



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



Feed the Future Mali Livestock Technology Scaling Program (FTF-MLTSP)

Quarterly report, April- June 2017



USAID
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August 2017

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Editing, design and layout—ILRI Editorial and Publishing Services, Addis Ababa, Ethiopia.

Cover photo— ILRI/Stevie Mann

ISBN: 92–9146–519-4

Citation: Feed the Future Mali Livestock Technology Scaling Program. 2017. *Feed the Future Mali Livestock Technology Scaling Program (FTF-MLTSP): Quarterly report, April-June 2017*. Nairobi, Kenya: International Livestock Research Institute (ILRI).

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The Feed the Future Mali Livestock Technology Scaling (FTF-MLTS) program seeks to contribute to the inclusive growth of the ruminant livestock value chain for increased income, food and nutrition security for 266,000 cattle, sheep, and goat keepers and other value chains actors in three regions in the country (Mopti, Timbuktu and Sikasso), hence lifting them out of poverty. Supported by the United States Agency for International Development (USAID) as part of the US government's Feed the Future initiative, the program sets out to bridge ruminant livestock productivity gaps and to enhance the volume and value of ruminant livestock marketed through a wide-scale dissemination of proven livestock technologies and best practices.

The program is implemented by the International Livestock Research Institute (ILRI) working with a consortium of public institutions (Direction Nationale des Services Veterinaires, Direction Nationale des Productions et Industries Animales; Laboratoire Centrale Veterinaire, Institut d'Economie Rurale), private sector organizations (private veterinarians, feed manufacturers) and non-governmental organizations such as the Catholic Relief Services (CRS), the SNV Netherlands Development Organisation, the Association Malienne d'Eveil et de Développement Durable (AMEDD), and the Agronomes et Vétérinaires sans Frontières (AVSF). FTF MLTSP also collaborates with ongoing FTF projects such as Livestock for Growth and other rural development programs in Mali that are pursuing similar objectives in order to create synergies among them.

This document was made possible with support from the American people delivered through the USAID as part of the US Government's Feed the Future Initiative. The contents are the responsibility of the producing organization and do not necessarily reflect the opinion of USAID or the US Government.

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Acronyms

AMEDD	Association Malienne d’Eveil et de Développement Durable
AVSF	Agronomes et Vétérinaires sans Frontières
CAHP	Community animal health platform
CAHW	Community animal health worker
CBPP	Contagious bovine pleuropneumonia
CNASA	Centre National d’Appui à la Santé Animale
COVEM	Collectif des Vétérinaires Mandataires
CRS	Catholic Relief Services
DNPIA	Direction Nationale des Productions et Industries Animales
DNSV	Direction des Services Veterinaires
FEAST	Feed Assessment Tool
FTF	Feed the Future
HBL	Hester Biosciences Limited
ICRISAT	The International Crops Research Institute for the Semi-Arid Tropics
ILRI	International Livestock Research Institute
L4G	Livestock for Growth
LCV	Laboratoire Central Veterinaires
LMIS	Livestock Market Information System
MEL	Monitoring evaluation and learning
MLTSP	Mali Livestock Technology Scaling Program
NGO	Non-governmental Organization
PPR	Peste des petits ruminants
PMP	Performance management plan
PMU	Program management unit
SNV	Netherlands Development Organisation

ToRs	Terms of references
ToTs	Training of trainers
TLU	Tropical livestock unit
PTAC	Program Technical Advisory Committee
USAID	United States Agency for International Development
ZOI	Zone of influence

Executive summary

The main Feed the Future Mali Livestock Technology Scaling Program (FTP-MLTSP) activities, achievements and challenges in the second quarter of 2017, can be summarized as follows.

- FTF-MLTSP has expanded its staffing with the recruitment of three new agents: a communication officer and two field officers. A monitoring and evaluation (M&E) system has been designed and put in place. Training of all implementing partners on the harmonized data collection, management and reporting systems was carried out.
- Significant progress has been made towards producing a thermostable peste des petits ruminants (PPR) vaccine. Three batches of PPR vaccines using three protocols have been produced. The evaluation of the thermostability profiles is underway and animal experiments to assess seroconversion are being prepared.
- Vaccination coverage has been limited this quarter coinciding with the period of high ambient temperatures. Vaccination campaigns are, however, being prepared.
- Innovation platforms (IPs) are more effective and focused in rolling out project target technologies and best practices. Stakeholders have a better understanding of the importance of IPs and the challenges associated with facilitating and sustaining them. There are, however, some IPs that need further support to enable them to improve their performance in ensuring quality animal health delivery systems, access to feed technologies, and better marketing systems.
- The 2017 cropping year is being prepared with the identification of additional beneficiaries for fodder and forage production, and seed procurement and distribution. There is great enthusiasm among farmers to engage in fodder and forage production as illustrated by the high demand of fodder and forage seeds. As a result, seed production and distribution systems will be a priority area of investment this year to sustain fodder and forage production. This year, the program gathered 400 kg of Brachiaria seed from various sources and has distributed them to beneficiaries.
- Several training courses were carried out to strengthen the knowledge and capacity of farmers and other extension agents on various integrated technology packages and best practices.
- The project established four feed grinding units that will help boots feed manufacturing and marketing in many communes.
- A few people have so far completed loan application processes despite joint efforts made by FTF-MLTSP and the Finance for Food Security and Women Entrepreneurship (FFSWE) project to link value chain agents to credit institutions, but the prospects are good. One farmer has completed the whole process of loan application and received funds from a financial institution to expand its activities. There is already a long list of credit candidates and collaborative work is underway with the FFSWE project to support these candidates to ensure successful credit applications.
- Efforts have been made to further link fatteners in project sites and the Laham abattoirs. There are still serious bottlenecks to overcome before the new livestock marketing system is effective and can expand. More consultation among partners is needed for consensus building and the project will work on that in the coming months.

I Background of planned activities in the reporting period

The four-year Feed the Future Mali Livestock Technology Scaling Program (FTF-MLTSP) is one of the Mali Feed the Future projects that was approved for funding in December 2015. It is aligned to the United States Agency for International Development (USAID)/Mali FTF program and more specifically to the Mali FTF livestock value chain component.

The overall objective of FTF-MLTSP is 'Livestock for growth in household incomes, nutrition and for national gross domestic product growth'. The overarching goal of the project is to contribute to the inclusive growth of ruminant livestock value chains for increased income, food and nutrition security of 266,000 cattle, sheep, and goat keepers and other value chains actors in three regions (Mopti, Timbuktu and Sikasso) of Mali, hence lifting them out of poverty. FTF-MLTSP sets out to (1) bridge ruminant livestock productivity gaps through a wide-scale dissemination of proven livestock technologies and the best practices in the target regions and (2) facilitate access by farmers to more remunerative livestock markets.

This FTF-MLTSP quarterly report covers the period between April–June 2017 during which further significant steps have been made towards achieving overall project objectives. The main activities and outcomes during the reporting period centred on pursuing the production of the thermostable PPR vaccine. We are at the stage of evaluating the vaccine's thermostability profiles. Collaboration with implementing partners has been continuing. Most of them have focused on the preparation for the cropping season during which the fodder and forage crops production will be expanded. In that connection, the main activities in the quarter involved the procurement of seeds and other inputs and large-scale training of farmers and extensions agents. Further steps have been made in developing contractual arrangements between cattle buyers and sellers. There is, however, a need for more consultations among partners for consensus building. The Mali Livestock Market Information System has expanded the network of livestock markets where market data is collected under the World Bank-funded Regional Sahel Pastoralism Support Project (PRAPS) investments to support the Observatoire du Marché Agricole (OMA) and the Direction Nationale des Productions et Industries Animales (DNPIA). A critical project investment during the reporting period was directed towards the establishment of four feed manufacturing units using feed grinders with significant involvement of women.

This report highlights main activities carried out by FTF-MLTSP and key achievements brought about by project interventions during the second quarter of 2017.

2 Progress during the reporting period under each project component

2.1 Program management, monitoring and evaluation

Project management

FTF-MLTSP has expanded its staffing with the recruitment of three new agents: a communication officer and two field officers. The communication officer will assist in enhancing the visibility of program interventions and achievements. He will also be involved in the production of extension materials. Kourounko Keita was the successful candidate. He holds a graduate diploma in communication from the Paris Institute of Audiovisual (IDA). He worked in the field of communication and rural development in Mali. He is bilingual and has significant knowledge and previous experience of more than 10 years with the media and working with regional and international development organizations in Africa.

The first field officer, Sidi Keita, has been posted in Koutiala and the second one, Ahmadou Sow, in Mopti. They will monitor partners' activities under the supervision of the technical team in Bamako. They will also reinforce the capacity of partners' staff within the framework of the program work plans. Finally, they will support the implementation of the project M&E system through data collection and quality checking. Keita and Sow each hold degrees in veterinary medicine. Keita previously worked as a private veterinarian and he has rich experience in animal health delivery in rural communities. He also worked more than six years in a development program working with local livestock producer's cooperatives. Sow is a veterinary doctor and animal scientist with experience in working with local communities in Tombouctou regions where he advised and supported livestock producers to improve feeding techniques, access to inputs and animal sanitary conditions.

Furthermore, the International Livestock Research Institute (ILRI) continues to work with technical partners and NGOs to implement FTF-MLTSP. In 2016, ILRI signed collaborative agreements with nine partners. So far in 2017, we have finalized the renewal of seven of those agreements through amendments. These partners are: Catholic Relief Services, SNV Netherlands Development Organisation, Association Malienne d'Eveil et de Développement Durable (AMEDD), Agronomes et Vétérinaires sans Frontières (AVSF), Laboratoire Central Veterinaires (LCV), OMA, and Direction des Services Veterinaires (DNSV). Discussions continue for the renewal of Institut d'Economie Rurale (IER) and Hester Biosciences Limited (HBL) contracts that are expected to be completed shortly. In addition to these existing partnerships, ILRI has decided to work with three new partners, VIA Consulting and Texas A&M University, for access to market information and Collectif des Vétérinaires Mandataires (COVEM), an association of private veterinarians in Mali. The collaboration with VIA Consulting has been formalized through a service contract. Formalization of the agreements with COVEM and TAMU will happen soon.

Monitoring and evaluation

From 19–24 May 2017, a workshop was held in Koutiala to finalize the design of the project M&E system and to train implementing partners on its use to harmonize data collection methods across project sites. The workshop was attended by the project managers, M&E officers, supervisors and other field workers from the project areas. The 6-day workshop brought together a total of 15 participants.

First, an overview of FTF-MLTSP was presented to give participants a better understanding of the project context, objectives, and implementation strategies. This was followed by an introduction of the concept and methods of M&E, a presentation of the data flow map and two working groups were formed to review and refine the draft M&E document. Each participant contributed to the finalization of the M&E document, which enable them to own and later

apply it. This was followed by a presentation of required reports for various stakeholders and their timelines and guidelines on project reporting strategy. Different formats for monthly, quarterly and annual reports were presented and explained by Cheich Toure, project M&E officer so that all partners can use the same reporting style. On the third day of the workshop, participants were exposed to the use of Open Data Kit (ODK) tool that will be used for data collection in the project.

A session on the development of the 'Logical Framework' for the project was facilitated by The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Feed the Future Groundnut Project leader, Hippolyte Affognon, as part of the collaboration among USAID FTF projects. The session enabled the participants to understand the vertical and horizontal logic of a logical framework and the different log frame formulations. The workshop enabled project partners successfully clarified project objectives, indicators and data collection methods.

2.2 Objective 1. Promote innovative animal health delivery systems and best health interventions to reduce disease burden in ruminant livestock

Activity 1.1 Produce and deliver a thermostable vaccine against peste des petits ruminants (PPR)

As a reminder, a key role assigned to Laboratoire Central Veterinaires (LCV) is the production of three batches of PPR vaccines using three different protocols (400,000 doses/protocol) as follows: (1) ILRI protocol with Lactalbumin as stabilizer; (2) classical LCV protocol using trehalose as stabilizer and (3) the LCV protocol using Xerovac as stabilizer. These three batches are key materials for the comparative evaluation of the thermostability profiles of the three different vaccines as well as their levels of seroconversion in animal experiments. In the second quarter of 2017, all three batches of vaccines were produced with the following number of doses per batch:

- 219,200 doses for ILRI protocol,
- 364,700 doses with classic LCV protocol, and
- 319,000 doses for LCV Xerovac protocol.

Quality control of batches of vaccines (LCV classic and ILRI protocols) was completed with acceptable results. The quality control is underway for the vaccines produced using the LCV Xerovac protocol. Only the result of the sterility test is available. The results of the other tests are not yet available. The thermostability tests has started with the calibration of incubators at 37°C, 40°C and 45°C covering all the batches for a 28-day test.

Activity 1.2 Support the prevention of ruminant livestock major epidemic diseases

During the second quarter, Direction des Services Veterinaires (DNSV) and private veterinarians vaccinated the following number of animals in 27 FTF-MLTSP target communes where no epidemics has been reported:

- 27,469 cattle against contagious bovine pleuropneumonia (CBPP)
- 30,321 sheep and goats against PPR
- 14,397 cattle against bovine pasteurellosis.
- 7,340 sheep and goats against sheep pasteurellosis.

The second quarter is the period of high ambient temperatures and therefore is not conducive for vaccinations. Furthermore, the mobility of vaccinators has been hampered by the volatile security situation in some communes. Private veterinarians are also still facing the challenge in getting sufficient supply of vaccines on time. In that regard, FTF-MLTSP has made progress in addressing the issue by linking private veterinarians to banks to get loans that enable them to make deposits at LC, the vaccine supplier, so that they have sufficient vaccine stocks.

Since 2016, 30 livestock village auxiliaries in the communes of Timbuktu, Alafia and Douékirié have been providing epidemiological surveillance information on main epidemic diseases (CBPP, PPR, anthrax, pasteurellosis, foot-and-mouth disease, and Rift Valley fever) in the project area. These village auxiliaries were trained by the project team in collaboration with the DRSV. For the year 2017, 20 auxiliaries have been identified and trained in the Soboundou and Soumpi communes. They were provided with epidemiological surveillance recording sheets to report on suspicious disease cases. No suspicious case of disease has been reported in this quarter. The activities of the auxiliaries are reported directly to the DRVS of Timbuktu which is also involved in their supervision.

Activity 1.3 Facilitate the formation and operation of community animal health platforms (CAHP)

Establishment of innovation platforms (IPs): The management committee of the Sio IP was set up during a workshop organized for this purpose in the village of Somadougou on 5–6 April 2017. Twenty-three (23) people including 2 women from 8 villages of Sio commune attended. They were fodder producers, livestock keepers, fatteners, butchers, livestock traders and veterinary services providers. The administration was also represented through the Sio 'sous-prefect', commune authorities, the Direction Régionale des Productions et des Industries Animales (DRPIA) and the Directions d'Agricultures (DRA). The workshop program included (1) an overview of FTF-MLTSP objectives, expected results, and partners, (2) a presentation of the concepts of value chain and innovation platforms (3) participatory development of the action plan providing guidelines for the operations and activities of the IP management committee to be set up and (4) establishing the IP management committee composed of 7 members including 2 women.

Sensitization campaign in existing IPs: An information campaign was held by the Catholic Relief Services (CRS) in 15 villages in Fakala and Socoura communes where IPs are already operational. This information campaign reached a total of 316 producers including 52 women (village chiefs, counsellors of the villages, feed producers, farmer trainers, butchers, fatteners, women group members, livestock keepers, feed traders, members of IP committees and Directions d'Agricultures (DRA) and DRPIA officers. It helped inform IP members and other stakeholders on objectives of FTF-MLTSP IPs, and their importance in implementing project interventions, IP action plan, the role and responsibility of the village committees (2 men and 1 woman) and their relationship with the IP management committees.

Rolling out technologies and best practices through IPs and enhancing the performance of IPs: Innovation platforms have been set up as mechanisms to facilitate wide scale dissemination of improved technologies and best practices in the project areas. Three key project thematic areas have been selected to operationalize IPs: i) to revitalize the animal health delivery system through better planning of vaccination campaigns to enhance vaccination coverage rates required for an effective control of main livestock epidemic diseases; ii) to roll out feed technological packages targeted by the project; and iii) to increase the degree of functionality of innovation platforms by mobilizing stakeholders around the project objectives. In view of these goals, the project organized, on 8–12 June 2017, a series of training courses focusing on these thematic areas targeting various project partners. Sessions of the training courses were facilitated by FTF MLTSP project team composed of Hamidou Kasambara and Ibrahima Traore. Target participants were animal health professionals including 3 Agents of Service Local des Productions et des Industries Animales (SLPIA) and UAPIA, and leaders of the 14 IPs of Mopti and Timbuktu.

Session I of the training focused on participatory analysis of weaknesses and strengths of current vaccination campaigns. It was realized that the current approach use is too directive, top-down, and has minimal involvement and empowerment of livestock keepers. This has resulted in poor immunization results and low vaccination coverage. The project proposed a new approach for vaccination campaigns as follows:

- **Planning a vaccination campaign:** Use a participatory approach that engages key project partners in setting vaccination targets. This process will consider other factors influencing vaccination performance such as farmers' willingness to vaccinate and to pay, validation of the campaign plan by farmers and other IP members.
- **Implementation of a vaccination campaign:** Training of vaccination teams; coordination of the campaign; management of personnel, stock and infrastructure.

Session II of the workshop dealt with the dissemination of integrated technological packages. The session started by providing participants with the theoretical background of the concept, approach and various sets of technological packages targeted by FTF-MLTSP to boost ruminant livestock productivity. This was followed by a practical demonstration of technological packages based on two case studies simulating cattle and sheep fattening operations. Participants were then given the opportunity to analyse benefits and costs streams related to their current practices. This enabled a participatory identification of areas where interventions could lead to increased biophysical gains and financial profits.

Session III focused on ways to strengthen the capacity of IPs. Using a participatory approach, the workshop facilitator went through the following steps: (i) a reminder of the main concepts and objectives of the project, highlighting the central role of IPs in rolling out innovations in a sustainable and inclusive manner, (ii) analysis of IP action plans to identify shortcomings and propose solutions, and (iii) group work on the process of developing an action plan based on a model that was shared in workshop. The participants' exchanges at the end of the various sessions of the workshop highlighted key strengths and weaknesses of IPs and critical recommendations were formulated to improve their performance.

Activity 1.4 Improve producers and community animal health workers (CAHWs) technical knowledge and skills to facilitate the uptake of selected animal health measures

Capacity development activities targeting private veterinarians (mandataires sanitaires) in planning and executing vaccination campaigns centred on sharing of a participatory approach for mobilizing stakeholders for setting vaccination objectives, developing implementation strategies and monitoring and evaluation. One key aspect dealt with ways to add value to the field work of private veterinarians to ensure the sustainability of their operations. Twenty (20) village auxiliaries were identified and trained in Soboundou and Soumpi communes in collaboration with the local public veterinary services and the communal chamber of agriculture. They will help IPs become operational and better implement the animal health activities of the project, especially in the execution vaccination campaigns.

2.3 Objective 2. To increase availability of quality feed biomass, improve feed utilization and husbandry practices and promote feed and fodder value chains

Activity 2.2 Facilitate the introduction and scaling up of improved dual-purpose crops varieties (cowpea, sorghum, millet) and forage species (Brachiaria and Bourgou) in selected regions

Identification of community organizations and beneficiaries

To ensure sustainability of interventions, CRS is partnering with community organizations in executing project activities in Mopti. This option has the advantage of facilitating better access and adoption of productivity enhancing technologies and best practices among producers, and monitoring of the adoption of these technologies.

The 55 producer organizations with 2,246 members (including 1,048 women) that participate in the project were identified and listed in Fakala, Socoura and Sio. These organizations target to plant 277.5 ha of dual-purpose crops as detailed in the table below during the next cropping season.

Commune	Villages	Producer organizations	Members			Area with dual-purpose crops (ha)			
			Men	Women	Total	Sorghum	Cowpea	Groundnut	Total
Fakala	7	21	389	451	840	36	37	37	110
Sio	7	20	259	383	642	34	36.5	33	1,035
Socoura	8	14	550	214	764	17	26	21	64
Total	22	55	1,198	1,048	2,246	87	995	91	2,775

In 12 communes in Sikasso and Koutiala, which are covered by the Association Malienne d'Eveil et de Développement Durable (AMEDD), 3,560 producers will cultivate at least 3,560 plots (1,780 ha) to produce fodder and forages. Thirty (30) Farmers' Field Schools totaling 15 ha will also be established in the 89 villages where the project intervenes. For this quarter, 40 producers per village (89)—3,560 producers—have been identified and are being trained in fodder production techniques (Brachiaria, sorghum, cowpea and groundnut). Consultation meetings in 12 communes and 89 village were organized and facilitated by AMEDD with the following number of participants:

- 554 people, including 83 women and 471 men, participated in the 12 municipal meetings,
- 4,628 people, of whom 1,388 women participated in the 89 village restitution workshops

Identification of seed producers

To provide broad information to agro-pastoralists on sources of seed supply, CRS has identified potential seed producers of dual-purpose crops (sorghum, cowpea and groundnut) in the project intervention area. Thus, 14 producers and associations of millet and cowpea seed producers are identified in 2 communes—7 in Sio and 7 in Fakala.

AMEDD also identified 30 Brachiaria seed producers in Sikasso/Koutiala. They were priority recipients of Brachiaria seeds imported from Brazil. After establishment of the forage crops, the area planted will be georeferenced and the surface areas planted will be estimated to inform project performance indicators.

Procurement and distribution of fodder and forage seeds.

To ensure wide dissemination of target dual-purpose crop varieties, CRS and AMEDD are applying a revolving seed distribution system. After harvest, each producer should return 100–200% of the seed quantity he first received. The organizations, in turn, redistribute this seed to other members giving priority to women farmers. Participatory investigations were also undertaken at DRA, IER and ICRISAT to find out the availability of suitable dual-purpose crop varieties. The following cultivars were chosen:

- For sorghum, four varieties (CSM63E / Seguifa, Malisor92-I / Jacumbe, Emba dendi and Emba grenue). 'Emba dendi' and 'Emba Grenue' are local varieties in the Douentza / Mopti region.
- For cowpea, three varieties (Wilibali, Korobalen and Sankaranka)
- For groundnuts, two varieties (FLEUR II and ICGV 86124),

In CRS target communes, 44 distribution sites were supplied with the following amounts of seeds: (1) 415 kg of sorghum seed (composed of CSM63E / Jakumbe, Emba dendi and Emba grenue); (2) 350 kg of cowpea seed (Korobalen, Wilibali and Sankaranka) and (3) 700 kg of groundnut seed (FLEUR II and ICGV 86124) from the ICRISAT groundnut program. These quantities make it possible to satisfy the seed needs of the sites even if certain

varieties (Malisor 92-01 / Seguifa, for example) are unavailable due to seed shortages at the time of purchase. Furthermore, other projects implemented by CRS (Scaling-up Climate-smart Agroforestry Technologies in Mali

[SmAT-Scaling], West Africa Productivity Program (WAPP), ICRISAT) will contribute to the broad satisfaction of seed demands.

In Sikasso and Koutiala, AMEDD supplied seeds in 12 project target communes: (1) 5 tons of FADDA sorghum, (2) 1,825 kg of Niébé Sangaraka, (3) 1,455 kg of Korobalé copea and (4) 200 kg of Dounafana cowpea, (5) 84 kg of *Brachiaria riziensis* (local production); 60 kg of *Brachiaria Riziensis*, 30 kg of *Brachiaria decubens*, 20 kg of *Brachiaria brizantha* (from Brazil).

Training on fodder production and use

Training of trainers on production of dual-purpose crops. In Mopti, a first session of intensive training was carried out in each of the three target communes covered by CRS (Fakala, Socoura and Sio) with joint facilitation by DRA and DRPIA. One hundred and thirty-two (132) farmer-trainers, including 44 women benefited from the two-day training per site that focused on (1) the analysis of livestock constraints and alternative solutions, and (2) roles and responsibilities of trainers and definition of criteria for the selection of farmer-trainers by the participants.

The second training session, which was attended by 148 participants (including 36 women), was organized in each of the three CRS target communes on fodder production techniques. In fact, based findings of the first sessions and other resources, CRS in collaboration with the DRA and DRPIA officers developed facilitation guidelines for modules relating to the production of dual-purpose crops. The second training session focused on the following modules: (1) composting techniques and importance of the use of well-decomposed compost; (2) importance of use of improved seeds; (3) seed treatment; (4) establishment of fodder crop plots; (5) ploughing and sowing conditions; (6) crop association techniques (millet/sorghum and cowpea); (7) techniques of single crop cowpea production; and (8) importance of crop rotation in soil fertilization.

In Sikasso and Koutiala, 25 trainers including 6 AMEDD agents, 6 resource persons, 4 trainees and 9 peasant association leaders have been trained to, in turn, train 3,560 producers listed in the 12 target communes covered by AMEDD.

Training of trainers on *Brachiaria* production

A training of trainers took place at the AMEDD premises in Koutiala from 5–7 June 2017. The training was provided by Sawa Camara, a scientist at the Institut de Recherches Agronomiques de Guinée. The theme of the workshop was 'Brachiaria production techniques: rationalization of practices through the production of seedlings in nurseries'. The training introduced trainers to the rational techniques for the production and management of *Brachiaria ruziensis* with emphasis on the production of seedlings in nurseries. This session was attended by 23 people, including one woman. Among these participants, 14 were agro-pastoralists (9 from AMEDD and 5 from SNV), 6 AMEDD agents, 2 representatives from the Sikasso and Koutiala SLPIA.

During a first theoretical phase, the focus was on reviewing the general knowledge on the subject (problem analysis of the problem of feeding livestock, importance of forage crops, *Brachiaria* production condition (single crop or in combination with maize, sorghum, millet,). Thereafter, emphasis was placed on methods of producing seedlings in nurseries (wet nurseries, dry nurseries, transplanting conditions, etc.) in forage crops, the strategic importance of seedling production nurseries as part of the rationalization of practices.

Indeed, the production of seedlings in nurseries allows savings on amount of seed needed of 66.67% to 87.5% (1 kg of seed/ha instead of 3–8 kg for seeding in line or 20 kg on broadcast seeding system). A second practical phase carried out in a farmer's field in the village of Bogoro, allowed participants to get familiar with different sequences of the technical itinerary through the work carried out on two well-ploughed and fertilized sub-plots.

Farmers' field schools (FFS): Eighty-nine (89) voluntary producers (1 per village) were selected with respect to criteria that including volunteering, accessibility of field schools and equipment level to accommodate a FFS. In each village, 40 selected farmers will be exposed to technical aspects of forage and fodder production within the framework of the FFS. After the training, AMEDD officers developed and implemented training modules for the duplication of the training of fatteners identified in 89 villages with the support of technical services (SLPIA and private veterinarians).

Bourgou production: In the Timbuktu communes of Somboudou and Soumpi (Niafunke cercle), the Agronomes et Vétérinaires sans Frontières (AVSF) carried out a rapid diagnostic survey among 18 local Bourgou-producing organizations. The processing of the data of this survey made reached 10 new cooperatives. To encourage Bourgou production in target communes, 10 cooperatives have benefited from training on Bourgou production techniques, and access to Bourgou seeds and motor pumps to ensure irrigation of plots before flooding periods.



Activity 2.3 Promote the scaling up of integrated packages for improved cattle, sheep and goat productivity

Census of fattening operations: A census of fatteners and the number of animals they plan to fatten in the 12 target communes covered by AMEDD was carried out. As of 30 June 2017, 1,182 fatteners have been identified and will benefit from training on integrated packages including management of fattening operations. They plan to fatten 2,051 cattle and 1,330 sheep (for women). Out of 1,182 fatteners, 445 volunteers were targeted for the preparation of their business plans considering their current capacity and prospects for future expansion of fattening activities.

Training on integrated packages: Training of trainers on integrated packages was done by the project team (see Activity section 2.3.3). The linking of the theoretical and practical phases of the training sessions enable the future trainers to gain a better understanding of the concept and the approach that will be used in facilitating future training sessions with beneficiaries. The sessions held in Koutiala and Sévaré, respectively in May and June 2017, covered: (i) management of a fattening operations; (ii) raising small ruminants; (iii) maintenance and management of work oxen; and iv) feeding lactating cows. Also, the census of participants with respect to their priority area of interest allowed the setting up of four training groups within each platform, based on the modules mentioned above.

Extension and advisory support provided to fatteners in feed, health and housing management, estimation of production costs and expected profits enabled 20 fatteners, members of Farakala and Kouoro IPs, to successfully complete fattening operations. Fattened animals, originally intended for Laham slaughterhouses, were finally sold in local markets especially due to high transport costs to Laham in Kayes.

Activity 2.4 Develop capacity of producers on feed processing and promote the consolidation or establishment of private small scale feed manufacturers

Establishment of feed grinding units. To achieve the objective of significantly increasing the availability of quality livestock feed, FTF-MLTSP called on the National Center of Specialization for Livestock (CNS-EL) of Niger to train project beneficiaries

on techniques of producing multinutrient blocks using feed grinders. The training workshop was designed and implemented by Dangoma Abdou, a scientist from the Institut National de la Recherche Agronomique du Niger (INRAN)-Niamey Niger along with Boubacar Adamou from DARMA-Dosso, Niger, an expert in charge of feed grinders operation and maintenance. To reach many beneficiaries, two workshops were organized. The first was in Mopti- Sévaré from 18–21 May and the second in Koutiala from 22–24 May 2017 in the village of N'Goutjina. The aim was to teach beneficiaries (1) how to manufacture multinutrient blocks (formulation of blocks based on local resources, use of blocks by animals, calculation of the related costs) and (2) how to operate, handle and maintain the feed grinders.

A total of 54 project beneficiaries were trained, including 32 men (59.3%) and 22 women (40.7%). In all sites, training on the formulation and manufacturing technique of Densified Multi Nutrient Blocks (DMNB) for livestock feed was conducted in two phases. In phase I, the theoretical background on different stages of manufacturing feed blocks, details on equipment, materials and ingredients required, and hygiene and safety at work was presented. The second session was a practical demonstration of how the grinder works, feed materials to be used, formulation and manufacture of blocks, block molding and cost calculations by beneficiaries. A participatory approach associated with the translation of the modules in Bambara was adopted as a method during all theoretical and practical training sessions. A total of 230 blocks were prepared by the participants, 138 of them in the Mopti-Sévaré site and 92 in the N'Goutjina site. The workshop concluded with key recommendations on ways the equipment could be made available for wider adoption in the regions and strategies to manufacture the equipment locally and how to operate and maintain it profitably.



Monitoring of the production and marketing of multinutrient blocks by the multifunctional cooperative of Zangasso. From March to May 2017, 1,643 women benefited directly from the training on, and other benefits the production and marketing of multinutrient blocks. The Zangasso cooperative generated an income of FCFA 654,400 in 30 out of 50 productions cycles which were planned.

2.4 Objective 3. To leverage USAID-led livestock market development and policy initiatives in support to the scaling up of ruminant livestock productivity enhancing technologies

Activity 3.1 Revitalize the livestock market information system to capture market incentives

With support from FTF MLTSP, the Mali Livestock Market Information System (MLMIS) continues to collect data in following 19 livestock markets: Sikasso, Niéna, Mougna, Koutiala, N'Togonasso, Djenné, Somadougou, Fatoma, Konna, Sofara, Kouro Barrage, Zangasso, M'Pessoba, Ségou, Bamako abattoir, Niamana, Kati, Kayes and Nara. Last year, 17 field information collectors and 4 controllers were trained on how to collect and send market information to the server using mobile phones. The process of collecting and sending data to the server is on-going.

In addition to FTF MLTSP, the World Bank-funded PRAPS project is supporting DNPIA and OMA to monitor 14 additional markets throughout the country. Currently, DNPIA, OMA and PRAPS teams are working to develop a common methodology that will consider the real needs of all actors in the livestock sector. The team drafted

strategic guidelines for a sustainable livestock market information system that responds to the information needs of stakeholders. To achieve this objective, it is necessary to work not only to create an enabling environment for hosting the structure, but also to consider how this livestock market information system could demonstrate an intrinsic value for OMA and a reason to be indisputable.

A new methodology for collecting data on livestock market was developed by the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS) which will allow monitoring additional market indicators such as number of animals sold, number of animals exported, animal weight, accessibility of inputs (price, evolution of prices), meat prices, price and quantity of hides and skins, and milk prices and supply.

The system is also disseminating information about animal prices through several radio stations. Market enumerators and radio producers and broadcasters are working together to disseminate livestock market information in community radio stations every week.

The coordination and management of project activities, server management and data quality control are done by OMA Staff. The team at OMA is making sure that the data coming through mobile phones from field information collectors is reliable and recorded. During this quarter, the OMA team worked closely with DNPIA and collectors to ensure that the information collected was reliable and sent on time. The team also monitors the regularity of market coverage to avoid gaps in the database. One of the five hard drives for storing this data failed and had to be replaced and the OMA team is currently updating data records.

The OMA team, devoted most of their efforts in this quarter to making the livestock information system even more dynamic and operational. This was achieved through the collection of information on the 19 markets selected by the project. Starting April to the end of June 2017, the investigators sent 1,400 SMS related to the information on agricultural markets. These include information on the number of animals presented in the 19 markets monitored, livestock prices with respect to species, breed, sex and conformation. During the reporting period, 500 professionals used information on livestock markets for their business decision-making.

Through the OMA media network, made up of more than 30 radio stations, livestock keepers and market agents accessed information on animal price dynamics. During the past three months, approximately 160 radio announcements have been broadcast on private or community radio stations to livestock producers and livestock market agents using local languages.

As part of the collaboration between World Bank-funded PRAPS project, DNPIA and OMA, 28 field information collectors, including 14 permanent members (all DNPIA agents) and 14 substitutes, all members of livestock cooperatives or livestock management committees, were trained on techniques to collect information on livestock markets. Seven (7) regional controllers and 7 regional supervisors were also trained on the new market access methodology at the regional PRAPS based in Ouagadougou, Burkina Faso. This new methodology is adapted to the one used in the Livestock Market Information System (LMIS) to allow field agents to better transcribe the information collected using SMS code.

Activity 3.2 Facilitate the development of competitive cattle and sheep production and marketing models

Promote access to financial institutions by livestock value chain actors: Linking producers, producers' organizations to local financial institutions

The Finance for Food Security and Women Entrepreneurship (FFSWE) program in collaboration with FTF-MLTSP organized a workshop designed to enhance links between producers and the decentralized financial systems and the banks, in June 2017 at Sikasso. It was attended by more than 200 producers, representatives of the producer

organizations, partner NGOs, decentralized financial systems and banks from several communities in Mali (Bamako, Sikasso, Koutiala, Bougouni, Yanfolila). The workshop was moderated by David Coulibaly of DC Consulting.

The program included presentations by projects (the International Executive Service Corps

(IESC), SNV Netherlands Development Organisation, MLTSP, ILRI, USD Cereal Value Chain (CVC) followed by those of banks (Bank of Africa (BOA), Banque malienne de solidarité [BMS-SA], Banque Internationale pour le Mali [BIM-SA]), which included information on their financial products. Participants also had opportunity to further interact and exchange information with the staff of the financial institutions in display booths. Direct links between participants and the financial institutions were established. There were 4 participants from the FTF-MLTSP target communes covered by SNV. As a result, Baber Sanogo from Farakala had his business plan finalized and his loan application is being processed. In addition, MICROCRED, a local microfinance institution was linked to a cattle fattener (Robert Sanogo), and they visited his farm to assess his investment needs on 8 June 2017. The recipient has received a loan of FCFA 2,000,000 (CFA 2 million).

The loan application of private veterinarians 'mandataire' of Sikasso and that of a Farakala fattener have already been approved by the BOA. Those of the other veterinarians and fatteners in the Koutiala, Farakala and Korobarrage platforms are being established by the program officer based in Sikasso.

Linking fatteners with Laham Industries abattoirs

Following multiple meetings initiated by the MLSTP and Livestock for Growth (L4G) projects between fatteners in their respective zones of influence and the Laham slaughterhouses, agreements between the two parties on principles of cattle transport were reached. However, poor producer organization in handling cattle transport costs, traditional mindsets (animal sales based on live weight little known to producers) and the attitude of traditional livestock traders who undermined the new marketing system, were serious obstacles to transfer truckloads of cattle to Laham. We are working to minimize these challenges to increase the sales of cattle to Laham slaughterhouses.

3 Gender related achievements and how gender is mainstreamed into the activities

The contribution of women is very important in household income generation and nutrition security. For equity reasons, the project is striving to mainstream gender consideration in all activities to ensure women and youth benefit from its interventions. In the reporting period, further efforts were made to operationalize the project gender strategy. We started by making sure that women were exposed to knowledge and technologies introduced by the project by involving them in all capacity development initiatives.

The participation of women in different activities conducted by CRS was as follows: (1) 33% of participants in the training of trainer's producers; (2) 50% of participants in the training of agro-pastoralists on use and maintenance of feed grinders. Among loan applications, 26% were from women applicants for 21% of the total loans requested loans. We also ensured that women are appropriately represented in IPs which are decision-making bodies and boosted their contribution in strategic activities such as cattle fattening, and feed manufacturing. During this reporting period, 103 (Sikasso 36 and Djenné 67) women participated in forage production, small ruminants fattening, milk production, and feed manufacturing. Women groups were selected specially to take part in the establishment of feed grinding units.

4 Synergic activities achieved with other partners

Livestock for Growth (L4G). The Feed the Future Mali Livestock Technology Scaling Program (FTP-MLTSP) and L4G teams met two times to prepare for the 2017 Tobaski operation to promote export of rams to neighbouring countries and in local markets. Drawing lessons from last years' experience, this year, Côte d'Ivoire and Guinea markets will be particularly targeted.

Finance for Food Security and Women Entrepreneurship program (FFSWE). FTP-MLTSP and FFSWE held regular meetings to find ways to facilitate access to bank credit for livestock value chain players (fatteners, breeders, groups of women, private veterinarians, and feed manufacturers). Candidates for bank credit have been identified among fatteners and private veterinarians who indicated the loan amounts they need. Financial intermediaries based at Sikasso are currently helping them prepare and submit their credit applications.

Food for Peace (Harande). ILRI has prepared a scope of work and associated budget and submitted them to the Feed For Peace (Harande) program. The livelihoods diversification and resilience enhancing options developed by ILRI will be scaled up in Harande zone of influence.

ICRISAT Groundnut program supplied FTF-MLTSP with groundnut seeds that were distributed in target communes. The groundnut program manager has also provided key inputs in the design of the project M&E system that is strengthening the capacity of implementing partners on M&E systems. In the project sites, implementing partners have also made specific collaborative agreements with other donor-funded programs such as the World Bank-funded WAPP program implemented by DRA, which has distributed seeds in Mopti. The CRS dissemination strategy was supported by the DRA manager who availed 350 kg of sorghum seed (Malisor92-1) for dissemination in Fakala, which filled a gap (dissemination to producer organizations) that the ILRI project could not fill. The SmAT-Scaling project also supplied Sankaranka seeds, which was in great demand.

5 Problems/challenges in the reporting period and the anticipated solutions

The fragile security situation in the areas of intervention is a major obstacle in reaching out to some target communes because it has contributed to weak or non-operational livestock services that are meant to support the project.

Innovation platforms and facilitators of Farmers Field Schools find it difficult to finance their action plans and to mobilize their members mainly because of the lack of resources for meeting support costs. Meetings were organized with IPs to find ways to generate resources through the platforms and to source funding of IPs and FFS meetings.

There were also some power struggles between innovation platforms, communes' and cooperatives' leaders. In communes such as Kouro and Gongasso where such conflicts emerged, consultative meetings clarified the expected roles and responsibilities of each partner and agreements were reached on ways to manage IPs.

The new livestock marketing system that directly links Laham slaughterhouses to producers faces with numerous challenges including disagreement on the price of FCFA 1,000/kg of live weight, use of live weight as a basis for sales, payment procedures (farmer prefer to get their money on the spot) and traditional livestock keepers rejection and undermining of the new system to ensure their own broker operations are sustained. Consultations among producers, Laham and project officials are underway to reach consensual agreements on the issues raised above.

6 Success stories

6.1 Efad Mohamedoun, pastoralist at Assana, Timbuktu



Efad Mohamedoun is a 55-years-old chief of Assana, a Tuareg camp located 30 km from Timbuktu on the Timbuktu-Goundam-Bamako road. He is also the president of the Tamzizat association, which has been supported by FTF-MLTSP to promote Bourgou production. The cooperative benefited from a motor-pump, Bourgou stem cuttings for propagation of the plant and training on Bourgou production and use techniques. The 40-member cooperative has established a 'Borgoutiere' of 10 ha which produced 17,000 Bourgou grass bundles weighing 3.5 kg per unit.

Mohamedoun produced 5,000 bundles in his own 1 ha 'bourgoutière' to feed his 33 cattle (including 20 dairy cows) and 40 sheep. He is a pastoralist, and his livestock assets are his main source of livelihood. In

the past, his life has been marked by periods of movement to search for pastures and water to feed his animals. From June, he moves to the Gourma and returns in August. During the period April to May, Bourgou grass harvested from his Bourgou plot constitutes the main feed supply to his lactating cows and sheep. Milk is used primarily for home consumption and any surplus is marketed in Timbuktu.

This year, the Tamzizat association has stored 3,000 Bourgou bundles to feed animals and sold 2,000 bundles at FCFA 200 /unit. This generated an income of FCFA 400,000 which was used to purchase 20 bags of feed concentrates to secure animal supplemental feeding during the dry season. The balance of the money was used to care for family members and pay school fees of three children including two girls in Timbuktu. Overall, the FTF-MLTSP support to the Tamzizat association for the promotion of Bourgou production and marketing in Assana in the commune of Alafia found real success. It has helped to diversify the livelihoods options of members and their including that of Mohamedounin.



6.2 Oumou Dicko, fattener and milk producer, Koumaga, Femaye

Oumou Dicko is a Fulani woman producer from the 'circle' of Djenné in Femaye commune in Koumaga village. She is a dairy farmer and sheep fattener. To increase her production and diversify her sources of income, she engaged, in 2016, in fodder production. Dicko received sweet sorghum seeds and guidance on how to cultivate it from the FTF-MLTSP. She harvested 1.2 tons of fodder and 1 ton of grain of sweet sorghum which enabled her to feed her cows for 3-4 months during the dry season ensuring an increase in milk production. After grazing on poor natural pastures, cows received fed supplement in the form of sweet sorghum fodder and concentrate.

When fed the sweet sorghum fodder and grains harvested on-farm, the cows produced twice their daily milk yield during the dry season (3-4 l/day instead of 1-1.5 l/day). The additional milk ensured her children were no longer malnourished in the dry season. In addition, the reproductive performance of her cows also improved because of better feeding and she no longer loses her animals due to feed shortages in the dry season. Furthermore, the sale of fresh milk is a source of additional income.

6.3 Fatie Sanogo, fattener from Farakala, Sikasso

Fatié Sanogo is a small ruminant fattener from the village of Farakala. In 2016 and 2017, he benefited from forage seeds and practical advice from FTF-MLTSP. During the 2017 campaign, he fattened and sold 60 cattle, in 3 rotations between January and June. In one operation, he spent an average of CFA 125,000 for the purchase of the animal, CFAF 7,500 for his transport from Sofara to Farakala and CFAF 25,000 for his food and healthcare. After two months of fattening, he sells his animals at an average price of CFA 207,500. He made an average profit of CFA 50,000 or a total profit of CFA 3,000,000 from January to June 2017. The income generated from this activity allowed him to meet the needs of his family but also to make investments to improve his production capacities. Thanks to this performance, and to the partnership with FTF-MLTSP which linked him to decentralized financial systems (SFD), he received a CFA 2,500,000 loan from MICROCRED in June 2017 to expand his capacity of production.

7 Lessons learned

- In Timbuktu, collaborative agreements were signed between the project implementing partner, AVSF, and public local regional technical services (DRPIA and DRSV). They enable the involvement of local technical services in the implementation of the project which is a key strategy to ensure sustainable extension and advisory services are provided to beneficiaries after the end of the project. An agreement was also signed between the project and the beneficiary cooperatives for the maintenance and operation of the motor pumps.
- In view of the high demand in dual-purpose crops and forage crops, FTF-MLTSP will make further investments in the expansion of these crops and to ensure the sustainability of their production and marketing. In that regard, to reduce the costs associated with purchasing seed from private individuals, the project has trained cooperatives on techniques of establishing their own Bourgou nurseries. Emphasis will be placed, this year, on the production of more Brachiaria seed and better distribution systems.
- To ensure that the recommendations from the deliberations of innovation platforms are considered in the community investment plans, each platform's committee members will organize feedback meetings in their own commune.
- A better understanding of the challenges in the development of contractual arrangements between Laham abattoirs and producers in FTF-MLTSP project sites indicates that further consultations among partners are necessary to create consensus leading to win-win deals. In this connection, ILRI will conduct a detailed study to know the gainers and losers and extent of losses and gains along the traditional and new livestock value chains. This will help better inform decision-making at the individual, Laham and national policy formulation levels. 8 Planned activities for next reporting period

8 Planned activities for next reporting period

8.1 Program management, monitoring and evaluation

- Continue data collection to inform project indicators and ensure timely project reporting
- Conduct an annual survey for the preparation of the annual report.
- Produce annual report.
- Organize a planning meetings to develop the work plan and budget for FY18.

8.2 Project interventions

- Pursue PPR thermostable vaccine production including completion of the assessment of the thermostability profiles of three vaccines and carry seroconversion trials using animal experiments.
- Pursue the vaccination campaigns: further develop the links between private veterinarians and banks and between private veterinarians and LCV for the supply of vaccines.
- Widen training of farmers on animal health, feeds and feeding and integrated packages.
- Support fodder and forage production activities.
- Develop business plans for four feed processing units and monitoring of women cooperative producing multinutrient blocks,
- Complete survey on small ruminant fattening operations and develop related business plans.
- Pursue activities related to Mali LMIS operations (market data collection, upgrading of LMIS, development of the business plan and funding mechanism strategies).
- Intensify links between Laham abattoirs and fatteners in IPs and implement the Tabaski ram selling operations.



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