

Sindh Agricultural Growth Project - Livestock

Report on capacity building training of district livestock staff on dairy production technologies

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International Livestock Research Institute



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Abbreviations and acronyms

ADL	Assistant director livestock
AI	Artificial insemination
AIP	Agricultural Innovation Program
AHM	Animal health management
CVDL	Central Veterinary Diagnostic Laboratory
DFM	District farm manager
DoLF	Department of Livestock and Fisheries
DPIU	District Project Implementation Unit
DVC	Dairy value chain
FF	Feeds and feeding
FMD	Foot-and-mouth disease
IDA	International Development Association
ILRI	International Livestock Research Institute
LLS	Lady livestock assistant
LPO	Livestock production officer
MPGs	Milk production groups
PIU	Project Implementation Unit
PMU	Project management unit
SAGP-L	Sindh Agriculture Growth Project –Livestock
SPU	Semen processing unit

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I. Sindh Agriculture Growth Project—Livestock component objectives and strategies

Sindh Province has 23.8% of Pakistan's population, 18% of its land area, 16% of its total cropped area, and contributes about 23% to national agriculture Gross Domestic Product—primarily through wheat, rice, cotton, sugarcane and milk production. About 30-35% of Sindh's population lives below the poverty line, and a majority of the poor are rural. Sindh's poverty is often attributed to inequality in land distribution, which has increased over time. Production largely depends on sharecropping (42% of farms in Sindh), the extent of which has remained nearly twice as much as other provinces for the last 50 years. The Government of Sindh through the Government of Pakistan received an International Development Association (IDA) credit to meet part of the costs for the Sindh Agricultural Growth Project (SAGP), whose livestock component is implemented by the Department of Livestock and Fisheries.

The SAGP aims to improve the productivity and competitiveness of small- and medium-scale producers in selected commodity value chains. This will be achieved by: (i) investing in knowledge and technology for producers, sub-sectors of crops and livestock; and (ii) strengthening public sector institutions to enhance the enabling environment for sustained sectorial growth. The project focuses on five key value chains, which are chilies, onions, dates, rice post-harvest loss management, and dairy. These value chains have a smallholder farmer focus, with significant involvement of women in production and processing.

SAGP-Livestock component concentrates on the following strategic areas:

- **Component A: Capacity building and institutional development:** This component finances activities around technology development, technology dissemination, capacity building, and strategic planning for Sindh's livestock sector.
- **Component B: Investment for livestock growth:** This component finances the formation of milk producing groups (MPGs) in all targeted districts. It targets small- and medium-scale milk-producing households, but since women are involved in at least 80% of production management, it also provides services exclusively targeting women (e.g., extension messages, female extension agents, etc.). The number of targeted MPGs per district varies according to the animal population and market linkage potential (each ideally having a production capacity of 1,000 litres per day). Initial targeting of producers to form MPGs focuses on identified 'milk pockets' in the selected districts.

The scope of the dairy value chain activity is to establish 153 MPGs in 10 districts. The activity also seeks to provide veterinary services, artificial insemination (AI) and diagnostic facilities to over 30,600 animals, and is also mandated to train MPG members on improved/modern techniques on dairy production. The activity also includes social mobilization, and strengthening market linkages and access to processors to obtain the best/optimal prices for their milk.

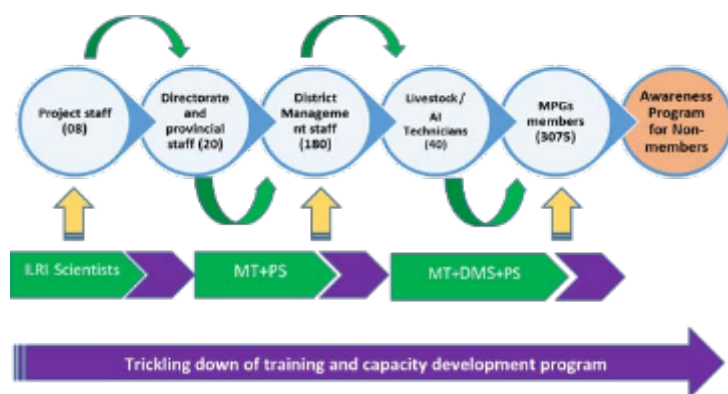
These activities undertaken are summarised below:

- a. Capacity building: This activity involves training 3,075 farmers, establishing an AI training centre at Tandojam, training 760 AI technician, institution twinning, and national and international exposure visits.
- b. Civil works: This activity involves rehabilitation of rain/flood affected veterinary buildings (100 hospitals, 2 Semen processing units (SPUs), 6 Central Veterinary Diagnostic Laboratory (CVDL) facilities and 13 livestock production officers (LPO)

2. ILRIs capacity building activities under SAGP-L

The International Livestock Research Institute (ILRI) is responsible for capacity building of all stakeholders involved in the dairy value chain. Under this, ILRI's tasks are to:

- Design capacity building and training interventions for (a) provincial livestock department staff, (b) District livestock staff, (c) Field extension staff, (d) producer groups (MPG members) in each of the selected districts.



- Organize in-country and overseas exposure/training visits to the project management unit (PMU) and other livestock department staff, producer groups, progressive farmers and potential entrepreneurs.
- Conduct seminar/workshop/farmers' days/ hands-on training/demonstration and awareness programs for producers. The topics include, but are not limited to, animal husbandry, feed/fodder, animal nutrition, disease control, modern dairy farming, breed improvement, disease diagnosis, etc.

The following specific activities are carried out by ILRI.

2.1 Training curriculum, manual, modules and tools

Developing a dynamic training curriculum for line department officials, field staff and farmers/producers groups, focused on the selected value chains modes. The curriculum includes:

- Information and guiding material on cutting-edge knowledge on Livestock management and husbandry including nutrition, disease control, modern dairy farming, breed improvement, pregnancy diagnosis, heat detection and reproductive diseases etc.
- Hands-on practice and demonstration materials.

- Any other topics/materials identified in the training need assessment report.

The course tools will include manuals, handouts and practical exercises, games etc. and adopt participatory learning, learning by doing, exposure visits, on-the-job training, continuous mentoring and follow-up.

2.2 Capacity building of provincial livestock department staff

Provincial livestock department staff and directors/district livestock officers attached to the 10 target districts will be trained on communication skills/techniques, dairy value chain concepts and analyses, feeds and feeding, animal health management, breeding and genetic improvements, modern dairy farming practices, and procurement/marketing strategies. These sessions will be of 1-2 days duration and will be conducted by ILRI staff.

2.3 Capacity building of district livestock department staff

The veterinary officers and farm managers of all target districts will be trained on communication skills, extension guides/techniques, dairy value chain concepts, concepts of farmer organizations, animal nutrition and feeding, animal health management (disease prevention and control), breeding and genetic improvements, dairy farming and best/appropriate farming practices, and procurement, processing and marketing strategies. The training sessions will be of 2-3 days duration and will be conducted by master trainers recruited by ILRI.

2.4 Capacity building of field extension staff

The field level extension staff from the Livestock Department (AI technicians, livestock assistants), non-governmental organizations and private sector of all target districts will be trained on communication skills, protocols/guides on extension, dairy value chain concepts, concepts of farmer organizations, animal nutrition and feeding, animal health management (disease prevention and control), breeding and breed improvements, dairy farming and best/appropriate farming practices, and procurement, processing and group marketing strategies. These sessions will be offered in four split training sessions, each of one day duration and will be conducted by master trainers recruited by ILRI.

2.5 Capacity building of milk producer groups (non)members

Members of MPGs established by the project will be trained on concepts of farmer organizations, feeds and feeding strategies, animal disease prevention and control, breeding and breed improvements, best/appropriate dairy farming practices, and processing and marketing strategies. Capacity building will be done by conducting a series of half-day to one day training sessions combining the above topics. These sessions will be conducted by field level extension staff under the guidance of the master trainers recruited by ILRI. The course will include topics related to improved dairy practices (technically and economically feasible in local context), clean and hygienic practices in production, handling, storage and marketing, improved milk and product quality and safety, reducing wastage and spoilage, value addition, prevailing rules and regulations for running informal milk/product business, business management, marketing and so on.

2.6 Exposure visits to the Department of Livestock and Fisheries (DoLF), Program Implementation Unit (PIU) teams, dairy farmers, entrepreneurs and MPG groups

- ILRI will organize/coordinate international exposure visit to the Kenya Co-operative Creameries (KCC) Company in Nairobi, for the SAGP-L Project team based in Hyderabad to familiarize themselves with the dairy hub approach set-up in collaboration with ILRI.
- ILRI will organize national field exposure visits for the progressive farmers in the MPGs to expose them to best/modern practices of dairy farming, product processing and marketing practices.

In addition to the above major tasks assigned, ILRI will also provide technical support to SAGP-L and DoLF in other areas which hinder the sustainability of the dairy sector in Sindh and in other provinces. Implementation of these assignments will require supplementary funding from SAGP-L for field execution.

3. Training of district-level staff on dairy production technologies

Training on dairy production technologies for project implementation staff at the district level (DFMs and LLS), district officials (DDL and ADL) and veterinary officers of all target districts (Mirpurkhas, Umerkot, Shaheed Benazirabad, Naushahro Feroze, Thatta, Sujawal, Hyderabad, Tharparkar, Sukkur and Khairpur Mirs) was held at the Crown Hotel, Hyderabad in 18 February 2018. The district staff were trained on two modules; (i) animal health management (AHM) and (ii) feeds and feeding (FF). The objectives of the training was to introduce modern thoughts/techniques and to share advanced research-based knowledge, to enhance their knowledge, skills and capacity for delivering of quality services to field extension staff and farmers. Sessions on feeds and feeding were conducted by ILRI's country representative and project team leader M.N.M. Ibrahim. Whereas, training sessions on animal health management were delivered by the SAGP project coordinator Shahid Ali Khan.

3.1 Pre-arrangement activities

Participants from all the respective district were officially invited to the training through proper channels using the District Project Implementation Units (DPIUs), districts and directorate offices of SAGP-L and DoLF.

ILRI's field team started working with the display and setting of training hall/banner/ panaflex on training site. All the training arrangements were finalized one day before the event. During registration at the venue, participants received training material (training folder, training guide of AHM and FF module) and stationery.

3.2 Training program and number of participants

The agenda used for the training is given in Annex 1. Eighty participants attended the training sessions (see Annex 2).

3.2.1 Training on feeds and feeding

The ILRI team welcomed participants after all the registration process. Training started with the recitation of Holy Quran by volunteer and self introduction by each participant. After Afterwards, the master trainer gave a detailed Introduction of the Sindh Agriculture Growth Project (SAGP-L), its aim and objectives, information regarding the project stakeholders and MPG members and the ILRI-led capacity building program under SAGP-L and other research based activities.

The training module on feeds and feeding focused on the following areas:

- a. Digestion and digestion process, digestive system of ruminants,
- b. Feed and feed types
- c. Feed formulation (ration formulation)

a. Session on digestion and digestion process of ruminants

M. N. M. Ibrahim led the training on the importance of digestion and digestion processes of ruminants (anatomy and physiology of digestive system) for proper digestion of feed and also the importance of the rumination and regurgitation process, production of saliva and its role in ruminants digestion, normal functions of the rumen and (microbial flora) and the role of essential nutrients (protein, minerals and vitamins) in animals and their function (i.e., energy production).

b. Session on feeds and type of feeds

In this session participants discussed the following:

- Fodder/forages, concentrate and minerals, the importance of dry matter, factors affecting dry matter intake, and the use of a balanced diet. The use of a fodder calendar (on availability of fodder throughout year) which results in better health and production, requirements of balanced nutrients for animals for different animals was presented. Awareness of improved fodder cultivation (Rhodes grass) and preservation of fodder (silage, hay) and water intake for increasing milk production were also discussed.
- Body condition scoring (BCS) according to the nutritional status of animals. The key points for selection of a good milking animal from herd/market and discussions on (i) flank region point (ii) pin bone region point and (iii) well-shape groove near the end of tail.

c. Session on ration formulation:

In this session participants discussed the following:

- good and poor feeding based on pictorial information. Key takeaways were that animals have different nutrient requirements depending on their body weight. For example, milking animals have higher energy requirements to maintain body condition and health and pregnant animals also need additional energy and nutrients to ensure they give birth to healthy calves.
- Calculating nutrients requirement based on (i) body weight, (ii) fat percentage and (iii) type of feed available. Quality of good ration, ration formulation for different animals needs (e.g. milking and calving), estimation of dry matter intake and use of a feeding chart showing with different recommended feed formulations levels for cattle.

3.2.2 Training on animal health management

- The training session on animal health management focused on

- a. Animal health and biosecurity
- b. Contagious / infectious diseases
- c. Economically important diseases

a. Session on animal health and biosecurity:

This session was delivered in detail with descriptive briefing by Shahid Ali Khan to on the following topics.

- Importance of livestock farming, health management of animals to reduce risk of diseases and increase productivity by implementing the proper care and health management steps. Signs of a healthy and sick animals (e.g., activeness, bright eyes, soft and shining skin, proper rumination, regurgitation, urination and defecation).
- Biosecurity measures which is based on (i) steps isolation and quarantine (ii) hygiene measures (iii) importance of vaccines and vaccination (iv) vaccination calendar and proper cold chain mechanisms for storing vaccines (v) importance of record-keeping, health cards and health registers. Animal health cards were to be issued to each farmer by service provider and a health register maintained properly for the recording animal health data.

b. Session on contagious / infectious diseases

- This session discussed the importance of important livestock (infectious and contagious) diseases and their effects. The signs and symptoms and transmission routes of foot-and-mouth disease, haemorrhagic septicaemia, black quarter, brucellosis and mastitis signs were discussed.

c. Session on economically important diseases

- Focus diseases included liver fluke, lung worm, tick fever and redwater with signs and symptoms and route of transmission of each explained.
- The importance of sanitary measures was discussed including ways of ensuring their practical implementation in farms.

4. Discussions and conclusion sessions

4.1 Discussion

At the end of training an open discussion was held to review feedback from the question and answer/ group activities and answer participants question. This session was led by Shahid Ali Khan and M. N. M. Ibrahim.

4.2 Conclusion

Shahid Ali Khan concluded the training by thanking the stakeholders who had participated and urging them to improve their routine practices based on what they had learned to improve animal health, and feeds and feeding practices.

Jaimal Dhanani thanked the ILRI team for their work as a technical team and preparing training materials such as presentations, booklets, feed formulation charts and vaccination charts. He commended the introduction of the health cards for recording all preventive measures / veterinary aid to farmers saying it would motivate farmers to keep animal health records.

Tikam Das appreciated the work of ILRI team in developing the training materials and methodology. He also welcomed ILRI and partners' support in diagnosis of animals diseases by providing services for sample collection and laboratory diagnostics.

Ali Akbar Soomro asked participants for their feedback on the training by asking them how to formulate feed for various types of animals (cow, buffalo), how to fill the animal health card following vaccination and asking them to share how the training was important for them.

5. Annexes

Annex I. Training agenda

Agenda of training of district-level staff on dairy production technologies
18 February 2018 at Crown Hotel, Hyderabad, Sindh

08:30-09:00	Registration
09:00-09:05	Recitation from Holy Quran
09:05-09:10	Welcome address (M.N.M. Ibrahim ILRI country representative)
09:10-09:20	Welcome address By Ali Akbar Soomro Director General Livestock, Sindh.
09:20-10:00	Tea break
Feeds and feeding of dairy animals (M.N.M. Ibrahim)	
10:00-10:30	Session 1: Digestive system and digestion process
10:30-11:00	Session 2: Feeds and feeding strategies Body condition scoring and nutritional status
11:00-12:30	Session 3: Basics of ration formulation Group exercises on ration formulation
12:30-13:00	Group presentation and discussion
13:00-14:00	Lunch break
Animal health management (Shahid Ali Khan)	
14:00-14:45	Session 1: Animal health and biosecurity
14:45-15:30	Session 2: Contagious/ infectious diseases
15:30-16:15	Session 3: Economically important diseases
16:15-16:30	Discussion
16:30-16:35	Closing remarks (M.N.M. Ibrahim)
16:35-16:55	Address by chief guest and distribution of certificates By Ali Akbar Soomro Director general Livestock, Department of Livestock and Fisheries, Government of Sindh
16:55-17:00	Vote of thanks (Shahid Ali Khan)

Annex 2: List of participants

Date	Name of district	Number of participants			Total
		Vets	DPIU staff	PLAN pak	
12/02/2018	Mirpurkhas	7	2	2	11
	Umerkot	7	1	0	8
	Total				19
13/02/2018	Shaheed benazirabad	6	2	2	10
	Naushahro feroze	6	1	0	7
	Total				17
14/02/2018	Thatta	9	2	3	14
	Hyderabad	3	1	1	5
	Total				19
16/02/2018	Tharparkar	12	2	1	16
	Total				15
11/10/2018	Khairpur mirs	5	2	3	10
	Sukkur				
	Total				10
Total Trained					80

Annex 3: Participants of the training of master trainers on dairy production technologies.



(Credit: M.N.M. Ibrahim/ILRI).

Annex 4: Training materials used for the training program

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