

Health of Ethiopian Animals for Rural Development Project: Preliminary report on herd health manager smart phone application

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1 Introduction

The Health of Ethiopian Animals for Rural development (HEARD) is a European Union (EU) project to strengthen animal health services involving public and private sectors. The HEARD project aims to increase sustainable livestock productivity and improve the marketing of livestock products by enhancing the quality and reliability of integrated public and private veterinary service delivery. Performance of the veterinary service will be strengthened to improve data gathering, analysis and strategic animal health interventions by both public and private sectors. Capacity development for different stakeholders involved in animal health service delivery is at the heart of the project.

The HEARD project is organized into 3 result components:

Result 1: The quality of public and private veterinary services is strengthened, and delivery optimised (through the creation of an enabled and rationalised environment). This component of the program is implemented through 3 regional grants (Somali regional, Amhara and Oromia) with support of the Ministry for Agriculture and Livestock Resources (MoALR).

Result 2: Technical competences (knowledge, skills and attitude) and incentives for veterinary service providers is improved to deliver better and rationalised services. This component is jointly implemented by the International Livestock Research Institute (ILRI) and the Ethiopian Veterinary Association (EVA) and provides guidance on setting up public private partnerships and provides capacity development for veterinary professionals at different levels.

Result 3: Food safety of primary products of animal origin is improved and better control of zoonotic diseases achieved. This component is led by MoALR and focuses on meat inspection and improved food safety along the livestock value chains.

Under result 2, Activity 2.3.1. aims to make available and disseminate resources on animal health knowledge, best practices, and research findings, and thus ensure that all stakeholders interested in animal health have the necessary and knowledge, and skills

to improve the health of livestock in Ethiopia. The sub-activity 2.3.1.3 is a research-cum-development activity intended to design a new approach to animal health intervention, namely a holistic approach to improve herd health. Herd health interventions aim to tackle all the major obstacles to improved livestock production including diseases and husbandry practices with a measurable target on animal productivity.

Four sub-activities are planned to implement Activity 2.3.1.3., namely:

- **Development and testing of smart phone-based herd health management recording and evaluation tool for improving herd health**
- Introduce herd health technical interventions according to disease priorities in selected woredas in different production systems
- Herd health interventions for controlling mastitis in dairy farms
- Assess the status of IBR (Infectious Bovine Rhinotracheitis) and BVD (Bovine Viral Diarrhoea) diseases and evaluate effect of interventions to control the diseases

1.1 General objective

The objective of sub-activity 2.3.1.3 is to develop best-practices at farm level in selected woredas and monitor the impact to demonstrate cost-effectiveness of interventions aiming at improving herd health based on best- practices identified under sub-activity 2.3.1.2.

1.2 Specific objectives

- Introduce herd health evaluation and recording tools using smart phone-based application.
- Develop herd health management and evaluation tool for use by the livestock health extension system.

2 Expected outputs

- a. Provide information to policy makers on the importance of herd health management concept and its inclusion in health extension packages.

- b. Create a smart phone-based herd health management recording and evaluation tool suitable for use by the livestock health extension system.

3 Approaches and app features

3.1 Approach

The herd health interventions have been introduced into three regions and six districts in Ethiopia (Table 1). The interventions include identifying vaccination for major diseases, community-based deworming and external parasite control, routine veterinary clinical services, and capacity building of public and private veterinary professionals and paraprofessionals, and livestock keepers.

A smart phone-based herd health recording and disease diagnosis application has been developed in collaboration with the University of Strathclyde. The app will be used for herd health recording and to assist veterinarians with more accurate disease diagnosis. It will help monitor farms/villages' health status at the beginning and periodically during the intervention period. Changes, pre- and post-intervention, will be monitored and evaluated. Feedback on farm health status, awareness creation and training will be provided to livestock keepers.

3.2 Advantages/features of the app

- The app provides disease diagnosis support for cattle, sheep and goats, and camel diseases. Then it helps veterinarians diagnose the most likely diseases based on the recorded signs.
- The app records herd health status of each farm and data is uploaded when the app becomes online. The recording features will include:
 - Disease incidence recording for longitudinal disease monitoring
 - Morbidity and mortality due to diseases and other causes
 - Herd dynamics (inflows and outflows of animals)
 - Herd productivity (cow and goat milk, and chicken egg production)

- The tool will be used to record herd health parameters of farmers/pastoralists and evaluate farm/herd/flock health status by kebele Development Agents (DA) and Animal Health Assistants (AHA). The tool will also be used for accurate diagnosis of diseases and farm/herd/flock health.
- Herds/flocks (or villages) will be evaluated and graded according to their herd management practices and health/productivity status
- Feedback and training of farmers/pastoralists
 - Feedback and recommendations will be provided to livestock keepers and extension workers after baseline data collection and analysis.
 - Trainings will be provided to farmers/pastoralists on recommended herd health management to support monitoring improvements post-intervention.

Figure 1 The HEARD health and management app, opening page

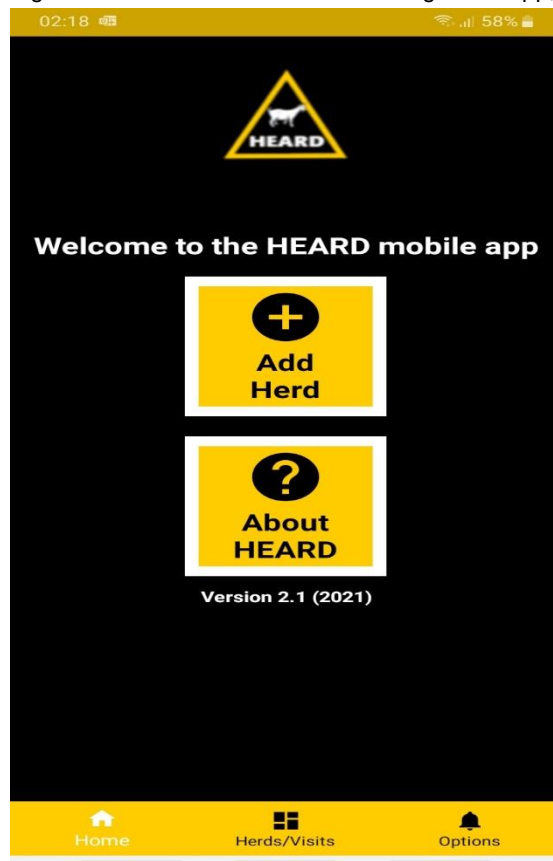


Table 1 Intervention locations

Region	woredas	Kebeles	Village (<i>got</i>)	House holds	Cattle	Shoat	Poultry	Dog	Camel
Oromia	Negele	Gambeeltoo	Awade/soko	65	968	645	452	194	
	Dirre-Inchini	Waldo hindho	Waldo gamasi	63	563	375	438	-	-
	Kuyu	-		37	395				
Amhara	Bati	Selate	selate	52	936	1,300	780	20	
	Banja	Akana	Akana	65	585	520	455	195	
	Angolela	-		37	395				
Somali	Deghabour	Bulaleh	Bulaleh	35		1,050			1,120
	Hargele	Oman	Oman	35	140	1,050			1,225

4 Progress and next steps

The beta version of the app is already available on [Google Play](#). A preliminary review of the app showed all functionalities are working effectively and is user friendly.

The disease diagnostic function of the application is critical for introducing appropriate treatment interventions, particularly under village conditions where well trained/skilled and experienced veterinarians are lacking, and paraprofessionals are operating.

Integration of the app with the national disease monitoring/surveillance and database programs is key for maximizing the use of the app.

Although the development of the app was delayed due to COVID-19, more than 90% of the work is completed. The remaining tasks are linking the app with the ILRI central server for safe and secure data storage and access, field testing and training of district and village veterinarians and para-veterinarians. The tasks are expected to be completed by February 2022.

The Health of Ethiopian Animals for Rural Development (HEARD) project is financed by the European Union.

Among others, one of the objectives of the project, ‘improving the technical competencies of veterinary service providers to enable them to deliver better and provide rationalized services’ is jointly implemented by the International Livestock Research Institute (ILRI) and the Ethiopian Veterinarians Association (EVA). The lead implementer of the HEARD project is the Federal Democratic Republic of Ethiopia’s Ministry of Agriculture.

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