

“Field testing of an innovative solar powered milk cooling solution for the higher efficiency of the dairy subsector in Tunisia”

Technical report N°1

“Appropriate feeding and health management for a better dairy herd production and milk quality”. Field day, December 10th, 2015, Regueb, Sidi Bouzid, Tunisia



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-1- Rational

As in many other parts of the country, dairy production in the region of Sidi Bouzid is carried out by smallholders. Indeed, almost all herds have average sizes of less than 4 cows. However, and compared to other regions, dairy production in Sidi Bouzid is a relatively recent activity and farmers have a limited experience in dairy cattle husbandry and management. As a consequence, the productivity of the cows and the quality of the milk are severely limited by several constraints (structural and technical). The structural constraints affect the dairy system before and after production. They include feed resources availability, land tenure status, level of investment, milk collection network and milk storage capacity, etc. Technical constraints are basically related to overall herd feeding and reproductive management, labor skills, feed quality and feed efficiency, animal health, environmental control, on farm milk cooling, etc. As a consequence, the profitability of dairy production in the region in Sidi Bouzid today is uncertain and its sustainability is threatened, they even become the topic of current debates raising the need for their improvements.



Photo 1. A typical small scale dairy herd in Sidi Bouzid

Being aware of such situation and of the urgent need for an improved production efficiency of the dairy production and of milk quality in the region, the local partners involved in the milk cooling project (Office of livestock and pasture, CRDA, farmers' El amel cooperative and delice the dairy plant) have approached the project team and asked for the organization of a field day for the benefit of the farmers in order to give them applied technical information on dairy feeding and health management and how it is closely related to milk yield per cow and to milk quality. They felt this would be a good field start for the project so that farmers learn about the project itself and its interest for them while getting the needed technical information. Thus given the challenges these farmers are facing in this less favorable region of Central Tunisia (increased productivity, better production efficiency, higher income and the production of healthy and good quality dairy products) , the project team has accepted the invitation, and in collaboration of the local partners, has developed a program for the seminar. The main objectives of the day were:

- To teach and interact with farmers on appropriate herd feeding and health management practices and how they can affect milk production efficiency and milk quality;
- To get farmers familiar with the milk cooling project and aware of its importance for the development and the prospects of the dairy sector in the region trough the testing of an innovative solar powered milk cooling solution as an alternative for conventional energy sources.
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2- Field day Program and participants

Based on meetings and discussions held between the research team and the OEP and CRDA technical staff and extension agents as well as with some farmers from the cooperative El amel, it was concluded that there exist an urgent need for the organization of a seminar/field day for the benefit of dairy farmers in the district of Regueb. We felt that will be a good opportunity to deliver applied technical information on efficient herd feeding and health management practices that will ensure better production efficiency and reduced milk production costs. It will also allow farmers to learn about the milk cooling project (its objectives and components, major activities, potential outcomes and outputs, etc.), while giving them the opportunity to express their preoccupations and to show their expectations from the project with regard to the development of their dairy farming in Sidi Bouzid.

The field day was organized on site on Tuesday, December 10th 2015 at the farm of Mr. OMRI Sahbi, a dairy production in the region of Regueb, Governorate of Sidi Bouzid. Twenty five (25) participants have attended the day, mostly are men. They were predominately farmers. There were only two women as this was the first day the project has organized and the time did not allow for specific invitations. Future days will be planned ahead of time and target both man and women who are in charge of the dairying. The project team has tailored the program and defined its content taking into account the farmers' need. The program included a welcome word by representatives from local development organizations (OEP and CRDA), three technical presentations and an open discussion. The working language was Arabic so that farmers can understand the take home messages.

2-1- Presentations

The presentations given at the field day focused on the milk cooling project objectives and expected impacts on the dairy sector in Sidi Bouzid, appropriate dairy feeding management practices and health aspects and their effects on milk production and milk quality. They were as follows:

- Presentation 1:

Title: ***“The Solar powered milk cooling project: main objectives, components and major activities and potential outcomes”***,

It was given by Dr BEN SALEM Mondher, the project coordinator from INRAT (see photo 2 below)



- Presentation 2:

Title: ***“Feeding management of dairy cows and its relation to milk production and quality”***

It was prepared by Dr BEN SALEM Mondher, INRAT Tunisia and Dr MAAMOURI Amor, and presented by Dr MAAMOURI from the regional research center (CRRRA) of Sidi Bouzid



Photo 3. Dr MAAMOURI Omar talking about feeding management

- Presentation 3:

Title "*Major rules for the prevention of contagious diseases in dairy cows*"

It was presented by Dr KHABOU Madiha from the National School of veterinary medicine.



Photo 4. Dr KHABOU talking about health management

3- Field day open Discussion:

Although some questions were asked throughout the presentations as some farmers were eager to interact and understand the presented technical information. They have interrupted the presenter and raised inquiries, while expressing their concerns about difficulties they are experiencing daily on the management of their herds and on the future of the dairy sector and its prospects given the current circumstances of the sector all over the country. A special discussion session and more time was given to the participants at the end of the presentations to interact with each other and with the project team in the presence of local partners from OEP, CRDA and Delice.

During this session, they addressed and raised different issues related to their dairy business. They exchanged ideas and thoughts on how to develop the dairy sector in Sidi Bouzid and how to make it competitive and durable and how the project can be helpful in this regard. Aspects like feed quality evaluation and monitoring, feed prices, local feed upgrading and utilization, milk price at the farm gate, milk quality and premium, milk collection and handling, extension programs, governmental policies on dairy development and encouragements, potential local forage resources suitable to the region and water access and availability were all at the center of the debate.

All participants agreed that the day was a success as the content of the presentations has met the need of farmers and local technicians particularly on aspects related to feeding and health management. The discussion that took place was also fruitful and has clarified many inquiries. They farmers requested the planning of regular field days and/or seminars to deepen the addressed topics and to treat other aspects of the dairy business, such as artificial insemination, milk bacteriology, and milk processing and transformation in dairy products, such as cheese making and marketing. They

have also requested the editing and the printing of simple and easy to read technical pamphlets and brochures on various themes of dairy cattle production, including, but not limited to, feeding practices, reproduction, milking procedures, nutrition and milk quality, mastitis, etc..



Photo 5:



Photo 6

Discussion between farmers and local technicians (photo 5), farmers themselves (photo 6) and between farmers and researchers (photo 7)



Photo 7

4- Selection and visits of the farms to receive milk cooling systems

As outlined above, farmers, technicians, veterinarians, non-governmental organizations and local extension agents and people from the dairy business have participated to the field day and interacted with each other and with present members from the project team. Besides the technical side of the seminar, the field day was the right opportunity to convince farmers about the importance of the milk cooling project and the innovation it brings to the region. It also constituted a suitable occasion to select the farmers to be included in the project and to receive the milk cooling systems. Many farmers among the participants have expressed their interest in participating as they were convinced by the usefulness of the project and the impact it may have on their dairying and on the development of the whole dairy sector in Sidi Bouzid.

Together with the collaboration of local partner organizations, mainly OEP and CRDA, and the responsible of the El amel cooperative, the team has selected the 6 farmers to adhere to the project. Below are the names as well as the GPS coordinates of retained farmers as of today's list:

Farmer Name	Altitude (m)	GPS coordinates
Essahbi+Nawwi Ben Mustapha Omri	267	N:34°53'41,8"E:009°43'41,8"
Neji Mehdi Omri	270	N:34°53'45,0"E:009°42'52,6"
Kamel Ben Dhaw Omri	280	N:34°54'18,5"E:009°42'45,3"
Bouزيد Omri	285	N:34°53,6'49,6"E:009°42'32,2"
Abdelkrim Omri	261	N:34°53'25,7"E:009°43'29,1"
Abdelmlak Omri	260	N:34°53'41,8"E:009°43'41,8"

Some photos of the selected farms/herds are given in annexes 1 to 6 for illustrations. Further detailed description of the farms (herd sizes, management practices, production performances, constraints, etc.) will follow in the coming technical report.

5- Conclusion

The productivity of dairy cows and the quality of the milk in the region of Sidi Bouzid are severely limited by various constraints (both structural and technical). The field day allowed us to partially identify some of these constraints. Structural constraints include feed resources availability, land tenure status, access to investment, milk handling and collection network and milk processing and storage capacity. While major technical constraints include the overall herd feeding and reproductive management, labor skills, feed quality and feed efficiency, animal health and on farm milk cooling and milk quality. Also, it appears from the open discussion that the profitability of the dairy system in the region in Sidi Bouzid is uncertain and its sustainability is threatened, and they definitely need improvements. Being aware of the challenges the farmers are facing in this less favorable region of Central Tunisia (increased productivity, better production efficiency, higher income and the production of healthy and good quality dairy products), the project team, in collaboration with the local partners, held the field day which aimed to teach and interact with farmers on appropriate herd feeding and health management practices and how they relate to milk production efficiency and milk quality.

The day was successful in meeting the need of farmers and local technicians on appropriate feeding and health management practices. This is best testified by the fact that participating farmers have asked for further regular field days not only to continue on the addressed topics, but also to treat other aspects of the dairy business, such as artificial insemination, milk bacteriology, and milk transformation. They have also requested the edition of some simple, easy to read and understand

technical pamphlets and brochures on various themes of dairy cattle production, including, but not limited to, feeding management, reproduction, milk cooling and mastitis and milk quality. Further steps are therefore needed in this regard. This falls in fact within the training and capacity building activities included in the consolidated work-plan of the milk cooling project.

6- Acknowledgments

The project team is very grateful to local organizations for their active collaboration and help in organizing the field day. A special thanks goes to Mr Brahmi Fethi, the Director of OEP office in Sidi Bouzid, and his technical staff for all their coordinating efforts and contributions. Sincere appreciation is also extended to Mrs. Mohamed Hamdoun and Ghenimi Haithem from the CRDA of Sidi Bouzid for their support and contribution. Special thanks are due to Mr Kadri Ayouni from Delice-Sidi Bouzid for his special efforts and collaboration. We are also very grateful to Mr. Haithem Ben Bechir Felhi, the director of El amel cooperative at Regueb, for accepting and supporting the organization of the field day. Our sincere thanks are extended to Mr. OMRI Sahbi for providing us with his house as a venue for the field day.

Annex 1. Photos from farm 1 of Mrs Sahbi and Nawi Omri



Annex 2. Photos from farm 2 of Mr Neji Omri



Annex 3. Photos from farm of Mr Kamel Omri



Annex 4. Photos from farm 4 of Mr Bouzid Omri



Annex 5- photos from farm 5. of Mr Abdelkarim Omri



Annex 6. Photos from farm 6 of Mr Abdelmalek Omri



