

A local plant for de-worming goats

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Goat keepers in Dharwad district, Karnataka, India, are mainly marginal farmers and landless people, and many have only recently taken up goat-keeping. When researchers from BAIF *Development Research Foundation* (India) and the *Natural Resources Institute* (UK) visited the area to identify constraints in goat production, the goat keepers identified high kid mortality during the rainy season as their main problem. The researchers suspected that the kid mortality was linked to the worm burden of the does at that time of the year. The goat keepers did not practice de-worming and most were not aware of the presence of gastro-intestinal parasites in their animals. The project conducted trials in three villages in 2000 and 2001 to address this. It worked closely with goat keepers in these villages, who made their animals available for use in the trials, which were conducted *in situ*. However, winning the trust of the goat keepers was a challenge, because they were concerned that giving anthelmintic drugs to does in late pregnancy might result in them aborting. BAIF staff therefore selected Fenbendazole, a drug that was considered to be the least likely to cause abortion. A second treatment in the trials was the use of trichomes (hairs growing on pods) from *Mucuna pruriens*, a leguminous creeper present in the area. Researchers knew that members of a caste of people specializing in buffalo keeping, who lived about 70 km away, used it to de-worm their buffaloes. The researchers brought one of the buffalo keepers to one of the goat keepers' villages to discuss the technology with them, and to show them how to use a knife to remove the trichomes from the pods without getting very itchy fingers.

A participatory approach was used throughout. Treatments and doses were determined jointly with the goat keepers. The goat keepers contributed half of the cost of the Fenbendazole, and the project the other half. Twenty-one farmers participated in the trial in 2000, which included two groups: 34 does receiving Fenbendazole 15 - 30 days before kidding, and 34 does without any treatment. The 2001 trial included three groups: 26 does receiving Fenbendazole, 26 does receiving the *Mucuna* treatment and 26 control animals. A total of 18 farmers participated. In the first trial kid mortality was recorded over the first two months after birth, and in the second trial this was extended to four months. During Trial 2, goat droppings from 20 pregnant does were collected (immediately prior to treatment and seven days after) and analysed to determine the parasitic burden.

Results

In the first trial kid mortality was lower in the de-wormed group (about 8%) than in the control group (about 24%), but the difference was not statistically significant. In Trial 2, there was no significant difference in mortality between the kids of the control and dosed groups at up to 30 days, but the mortality of kids 30 - 120 days after birth was significantly higher in the control group than amongst the treated does (see Table 1).

Reduced mortality was not the only benefit produced by de-worming. The growth rates in Trial 2 were significantly faster for kids in the two treatment groups than for those in the

control group. There is also evidence that does in the treatment groups conceived again sooner than those in the control group (i.e. they had a shorter kidding interval).

The numbers of parasite eggs in the goat droppings were significantly lower on the 7th day after de-worming in both of the treatment groups, whereas the egg numbers in the goat droppings of the control group increased significantly.

Conclusions

The data strongly suggests that the *Mucuna pruriens*-based treatment is as effective against gastro-intestinal parasites (helminths) in pregnant does as the commercial anthelmintic medicine Fenbendazole. Goat keepers have a preference for this treatment, because it does not need to be purchased and is widely available in the project area. All the goat keepers who participated in the trials are now using the *Mucuna* treatment, and some other goat keepers in the project villages have adopted this technology as well. Where *Mucuna* is not available some people who had previously not de-wormed their goats have started using Fenbendazole. This indicates the farmers' preparedness to carry out de-worming and, if need be, to pay for a de-worming treatment.

Since the technology is also used by buffalo keepers, it appears to be effective in de-worming large ruminants too. The technology could be useful in other parts of India and other parts of the world where *M. pruriens* grows wild, including Mexico, the Caribbean and Nigeria. In addition, *M. pruriens* is promoted as a cover crop and/or fodder crop in many countries. However, a different (non-itchy) variety is used, and research is needed to establish if this variety also possesses anthelmintic properties.

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Table 1. Mortality of kids from birth to four months of age, Trial 2

	No. of kids born	No. of kids died			Mortality rate (%)
		1-30 days	31-120 days	Total	
Control	35	3	11	14	40.0
T1 (<i>Mucuna</i>)	31	3	2	5	16.1
T2 (Fenbendazole)	30	2	4	6	20.0