

The Role of Local Institutions in Linking Small Ruminant Producers to the Market

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Dairy products are an important source of food and income for rural communities in the drylands of Syria. However, poor access to the city markets is a major problem to the households, especially those who produce in small quantities. Therefore, producers collectively deliver their milk to cheese makers who settle in the villages during the milking season. Two surveys, one involving 120 households in 20 villages and the other involving 22 cheese makers, were conducted in the rural drylands of Syria in 2004. Results indicate that one of the most important drivers for communities to collectively deliver their milk products to cheese makers is access to loans during the winter and spring seasons. They used the loans to purchase feed for their animals and to meet household needs. The communities have indirect access to the market through the collective arrangement with the cheese makers. Both parties benefit mutually from the trade agreement. However, the local milk producers would prefer to produce yogurt because it is more profitable to them. Some 88.9% of medium and small sheep producers process and market their produce through the cheese makers, while the larger producers process their own products and are able to balance the quantities with the market demand. Other constraints to dairy production in the study area include poor hygiene, non-availability of loan facilities, and lack of trust. Technological and institutional interventions that would link local dairy producers to NGOs, micro credit, and improved dairy technology are essential in improving dairy production in the rural drylands of Syria

Keywords: Dairy, cheese, milk, technology, collective action, marketing, processing, linkages

1. INTRODUCTION

The Khanasser valley located in Northeast of Aleppo city is characterized by low rainfall (200–250 mm annually) and has limited income generating options for its population, which grows at a rate of about 3% annually. Rural households' livelihood strategies fall into three main categories: sheep production, off-farm activities, and crop production, the latter being mainly for animal feeding. Livestock production constitutes therefore an area for research focus opportunities to improve the livelihoods of the rural communities, and smallholders' income generates mainly from sheep and goat production besides off-farm income of male migrants and little cropping. The valley was selected by ICARDA as 'integrated research site' where an interdisciplinary approach to sustainable natural resources management in dry areas is applied. Livelihoods and natural resource management are the main problems addressed.

Livestock production was identified as an important livelihood source. Herd sheep, although slightly decreasing in the valley, due to a decrease in the grazing areas resulting from land reclamation and rangeland protection, are still raised in important numbers by rural households. Dairy products (yogurt, cheese and ghee) are an integral and critical component in the Syrian diet both in urban and rural dry areas. The high demand for these products represents an important potential for income generation for the poor. Small-scale milk and dairy producers can effectively tap into this market to improve their income and quality of life. Cow milk production in Syria is owned by large producers and investors from both rural

and urban areas, whereas sheep milk production remains the main source of dairy production especially for small-scale sheep producers in the Khanasser valley. Sheep milk production is seasonal, starting at the end of February and ending at the beginning of June. It largely depends on the rainfall conditions, which affect crop production, reflecting on milk production through feed resources.

Dry marginal areas are far from cities and small holders find it difficult to reach the market with small dairy products produced. They have lack of cash money to cover their needs. Therefore, Dairy milk producers have organized themselves on the initiative of traders in local market to collectively process their milk production through informal institutions (invisible) where traders, cheese makers and milk producers have different motivations and incentives in engaging into collective action, of which the access to market, respond to other needs and improve their income and livelihoods.

The existence of cheese makers working in the valley during the milking season has started around the beginning of the seventies. How it starts. The operation starts during winter. Depending on the cash capital each traders holds and depending on the sheep and goat population in the marginal areas, and the capacity of small ruminant producers, the local institutions are formed. Local institutions consist of traders, who remain in the towns and cities and invest their money through cheese makers in local communities for the processing and marketing of dairy products.

They invest their money through two different ways:

1. Through local institutions of cheese making: to small and medium size flock producers to make cheese, and to buy feeds for their animals during winter.
2. Directly to small ruminants producers: to large and small size flock producers to make yogurt, cheese, and ghee.

The objectives of this paper are to: 1) Identify the motivations of milk producers and traders in engaging in collective action for cheese production (Analyze the role of traders in facilitating collective action through the incentives they offer, and the role of dairy private sector in organizing dairy supply chains), 2) Analyze market access and producers' preferences for dairy products, 3) Analyze the opportunities and constraints faced by the different parties in market access, and 4) Initiate recommendations to improve dairy production and the access of the poorest to market using local institutions

HYPOTHESES

During the first phases of investigation, a number of hypotheses emerged from the study area. These are:

1. Landless households raise more sheep than agricultural landowners, and therefore deal more with local institutions of *jabbans* compared to other sheep producers who have a farm
2. Although women are the primary processors of dairy products, the access to information and new knowledge and market is restricted to men
3. Large dairy sheep producers produce yogurt more than cheese and access the market individually
4. Small size families deal more with *jabbans* (no family labor to process cheese)
5. Because initiated by traders, small dairy sheep producers are disadvantaged in the processing and marketing of cheese, despite the services provided to them by local institutions
6. Technological and organizational opportunities available, can assist women to improve dairy production, and reduce drudgery while increasing income for the benefit of the household and community

The research questions that have emerged from the first stages of investigation in this research resume in the following:

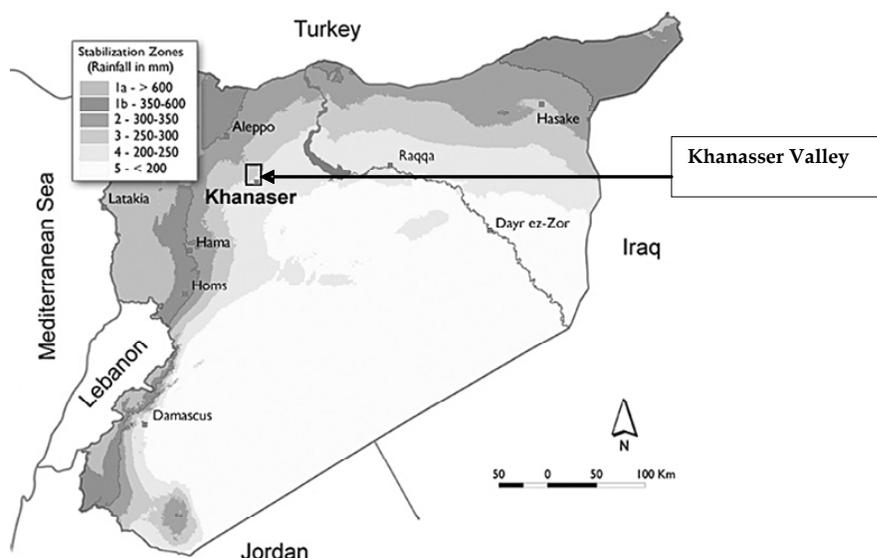
1. At what level is concentrated collective action?
2. Who are benefiting most in local institutions: small or large producers?
3. In case large producers do not deal with local institutions, what do they do instead, what do they produce and how do they access the market?
4. Why does the availability of cheese makers in some villages not leading to automatically process cheese through these institutions?
5. What are the working mechanisms that could lead to make these institutions benefit more the poorest?
6. How much additional costs would be borne by the community if these institutions did not exist? Who would be the most affected? Small or large producers?

2. METHODOLOGY

SELECTION OF THE STUDY AREA

The Khanasser Valley is located in northern Syria approximately 70 km southeast of Aleppo city (Map 1). The valley is located an area where rainfed agriculture and rangelands cross-cut. Its total area is approximately 200 km² falling between zone 4 where average annual precipitation ranges between 200–250 mm per year, and zone 5 where average annual rainfall is 200 mm and below. The area represents ICARDA’s benchmark site where an integrated approach to sustainable natural resource management is applied. Its objective is to address livelihoods and natural resource issues specific to marginal areas.

Map 1 – Study Area



DATA COLLECTION

In addition to the research questions and objectives presented, the methods of information gathering and data collection used to carry out this research are also presented along with a discussion of the rationale underlying the choice of particular techniques to undertake the fieldwork.

The study covers a sample from 44 villages in the Khanasser Valley, a dry marginal area where sheep production is a dominant source of livelihoods. This area is characterized by a diversity of livelihoods among rural and agricultural households. Both qualitative and quantitative investigations were conducted in the study area.

1. Qualitative investigations using community-based and participatory approaches

Participatory tools were used to collect information from 13 villages – out of a total of 44 in the Khanasser Valley – representing 30% of the total number of villages. The tools used were mainly the historical calendar of the main characteristics in the area such as weather, population, land tenure, migration, irrigation, health, education, electricity, tribe organization, distribution and functioning. In addition, assessment of livelihoods' strategies was made, with additional investigations on the constraints and opportunities, and stakeholder analysis conducted with the same communities. From these investigations, some important local institutions regarding sheep production started to emerge. Both sheep fattening and dairy production were important in the valley. The first is mainly funded by external investors who buy the sheep, and the community members participate with their labor, whereas dairy sheep production processing and marketing is mainly from the assets of the local people in the valley (sheep ownership) although some loans are allocated from the city traders. Therefore, the identification of dairy sheep production and marketing as one important livelihood strategy is well justified for the focus of the present paper. These institutions were investigated in depth to understand the different arrangements and the mechanisms of their functioning and the conditions of their access to market.

After identification of the main actors in dairy sheep production (milk producers, cheese makers and traders, and considered in this paper as local institutions) a number of cheese makers (*jabbans*) were visited. Individual and group discussions were carried out with them and their families, in addition to observing the different operations of milk delivery and processing in a number of villages to complete the understanding of the complex relationships between them and the communities where they operate.

After the initial period of qualitative investigation, a formal survey was conducted in the Khanasser Valley. Its process is described in the following sections.

2. Formal surveys

In addition to a rapid investigative survey of the totality of villages in the valley, a detailed survey was carried out among farming families in rural communities of the valley, where a stratified sample was used. In addition a separate questionnaire was administered to a number of cheese makers to quantify some aspects of their characteristics, and few visits were paid to local markets. The survey was carried out in order to measure social capital, and analyze the linkages between these institutions and the livelihoods of the rural communities.

1. Rapid survey covering the 44 villages (total) of the valley. The objective of this rapid survey was to assess the importance of the availability of cheese makers (*jabbans*) during the season of the survey (2004), the importance of the phenomenon in the valley and to evaluate the trends over time of livestock and dairy production, through retrospective investigations on the use of cheese makers during the past 30 years.

As a result, from the 44 total number of villages in the Khanasser valley, *jabbans* were settled in 10 of them (23% of the total) during 2004. This result was used to select the sample of the formal survey.

2. Community Survey. To select the sample survey, the original plan was to select from the ten (10) villages where a *jabban* was settled in 2004, five (5) households who dealt with the *jabban* and five (5) households who have not dealt with the *jabban*, which will total a number of 100 households from the 10 villages. Then, from the remaining 34 villages, it was planned to select about 50 households. However, the initial number planned could not be met due to the unavailability of some farming communities at the time of the survey and the availability of some others that were originally unplanned.

Out of the 34 villages that did not have a *jabban* in 2004, 22 were selected on the basis of the number of animals raised and human population, then 10 of them were randomly selected, of which 5 households of each village were planned for interview.

The final sample interviewed became then 68 households from the villages who had a *jabban* in 2004, and 52 households from villages who did not have a *jabban* in 2004. The reasons of these changes, were that in some villages, all dairy producers in the village dealt with the *jabban*, which prevented us to select households who have not dealt with the *jabban* in those villages. In some others, where more than 5 households were available, 6 or 7 of them were interviewed. Furthermore, in some villages where the cheese maker (*jabban*) did not settle, 8 households (2 households from each of the 4 villages) were interviewed because they were delivering their milk to a *jabban* in a neighboring village.

In the present research, the interview survey area covered 20 villages from the Khanasser valley. The questionnaires were administered to the heads of farming households in the selected communities. The questionnaires were developed from the information observed from informal surveys where the qualitative information enriched and guided the development of these questionnaires.

3. Cheese makers' survey. Cheese makers' survey took place during summer 2005, involving 30 cheese makers (*jabbans*) who were interviewed in their usual place of residence near Idlib city after dairy period. This was because interviews were not possible that during spring, due to their intensive work at the community level, as well as their daily interactions with middlemen and traders for marketing the cheese. The questionnaires were administered to women and men cheese makers, and many interviews took place in presence of the household's members who participated to cheese processing.

3. RESULTS

I. OVERVIEW OF DAIRY PRODUCTION IN THE MARGINAL AREAS AND COLLECTIVE ACTION

The dairy chain in the marginal areas under study resume in cheese, yogurt, ghee. However, in this study the main interest is about dairy products with a special emphasis on cheese that is processed and sold through local institutions. The type of cheese considered in this study is a primitive type, rapidly perishable, which should be sold the same day, otherwise it is processed into a different type of cheese. However, it has an important place in the diet of the Syrian people and of rural communities in particular. The period of its production cycle is the spring i.e. four-five months starting in February-March, and ending in June.

Dairy products in the marginal areas of Syria, and their role in the livelihoods of rural communities, the supply sources in the city of Aleppo and its surrounding towns, and the transaction phases between production and consumption as well as the functioning mechanisms of the chain are addressed. The different operations by which the product is channeled to reach the consumers – surmounting a number of constraints – transformed are addressed through the dairy products chain. The chain is defined as “the economic agents that contribute directly in the production, then in the transformation and in directing the same product to the realization market” (Duteurtre, 2000).

Producers’ organization

In fact dairy sheep producers, cheese makers and traders are organized together on the initiative of traders who hold the cash capital. Traders deal usually with many cheese makers who act as intermediaries between them and the producers. The number of cheese makers with who deals every trader in the city varies from one to another. This number can reach up to fifteen (15) cheese makers per trader, depending on the invested capital for this enterprise. No facilitation was provided by the government or other private formal institutions. All actors involved are private and they have different motivations in engaging into this collective action to access the market. Although living in the cities, traders were often originated from the Khanasser valley, thus knowing the situation and the potential of the rural households and their needs. The number of cheese makers per trader varies according to seasons; in good seasons, it reaches 15 or 20, and in bad seasons, it drops to 6 or 7 per trader. Having learned over the years from one area (in this instance Khanasser valley, the traders have extended their activities to other provinces as far as 200 to 300 km from Aleppo city.

In addition to dealing with cheese makers for processing and marketing dairy products, traders deal with small producers (less than 100 heads) called “*shakarjeh*” who process their milk individually and sell their products (yogurt, cheese, ghee, *arishah*¹, soft cheese, and wool) at the market.

From the (Table 1), it became obvious that the participation in local institutions is strongly related to the availability of cheese makers in the village. Milk producers from all sheep and goat categories deal with cheese makers to process their milk. Those who do not have a cheese maker institution in their village deal

¹ *Arishah* is a poor type of cheese made out the remaining component of cheese and sold at low prices mainly to poor people.

with a cheese maker settled in a neighboring village. However, because of weather constraints and to avoid that the milk gets spoiled due to hot weather, they can only do so at the beginning of the season (March–April) when the weather is cooler. Therefore the participation in these institutions is function of its availability in the village.

Paying more attention to the category of large sheep and goat producers (over 100 heads) who have a cheese processing unit in their village and do not deal with it, we find that 60% of them fall into the category. Understanding the strategy of this category will enable us to further deepen the analysis on the usefulness of the institutions and identify the categories of producers who deal with them and the motivations behind these choices.

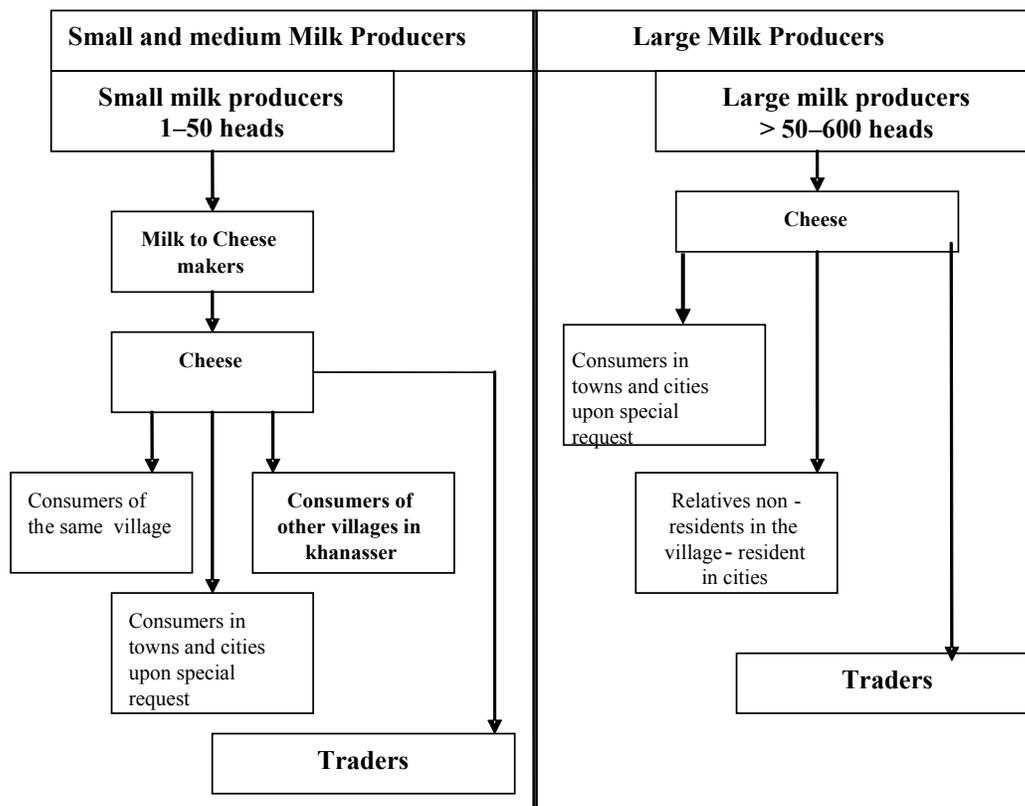
Table 1—Sheep and goat categories by village type and by Farm type

Farm type new two cat only	Village Type		Total (%)
	Had <i>jabban</i> in the village (%)	Did not have <i>jabban</i> in the village (%)	
<i>Deal with jabban</i>			
1 to 15 heads	100	0	100
16 to 50 heads	83.3	16.7	100
51 to 100 heads	81.8	18.2	100
> than 100 heads	95	5	100
Total	88.9	11.1	100
<i>Do not deal with jabban</i>			
1 to 15 heads	25.0	75.0	100
16 to 50 heads	11.5	88.5	100
51 to 100 heads	41.2	58.8	100
Over 100 heads	60	40	100
Total	31.8	68.2	100.0

Pearson Chi-Square = Deal with *Jabban* = 0.475; Pearson Chi-Square = Do not deal with *Jabban* = 0.010

Source: Source: Our Khanasser surveys 2004.

Figure 3 – Types of producers and their interaction with cheese makers and consumers

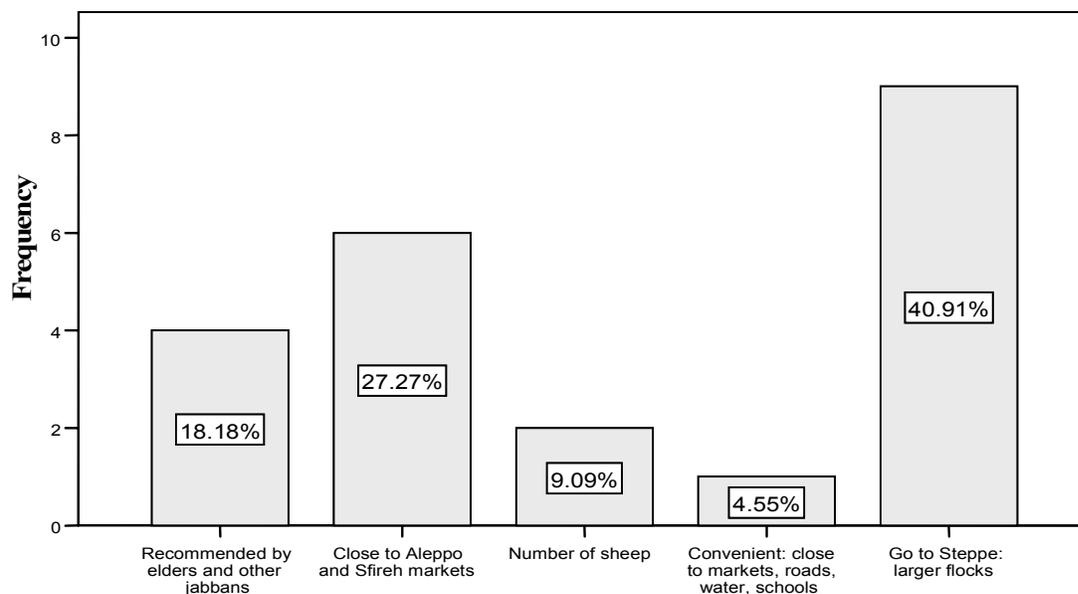


Choice of working area

The working area is function of many factors of which the capital invested for cheese processing during the season, the experience of cheese makers, and the needs for their households' members. Cheese makers were asked about their strategies in this regard.

Figure 4 shows that from the cheese makers interviewed about their choice of the area, 59% indicated their preference to Khanasser and 41% prefer to work farther in the steppe. Among those who prefer Khanasser, 18.2% indicated that it was recommended to them by their elders or by other cheese makers, 27.3% selected the area because it was close to the markets (70 km to Aleppo city and about 20 km to Sfireh town), 9% selected the area because of the reasonable number of dairy sheep available in the area, and 5% selected it because the area was convenient to their needs in terms of relative proximity to markets, relatively good roads, and availability of water and schools for their children during the last quarter of the academic year. However, the 41% of cheese makers who prefer to work in the steppe and prefer to deal with large flocks, detain good capital for investment in the steppe for dairy production. This way, they also avoid the important registration process of small quantities of milk from small and medium producers.

Figure 4 – Criteria of working area choices of cheese makers



However their choices are also limited by many other factors such as their ability to secure an important amount of money to grant to milk producers, their importance in the market and the trust built over the years both in the market and among producers. Table 2 below shows some differential characteristics of dairy production and processing in Khanasser valley and in the steppe.

Table 2—Characteristics of dairy production and processing in Khanasser valley and in the steppe

<i>Khanasser</i>	<i>Steppe</i>
Period of dairy processing	
March – June	February – September
Cheese makers dealing with sheep producers	
Deal with large number of dairy sheep producers	Deal with small number of dairy sheep producers
Flocks	
Small flocks	Large flocks (max: 75 000 heads from 74 households)
Schools	
Children of cheese makers go to village school during spring	No school. Only part of the household join the steppe for cheese processing. Children stay home with others
Capital	
Small capital	Large capital
Processing Units	
Mainly one processing unit. Max 2 or 3 units	Many processing units (<i>marakez</i>). Up to 10 units
Individuals involved	
Employ members of his household for processing ♀ ♂ of the same household	Employ individuals from their original village paid either in kind (dairy products: cheese, ghee, karisheh) or cash. Employ 1 men and his wife, or 1 men and his sister, or 1 men and his mother
Payment	
Payment every 11 days (called <i>hittin</i>) based on cheese price	Paid every 15 days or every month based on cheese price
Services to milk producers	
buy some items from market	buy gas, spare parts for vehicles, car repair, advances for weddings, rice, oil, sheep dye, and straw at no extra costs. Costs deducted from cost of milk delivered
Milk delivery	
1 time mainly (noon). Evening milk for home consumption Rarely 2 times. Small quantity	3 times a day (morning (<i>matafeel</i>), noon, afternoon. Reduced number of household members: milk consumption limited Large quantity
Loans provision	
generally cheese makers come to village to provide loans	50 000 (1000 \$)– 500 000 SP (10 000\$) Cheese makers either come to producers, or producers go him, or cheese maker send money with Kadmus bus, & use mobile phones for making agreements

Source: Our Khanasser surveys 2004.

The motivations of producers to organize themselves this way are discussed in the following sections.

II. MOTIVATIONS OF THE ACTORS TO ENGAGE IN COLLECTIVE ACTION FOR CHEESE PRODUCTION

Local institution formation is initiated at the community level by cheese makers who on their turn have been motivated by traders in city markets. Therefore, there are two types of motivations: the traders' motivations and milk producers' motivations.

1. Traders/Cheese Makers' Motivations

Traders are the ones who hold the cash capital. They need to invest their money in a lucrative business, and dairy production and marketing is among the most needed for rural populations living in marginalized and dry areas. Their motivations in engaging in collective action resume in the following:

1. Make profit from processing and marketing cheese
2. Through loans guarantee the desired amount of milk
3. Ensure a sufficient amount of cheese is produced for the market in order to respond to the customers' demand
4. Get good quality of cheese (shape)

Also, cheese makers' opt to work in dry areas either in Khanasser (marginal dry area) or farther in the steppe (badia). Their choices are driven by different motivations, and more importantly by the importance of capital investment in dairy production:

Khanasser:

1. Close to Aleppo city (about 70 km) and Sfireh (15 km) markets. Its proximity to markets, roads, water and schools makes the life of cheese makers and their families easier.
2. Availability of schools in the area during spring. Children have to continue their schooling and they do in the schools of Khanasser sometimes without formal registration during the last portion of the academic year (31.8%)
3. Area recommended by elders who had worked there before or by other cheese makers (18.2%)
4. The availability of a reasonable number of sheep in the area (9%)

Steppe:

1. Prefer to deal with larger flocks, and cheese makers' households are smaller leaving part of their families – especially when children are involved – in their original village near Idlib town (41%)
2. Avoid registration of small quantities of milk
3. Part of the household only move to the steppe during the dairy season

Seventy seven percent (77%) of cheese makers get their capital from traders in the market. Forty one percent (41%) of them work in the steppe and 36% work in Khanasser valley.

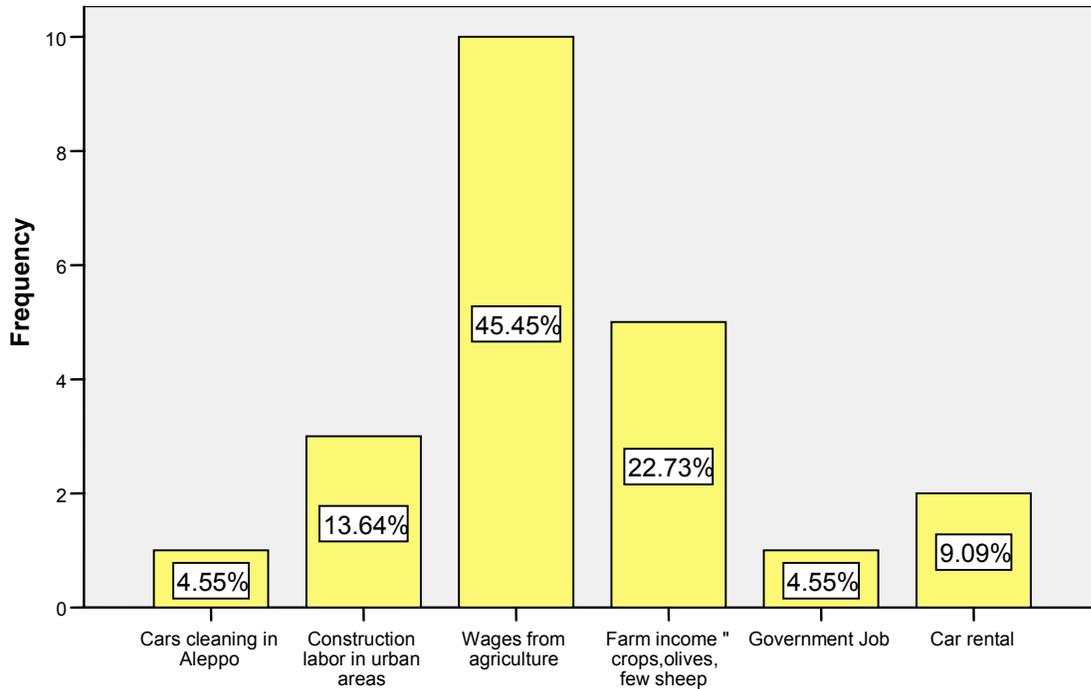
Cheese makers working in the steppe are better off than those who work in the Khanasser valley, and cheese processing represents a more important proportion in their annual income compared to those in the valley (Table 3). The average income from cheese processing for *jabbans* in the steppe represents 71% of their total income, whereas in Khanasser it represents only 40% of their total income.

Table 3—Proportion of cheese processing from total household income of *jabbans'* households

<i>Jabban</i> Type	Mean	N	Std. Deviation
Khanasser	40.23	13	12.962
Badia	71.22	9	13.818
Total	52.91	22	20.298

Source: Our Khanasser surveys 2004.

Figure 5 – Cheese makers’ income from different sources



When the interview is restricted to the head of the household about the household income, the answers hardly represent the reality unless the investigation is disaggregated by gender to involve the breadwinners. However, in addition to cheese making, the members of households perform a number of activities to get additional income for their families’ needs. Forty five percent (45.5%) of rural households’ income in the valley derive from wage labor in agriculture harvesting crops, picking olives and cotton. The income from their own farms from crops and animals comes in the second position is with 23% of their total income, followed by males of the households who work in urban areas on building construction (14%), and by other work of less importance such as renting their own cars when they have (9%), and income from government jobs and car cleaning (mainly performed by males and children) in Aleppo city with 4.5% of the respondents.

Profitability of cheese processing

Cheese makers were asked to indicate the three most important factors that make cheese processing the most profitable. Results indicate the following: length of the milking season, quality and quantity of milk delivered, cheese prices, labor (family or hired), transport means. By order of importance, results from as first factor, (Table 4) indicate the quality of milk as the most important factor (50%) for making profit, followed by the quantity of milk delivered (27%), which is a requirement for cheese maker to settle in the village in terms of cost benefits, and transaction costs. Cheese prices come in the third position as indicated by 9.1% of the respondents. As second factor by order of importance, cheese makers have indicated cheese prices as the most important factor (32%), followed by the availability of labor and transport means (18.2%). The third factor indicated is also labor availability (41%), followed by cheese prices (23%) and transport facilities (18.2%).

Table 4—Factors contributing to the profit of cheese processing

	Factor 1	Factor 2	Factor 3
Length of the milking season	4.1	4.5	9.1
Quality of milk delivered	50	9.1	4.5
Quantity of milk delivered	27.3	13.6	4.5
Cheese prices	9.1	31.8	22.7
Labor (family or hired)	4.5	18.2	40.9
Transport means	4.6	18.2	18.2

Source: Source: Our Khanasser surveys 2004.

2. Milk Producers' Motivations

Milk producers are the ones who raise dairy sheep for their own consumption and for marketing. They are usually among small and medium producers and have difficulties reaching the market and accessing credits in the absence of formal institutions. Their main motivations in engaging in collective action are, 1) to ensure processing of their milk production, 2) to access market (although indirectly), 3) to lower the transaction costs, and 4) to get loans. Loans are the most important motivation for most producers.

The survey shows that the motivations of milk producers in dealing with the cheese makers' institutions are indicated in Table 12 below. Hundred percent of the respondents (100%) i.e. 49 of them out of 53 farmers who deal with cheese makers *jabbans* indicated that they were motivated by the access to market, leading to reducing all transaction costs such as transportation, commissions, and the cheese maker providing other services such as buying other food items for rural households, and offering the possibility to buy their cheese once processed without going to the market.

Table 5—Opportunities of rural households in dealing with cheese makers (*jabbans*) institutions

Advantages of dealing with <i>jabbans</i> as indicated by rural households	Valid	
	Total number 49	
	N	Percent
Access to market made through <i>jabbans</i>	49	100
Decrease transport costs of dairy products to markets	48	98
Decrease workload for women and men	47	95.9
Decrease extra costs of commissions paid to dairy traders	45	91.8
Get loans/ credits from nearest source (at village level)	42	85.7
Provides possibility to buy cheese on site especially for households owners of few heads of sheep or none	7	14.3
Cheese makers (<i>jabbans</i>) buys food items upon request from town to rural households	6	12.2
Households producing little quantities of milk have possibility of processing and getting income from cheese produced at village level	4	8.2
Produce better cheese quality	1	2

Source: Our Khanasser surveys 2004.

Although all advantages stated by respondents are linked in one way or the other to market, we decided to disaggregate them for the sake of discussion. By order of importance, the main motivation (100%) of milk

producers is the market access as shown from the survey (Table 5). Milk producers indicated that the market access on an individual basis is constraining and involves important costs both at the social and the economic levels. The second advantage very much linked to the first one and indicated by 98% of the respondents is the decrease of transport costs of dairy products to markets. The third reason given by 96% of the respondents is the decrease of workload for women (processing) and for men (marketing) is also linked to the livelihoods of the communities and their access to market. As the *jabbans* provides also loans that are paid after cheese is processed and sold, 86% of the respondents indicated this as an advantage.

Fourteen percent (14.2%) of the respondents indicated that many dairy sheep producers deliver their milk to *jabbans* for processing and marketing, but also buy their cheese before the remaining is sold at the market.

The remaining advantage stated by 8.2% of the respondents, is the processing of their milk into cheese. Although this is of less importance to large sheep and goat producers, it is important for small sheep producers who produce small quantities of milk that is otherwise not marketed due to the high transport and other costs.

Cheese quality was poorly reported by respondents, but traders at the market ensure that cheese of *jabbans* is of better quality than that produced by individual farmers for the market. The shape of cheese and consistency attract the consumers much more than the cheese produced at home by individuals.

Loans are the most important motivations of small and medium milk producers; they are addressed in the sections below.

Loans in Khanasser valley

They are of two types: from cheese makers, and/or directly from feed and other traders at the market.

Loans from cheese makers. Cheese makers in the valley of Khanasser deal with a large numbers of milk producers who own small flocks of dairy sheep and provide them with small loans as compared with those of the steppe dealing with less number of milk producers with large flocks and provide them with important amounts of cash loans. Very few cheese makers do not provide any loans, due the risk they incur from drought, and consequently low milk production, in addition to sheep producers leaving the village to look after other grazing areas during spring.

Cash capital therefore is relatively small (Table 7) small with a means of 313409.09 SP (6206 US\$) as compared to the steppe where the average is 6600000 SP (130696 US\$), and reaching up to 13 million SP (259 377US\$) from the largest investor in the steppe in 2004.

Some small cheese makers are unable to secure large funds for providing loans to the communities for their cheese processing. Some of them are even unable to get any loans from the largest traders who prefer to deal with experienced cheese makers. Traders provide large loans to secure the largest milk producers. Thus it is function of the potential milk production.

Few milk producers even when cheese makers are available in their village not to deal with them for the sake of having the freedom to process their cheese themselves and to deliver it to the cheese maker, or to produce other types of dairy such as yogurt and ghee. They however get loans from other sources such as

feed traders who provide them with in-kind feeds for their animals during winter. These producers consider the loans process from cheese makers as risky because it prevents them from the freedom of stopping milk delivery before the end of the season. The risk of repayment of loans is also related to the year being good or bad (lack of rainfall), where in the later case, the loans repayment are moved to the next year.

Ensure to get interest free² loans to feed their animals in winter, and respond to other households' needs. The average loans provided in Khanasser valley by cheese makers in 2004 is 339772.73 SP (6728.2 US\$). For the sake of comparison, loans are much higher in the steppe where cheese makers deal with larger flock producers. The loans average is 5, 877 777.7 SP (116 392 US\$) (Table 6) with a minimum of and a maximum of 13 million SP (259377 US\$) (Table 7).

Table 6—Total loans provided to the communities by cheese makers

Location	2003 season		2004 season	
	Means SP (US\$)	SD	Means SP (US\$)	SD
Khanasser valley	313409.09 (6206)	341742.360	339772.73 (6728)	2831875
Steppe	6600000 (130696)	5731491.952	5877777.78 (116391.6)	4699142.948
Total	3142375 (2819)	4918268.541	2831875 (56077)	4161992.412

Source: Our Khanasser surveys 2004.

During bad years where rainfall is scarce and sometimes completely absent, the amount of milk is negatively affected due to poor grazing. This affects the amount of milk agreed upon between the cheese makers and the whole community. In this case, few producers find themselves in situations where they have to move from their villages to wetter areas for grazing, and opt sometimes for selling few heads of their flocks to settle the loan provided by the cheese maker for the season.

Loans from feed and other traders

Loans from fertilizer traders (*khanji*). Also informal, some in kind loans are provided to dairy sheep producers directly from traders (called *khanji*). These are in the form of fertilizer, seeds and feeds for their animals of which costs are calculated at higher prices because they will be settled only after a certain period of time (hidden interest after they are able to have some cash). Usually feed credits are settled when newly born lambs are sold after some fattening.

Loans from dairy traders to individual yogurt producers. Loans are provided to dairy sheep producers at a commission rate varying from 8 to 10%. In this case producers provide these traders with their yogurt production. Producers are in fact in need of getting loans otherwise, they will have to sell few animals.

Payment of loans to dairy producers

² As believed by rural communities and indicated by cheese makers and traders.

There are two types of loans: 1) loans granted during winter, and 2) loans granted during the milking season.

Loans granted during winter. The payment of loans is made in winter before the dairy season starts. This winter payment called *qadbah* is intended mainly to help producers purchase feeds for their animals and other home consumption items. Settlement will be made during the milking season at *hittins*.

Loans are granted to producers in the presence of a third party, usually a trusted person from the community, and a producer as well. This person is the link between the cheese maker and the community. He goes to the cheese maker's place to invite him to settle in the village for the coming spring, and when the cheese maker comes to the village to provide the loans, he is the special guest of that farmer, who witnesses the number of animals indicated by each producer because this is a basis for the amount of loan provided to each one. This person guarantees the amount of milk that will be delivered by each household who expressed willingness to deal with the cheese maker.

Loans granted during the milking season. The major part of the loans is provided in winter well in advance before the dairy season starts in order to guarantee (ensure) their dairy products for the season. However, few cheese makers grant additional small amounts also during the milking season. These are deducted from the income from milk delivery paid at *hittins*.

Cheese makers in the steppe

This research was mainly concentrated in the marginal areas of Syria i.e. the Khanasser valley, but while conducting the formal surveys, cheese processing was often mentioned and comparisons made in terms of income and others important aspects such as the large loans granted to milk producers in the steppe. For this reason, and the proximity of the steppe to the Kanasser valley, and cheese makers of the valley who work actually in the steppe, who were included in the formal survey, below are some information on the steppe that will complete our understanding of how collective action has affected the dairy processing, loan attribution and access to market in these areas, and of the cheese makers' strategies.

Importance of loans in the steppe

Seasonal loans provided by *Jabbans* to dairy sheep owners of Al badia are much higher than those provided in Khanasser valley. The total loans provided by one cheese makers to producers in the steppe reached 13 million SP (257 426 US\$) during one milking season. Consequently, the range of minimum and maximum loans paid to the steppe producers is larger compared to those in Khanasser area. The main reason is the existence of large flocks which therefore leads to an important milk production. The total advances provided to milk producers in all processing points during the 2003 and 2004 seasons, and their distribution between Khanasser valley and the steppe are shown in Tables 7 and 8. This informal credit system reveals that important amounts of money are provided to milk producers each year. However, despite the positive impact that these credits provide to rural communities, there are also important commissions charged on milk producers to the benefit of traders and cheese makers, which are deducted from the income of cheese.

Table 7—Total advances for all processing points (marakez) in seasons 2003 and 2004 SP (\$)

	N	Minimum SP (\$)	Maximum SP (\$)	Mean	Std. Deviation
Total advances for all marakez in season 03 (SP)	20	25000 (499)	17000000 (339186)	3142375 (62597)	4918268.541
Total advances for all marakez in season 04 (SP)	20	35000 (698)	13000000 (259377)	2831875 (56502)	4161992.412

Source: Our Khanasser surveys 2004.

Table 8—Total advances for all processing points (marakez) in season 2004 SP (\$)

<i>Jabban</i> (Badia)	Type	Khanasser or	Steppe	Mean SP (\$)	N	Std. Deviation
Khanasser				339772.73 (6780)	11	255314.645
Steppe (Badia)				5877777.78 (117274)	9	4699142.948
Total				2831875.00 (56502)	20	4161992.412

Source: Our Khanasser surveys 2004.

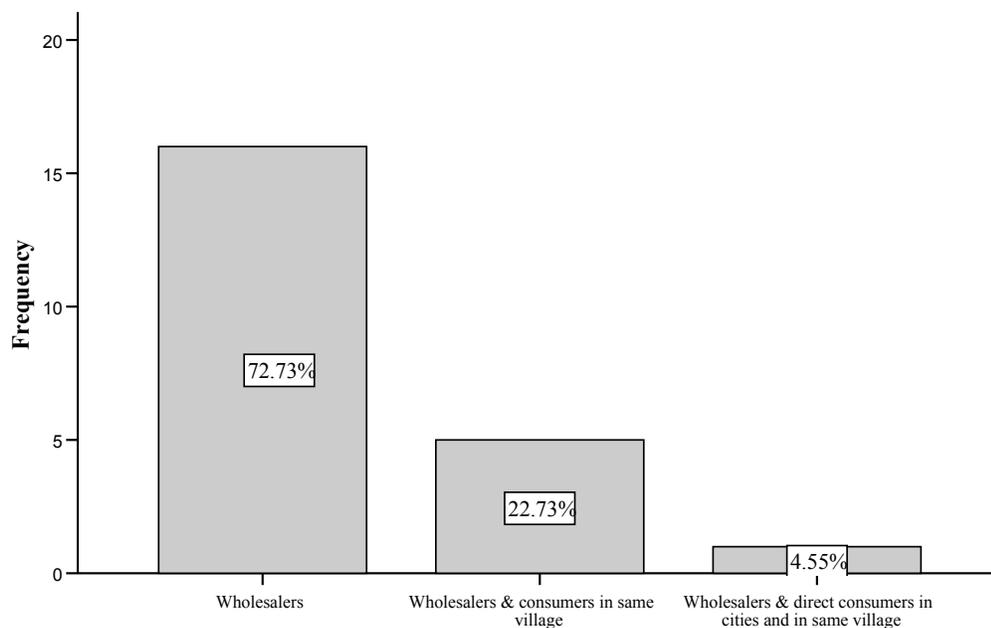
The gross income from cheese for cheese makers working in Khanasser averages 775 847 SP (15480 US\$) Table 9. The majority of the cheese production (73%) is sold to whole sellers, 23% is sold to both the whole sellers and the consumers in the village where cheese has been processed, and only 5% directly to consumers in the village and in the cities (Figure 6). However, milk delivered for cheese processing is paid on the basis of cheese price at the market as detailed in the following section.

Table 9—Gross income of cheese makers from cheese in Khanasser and in the steppe

Cheese maker's place of work	Mean SP (\$)	N	Std. Deviation
Khanasser valley	775847 (15480)	13	661028.2486
Steppe (Badia)	23408997.2 (466315)	9	27625338.7833
Total	10034863	22	20511097.2795

Source: Our Khanasser surveys 2004.

Figure 6 – Sales of cheese by cheese makers to whole sellers and consumers.



Payment of milk producers

Milk delivered to cheese makers is paid to producers on the basis of cheese price sold at the market. The cheese price is variable during the milking season. The prices depend also on the year condition – good or bad – and on the total quantity of milk produced. It is then function of the time of selling during the milking season such as at the start, the middle or the end of the season. In fact it all depends on the quantity of milk produced and consequently the quantity of cheese supplied to the markets. According to farmers, the quantity of cheese produced with the same quantity of milk varies among the season and its quality differs as well depending on the type of feed consumed by animals. However milk of early lactation contains more water, and therefore produces less cheese than milk produced in the middle of the season, which makes also less cheese than milk produced at the end of the season. The quantity of cheese out of the same quantity of milk increases throughout the season, the price of milk cheese follow accordingly.

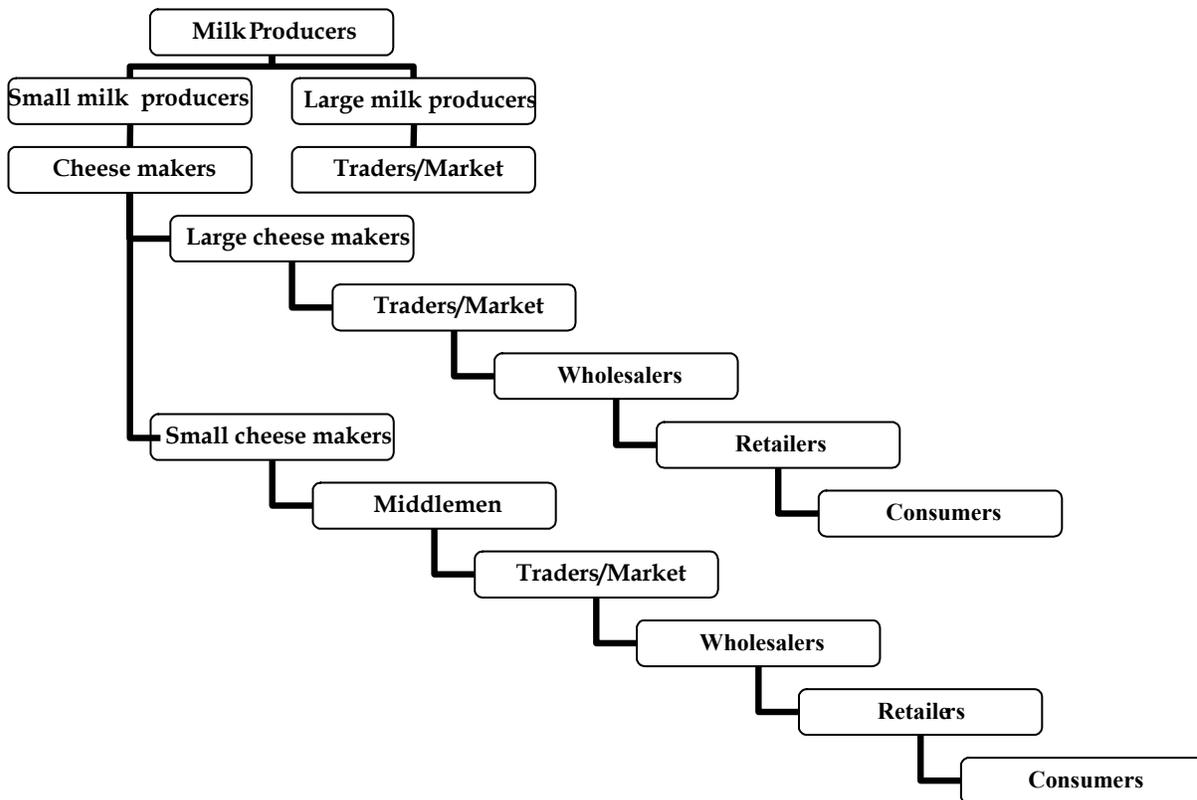
The factors on which depend the quantity and quality of cheese are the following:

1. Season condition, good or bad based on rainfall
2. Time of processing during the milking season
 - Start of the season: grazing on green matter, milk contains more water and therefore produces less cheese
 - Middle of the season: greater quantity of milk produced, better quality of cheese, more cheese produced from the same amount of milk
 - End of season: most grazing on dried feeds and crop residues, cheese more fatty suitable for mushallah type of cheese, more cheese produced than previous period from the same amount of milk
3. Supply and demand of cheese at the market

III. MARKET ACCESS AND PRODUCERS' PREFERENCES FOR DAIRY PRODUCTS

Physical access to markets. Distance to markets of Sfireh town (20 km) or Aleppo city (70 km), and the roads conditions for remote villages constitutes one important reason leading to difficult access to markets. It is affecting sheep and goat producers to buy their inputs and sell their products, and results in high transportation costs and high transaction costs. In this case local institutions are playing a central role in helping the communities sell their products and buy different products through cheese makers who are regularly in contact with the market. Daily transport costs, and related dairy products storage constraints, are particularly important for small producers, for women headed households. The difficulty to market access limits opportunities for income-generation, a fact that has led to producers organize themselves to better get advantages from market opportunities. The important distance between the valley and the city markets has reduced choices of producers. Large producers have the means to do so, whereas small producers have chosen to get together in order to respond to these needs. The exacerbation of losses of products is also partially solved by local communities who provide an opportunity to process and market the products, and losses if be are shared, thus reduced for individual households.

Figure 7 – Market chain for small and large milk producers in the valley



The itinerary that links milk producers and the market (Figure 7) shows that small and medium producers have access to the market through cheese makers, whereas large milk producers deal directly with the market as they have the means to do so.

Market structure

In the case studied, one of the main features of the relationships is the non-equality between producers and middlemen and traders. One of the main livelihood strategies in these rural areas is sheep production, which makes producers available in large numbers. Because of the decrease of fallow lands and other related feed issues, large sheep and goats flocks have moved towards the steppe, and producers of the valley tend to be small to be able to respond to their flock needs. As a results these small producers deal with a small number of cheese makers (10 only in the whole valley) and intermediaries in relation to a smaller number of traders in the cities.

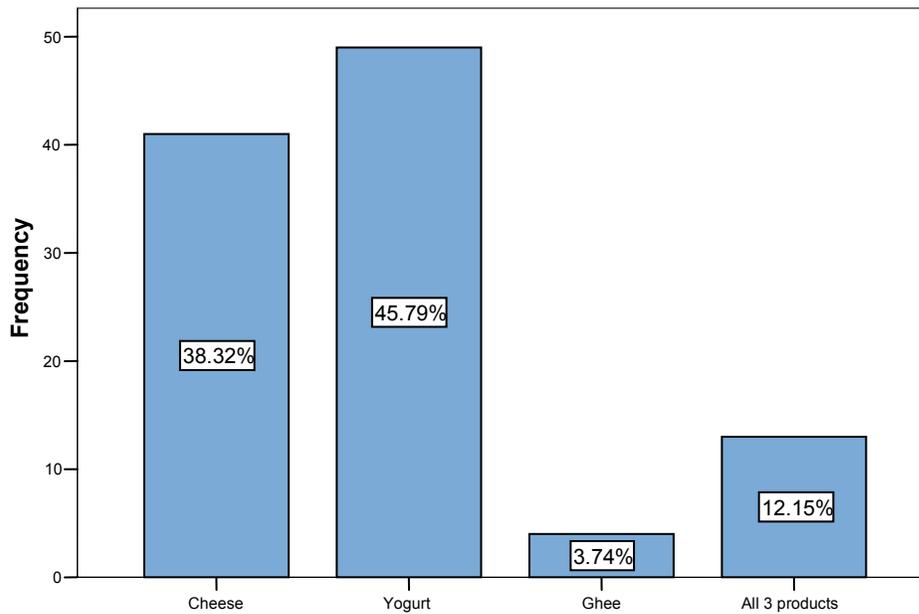
This has created a relation of dependency especially of small producers to the traders and the market where relations remain unequal and inequitable, especially because they face difficulties in reaching the markets. Traders through cheese makers visit the villages and make agreement (verbal contract) for the coming season to process and market the dairy products and provide loans and other in-kind inputs. Other services are also provided from cheese makers such as buying or selling some products such as yogurt or other consumption goods.

In the most remote villages of the valley, producers have indicated that they seldom see offers from traders to process their products, which pushes them to accept the conditions offered by the first *jabban* or trader even though not favoring them. This situation has also exacerbated because affecting small producers more because their only source of information about the cheese prices is the *jabban* who can also claim that the cheese has not been sold that day, therefore its price has decreased. There is no proof about these situations even if the milk producers can access the market to ask about the prices of that specific day.

Dairy sheep producers' preferences for dairy products

Eighty nine percent (89%) of the sample households have responded to the questions on preferences, and results show that by far 46% of the respondents prefer to produce yogurt for sale. However cheese was also indicated as a preferred product by 38% of the respondents. Ghee was indicated only by 3.7% of the respondents, and 12% of them probably more aware of risk prefer to diversify they production for marketing (Figure 8).

Figure 8 – Farmers’ preferences for Dairy Products for sale



It should be noted that all dairy sheep producers produce all these products at different times of the dairy milking season. They all produce yogurt at the beginning of the season around February March, then they start producing cheese either through *jabban* or individually during April through May and June, and then produce ghee at the end of the milking season. Intimately linked with the market prices and their own food security in dairy products, rural communities adopt these different strategies.

Reasons behind strategies of dairy production for sale

Twenty five percent (25%) of the respondents who prefer to produce yogurt for the market indicated that the good marketing prices all over the season were the main driver of their choices, in addition to the fact that yogurt is sold faster than other dairy products. This was followed by farmers (19.2%) who indicated that yogurt processing has less workload compared to other dairy products. Also those who produce a small amount of milk daily prefer to produce yogurt. Loans provided from dairy products’ dealers and the small amounts of milk produced by farmers were also a driving force for 8.3% of the respondents (Table 11).

Table 10—Reasons for preferring cheese for marketing

Reasons	Frequencies %
Less risky (distance, weather)	17.4
Less workload compared to other products (ghee), provides daily income	34.8
More profitable and good marketing prices	61
Can be stored for long time compared to yogurt	13

Source: Our Khanasser surveys 2004.

Table 11—Reasons for preferring yogurt for marketing

Reasons	Frequencies %
Good marketing prices all over the season, sold faster	25
More profitable because no loss in weight as in cheese processing. Dairy revenue, no <i>samah</i> (commission) Do not need freezing in winter	4.2
If small amount of milk, better to produce yogurt	8.3
Less workload compared to other products, provides daily income	19.2
Provides loans from dairy dealers at market	8.3
Transport means to reach market have improved actually in good condition	6.7

Source: Our Khanasser surveys 2004.

For ghee: it is more profitable, and can be stored for longer than cheese and yogurt without being spoiled, and it does not involve any commission and or daily transportation costs.

Collective action in dairy production

Sheep and goat milk producers build their strategy on the basis of market prices. Cheese making through local institutions is not always the only processing they make. Their strategy (Table 12) depends on market prices, which is affected by the timing of the operations of the producers. Because yogurt is more profitable, milk producers start by producing it during January and February and sell to Aleppo city. Starting march and through April and sometimes mid-May, they start dealing with cheese makers (*Jabbans*) institutions to get their milk processed, first because of the loans they got from the *Jabbans*, and also because the weather starts getting hot, which prevents them from storing milk and cheese for long time. Later during the season, as milk production decreases, they stop dealing with cheese makers to produce their own cheese and some ghee which will support them until the next season of milk production.

Table 12—Strategy of milk processing based on market prices of the products

Timing	Products	Means of processing
January/February	Yogurt	Individually
March/April/May	Cheese	Through cheese makers
May/June	Cheese and ghee	Individually

Source: Our Khanasser surveys 2004.

IV. CONSTRAINTS FACED BY THE DIFFERENT PARTIES IN DEALING WITH THE INSTITUTIONS AND IN MARKET ACCESS

1. Constraints in dealing with the *jabbans*

Although offering many opportunities to rural households, many constraints are also encountered in dealing with local institutions of cheese makers. Table 13 shows that the most important constraint encountered are the conflicts between rural communities and cheese makers concerning milk price. However, despite that agreement is reached at the end, the cheese makers and traders have secured through the system another way of guaranteeing their profit. Which consist in paying the value of price on the basis of the cheese sold, in other words, milk producers are only paid once their milk has been processed into cheese and sold at the market. This indicates that traders leave this margin for themselves in order to share

the losses (if any) with milk producers. Although milk and cheese prices are determined at the market, it is the cheese makers who are continuously in contact with the traders and the market who determine the price at the community level. Therefore, small sheep producers have no other choice than to accept the offer due to their poor negotiating position, especially after the cheese maker has settled in the village and started cheese processing.

Table 13—Constraints encountered by producers when dealing with the *jabban*

Constraints of rural communities in dealing with <i>jabbans</i>	Total number 50	
	N	Percent
Delay in payment	1	2.0
Conflicts and no trust in milk prices. Negotiations on milk price till agreement is reached.	28	56.0
No constraints. Trust built and good relationships	19	38.0
<i>Jabbans</i> refuse to take very small quantities of milk to process	2	4.0

Source: Our Khanasser surveys 2004.

On the other hand cheese makers were asked about the opportunities and constraints they encounter in dealing with rural communities for processing their cheese.

2. Constraints encountered by *Jabban* with the communities

Cheese makers (*jabbans*) encountered also some constraints with milk producers in the community.

In Table 14, the main constraints encountered by cheese makers in dealing with the communities are presented. Mixtures of different types constitute an important constraint facing cheese makers such as sheep and goat mixed (91%), which affects the weight of the cheese as goat milk contains more water than sheep milk, thus the same quantity of milk producing less cheese. As no means of verification is available at the cheese makers' level, sheep milk is also mixed with water to extend the quantity delivered. Despite that rural households milk twice a day (at noon and evening), they deliver only the noon milk, and keep the evening milk for home consumption. When milk of previous night is not all consumed, the remaining is sometimes added to the fresh milk before delivery to cheese makers. However, more importantly and linked to the quality of milk and hygiene, while milking, milk mixed with dung, and as advised by cheese makers, milk producers do not dare to filter it before the delivery which leaves a taste and deteriorate the quality of milk, adding to this the dirty and not suitable containers used to deliver the milk. Mastitis of sheep udder is another important constraint reported by 59% of the cheese makers, added to milking sheep directly after application of medicines. Other constraints were also reported mainly the non-respect of the initial agreement on quantities of milk to be delivered, and some conflicts with the communities that end up stopping completely the delivery of milk despite the previous agreements and the loans provided to them. Also the delivery of milk from other villages distant from the cheese processing unit creates an important risk of being spoiled by the weather.

Table 14—Constraints of *jabbans* in dealing with rural communities

Constraints of <i>jabbans</i> in dealing with rural communities	Total number 22	
	N	Percent
Mixture of sheep milk with goat milk	20	91
Conflict with whole community and they stop milk delivery as agreed	19	86.3
Mixture of milk with dung during milking- hygiene, affects taste	17	77.2
Mixture of last night milk with fresh milk	15	68.2
Mastitis of sheep udder, risk of infected milk	13	59
Delivery of milk from a long distance, risk of getting spoiled by the heat	12	54.5
Dirty containers, in addition to small neck of containers	10	45.4
The quantity of milk delivered daily not equal to quantity agreed upon at beginning of the season	10	45.4
Mixture of milk with water	4	18.2
Milking sheep straight after application of medicine	1	4.5

Source: Our Khanasser surveys 2004.

3. Constraints encountered by *jabbans* with the traders

Cheese makers indicated that they face many constraints in dealing with the traders at the market. The most important of them³ are related to the commissions that are imposed on them and reported by 86.3% of the interviewed *jabbans*, and therefore affecting milk producers as well. In order to be more acceptable, these commissions are wearing different names such as *samah* meaning generosity and kindness, tea commission equaling 1 SP/kg of cheese. Cheese prices are entirely controlled by traders, and cheese makers have no other choice than dealing with the offered price. Delay in cheese delivery to the market by traders (36.4%) affects the quality, and delays in cheese makers' payment leads delay in milk producers' payment (27.3%). Absence of trust was also indicated by the interviewees (18.2%), who show that the system is not a silver bullet; it has its opportunities and its constraints (Table 15).

Table 15—Constraints of *jabbans* in dealing with traders

Constraints of <i>jabbans</i> in dealing with traders	Total number 22	
	N	Percent
Additional commission called <i>Samah</i> benefits the trader only & Other commission imposed by traders for tea = 1S.p/1kg of sold cheese	19	86.3
Low cheese prices & decrease of cheese prices if not sold the same day – control of cheese prices by traders	19	86.3
Delay of cheese delivery to the market	8	36.4
Delay of trader payment leads cheese makers to delay producers' payment	6	27.3
Absence of trust related to cheese weight delivered to traders	4	18.2
Lack of transport means	3	13.6
Losses of <i>jabbans</i> ' barrels by traders at the market	2	9

Source: Our Khanasser surveys 2004.

³ Bearing in mind that cheese makers on their turn also apply similar *samah* when they collect milk. They fill the recipient to measure the quantity of milk delivered, and collect for themselves all the milk pored outside the recipient after it is filled.

V. RECOMMENDATIONS FOR IMPROVING DAIRY PRODUCTION AND THE ACCESS OF THE POOREST TO MARKET

Suggestions for improvement were sought from rural communities and cheese makers. Based on research results, and to adequately respond to the suggested improvements of milk production and quality for processing (Table 16) through the informal networks, the paper puts forward the following strategic recommendations:

1. Ensure that the Syrian government agencies provide their support to the local dairy sheep institutions that contribute to the livelihoods of local communities;
2. Provide tools and methods as well as simple and cheap technologies for adding value to local communities' indigenous knowledge especially that of women on issues related to healthy and adequate management of milk processing that impacts positively both their health and income; these improvements should be addressed to women and men of both the rural communities in dry areas as well as to cheese makers and traders dealing with them. Improvements can be affective only if all these actors are involved.
3. Establish an institutional support to the informal local networks of dairy sheep production and processing of the community actors, cheese makers and traders; and establish a micro finance system for dairy processing that optimizes the benefit of smallholders and contributes in alleviating poverty.
4. Strengthening the role of women and thus providing support to them especially in terms of the identification of the required technologies and when directing the different technology options that facilitate and improve the livelihoods of local communities.

Table 16—Suggested improvement of milk production by *Jabbans*

Suggestions of cheese makers to improve milk production	Total number 22	
	N	Percent
Increase the amount of feeds	16	73
Separate ewes from lambs (weaning)	8	36.3
Feeds with grazing residues, or move to new grazing areas	6	27.3
No interference with sheep owners – know what to do	3	13.6
Suggestions of cheese makers to improve milk quality for processing through local institutions		
Cleaning of milk containers, and filter milk before delivery	19	86.3
Delivering milk even if small amount directly after milking and do not wait for next milking to deliver all milk together	12	54.5
Avoid milking sick sheep (mastitis) and mixing with other milk	12	54.5
Avoid mixing sheep and goat milk	7	32
Avoid mixing ewes milk with recently lambed	7	32
Avoid mixing fresh milk with previous night milk	6	27.3
Cover containers with plastic for cooling	4	18.2
Feed ewes with concentrates to thicken the milk and improve cheese revenue	1	4.5
Avoid mixing milk with water	1	4.5
Do not extract the fat from milk before delivery	1	4.5

Source: Our Khanasser surveys 2004.

4. CONCLUSION

The research has shown that rural people in Khanasser have the capacity to engage in collective action for the delivery of milk that is processed at the level of communities to improve their livelihoods, and contribute to the overall social and economic development. Dairy sheep producers and some intermediaries face a major constraint in reaching and developing agricultural market relations is the lack of cash and working capital. Therefore, the research has shown that the main driving forces for collective action are the provision of loans and the access to market⁴. Rural financial services and micro-finance are weak and the small loans come from private traders whose first concern is profit and not poverty reduction or help for small producers. Therefore the government of Syria, NGOs and development projects should put emphasis on these services and invest in micro-enterprises and provide micro finance for dairy producers. The processing and storage of dairy products could tremendously improve, and marketing of the products could reach areas beyond national boundaries. Capacity building for small producers either individual or those acting through local institutions will add an important dimension to the strengthening of rural household strategies to get additional income from their produce. Therefore, recommendation is made to public and private financial service institutions to provide grants, loans to the poorest and facilitate their link with markets. The case of Khanasser shows that local institutions provide a basis on which development programs can build and provides the government with insights on the constraints faced by the poor. The local cheese processing units are providing loans to producers, and the expansion of commercial relations between cheese makers and poor producers is one way of helping poor rural producers invest in production.

Improving the already existing institutions needs to take into account the aspirations, and activities of these communities. However, their position is still fragile and depends on traders. Enabling environment to empower rural communities especially the poorest to participate to the change in their living conditions consists of training rural people, and facilitating their access to research results and technologies. Revision and improvement of existing policies related to market access and prices could constitute another side of the assistance to local communities.

In order to enable the rural poor overcome their poverty, capacity building and strengthening their capacity within local institutions could contribute to their involvement in decisions taken by cheese makers and traders instead of remaining recipients of traders' decisions. Also their access to technologies and to financial assets and markets will change the whole system where poor producers will act from a stronger position.

The research opens a question consisting of what would be the commercial banks' perception of risk if they lend money to the poor? What would be the best channels: through legally recognized farmers' associations or through strengthening local institutions? The research results showed that small and medium small ruminants' producers depend more on informal local institutional arrangements compared to the better off-large small ruminants' producers. Although these local institutions have not improved due to the lack of technology, they remain vital in the livelihoods of small and medium producers. Therefore,

⁴ For rural communities, this is an indirect access to market for small producers because it is the cheese maker and the trader who deal the most with the market. However, because the product is made from the milk produced by rural small ruminant producers, and the payment based on cheese price at the market.

the rural communities could be effectively empowered when micro-finance are settled to help them respond to their needs. Efforts should concentrate in improving local institutions and their access to technologies and to financial assets and markets that will change the whole system where poor producers will act from a stronger position.

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