the data are that much of the trade is carried out on an unofficial basis (and is therefore not recorded by the Customs authorities). As a result, it is not possible to determine the actual value of present trade, but it is likely higher than official statistics offer.

Export shares to CIS countries remain strong. The CIS share in export of fresh vegetables decreased from 93 per cent in 1999 to 32 per cent in 2003, with a corresponding drop of total exports of 33 per cent (to a total of US\$ 93,000). Exports of edible fruits and nuts to the CIS remained relatively stable at 94 per cent in 2000 and 97 per cent in 2003, with only a slight reduction in the total volume to US\$ 1.15 million. Processed fruits and vegetables exports decreased from 88 per cent in 2000 to 75 per cent in 2003. However, it should be noted that the total value of exports in this sector rose by 141 per cent in the same period, to a total value of US\$ 5.8 million. For dairy products, the export share with CIS countries is increasing rapidly, from zero in 1999 to 78 per cent in 2003 (total value of exports US\$ 1.9 million).

Alcoholic beverages - beer, wine and brandy/vodka - account for approximately 80 per cent of all agriculturally based exports. Exports of these products have increased dramatically in recent years. From 1995 to 2002, exports of beer increased 31,000% (total US\$ 563,000). Wine exports increased 138% (total US\$ 514,000) and brandy/vodka exports increased 2059% (total US\$ 43 million). The total value of these exports amounted to almost US\$ 60 million in 2003 (an increase of 50% from 2002). It should be noted that around 95% of the export earnings for alcohol-based exports came from the brandy/vodka sector. In 2003 the share of these exports to CIS countries was 95% of the total and therefore the FSU remains the strongest and most strategic market for these exports.

An export success story: Armenia's largest brandy producer

One of the fundamental challenges to exporting from Armenia is to produce a product that consistently meets the demanding quality standards in major export markets. One agricultural processor that has successfully done this is the Yerevan Brandy Company (YBC), the largest Armenian brandy producer and a subsidiary of Pernod Ricard S.A. One of the keys to success for YBC is their comprehensive relationship with their grape producers. YBC enters into long term contractual relationships with its grape producers, agreeing to purchase grapes at pre-agreed prices. YBC also engages in a comprehensive relationship with grape producers by supplying them with a range of inputs, such as fertilizer, arranging for prompt payment, and providing agronomic and business counseling. YBC has also taken their grape producers on international field trips to show them viticulture in other countries as a training tool. These investments in its suppliers have benefited YBC by increasing the quality and uniformity of the grapes it uses to manufacture cognac for export markets.

YBC is able to provide these comprehensive services to its suppliers because it is well financed; it has high profit margins, and faces excess demand for its products in domestic and international markets. YBC's resources as a multinational manufacturer with strong branding, marketing, and manufacturing skills give it many advantages in implementing this supply chain quality program, but all agricultural processors can learn from its success.

In recent years, the fruit and vegetable processing sector expanded strongly in exports, although the total values remains still relatively low. The reason for this is that the drive to expand exports is being carried out by a small number of highly active companies in each sector. In fruits and jams, for example, it is Euroterm, in canned vegetables it is the Ashtarak/Ararat cannery. What is observable therefore is not a sector wide move in the export sector, but the development of a small number of capital-intensive operations that are geared almost exclusively to the export markets. The re-investment in the production base has enabled these companies to overcome the traditional quality issues that are often a barrier to exports.

Another example of export success: Euroterm fruit juices

Armenian fruit and vegetable processors have difficulty competing in many export markets for standard-grade processed products. One reason is that foreign fruit and vegetable processors in many competitive markets are able to purchase their raw materials at relatively low prices, as supply in those countries is far in excess of the demand for fresh product. In Armenia, however, processors have to compete with the fresh fruit market and this drives up their raw material costs. Therefore, processors in Armenia are going to need to specialize in non-standard products and high value markets.

One of the largest and most successful exporters in the fruit-processing sector is Euroterm, based in Yerevan. The company produces high quality fruit preserves, jams and juice, and exports a minimum of 50% of its production. All of their production and processing uses new equipment and high value imported packaging. Euroterm markets these products in exclusive retail outlets in the major Russian cities, Europe and America and have effectively pushed themselves into niche markets that depend on quality and specialization, as opposed to mass production.

Successful marketing involved strong relationship in destination markets targeting the Armenia Diaspora. The majority of Armenia's successful exporting companies are generally involved in their own distribution in the destination markets. Their distribution infrastructure relies on the existence of extended family or Armenian business associates in cities such as Moscow, St Petersburg, Los Angeles etc. Effectively, the companies are shipping to themselves and therefore minimizing their financial risk. While this is a very valid and minimal risk approach to export marketing, it is generally one that does not allow for rapid expansion and broader market penetration.

Equally, the demand base for these products is based on a specific consumer demand for Armenian origin products. In countries outside of the CIS (e.g. USA and France), this demand is centered on the Armenian Diaspora population, who wish to consume Armenian products for nationalistic reasons. However, the long-term consumer loyalty of this group must be considered to be relatively fragile, as future generations reduce their ethnic identity and therefore lead to a shrink in demand. The other problem with this sort of marketing is that the demand has little correlation to the price of the goods – effectively they do not have to compete with products of similar quality but different price. On this basis, it will be very difficult for

Armenian exporters to further develop their market penetration unless they are able to compete not only on quality, but also on price and continual market presence.

In the CIS markets, the demand for specifically Armenian product extends beyond the Diaspora community and therefore has a greater potential for long-term stability. During the Soviet era, products such as Armenian cheese, basturma and cognac were well renowned for their quality and specific taste throughout the consumer markets.

B. POTENTIAL OF SPECIFIC AGRICULTURAL PRODUCTS

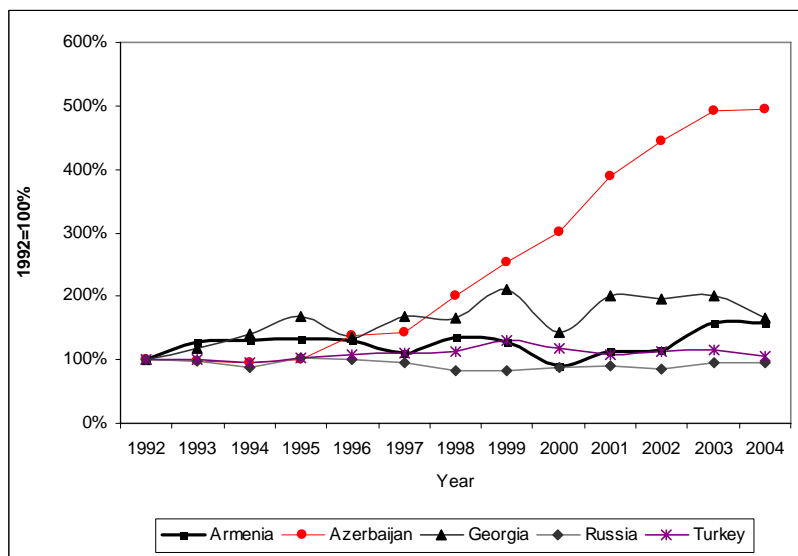
B.1 Vegetables

Potential Demand in the Vegetable Sector

Potential demand in the vegetable sector includes high volume staple foods, high value fresh exports to the CIS, and niche products. In terms of bulk production, vegetables, and potatoes appear to offer Armenia the opportunity for the largest expansion in production. However, in the absence of domestic processing and an eventually saturated local demand, the success of such development will mainly depend upon stable exports. Both the Georgian and Azeri markets offer the chance for major exports, as the growing season in Georgia is limited and slightly differs in time from Armenia and Azerbaijan produces only limited quantities of potatoes themselves (yet have a very high demand). However, according to interviews conducted, it appears that the basis for exports to these countries is extremely precarious. Potatoes are now exported to Georgia informally, and do not pay the 35 per cent Georgian import duty. If Georgia collects those duties in the future, these exports would not likely be profitable. For the Azeri market, continuing border incidents mean that exports (no matter how unofficial) are going to continually suffer from a degree of uncertainty.

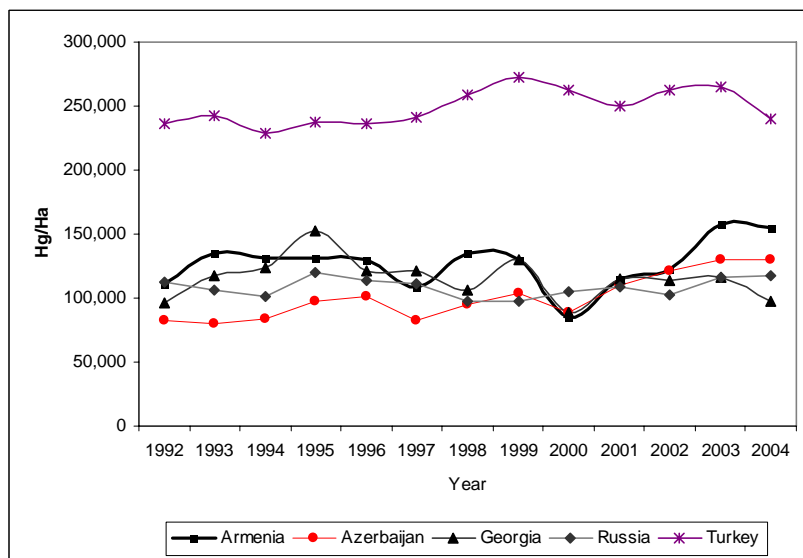
The export potential of Armenian potatoes is already being realized as can be shown by increasing production volumes during the recent years (Figure 8). The increase in production is yet slow, but is largely due to productivity increases in parallel with very slight increase in overall planted area. In order to compete for Georgian market, the diversification of the growing season will not be enough. In the longer term Armenia must increase per hectare yields of potatoes that still compare with its CIS partners, but are very low compare to Turkey (Figure 9).

Figure 8. Regional potato production volume index, 1992 – 2004 (1992=100)



Source: FAOSTAT

Figure 9. Regional potato yields per hectare, 1992-2004.

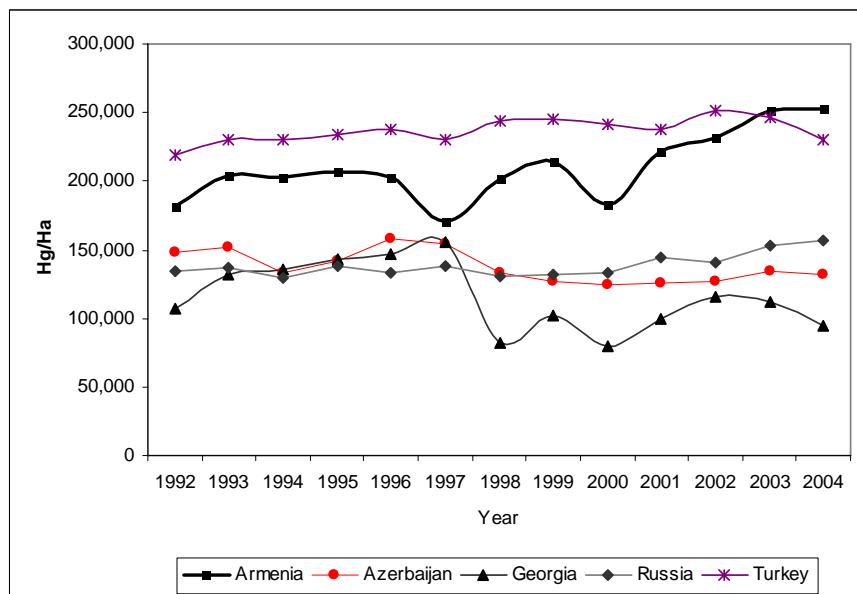


Source: FAOSTAT

During recent years the increase in vegetable yields in Armenia has added considerable potential for vegetable exports to CIS countries. Nevertheless, yet variable the vegetable yields in Armenia compare well with Turkey (Figure 10). With progress in domestic processing and storage there is a potential for Armenian vegetables and vegetable products (especially dried or frozen vegetables) to be exported to their traditional markets in CIS. With the improvement in ground transportation through Georgia and the existence of regular flights to Moscow, it is foreseeable that the export of standard high value vegetables such as tomatoes, eggplants and peppers to the fresh retail markets in Russia are a considerable opportunity for Armenian producers, especially if they are able to store for the off-season or increase greenhouse

production. However, the development of such business is going to be dependent on the involvement of traders with sufficient connections in the Russian wholesale and retail markets to be able to make such a system work. It is also foreseeable that Armenia is relatively well placed for the supply of non-traditional high value vegetables (e.g. broccoli, asparagus, capers) to the Russian markets, but this would also be dependent on the involvement of a strong distributor/trader in the destination markets. Given the very specific quality requirements of the European and Western markets, it is not likely that exports of such vegetables will take place in the near future.

Figure 10. Regional vegetable yields per hectare, 1992-2004.



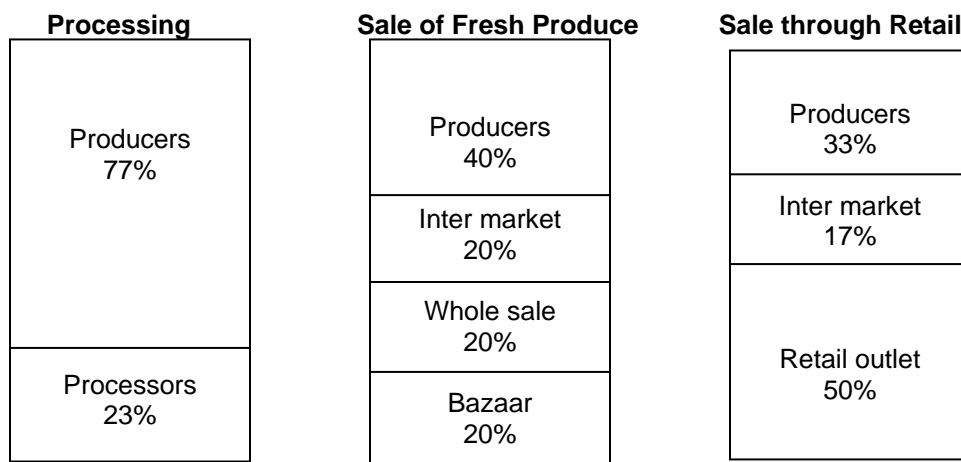
Source: FAOSTAT

A clear opportunity for Armenian producers is the production of dried vegetables (e.g. peppers, mushrooms, onions, chillies), which are generally used in the food processing industry, especially for semi-processed (e.g. noodle cups) and processed meals (designed purely for re-heating at home). In order to supply the expanding demand, Russian processors are currently sourcing dried vegetables from as far away as Kyrgyzstan and Uzbekistan. Given their relatively high value and low weight to volume ratio, such products are perfect for transportation by either plane or container. The growth of the processing sector will require: further investment in modern equipment; an increase in the production of vegetables; and increased yields and efficiency.

Vegetable Value Chain

The vast majority (up to 80%) of tomatoes are to processing plants. However, this percentage is dependent on the size of the crop in any one year. Figure 11 shows the split share of values in the existing value chains. Producers receive much higher prices when selling their tomatoes to inter-market traders at the farm door for fresh table consumption, as opposed to selling them to their local processing plant (40D/kg versus 25D/kg). However, most producers are only able to sell up to a maximum of 20% of their production as fresh produce and the balance is sold to the processing industry.

Figure 11. Vegetable Value Chain (% of total value)



Prices paid for tomatoes are relatively volatile and are heavily connected to the size of the crop, the season and the relative international export prices for processed products. For example, in 2004 there was a dramatic reduction in the production of tomatoes and therefore the prices being offered by processors rose substantially. The years before with very large crops, the price offered by processors slipped to 15D/kg. The most marked difference in prices is based on seasonal availability. In winter the price for tomatoes at the bazaar level can reach up to 800 – 1000D/kg, with a corresponding price to producers of around 400D/kg at the farm gate.

Although not schematically represented, it was noted that producers receive yields of around 40MT/ha for cucumbers at a total cost of around 800,000D and net revenue of 1,200,000D (sale price of 50D/kg), or a return on costs of 150%. In winter they receive prices of around 300D/kg, or a seasonal price increase in the order of 250%. Egg plant is a very attractive crop, with costs of around 1,000,000D/ha, but a yield of around 50MT/ha and a sale price in the order of 80D/kg. This leaves the producer with returns on costs of 300% if they sell at picking, but can achieve sales prices as high as 450D/kg in the winter period, which represents a 460% inter-seasonal price increase.

Inefficiencies in the Vegetable Sector

Farmers are unable to access all segments of the supply chain. Producers do not have access to retail markets (bazaars) in the major urban areas. At best, farmers can take their produce to the bazaars, but are forced to sell them to intermediary traders outside of the bazaars. These traders then resell the produce to traders within the bazaar, or subdivide the deliveries into smaller volumes and then have their own people sell the products within the bazaar itself. The price differentials between the prices paid to the producers and the final retail prices are in the range of 100 per cent for vegetables. While the number of retail outlets (shops) in Yerevan is slowly increasing, producers find it difficult to supply them as the shops only wish to purchase/take delivery of relatively small amounts of product, which means that producers are unable to efficiently use this supply chain.

Producers currently suffer from very marked swings in price based on seasonal supply for their product. One reason for this is the limitations of the short-term credits that are available to them, which necessitates selling their produce at harvest (at the lowest prices). They also lack the capital to invest in greenhouses that could allow them to extend their

production seasons. Another problem is that they do not have any storage facilities to store their goods for sale at a later period (when they could achieve higher sales prices). In order to invest in these facilities, producers would also need access to some form of collateralized financing to bridge their financing gap.

Producers often grow crops with little concept of what the market demand is or supply will be. This frequently results in an oversupply and low prices. At the same time, the lack of communication between buyers and producers is frustrating a large amount of potential trade. There are many traders who demand for Armenian products for export but are not aware where or how they can buy the product with regularity and in sufficient volumes.

The quality of seed, fertilizer, and pesticide inputs is very low. For example, the chemical (azot) content in fertilizer is often only 16%, whereas it should be 33%. It appears that there is a problem with the certification of inputs, as many come with quality certificates that do not correspond with their actual quality. Despite the poor quality, producers must pay high prices for inputs due to the lack of competition between suppliers.

Water supply is irregular in irrigated areas. A common complaint from producers in the Ararat Valley is irregular and insufficient supply of water. Many claim that they are unable to use up to 50% of their arable lands because of this problem. In many instances, they have paid for this water in advance, but the water is simply not delivered.

A market structure of “price taking” producers and monopoly processors results in low farm prices. With privatization, the production base was severely fragmented. Producers have now largely become “price takers” in the market place. Previous attempts to encourage producers to enter into marketing groups in other sectors have often failed due to an insufficient differentiation between the precepts of marketing groups and the old collective/cooperative structure. It is also clear (not only in Armenia) that such attempts lack a natural “nexus” for these groups to be created.

Producers face acute disadvantages of market power in the vegetable processing sector. Only a very small number of companies (4, now 3) are involved in the sector. This has led to the price for vegetables to fall dramatically, making it unattractive for producers to continue to grow the specific product. Fortunately, producers are developing the ability to switch to other crops in such circumstances, as demonstrated by the sudden fall in production of tomatoes in the 2004 season.

Many of the vegetables that are currently being produced are not suited for processing. In the tomato sector, for example, the tomatoes grown tend to be table varieties, which have thinner skins, a lower dry matter content and are less durable and resistant to handling than specialist processing varieties. In other sectors, for example carrots, producers tend to supply product with a vast mixture of varieties grown on the same plots of land. This leaves the processors with major problems in selection, packaging and processing. As a consequence, they produce a very low quality product, only suitable for marketing in the lower end CIS markets, as opposed to the high end non-CIS retail markets.

Proposals for the Vegetable Sector

Regional wholesale markets must be developed. In order to try and break the apparent control of the main retail markets (e.g. Yerevan), the introduction of weekly or bi-weekly, municipally held wholesale markets might be advantageous. However, unless such markets are

truly regulated to ensure that there is no external control, and that they are truly wholesale (i.e. minimum volumes in excess of 1 MT), it is unlikely that they will be successful. Equally, until producers have re-organized themselves into sufficiently sized marketing groups, they will be unlikely to manage the sufficient produce volume. If they continue to remain fragmented, then they will simply compete with each other and the major benefit of such markets would be minimal.

Improved access to credit will allow more marketing options for producers and processors. In order to breach the circle of having to sell produce at disadvantageous times, financing gaps for the sector need to be closed. Because credit is limited due to current lending and collateral practices, a series of applied training for banks on the issues of client and risk assessment would enable them to increase their lending, even based on current collateral levels.

Increased cold storage capacity will enable producers to increase sales during the off season. This specifically applies to high value vegetables such as tomatoes, peppers, cucumbers and aubergines, which require storage under chilled conditions and packing in wooden or plastic containers to ensure minimum wastage. A limited number of producers (especially in the Ararat Valley) are now becoming involved in this and are using relatively low cost technology to achieve it. It would be very advantageous to disseminate this technology and storage know-how throughout Armenia. However, cold storage needs to be embedded in a larger marketing strategy. Unless other shortcomings are solved as well, cold storage will not provide the added benefit that it could. In addition, cold storage needs to be adjusted to the volumes and conditions available and run as a business in itself.

Cooperative marketing groups hold great potential. The best current example of this is the collective marketing of raw milk through village collection and storage tanks. In the vegetable sector, the nexus for group marketing could be a village storage facility. This is reinforced by the fact that many producers lack sufficient production to justify the construction of their own facility, but would be able to do so if they were to share it with other producers. While initially the producers would probably continue to sell individually, it is likely that they would move to group sales as they identified regular volume purchasers. It is important that any intervention be based on voluntary decisions of the producers, as opposed to being imposed, in which case it would likely be unsuccessful.

Increased regulation of inputs' quality will improve agricultural productivity. Although there is currently provision for GOA regulation of the quality and standards of agricultural inputs, it is clear from interviews with producers throughout the country that it is not currently effective. Such regulation should also be tied to the safeguarding of genetic material and correct testing of imported seed types. Such regulation would increase the willingness of foreign seed breeders to sell their product in Armenia and also would limit the sale of low quality and diseased seed from the market.

Enforcing anti-monopoly regulations in the processing sector ensures competitive prices are paid to producers. In the absence of entrance of new processing facilities into the market (which would hopefully engender increased competition), it is important for the GOA to enter into effective regulation of the agricultural input supply and vegetable processing sector. This would increase the potential for expansion of production and exports, both of which would be a net benefit to the country.

B.2 Fruits

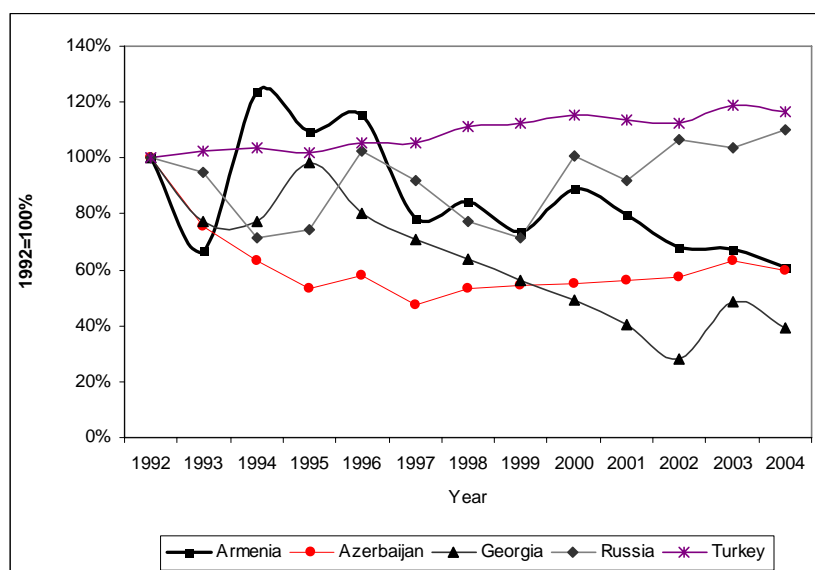
Potential demand in the fruit sector

An excess demand for Armenia's fresh fruits exists, even in years with good crop yields. The main demand appears to be coming from the Russian markets, where Armenian fruit has a traditional demand base amongst consumers (especially for pears and apricots). Domestically, demand far outweighs supply for the soft fleshed fruits and berries, which are still in high demand for the preparation of natural fruit juices, syrups and jams by households that prefer to prepare their own preserves for the winter periods. Apples are the only crop where, perhaps, there is a danger of supply outweighing demand. Given the current production levels of apples in other countries (especially China) it is likely that Armenia will not be able to find sufficient off-take for fresh exports to avoid price drops in good crop years.

Fruit production is heavily dependent on weather. Most fruit varieties that grow in Armenian are not frost resistant, and the unfavorable weather conditions have resulted in low yields during recent years (Figures 12 and 13).

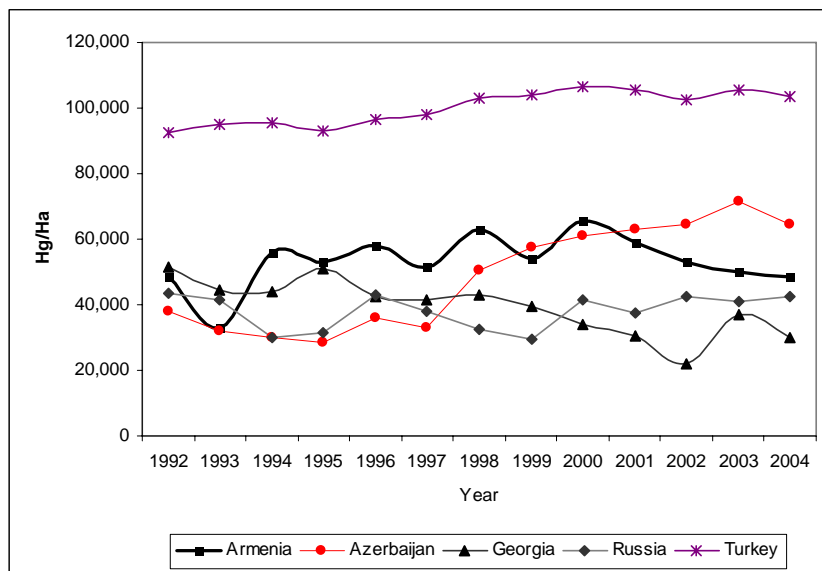
Fruit processors in Armenia have to compete with the fresh fruit market driving-up raw material costs. They need to specialize in non-standard products and high value markets. Processors in Armenia compete with international low cost producers. Processors in the foreign markets such as Turkey, South America and South East Asia are able to purchase their raw materials at relatively low prices, as supply is far in excess of the demand for fresh products. One potential market for Armenian processors would be the freeze dried and standard frozen fruit markets in Russia. There is very high demand for these products in the food processing industries there (mainly for yogurts). This market is also useful for the processing of relatively low quality fruits (i.e. those that are not suitable for fresh consumption).

Figure 12. Regional fruit production volume index, 1992 – 2004 (1992=100)



Source: FAOSTAT

Figure 13. Regional fruit yields per hectare, 1992-2004



Source: FAOSTAT

Fruit Value Chain

The year 2004 was a disastrous year for many fruit crops with little processing activity. Figure 14 shows the example of dried apricot processing, which is relatively low technology and various outlets for fresh fruit sale in percentage values of the shares of each link in the value chains.

Figure 14. Apricot Value Chain (% of total value)

Processing	Fresh Produce Sale	Sale through Retail	Export
Producers 67%	Producers 67%	Producers 55%	Producers 29%
Processors 33%	Inter market 11%	Inter market 9%	Exporters 71%
	Whole sale 11%	Retail outlet 36%	
	Bazaar 11%		

Producers are making a large share of the value chains, except for export. This reflects the relatively attractive sale prices for their produce. While the raw material value of the processed product is high, the relatively low processing costs for dried apricots allow the processors still to receive attractive returns. In fact, producers receive a higher sales price from exporters than

domestic buyers. The reason for the lower share in the export value chain is that the sales price in Russia is markedly higher and that the exporter incurs much high transport costs.

The most striking aspect of the value chain is the returns on costs made by producers, which they estimate to be in the region of 360%. This is due to the fact that there are relatively few inputs required, the necessary labour (for picking for example) is very cheap and they use only limited amounts of pesticides. We have here provided for the fact that the producer sells at least 20% of his crop domestically for fresh consumption, for which the prices are slightly lower than those offered by the exporters. In many cases, the producers sell their whole crop to the exporters, but the provision for 20% is to take into account the potential lack of availability of the exporters at picking time. In fact, all of the producers interviewed noted that they were very actively pursued by exporting parties to buy their produce, even in advance of the season. Interestingly, these exporters even come from Moscow direct to Armenia and source the produce, not relying on the inter-market traders to supply them.

In the table grape sector, producers' net returns are around 200D/kg, based on a sale price of 300D/kg (a return of 200%). However, after 4-5 months of storage, their sales price rises to around 500D/kg, with costs of storage around 30D/kg and little spoilage (if stored well). Producer returns for apples at picking season are relatively low, with a sale price of around 60D/kg and costs of production of 40D/kg – a return of 50% on costs. However, the producer price in the winter season rises up to 300D/kg, with storage estimated at 30D/kg and spoilage loss rates of around 10%. Due to this differential, many producers seek to store as many of their apples as they can until the winter period.

Inefficiencies in the Fruit Sector

Lack of cold storage prevents producers from capturing higher inter season prices.

While there is some storage available for apples, it is very low quality and losses during storage are relatively high (up to 40 per cent). The facilities tend to be underground warehouses and do not have sufficient control of ambient temperatures, nor humidity levels.

New varieties are needed to improve quality. The varieties that are grown in Armenia are generally only suitable for immediate consumption as table fruit. When the fruit is picked, it already has such an optimal sugar content that it deteriorates rapidly, even under good storage conditions. There appears to be a lack of varieties that are suitable for early picking and ripening off the plant. Also, while suitable for domestic consumption, many varieties lack the commercial appearance required for export of fresh produce outside of the CIS.

Specialized transport is needed to export fresh fruit. In addition to the general transport problems affecting Armenia, most transportation of fresh fruit is undertaken in old Soviet style lorries, which are not really suitable for transportation of fresh fruit products, as they lack air suspension and refrigeration. This causes losses during transport and reduces chances to export these products in any meaningful way.

Producers must improve the consistency of quality and value to meet export demand.

There appears to be a serious problem with maintaining consistent quality and production volumes of fruit products. This prevents producers from establishing permanent links with domestic or export off-takers. For example, many apricot producers interviewed noted that they had very high demand from Russian and Georgian buyers at extremely attractive prices, but were unable to enter into any form of sales contract because of the potential problems with supplying them. Perhaps even worse for processors is the fact that, if they manage to penetrate

into either the domestic or export markets, their ability to maintain their market position is extremely limited. As soon as processors are unable to secure sufficient raw materials they tend to lose their market share to more reliable and competitive suppliers from outside of Armenia.

Systems are not in place to manage weather risk. Adverse weather conditions damage fruit crops by adverse weather conditions more or less regularly. Quite often, this does not only mean a reduction in yields or quality, but can result in total loss e.g. the pear crop in the north of the country in 2004. Due to the frequency of these losses, it is unlikely that any form of affordable and effective insurance could be made available to producers. While losses in the fruit sector due to adverse weather conditions are normal and very good years compensate for losses in bad years, Armenia's farmers and processors do not usually have the financial puffer and options to sustain years with less income. In years with small harvests, produce shortage causes major problems for processors. Given the high domestic and export demand for the fresh product, processors often find themselves unable to pay the high prices that the market demands in those years.

Proposals for the Fruit Sector

As for vegetables, there is a lack of cold storage capacity for fruit. A very small number of producers in the Ararat Valley however, have introduced a number of small "cold rooms", with controllable temperatures and humidity control which appear to be relatively cheap to construct and suffer from almost zero wastage rates. Replicating these small scale storage facilities could be a sufficient solution, as there appears to be no group marketing and a relatively small domestic demand for fresh fruit.

Producing dried fruit holds potential. Semi-process fruit by drying could be an additional means of adding value for producers that could also address medium term storage problems. The sort of drying that would be practical in this context would be solar power or heat based, as quick freeze drying would require relatively large capital expenditure, and would not be practical for producers. Although drying would remove the production from the fresh fruit market, there is a clear demand from Georgia and Russia for dried fruits such as apricots.

Fruit producers lack finance for capital improvements. Although producers do not appear to have any major credit problems for the production of their crops, they do face a problem if they wish to raise finance for the construction of storage or greenhouse facilities due to lending and collateral practices of banks. Given the long maturity period of many stone fruit, new plantations often require long term financing.

Demonstrations could show benefits of weather mitigation technology. Drawing upon the experience of other countries, which face similar weather risks (mainly frost), a demonstration program could be beneficial for the fruit producers of Armenia. For example, in the production of delicate fruits such as raspberries and strawberries, there may well be value to the introduction of relatively low cost plastic sheeting technology. For the more stable crops, research is needed on the viability of the introduction of low cost, high efficiency greenhouse technologies or partially submerged greenhouses (prevalent in southern Central Asia).

New varieties and cropping technologies will increase quality and productivity. The introduction of more frost resistant and later blooming varieties for apricots and pears would be advantageous to the sector in Armenia. A lot of the weather induced losses could be minimized by using more frost resistant varieties or varieties that have slightly different growing cycles from

the ones currently used in Armenia. Depending on the usage of the product, more appropriate varieties could provide larger gains. Yet, while currently large areas are replanted with fruit trees in Armenia, little thought is given to overall impact of a production peak in around four to five years and the best varieties to compete at that time. Also, when storage capacities improve and transportation of fruits to markets outside of Armenia increases, there is clear need for the introduction of timely picking and growth/ripening inhibitors (sugar stabilizers), as used by western producers. There are various treatments for apples, pears, apricots, etc, which extend the shelf life of the product and reduce spoilage rates in storage.

B.3 The Dairy Sector

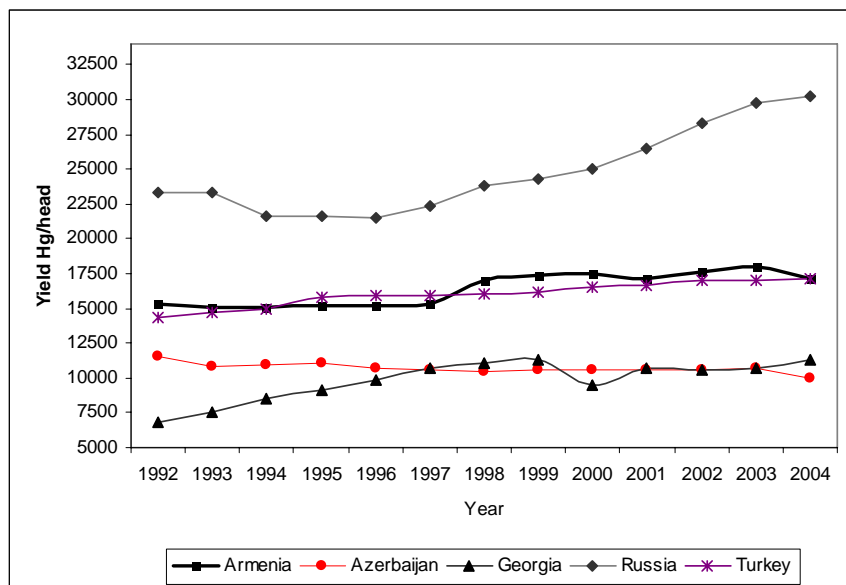
The demand in the dairy sector in domestic markets is linked to increase in disposable income, while the Russian market holds promises for export. A major reported export from Armenia is cheese, mainly from the Lori, Shirak and Syunik regions. Interviews with the dairy industry indicate the actual volume of dairy based exports (especially cheese) is in excess of recorded figures, as a large amount of production of artisanal cheeses goes to Georgia, passing through unofficial trading channels.

The increase of domestic demand for dairy products is largely linked to disposable incomes of the domestic population. As incomes increase it is likely that demand in this sector will further increase as a whole and also that market differentiation will occur based on quality and price. However, any major expansion of the sector is going to rely on exports, for which there is a clear current demand.

The demand base in Russia, while it may have been initially created through Diaspora markets, is certainly wider than that and is based on the historical demand created during the Soviet era. The total demand for cheese in Russia is estimated at 450,000 MT per year and production has only managed to reach 50 per cent of this level, leaving a huge market for imports.

Armenia is well placed to compete in the Russian market, if it can supply high quality and consistent quantity of cheeses to high end specialty markets. Milk yields in Armenia compare well with its neighbors (Figure 15), and the majority of increase in milk production seems to be due to yield increases.

Figure 15. Regional milk yields per cow, 1992-2004

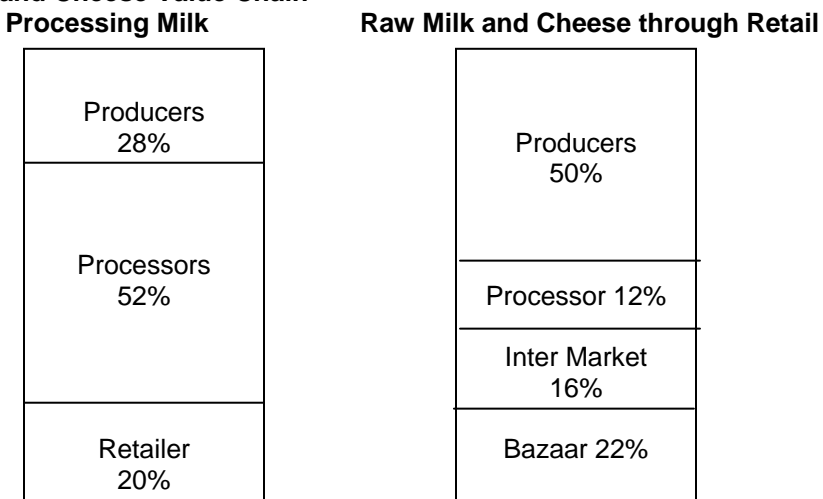


Source: FAOSTAT

Dairy Value Chain

The analysis of the value chain is based on summer prices for milk and cheese. Prices in the winter are approximately 25% higher than the summer rates due to a scarcity of milk. The value chains are schematically presented in Figure 16.

Figure 16. Dairy and Cheese Value Chain



Return on costs for producers are in the region of 50%, making milk production a relatively attractive addition to the household income. With average lactation rates in the region of 1,700 liters per year per cow and a holding of 3 cows per family, milk represents a good additional income. However, for milk to be a major addition to the family income, it is important to raise lactation rates to at least a level of 2,000-2,500 liters per annum. It should be noted that the price for milk varies by region largely due to competition for milk supply.

The denominating factor amongst dairy enterprises is that they have secured their supplies through refrigerated milk tanks and are involved in large scale manufacture. This enables them to reduce their milk purchase cost and to benefit from economies of scale in production. Their increased costs are attributable to the fact that they package their produce and also that they pasteurize the milk before processing into cheese. We can see that their return on costs is in the region of 42%, which provides them with a profitable business and enables them to undertake the investments in equipment that are necessary for them to maintain their market leader status.

Inefficiencies in the dairy sector

Lack of working capital and collateral negatively affects the ability of dairy processors to raise finances. Lack of working capital is a problem for both large and small dairy processors, as they are faced with large daily commitments for the purchase of raw milk, but then find it necessary to mature their cheeses quickly in order to sell them. Often, especially with small processors, they also lack sufficient collateral to be able to raise short-term finance, as their processing equipment is rather basic and relatively low value.

Lack of milk cooling and limited access to credit prevent processors from securing sufficient supplies of raw milk. Nearly all processors interviewed voiced this problem as a barrier to sell increased amounts of product. Part of the reason for this is that there are insufficient amounts of cold storage collection points and that it is very difficult for both processors and producers to get their milk to the factories. In addition, milk production is scattered over large number of small holders. Problems with medium term credit mean that very few producers are able to fund the acquisition or feeding of larger dairy herds.

Trade quality standards are missing or lack harmonization. While there are standard “types” of cheese in Armenia (e.g. Lori, Chanakh etc), there is a wide variation in the methods of production and the resulting tastes for cheeses of the same type. This lack of uniform quality, combined with the fractured nature of the production base, makes it very difficult for distributors to collect cheese into commercial quantities for domestic or export sales.

Technical quality standards are also missing. There is a clear weakness in the application of technical standards and product certification in Armenia, mainly at the small processor level. This is true down to the retail level, where many cheeses and other dairy products are being sold without the correct quality certificates. This not only poses a threat to consumer health and safety, but it also acts as a block to further trade.

Proposals for the Dairy Sector

Medium term or lease financing is needed to enable processors to purchase cold storage units, and to purchase better processing equipment and pasteurizers. Given the reliance of the domestic banking sector on the provision of collateral this is probably best achieved through a buy back leasing facility, which would enable the banks to effectively retain ownership of the asset until such time as the credit has been paid off. Equally, it would be very advantageous for producers to be able to expand the cold storage tank system for group milk collection.

The provision of processor finance (working capital or overdraft facility) will be an important pre-requisite to the expansion of production in the sector. At present, even if

production volumes of raw milk were increased, most processors would have severe difficulties in being able to finance them.

Voluntary trade quality standards need to be introduced. Such standards could be based on the French *Appellation Controlée* system for wine, which has been used to great effect in other developing countries for improving the quality and marketing of a range of products (e.g. in Palestine for olive oil). This should not be undertaken by the Government but by a trade organization, such as the Armenian Cheese Producers Association. Great care must be taken in the introduction of such a system to avoid rent seeking and disenfranchisement of producers and processors (especially the small ones).

Product certification needs to be developed. Although the improved application of technical requirements might have a negative impact on the smaller processors in the sector, it is very important for the growth of the industry and also for consumer safety. If problems with technical quality continue to increase there will be a drop in both consumer and export buyer confidence in the sector and this will lead to a drop in demand for domestically produced dairy items in general.

Business training and advisory services need to be established on a regular basis. If the smaller processors are to expand their business or to even continue to operate in the increasingly competitive markets then they will need to improve their business skills (marketing, financial management etc). At present, although these services are available to a limited extent under donor programs for SMEs, there appears to be little provision for such training and advice for the smaller processors and producers.

B.4 Livestock/Meat

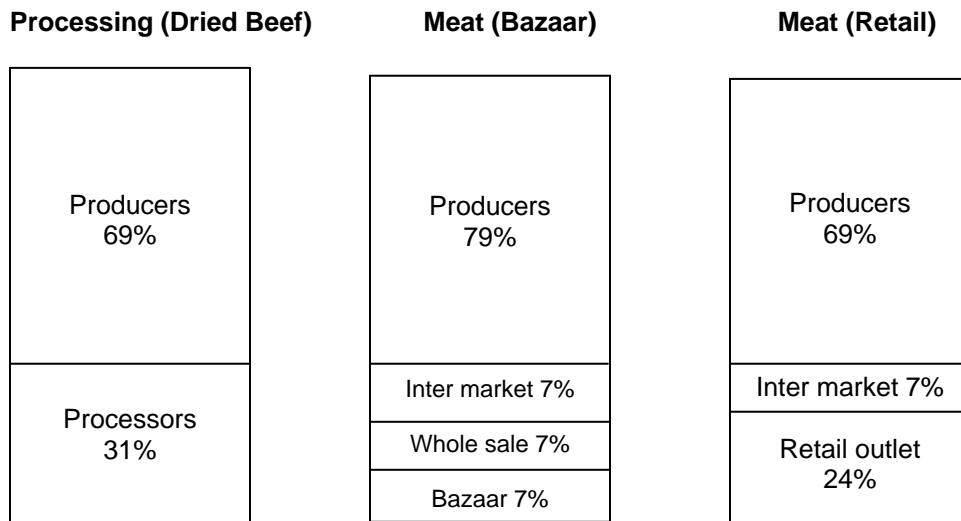
Armenian origin meat products are in demand in CIS and Middle East export markets despite poor connections between producers and traders, while specialized demand in niche foreign markets holds potential. The most noticeable of these export markets is the Russian one, where the demand lies not only with the Diaspora, but also with the general population (who used to consume the products during the Soviet times). Here the demand is for products that are specifically connected with Armenia (e.g. basturma and various other cured meats). Meat processors should not necessarily seek to compete in the general markets with products that are not origin specific (e.g. frankfurters). The problem with the markets for other products is that they generally are produced from low cost inputs by competitive, mature processing industries that have largely depreciated their processing equipment. Armenia has no comparative advantage in these markets.

There is a very active interest from the Middle East for the supply of the local fat tail sheep breeds. The majority of the mutton market in the Middle East is supplied from Australia, which ships vast numbers of old Merino wool sheep every year. However, these sheep are consumed by the immigrant population, which leaves the domestic, specialized demand unfulfilled. The advantage for Armenia is that these fat tailed sheep are only available from the Caucasus and Central Asia and none of the other markets has yet managed to organize sales to the Middle Eastern market. This business is currently being frustrated by a lack of communication between the traders and the breeders.

Meat Value Chain

Beef value chain. Returns for producers are relatively similar throughout the value chains, hinting towards a squeeze on the supply side. Traders are working on relatively small margins and rely on volume of trade in order to be able to make attractive returns.

Figure 17. Beef Value Chain

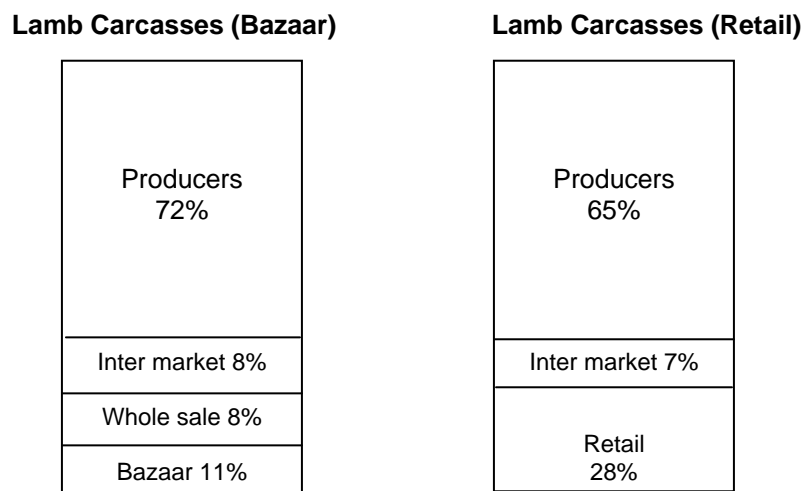


Returns for producers are relatively marginal (16%). The main reason is that the average current daily weight gains are modest (400g/day). This is a result of the breeds used (most cattle slaughtered for meat are dairy breeds and therefore lower weight gainers) and ineffective feeding (producers tend to concentrate on feeding dry matter, but do not feed higher protein and energy feed (considered to be too expensive).

Meat passes through at least another two links before reaching the consumer. The inter-market traders are individuals who travel throughout the regions collecting carcasses then traded at the door of the major bazaars in Yerevan (“wholesale”). The returns at the main trading links are around five per cent, which are relatively small, but with traders working on large volumes for profit. It is hardly possible to increase their sale prices, as at the current bazaar price of 1400D/kg, this equates to a price of USD 2.80/kg which is already in line with the international prices for frozen beef carcasses.

Lamb value chain. The main demand from consumers in Armenia is for lamb and not for mutton meaning that most sheep are slaughtered in their first year. The producers are receiving the majority of the value in the chains. The main reason for this is that there is a lack of supply lamb in the market at the moment and therefore producers are able to achieve higher prices for their meat. However, there are obviously price resistance points in the sales markets and therefore the various trading links have to work on smaller margins.

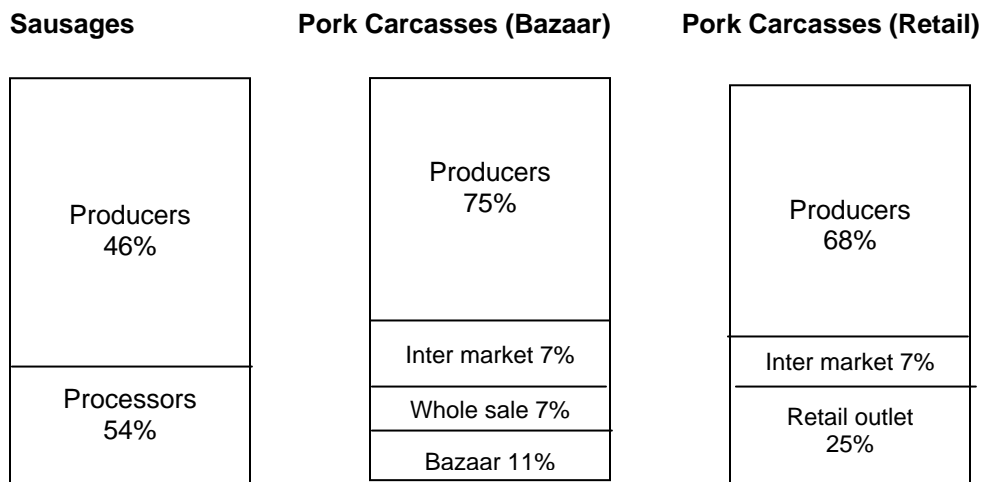
Figure 18. Lamb Value Chain



Producer returns are in the order of 160%, which is a due to the fact that the producers have limited costs in that the lambs are fed on pasture during their first season and that there are no other feed costs. The main other cost for the producer is for the transport of the animals from pasture to the regional centres (at which point the inter market traders accept delivery of the carcasses). The meat passes through at least two other links in the chain before reaching the consumer. These margins are in the region of 7 to 9%. As with beef, the inter market traders are private individuals who travel around the regions, relying on volume for their profit. Producers do not become involved in the trading of their meat at lower levels in the chain as they are situated on remote pastures and have to maintain their flocks and have limited access to points closer to the consumers. Lamb is consumed in restaurants to a large extent. Retailers are achieving returns of around 12%, based on full rates of VAT payments on their sales. As with the other value chains, VAT is probably not being paid fully and therefore returns are likely to be higher.

Pork value chain. Producers are making the majority of the value in the carcass sale chains, but making a reduced return in the sausage value chain. The reason is that processors in this chain are making higher returns and that the percentage of meat in the processed product is lower.

Figure 19. Pork Value Chain



At the current producer price of around 1,500D/kg and costs of 1,100D/kg, producers are making returns of around 36%. However, the 2004 season sales prices were much higher than usual due to a lack of supply in Armenia which followed an oversupply in 2003 with low sales prices. The low prices resulted in producers slaughtering their animals which continued the downward pressure on sales prices caused by the increased meat supply. As a result, there was a severe shortage of pork in the market in 2004 at continued high demand. Also pork passes through at least two other links on its way to consumers. The margins in these chains are around 6 to 8 per cent and do not represent a significant proportion of the cost of meat to consumers. The current bazaar price of 2,000D/kg (around USD 4.2/kg) is very high in comparison with international prices for pork (USD 2/kg). As with beef, there is also opportunity for retailers to increase their returns by cutting and dressing the meat. Also (as in many other countries), there is a tendency to soak the meat before sale in order to increase sale weights. The amount of weight gain can be in the order of 10 to 20%.

Inefficiencies in the Meat Sector

Limited access to long-term finance prevents sector development. Given that livestock (except for pork) is a medium term investment, producers require access to credit terms in excess of 18 months in order to increase the number of head that they hold. At present, there is very limited availability of this type of finance and it is heavily linked to the producer's ability to provide sufficient collateral. Unfortunately, the financing institutions are not willing to accept livestock itself as a form of collateral and this is a major barrier to the development of the sector.

Supply unpredictability penalizes local production. Most meat processors are not able to secure long term stable supplies of livestock from local producers. This leaves them little option but to look towards imported product to maintain their production and market penetration.

Price unpredictability leaves the market subject to huge swings in supply. In 2003, for example, there was an over supply of pork and a subsequent collapse in the price, which led many farmers to slaughter their stock (including breeding stock) since keeping the animals had become uneconomic. This has led to a sharp increase in the price of pork in the 2004 season (there being a shortage of supply) and now the majority of farmers are intending to increase their number of pigs, which will likely lead to another market collapse in 2005.

The lack of slaughterhouses and cold/frozen storage infrastructure interrupts the supply chain and perpetuates the fractured nature of production. Many examples were found of "frustrated" trade, i.e. traders who could not regularly meet the demand for export because they were unable to regularly collate supply. If a basic market infrastructure were available, traders would have identifiable supply points from which they could regularly source supplies. Equally, producers would benefit from these market access points by having an identified source of demand.

Product traceability is still irregular and non dependable in the country. For exports to non-CIS and Middle East markets, the demands for technical quality standards and traceable production are very high and an important part of this is the ability to trace the supply of the meat. Although this process is developing in Armenia, the regular and dependable introduction of such a system is a pre-requisite to the development of a diverse export profile for meat products. Yet, this should not be the first priority concern of action until a larger and more stable meat market has developed that can fulfill local demands.

Availability of quality feed is a major problem in Armenia. Most producers continue to feed their animals mainly dry feed (hay) during the winter periods (during summer they are mainly fed on mountain pastures). Producers are not aware of the economic benefits of improved livestock rationing in terms of weight gains and milk yields. Although many producers in the north and south have access to pasture, they are unable to collect sufficient volumes of hay for the winter period due to the lack of baling and difficulties with transportation. Many producers also noted that their cattle had to travel very long distances on a daily basis to reach the pastures (up to 14 km) which is a major cause of low lactation rates (5 liters per day). Improved feeding will have the largest impact on productivity increases.

Breeding technology lags behind. For example, the general breed stock of pigs that is being used take 18 months to reach sellable weights, whereas some producers have accessed new breeds that take only 9 months to reach viable slaughter weights. Producers are often unaware of how they can get access to better breeds, through methods such as artificial insemination. Nevertheless, in the short and medium term, improvements in the feeding regime will have a much higher pay-off than breeding improvements. This is largely due to the fact that in order to materialize the potential of higher yielding breeds the management and feeding regime needs to be optimal. Current livestock management conditions in Armenia are far from optimal for these high demanding breeds.

Collapse of the wool market in Armenia caused the dramatic decrease of sheep herds. According to FAO statistics, sheep herds have dramatically decreased by 45% since 1992 mainly due to the collapse of the wool market in the country. The drop in demand for wool is connected with the collapse of the Georgian processing industry, but also with the low quality of the Armenian wool. Due to the low quality, there is no demand for the wool outside of Georgia and therefore no real viable market for the wool. Added to this, the demand in Armenia for sheep meat is for lamb and therefore producers are not building up their flocks, as they slaughter their animals in the first year, maintaining only a limited number of ewes (there being no revenue from wool). Naturally, most sheep breeders have become so disenchanted with the business that they are switching to other activities.

The lack of market linkages and profit maximizing production is discouraging the livestock sector from expanding. Many livestock producers are disconnected from the main market leaving them with little ability to maximize their prices, to predict demand volumes or to ascertain the quality of meat required. Small holders of livestock who may be willing to increase their holdings in excess of their immediate family needs are unwilling to do so without market and linkages that could make increased production profitable.

Proposals for the Meat Sector

Licensed slaughterhouses, cold storage facilities, and animal markets are needed to facilitate domestic and potential export trade in the livestock sector. A network of slaughterhouses and cold storage facilities needs to be constructed in Armenia. This intervention is also required for issues of public health and safety. This infrastructure will include relevant regulatory provisions that prohibit the sale of meat and meat products that have not been slaughtered at licensed premises. It is important to ensure that smallholder producers are not disenfranchised by such a system and there should also be provision of live animal markets in areas where there is no slaughter house coverage.

Medium term finance, using livestock as collateral, needs to be developed so that producers can increase the size of their livestock holdings.

Improvements in the accessibility and facilities of remote summer pastures could open up meat production opportunities for the more remote areas if supported through the supply chain.

C. CONCLUSIONS AND RECOMMENDATIONS

The start up and expansion of businesses in the agricultural sector is hindered by the following problems:

- ❖ lack of knowledge or understanding of basic business practices, including accounting, cash flow projection/management, and contracting;
- ❖ lack of access to finance;
- ❖ lack of knowledge of marketing, production planning, and profitability assessment.

C.1 Business Development Services

In order to overcome these shortcomings, producers and small processors should be offered the following services:

- ❖ training and demonstrations;
- ❖ advisory services;
- ❖ information sources and demand based consultancy in the areas of accounting, finance, marketing and law.

The **training packages** will take the form of seminars that will be held in the rural regions (arranged on a village basis) to which producers and mini processors will be invited to attend and for which payment will not be requested. Demonstrations of new, low cost technologies improving the production and processing of products will have a high impact on the value chain.

The **advisory services** could be made available through the organization of weekly consultative sessions and these will be held in the Marz centers. These will need to be strictly organized and recurrent attendance limited to ensure that as many clients have access to these services as possible. Demand based consultancy services should also be made available for clients to benefit from extended and targeted help in specific subjects or problems.

Technical advice will need to be provided to clients on standards requirements and compliance through business advisory services and marketing trainings. Local business clubs in each Marz could become a forum to encourage interaction and debate between producers and processors and provide an interface with processors and traders from other Marzes. Because of the required economies of scale, many market infrastructure investments will not be viable until producers have organized themselves into such producer association or marketing groups. There is a natural aversion to this development, though, as many producers consider it to be a move backwards and also deeply distrust their fellow producers. However, there are clear examples of this type of activity being successful (USDA milk tanks) and also examples of cheese processing being undertaken by groups of producers (Goris mini-processors). Especially in the fragmented livestock sector cooperation among producers would pay off substantially.

C.2 Market Oriented Infrastructure

To maximize economies of scale, marketing or producer groups should create cold storage facilities. Cold storage of primary and processed produce is currently undertaken in Armenia in either underground cellar facilities or refrigerated units, but to a minimal extent. The seasonal price differentials (especially in fruit and vegetables) are very large and there is a clear benefit to this intervention for producers. Although producers are already well aware of the benefits of such storage, they are unable to raise finance for the construction of such facilities with the currently available financial products. Storage and cold storage facilities also need to be carefully planned and integrated in a producer's or company's business plan. Storage alone will most likely not create the hoped for benefits if not integrated in an overall improvement of the supply chain.

By forming marketing groups, producers will be able to transport and sell their products more efficiently. The lack of availability of wholesale markets and their controlled structure is a major constraint in Armenia. This problem is not specific to Armenia, but it is a phenomenon that is regularly seen in transition economies. Many producers are too small to deliver wholesale quantities, and they rely on inter-market traders, who effectively collate produce and then take it to market. At the next level of the value chain, though, the entrance to the bazaar chain is regulated by a small number of individuals who control the supply chain. If producers do manage to form marketing groups, then this would enable them to efficiently transport and market their produce. The construction of new wholesale facilities per se would not address the problem of non-official market control.

The creation of 'virtual markets' and direct contracting between producers and traders/processors may increase producer returns. This could be achieved through an electronic bulletin board and an agricultural trade journal. A journal containing advertisements by producers of products for sale and by traders/processors wishing to purchase should be published fortnightly. The publication should be distributed on a free basis, the costs being assumed by the project, supplemented by advertising revenues from equipment and input suppliers. Producers and mini-processors should be offered the use of a product bulletin board, which will be available on the project information service. They would be able to submit the details of products that they have, or will have available for sale. Details should include product, quantity, quality and contact information. The bulletin board would be updated on a weekly basis.

Provided that border issues with neighboring countries are resolved, a municipal wholesale facility could be built near the border with Georgia to help to rationalize the current system of exports. Since much of the Armenian exports pass through the border with Georgia, an organized mode of sale would allow producers to access an intermediate export market, and from there reach a larger selection of buyers, potentially from countries other than Georgia. However, construction of such a facility in that region could become useless for two reasons. First, resolution of the current regional disputes may lead to a reopening of other border crossing points, which would marginalize a market situated in the North. Secondly, due to the unofficial nature of most cross border trade, it is likely that produce and traders will seek to by-pass such a facility for as long as the ability to unofficially trade without the payment of import duties and VAT exists. The majority of current trade passes through a large informal market in Sadakhlo which appears to be heavily controlled.

If such a facility were to be built, geography and transport considerations suggest it would probably be best based in Yerevan. For such a facility to be successful, it should offer customs

bonding to facilitate easier exports and handling of imports direct from border stations. It should also offer sorting, cleaning and packaging facilities for primary produce, cold storage facilities and multi-modal access. It will also be necessary for the introduction of much stricter border controls and application of import and export duties at other border crossings. It will also be necessary for sufficient regulatory controls to be introduced by GOA, such as zonal trading preclusions.

A network of slaughterhouses and cold storage facilities should be built to promote domestic and potential export livestock trade. This intervention is also required for issues of public health and safety and international meat trading. The development of this infrastructure will have to be connected with the introduction of relevant regulatory provisions that prohibit the sale of meat and meat products that have not been slaughtered at licensed premises (local legislation with these requirements will soon be introduced in Yerevan). Various private companies have already begun construction of such facilities. Another important market requirement for the development of the meat sector is the traceability of the meat.

C.3 Credit and Financing

The creation of new financial products must address alternative collateral provisioning to address the needs of the agriculture sector. These financial products should be available to the commercial banking sector on a competitive and/or on an application basis.

Targeted training is needed for the financial institutions in the assessment of agricultural lending and management of risk. Part of the problem with the credit sector is that bank loan officers have a limited understanding of agricultural risk and rural finance. This leads them to place unreasonable emphasis and requirements on collateral as a means of managing their risk profile.

New financial products are needed to provide credit for periods longer than currently available in the micro credit or commercial banking sector. One of the problems for obtaining credit is that there is a lack of medium to long term credit that would enable producers to engage in potentially lucrative business, but one that requires credit period longer than one year (e.g. livestock, fruit trees or mini-processing plants).

Transactional finance could alleviate seasonal credit squeeze. While processors have some collateral, they are faced by a seasonal credit squeeze. In many instances (especially in the tomato sector), processors pay producers for a percentage of the tomatoes that they buy at harvest. The balance will be paid at a certain time in the future, once they have sold their processed goods. This means that the producers are effectively financing the processors. The impact of this is that the producers are now placed in a position of repayment risk and a credit squeeze of their own.

C.4 Product Diversification and Certification

Lack of product diversification is the direct consequence of subsistence farming practices. The growth of subsistence farming in the 1990s resulted in poor product diversification. In turn, producers tend to plant popular crops (e.g. potatoes), which causes an oversupply and a sharp drop in prices – increasing the economic risk for producers. Crop diversification has shown signs of developing slowly, with asparagus, capers and broccoli appearing in limited amounts in local markets and demanding very high prices.

To be successful, diversification must be encouraged and close contact between the retail/trade sector and the producers developed. This type of intervention and stimulus will probably be best achieved by the matching grant facility.

Access to many export markets is dependent on technical quality certification of food produce to international standards (such as Codex Alimentarius, EU directives, Sanitary and Phytosanitary Standards etc). Quality certification is also required for trade of foodstuffs and of processing facilities under ISO and HACCP. As a member of the WTO, Armenia is now introducing the development of a national standards reference laboratory with help from various donors. However, introduction of food standards needs to be developed in a broad consensus of all concerned and needs to be introduced in phases. It needs to be avoided that the currently very positive development of small- and medium businesses is hampered by too rigid and too costly food safety criteria. In addition, criteria need to be adjusted, with the exception of public health standards, to the market for which the products are intended and not all business should be subject to highly elaborate licensing and tracking mechanisms if their market does not require this.