

Small ruminant health intervention calendar in Ethiopia

Mesfin Mekonnen¹, Ayalew Assefa², Tesfalem Nane³, Firdawok Ayele⁴, Asrat Arke⁵, Belay Elias⁶ and Barbara Wieland¹

¹International Livestock Research Institute

²Sekota Dryland Agricultural Research Center

³Areka Agricultural Research Center

⁴Debre Birhan Agricultural Research Center

⁵Bonga Agricultural Research Center

⁶Doyogena Woreda Livestock and Fishery Development Office



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Patron: Professor Peter C Doherty AC, FAA, FRS

Animal scientist, Nobel Prize Laureate for Physiology or Medicine—1996

Box 30709, Nairobi 00100 Kenya
Phone +254 20 422 3000
Fax +254 20 422 3001
Email ilri-kenya@cgiar.org

ilri.org
better lives through livestock

ILRI is a CGIAR research centre

Box 5689, Addis Ababa, Ethiopia
Phone +251 11 617 2000
Fax +251 11 667 6923
Email ilri-ethiopia@cgiar.org

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Abbreviations and acronyms

CRP	CGIAR Research Program
FAO	Food and Agricultural Organization of the United Nations
FGD	Focus group discussion
GI	Gastrointestinal
ILRI	International Livestock Research Institute
PPR	Peste des petits ruminants

1 Background

Herd health services and production programmes are offered to livestock keepers on the assumption that prevention of selected infectious and non-infectious diseases is less expensive than treating conditions as they occur. Management of herd health is an important and integral part in sheep and goat farming to increase efficiency and productivity of the animals. Good feeding and breeding will not result in maximum production if sheep and goats are not kept in good health.

The participatory epidemiology and gender survey conducted by ILRI and ICARDA during the CGIAR Research Program (CRP) Livestock & Fish described the impact of diseases in small ruminants of Ethiopia in a much detail, delineating the impact on men and women farmers. As part of this activity, livestock owners also prioritized several typical multifactorial production diseases, such as pasteurellosis, coenurosis, and gastrointestinal parasites (Alemu et al. 2019).

Sheep and goats in CRP Livestock sites periodically suffer from respiratory diseases and gastrointestinal parasitosis. This periodic disease occurrence and decreased productivity particularly affect poor households, and in particular those headed by women, as small ruminants are the most commonly found livestock in poorer rural households. All breeds, sex and age groups of sheep and goats are susceptible to respiratory diseases, but more often female and young sheep and goats are affected.

Management of parasites, gastrointestinal worms in particular, is often a primary animal health issue on farms and should form a central part of every small ruminant health management strategy. Currently, the sustainability of sheep and goat production is supported by the use of anthelmintics (FAO 2002), which however needs to be done correctly in order to achieve the desired impact..

Packaging health and management interventions at appropriate seasons considering the production cycle of various classes of animals, reproduction cycles, and seasonality of pathogens is thus a prerequisite to achieve cost-effective livestock management. For this a custom designed calendar at community level is an excellent way to ensure the health of the sheep and goat. In Ethiopia, the key components of such health programs should include strategic vaccination for different respiratory diseases, reproductive animal health, deworming for gastro-intestinal parasites in small ruminants and prevention of coenurosis transmission from dogs.

2 Developing the health intervention calendar

To determine if it is necessary to use a specific vaccine, various factors have to be taken into account, such as the location and accessibility, the diseases prevalent in the area and the management system of farmers. The schedule of vaccination for sheep and goat depends on seasonality and epidemiology of a specific disease, age and purpose of raising. For example, regarding age of animal, new-borns are naturally protected from diseases up to about 10 weeks by proper feeding of colostrum immediately after birth. Hence vaccination for key diseases needs to start around that time.

Strategic deworming requires deworming when most of the parasites are in the animal and not in the environment. Seasonality of helminth infection in Ethiopia (Bekele et al. 1987; Tembley et al. 1997) is considered an advantage as it enables strategic use of anthelmintics for control. On the other hand, the life cycle of coenurosis can be interrupted most satisfactorily by control of tape worm infection in dogs and preventing dogs having access to sheep carcasses (Radostitis et al. 1994).

Previous participatory epidemiology and serological works (Alemu et al. 2019) conducted by ILRI and partners helped to document the important small ruminant diseases in the value chain sites of Ethiopia and the seasonality of their occurrence. Having this and the current diseases situation in the sites at hand, a group of researchers and veterinarians from partner national research and development institutes put ideas together and decided to update the tentative herd health intervention calendar for small ruminant value chain sites.

The treatment calendar

The table below (table 1) shows the annual tentative health intervention calendar for sheep and goat in CRP Livestock sites. This calendar shows the schedule of training of farmers on different small ruminant health problems, targeted feeding of pregnant ewes/does and the key disease prevention and control tasks throughout the year.

Table 1: The tentative intervention calendar for CRP livestock sites of Ethiopia

No	Herd health intervention activities	Intervention sites			
		Abergelle, Amhara	Menz	Doyogena	Bonga
1.	Deworming small ruminants for GI parasites and lungworms	June, September, December and March	October, January/February and June	October, January/February and June	October, March and June
2.	Training farmers on control of small ruminants, GI parasitosis	November and June	September/November and December	December, January and April	December and May
3.	Deworming dogs for coenurosis	NA	NA	NA	October, January, April and August
4.	Vaccination for ovine pasteurellosis	March and September	October and March/April	February and August	November and April
5.	Vaccination for PPR	August	September, October and November	December	December
6.	Vaccination for sheep pox	September	September–October	April	April
7.	Training farmers on control of SR respiratory diseases	November and June	March	December and May	March
8.	Targeted feeding for pregnant ewes/does	December and May	Throughout the year	March and April	May, June, August, December and May
9.	Training farmers for reproductive performance	November and June	March	February and July	December and May

Applying the calendar

Government authorities, development offices and research institutions will be involved in monitoring the efficacy of the recommended health intervention according to the calendar and can make changes as evidence emerges. The specific target in this activity is to improve timing of activities and through that increase the reach and coverage of the intervention compared to the usual practice. Thus, it is important to engage most of the households who keep small ruminants in the targeted communities. Village/district level multi-stakeholder platforms and community conversations will help in improving the acceptance of the tentative calendar by farmers and sustainability of intervention programmes.

Pre and post vaccination sampling should be done to monitor herd immunity level changes over time. Additionally, pre and post deworming fecal samples should be collected to monitor the change in fecal egg count of GI parasites in sheep, goat and dogs. These activities, combined with monitoring of productivity over time, will help to demonstrate impact of the interventions.

Today, resistance to dewormers is a growing problem for the sheep industry and as dewormers lose their effectiveness, there are fears that economic losses from parasites will increase. Therefore, rational use of anthelmintics is needed in order to prevent further increase of resistance. In addition, there is a need to monitor incidence of resistance and treatment failures. Farmers should also be

aware of management practices to reduce the number of parasites to which animals are exposed since a good parasite control program consists of more than merely deworming.

3 Experiences and lessons learnt

The health intervention activities being conducted for the last three years have brought about changes in the health and production performance of small ruminants in the value chain sites. For example, the effectiveness of the previously conducted GI parasites control interventions in the CRP livestock sites was confirmed by using laboratory analysis of faecal samples, which showed a reduction in faecal egg count for different strongyles and fasciola, and by farmers focus group discussions (FGD) which revealed a reduced incidence of disease and increased health. Also, in the FGD villagers participating in the GI parasite control intervention expressed high satisfaction with the improvement of their animals. The awareness of farmers about vaccines and dewormers has been increasing over time as they see changes in the productivity and health condition of their small ruminants, which is a good basis for the more structured approach using a treatment calendar.

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