REPORT ON PILOT LARGE SCALE FARM ADVICE

Market -linked Innovation for Dairy Development (MIDD)

Wageningen UR

SNV Ethiopia

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Report on Pilot Large Scale Farm Advice

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March 2013

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Bram Wouters

Executive Summary

Large and medium scale dairy farms were developed in Ethiopia from the 1950s onwards. Most of them are located in the milk shed of Addis Abeba. The number of large scale dairy farms is still limited but increasing as result of market opportunities.
The management and productivity of these large scale farms could improve considerably by means of customized advice and by introduction and testing of new innovations. The needs of medium and large scale commercial farms are not addressed by the extension department of the Ethiopian Ministry of Agriculture and their agency EMDTI. Large scale farms can contribute to dairy sector development among others by improving milk supply, provision of inputs (feed, breeding stock) and services (milk collection, internships) for small scale farmers in their areas. Based on these considerations, a pilot with provision of customized advice to a group of medium/large scale farms was started in the MIDD program (pre-phase of EDGET project from June 2011- May2012).
The purpose was to investigate the response of these farms to customized farm advice and to look into the feasibility of a (commercial) farm advisory model for medium and large scale commercial farms which could be sustainable on the long term.
The pilot with 10 farms which were mainly selected on motivation of the farm owners and the potential for implementing farm improvements started effectively in September 2011 and continued till December 2012.

Conclusions and recommendations based on the result of the pilot were as follows:

Conclusions

- Selection of suitable farms for the pilot and building a trust relationship with farm owners and managers was time consuming. It took more time and efforts than anticipated.
- On large scale farms run as commercial enterprises one has to deal with the farm owner (s) and the farm manager and his staff. The owner is the most critical factor for realising farm improvements. The motivation and commitment of the owner to improve the dairy farm and to invest is crucial for successful adoption of advices given. In general, a farm owner who is interested and committed has in general also capable and motivated farm staff.
- The sample of the 10 farms in the pilot were the most motivated and most potential who were selected out of an initial group of more than 30 medium/large scale farms.
- 2 of the 10 pilot farms developed management problems during the pilot phase and were dropped and replaced by 2 new motivated farmers; this shows how critical management is on these farms;
- Many farm owners are not fully aware of the commercial potential of their farm and options for improvement: first step for the advisors is to create awareness by for example organizing visits to well managed farms.
- Quality farm advice is considered as a key factor for increasing productivity on dairy farms. While small farms can access DAs (Extension department) for advice, larger farms cannot turn to any institutional capacity while the number of local farm consultants who can provide quality advice to these farmers is very limited. The level of practical knowledge of veterinarians and inseminators for example need to be improved to provide quality services (AI, PD, good diagnosis);
- Advice and technical assistance should focus on farms and farm owners who are really committed to develop their farm into a commercial business. However, creation of awareness among large scale farm owners could increase the number with interest and commitment (see above)
- On most of the large scale commercial farms (based on the large sample of farms visited) the level of management related to feeding, breeding, animal health, young stock rearing, milking (milk quality), forage production can be improved considerably. Most farms are not run as a commercial business. Most farms do not apply recording and have no information on the financial returns of the farm;
- Advice is particularly needed in technical subjects like feeding (particularly growing own forage), breeding, animal health and recording (breeding and herd records, farm accounts etc.) and preparation of business plans. An innovative housing system like applied by Alfa farms is a good demonstration and suitable model for many large scale farms.
  Labour management needs also much attention. On some farms labourers come and go while the management structure is very much top down. Farm staff is not well trained and often lack motivation because of poor pay.
- Basic knowledge on several critical aspects of dairy farming is missing on most farms. Farm managers and owners of pilot farms showed a great interest in the seminars of the Dutch consultants;

- From the 10 farms, 7 farms adopted several advices and realised tangible changes on their farms by improving housing, forage production, feeding practices, improving the health status of their animals. On the other 3 farms, decreasing interest of the owner, poor communication between owner and management resulted in less good results.
- At this stage a commercial advisory service for large scale farms (farmer pay for advice) is not feasible nor economically viable yet but for a group of motivated farms this is still a feasible option on the long term.

Recommendations

- As part of the dairy sector development in Ethiopia, EDGET should pay attention to medium and large scale dairy farm development as they can act as catalyser for dairy development in a region and at national level. Improved dairy farm management on medium and large scale farms will contribute to total milk supply and as result national food security.
- Well managed commercial medium- and large-scale farms could assist with development of small scale dairy farming by:
    - Provision of inputs (feed, breeding stock) and services (AI, animal health, milk collection) to small scale farms in their neighbourhood. One of the pilot farms collect already milk from neighbouring farms.
    - Well managed large scale farms could be also venues for practical training of students and farmers and demonstration (one of the pilot farms offer internships)
- During the next phase of EDGET (2012/2013) the pilot should be continued for another 2 years and extended with more farms. The following activities are proposed:
    - Provision of advice and measuring the response of the present farms (owners/farm managers);
    - More interested farmers and owners to be added to the group that receives advice;
    - Recruitment, training and coaching of local advisors, decreasing role of international advisors;
    - Exploring the readiness of owners to pay for advice and determining the market for professional advice eventually combined with services (vet service);
    - Preparing of a business model for privatised farm consultancy for large scale farms eventually linked with a local organisation as EMDTI or private business service provider which receives back-stopping from e.g. international dairy farm consultancy company.
- Exploration of the feasibility and organisational structure of a commercial farm consultancy service for large scale farms (including the market for it) should continue and be discussed with stakeholders (MoA , EMDTI, NGO's, business providers);
- EDGET should explore and facilitate group formation of medium and large scale farms in combination with possible models for commercial farm advice.
- EDGET should work together with MoA (Extension Department, EMDTI) to design a national system and tools for recording (breeding, herd records etc.) for use by commercial small- and medium- and large scale farmers and extension workers.

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1 Introduction

Large and medium scale dairy farms were developed in Ethiopia from the 1950s onwards. Quite a large number of the present large scale commercial farms originate from this period. Most of these farms supplied milk to the single dairy plant in Addis Ababa. They were nationalised during the socialist ('dergue") regime and privatised again by the present government. The number of large scale dairy farms is still limited but increasing as result of market opportunities. Most of them are located in the milk shed of Addis Ababa.

The extension department of the Ministry of Agriculture and the regional Livestock Marketing Bureaus linked with it, address mainly the needs of small- and medium-scale dairy farms and do not have the capacity to advise the commercial medium- and large-scale farms.
In general, the productivity level of the commercial large-scale dairy farms is low among others due to poor management practices as result of lack of knowledge, application of outdated technologies and lack of proper management tools. These farms however can contribute considerably to national food security and to sector development when management improves and new innovations are applied. They can act also as an example for small- and medium- scale farms and provide services (milk collection) and inputs (breeding stock, seeds, feeds) to these farms.

The management and productivity of the large scale farms could improve considerably by means of customized advice and introduction and testing of new innovations. Moreover, a number of foreign (Dutch) investors in the Debre Zeyet area have established commercial dairy farms applying new technologies (e.g. housing, feeding, breeds) with good results and presently act as demonstrations for local dairy farms.

Based on the considerations mentioned above, a pilot with provision of customized advice to a group of medium/large scale farms was started in the MIDD program (pre-phase of EDGET project from June 2011- May2012). The purpose was to investigate the response of these farms to customized farm advice and to look into the feasibility of a (commercial) farm advisory model for medium- and large-scale commercial farms which could be sustainable on the long term.

The extension model applied during the pilot was based on the model applied with the Ethiopian rose growers who were advised by Netherlands consultants and assisted by Ethiopian consultants. To improve and support the rose cultivation sector, a Rose Growing Advisory Service was set up and Dutch consultants (DLV) supported the Ethiopian rose growers with advice while also a handbook was made. This approach worked and the question was if a similar approach could work for the commercial medium and lager scale dairy farms.

In this report the methodology and results of the pilot are presented.

2 Approach and methods applied during the pilot

The pilot started in June 2011 and was restricted to the milk shed of Addis Ababa In this area most of the medium- and large-scale commercial dairy farms are located.

The following approach was applied;

- Based on available information collected by Ethiopian consultant, a list of commercial dairy farms with more than 20 heads was made for the milkshed area of Addis Ababa, some basic information of these farms was collected and at out of this list 35 farms were selected to be visited by Netherlands and Ethiopian consultants (Mr Brandsma and Mr Tessema)
- The 35 farms were visited in the period June- August 2011. A questionnaire was made to collect basic data and to evaluate if the farm was suitable to be included in the pilot. A group of 20 farms could provide some basic data; from the other farms data were not made available.
- The final selection was done by the Netherlands consultant (program assistant) Mr Brandsma , local consultant Mr Tessema and Dutch consultant (Mr Eelke Boonstra). The selection was based on: interest and attitude of the farm owner (willingness to change and progress), capacities of the farm owner and manager to cooperate and progress, possibilities of the farm to develop and improve (e.g. availability of land to grow forage), quality of labour (knowledge and expertise), present farm situation (cows, housing, records) and capability to keep records. Based on these criteria 10 out of 20 farms were selected for the pilot/
- A Memorandum of understanding (MoU)was agreed upon with all these farms in which the farm owner/manager stated the points of interest for improvement after a farm analysis was made. A large list of issues based on the farm visits was prepared (see Annex 2). On most farms, the major issues to be addressed and agreed upon were feeding and animal health followed by growing of forage and general farm management. Once the project progressed, more farms became interested and were visited by the team, and 2 farms were found suitable to be added to the pilot because of clear interest of the farm owner, the willingness to cooperate and to give follow up to advice given.
- The advice was provided free of charge but as counterproductive performance the owner/managers committed themselves to keep some basic farm records (breeding, production) and farm accounts and provide all information needed by the advisors. From the 10 farms taken up in the pilot, 5 did already have some kind of recording of technical and/or economic data, the others did not keep any type of recording.
- In the period September – January 2011, a recording system was prepared and introduced on the farms, follow-up visits were made and depending on the farm, farmers were advised on feeding , housing and animal health. These farm visits were carried out by Mr Brandsma together with Mr Tessema. On average each farm was visited 6 times during a period of 9 months. Individual farm advice by means of farm visits and group activities in the form of seminar/workshop were the extension methods used during the pilot.
- During the pilot two Dutch consultants provided technical assistance: Mr Eelke Boonstra an experienced consultant in feeding, farm management (recordkeeping) and farm economy (2 visits: September 2011 and January 2012) and Mr Marten Pelleboer a veterinarian (visit March 2012). Both consultants have an extensive experience in dairy husbandry in The Netherlands and developing countries. Several local veterinarians joined the team during the farm visits of the Dutch consultants.
- During the visits of the two Dutch consultants, 3 group seminars and discussions were organized for the farm owners, farm managers and local consultants.
- Mr Brandsma left Ethiopia the beginning of May 2012 while Mr Tessema continued with providing follow up to the farms till the end of December 2012.
- In the period March – September 2012 (rainy season) , much attention was given to 4 farms which liked to experiment with growing improved forages during the rainy season. Local consultants Mr Abebe Tessema , Mr Abate Tedla were engaged. Unfortunately and sadly the forage specialist Mr. Abate Tedla got ill and passed away during his assignment in 2012. He was replaced by Mr Asfaw Tolesse. The consultants visited the farms and provided advice on which forage crops to plant and assisted the farm managers with making a plan to implement the forage trials; seed supply was organized and planting was done at the start of the long rains (June/July 2012).

3 Results

3.1 Type of medium/large scale farm

Table 1 gives an overview of the first inventory of medium and large scale farms which was used for selection of farms for the pilot and which could provide some basic farm data.
Only 21 farms out of 31 farms were able to provide basic data on number of animals and average milk production. The others did not have any information or it was not made available.
There was a large variation in milk production like observed from the data provided by the farm managers . The production per cow per day among the farms varied from 2.5- 25 kg milk per cow per day).
Most of the farms except for one farm (farm no 10) is the limited area of land available for pasture or growing forage compared to the number of animals they keep. Most farms are almost land-less farms and stocking rates are very high. This implies that most of the roughage has to be bought.

Table 1 Basic herd and production data of sample of 21 medium/large-scale farms in the milkshed of Addis Ababa (based on visit June-August 2011)

Feature / Farm no	No of dairy animals	No of lactating cows	Kg milk per cow per day	Farm size (ha)
1	140	33	9.0	22
2	140	40	7.5	13.5
3	138	56	13.5	3.5
4	40	2	25.0	10
5	110	39	13.0	4
6	24	5	13.5	0.5
7	70	14	15.0	30
8	100	40	9.0	2
9	126	55	15.0	1
10	365	107	12.0	432
11	50	20	10.0	10
12	65	12	12.5	22
13	70	44	12.0	5
14	33	18	12.0	2.5
15	60	30	10.0	13
16	108	34	9.0	6
17	103	44	12.0	2
18	130	60	19.0	14
19	87	30	7.5	2.5
20	45	15	9.0	5
21	60	18	5.0	14
Average*	**81**	**29**	**11.5**	**8.7**

*average is calculated without farm no 10 (too much out of range)

On many farms the number of lactating cows was low in comparison to the total number of animals. Out of these 21 farms 10 were selected for the pilot.

Main characteristics of all the farms (including pilot farms) were:

- The farms are commercial dairy farms producing liquid milk for the market while some of them process their milk and market their products.
- All farms have private owners who are not living/ working on the farm They employ a farm manager and farm staff for exploitation of the dairy farm. The mandates of the farm managers differ per owner. The farm managers are responsible for the daily management but most of them cannot make decisions on expenditures and none of them on investments.
- Most farm owners have various businesses varying from consultancy to trade etc.
- On 7 of the 10 pilot dairy farms, dairy production was not the core business but one of the activities deployed by the owner; a number of them do not have a clear core-business but are engaged in several activities;
- All farm owners had enough assets and access to capital;

- All owners of the pilot farms were committed to develop their farms and motivated to participate in the pilot.

The pilot started with 10 farms, after some time 2 farms were dropped from the pilot because of management problems on these farms and replaced by 2 farms
The data of the pilot are shown in table 2.

Table 2 Data on herd composition, milk production per cow per day and land available from the 10 selected farms for the pilot (figures refer to 1st quarter of 2012)

Farm/feature	Total number of dairy animals	Total number of lactating cows	Average milk production (kg/cow/day)	Farm size (ha)
1	26	9	6.0	2.0
2	108	34	11.4	6.0
3	117	46	9.4	2.0
4	60	14	5.0	10.0
5	107	45	12.0	4.0
6	84	29	10.0	10.0
7	110	42	12.4	2.5
8	65	26	11.0	5.0
9	106	41	9.0	6.5
10	323	111	9.5	397.0
Average*	87	31	10.0	5.0

*The average is calculated without farm number 10 (data too much out of range)

Average milk production among these farms amounted to 10 kg per cow per day and varied less than for the sample of the 20 farms. Most pilot farms except a few have little land available to grow their own forage and depend on buying roughage and other feedstuffs from outside.

3.2 Engagement of international consultants

The first visit of Mr Boonstra took place in September 2011; the main focus was on the farms pre-selected for the pilot and to get a general impression of the development stage of these commercial dairy farms.
Following the farm visits and discussions with a number of the farm owners and dairy experts, the conclusion was that record keeping was necessary to obtain more insight in the management and performance of these farms and to monitor the farm development. Therefore recording sheets were developed for these farms regarding herd development, health and fertility, milk production and revenues and costs. (see also Annex 3).

During the second visit of Mr Boonstra in January 2012 the focus was on follow-up of the recording , organizing a feed seminar for farm owners and managers including an excursion to a dairy demonstration farm (Alfa farm)in Debre Zeyet.
The seminar was a success, the participants (12 in total) learnt to calculate feeding rations and on the importance of good feeding practices. The combination of a lecture about basic principles of dairy cattle feeding and ration calculations was very much appreciated by all participants. The visit to Alfa farm (Dutch owner and farm buildings established 2010/2011) with a for Ethiopia new and innovative dairy cattle housing system (free range system with compost bedding), feeding of maize silage and total mixed rations (TMR), milking of cows in a milking parlour was an eye opener for many participants. After this seminar, several farm owners have adopted some of these improved housing and/or feeding practices or plan to do.

The focus of Mr Pelleboer's visit in March 2012 was on animal health, especially health issues related with feeding, hoof care, fertility, housing and record keeping (animal and fertility records). During his visit all the pilot farms were visited . At each farm visit, the body condition of the animals and rumen fill of the animals (major indicators for feeding practices and general management) were assessed and on most farms also pregnancy diagnosis (PD's) were carried out. The consultant's observations and

suggested improvements regarding, housing, hoof care, general health, feeding, roughage situation (rumen fill) and body condition scoring were discussed with the managers.
In addition, a seminar on animal health with practical exercises was conducted on the Enyi farm in Sebeta for the farm owners, farm managers and local veterinarians. Presentations and practical exercises were made on how to check rumen fill, body condition scoring and the right conditions of the hooves. Hoof trimming was demonstrated with the right tools and equipment on two cows with severe hoof problems.
Observations of the consultant based on the farm visits were:

1. Record keeping needs improvement on most farms, add or change present records to keep more control on what is going on at the farm by the owner, and for the advisory service to give proper advice. Farm accounts will give a good insight in the economy of the farm, and where there are opportunities to improve, especially the high feed costs of most farms should be looked into.
2. Feeding is a very important issue on all farms: when to feed roughage (quantity /quality /ad lib) and when to feed the concentrate. Rumen fill is a good indicator for roughage intake and farm managers should learn to look at this. Body condition scoring is another tool to judge the general animal condition and feeding situation.
3. Health issues mostly relate to feeding practices and body condition.
4. The recent foot and mouth disease (FMD) outbreak (early 2012) on some of the farms had a major impact on the health of the animals in terms of body condition, incidence of mastitis, claw/hoof problems.
5. Some farms have serious problems with mastitis, because of FMD or bacterial infection. Cows infected with *Coryne pyogenes* should be isolated or culled.
6. Housing is an important issue, many barns are too dark and/or without enough ventilation (fresh air). Advice to improve ventilation was given to many farms.
7. Mineral deficiency is sometimes assumed/ suspected for lactating cows and young stock.
8. More knowledge and awareness amongst managers and workers should be created through conducting seminars or extension materials.
9. Pregnancy diagnosis (PD) has been carried out on most of the farms and the conclusion was that there is a lack of experience and/or skills with most AI technicians/ vets or other farm staff to do proper PD.
10. Hoof/claw problem is a major problem on many farms, advice for a trimming box and regular trimming was given and at the seminar hoof trimming was demonstrated.

3.3 Results at the farms

The selection process and the development of a good working relation with owner and farm manage/staff took much more time than anticipated. Building up a trust relationship with owners, farm managers and workers is very important so that the right information is provided, feedback is accepted and advice put into action. This means that consultant and farm owner/ manager have to know each other well and once a trust relationship has been established farm issues can be discussed more in detail and depth and with better understanding from both sides.

When making an agreement with the owner/farm managers a plan was made to improve certain aspects and to provide advice by the farm consultants. In return it was agreed that the farm managers should keep records on some technical data (herd composition and cattle changes, milk production, breeding and fertility and animal health) and some basic economic data like feed costs etc.)

The inventory of the farms and the consultant' s observations showed that the main technical problems were related to animal health (infectious diseases like foot & mouth, mastitis, hoof problems), feeding (feeding practices, sara (sub-acute rumen acidiosis), quality of feeds (roughage, concentrate, balanced rations), reproduction (heat detection, time and quality of insemination, breeding records), calf rearing (feeding, housing and diseases), poor housing facilities and quality and knowledge of farm staff and labour management.

In general the main technical issues addressed were the following:

- Feeding: roughage feeding and rations, group feeding practices, economics of feeding, feeding of calves and young stock;
- Animal health: infectious diseases, hoof care, mastitis prevention
- Herd management: cow fertility, breeding results (calving, insemination)

- Forage production and planning; selection of most suitable forage species and trials, grazing plan for certain farms, fertilization and use of manure);
- Milking (milking hygiene and techniques);
- Housing (improvement of ventilation, advice on new barns);
- Farm economy (record keeping, cost price)
- Breeding (choice of bulls, breeding aim).

The introduction of the manual recording on the farms took much more time and effort of the project team than anticipated. The consultants did on the job training of farm staff as each farm needed a different approach regarding record keeping. Most farms started but on some farms the knowledge level of the farm staff was too low to produce good and reliable data. On some farms, farm managers did not have access to financial data like costs of feed purchases. More simplified recording sheets were made after the first experiences with the recording.

Forage trials and feeding
On pilot farms with land, forage trials were initiated during the main rainy season in 2012 and follow up was given till December 2012. The project facilitated for the farmers in obtaining forage seeds which were obtained from ILRI and other sources. The following results were obtained:

- Farm Holeta: 6 ha's sown with oats and vetch; 2000 bales of hay harvested, 60.000 Birr saved on feeding costs;
- Farm at Mukuturi; trial with 1 ha of oats and vetch; preparation and fertilization of 4 ha's to be sown with oats and vetch in rainy season of 2013, a soil pit for silage was prepared;
- Farm at Awash: 8 different forage crops planted; production of alfalfa seed was started; this farm will also built a new cow barn for 300 cows to be imported (cow barn will be same model as Alfa farms);
- Farm at Sululta (10 has of land): 2 ha's of oats and vetch were planted while also drainage of valley bottom was improved ;
- Farm at Mojo (63 ha of land): bush has been cleared for planting forage crops (rainy season 2013);
- Farm 1 at Debre Zeyet: production of Napier grass, alfalfa and corn for fresh feeding (this farm produced already Napier grass and alfalfa and served as demo farm for other farms);
- Farm 2 at Debre Zeyet: planting of 3-4 has of alfalfa and Napier grass.

At the high altitude areas, oats combined with vetch are suitable forage crops. The main limitation is supply of good quality seed as this crop has to be planted yearly. At the medium altitude areas (less than 2000 m, Rift Valley), more permanent crops like napier grass, alfalfa do well. Alfalfa needs irrigation to produce high yields.
Some of the farms started to use better quality concentrates (among others from Alema Koudijs).

3.4 Response to advice

Table 4 and 5 present the response of the owner/ farm manager to the type of the advice given based on the impressions of the consultants.

Table 4 Response of farm managers/owners (measured in qualitative terms) to advice given on different issues

Farm no	Feeding	Housing	Record keeping	Forage production
1	±		+	++
2	±		±	++
3		++	+	
4	±	++	-	++
5	±		++	
6	+	+	+	++
7			+	
8				
9	++	++	+	±
10	±		+	

Table 5 Interest for the seminars/ workshops and main bottlenecks for improvement

Farm no	Feeding workshop	Animal health workshop	Major bottle necks on the farm
1	+	+	roughage supply
2	-	-	management / knowledge
3	-	+	housing
4	+	+	management
5	+	+	feeding
6	-	-	management / knowledge
7	-	+	management
8	-	-	management / knowledge
9	-	+	knowledge
10	+	+	roughage supply

Looking at the response to advice, in general 7 out of the 10 farms demonstrated a positive follow up to various advices given; some farms gave follow up to part of the advice given (positive regarding forage production) and 3 farms showed little or no response (mainly because of management problems which developed during the pilot, poor communication between owner and farm staff, less interest than at the start).

The most crucial factor for positive follow-up is the awareness and commitment of the owner. Farm owners have to be made aware of/realise the opportunities for improvement. Visits to well managed farms like Alfa farms opened the eyes of many pilot farmers what could be achieved under Ethiopian conditions.
On many farms farm staff and owners lack basic knowledge and business orientation while on many farms there is a lack of data for guiding management and determining economic results.
Another factor linked to the commitment of the owner is the capabilities and motivation of the staff and workers at the farms. “To improve the situation field training is needed. But it is not only a matter of training, motivation is just as important. Therefore motivation schemes should be implemented to assure the full cooperation of all people involved.’ (E. Boonstra Report consultancy Ethiopia 1st visit, September 2011).

3.5 Possible future models for advisory service

Different models can be thought of how to organize farm advice for medium/large scale farms. The first question to be answered is: is there a need (market) for advice from the large-scale farmers point of view?

The pilot shows that there is a need for new innovations, technical advice and business development for motivated farmers who like to develop their dairy farm into a commercial business as only a few farms applied good farming practices.
The number of farmers who show keen interest is still limited but the number is growing as more investors (new entrants) show interest in dairy farming. Moreover, quite some existing dairy farmers are not aware about the profit potential of their farms and once this awareness is raised the number of farmers who like to be advices is likely to increase.

Reasons to organize good farm advice and organize training is the lack of attention from government extension agencies, lack of knowledge among owners and farm managers regarding good farming practices and new innovations, the limited number and lack of broad knowledge regarding dairy farming among local experts.

The medium and large scale commercial farms have the capacity to pay for farm advice. Once the motivated farmers see the benefit of better farming practices and new innovations, these farmers will be open for independent advice on a commercial basis.

The next question will be how could a professional advice for medium and large-scale commercial farms be organized on a commercial basis and that will be sustainable on the long term.

Possible models could be:

- A special farm advisory service for large-scale farms which is organized under the umbrella of the government (e.g. EMDTI). There are a number of draw backs concerning this model: the capacity of EMDTI and government extension service at this moment is very limited. Another factor is that the worldwide trend is that government agricultural extension services are being privatised as the financial burden for governments become too much. The sustainability of a government led extension service for commercial medium/large scale farms is questionable. Moreover, as the government and their agencies have also regulatory and enforcement mandates/tasks, much more efforts will be needed from farm advisors to win the trust of the farmers. However, government and their agencies like EMDTI can facilitate and support (e.g. training, subsidies) private farm advisory services or consultants.
- Farm advisory service models organized by the private sector take as starting point that farmers will be prepared to pay for these services either directly (payment for advice) or as service paid for by the product delivered (veterinary treatment, price of concentrate, price of insemination etc.). The last option becomes more and more common among farmers in western countries. However, knowledge level and access to knowledge (e.g. internet) of these farmers is high.
  Farm advisory business models organized on a private base could be;
  - Private farm consultants (2-3 persons with different expertise) organized as a private business. These farm consultants could provide independent advice for which the farmer has to pay. The main drawback of this is: is the farm prepared to pay for independent advice?;
  - Private farm consultants who are also agents for certain inputs, services (AI) etc. Advice becomes less independent but the advice is paid for by the input and service providers;
  - Private farm consultants who deliver also a service and/or inputs. At the moment most of the large and medium scale farms have a link with a veterinarian who does the treatment of cows on these farms. Farmers could make a contract with these service providers. An option could be that the knowledge a number of these veterinarians get updated so that they can advise these farmers on more aspects. A private veterinarian could also expand his/her business by employing a feed expert for advising his clients. Farmers pay for specific advice and some advice will be included in the treatment fee. It will depend on the capacity and business attitude of the present veterinarians if this model could work.
  - Private farm advice organized by the farmers themselves. This model is based on present advisory services model by farmers organizations in western countries (Denmark, the Netherlands). If the medium/ large scale farmers organize themselves, farm consultants could be contracted by this farmers organization. Farmers still might need to pay for specific advice but general overheads and running costs are paid collectively. This option might be the most sustainable on the long term and which should be explored (feasibility) and if there is positive response facilitated (group formation and business development) by EDGET. EDGET could facilitate/ subsidize also the start-up of this farm advisory service and slowly retreat.

4 Conclusions and recommendations

Conclusions

- Selection of suitable farms for the pilot and building a trust relationship with farm owners and managers was time consuming. It took more time and efforts than anticipated.
- On large scale farms run as commercial enterprises one has to deal with the farm owner (s) and the farm manager and his staff. The owner is the most critical factor for realising farm improvements. The motivation and commitment of the owner to improve the dairy farm and to invest is crucial for successful adoption of advices given. In general, a farm owner who is interested and committed has in general also capable and motivated farm staff.
- The sample of the 10 farms in the pilot were the most motivated and most potential who were selected out of an initial group of more than 30 medium/large scale farms.
- 2 of the 10 pilot farms developed management problems during the pilot phase and were dropped and replaced by 2 new motivated farmers; this shows how critical management is on these farms;
- Many farm owners are not fully aware of the commercial potential of their farm and options for improvement: first step for the advisors is to create awareness by for example organizing visits to well managed farms.
- Quality farm advice is considered as a key factor for increasing productivity on dairy farms. While small farms can access DAs (Extension department) for advice, larger farms cannot turn to any institutional capacity while the number of local farm consultants who can provide quality advice to these farmers is very limited. The level of practical knowledge of veterinarians and inseminators for example need to be improved to provide quality services (AI, PD, good diagnosis);
- Advice and technical assistance should focus on farms and farm owners who are really committed to develop their farm into a commercial business. However, creation of awareness among large scale farm owners could increase the number with interest and commitment (see above)
- On most of the large scale commercial farms (based on the large sample of farms visited) the level of management related to feeding, breeding, animal health, young stock rearing, milking (milk quality), forage production can be improved considerably. Most farms are not run as a commercial business. Most farms do not apply recording and have no information on the financial returns of the farm;
- Advice is particularly needed in technical subjects like feeding (particularly growing own forage), breeding, animal health and recording (breeding and herd records, farm accounts etc.) and preparation of business plans. An innovative housing system like applied by Alfa farms is a good demonstration and suitable model for many large scale farms.
  Labour management needs also much attention. On some farms labourers come and go while the management structure is very much top down. Farm staff is not well trained and often lack motivation because of poor pay.
- Basic knowledge on several critical aspects of dairy farming is missing on most farms. Farm managers and owners of pilot farms showed a great interest in the seminars of the Dutch consultants;
- From the 10 farms, 7 farms adopted several advices and realised tangible changes on their farms by improving housing, forage production, feeding practices, improving the health status of their animals. On the other 3 farms, decreasing interest of the owner, poor communication between owner and management resulted in less good results.
- At this stage a commercial advisory service for large scale farms (farmer pay for advice) is not feasible nor economically viable yet but for a group of motivated farms this is still a feasible option on the long term.

Recommendations

- As part of the dairy sector development in Ethiopia, EDGET should pay attention to medium and large scale dairy farm development as they can act as catalyser for dairy development in a region and at national level. Improved dairy farm management on medium and large scale farms will contribute to total milk supply and as result national food security.
- Well managed commercial medium- and large-scale farms could assist with development of small scale dairy farming by:
  - Provision of inputs (feed, breeding stock) and services (AI, animal health, milk collection) to small scale farms in their neighbourhood. One of the pilot farms collect already milk from neighbouring farms.

  - Well managed large scale farms could be also venues for practical training of students and farmers and demonstration (one of the pilot farms offer internships)
- During the next phase of EDGET (2012/2013) the pilot should be continued for another 2 years and extended with more farms. The following activities are proposed:
  - Provision of advice and measuring the response of the present farms (owners/farm managers);
  - More interested farmers and owners to be added to the group that receives advice;
  - Recruitment, training and coaching of local advisors, decreasing role of international advisors;
  - Exploring the readiness of owners to pay for advice and determining the market for professional advice eventually combined with services (vet service);
  - Preparing of a business model for privatised farm consultancy for large scale farms eventually linked with a local organisation as EMDTI or private business service provider which receives back-stopping from e.g. international dairy farm consultancy company.
- Exploration of the feasibility and organisational structure of a commercial farm consultancy service for large scale farms (including the market for it) should continue and be discussed with stakeholders (MoA , EMDTI, NGO's, business providers);
- EDGET should explore and facilitate group formation of medium and large scale farms in combination with possible models for commercial farm advice.
- EDGET should work together with MoA (Extension Department, EMDTI) to design a national system and tools for recording (breeding, herd records etc.) for use by commercial small- and medium- and large scale farmers and extension workers.

Annexes

Annex 1 Memorandum of Understanding with pilot farmers and annex to MoU

Memorandum of Understanding (MOU)/ Agreement

Agreement between the Market- linked Innovation for Dairy Development (MIDD) project and farm…. ……., identification number ……., representing the owner of dairy farm …….. in ……

Thereto MIDD, represented by the project manager Mr. A.P. Wouters and the Mr ……., representing the above mentioned farm make the following agreement:

MIDD will:

- Give free technical support to the farm management, according to the procedures and matters mentioned in Annex 1.
- Dairy specialists appointed by MIDD will give the fore-mentioned support.
- Call the farmer/farm manager every month to discuss shortly the on-going progress and on the progress of record keeping. The farmer also has the right to call the MIDD representative for specific advice once every month.

The farmer will:

- Co-operate fully with the dairy specialists in the fields mentioned in this agreement and will do his/her utmost best to implement the advices as agreed upon.
- Keep records of data as requested and according to formats provided by the dairy specialists of MIDD and allow the data to be used (confidential and nameless) for dairy advisory purposes.
- Every first day of a new month, the records will be send to the MIDD program.
- Participate in group activities with colleague dairy farmers aimed at improving the management and final economic results of the participating dairy farms and therefore of the whole dairy sector.
- Instruct Farm Manager and personnel to fully cooperate with the dairy specialist of MIDD and allow them to participate in trainings considered relevant.

The farmer is aware that it may take time to notice the economic results of management changes.

MIDD cannot be held responsible in any case for negative effects of implementation of mutually agreed advices provided by the dairy specialists of MIDD.

This agreement will remain valid until the 1st of May (the end of the pre-phase of the MIDD project. Thereafter the advisory service will be evaluated and the continuation will be discussed.

Approved and signed,

The Farmer	MIDD Project
……	……
Name ……	Mr ……

Annex 1 to the MOU

1. A standard visit will consist of:

- A visit will consist of prior telephonic or email contact with the farmer and/or manager. Agreement on date and hour, and on main topics to be discussed.
- The representative of the MIDD program visiting the farm minimal 3 times. After the actual visit, a written advice with summary on the discussion during the visit will be made.
- Discussions on farm progress. The MIDD program records sent by the farmer or farm manager, will be an important guide in the discussion.
- Milk production level, feeding, fertility and general management aspects will routinely be discussed.
- Other specific topics will be discussed according to the special objectives mentioned below, and agreed upon previously by phone or email.

2. Objectives and Farm specific advisory topics

Objectives/benchmarks to be used:

	Present situation	Intermediate objective	Final Objective
Number of adult cows			
Total annual milk production of the farm			
Average daily milk production of the farm			
Number of calvings per year			
% of calvings of total animals			
% of calf mortality			
Age at first calving approximately			

(to be added in each farm).

After visiting your farm and discussions with the farm management (owner and farm manager) we have agreed to give attention to the following topics:
(Mark the topics that are selected to deal with in the contract period). Priorities can be indicated with a letter (a, b, c etc.).

1. Feeding
   Discussions on feeding will involve:
   - 1.1 Daily rations used at the moment and recommended for next quarter for different groups of the adult herd and the grouping system itself. Special attention for the feeding policy/regime and around calving. We will take into account feed prices and qualities as far as data available.
   - 1.2 Feed economics: If possible: feed costs per litre of milk (as compared to other farms) will be discussed. Which feeds are cheap/expensive at the moment.
   - 1.3 Feeding of young stock, from calf to pregnant heifer

2. Herd management
   - 2.1 Number of calving's and inseminations will be discussed
   - 2.2 Data from fertility/health calendar will be analysed and discussed.
   - 2.3 Specific topics: Could be calf rearing, monitoring of growth of young stock, fertility aspects.

3. Breeding
    - 3.1 Agree and breeding aim and select the sires to be used at the herd.
    - 3.2 Select for each cow or heifer the most suitable sire, taking into account the phenotype and production of female and male and the (future) milking system at the farm.
    - 3.3 Agree on features for selection of a breeding bull for heifers and for adult cows.

4. Forage production and planning
    - 4.1 Select the most suitable forages for the farm and calculate the areas needed
    - 4.2 Make a grazing plan at specific farms
    - 4.3 Make an annual plan for production and purchase, taking into account prices, availability and feeding values.
    - 4.4 Make a fertilisation and manure utilisation plan for optimum use of manure and maintenance of soil fertility.

5. Animal Health
    - 5.1 Assist in obtaining expertise and training in analysing hoof problems and carry out preventive and curative hoof care.
    - 5.2 Organize group meetings on common problems in animal health like mastitis, calf diarrhoeas, hoof care.

6. Infrastructure
    - 6.1 Assistance with capacity calculations of buildings for milking cows, dry cows,, milking room, concentrate store, another stores, different groups of young stock, manure storage.
    - 6.2 Assistance with design of the above mentioned buildings.

7. Milking
    - 7.1 Correct hand milking and utensils cleaning methods
    - 7.2 Correct machine milking techniques
    - 7.3 Milk hygiene and cooling methods.

8. Farm economy
    - 8.1 Discuss economic parameters: Margin over feed costs and gross margin, other efficiency parameters.
    - 8.2 Use of forecast farm budget to monitor results.

3. Contact details MIDD representatives

Bram Wouters		bram.wouters@wur.nl
Wytze Brandsma	0923210975	wytzebrandsma@gmail.com
Abebe Tessema	0911645830	admas@gmail.com

Annex 2 Additional observations of consultants based on farm visits

- Basic farming knowledge is missing, what does a cow need. See basic diagram used by vetvice to show farmers what is needed
- How does the rumen work in combination how and how much should be fed. Lack in general farming knowledge, and because of high feed prices certain farmers try to save on feed costs, by not feeding adequate feed.
- Improvement of housing system (see diamond below)– need different farming innovative housing systems. E.g. Alfa Farms compost barn. Great number of animals have scours on the side of the body/legs
- On farm roughage production needs improvement
- Keep working on record keeping, to improve management and overview, it has to become clear that good records will improve the productivity and profitability of the farm
- Lack of qualified motivated people, maybe this has as well a relation with the salaries in the dairy sector. On certain farms labourers come and go.
- Difficult to work with all different working relations on a farm, general manager, herd manager, milkers, owner etc. Very much top down approach, is what is told properly explained to the workers
- Investors (around 10 have been met) start in dairy but have no clue what a modern cow needs, animals are kept in a traditional way
- Problem with availability of water for cows, only drinking outside in a feeding though twice enough is not enough
- Service box for hoove trimming is needed on a lot of farms
- Low supply of basic farm equipment and relatively expensive drugs
- Low practical knowledge of veterinarians and inseminators, for pd or to diagnose diseases
- Research institutes are not innovative, not working to what the sector needs
- Shortage in supply of the right vaccines
- FMD has a big impact on cross bred and pure animals. Causes loss of body weight, hoove problem, mastitis. Takes long time to recover.

Annex 3 Report on Animal Health workshop/demonstration Enyi farm 21th March, 2012

Present: Mr. Tilahun (Romina), Mr. Tilahun (Tadese Debre Zeit), Mrs Elena (Nardeli), Mr. Tafese (Timret), Mr. Tesfaye + herd recorder (Enyi), Veterinarian from other Enyi farm, Mr. Abtamu (Selale), Mr. Abebe, Mr. Marten, Mr. Wytze.

Program:
AM

- Nutrition- Roughage/ water intake (W)
- Function of the rumen (M)
- Vitamins & Minerals (W+M)
- Body condition & scoring (W)
- Starting up fresh cows (W)
- Milking hygiene / procedure (A)
- Mastitis strains (M)
- Hoof quality (M)

PM

- Practical body condition scoring
- Checking rumen
- Hoof cutting/trimming

The workshop was very much appreciated by all participants. Combination of theory and practice is very good. Enyi was very helpful and hospitable with their cooperation. The room used was perfect and the visit to the farm and the hoof trimming was appreciated very much by everyone. Two cows have been trimmed.
Selam Vocational Training Centre located in Addis Ababa will be asked to make a copy of this treatment box.

Below one of the hooves before and after trimming, a double layer was cut away.

7 laws for nutrition and healthy cows!

Points of attention:

1. Ad libutum roughage in quality and quantity:

Roughage is the motor of a cow, concentrate is the fuel.

2. Ad libitum water
3. Concentrate quality and quantity no free access
4. Good function of the digestion tract
5. Hoof quality
6. No stress
7. No pain

- ☞ The above laws results in good productivity of the animal
- ☞ Full rumen contracts 5-7 times in 5 minutes, lower number indicates that the animal has not eaten enough roughage. A cow who ruminates well produces around 60 l of saliva. This saliva is needed to keep the pH in the rumen at around 7.
- ☞ Rumen has a capacity of holding 150 lts of water. Cow producing 9 lts of milk needs 64 lts water while cow which produces 18 lts of milk needs 95 lts.
- ☞ Rumination enhances the production of propionic, lactic and butyric volatile fatty acids(VFA).
- ☞ Normal pH of rumen is around 7. The drop in pH lead to what is called sub-acute rumen acidosis (SARA) which kills the rumen micro flora i.e. protozoa and rumen bacteria.
  Effect of this lead to:
  - ✓ low milk production,
  - ✓ laminitis (hoof problems)
  - ✓ displacement of abomasum
- ☞ 10 kg roughage is absolute minimum requirement for a cow during 24 hrs but as the body weight increases the intake can increase to 15kg.

Annex 4 Framework concerning advises provided

Advisory service to be provided to the 12 chosen large scale commercial dairy farms around Addis Ababa

Major Activity/Advise				
Feed and Nutrition	**Milk Production and Quality**	**Calving Management**	**Record Keeping and Farm economics**	**Animal Housing**
Specific Activity/Advise				
✓ Encourage forage intake over concentrate ✓ Advice to avoid overfeeding concentrates to dry cows and recently fresh cows ✓ Advise on critical elements that must be done every day (water, rumination, rumen acidosis, feed waste in the faces)	✓ Encourage to cull infected cows with bacteria *Coryne payegenes,* and other communicable diseases; ✓ Advice on calving interval ✓ Advise on increasing milk production and productivities of the cow ✓ Advice on hoof care, mastitis and other factors affecting milk production, cow health, and milk nutrition ✓ Advice on clean milk production	✓ Advice on calving area ✓ Separating calves ✓ Advise on the importance of colostrum to new born calves ✓ Nutrient requirements of calves (water, calve starter, fiber etc) ✓ Advice on how to control pneumonia, scouring etc to minimize calf mortality ✓ Other management tasks	✓ Prepare and introduce different formats for advisory service and for regular follow up regarding: -the farm herd size - health and fertility -milk production -feed (concentrate +roughage) and other expenses which will serve as a centre point for other interventions ✓ Carry out cost benefit analysis and advise the farm on the outcome	✓ Advice the farm to maintain ample space, light, air, rest area for a better health heat detection, feed conversion and increased milk production ✓ Advice to improve waste drainage system and management
Outputs				
☞ Reduce costs such as veterinary, feed, supplies ☞ Increase labour efficiency ☞ Increase milk quality ☞ Enhances the appearance and comfort of the dairy cows /facilities ☞ Reduce the risks of environmental mishaps ☞ Preserve equity of the operation through optimum culling and replacements ☞ Well-structured records on herd size, health, fertility, feed and other expenses are adapted ☞ Detail instructions/ protocol for anyone with basic skills could be picked and follow them if need be. (This needs additional arrangement to prepare manuals)				

Annex 5 Some Remarks on possible model of Advisory Unit by Mr. Eelke Boonstra, consultant from the Netherlands

Organizational set-up

A possible set-up could be to start with three independent advisors, that are member/participant in an Advisory Association (or different organizational form).The advisors are only allowed to act in name of the Advisory Service as long they are member and have a licence that allows them to act on behalf of the Advisory Service.

Membership of the Association gives the right to advice in name of the service, and members will receive additional training and basic equipment. Monthly meetings and full exchange of experiences will be organised. Uniformity in advisory approach and in rates and invoicing system must be guaranteed.

The advisors can cover each one or more regions. Preferably they are living in the region (e.g. Debre Zeit, Selale, Holeta?). But it is also possible to recruit three persons who, besides the basics (feeding, normal herd management) specialise in certain fields (e.g. veterinary/cattle management, technical aspects, and agronomy) and cover all the farms.

Finally the advisors will be paid by farmers. But in the first period (three years?) they get a subsidy. The subsidy can be agreed on as a fixed amount monthly, or an allowance per advisory visit, or a % over the invoices paid by the farmers.
The invoices can be issued by the Association. The Association will get a % of the invoiced amount (15% ?).

A cost calculation per farm visit must be made to establish the rates to be invoiced.
The advisors should preferably be graduated as veterinarian, A.H. engineer or dairy technology engineer. The level of veterinary assistant is not high enough fort his job, unless personality aspects and experience compensate for it. They should have practical experience in practical dairy operations. Attitude, dedication and willingness to learn are important.

Judicial and fiscal aspects should be thoroughly sorted out. (V.A.T. and others). Also liability for the advice given should be clear.

The advisory team

The success depends to a large extend on the quality of the advisors. The implementation of good advices will be highly demanding and time consuming, especially in the beginning. As described elsewhere advance preparation of the advice and pre-consultancies with a specialist may be needed.

Every advisor should be specialized in a certain field, besides his basic knowledge of all subjects. Specialized fields could be: e.g. Technique (housing, equipment, milking, manure storage), Feeding and animal care and Roughage production, soil fertility maintenance.

Some important skills in which the advisors should be trained:

- **Feeding**
  Feeding pops up in all advisory visits. Advisors should have more than basic knowledge on feeding, know the special demands of different groups of cattle, and be able to make ration calculations at least to assure that energy and protein demands are met.

  Other important skills are: preparation of annual feed plans, make concentrate formulations, make price comparisons of available feeds based on their compositions.

  Feed samples can be analysed cheaply (50 BIR/sample with N.I.R.S. method. This should be a routine and advisors should know the interpretation of the results (maybe a casual comparison of results with another laboratory is needed)

- **Housing**
  Some improvements can be done easily (more ventilation/light). But the design of a new barn demands time and skills. A complicating factor is on how to make use most efficiently of the existing barns. The invitation of a building specialist should be considered to train the advisors in design of stables, making drawings, etc.

- **Advisory techniques and methodologies**
  How to conduct advisory visits, how to conduct group meetings etc.
  Besides visits and group meetings, modern extension methods should be considered like:
    - Collective mails with important news on e.g. feeds and prices.
    - Collective sms on meetings, or other messages.
    - Sending and receiving monthly reports by mail.

  At the start:
  The best is to advise topics for the farms that are chosen by the farmer as a priority, but in which the advisor also feels completely at home and capable to give a successful advice.

- **Herd management and health care**
  Interpretation of parameters of fertility/health calendar, normal herd statistics etc. Vets should be able to do PD checks. Training in diagnosing different hoof diseases and their treatments. Metritis/mastitis treatment protocols.

- **Economics :**
  Farm recording and administration, cost price calculation, budgeting?

- **Milking and milk hygiene**
  Know the basics of hand- and machine milking, cleaning and disinfection and principles of cooling and conservation.

Some basic equipment for the farm advisor

The advisor should have/ carry with him/her at least:
- A notebook
- Maybe a simple printer for printing out e.g.: written advice, feed advice.
- A data bank with
    - prices of : feeds, cattle, fertilizers, etc
    - data on measurements for stables, basic construction data
    - data on feeds
- Other equipment to be determined.

Annex 6 Example of fertility and health card

H2 **Fertility and Health Calendar**

Year: Heats Inseminations

Date of calving	Cow nr	Previous C.I.	Remarks about calving and health	1st heat	2nd heat	1st insem	**Days open**	2nd insem	3rd insem	4th insem	Pd 1	**Serv period**	Nr of insem	Next calv.	**Expected C.I**	Remarks/treat insem.
01-06-09	56	502	very heavy calving			15-09	**106**	08-10	20-11		Pr	**173**	3	25-08-2010	**453**	
12-9-2010	48	385		15-10		27-nov	**56**				Pr	**77**	1	3-9-2010	**357**	
15-8-2010	77		Retained placenta			18-dec	**125**	30-jan	12-mrt		Pr	**209**	3	17-12-2010	**489**	
15-12-2010	21	358		10-feb		29-mrt	**104**				Pr	**104**	1	9-12-2010	**389**	
10-2-2010	85			1-apr		31-mei	**110**	10-jul	20-aug		Pr	**181**	3	3-3-2011	**461**	
18-4-2010	15	450	metritis			20-aug	**124**	27-dec			Pr	**259**	2	2-8-2011	**539**	
25-4-2010	95		mastitis 04/07			10-nov	**194**				Pr	**194**	1	2-5-2011	**474**	
5-5-2010	16	389				5-okt	**153**				Pr	**153**	1	17-4-2011	**428**	
10-6-2010	37	436				20-okt	**122**	1-dec			Pr	**162**	1	25-6-2011	**442**	
11-6-2010	28	520	heavy calving			15-okt	**126**	26-nov	17-dec	8-jan			4			to be culled?
20-6-2010	65	280	Abortion			20-okt	**122**	11-nov				**143**	2		**423**	
25-6-2010	34	424	mastitis15-7	1-aug		10-nov	**137**				Pr	**137**	1	14-5-2011	**417**	4872
15-7-2010	29	393		15-aug		28-okt	**106**	26-dec	25-feb							442.909091
25-8-2010	48	481		28-okt		7-dec	**104**	10-jan								#VALUE!
20-12-2010	77	487		17-feb												=som(P4:P15
10-1-2011	80		Retained placenta/metritis													1619
20-2-2011	79		heavy calving													
5-3-2011	85	388														
Averages		**416**										**162**			**442**	

Annex 7 Discussion Note on Large Scale Farm Advice

From: Bram Wouters
Date: March 11, 2013

1. Background

The Large Scale Farm Advice was one of the pilots started in MIDD. The reason for this activity was that medium and large scale farms could contribute to the national food security while the performance of these farms was in general low, the government extension service did not address the needs of these farms and there is growing interest of businessmen to invest in the sector. Other considerations were that well developed large scale farms could significantly contribute to dairy sector development in general and could act as catalysers for small scale dairy farm development by means of demonstration and providing services. The medium and large scale farms may open also opportunities for development of linkages with Netherlands agri-business. The pilot was initiated to explore if large scale farms would respond positively to farm advice and if it would be of interest for the project to invest in further development of these farms.

2. Implementation of the pilot

Out of a list of more than 30 farms around Addis Abeba, 10 farms with a positive attitude to improve their farms were selected to participate in the pilot. The main characteristic of these farms is that most of the owners have several business activities among others dairy, farms are run by a farm manager and his staff. Agreements were made between owners and project concerning the type of advice given and the conditions (provision of farm data and other information by the farmer). The pilot has run from September 2011 till December 2012. Farm advice was organized by local consultants and ex-pat consultants from the Netherlands. Advice was given on feeding, forage production, housing, animal health, milking and milk quality, farm recording etc. by means of visits of the consultants to the farms, two seminar/workshops and visits to farms where new innovations regarding housing, forage production etc. were demonstrated.

3. Results and conclusions

A crucial factor for success is the motivation of the owner to improve the farm and to make it into a successful enterprise. A motivated owner will employ capable and motivated farm staff to run the farm and is open for advice. In the pilot about 7 out of the 10 farms met this condition. A trust relationship with the owner and the farm staff had to build up first and this was done by regular farm visits and during seminars/workshops but took more time than anticipated . Thereafter about 7 out of 10 farms adopted farm advice rather quickly and started to improve on housing, forage production etc. Changes in farm management and lack of communication between owner and farm manager were major reasons while there was no progress on 3 farms. The most successful interventions were improvements in animal health, housing and particularly on 5 farms improvement in forage production and feeding. On the farms also farm recording was introduced as nearly all the farms have little or no insight in their technical performance and profitability. However, proper and reliable data collection proved to be difficult on many farms. The farm consultants acted as catalysers to initiate improvements. Major conclusion: large scale farms with motivated owners are open to advice/ new innovations and adopt improvements rather quickly.

4. How to proceed during the inception phase EDGET?

Proposal:

a. Continuation of follow up and provision of farm advice during the inception phase (by Mr. Abebe Tessema as farm consultant) with the farms who were included in the pilot and have responded well during the pilot to maintain the relationships,
b. Evaluation of the pilot with the participating farms during the inception phase by means of a workshop. This workshop should also generate ideas on how farm advice for the large scale farm sector should be organized in future and to explore how the large scale farms in the 4 value chain

areas could contribute to the value chain development and how interaction with small scale farm development could be achieved;

c. Prepare a plan for large scale farm advice in the main phase (see also FTA formulated for large scale farm advice) and explore also possible linkages with Dutch agri-business initiatives (like 2@get there project Kenya/Uganda and investors).