

Bridging the gap

Keeping livestock in central Ethiopia is not easy as the erratic rainfall makes it difficult to grow enough forage. Bisrat Alayu, a student at Alemaya University and working with reports how one farmer is using an innovative idea to bring water across difficult terrain to irrigate his pastures.

The Bereh Aleltu Woreda or District, some 50km from the capital Addis Ababa, is a high altitude area with regular frosts. This makes growing crops difficult, so most farmers keep livestock. The area lacks good communications and markets are difficult to reach. There is, however, a good demand for livestock and their products, especially for celebrating national events.

Some 27 years ago, one farmer, Abate Dammese, was finding it more and more difficult to feed his animals from his one hectare of pasture due to the lack of rain. The drought also affected crops so residues were not an option. Leasing more land was not possible, either, as there was very little communal land available due to the government's afforestation programme (the project called 'Finfine forest development'.) So Abate Dammese came to the conclusion that the only way forward was to irrigate his pasture with water from the nearby river 'Lege Gatira'.

The problem was that the river was over 200 metres from his pasture and in between was a gorge about 12 metres across. Abate Dammese diverted the water to the edge of the gorge and then

built a bridge made up of mud and stone to carry the water across. Unfortunately, seasonal floods in the gorge soon washed the bridge away. Rebuilding the bridge was going to be difficult because his wife was pregnant and couldn't help, and his older children were still small.

Undeterred, Abate Dammese thought about a better way to take water across the gorge. He cut down a 12.6 metre eucalyptus tree, hewed out the centre to form a conduit, and then laid it across the gorge to take the water. He left the bark on the tree to reduce leaks. The trunk is supported each side with stones and soil to ensure there is the correct slope for water flow.. It has done the job for the last 20 years, allowing the farmer to irrigate his pasture, which is the main source of the family income.

Abate Dammese says the method has many advantages. Once the channel has been hewn in the tree trunk, there is no further labour required. Floods pass underneath the log without displacing it. In his experience, Abate Dammese says mature trees are the best as they last longer than younger ones. If the log is taken home during the rains, it will last even longer, but that requires help to carry it.

Abate Dammese practices good pasture management by using the 'paddock system.' The pasture is divided up and the cattle graze the plots in rotation. This management means that during the dry period in May he can have grass some 35cm tall. This is very unusual in that area.

The gorge runs alongside one side of the pasture and here Abate Dammese has planted eucalyptus trees, but he is now trying some different species of grass and trees, which he gets from AgriService Ethiopia (ASE). These help him to exercise good soil and water conservation practices on that boundary.

Share farming

Abate Dammese and his family of wife and eight children rely on the land for their income. He owns 2½ hectare of land but has no oxen, so he has to practice share-cropping to grow produce which may feed the family for about two months. The main income comes from livestock - cattle and sheep. Beside his own cattle, Abate Dammese also grazes cows and calves owned by other farmers on a share basis - the sale of products like milk are shared, while the sale price of fattened animals is shared equally after subtracting the initial cost. Sheep remain the property of the owner while the sale price of any progeny is shared equally. Abate Dammese is renowned for his stockmanship and his grazing is in demand

Recently, ASE have been promoting



Taking the irrigation water across a 12.6 meter canyon using a eucalyptus log.

Credit: Bisrat Alayu

vegetable production as a better use for the irrigated land. Traditionally, vegetables have been grown for family consumption but now there is a market for vegetables, so Abate Dammese has allocated a small area for vegetables. Unfortunately, there are problems with porcupines which come in from the forest and eat the potatoes.

When he first started irrigating, some neighbouring farmers objected to the irrigation as surplus water was seeping onto adjacent croplands. To counter this, Abate Dammese constructed ditches to divert the water.

Now the community recognises his efforts and Abate Dammese is well known for his hard work and quality pastures.

The NGO AgriService Ethiopia is coordinating the ProInnova-Ethiopia programme, called PROFIEET: Promoting Farmer Innovation and Experimentation in Ethiopia.

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Livestock grazing on Abate Dammese's pastures.

Credit: Bisrat Alayu



Mr Mkhize with the maize seedlings in seedling trays



Mr Mkhize in his vegetable garden