

**INTAS Project: Supporting the International Development of the CIS Agricultural Sector**

# **A Short Overview of Findings from the Armenian Dairy Farm Survey**

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## **1. Introduction**

This report details the main findings from the survey of 300 dairy farmers conducted in Armenia during the phase 2 of the INTAS SIDCISA project. The country survey report covers the sample's characteristics and descriptive statistics on the main topics of the survey, including: buyer relationships, prices and yields, contract relationship, and on-farm investments. For each topic descriptive statistics and Likert-type scale analysis are reported where applicable with relevant interpretation.

## **2. Sample Characteristics**

A sampling plan was developed for conducting the dairy farmer survey. A stratified random sample was employed. Quotas for each region were determined from statistical data on Milk Production in the Marzes of Armenia (2004). There were some regions where milk production was not developed commercially. These regions were not highly represented in the sample, so it was decided to ignore these regions and increase the number of farmers to be surveyed in the neighbouring areas. Then, several visits to the villages revealed that there are regions where farmers do not qualify for INTAS survey as they had too small a number of milking cows. The visits also revealed regions with highly commercialized farmers working with many dairy processors. Then it was decided to increase the number of farmers to be surveyed from such regions. The following table shows the quota based on the Marzes data and the final INTAS sample. As it can be seen, in general, the numbers are comparable apart from Shirak and Syunik marzes, where more commercialized farmers were in operation. A total of 300 dairy farmers were surveyed from 8 marzes (provinces) of Armenia.

Table 1: Sampling Plan.

Milk Production in Marzes, (000t)	2004	% in total	Proportional	Previously Decided Sample	Current INTAS Sample
			Sampling		
Yerevan	3.6	1	3	0	0
Aragatsotn	64.1	12	36	36	20
Ararat	41.4	7	21	21	23
Armavir	35.9	6	18	21	0
Gegharkunik	98.7	18	54	54	57
Lori	65.4	12	36	36	39
Kotayk	56.9	10	30	30	20
Shirak	83	15	45	45	71
Syunik	47.1	8	24	36	60
Vayots Dzor	21	4	12	0	0
Tavush	38.1	7	21	21	10
Total	555.2	100	300	300	300

Source: National Statistics Year book 2004 and INTAS Survey Guidelines.

### Sample Characteristics

On average, farmers in the sample had approximately 13 milking cows in 2005. They had about 60% more cows compared that of in 2001. There were farmers who had up to 160 cows. Both the owned and rented land of farmers surveyed have increased since 2001. On average the farmers in the sample were renting about 9 ha and owned 5.3 ha of land in 2005. There have also been changes regarding employment: the number of full time employees increased from 2.5 to 2.7 and part-time employees from 0.76 to 0.98 over the period 2001-5 (See Table 2).

In 2005 the proportion of total turnover accounted for by dairy operations was 58.3%, which is about 13 percentage points higher than dairy's share of turnover in 2001. It's obvious that farmers became more engaged in dairy farming. The standard deviation has decreased from 31% to 24%.

An analysis by region, indicates that dairy farming is becoming important part of the general farming activity almost in all regions of Armenia. In Lori marz, the percentage of total turnover accounted for by dairy farming was about 71% in 2005. In Gegharqunik, Aragatsotn and Tavush marzes the same indicator was 67%, 63% and 63% respectively. In the majority of regions the number of milking cows has increased significantly since 2001.

**Table 2: Sample characteristics based on selected parameters.**

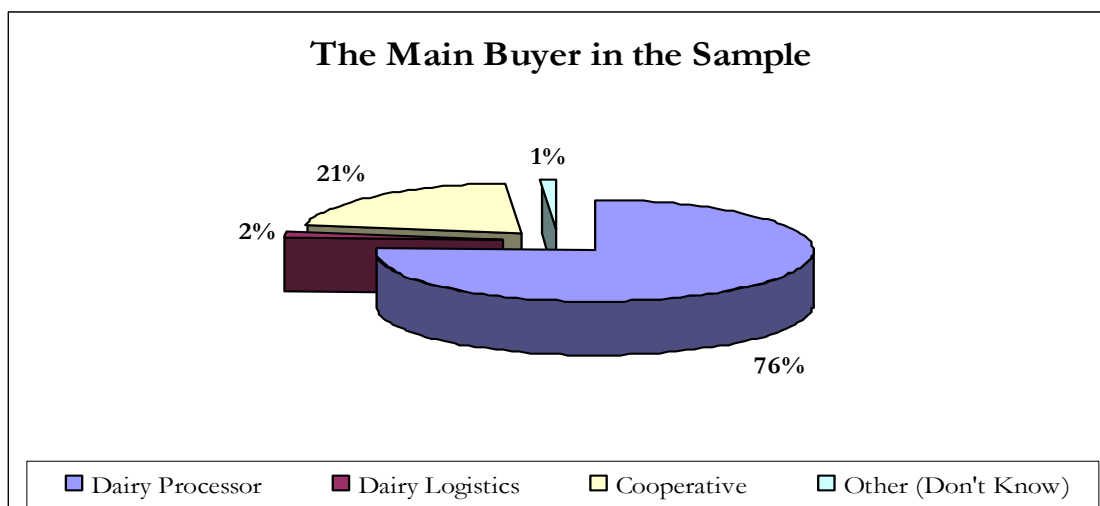
	<b>Obs</b>	<b>Mean</b>	<b>Std.D.</b>	<b>Min</b>	<b>Max</b>
Milking Cows 01	300	8.51	13.24	0	110
Milking Cows 03	300	10.66	14.81	0	103
Milking Cows 05	300	13.36	18.55	3	160
<b>Land Owned 01  </b>	<b>300</b>	<b>4.95</b>	<b>6.479</b>	<b>0</b>	<b>70</b>
<b>Land Owned 03  </b>	<b>300</b>	<b>5.25</b>	<b>7.757</b>	<b>0</b>	<b>100</b>
<b>Land Owned 05  </b>	<b>300</b>	<b>5.36</b>	<b>7.823</b>	<b>0</b>	<b>100</b>
Land Rented 01	300	6.60	30.75	0	450
Land Rented 03	300	7.79	31.33	0	450
Land Rented 05	300	8.88	35.58	0	450
<b>FT Employees 01  </b>	<b>300</b>	<b>2.47</b>	<b>2.331</b>	<b>1</b>	<b>25</b>
<b>FT Employees 03  </b>	<b>300</b>	<b>2.60</b>	<b>2.512</b>	<b>1</b>	<b>25</b>
<b>FT Employees 05  </b>	<b>300</b>	<b>2.73</b>	<b>2.919</b>	<b>1</b>	<b>30</b>
PT Employees 01	297	.76	2.258	0	30
PT Employees 03	300	.91	2.499	0	30
PT Employees 05	300	.98	2.939	0	40
<b>Proportion of Turnover</b>					
<b>Accounted for by Dairy 01</b>	<b>282</b>	<b>45.76</b>	<b>30.73</b>	<b>0</b>	<b>100</b>
<b>Proportion of Turnover</b>					
<b>Accounted for by Dairy 03</b>	<b>285</b>	<b>53.77</b>	<b>25.61</b>	<b>0</b>	<b>100</b>
<b>Proportion of Turnover</b>					
<b>Accounted for by Dairy 05</b>	<b>288</b>	<b>58.32</b>	<b>23.66</b>	<b>3</b>	<b>100</b>

Source: Survey Data.

## Buyer Relationships

For 76% of the farmers surveyed the main buyer was a dairy processor. Cooperatives were the main buyer for 21% of the sample. One per cent of the respondents didn't know the status of their buyers (See Figure 1).

Figure 1: Main Buyer of the Farmers Surveyed.



Source: Survey Data.

Seventy percent of the respondents confirmed that the dairy processor collects the milk from them (Table 3). Only 12% of the farmers receive their payments on delivery. More than 87% were being paid after delivery.

Table 3: Milk Collection and Payment System.

How is your milk collected?	Freq.	Percent
You take it into station	90	30.00
Dairy firm collects it	210	70.00
<b>Total</b>	<b>300</b>	<b>100.00</b>

When you are paid for the milk you supply?	Freq.	Percent
On Delivery	37	12.33
After Delivery	263	87.67
<b>Total</b>	<b>300</b>	<b>100.00</b>

Source: Survey Data.

Regarding payment, about 5% of the respondents are paid within a week, 20% receive their payments after 10 days and approximately 36 per cent wait 15 days. Another 5% get their money after 20 days and about 32% are paid after one month (Table 4).

**Table 4: Payments Ageing Schedule**

<b>DAYS</b>	<b>Freq.</b>	<b>Percent</b>
2	1	0.38
5	1	0.38
7	14	5.32
8	1	0.38
10	53	20.15
13	1	0.38
15	95	36.12
20	14	5.32
30	83	31.56
<b>Total</b>	<b>263</b>	<b>100.00</b>

Source: Survey Data.

Overall, farmers are happy with their relationships with their main buyer. No farmer reported that they were very dissatisfied. About 17% of the farmers surveyed were neither satisfied nor dissatisfied with the relationship with their buyers. Almost 80% are satisfied or very satisfied. Only 3% of the respondents were dissatisfied (See Table 5).

**Table 5: Overall satisfaction of the farmers with the relationship with their main buyer.**

<b>Overall Satisfaction</b>	<b>Freq.</b>	<b>Percent</b>
Dissatisfied	9	3.00
Neither D/S	50	16.67
Satisfied	168	56.00
Very Satisfied	73	24.33
<b>Total</b>	<b>300</b>	<b>100.00</b>

Source: Survey Data.

While farmers are satisfied with the relationship with their main buyer, most think it would be difficult to switch. About 73% of the farmers surveyed say that it's difficult or very difficult to switch from their main buyer. Sixteen percent are neutral and only 11% think that it's easy or very easy (Table 6).

**Table 6: The Ease of Switching the Buyer.**

<b>Ease of switching the BUYER</b>	<b>Freq.</b>	<b>Percent</b>
Very Difficult	73	24.33
Difficult	146	48.67
Neither E/D	48	16.00
Easy	26	8.67
Very Easy	7	2.33
<b>Total</b>	<b>300</b>	<b>100.00</b>

Source: Survey Data.

Farmers believe it is easier for milk buyers to find other suppliers than it is for farmers to switch buyers. About 41% of the farmers surveyed think that it's difficult for their main buyer to replace them as a supplier. Almost 27% think that it's easy or very easy, and 26% say that it is neither easy nor difficult (See Table 7).

**Table 7: The Ease of being replaced by the Buyer.**

<b>Ease of be replaced as a SUPPLIER</b>	<b>Freq.</b>	<b>Percent</b>
Very Difficult	18	6.00
Difficult	124	41.33
Neither E/D	78	26.00
Easy	59	19.67
Very Easy	21	7.00
<b>Total</b>	<b>300</b>	<b>100.00</b>

Source: Survey Data.

## Prices and Yields

On average the farmers in the sample were able to milk from their cows 5 litres per day in winter and about 12 litres in summer, ending up with 2246 litres for the year. There were exceptional cases when some farmers got about 5.5 tones of milk for the year (See Table 8).

On average, the price of milk per litre in 2005 which farmers received was 99.69 AMD, which is equivalent to 0.17 Euro (with the exch. Rate =581.14 AMD, [www.cba.am](http://www.cba.am) ).

**Table 8: The average yields and prices of milk in 2005.**

2005	Obs	Mean	Std. Dev.	Min	Max
Winter yield, lt	300	5.639	2.279686	1	16
Summer yield, lt	300	11.96867	3.267487	4	22
Total for year, lt	300	2245.967	746.7102	900	5500
Price, AMD	287	99.69	8.501702	80	135

Source: Survey Data.

## Contract Relationships

Food processors and cooperatives were the main types of buyers dealt with by farmers. Farmers also mainly deal with one buyer. However, in majority of cases when farmers had a contract with food processors and cooperatives, all of their sold output was on contract. About 74% of the respondents had written or oral contract/arrangement (Figure 2).

**Figure 2: Types of Contractual Relationships held by Farmers**

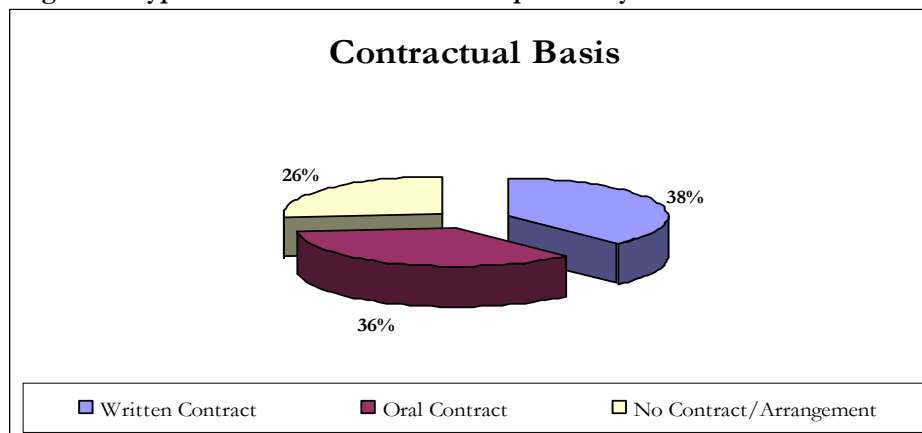




Table 9 shows the proportion of farmers who received different support dealing with their buyer. The most commonly used contract support measures by buyers were “Quality Control” and “Prompt Payments”. About 88% of the farmers surveyed confirmed that the buyers pay promptly (according to agreed conditions). Forty seven percent of the respondents mentioned that the buyers offer guaranteed prices, which itself is a support measure. About 31% of the farmers received credits and forward payments from the buyers. The main instruments used in this support measure were advance payments for milk (30%), 1 year loan (15%), from 1 to 4 month loan (about 14%) and 6-month loan (10%). In most of the cases these were zero interest loans.

**Table 9: Percentage of Farmers receiving a particular Contract Support Measure**

<b>Possible Support Measure</b>	<b>YES</b>	<b>NO</b>
Credit, Loans and Forward Payments	31%	69%
Physical Inputs	16%	84%
Machinery	2%	98%
Transportation	20%	80%
Specialized Storage	2%	98%
Guaranteed Prices	47%	53%
Veterinary Support	24%	76%
Business and FM Support	4%	96%
Harvest & Handling Support	3%	97%
Loan Guarantees	4%	96%
Investment Loans	2%	98%
Quality Control	83%	17%
Prompt Payments	88%	12%
Market Access	40%	60%

Source: Survey Data.

Farmers consider “Security of Milk Sales” and “Price Stability” as very important factors influencing their decision to sign a contract (Table 10). Surprisingly, the provision of additional services and contract support measures, which are only available if the farmer contracts, appear to be less important.

Table 10: Factors influencing the decision to sign a contract.

<b>The importance of these factors in influencing your decision to sign a contract (1-5 scale, with 1 = not important, 5 = most important).</b>			
	<b>Obs</b>	<b>Mean</b>	<b>Std.D</b>
<b>Security of milk sales</b>	<b>222</b>	<b>4.44</b>	<b>.79</b>
<b>Extra services available, only if you contract</b>	<b>221</b>	<b>3.00</b>	<b>1.41</b>
<b>Higher price than without contract</b>	<b>222</b>	<b>3.63</b>	<b>1.42</b>
<b>Opportunities to get a loan</b>	<b>222</b>	<b>3.36</b>	<b>1.43</b>
<b>Price stability</b>	<b>222</b>	<b>4.37</b>	<b>.68</b>

Source: Survey data.

The most specified articles in contracts were: price, frequency of delivery, quality requirements and mode and speed of payment. Premiums for higher quality are not a common feature of contracts in Armenia. Less than one third of contracts specify penalties for breaking the terms of agreements (Table 11)

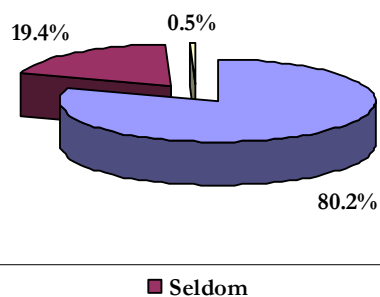
Table 11: Articles specified in the Contract.

<b>Specified in the CONTRACT?</b>	<b>YES</b>	<b>NO</b>
Price of Milk	83%	17%
Quantity of Milk that will be purchased	32%	68%
Frequency of Delivery	73%	27%
Minimum Quality Requirement	90%	10%
Mode and Speed of Payment	98%	2%
Premiums	6%	94%
Penalties for Breaking the Contract	31%	69%

Source: Survey Data.

About 80% of the surveyed farmers confirmed that their main buyer had never disrespected the terms of their contracts. For 20 per cent of the sampled farmers their main buyer had seldom disrespected the terms of their contract. Less than 1 per cent report frequent breaches (Figure 3).

**Figure 3. Has it happened to your that your MAIN BUYER has not respected the terms of the contract?**



Source: Survey Data.

### On-farm Investment

Table 12 shows the major areas where farmers have made investments during the last five years. In general, investments were made to increase the scale of dairy farming. About 29% of the farmers surveyed invested in a new shed for cattle and 33% invested in enlarging their shed. Twenty nine percent of the respondents bought new milking cows. There were areas where almost no investments were made by the farmers: buying milking equipment, cooling tanks and improving grazing pastures.

**Table 12: On Farm Investment**

	Made investment in item	
	YES	NO
a) New shed for cattle	29%	71%
b) Cattle shed enlarged	33%	67%
c) New stall for cattle	16%	84%
d) Cattle stall enlargement	14%	86%
e) New herdsman's camp	6%	94%
f) Herdsman's camp enlargement	2%	98%
g) Cattle stall modernized	20%	80%
h) Bought new milking cows	29%	71%
i) Bought new milking equipment	5%	95%
j) Bought 2 <sup>nd</sup> hand milking equipment	1%	99%
k) Bought more land	9%	91%
l) Bought new cooling tank for milk	1%	99%
m) Bought 2 <sup>nd</sup> hand cooling tank for milk	0%	100%
n) Bought or modernized fodder mixer	1%	99%
o) Bought or modernized fence for gr. pastures	1%	99%
p) Improved grazing pastures	3%	99%
q) Purchased of calves	17%	83%
r) Bought or modernized other ag. equipment	20%	80%

Source: Survey Data.

In most cases farmers used their personal savings for making on-farm investments. Relatives and Diaspora were also important money sources for farmers. Only a few farmers received loans from banks and other credit institutions to make on-farm investments.

This summary report acts as an initial step in disseminating the findings of the survey. More detailed multivariate analysis of the data will be conducted and presented in due course.