

Promotion of Ethno-Veterinary Practices for Small Ruminants

An Action Research Study by BAIF Development Research Foundation (Dharwad, Karnataka)

BAIF's mission is the creation of opportunities for gainful self-employment for rural families, particularly disadvantaged and resource poor households, ensuring sustainable livelihoods and an improved quality of life. Towards achieving these objectives, BAIF undertakes sustained dialogue with participating communities to help identify constraints faced and jointly discuss possible solutions based on locally available resources. Skill up-gradation and facilitating access to appropriate technology and knowledge resources are other key implementation strategies. BAIF works across 60,000 villages in 16 states of the country reaching out to over 4.5 million farmers. Major activities include the promotion of dairy husbandry, water resource development and sustainable agriculture. Ensuring environmental sustainability and women's empowerment are cross-cutting strategies across all its programmes (reference www.baif.org.in).



Pods of the Mucuna Pruriens plant

In BAIF's programme area in the Dharwad district of Karnataka, high mortality among goat kids in the rainy season was reported as a major constraint by goat rearers. Following discussions with goat rearers in three villages' of the district (Nigadi, Devarhuballi and Benkaiikatti) the high mortality was attributed to nematode infestations in both pregnant does and their kids. Members of the Kuruba community, a traditional pastoral community in the area, were reported to use a locally available herb for regular de-worming of their livestock. In collaboration with goat rearers, BAIF's research team conducted trials to study the comparative efficacy of this herb with a commercial de-wormer Fenbendazole. The herb, *Mucuna Pruriens* commonly known as velvet bean or cowitch, is called Nasugunni in Kannada. The trichomes (hair) from the pods of this plant are used. *Mucuna Pruriens* is a tropical legume commonly found growing wild along roads, in forest areas and on private lands. The pods occur in bunches and four to five bunches suffice to meet the requirements of a small herd of 15-20

goats.

The proposed trials were extensively discussed between BAIF staff and goat rearers in the area to jointly arrive at the quantity of the dose to be administered¹.

Together with the villagers it was decided to conduct trials consecutively in two years, 2000 and 2001. Since mortality rates are higher for kids of does that have a heavy worm burden, it was decided to administer the de-wormers to does in late pregnancy and on the day of kidding.

During the first trial in 2000, where 21 farmers participated, only the chemical de-wormer Fenbendazole was administered to 34 does, 15-30 days before kidding, while an additional 34 does formed a control group and were not administered any treatment. Goat keepers contributed half the cost of the Fenbendazole, with the remaining cost being borne by BAIF. These trials revealed that the mortality of kids, observed over a period of two months, remained as high as 18 percent in the control (un-treated) group and reduced to just 8 percent in case of kids born to does who had been administered the chemical de-wormer. The growth rate of kids born to these does was also observed to be higher.

In the second trial conducted in 2001 the number of participating farmers was 18, the combined flock of whom was divided into three groups of 26 does each. Two of these groups were administered Fenbendazole and *Mucuna Pruriens* respectively while the third group formed the control group and

¹ The dose of *Mucuna Pruriens* finalized in discussions with goat rearers was 20 mg per kg of body weight. It was mixed in a warm solution of jaggery and water and administered to pregnant does. Members of the Kuruba community were invited by BAIF to train the goat rearers on removing the trichomes from the pods of the *Mucuna Pruriens* plant.

was not given any treatment. Unlike the first trial the mortality of kids was observed and recorded over a period of four months. Additionally, goat droppings from 21 pregnant does were collected, prior to and seven days after the treatment, to test the parasitic burden. The parasitological faecal egg count, for the two groups who received the treatment, had reduced significantly on the seventh day of de-worming while the parasitic burden of the control group had increased.

Table 1: Parasite egg count (No./gm) in the faeces of research trial does

Treatment	Number of samples	Parasite egg count before treatment	Parasite egg count after treatment
Un-treated (Control Group)	6	717	983
<i>Mucuna Pruriens</i>	7	971	271
Fenbendazole	7	757	114

The data of the second trial revealed that the herbal anti-helminthic was as effective a de-wormer as its chemical substitute. For example, the birth weight and the weight gain from birth to four weeks of age were higher in case of the treated groups as compared to the control group. Kid mortality from birth to 4 month of age was 40 percent in case of the control group and 16 and 20 percent in case of the groups administered *Mucuna Pruriens* and Fenbendazole respectively. Additionally the trials revealed that the does in the treatment groups had a shorter kidding interval as compared to the control group.

The study and subsequent discussions with goat rearers revealed that goat keepers preferred the herbal treatment over the chemical treatment using Fenbendazole primarily on account of easy availability of the *Mucuna Pruriens* pods in the surrounding areas; cost effectiveness since the pods could be easily collected as compared to Fenbendazole which needed to be purchased, and the results of the trials that demonstrated that *Mucuna Pruriens* was as effective as the chemical de-wormer.

Being a collaborative research study done in close consultation with goat rearers, it proved effective in sensitizing livestock rearers on the effective use of a locally available herb. A large number of goat rearers, in addition to those who participated in the trial adopted the technology. In areas where *Mucuna Pruriens* was not easily available, goat rearers took to administering Fenbendazole, which is indicative of farmers' preparedness to undertake de-worming on their own.

Based on the research study 'The Efficacy of Participatory Development of Technologies: Experiences with Resource-poor Goat Keepers in India' by C. Conroy, Y. Thakur and M. Vadher (Natural Resources Institute, University of Greenwich, BAIF Institute for Rural Development (Karnataka) and BAIF/RRIDMA)

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