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Water and forage development interventions: More benefits to pastoral women *or* their calves?

Simple interventions that increase the efficiency of water and forage collection could ease women's work loads and improve calf survival in southern Ethiopia.

Introducing cement water tanks and simple hay-making could cut a third off women's routine labour in the dry season in southern Ethiopia, according to recent studies by ILCA and postgraduate students sponsored by the Rangeland Development Project of the Ethiopian Ministry of Agriculture.

"These interventions will also probably benefit young calves because they will get watered more often and will be better fed in the dry season," says Dr Layne Coppock, an ILCA animal scientist, "but the reduction of the women's work load is the more exciting aspect."

"As in other traditional African societies, Borana women work very hard," said Layne. "Our preliminary surveys indicate that married women work up to 13 hours a day in the long dry season. Most of this is taken up by household activities, including managing young livestock. About a quarter of their working week at this time is spent getting water from wells or carrying it back to the homestead. This is water that will be drunk by the family members or by young calves, which are too weak to walk long distances to drink. Another 16% is spent on journeys in the bush to collect standing grass for hand-feeding these calves in the home."

No wonder the women complain of lack of time to attend properly to young children, maintain the home or even provide health care to young livestock. Reducing the women's routine work load could lead to productive alternative uses of their time; this will be the subject of a new ILCA study beginning in 1990.

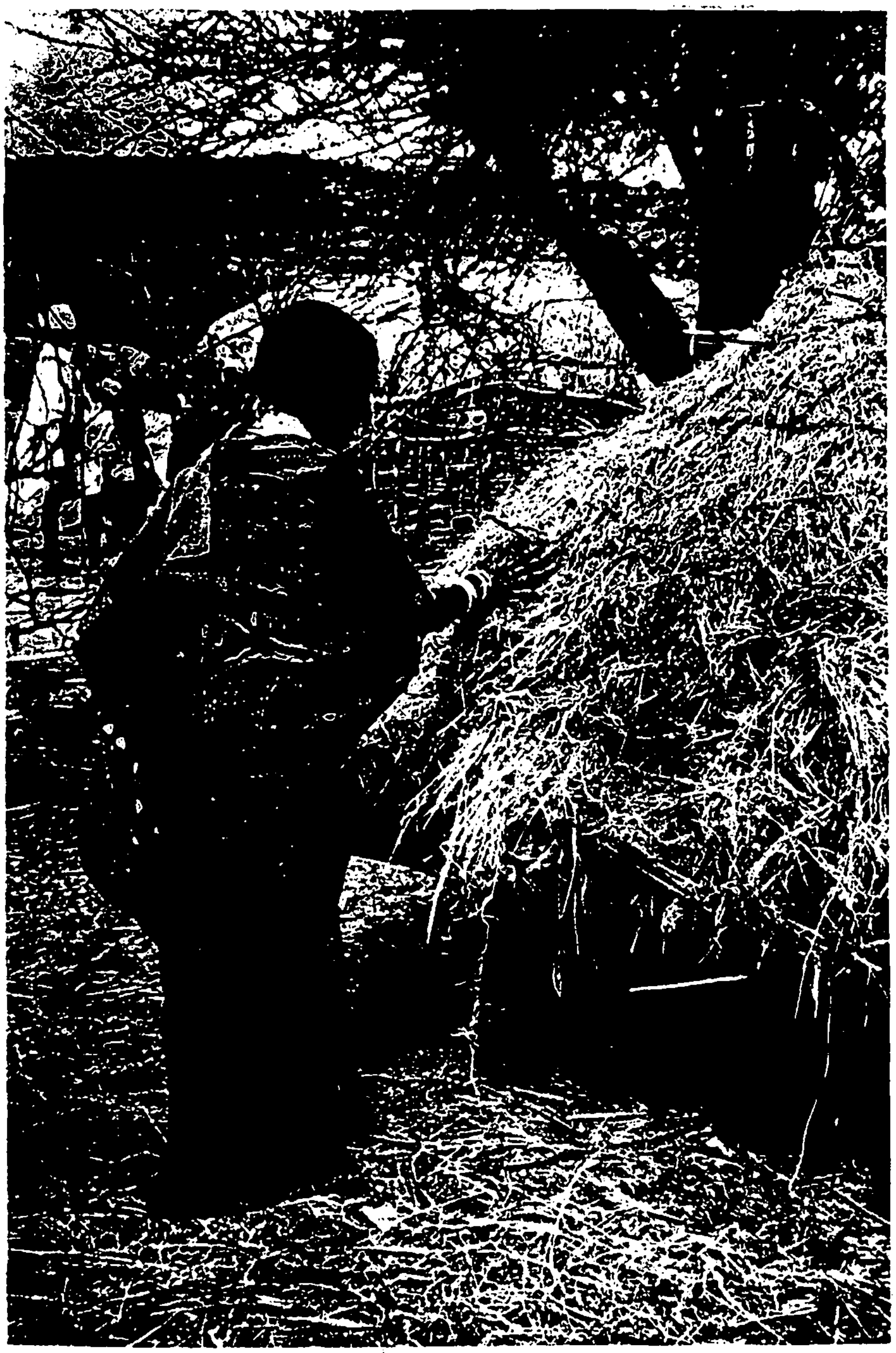
Simple hay-making makes sense

Making hay from local grasses is relatively simple and has proved popular with the Borana, who previously knew nothing of hay-making. CARE-Ethiopia is now extending this technique to more than 100 families in the area. The Ethiopian Ministry of Agriculture's Fourth Livestock Development Project will also adopt hay-making as part of a larger regional extension effort in the coming year.

"We put a lot of time and effort into testing exotic forages that struggled in this semi-arid environment," Layne noted, "not realising that an easier answer was right under our noses. Hay-making requires only a little training, so it will spread much faster among the pastoralists than would a new forage technology. It is just a minor modification of the traditional calf-rearing system. Many of these households traditionally are quite sedentary, so the prospects for success are good. If these were true nomads who moved the household every couple of months, it probably wouldn't work because they couldn't take their haystack with them."

By putting up hay immediately after the long rains finish in June, women essentially transfer forage work from the long dry season (when times are hard) to a period when things are easier. Reduction of their dry-season work load, rather than improved calf nutrition, is what the women appreciate most,

A Borana woman with her haystack. Hay is made at a relatively favourable time in the seasonal labour calendar and could cut 16% from women's routine labour in the long dry season. Women estimate the number of young calves they will need to feed in the coming dry season and put up the amount of hay required. (Photo: Shewangizaw Bekele).



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according to a report by Roger Hodgson, formerly of CARE–Ethiopia. Instead of walking for hours collecting grass in the dry season, women need now spend only a few minutes collecting hay from the stack behind the hut.

Hay feeding should also have a considerable effect on calf nutrition. ILCA research has shown that the hay may have twice the crude protein content of standing grass in the dry season (7.2% of hay dry matter is crude protein, compared with 3.4% for the grass). A better basal diet thus makes it more likely that small quantities of local legumes will be more effective as protein supplements. Recent ILCA research indicates that an average of 400 g dry-matter a day of local *Acacia tortilis* pods, *Acacia brevispica* leaves or cowpea (*Vigna unguiculata)* hay gives growth rates comparable to those achieved when lucerne is used as a supplement to calves on dry-season grazing.

"The problem with these local legumes is not so much their nutritive value, but their variable productivity and patchy distributions; they can take too much labour to collect," said Layne. "However, with a hay-based diet you need only 60% as much of the legume supplement as you would with a diet based on the dry grass available in the dry season. For 3 months in the peak of the dry season a 40-kg calf would need about 80 kg of hay plus about 20 kg of the local legume materials for a balanced diet. Most families hand-feed one to three calves in the dry season, so the amounts of forage required are realistic. It is the grass hay that makes legume feeding more practical. This illustrates the interdependency of interventions."

Supplementing hay with local legumes may be particularly important (and most cost-effective) when the calf is under severe nutritional stress and at risk of dying before weaning; for example, when milk output of the cow is poor or human demand for milk is high. It has been estimated that, in years of average rainfall, about half of all calf deaths are related to nutrition, and that risk of calf death may be higher for poorer families, with few cows, who must take relatively more milk away from their calves.

In the longer term, this research also has implications for better production and conservation programmes for indigenous trees. Where indigenous trees are unlikely to be successful, exotics could also be tried.

From grain stores to water tanks

The idea for the water tanks has an interesting history. "CARE first started testing small, concrete underground grain stores for the Borana," explained Layne, "but soon noticed that many of them were being used to store water." CARE now offers both small (1500-litre capacity) and large (100 000-litre capacity) cement-lined water tanks to capture runoff in the wet season; these are particularly in demand by pastoralists who reside far from the permanent wells. The small tanks cost 100 Birr (US$ 50), while the large tanks cost nearly 4000 Birr (US$ 2000) — the price of about eight bulls. The wealthier members of the community get involved first by providing capital, but poorer people gain access to water tanks by contributing labour in the construction.

"Ultimately, we hope that the tanks will be implemented on a more communal basis once the idea has been successfully demonstrated with the wealthier entrepreneurs," said Layne. "Members of the traditional well and grazing associations could contribute to building a network of tanks that everyone could use, regardless of movements of their households, as introducing fixed physical structures can be difficult with people who are potentially mobile," Layne noted. "We are fortunate that these people have a high degree of traditional organisation that can facilitate this intervention and that there is a high degree of predictability of the location and movement of households," said Layne. "This is generally not the case for true nomads, with whom problems of social implementation can rival technical constraints as obstacles to intervention."

To make this intervention sustainable, CARE is training local masons, but uncertainties about the continued regular availability of cement and construction support remain. "There is a key role here for development agencies in helping procure supplies and services for this activity," Layne noted. "If this can be achieved, we may be on the verge of some success. Uptake of the intervention could still be slow for a while, however, because the concept of selling livestock to improve material well-being appears to be fairly radical to some herdowners."

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Shaking the branches of an Acacia tortilis *tree (left) to obtain pods (right).* Acacia tortilis *pods have good nutritional value and the trees survive well in dry environments, but the utility of the pods as supplements can be hampered by low and variable productivity.* Acacia tortilis *should be promoted more in planting and conservation programmes.* (Photo: Shewangizaw Bekele).

Michael, Ethiopian, joined ILCA in 1977 as an indexer in the Centre's Documentation Section. He became Head of Documentation in 1982, and Head of Information in January 1988.

John Tothill, Coordinator, Animal Feed Resources Thrust

John Tothill, Coordinator of the Animal Feed Resources Thrust and Head of ILCA's Plant Science Division, left the Centre in December 1989.

Tothill, Australian, joined ILCA in January 1985 as Head of the then Forage Legume Agronomy Group. He became Head of the Plant Science Division in April 1986 and Coordinator of the Animal Feed Resources Thrust in April 1987. Before coming to ILCA Tothill was Principal Research Scientist with the CSIRO (Commonwealth Scientific and Industrial Research Organisation) Division of Tropical Crops and Pastures.

Amde Wondafrash, National Liaison Officer

Ato Amde Wondafrash, ILCA's National Liaison Officer in Ethiopia since 1981, retired on 20 November 1989.

Amde, Ethiopian, joined ILCA in 1978 as team leader of the Centre's Highlands Programme. He had previously worked in the Ethiopian Ministry of Agriculture, where he occupied the posts of Director General/Assistant Minister of Livestock Production (1953–74), Vice Minister (1974–75) and General Manager and Advisor of the Livestock and Meat Board (1975–78). □

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Increasing the demand for money, by offering the water tanks, is also important to encourage wealthier people to de-stock. Overall, the programme would benefit the community by reducing labour requirements and lowering grazing pressure. Since they will have less work hauling water, the women may even be able to collect more legumes for calf feeding.

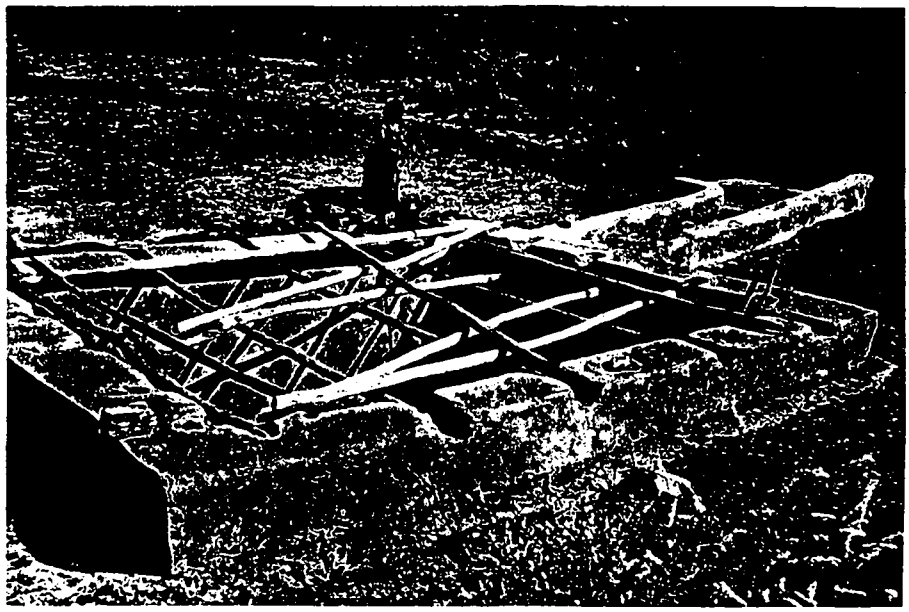
Having water closer to the homesteads could have a great effect on women's time budgets, but it will also influence range management strategies. The Borana are limited in how far away they can be from the deep wells, principally by how far women and calves can walk. Water tanks would let more people live further from the wells. This would lessen grazing pressure near wells in dry periods, according to the Hodgson report.

Commenting on lessons learned from these efforts, Layne noted, "First, many people have written off the drier areas of Africa, saying there is nothing that we can do to increase pastoral productivity or well-being. I think it is too early to be drawing this conclusion, but we need better documentation of potential success stories. Second, ILCA's goal is to improve human welfare through livestock, and it is notable here that what may provide only a modest increase in livestock production may lead to a considerable improvement in the people's quality of life. For example, with these hay and water interventions, calf mortality rates may only be lowered a few percentage points, but the improved ease of management and opportunity for alternative activities for people would be far more substantial. Third and finally, applied researchers in Africa can learn a lot from the modes of community participation and problem identification espoused by developers. In other words, researchers need to know their clients very well to be sure that interventions are accurately targeted and appropriate. It is clear now that ILCA's technical research follows CARE's development lead in this project, which is a better formula for our success."

For more information on this project, write to:

Dr Layne Coppock
ILCA, Addis Ababa. □

Drawing water from a 100 000-litre cement tank. Run-off water is collected via the channel and silt trap at right. Having tanks close to homesteads could dramatically reduce women's routine work loads and also improve watering frequency for calves. (Photo: Shewangizaw Bekele).



ILCA/Government of Zimbabwe agreement signed

ILCA is set to go ahead with its facilitating office for eastern and southern Africa following the signing in October 1989 of a memorandum of agreement between the Government of Zimbabwe and the Centre. The facilitating office, headed by Prof Jackson Kategile (see *Staff news*, page 8), is expected to be based in Harare, Zimbabwe.

The memorandum of agreement was signed by H.E. David Karimanzira, the Minister of Lands, Agriculture and Rural Resettlement, on behalf of the Government of Zimbabwe, and by Dr John Walsh, ILCA's Director General, on behalf of the Centre. The signing ceremony took place in the Ministry of Foreign Affairs, Harare, Zimbabwe, and was covered by the Zimbabwean press and television.

The principal purpose of the new Facilitating Office will be to help improve collaboration between ILCA and the national agricultural research systems (NARS) in the member countries of the Southern African Development Coordination Conference (SADCC), namely Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe. The office will also be responsible for extending collaborative network arrangements and activities into countries which are not SADCC members. □