Use of Tanniniferous Feeds to Improve Smallholder Goat Production: Project to Link R7424 (Tanzania), R7351 (Zimbabwe) and R6953 (India) to Increase Dissemination, Outputs and Impact (R7798)

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Abstract

Project R7798 links projects R6953 (India), R7424 (Tanzania) and R7351 (Zimbabwe), through a series of workshops, exchange of publications and a newsletter. Exchange of technical information and methods of dissemination will enhance local impact of each project, thus benefiting smallholder smallstock owners. The first workshop took place in India, in September 2000.

Background

In all tropical livestock production systems characterized by defined wet and dry seasons, inadequate feeding in the dry season is a major constraint to productivity. Parasitic infections of the digestive tract also limit output. Smallholders rarely have the resources to purchase feed supplements or anthelmintics, especially for small ruminants such as goats.

The use of tree pods and fruits (*Acacia* sp.; *Prosopis juliflora*) as dry season supplements for goats is being investigated in three projects (R7424, Tanzania; R7351, Zimbabwe; R6953, India). The projects in India and Zimbabwe are seeking to improve goat productivity through feeding protein supplements at critical times in the feeding/production cycle. The Tanzanian project is investigating beneficial effects of tannins, in controlling intestinal parasites.

Although these projects are separated geographically, there are common threads between them:

- They address problems faced by crop/livestock farmers; specifically goat keepers
- They are based in semi-arid conditions
- The three environments are characterized by naturally occurring pod bearing trees.
- Dissemination and uptake is the priority output.

However, without the financial resource to generate linkages between the projects, each would continue in at least partial ignorance of the others. This link project is an opportunity to break down these barriers, to the advantage of farmers, extension and research staff, through a 'value-added' component to each project.

Objectives

- More efficient and targeted research associated with the three projects to increase their impact
- Additional extension messages and dissemination pathways for use of tanniniferous feeds as anthelmintics and protein supplements for goats in semi-arid regions
- Additional dissemination pathways resulting from the link project workshops.

Beneficiaries

Resource-poor goat owners in the semi-arid regions of the three countries. Research and extension staff and NGOs will also benefit.

Activities

- Workshops will be held in each of the participating countries (the first has already taken place in India, in September 2000). These workshops will include site visits and discussions with all stakeholders
- A newsletter will be prepared and circulated to stakeholders within the three countries and other interested parties
- Experimental protocol and publications will be circulated between the projects.

Meeting in India

A group of six (three each from projects R7351 and R7424) joined the Indian group at Udaipur, and attended the 'Workshop on Participatory Research on Goat Feeding Systems and Silvipastoral Development on Common Lands in North-West India' (11-13 September 2000). The participatory on-farm research project in which P*rosopis juliflora* is being used as a supplement for breding goats was discussed, with emphasis being given to the institutional and socio-economic aspects of this type of intervention. This was followed by two days of field visits and discussions.

The three projects address issues relevant to crop/livestock farmers in semi-arid areas. Wealthier farmers own cattle (also buffalo in India) as well as goats. At the sites visited the following points were noted:

- Land pressure appeared high
- Composition and role of local committees/institutions was important
- Farmers were classified both by wealth and caste
- Women farmers appeared to be disadvantaged
- Goats milk was very acceptable, especially for use by the household (market value was less than cow or buffalo milk, probably because the fat content was lower)
- Purchased concentrate feeds for goats were common among the wealthier livestock owners, concentrates often being fed in conjunction with P. *juliflora* and A. *nilotica*.

All projects are addressing areas of common concern in all three target countries. Topics in which we can work together include:

- Processing pods (using appropriate technology for grinding and treatment to mitigate possible adverse effects of tannin/linkages)to maximise the nutritive value of these feed resources
- Estimations of pod yield, both within (specific trees/soil type)and between species and across years (fruiting pattern/climatic variation)
- Agreement on chemical, in vitro and in vivo assessments of pods
- Difficulties of on-farm research, both in setting up and monitoring, together with ensuring the active participation of the relevant disciplines. The complexities of communication across two or more languages should not be under estimated
- Methods and pathways for dissemination, especially at the farmer/village level.

Further Information

BUTTERY, P.J., DAWSON, J. and WAKELIN, D. (2000). Can feeding locally-available plant material rich in tannins reduce parasitic burden in ruminants and hence improve their productivity (R7424). In: *Livestock Production Programme* (LPP) *Project Year Book* 2000 - 2001. Richards, J.I. (ed.) NRIL, Chatham Maritime, Kent, ME4 4NN, UK.

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CONROY, C. (2000). Easing seasonal feed Scarcity for small ruminants in semi-arid crop/livestock systems through a process of participatory research (R6953). In: *Livestock Production Programme* (LPP) *Project Year Book* 2000 - 2001. Richards, J.I. (ed.) NRIL, Chatham Maritime, Kent, ME4 4NN, UK.

SMITH, T., MUELLER-HARVEY, I. and OWEN, E. (2000). Increasing the productivity in smallholder owned goats on acacia thornveld (R7351). In: *Livestock Production Programme* (LPP) *Project Year Book* 2000 - 2001. Richards, J.I. (ed.) NRIL, Chatham Maritime, Kent, ME4 4NN, UK.

Questions and Answers

Elaboration of the on-farm trials in India

The project team had been very surprised that the Indian researchers did not carry out on-station trials but there was no research station nearby where such trials could be carried out. R6953[1] is using on-farm feeding trials because they are working with an NGO, Bharatiya Agro Industries Foundation (BAIF). If the Indian Council for Agricultural Research (ICAR) had been involved the trials would have been on-station. Concern was expressed as to the application of the results of the on-farm trials in other situations.

The two pods (P. *juliflora and* A. *nilotica*) being used in India are known to be eaten by the animals and are considered to be safe. If treatment of pods could be done cheaply their value would be improved.

Why, as they work with goats, were* ICAR *not involved with the project?

ICAR had been invited to the link project meeting but did not attend. ICAR is very research oriented.

Would improved nutrition encourage reproduction?

The work in India had taken place during the breding season. In Zimbabwe, goats had access to pods during the early dry season. In India the main pod is P. *juliflora* which Zimbabwean farmers do not have. It was suggested that sugar cane could also be used as a supplement, if there was a lot in the area.

***Acacia nilotica; comments from* Dr Mueller-Harvey.**

Preliminary data suggested some problems with A. *nilotica*. Tree composition can change over years and it might be safe to use in India. However, some animals have died in Ethiopia as a result of eating it. Farmers say that A. *nilotica* is the preferred pod for cattle: if it is extrapolated as a food source from cattle to goats the analysis must be up to date.

Digestibility figures would soon be available on the pods (see report for R7351).

Had the treatment of soaking and fermenting been used?

No.

[1] R6953: 'Easing seasonal feed scarcity for small ruminants in semi-arid crop/livestock systems through a process of participatory research'