THREE-MONTH PROGRESS REPORT
LEBANON RECOVERY FUND

Reporting UN Participating Organisation: FAO

Country: Lebanon

Project No. and Project Titles:
LRF-21 OSRO/LEB/901/UNJ & LRF-21 OSRO/LEB/201/UNJ – Recovery and Rehabilitation of the Dairy Sector in Bekâa Valley and Hermel-Akkar Uplands (Phase 1 & Phase II)

Reporting Period: 1 June to 30 September 2012

I. Project Summary:

The project LRF-21 OSRO/LEB/901/UNJ, is aiming at the recovery-rehabilitation of dairy sub-sector in Bekaa Valley and Hermel-Akkar Highlands with emphasis on increasing milk production and hygiene, farm dairying incomes and living standards, especially of the poor small dairy holders. While the aim of LRF-26 OSRO/LEB/201/UNJ (PHASE TWO) is to build on the accomplishments achieved under LRF-21's activities and additionally, to reach a higher number of poor livestock farmers and improve the livelihoods of vulnerable households. Through such assistance, sustainability of the dairy sector in Lebanon would be strengthened, with emphasis on improving the quality and hygienic standards of milk and dairy products to give the farmer a higher sale price and increased income as well as maintain food safety standards and safeguard consumers' health.

In reference to the minutes of meeting of the project steering committee in 30th May 2012, it was indicated that the phase one of the project shall be terminated by the end of September 2012 as basically scheduled. The work plans for both the remaining time of phase one and that of phase two were approved.

This reporting period from 1st June to 30th September 2012 corresponds to an overlapping stage of the two phases of the project. Therefore, several activities took place insuring smooth transition from phase one (closure) to phase two (starting) that were characterized by the following:

- Final evaluation field surveys and assessment inspection visits to the different areas of the project.
- Closing up of some intervention activities and training subjects such as milk hygiene.

- Finalizing pending purchase orders and technical specifications and receiving and distribution of some support items related to phase one such as artificial insemination.
- Review the legal and administrative conditions of the cooperatives and appraise their activities and vitality.
- Intensive meetings with farmers and MOA officials concerning the "Forage cultivation and livestock production development project" and fluctuating milk prices and contracts.
- A field survey for the Minnieh – Donnyyeh area was conducted as an introduction to phase 2.
- Maintaining the milk sampling and testing activity in order to monitor milk quality.
- Preparation and distribution of extension booklets and other printed material.
- Attend to technical problems faced by the farmers and producers immediately and advising them how to improve their working conditions and final product quality.
- In the following section these activities will be cited in chronological order in order to explain the objective and the procedure and outcome. When more details are necessary, the relevant documents are attached to the annex.

Main Conclusion:

The goals of this final stage of phase one of the project Recovery and Rehabilitation of Dairy Sector in Bekâa Valley and Hermel- Akkar Uplands have all been achieved. The major concern was to finalize the last steps in the project and to insure smooth transfer from phase one to phase two. It is obvious that there are many issues require further control, monitoring, and follow up but the basis and mechanisms of these activities have been established. Such issues are the dairy cooperatives, the milk prices, and the forage and concentrate price fluctuations, milk testing and milk quality ….etc. In general the direct impacts of the project on the conditions and standards of living of the farmers were noticeable. As these farmers are weak, vulnerable, and fragile they are affected by the least unfavorable stress that they are subjected to. The cooperatives are very important to give them security and stability but many of them are still not convinced with the importance of cooperative and team work in alleviating their sufferings.

Key Recommendations:

- More emphasis and work should be done on the Dairy Cooperatives wellbeing.
- Milk testing and milk quality issues should be expanded and maintained.
- Close and direct follow up of the Forage Cultivation and Livestock Production Development project should be insured.
- Close monitoring and follow up of the milk collection and cooling centers and milk transportation trucks should be maintained.
- Close monitoring and follow up of the small dairy processing units must be regular and continuous.

III. Major activities implemented during the reporting period:

1. Follow up to Jroud El Hermel Goat / Sheep Dairy Coop :

As a regular practice of making visits to different project areas, seven field trips were arranged to Hermel and Jroud Hermel – Donneyyeh area. The Jroud El Hermel' Goat / Sheep Dairy Coop composed of 50 poor farmers practicing transhumance with their flocks (goat & sheep) was supported with the following dairy equipment:

- 2.5 tons diesel refrigerated truck specially equipped for milk cans cooling and transportation to the milk producers' cooperative of Jroud El Hermel
- 60 S.S milk cans with filters
- 8 Cream separators and 2 butter churners
- 6 units for home processing

The following sites and issues were inspected:

- The milk refrigerated transportation truck that was found to be in satisfactory condition and being operated efficiently in collecting and transportation of the goat milk to final dairy plant customer. The cooling system is working perfectly.

- Ain El Bayda dairy processing plant that belongs to the Jroud Hermel Cooperative. This center was provided with a mini dairy processing plant and is operated by Hasna Abdallah. She is producing Labneh and baladi cheese from goat milk. She is doing a great job given the prevailing conditions in the high remote mountains, the coop requested a cheese press which was immediately approved by the project.

In the initial plan of the project it was stated that the home or farm dairy processing shall be supported to improve the hygienic and food safety standards of the cheeses and yogurts produced at home and farm levels. Home and farm milk processing gives the farmers added value to their milk thus increasing their income and raising their standard of living. The Stainless Steel manual cheese press is an essential component in dairy processing where cheeses are the major output. In some places similar to this location in remote areas they usually employ traditional non hygienic methods of production and they use dirty wooden boards or tiles and stones to press the cheeses. Many use their own bare hands to perform this job with all the hazards of contamination that are involved. In an immediate and logical reaction to this situation the modern cheese press was provided.

It was noticed that the mini dairy production unit used in this cooperative was not enough so it was replaced with medium size unit of 250 liters pasteurizer along with its accessories of big table and Labneh bag hanger and electric cream separator, and butter churn.

- The cooling tanks (1300 liters and 500 liters) and electric generator (11 KVA) were provided in an emergency condition due to the heat wave that hit Lebanon causing the evening goat milk to sour. Big losses were incurred on these poor farmers before the problem was solved by securing the milk coolers and generator because they do not have

electricity there. The Coop is profoundly pleased with this mobile milk collection and cooling center.

- The Goat and Sheep herds and shepherds that were roaming in the mountains. We found many cases of enterotoxaemia [1]that required fast action; the project manager gave direction for veterinarians to start immediate vaccination of 3000 heads, a total of 10 000 heads (goat & sheep) were vaccinated.

- A monitoring visit was made on 7th of September 2012 with Mrs. Lyn Eid (LRF Monitoring and Evaluation officer) to inspect and monitor the activities at Jroud El Hermel Akkar areas.

Conclusion: The project support to the Jroud hermel Akkar was vital to transhumant goat / sheep farmers. The cooling centres and the truck to transport milk to dairy plants have significantly empowered the Coop in milk marketing and in improvement of milk hygiene that contributed in getting better milk prices: 1000 l 1400 LL instead of 650 ─ 800 LL before project interventions.

2. Training session on milk hygiene and cleaning:

The farmers and producers have always enquired about the best methods to clean and disinfect their milking and processing equipment. They also wanted to know about the good quality detergents and disinfectants available in the market and where they can purchase it. A training session was organized on 26 June 2012 at the Sugar Beet Cooperative in Zahle where a reminder of the cleaning procedures along with the proper hygienic conditions for producing good quality milk was emphasized by the National Consultant and the project team. Seventy local major milk suppliers, managers of milk collection centres and veterinarians were invited to display their cleaning and disinfecting products and equipment. They explained to the farmers the advantages and the directions of use of these items.

3. Field survey of Minieh and Donnyeh areas:

A field survey for the Menieh – Donnyeh area was accomplished in preparation to the interventions to be taken there in junction to phase one and phase two. Through field visits to samples of farmers (80) and data taken from regional MOA Office in the North, It was found that 97% of the dairy farms are very small and have less than 10 cows per farm. Most of them have 1 or two cows as shown in the table below. We found that it is very important to help them in ways to increase their herds and improve their production. The surveying activities will continue in details during November and December for two purposes:

[1] Enterotoxemia is a bacterial infection caused by Clostridium perifringes which affects several types of domesticated animals such as Cattle, Sheep, and Goats but is not known to affect humans. It is also known as overeating disease and can kill the animals within 2 hours. Regular and timely vaccination programs are the only measure to prevent Enterotoxemia where it is enzootic as it is the case in Lebanon.

1) Identification of project direct beneficiaries to be supported with material to be provided in phase TWO through the fund transferred from project LRF 14 to LRF 26 and it will include many items such as milk cooling tanks, milking machines, mini dairy processing equipment etc…,

2) Formation of dairy cooperatives and capacity building in Phase two of the project. Some activities that are included in phase one and phase two have already been undertaken for the Minieh – Donniyeh areas. For example the technical specifications for the material support items, and the field survey and related issues have also been started.

Distribution of dairy farmers Minieh – Donniyeh areas:

Farmers in Menyeh & Doniyeh	Number	Percentage
1 Cow	137	45 %
< 5 Cows	273	90 %
< 10 Cows	293	97 %
> 10 Cows	9	3 %
Total Number of farmers	302	100 %

4. Follow up of milk price fluctuation to Protect Project' Dairy Beneficiaries.

4.1: Narrative

The milk price has always been a very important issue in the schedule of the FAO dairy project. It is the decisive factor that dictates the profitability of the dairy business. In addition to that, the cost of production where the feed prices are the most pronounced will determine the prosperity of any development project. Nothing will make the farmer cooperate with the MOA or FAO or any other organization if he is not touching an improvement of his income and standard of living.

Towards the end of 2011 the price of milk started to drop very rapidly and it reached 700 L.L. in many places. During the summer of the same year the price went up to more than 1300 L.L. These serious fluctuations were reflected on the farmer's well being and income. Many sold some of their cows in order to pay for concentrates and TIBN to feed the remaining cows. H.E. the Minister of Agriculture Dr. Hussein Al Hajj Hassan was aware of this situation and gave his direction to the project team to investigate and evaluate the prevailing conditions.

A field survey that involved several dairy processing plants, milk collection and cooling centers, and milk dealers was conducted on the first week of December 2011. This survey was followed by several meetings and activities related to the topic of milk price were conducted with the direct involvement and participation of the FAO project. As a result of these interventions the milk price has been stabilized and contracts between the dairy cooperatives and the dairy processing plants were signed. In addition to that and by the efforts of H.E. the forage cultivation and livestock production development project was launched. The idea was to reduce the cost of milk production and encourage Forage Cultivation. This project is supported by a budget of almost 100 million USD over 5 years. It is expected to improve the profit margin of the dairy milk producer and improve his income.

4.2: Project' Intervention through a Meeting held on 26th July at the MOA:

On 20/7/2012 the Follow-up Committee for the milk price held a meeting in the presence of all its members and attended by the FAO project team. This meeting was a continuation of the previous meetings and at the height of the surprisingly increased prices of concentrated feeds. This increase made the previously assigned milk price in February 2012 inadequate to cover the cost of production. The price of concentrates has risen during one week from 410$ to 480$. The committee has recommended the increase of 100 L.L. for one kg of milk and immediate implementation of the forage subsidy project. Many farmers started selling some of their cows to feed the others due to financial hardships. Emergency action had to be taken immediately. FAO project under the guidance of Dr. Kayouli made a comprehensive market study on the cost price of the concentrated feed prepared according to the dictated formula along with other types of livestock feeds. Following are the results of this study:

- The selling price of one tons of concentrate feed prepared as directed by the project is 486 $ or 730000 L.L.
- The selling price of (TIBN) chopped wheat straw is 500000 L.L.
- Recommended price of refrigerated milk delivered at dairy processing plants is 1100 L.L./Kg
- Recommended price of non – refrigerated milk at the farm is 975 L.L. / kg.

On 26/07/2012, in an expanded meeting in the Ministry of Agriculture headed by Minister Hussein Hajj Hassan and the presence of all the stake holders and workers in the of sectors of production, sales and manufacture of milk. After discussions and deliberations and interventions of most attendees the following decisions were reached:

1) The MOA has already approved a subsidy and support project for growing and production of dairy feeds with a budget of 125 million dollars spread over the coming five years.

2) The formation of the National Committee of milk headed by Dr. Salah al-Hajj Hassan and assisted by FAO Project Manager. The Dairy cooperatives, the farmers, the dairy processing plants, the milk traders and feed producers and traders have to be represented in this committee. This committee will be responsible for::

   a) The implementation of the "Forage cultivation and livestock production development project."
   b) Meeting monthly or bi monthly to determine the price of milk according to the varying price of feeds utilizing the formula proposed by Dr. Kayouli concentrated feed price X 1.5.
   c) Prepare and supervise the mandatory contracts between the cooperatives and the dairy processing plants and milk traders.
   d) Recommend and organize efficient and fair mechanisms to pay the farmers as fast as possible as the small farmers are the weakest link in the milk chain.
   e) Determine and update the acceptable quality standards of milk that has already improved a lot but we look for more improvement.
   f) The new price of milk has risen from 1025 L.L. to 1100 L.L. for the refrigerated milk delivered at the dairy processing plant and 975 L.L. for warm milk at the farm.

3) It is very important that all the chains of the milk chain be cooperating and interacting efficiently and transparently to save the milk sector in Lebanon. These chains are growing and production of forages and feeds, dairy farming and milk production, refrigeration and transportation of milk, dairy products processing, and marketing and serving the final consumer. The MOA and the LRF FAO project will do their best to maintain smooth and fruitful relations among all the concerned parties."

4) The minister emphasized that the MOA is aware that the weakest ring in the milk chain is the small dairy farmer. The MOA also appreciates the important economic role played by the dairy processing plants in helping the economy and supporting the dairy sector. Milk quality is a very important issue that is emphasized at all levels and stages.

5. August – September 2012 Renewal and constitution of new cooperatives:

On different dates of August and September many individual activities took place in relation to the dairy cooperatives that are considered our main connection with the farmers. A close review of the legal conditions of the dairy cooperatives has been made with the assistance of the regional cooperative department head in the Bekaa. Most of the cooperatives were helped to renew their legal association with the MOA cooperative administration. Details are below presented:

Dairy Cooperatives Status
Elections of new administrative board for each Dairy Cooperative

Dairy Cooperative	Status	Date	Coop President
1. Nassriyi Coop	Renewed	24 – July - 2012	- Abbas Tarchichi
2. Gazza Coop	Renewed	3 – August 2012	- Ibrahim Majzoub
3. Kafarmechki Coop	Renewed	9 – August – 2012	- Rola Al Farekh
4. Baalbeck coop	Renewed	17 – August - 2012	- Achraf Hssein Zein
5. Kherbet Roha Coop	Renewed	23 – August – 2012	- Ali Al Kerdi
6. Terbul Coop	Didn't come to an agreement	1st September 2012	(The project will invite farmers' for general assembly)
7. Jouroud Hermel	Renewed	9th September 2012	- Hassan Mortada
8. Jouroud Tarayya Dairy Coop "Halibouna"	Establishment of new Coop	2 – July – 2012	- Fatme Hamiyi
9. Britel Dairy Coop - Al Rida	Establishment of new Coop	28 June 2012	- Abbas Mazloum
10. Masharih Lkaa	Renewed	24 September 2012	- Mohamad Kronbe
11. Hosh Al Sayed Ali	Renewed	7th October 2012	- Hassan Hamed Bazzal
12. Shlifa Coop	To be renewed	18 October 2012	- Samir Saklawi
13. Zahleh Coop	To be renewed	22 october 2012	X
14. Forage Cultivation and Marketing Cooperative.	Establishment of new Coop	6th of September 2012	- Salim Ghossein

15. AL Sawiri dairy Coop	**Establishment of new Coop**	**9 October 2012**	**- Diab Janbeyn**
16. Hawsh Harimi Coop "Goats"	**Establishment of new Coop**	**25 September 2012**	**- Mahmoud Khoder**
17. Hosh Annabi Coop	**Pending**	**Expired 22 – 7 – 2012**	**X**
18. Hermel Coop	**Pending**	**Expired 24 - 8 - 2012**	**X**
19. Bazzaliyi Coop	**Pending**	**Expired 17 – 8 – 2012**	**Will be merged together**
20. Rassem Lhadath	**Pending**	**Expired 17 – 8 – 2012**	
21. Al Marej Coop	**Will be renewed**	**29 – 10 – 2012**	
22. Kherbet Kanafar	**Will be renewed**	**30 – 11 – 2012**	

6. August and September 2012 meetings related to the Forage Cultivation and Livestock production Development Project:

- As a new project the "Forage Cultivation and Livestock Production Development Project" requires lot of explanation and modifications in order that the first steps of launching be sure and strong. The forage and dairy farmers and the producers of concentrated feeds were very happy with the project but in the same time they were confused on many issues that they couldn't understand. Although the procedures seem to be very simple, many individual cases were faced with ambiguity. The project team arranged for meetings with the presidents and members of the dairy cooperatives and explained the steps to be taken in order to apply and be eligible to benefit from this support project. A general meeting was called for by FAO dairy project in Zahle where a large number of farmers attended and the MOA consultant Dr. Salah Hajj Hassan attended and explained the proposed procedures for forage crop farmers and dairy farmers and concentrated feed manufacturers have to follow and benefit from the project. Additional explanatory and regulatory meeting were called for at MOA at different dates to clarify any ambiguity that was present. Many farmers came for help at the FAO dairy project office in Zahle and their inquiries regarding the above issue were answered.

- The first launching meeting, initiated by the LRF Project, was called for at the Sugar Beet Cooperative in Zahle on 4 / August / 2012 where many farmers and participants in the project attended. Dr. Salah Hajj Hassan representing H.E. the minister headed the meeting and was helped by the LRF FAO dairy project' Manager. He affirmed that the success of this project depends on the cooperation among all the parties concerned and their understanding and compliance with the implementation mechanism. The cooperatives bear the biggest responsibility in helping the small farmer that does not have the ability or facility to make good and efficient use of the support granted by the project especially when it comes freight and transportation costs.

- We as a FAO dairy project do not interfere in the administrative procedures of the subsidy project but rather we play a technical monitoring role on quality of feeds and to prevent adulteration and abuse. Using the posters and booklets, the LRF project Manager explained the correct methods of production of corn silage and the proper feeding schedule of the same important roughage. Then tables of the manufacturers and traders that signed contracts with the MOA to supply the concentrated feed to farmers were distributed. Only those that comply with the legal conditions were selected. The total numbers of concentrated feed manufacturers and traders that applied and were found eligible is 18 and they are distributed all over Lebanon. **(Please look at Annex E**) There are some manufacturers and traders that are not legally registered in the Ministry of Industry or Ministry of Finance or other official references and could not be contracted with. Few others refrained from applying due to private reasons or due to lack of conviction. These 18 traders and manufacturers are the largest and most famous in Lebanon while the vast majority of feed manufacturers and traders are small local unregistered businesses. Talking about the large and prominent traders we believe that more than 75 % of them has applied and accepted.

Dr. Hajj Hassan explained that the support project is divided into two sections:

- First: It deals with the farmers that cultivate and produce forage crops such as corn silage, Alfalfa Hay, Barley Vetch combination, Rye grass, etc… The farmer that applies to the MOA

and is approved by the inspectors that he has planted such crops shall get a support annual premium of 50,000 L.L. per Dunum.

- The first section also includes the official contracts between the concentrated feed producers and traders. These contractors agreed to produce and sell livestock feeds to farmers that show the support vouchers granted by the MOA at a price lower than the market price by 25%. Then the MOA will settle these differences on monthly basis according to a statement submitted by the producer or trader accompanied with the farmers support vouchers. These manufacturers and producers should comply with the formula of ingredients and composition of the feed. Also they should use new bags of 50 Kg capacity with a special label for the name of the project and the formula utilized.

- Second: It deals with the dairy farmer that has to fill an application at the local or regional office of the MOA. A special committee will make an inspection visit to the farmer to make sure that the information provided in the application is correct. The number of cows is a decisive in determining the quantity of support required. For each milking cow 75 Kg of free concentrate is allocated per month this is calculated as 25% of the total quantity required for the small farmer (< 30 cows) and 20% for farmers with more than that. This subsidy is translated into 55 thousand Lebanese Pounds per cow per month in addition to the expected improvement in the health of the cow and the quality and quantity of milk.

- On Saturday 25 August 2012 a meeting was held at the office of Eng. Khalil Akl the regional Agricultural Director in Zahle. It was allocated for the dairy cooperative presidents and the employees concerned with the distribution of the feed and forage support vouchers. The mechanism and procedures that should be followed were emphasized by Eng. Akl and LRF Project' Manager.

- On Saturday 1 September 2012 another meeting at Eng Akl office was held. This time the forage factories, dealers, and traders were invited. Directions and instructions on how to implement the forage support project properly were discussed.

- After the directions of H.E. Minister of Agriculture, we started on 29 / 8 / 2012 collecting random samples of concentrated feeds from different suppliers and farms that are associated with the forage support project. These samples were given numbers and sent to the laboratory for analysis. The results were studied and found satisfactory in general. A report was sent to the Minister regarding the issue. ***(Copies of letter and results averages are available in the annexes A and B)***

- The Fourth meeting took place on Friday 21 September 2012 at the Minister's Office in Beirut and was attended by many farmers, dairy cooperatives, forage producers, and concentrate manufacturers. H.E. Dr. Hussein Hajj Hassan heads the meeting and listened patiently to all ideas and complaints regarding the forage project. Dr. Salah gave a brief presentation about the quality of the concentrates being produced and sold to the farmers. These concentrates were satisfactory in general. Better compliance with the general conditions of packaging and cleanliness of products and premises should be insured. To solve the problem of poor small farmers that cannot pay in cash the total quantity of concentrate (75 %) H.E. decided to let the farmer pay for one ton of feed for every ton he gets free from the support program.

7. Follow up and general assessment of interventions:

Towards the end of Phase One of the LRF 21 it was necessary to investigate the actual impacts and outcomes of the interventions all over the project areas. It was our target to see for ourselves the different interventions that the project has launched and their direct and indirect impacts over the individual farmers, cooperatives, and community. It was very important for us to know how the material support items that were provided to the cooperatives and farmers are being utilized. Our major concern was to hear any complaints and to see if there are any modifications that should be made to these items. The major inspection sites were as follows:

- The Dairy cooperatives and their activity and vitality the result of which is tabulated before. The importance of these cooperatives is that they are the routes for our interventions and liaison with the farmers.

- The milk collection and cooling centers that are scattered all over the areas from Akkar to Rachayya have very important impact on milk quality and milk price. The ten milk transportation trucks that are associated with these centers are being utilized in a satisfactory manner and some of them are serving more than one milk collection center. The farmers are very happy and the managers of these centers ask for more cooling capacity. More milk transportation trucks are being asked for in many centers that are still depending on the dairy processing plants transportation facilities.

- Dairy processing equipment that include 11 medium and 125 mini size units. In general most of these equipments are being used regularly and very efficiently, while some are being used seasonally. More units are required and many producers that have mini units are asking for medium size units or to increase the number of the mini size pot pasteurizers.

- Milking machines that were granted to about 367 small dairy farmers mainly women are being used properly. The only drawback was the lack of electricity in many areas that affects the efficient utilization of these machines. These machines made the life of these women easier. Along with 1200 stainless steel milk jars with filters that were given to small farmers, these milking machines altogether with stainless steel milk jars and detergents played a key role in the production of cleaner and healthier milk.

- Milk quality and hygienic standards have been improved to an advanced level that is now considered satisfactory due to the distribution of milk analysis equipment (such as automatic milk analyzers, PH meter, etc ....) and many milk sampling and testing cycles that were carried each season by the project team. Continuous control, monitoring, and testing for milk is required in order to maintain the advancement in quality and hygienic conditions. Each individual farmer used to receive regular reports on his milk with remarks and recommendations to improve the quality of his milk physically, chemically, and biologically.

- Conducting many regular training sessions for farmers in different areas, concerning different topics such as: Home dairy processing, forage feeding and nutrition, and milk hygiene and safety... The training sessions and extension booklets have significantly contributed to improvement of dairy farm management and milk quality.

8. **Milk testing and results:**

One of the most important goals of the project is the general improvement of raw milk quality. Milk quality is a decisive factor in milk pricing and it directly affects the income of the farmer and the health of the consumer. In order to study and evaluate the impact of the project interventions, we have to continue what we started on milk testing and to replicate these tests (fourth phase) to follow up the anticipated improvement of milk quality.

This fourth phase of milk sampling and testing has been launched in the Bekaa Area (Central Bekaa, West Bekaa, Baalbeck and Hermel casa) and will be continued in Akkar area and other areas in the Bekaa when security conditions permit.

A total of 433 raw milk samples were collected during this reporting period and tested for the following major test categories:

- Biological and microbiological tests
- Physical tests
- Chemical tests
- Adulteration tests

The bacteriological analysis was conducted at the pilot plant of the Bekaa while all other tests were made by our team at our own small laboratory.

After receiving the results from the laboratory, every farmer was provided by a copy of the test results of his milk with remarks and recommendation for improving and solving detected problems (an example of report is indicated in annex F).

The project team continues to test and analyze milk samples from the same farmers at intervals to see if the improvement is maintained or the malady has been recovered. When the situation is serious the dairy advisor of the project will visit the farmer and investigate the conditions and find solutions to the problems.

These tests will be considered as one of the quantitative measurements of the project progress and achievements, and we recommended that the tests should continue and expand in order to monitor the milk quality all over Lebanon. **(See Annex - C - for Averages of milk testing results during the 4th Phase).**

8. Procurement of new batch of Automatic Milk Analyzers:

- As the milk quality issue is a very critical matter in our project, it is important to enhance the ability of the primary milk collection centers and other related facilities to accurately and quickly test raw milk.

- In response to the intensive demands and requests by the Village Dairy Producers Associations and the milk collection centers for a good quality of Automatic Milk Analyzers, the project team prepared the Technical Specifications for the equipment required with a schedule and deadline for bid invitation and delivery and a list of potential Automatic Milk Analyzers suppliers in Lebanon.

- After selection of the suitable supplier who is the most competitive, the equipment (19 Automatic milk Analyzers) was ordered and delivered to project office in Zahle on the 6th of August 2012. After testing and experimental trials, we started distributing these machines. These machines are designed to be used at the milk collection and cooling centers, in the milk transportation trucks, and in mini and medium dairies. No machines were given unless intensive training on operation cleaning and maintenance is insured.

  Each milk collection and cooling center is required to provide a copy of the milk analysis results accomplished at each center. Furthermore; during our regular field inspection visits to all sites including milk collection centers we make sure to check the Automatic Milk Analyzers functioning and maintenance. We also ask the operators of these machines to perform some tests using this machine in order to make sure that they are using it properly.

9. Provision of additional dairy equipment and supplies:

a. *Small Dairy Processing Units:*

After the distribution of 136 small dairy processing Units to poor farmers and small producers mostly women in Bekaa and Akkar areas during a ceremony held in February 2012, the FAO dairy project team carried some inspections and got some feedbacks from those beneficiaries. It was found that these home processing units contributed in improving the quality and hygienic standards of milk and dairy products to safeguard the Lebanese consumer and improving dairy products' prices. It is our objective to upgrade and improve the capabilities and skills of many small dairy processors who still use utensils and equipments that are rudimentary and primitive with low profile hygienic conditions. In response to the demand of many small farmers and producers that do home and farm house dairy processing the project decided to provide additional small dairy units to needy farmers and producers mainly women. The major output is to improve the working conditions and to increase the output and volume of production and consequently the income of these poor producers.

The same suppliers were chosen since their products are satisfactory and the bid invitations were still valid and the Purchase Orders' period didn't exceed the limit of one year. Ten additional dairy home processing units were ordered (Each processing Unit contains: Stainless Steel pasteurizer, SS working tables, SS Labneh Bag hanger, fire places, butane gas burners, food grade plastic buckets, food grade plastic cheese moulds, milk thermometers) also electrical cream separators and electrical butter churns were delivered.

Those dairy processing units were received as follows:

- 6 Complete SMALL dairy processing units received on 27 June 2012

- 4 Complete MEDIUM dairy processing units received on 16 July 2012
- 10 electrical butter churns and 10 electrical cream separators received on 16 July 2012.

Finally those 10 micro and medium dairy processing units with some supplement equipment were distributed to the neediest farmers after many inspections carried out by the project team. Names of the most deserving beneficiaries were selected transparently and with fair geographical distribution plan. The project adopted transparent and fair criteria for beneficiaries' selection. **(Annex - D -: List of Additional Dairy Processing Units' Beneficiaries)**

The selection criteria for the micro (small) dairy processing units:

- The farmer is a milk producer and performs home processing of about 50 – 100 kgs of milk daily.
- The farmer is a needy farmer that depends completely on milk production and milk processing as a source of income.
- The farmer is a member of a dairy cooperative.
- She or he has to be subjected to intensive training session on dairy processing.

The selection criteria for the medium size dairy processing units:

- The farmer or producer is a member of a dairy cooperative and a milk collection center.
- The quantity of daily milk processed should be at least 200 – 500 kgs.
- The milk collected has to be from many small dairy farmers not one big farmer.
- They have to attend and comply with the instructions and directions given at workshops and training sessions conducted by FAO dairy project.

b. Milk Cooling Tanks:

- After the distribution of 51 milk cooling tanks with 10 milk pumps, 10 milk reception tanks, and 10 milk electronic balances during the first half of the year 2012 and the establishment of more than 30 primary milk collection and cooling centers in Bekaa and Akkar areas, the FAO dairy project team carried out some inspections and got some feedbacks from the beneficiaries.

- It was found that those centers were serving a huge number of small dairy farmers (around 2000). More cooling capacity was needed and new centers were required. The 31 milk collecting and cooling centres are helping in the quick and fast cooling of raw milk and maintaining its good quality. It is good to mention that each centre is equipped with milk cooling tanks, milk reception, filtering and pumping facilities, laboratory equipment and powerful electric generators.

- In response to the intensive demands and requests by the Dairy Cooperatives for more cooling tanks to increase their current collection and cooling capacity. We know also that some of the already established milk collection and cooling centers have not been yet equipped with milk cooling tanks and accessories. In order to satisfy these urgent needs and to establish more new milk collection and cooling centers the FAO Dairy project decided to purchase additional milk cooling tanks and some extra accessories necessary for the milk collection and cooling centers.

As it was mentioned at the beginning of this chapter, fifty one milk cooling tanks were distributed in 30 strategic locations all over the project target area. These 30 primary milk collection and cooling centers were very essential in solving several problems and drawbacks at the same time. They insured fast cooling for the raw milk and short trips from farm to cooler. They insured fast testing of the milk before adding to the rest of the milk. They allowed the ability of using milk transportation trucks to take the milk hygienically to the processing plants. All in all they insured better milk quality and safety. These reasons were in our mind when we first decided on this very important intervention application at the original work plan of the project. These reasons are still valid and as we discovered that more cooling tanks are necessary to increase the holding capacity of the standing centers and to establish new centers, we decided to purchase more cooling tanks to fill the current gap. Our experience and field findings verify that much more cooling capacity is needed to reach complete coverage but as our financial resources are limited we had to take what is available. The source of the extra funds to purchase these cooling tanks was spent from the mutual agreement contract between the MOA and the FAO (US$ 430 000).
The additional milk refrigerators were received on 10th of September 2012:

Item	Detail	Number
1	Milk Cooling Tank (Capacity 2000 Liters)	6
2	Milk Cooling Tank (Capacity 1000 Liters)	4
3	Milk Pumps	8
4	Milk Reception Tanks (200 – 250 L Capacity)	6

- These milk cooling tanks are being installed in the new centers that satisfy the required conditions one after another. These centers that belong to the Dairy Cooperatives are also equipped with some accessories such as reception tanks and milk pumps. Such new center is the one furnished in AL Dalhamiyi region that belongs to Zahleh Dairy Cooperative.

d. The Procurement of 5 cheese presses:

The small dairy producers that were provided with medium size dairy processing equipment were very anxious to use the cheese presses that they see at some dairy plants. They were impressed by this machine has improved the quality of cheeses and facilitated the work of the women producing such dairy products. After many intensive requests from many dairy cooperatives to provide them with such cheese presses and after the necessary inspection procedures that are required in such cases were conducted, the project found that 3 cooperatives that have small dairy processing units provided by the project and regularly produce dairy products deserve such equipment. The Project prepared the technical specifications of such cheese presses and sent bid invitations to local suppliers. The best combination of price/quality combination was selected and the cheese presses were ordered. The 3 cheese presses were distributed as follows:

- Hassnaa Abdallah, from Jouroud Al Hermel Cooperative: received the cheese press on 4th July 2012.
- Rola Al Farekh, from Kafarmechki dairy Coop: received it on 26th of September 2012.
- Souad Saklawi, from Shlifa dairy Coop: received it on 25th of September 2012.

10. The renewal of Milk Transportation Trucks' Contracts

- A very important gap in the milk cycle is the transportation of milk from the farm or the collection centre to the dairy processing plant. The method that was employed in most cases is the utilization of open trucks where the milk is placed in non hygienic metallic or plastic containers exposed to direct sunlight and road dust. The project had settled this gap under the guidance of H.E. that has released the mobilization of 10 milk transportation trucks owned by the Ministry and have been parked and depreciating since they were delivered (9 years ago). H.E. signed a delegation that authorizes the FAO project to handle the lending of these trucks to the farmer's cooperatives under strict rules and conditions to be used in the transportation of milk.

- The remobilization and utilization of these Milk Transportation trucks has led to improve the quality of the milk delivered to dairy processing plants, and since more than 100 tons / day of milk is now transported in a safe and hygienic means giving dairy Coop's more negotiating power to bargain for better price for their milk. LRF FAO project has handled the lending of these trucks to Dairy Cooperatives under strict rules and conditions to be used solely in the transportation of milk, this lending is governed by means of contracts signed at the notary public where 3 parties should sign approve, the dairy coop president, the project manager, and the MOA representative. During the first 2 weeks of September 2012 the project had renewed 9 leasing contracts of those transportation trucks and extended the period of lending till the 31st of March 2013.

11. Extension Booklets and posters on Corn Silage:

- Knowing that the feed price constitute 70 % of the cost of milk production, and in order to help farmers reduce their production cost, the Lebanese Minister of Agriculture passed a project to subsidize Forage Crops Cultivation and Production. As the FAO Dairy Project works in continuous collaboration with MOA and aims to encourage farmers on Corn Silage cultivation, the project team had prepared a handbook manual about the importance of CORN SILAGE and the procedures that should be followed for its cultivation, huge colorful posters on the same topic were also prepared.

- It is a colorful book with lot of photos and demonstrational diagrams. The major emphasis was made on the steps followed for corn silage cultivation, storage and utilisation by dairy cows. Emphasis was also made on good feeding programs where corn silage is the major roughage. This booklet aims at educating farmers and guiding them on the best methods of land preparation and cultivation of Corn silage and also on proper feeding. About 5000 copies of this booklet were prepared and distributed to all farmers, dairy plants, veterinaries, milk dealers and forage factories in all Lebanon regions, in addition to that about 5000 copies of these Posters were also spread.

IV. Constrains Faced by the Project During the Reporting Period.

Introduction:

As the project is at its final stage, we were faced by new constrains that affected the impacts of the project interventions. Most of these confinements were related to the general security and logistic conditions of the country. Some are due to the mentality and attitudes of the stakeholders and beneficiaries. Many areas were not accessible due to security reasons such as Akkar and Masharee El Qaa. Lack of electricity has been a very important drawback that affected the interventions at the small holder level where no generators are available. Many of the constraints and lessons that were mentioned earlier in the last report of June 2012 still persist.

Constrain № 1: The fluctuating price of milk.

This is a continuous problem that will persist as long as there is conflict of interests among the concerned parties. The serious fluctuations in milk prices have been reflected on the farmer's well being and income. Many of them sold some of their cows in order to pay for concentrates and TIBN to feed the remaining cows. The situation reached very serious levels and many farmers were almost broke. Many small farmers were obliged to close their farms and look for other source of income. The farmers continued to come to the FAO office in Zahle on daily basis to complain about the matter. During these three months several actions has been taken and many decisions were enforced, but every time one party will find a hole to break the agreement.

As an independent international body we do not have any legal authority to enforce or to impose agreements. On the other hand our good relations with all parties gave us an excellent position to play an intermediate role between the milk cooperatives and the dairy processing plants. We utilize the trust and confidence that we gained over the past years to solve rising problems or

disputes between the contractors. This mission should be taken over by a special team of trusted employees of the MOA.

Constrain № 2: Restriction on movement due to security conditions.

The current prevailing security conditions in Lebanon as mainly reflected by the situation in Syria have forced the UN security authorities to restrict our movement to the minimum. Furthermore; there are many areas that are prohibited to go under any circumstances such as Al Qaa, Masharee Al Qaa, Akkar, Wadi Khaled etc…. It is also important to mention that these unfavorable conditions have been reflected on the activities and efficiency of work of the cooperatives, milk collection centers, and farmers located in these areas. We can confirm that these unstable conditions are affecting everything in the country and especially the most vulnerable poor small farmers.

Constrain № 3: Lack of electricity in all rural areas.

FAO project has provided generators for the milk collection centers where electricity is an absolute necessity. The rated power of these generators was between 7.5 KVA to 30 KVA. Smaller generators for smaller equipment such as milking machines are not feasible. Furthermore; it is not practical for many farmers to share one big generator because the farms are not that close to each other as one may think.

All the rural areas suffer of severe lack of electricity. Big and large farms and dairies have their own private generators or connected to a private generation plant. Small farmers and producers have no access to electricity and cannot afford to purchase a generator or connect to local generators. We have noticed that many electrical milking machines that were given to poor farmers were not being used regularly because there is no electricity. Some dairy producers of the mini scale were not also able to use their processing equipment because they don't have cooling facility due to power shortage. In general lack of electricity made some of our interventions at the small size holders to lose their effectiveness and efficiency.

Constrain № 4: Cooperatives in efficiency and inadequate legal conditions.

A close review of the legal conditions of the dairy cooperatives has shown that most of the cooperatives needed help to renew their legal association with the MOA cooperative administration. Some of them were so inactive and completely inert that they were dissolved. The lack of team work spirit and cooperative attitude are major retarding factors in the development of dairy cooperatives. It was also found that the association between the cooperatives and the private sector is not always beneficial to the cooperatives if not balanced and well organized.

Constrain № 5: Familial and political conflicts in the same village or cooperative.

In many rural areas the families and clans are centers of power and authority. Unfortunately, these family ties that are supposed to be a good source of security and wellbeing, they are being abused for personal and private benefits. They contradict with normal development programs as each family or clan wants to own everything and have control on all assets. They prefer to deprive their community from all benefits if they were not the people that have control.

Constrain No 4:

FAO dairy project team keeps complete files for each dairy cooperative that includes copies of all the legal documents and papers related to that cooperative. We have a calendar for the dates and appointments of due legal updating. We contact the president of the cooperative to remind him of these appointments and sometimes we accompany them to the respective office to help them in accomplishing the necessary work. We try to watch and audit the record books of each cooperative in order to ensure transparent and honest financial accounts. We confess that we were not always successful in our mission. We encourage more participation and involvement in the management of the cooperative by all members. For more elaboration on this issue please refer to the next chapter number V (Lessons Learnt) lesson number 5.

Constrain No 5:

The family bonds and effects are very strong and are very hard to penetrate. Intelligent and cautious steps should be taken when dealing with these issues. Usually we have to make contacts with the head of the family in order to influence the rest of family members. We admit that this is not a pleasant assignment but usually there is no other ways out. Please look at lesson No 7.

V. Lessons Learnt During the Reporting Period.

Lesson № 1: Always take into consideration the economic translation of the interventions.

We should not forget that the main objective of our project is to improve the life standard of small dairy farmers and producers through increasing their income. Anything which compromises that goal will render our project useless. This is what actually threatened our project objectives when the milk prices went down drastically. The farmers were producing larger quantities of milk with better quality but were obliged to sell it at a price lower than the cost of production. A red alert was flashed and the FAO team with the support of H.E. Minister Hajj Hassan declared an emergency condition. A committee that represents all parties was formed to follow the cost of milk production and modify the milk price accordingly. This agreement and committee were endorsed by the MOA. The most progressive and well planned development dairy project in the world will be useless if the dairy farmers are broke and the dairy farms are closed.

Lesson № 2: Be patient but persistent.

This is a lesson that still needs to be learnt at all stages. In dealing with governmental and official organizations one should expect lengthy sufferings of the administrative routine and institutional ordinal. It is very easy to get responses like yes and OK from people, but you should keep in mind that is not a guarantee that the matter is settled. The only way to make a person or employee to fulfill his or her commitment is by exerting enough positive pressure (incentives and rewards) or negative pressure (supervisor’s or high ranking back up). Daily follow up with the correct people can produce better outcomes.

Lesson № 3: **Unexpected field visits give better idea on how things are going**.

When a scheduled field visit is made the target will make the necessary clean up and updating so that they give a good impression to the visitors. Unexpected visits although surprising and not welcomed by most parties, is the best way to really know what is going on. In one case for example when we visited one milk collection center after making an appointment with the manager we found everything clean and in place. After about two weeks we made another unexpected visit and found the center in a very miserable condition by all what the word miserable means. It is not enough to depend on the reports and records submitted by the beneficiaries because they may not reflect the actual situation and proper operation. True and honest data is very essential for follow up and control over the sustainability of the project interventions.

Lesson № 4: **Be friendly but strict with the farmers.**

Most of the farmers and stake holders appreciate and value good relations with the project team and administration. This is usually was reflected as better chances for better implementation of the project interventions. Some farmers or stake holders abuse these relations and wanted to benefit from them unlawfully. They do not meet deadlines or abide by directions and instructions thinking that being in good terms with the FAO team gives them this privilege. In the case of such farmers that misunderstand kindness and good relations, severe reactions and strict measures should be taken in order to correct their attitude towards the project.

Lesson № 5: **Follow up on dairy cooperatives as they are routes for our interventions and connection with the farmers.**

Cooperatives are simply business companies that are established for the sake of profit. Every member of this cooperative is a partner in the company that has rights and entails duties. Involvement and participation of each member are very essential for continuity and sustainability of these cooperatives. Transparent accounts and financial records should be available and updated daily. Any member should have the right to look over and see what is going on in the company that he owns a share in it. Extensive efforts should be exerted to change the individualistic mentality and convince the farmers and the members of the cooperatives of the feasibility and importance of cooperative and team work. Unfortunately training alone is not enough to create this change but an integrated sociological and psychological program must be implemented.

Lesson № 6: **Depend on your own assets especially man power.**

Increasing the number of employees in the FAO project team as was directed by the last steering committee was supposed to improve our performance and follow up. It is understood that the coming stage of phase 2 is very critical in the continuity and sustainability of the project. Although most of the interventions have been successfully accomplished, but if they are not followed by direct control and monitoring they can turn out to absurd facilities like many other projects.

Lesson № 7: **Maneuver around unavoidable challenges.**

Security conditions are imposing and we have no control over. We receive daily security information reports from the UN SIOC advising and warning about areas and places that we are not allowed or advised to avoid. Many of these areas contain project beneficiaries that we have to follow up with. We made an arrangement with them that they visit our office in Zahle regularly so we can be in touch with what is going on at their stations and help them in the hard problems they are facing in their difficult and unsafe localities. Familial contradictions are another problem that we cannot help in solving. We are doing our best trying to find compromises and middle solutions that may be suitable for all parties. We try to use our connection with the local leaders or the MOA officials in doing that.

Finally, these were some of the major constrains and lessons learnt during the last period of the project. We hope that this short presentation may add to the wellbeing and advancement of the project in the future stages.

VI. Conclusion:

The goals of this final stage of phase one of the project Recovery and Rehabilitation of Dairy Sector in Bekâa Valley and Hermel- Akkar Uplands have all been achieved. The major concern was to finalize the last steps in the project and to insure smooth transfer from phase one to phase two. It is obvious that there are many issues require further control, monitoring, and follow up but the basis and mechanisms of these activities have been established. Such issues are the dairy cooperatives, the milk prices, and the forage and concentrate price fluctuations, milk testing and milk quality ….etc. In general the direct impacts of the project on the conditions and standards of living of the farmers were noticeable. As these farmers are weak, vulnerable, and fragile they are affected by the least unfavourable stress that they are subjected to. The cooperatives are very important to give them security and stability but many of them are still not convinced with the importance of cooperative and team work in alleviating their sufferings.

VII. Key Recommendations:

- More emphasis and work should be done on the Dairy Cooperatives wellbeing.
- Milk testing and milk quality issues should be expanded and maintained.
- Close and direct follow up of the Forage Cultivation and Livestock Production Development project should be insured.
- Close monitoring and follow up of the milk collection and cooling centers and milk transportation trucks should be maintained.
- Close monitoring and follow up of the small dairy processing units must be regular and continuous.

Annex - A - : Letter about Forage results to H.E. the minister:

"مشروع إنعاش و تأهيل قطاع الحليب في سهل البقاع وجرود الهرمل – عكار"

الموضوع: نتائج تحاليل عيّنات العلف المُركّز.

جانب معالي وزير الزراعة الدكتور حسين الحاج حسن المحترم،

تحية طيبة و بعد ،

بإسم " مشروع إنعاش وتأهيل قطاع الحليب في سهل البقاع وجرود الهرمل – عكار " وبإسم كافّة المزارعين ومُربّي الأبقار نتقدّم من معاليكم بأسمى آيات الشكر والتقدير لجهودكم المتواصلة في دعم وتطوير الزراعة بشكلٍ عامّ وقطاع الحليب بشكلٍ خاصّ.

بناءً على توجيهاتاكم الكريمة قام فريق المشروع بإشراف حضرة المُستشار الدكتور صلاح الحاج حسن بأخذ عيّنات عشوائيّة من خلطات الأعلاف المُركّزة الخاضعة للدعم ضمن مشروع "تطوير زراعة الأعلاف و تربية الماشية"، هذا المشروع المُهمّ الّذي كان له الوقع والتأثير الإيجابيّ عند جميع المُزارعين والمُربّين بسبب الغلاء الفاحش للأعلاف.

إفتتح الدكتور صلاح الحاج حسن أخذ العيّنات بتاريخ الأربعاء 29 آب 2012 و تابع فريقنا المسيرة بالتعاون مع فريق وزارة الزراعة في زحلة. وبناء على وثيقة إحالة صادرة عن مدير مصلحة زراعة البقاع " المهندس خليل عقل " تمّ إرسال هذه العيّنات إلى مختبرات تلّ عمارة في البقاع . وحرصاً منّا على الدّقة العلميّة والشفافيّة المُطلقة تمّ استبدال أسماء أصحاب هذه العيّنات بأرقام مُتسلسلة لكي لا يتمّ الإطّلاع عليها إلا بعد الانتهاء من الفحوصات ومن قبل الجهّات المُختصّة فقط. والجدير ذكره أنّ هذه العيّنات قد تمّ أخذها من مصادر مُختلفة مثل معامل التصنيع ومزارع الأبقار، ومن مناطق متعدّدة في البقاع الغربيّ والبقاع الأوسط.

بتاريخ 14 أيلول 2012 تلقّينا الدفعة الأولى من التحاليل من مختبرات تلّ عمارة موقعة من قبل رئيس قسم تحليل الأعلاف المهندس " جوزف قهوجي " (تجدون ربطاً نسخة من هذه التحاليل). بعد دراسة مُعمّقة ومُفصّلة لنتائج هذه التحاليل (تجدون ربطاً نسخة عن هذه الدراسة) توصّلنا للخلاصة التالية:

1. **إنّ نتائج التحاليل وبصفةٍ إجماليّة عامّة كانت جيّدة ومقبولة ممّا يُعطي أصحاب المعامل المُسجّلة لدى الوزارة مصداقيّة جيّدة نرجو أن يُحافظوا عليها.**

2. **إنّ معدل نسبة البروتين لمُجمل العيّنات هو 16.6 % و معدّل نسبة الكالسيوم هو 1.5 % ومعدّل نسبة الفوسفور هو 0.8 % . وهذه المُعدّلات مطابقة للمواصفات المطلوبة للعلف المُركّز المُحضّر للأبقار الحلوب.**

3. **وتجدر الإشارة إلى أهميّة تكرار هذه التحاليل وأخذ العيّنات بشكلٍ منتظم وغير متوقع وذلك للتأكّد من محافظة أصحاب معامل انتاج العلف على المستوى المطلوب من الجودة والنوعيّة طيلة فترة مشروع الدعم.**

4. **وعلى هامش هذه النتائج ومن خلال تعاطينا المباشر مع المزارعين لاحظنا أنّ بعضهم قد اشتكى في البداية من عدم تجاوب الأبقار مع العلف الجديد خاصّة وأنّ هؤلاء المُزارعون قد تعوّدوا على نمطٍ مُعيّن من العلف ويخشون تغييره. ومع الوقت اقتنع الجميع بأهميّة وضرورة استعمال هذه الأعلاف المكفولة وذات النوعيّة العالية لتحسين الانتاج كمّاً ونوعاً.**

5. **ومن العوامل الّتي تُعيق تطبيق مشروع الدعم بالشكل الصحيح الضائقة الماليّة الّتي يُعاني منها صغار المزارعين كما يبدو فإنّ أصحاب المعامل يُلزمون هؤلاء المزارعين الصغار بشراء كامل كميّة العلف المُركّز ودفع ثمنها نقداً. وذلك ليس بمقدور المزارع الفقير الّذي يشتري العلف بكميّاتٍ قليلة ويدفع ثمنها بالحساب. قد يكون من المناسب السّماح للمزارعين الصغار بشراء ودفع ثمن كميّة العلف المحدّدة في بونات الدّعم فقط.**

6. تسهيلاً لعمل موظفي الوزارة المولجين بتسليم بونات الدعم وتخفيضاً لكلفة النقل على المزارعين نقترح تسليم البونات من خلال التعاونيات القائمة حالياً في البقاع وعكّار وذلك بهدف تفعيل دور التعاونيات وتأمين مصلحة صغار المزارعين على أمل توسيع نطاق التعاونيات لتشمل كافة الأراضي اللبنانيّة .

أخيراً و بعد تكرار شكرنا لتعاونكم و دعمكم،

تفضلوا معاليكم بقبول فائق التقدير والاحترام
الدكتور شاذلي كيولي

Annex - B - : Averages and study of Forage Results:

معدل نتائج تحاليل 19 عينة من العلف المركز المأخوذة من 5 معامل مسجلة لدى وزارة الزراعة و13 مزرعة

رقم العينة	بروتين %	رماد %	كالسيوم (غ/كلغ)	فوسفور (غ/كلغ)
2	16.245	6.033	9.93	5.7
3	15.954	12.178	37.5	11.95
4	15.145	6.725	13.75	6.25
5	14.715	6.064	7.8	6.6
6	18.579	7.041	11.65	7.6
7	15.503	10.189	19.7	11.065
8	17.984	10.176	18.8	9.05
9	17.725	8.56	12.65	8.6
10	17.733	7.531	10.4	7.55
11	16.401	7.974	7.75	6.9
12	17.149	6.773	6.3	7.1
13	17.301	8.837	13.55	7.5
14	17.748	9.487	12.3	7.85
15	14.02	11.774	37.5	11.7
16	15.176	7.873	12.6	7.65
17	17.08	7.972	17.5	9.8
18	16.3	7.915	11.7	5.65
19	16.98	6.889	13.25	6.8
20	17.6	8.144	13.15	6.35
المعدل العام	**16.6**	**8.322**	**15.14**	**8**
نسبة الإنحراف	**± 1.25**	**± 1.75**	**± 8.6**	**± 2**

ملاحظة : عينة رقم 1 مأخوذة من معمل غير مسجل لدى وزارة الزراعة وهي غير مطابقة للمواصفات المطلوبة

معدل نتائج تحاليل 9 عينات مأخوذة من شركة معلوف ترايدينغ (شكر الله المعلوف) وزبائنه

رقم العينة	بروتين %	رماد %	كالسيوم (غ/كلغ)	فوسفور (غ/كلغ)
3	15.954	12.178	***37.5**	11.95
4	15.145	6.725	13.75	6.25
6	18.579	7.041	11.65	7.6
10	17.733	7.531	10.4	7.55
11	16.401	7.974	7.75	6.9
12	17.149	6.773	6.3	7.1
13	17.301	8.837	13.55	7.5
14	17.748	9.487	12.3	7.85
20	17.6	8.144	13.15	6.35
المعدل العام	**17**	**8.3**	**14**	**7.67**
نسبة الإنحراف	**± 1.1**	**± 1.84**	**± 9.8**	**± 1.73**

*** : نسبة الكالسيوم عالية**

الخلاصة : يعتبر مطابق للمواصفات المطلوبة

معدل نتائج تحاليل 4 عينات مأخوذة من مؤسسة عبد الهادي وزبائنه

رقم العينة	بروتين %	رماد %	كالسيوم (غ/كلغ)	فوسفور (غ/كلغ)
2	16.245	6.033	9.93	5.7
5	14.715	6.064	***7.8**	6.6
18	16.3	7.915	11.7	5.65
19	16.98	6.889	13.25	6.8

المعدل العام	**16.06**	**6.72**	**11.63**	**6.19**
نسبة الإنحراف	**± 0.95**	**± 0.88**	**± 2.34**	**± 0.59**

نقص في الكالسيوم * :

يعتبر مطابق للمواصفات المطلوبة **الخلاصة :**

معدل نتائج تحاليل 3 عينات مأخوذة من شركة ادكو (منير خميس) وزبائنه

رقم العينة	بروتين %	رماد %	كالسيوم (غ/كلغ)	فوسفور (غ/كلغ)
7	15.503	10.189	19.7	11.065
16	15.176	7.873	12.6	7.65
17	17.08	7.972	17.5	9.8
المعدل العام	**15.92**	**8.68**	**16.60**	**9.51**
نسبة الإنحراف	**± 1.02**	**± 1.31**	**± 3.63**	**± 1.73**

يعتبر مطابق للمواصفات المطلوبة مع الإنتباه لزيادة البروتين **الخلاصة :**

معدل نتائج تحاليل عيّنتين مأخوذتين من شركة الفاكوتراياد (فادي خوري) وزبائنه

رقم العينة	بروتين %	رماد %	كالسيوم (غ/كلغ)	فوسفور (غ/كلغ)
8	17.984	10.176	18.8	9.05
9	17.725	8.56	12.65	8.6
المعدل العام	**17.85**	**9.37**	**15.73**	**8.83**
نسبة الإنحراف	**± 0.18**	**± 1.14**	**± 4.35**	**± 0.32**

يعتبر مطابق للمواصفات المطلوبة **الخلاصة :**

نتائج تحليل عينة مأخوذة من مُزارع في حوش النبي ، مصدر العلف : شركة عماد حسن صلح (بعلبك)

فوسفور (غ/كلغ)	كالسيوم (غ/كلغ)	رماد %	بروتين %	رقم العينة
***11.7**	*37.5	*11.774	*14.02	15

نتائج غير مطابقة للمواصفات المطلوبة * :

ملاحظة: إن العينة رقم 1 مأخوذة من مُزارع في سعدنايل ، مصدر العلف : شركة توفيق شفيق الغضبان (المرج) وهي شركة غير مسجلة في وزارة الزراعة وهذه نتائج التحاليل التابعة لهذه العينة :

فوسفور (غ/كلغ)	كالسيوم (غ/كلغ)	رماد %	بروتين %	رقم العينة
***5.5**	***18.6**	**9.47**	***13.136**	**1**

Annex – C - : Averages of milk testing Results: Fourth Phase (July 2012)

Recapitulative of milk analysis results + Statistics for each casa

	Dornic	PH	Den	AWM	FP	FAT	SNF	Prot	Total count	Total coliform	Somatic cells
West Bekaa	16.9	6.78	29.4	1.7	55.4	3.92	8.42	3.16	346213	3185	315614
Central Bekaa	16.6	6.76	28.2	2.9	54.1	3.6	8.27	3.18	456520	6832	452016
Baalbeck	17.2	6.65	28.6	2.4	54.5	3.8	8.4	3.22	555283	8570	250161
Hermel	17.5	6.71	27.2	3.16	53.9	3.5	8.2	3.1	650650	6858	254083
Standards	14-18	6.5-6.8	28-32	0%	53-55	3.5-4.2 %	8.2-9.5	2.6-3.6 %	<600000 CFU/ml	<10000 CFU/ml	<500000 CFU/ml

Somatic Cells	Total coliforms	Total Count	Proteins	Fat	Dornic	ID	Area
<500000 CFU/ml	<10000 CFU/ml	<600000 CFU/ml	2.9-3.6	3.5-4.2	14-18	Standard	West Bekaa
315614± 120000	3185 ± 1100	346213 ± 58000	3.16 ± 0.14	3.92 ± 0.81	16.9 ± 1.07	Average + Std deviation	
X>1000000 =12	X>50000 =0	X>1000000 =8	X<2.5 =1	X<3.5 =35	X>18 =24	Nt= 194	
6.12 %	0 %	4.1 %	0.5%	17.8 %	12.6%	% of bad samples	

Somatic Cells	Total coliforms	Total Count	Proteins	Fat	Dornic	ID	Area
<500000 CFU/ml	<10000 CFU/ml	<600000 CFU/ml	2.9-3.6	3.5-4.2	14-18	Standard	Central Bekaa
452016± 180000	6832± 3050	356520± 50000	3.18 ± 0.12	3.6 ± 0.64	16.6 ± 1.01	Average + Std deviation	
X>1000000 =4	X>50000 =8	X>1000000 =23	X<2.5 =0	X<3.5 =41	X>18 = 33	Nt= 118	
3.4%	6%	19.5%	0%	35%	28%	% of bad samples	

Somatic Cells	Total coliforms	Total Count	Proteins	Fat	Dornic	ID	Area
<500000 CFU/ml	<10000 CFU/ml	<600000 CFU/ml	2.9-3.6	3.5-4.2	14-18	Standard	Hermel
254083± 100000	6858± 3100	550650± 75000	3.1 ± 0.17	3.5 ± 0.73	17.5 ± 1.02	Average + Std deviation	
X>1000000 =0	X>50000 =0	X>1000000 =6	X<2.5 =0	X<3.5 =11	X>18 =6	Nt= 24	
0%	0%	25%	0%	46%	25%	% of bad samples	

Somatic Cells	Total coliforms	Total Count	Proteins	Fat	Dornic	ID	Area
<500000 CFU/ml	<10000 CFU/ml	<600000 CFU/ml	2.9-3.6	3.5-4.2	14-18	Standard	Baalbeck
250161± 100000	8570± 4500	655283± 70000	3.15 ± 0.15	3.8 ± 0.81	17.2 ± 1.04	Average + Std deviation	
X>1000000 =0	X>50000 =0	X>1000000 =21	X<2.5 =0	X<3.5 =30	X>18 =30	Nt=97	
0%	0%	22.6%	0%	30%	30%	% of bad samples	

Comparison Table between the 3 Phases of Milk Testing

Somatic Cells	Total coliforms	Total Count	Proteins	Fat	Dornic	ID	Bekaa
<500000 CFU/ml	<10000 CFU/ml	<600000 CFU/ml	2.9-3.6	3.5-4.2	14-18	Standard	
-	X>50000 =133	X>1000000 = 91	X<2.5 =152	X<3.5 =152	X>18 = 165	Nt= 449	Summer 2011
-	29.6 %	20.2 %	33.8 %	33.8 %	36.7 %	% of bad samples	
X>1000000 =36	X>50000 =20	X>1000000 = 72	X<2.5 =2	X<3.5 =92	X>18 = 30	Nt= 552	Spring 2012
6.52 %	3.6 %	13 %	0.36 %	16.6 %	5.4 %	% of bad samples	
X>1000000 = 16	X>50000 =8	X>1000000 = 58	X<2.5 =1	X<3.5 =117	X>18 = 93	Nt= 433	Summer 2012
3.7 %	1.8 %	13 %	0.23 %	27 %	21 %	% of bad samples	

Annex - D -: List of Additional Dairy Processing Units' Beneficiaries:

قائمة المستفيدين من معدّات التصنيع المنزليّ الصغيرة الإضافية:

القضاء		الضيعة	اسم المزارع	الهاتف
1	الهرمل	القصر	مريم حسين الجمل (زوجة السيد مهدي زعيتر)	71-763267
2	البقاع الغربي	غزة	سعاد ملحم درويش (زوجة السيد علي سعيد المجذوب)	08-640571
3	زحلة	سرعين الفوقا	رجاء قزحيا شومان (زوجة السيد هشام شومان)	
4	راشيا	المحيدثة	زهر البان أسعد سلامة(زوجة السيد عبادة جمال)	70-899512
5	عكار	القبيات	ريتا يوسف الجعلوك(زوجة السيد طوني عبود)	70-351262
6	جبل لبنان	كفرسلوان	حاطوم شريف حاطوم	71-053286

قائمة المستفيدين من معدّات التصنيع المنزليّ المتوسطة الإضافية:

القضاء		الضيعة	اسم المُزارع	رقم الهاتف
1	راشيا	كفرمشكي	رولا سعيد الفرخ	03-984356
2	الجنوب	شبعا	دلال محمد زهرة "إم محمد" (زوجة السيد جميل زهرة)	07-565121
3	الهرمل	جباب الحمر	حسناء عبد الله(زوجة السيد علي يوسف عبد الله)	71-718610
4	عكار	القبيات	أنطوانيت ابراهيم موسى (زوجة السيد ايليا عبود)	06-350219

Annex - E -: List of Approved feed manufacturers and traders for the feed support project:

قائمة تجار الأعلاف المعتمدة من قبَل وزارة الزراعة لمشروع دعم وتطوير قطاع الأعلاف

الرقم	الإسم	الشركة	المنطقة	رقم الهاتف
1	فادي خوري	الفاكوتريد	تربل- البقاع	03 - 612 274
2	شكرالله معلوف	شركة الفريد ترايدينغ	زحلة - المعلقة	03 - 310 006
3	وليد متري	المزرعة الخضراء	تل عباس الغربي-عكار	03 - 642 030
4	محمود حسن مروة	مروة للصناعة والتجارة	زيتا - الجنوب	07- 222 588
5	ابراهيم محمد عبد الهادي	شركة عبد الهادي	غزة- البقاع الغربي	08 - 640 068 70 - 045 835
6	جوزيف فرنجية		زغرتا	06 -555 547
7	أحمد العبد مروة	شركة البشار	صيدا	03 - 269 036
8	منير خميس	شركة ادكو	زحلة	08- 814 090
9	عماد حسن صلح	شركة عماد صلح	بعلبك	03 - 417 704
10	جورج مونس	شركة جورج مونس وشركاه للتجارة	جبيل	09 - 942 883 03 - 677 747
11	طارق شهيّب	شركة الفارس للزراعة العامة	عاليه	05 - 557 200

12	محمود محمد الحريري	مؤسسة الحريري للتجارة والصناعة		07 - 721 250 03 - 277 550
13	شربل بيطار	بيطار فارمينغ سيستم	القاع	03 - 667 227 08 - 225 522
14	كامل عجاج غانم	شركة كامل غانم	عين زحلتا	03 - 085 187
15	عثمان ضاهر صلح	مؤسسة عثمان ضاهر صلح	بعلبك	03- 281 175
16	محمد سلمان حكمت زرين	شركة محمد زرين	سعدنايل	03- 971 049
17	حسن محمد الأطرش	شركة حسن محمد الأطرش	راس بعلبك	08- 210 219
18	ايلي أبو عقل		المتين	04- 380 333 03 - 896 258

ملاحظة : الأسماء المشار إليها بخط هي أسماء المصانع الجاهزة حالياً لتسليم العلف للمزارعين

Annex - F -: Sample of milk analysis results that are sent to the farmers with the necessary remarks.

مشروع إنعاش و تأهيل قطاع الحليب في سهل البقاع و جرود الهرمل – عكار

نتائج تحليل الحليب بتاريخ : 28 تموز 2012

مركز جمع وتبريد الحليب اللبوة 2/ بلال رباح.

المُزارع: علي شريف

العضويّة	الأحياء القولونية الإجمالية	الأحياء المجهرية الهوائية الإجمالية	الكثافة بحسب المكثاف	الكثافة بحسب آلة الفحص	المواد الصلبة غير الدهنية	البروتينات	المواد الدسمة	نقطة التجمّد	الماء المضاف	درجة الحرارة	الرقم الهيدرو
Somat	Total coliforms	Total count	Den	Den	SNF	Prot	FAT	FP	AWM	T °C	PH
261	8100	310000	28.00	26.40	3.16	3.09	4.15	53.2	3.39	26.50	6.58
< 500 000	< 10000 CFU/g	< 600 000 CFU/g	27 - 34	27 - 34	8.2 - 9.2%	2.9 - 3.6%	3.5 - 4.2	52 - 55	0 - 2%		6.5-6.8

المشاكل:

نوعيّة الحليب ممتازة، لا يوجد أيّ مشاكل خطيرة.

نسبة الدسم ونسبة البروتين جيّدة

الحلول:

المطلوب المُحافظة على هذا المستوى من الدسم والبروتين. والمُحافظة

مشروع إنعاش و تأهيل قطاع الحليب في سهل البقاع و جرود الهرمل – عكار

نتائج تحليل الحليب بتاريخ: 23 تمّوز 2012

الحلاب: علي الراضي/ سعدنايل **المُزارع: جوزف توما.**

الرقم الهيدروجيني	درجة الحرارة	الماء المضاف	نقطة التجمّد	المواد الدسمة	البروتينات	المواد الصلبة غير الدهنية	الكثافة بحسب آلة الفحص	الكثافة بحسب المكثاف	الأحياء المجهرية الهوائية الإجمالية	الأحياء القولونية الإجمالية	خلايا ضويّة
PH	T°C	AWM	FP	FAT	Prot	SNF	Den	Den	Total count	Total coliforms	Somatic
6.54	28.60	15.40	47.0	1.74	2.72	7.23	24.80	26.00	1380000	11200	1470
6.5-6.8		0 - 2%	52 - 55	3.5 - 4.2	2.9 - 3.6%	8.2 - 9.2%	27 - 34	27 - 34	< 600 000 CFU/g	< 10000 CFU/g	< 500 CFU/

المشاكل:

سبة الجراثيم (نسبة الأحياء القولونية الإجماليّة فوق المعدّل) مرتفعة والحليب يحتوي على كثير من الجراثيم من أسباب ذلك: حليب غير . عدم التعقيم أو التنظيف.

أوساخ وجراثيم كثيرة. هذه الأوساخ قد تكون في: معدّات الحَلب أو التخزين، أو ضرع البقرة، أو ماء غسيل مُلوّث.

سبة الدسم في الحليب منخفضة (دون المعدّل)

الحلول:

1 - المطلوب زيادة النظافة خلال عمليّة الحَلِب. وتنظيف معدّات الحلب وتعقيمها . بعد عمليّة الحلب.

2- المطلوب: الانتباه لمياه الغسيل وتنظيف المعدّات المستعملة خلال الحلب لتفا أمرٌ ضروريّ جدّاً.

3- المطلوب توزيع وتقسيم العلف المُركّز على ثلاث مرّات في اليوم. وتقديم بين ا (القشّ – الشعير ...) بدلاً من استعمال التبن.