Watering

Good management of livestock watering is critical to maintaining the quality of the environment and human health. The use of troughs or other dedicated water points that are separate from human water sources can prevent contamination by waterborne diseases. It also conserves riparian vegetation and leaves stream and river sediments undisturbed. Provision of water to dairy cattle in their stalls greatly reduces the stress on them, allowing significant increases in milk production.

CPWF partnerships:

supporting national institutions National research groups and government departments have quicklybecome committed partners in the project. Many of them were already working on the project's major research themes.

In Sudan, for example, the Animal Resources Research Corporation has given high priority to developing water points for herders, so that these can take advantage of extensive grazing areas that are underused at present. The aim is to mitigate the threat of conflict by taking the pressure off water resources in cropping areas. The strategic location of water harvesting structures and wells can also help here, as too can the promotion of succulent plants that reduce animals' dependence on drinking water. The project's involvement is building on the Corporation's experiences in these areas. And there are plans to extend collaboration to the search for ways of reducing the risks to human and animal health caused by shared water points.

In neighboring Uganda, the minister for livestock gave her full endorsement to the project when she opened a project workshop held recently in Kampala. Her speech made it clear that the importance of the water issue, especially for women livestock producers, is recognized at the highest levels of Uganda's government.

> "Lack of water has many implications, especially for women farmers who are at the forefront of zero grazing systems for dairy cattle and goats." –
>
> H.E. Mary Mugyeni, Minister of State for Agriculture–Livestock Industry, Uganda.

Project information

Project title: Increasing water-use efficiency for food production through better livestock management – the Nile River Basin

Partner organizations

- International Livestock Research Institute (ILRI)
- International Water Management Institute (IWMI)
- Livestock, Environment and Development Initiative (LEAD) of the Food and Agriculture Organization of the United Nations (FAO)
- Animal Agriculture Research Network (AARNET) of the Association for Strength ening Agricultural Research in Eastern and Central Africa (ASARECA)
- National Agricultural Research Organiza tion (NARO), Uganda
- Faculty of Agriculture, Department of Animal Science, Makerere University, Uganda
- Ethiopian Agricultural Research Organiza tion (EARO)
- CARE – Ethiopia
- Ethiopian Rainwater Harvesting Association

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More animal per drop: searching for livestock–water productivity gains in the Nile Basin

Crop breeding and management research is enabling farmers in Eritrea to develop and grow improved varieties of food crops that are particularly well adapted to the harsh conditions of their land.

Research Highlight #2

CGIAR Challenge Program on WATER & FOOD

CGIAR Challenge Program on
WATER & FOOD

Can science defuse conflict over natural resources?

Livestock are essential to life and livelihoods in the Nile River Basin, a vast area stretching from the hinterland of equatorial East Africa's Lake Victoria all the way to the Mediterranean Sea, 3,500 km to the north. Animals here are raised not only for direct products and services – milk, meat, hides, manure, draft power and transport – but also as a hedge against hard times, a form of capital readily converted to cash.

The livestock typically raised in the Nile Basin are cattle, sheep, goats, camels, horses, donkeys, pigs and poultry. As demand for, and supply of, such animals and their products grow, this region's already scarce water supplies are increasingly threatened with depletion and contamination.

The Nile Basin Livestock–Water Productivity Project is finding out how communities and their leaders can improve livestock and water man agement so as to combat rural poverty and hunger while minimizing the negative effects on water supplies and quality. The project, which oper ates as part of the CGIAR Challenge Program on Water for Food (CPWF), is conducting case studies in Uganda, Ethiopia and Sudan.

Photo: Don Peden, ILRI.

Watering Anchole-cross cattle in Uganda. The use of drinking troughs positioned well away from wells, ponds, streams and dams protects domestic water supplies from contamination by waterborne pathogens.

Photo: Don Peden, ILRI.

Threshing teff in Ginchi, Ethiopia. The residue of this food crop is stored to feed animals during the long dry season when pasture forage is scarce. This is an efficient livestock–water interaction since little or no extra water is depleted to feed the animals, over and above what's needed to grow the cereal crop.

Filling the knowledge gap

Some of Africa's longest running conflicts have their roots in competition between farming and pastoral groups over the use of land and water resources. Project leader Don Peden believes the project has great potential to help prevent such conflicts in future. Despite the importance of livestock in the Nile Basin, their impact on the basin's water resources has never been seriously investigated.

The project is addressing both research and development aspects of the water–livestock nexus. On the one hand, the researchers are fill ing the large knowledge gap on livestock–water interactions in the Nile Basin, a long-term undertaking. On the other, they are designing practical interventions that will have a positive impact on livestock-related policy and practices in the short term. Changes in these often have implications for both the division of labor and the sharing of the proceeds of that labor among household members. The project therefore takes gender and age into account in all its studies.

Efficiency gains and management practices

A key concept in the research is that of livestock–water productivity. This is the ratio of livestock products and services to the amount of water depleted to produce them. In designing strategies to maximize that productivity, the research team is using 'water accounting' – a set of tools for assessing the amount of water entering and leaving a production system. The aim is to identify points in the system where producers can make efficiency gains, freeing up water for other uses.

Africa's livestock keepers are expert users of their harsh environments' limited resources. All the same, researchers are subjecting their man agement practices to detailed investigation with a view to spotting opportunities for improving productivity. Some examples:

Feed sourcing

Animals can often be fed food crop residues and by-products. In this case, less water is used in animal production than when crops are grown specifically as feed. Ensuring market chains can deliver supplies of water and feed from areas where these are more plentiful can also help alleviate local shortages.

Grazing

Overgrazing compacts soil, reduces plant diversity and increases surface water run-off. Management options are available for countering these problems. Well managed grazing can also make productive use of land ill-suited to food cropping. One widely promoted alternative is zero-graz ing, namely replacing extensive livestock herding and grazing with stall feeding based on a cut-and-carry system. This option, like most others, may have gender-related consequences. For example, animal herding, a typically male task, may be replaced by women's and girls' labor in collecting feed

To allow the size of animal holdings to be counted and compared regardless of species, researchers use the Tropical Livestock Unit: 1 TLU = 250 kilograms of live animal weight. Map courtesy of FAO.