

# Package 117

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**Effects of climate change and animal disease on dairy farming in Zambia**

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**Notes to broadcasters**

There are over 1.5 million registered farmers in Zambia. Ten thousand of these are dairy farmers, and 96% of dairy farmers are small-scale producers. Many market their milk through Milk Collection Centers (MCCs), of which there are 79 across the country. Women account for 28% of dairy farmers.

Zambia’s annual natural raw milk production is 619 million litres and the average milk consumption per person is 35 litres, compared to the World Health Organization’s recommendation of 200 litres. Livestock and dairy farming are more prominent in the Southern, Eastern, and Central Provinces of the country.

Despite the commitment of dairy farmers to operate their farms as successful businesses, the effects of drought and animal diseases such as Foot and Mouth Disease (FMD) and tick-borne diseases have ravaged Southern province, where most dairy farmers are located.

This script will provide information on how farmers in the Southern Province have been affected by climate change and animal diseases. An animal health expert will talk about the effects of climate change on dairy farmers and also how they have been affected by animal diseases and what is being done to reverse the negative trends. The script also highlights solutions that are cushioning the impact of climate change and animal diseases, and the sustainable methods dairy farmers are using to deal with these issues.

To produce a similar program on animal health and adapting to climate change, you may wish to draw inspiration from this script. If you choose to present this radio script as part of your farming program, you can use voices to represent the people interviewed in this case. In this case, please tell your audience at the very beginning of the program that the voices are those of actors and not of the actual participants.

If you want to air programs on animal health and the impacts of climate change on livestock rearing, talk to farmers who rear animals, animal health specialists, and other stakeholders in the livestock value chain.

You may wish to ask them the following questions, among others:

**HOST:** In today’s program, we discuss the effects of climate change and animal diseases on small-scale dairy farmers. How have dairy farmers been affected by climate change? What is being done to mitigate or adapt to the impacts of climate change? And what type of animal diseases are prevalent and what is being done to stop the situation from escalating?

* What are the most important livestock diseases in this area?
* What are the recommended practices, including vaccinations, for managing these diseases? For which of these diseases are vaccines available?
* What are the impacts of climate change on animal rearing, and how can livestock farmers best adapt to these impacts?

Estimated duration with music, intro and extro, is 20 minutes.

 To help us answer these questions, we have an animal health expert. Dr. Belindah Chilala, who is a veterinarian and livestock specialist for a project that supports smallholder dairy farmers in the Southern Province of Zambia, and GIZ’s Senior Advisor in a program called Green Innovative Centers for the Agriculture and Food Sector.

**HOST:** What best practices does the project promote in Zambia?

**DR. CHILALA:** We educate and train farmers and their co-operatives not to solely depend on rain-fed pasture but also to embrace sustainable ways of making fodder for their animals. At least 24 co-operatives have been trained to feed their animals. For example, the Niko Dairy co-operative along Namwala road can now grow its own fodder which it sells to other dairy farmers, a practice that enriches their co-operative.

**HOST:** How have dairy farmers benefited?

**DR. CHILALA:** Farmers in the Southern Province have started yielding positive results. Other farmers are now able to make their own fodder, and they are learning how to adapt to the effects of climate change and respond to the increased incidence of animal diseases. The quality of milk they are producing has also really improved.

**HOST:** Climate change has brought about shocks around the world. How has it affected dairy farmers in this area?

**DR. CHILALA:** Climate change has had devastating effects on dairy farmers in Southern Province and indeed in other parts of the country. Things fell apart, especially in the 2018/2019 and 2019/2020 farming seasons, as feeding animals was a problem because of the drought that affected Southern Province. This resulted in a reduction of milk production because there wasn’t enough fodder for animals.

**HOST:** How are you addressing the challenges of climate change with dairy farmers, especially small-scale producers?

**DR. CHILALA:** We are training farmers to grow pastures in addition to rain-fed pastures. We are training them to effectively store feed so that regardless of what happens, they will be able to feed their animals.

**HOST:** Are animal diseases still a major threat to dairy farming in Southern Province? And what are some of the most common diseases?

**DR. CHILALA:** Southern Province has been affected by animal diseases which have reduced the growth of dairy farming in the region. The prominent diseases are Foot and Mouth Disease and tick-borne diseases.

**HOST:** How are you helping farmers fight these diseases?

**DR. CHILALA:** In Southern Province, there is careful disinfection of vehicles and people in transit when, for example, moving from an area with active FMD cases to an area without. And there is a ban on moving animals from one region to another or from one district to another within a region. This is an effort from the Ministry of Fisheries and Livestock to curb disease spread.

 As the Green Innovation Centre, we are also training farmers how to correctly dip their animals and use antibiotic drugs correctly, as wrong usage can make animal health problems persist and also result in human health problems. We are also linking farmers to private animal health service providers.

**HOST:** Thank you. Dr. Belindah Chilala, for this information.

It is now time to get feedback from a few dairy farmers.

 Ms. Rita Mweene, in her fifties, is a dairy farmer in Mazabuka district. She is among the small-scale dairy farmers who have experienced the harsh impacts of climate change and animal diseases.

 How are you addressing the impacts of climate change and animal diseases?

**MS. Mweene:** We are receiving training on farm and milk hygiene, which is highly appreciated by us famers. The training includes building milking parlors, which help us milk cows in a clean, hygienic environment. It also includes procedures for washing hands before milking, cleaning the udder, testing for mastitis, and making sure that milking cans are cleaned and dried properly. This has hugely improved the grade of milk we take to the collection centres.

 Hygienic practices like these are very critical to increasing productivity and income for small-scale dairy farmers like us. It means that there is no wastage of milk during and after harvest. All the milk is sold and we do not have any losses, which improves our living standard and household income.

**HOST:** I understand that dairy farmers like yourselves are also being trained in climate-smart breeding and feeding innovations. Are these approaches leading to increased productivity?

**MS. Mweene:** Climate change caused droughts here in Southern Province in the previous farming season, so we appreciate help in understanding the best way to care for breeds that are adapted to the changing climate. And we also appreciate help with feeding regimes that can sustain our cows through the dry season without decreasing milk volumes too much.

Pure breeds would be very expensive for us to maintain. And they may not survive well and produce the expected volumes of milk due to climate change. Having a good range of crosses between pure breeds and local dairy cattle ensures that our cows are both adapted to climate change and produce a good volume of milk.

 We are being taught how to make good silage in affordable ways on the farms, and this also helps increase productivity, even for local breeds when they are well-managed.

**HOST:** How beneficial is the silage?

**MS. MWEENE:** This is really beneficial to our animals, especially maize stover, which provides nutrients to maintain our animals. The leaves or stalks of crops that are suitable include maize stover, sorghum straw, and natural pasture hay. But we have to be careful not to feed silage enriched with urea to calves younger that six months.

**HOST**: Interesting. How do you make maize silage?

**MS. MWEENE:** There are two ways of making maize silage, the drum and the pit method. For the drum procedure, we use a 200-litre drum, 50 kgs of stover, and 30 litres of water. We mix the water and chopped stover, add it to the drum, and compact it. Then we close the drum airtight with a plastic sheet and add wet soil on top of the plastic. That is all for the drum method of making silage.

For the pit procedure, we add 150 kgs of chopped stover to a metre-deep and metre-wide pit, along with 150 litres of water. We mix every layer of the chopped stover as it is put into the pit and compacted. We close the pit airtight with a plastic sheet and put soil, preferably wet soil, on top of the plastic.

 It’s important that, if you’re making silage close to the rainy season, that the top of the pit should be sloped so that water runs off and doesn’t get in to the pit. The silage is ready to use after six weeks with both the pit and the drum procedure.

**HOST:**  How do you compact the stover?

**MS. MWEENE:** Once we have spread the silage materials in the pit, we then fill a drum with water, close it tightly, and roll it over the silage to squeeze out as much air as possible. Sometimes, we just try to compact the silage by stomping on it using our feet, but mostly we find that using a drum full of water is the most effective.

**HOST:** At what point do you open the pit or the drum?

**MS. MWEENE:**  We only open it when we are ready to feed the silage to our animals. After we open the silage, we use it every day until it is finished. Otherwise, there is a risk of spoilage.

**HOST:** We also spoke with Ms. Chilube Nabene, a dairy farmer in Namwala District in the Southern Province.

How are your farming activities succeeding?

**Ms. Chilube Nabene:** We are approaching farming as a business as it is the major sustainable source of income in our district. But we have been badly affected by climate change and animal diseases.

**HOST:** What are the major challenges that you are encountering?

**Ms. Nabene:** Southern Province is a drought-prone area and our district is no exception. We have difficulties feeding our animals in the dry season, which substantially reduces milk volumes. And when milk volumes are reduced, it means we are losing out on money and farming is no longer profitable. Having good feed is the key to the volume of milk each farmer can collect from their animal.

**HOST:** How are you addressing the problem of animal feeding in the dry season?

**Ms. Nabene:** I now use various crop residues as nutritious feed during the dry season. For example, cowpea, groundnut, and maize residues form an important part of the feed we use to supplement and feed our animals during the dry season. We mix ingredients such as maize bran, groundnut and cowpea residues, and sunflower cake, and then add some molasses to the mixture as well as a bit of salt.

We combine these ingredients in specific proportions and we continue to get a good amount of milk. Thus, cows are even conceiving in the dry season. To add to our stock of fodder, we buy some crop residues from surrounding villages. These farmers do not use their crop residues, but to us, they are valuable.

**HOST:**  How sustainable is the source of the residues?

**Ms. Nabene:** These days, some farmers have become curious why we buy these residues every year from them. They have also started learning and asking us how to make the feed because they see the difference in the health of our cows. They have come to appreciate these simple but effective innovations that we have been learning over the years.

Really, the situation was different before we had this knowledge, as we were finding it difficult to sustain our animals during the dry season. The number of farmers who would supply milk to the collection centres would drastically decrease. The problem was compounded by the lack of water due to rivers and streams drying up because of the low rainfall as a result of climate change. Today, we have gained more knowledge and we know what to do even under those circumstances to help our animals survive.

**HOST:** Can we say you have overcome the effects of climate change here in Namwala?

**Ms. Nabene:** Not completely, but we can maintain a good level of care to our animals. Local breeds are more resilient, but they also need supplementary feeding to keep them going. As you may know, most of us small-scale dairy farmers also keep local breeds, and have both beef animals and cross-breeds on the same plots of land. We are getting good money now from dairy farming, but we need help to fight Foot and Mouth Disease as we do not currently have a local solution—and the ban on the movement of animals in the region has affected the flow of business.

**HOST:** I also spoke with farmer Kenny Moomba who keeps dairy cows in Kazungula district.

Please describe your dairy farming for us.

**Mr. Moomba:** I have been keeping animals, mostly cattle, ever since I was in my early 20s, as I grew up herding cattle. So for me, it was tradition to venture into this and most of my age-mates had herds of cattle as we grew up.

**HOST:** Were you rearing cattle for sale or consumption when you were younger?

**Mr. Moomba:** For prestige. The bigger the herd, the richer you are in the village and the more the chances of commanding respect in the community.

We really never knew that milk could be a profitable business and so I never paid much attention to the health of the animals, apart from dipping them every so often to fight tick-borne diseases.

But the situation these days is different and I am better able to look after my herd in terms of disease control. I have learnt through trainings and we now have routines that help us take better care of animals with various diseases. But what I like most is that in the dry season, we can supplement their food with hay, which we have learnt to keep when there is plenty of grass in the wet season.

**HOST:** How does keeping hay help you?

**Mr. Moomba:** It keeps the animals healthy and strong, making them more resilient to diseases. Animal diseases have been the biggest threat for us in this area, and knowing that feeding them hay in the dry season can improve their welfare and reduce diseases has really helped us keep a healthy herd.

Foot and Mouth Disease is the leading disease. We have lost a lot of our animals to it, and this was compounded by climate change as we didn’t have enough rainfall in the 2018/2019 farming season.

**HOST:** How do you ensure that the milk is high quality?

**Mr. Moomba:** The quality of the milk we now supply to the centre is very clean and rarely rejected because we have learnt how to milk in a clean environment by constructing separate structures for milking.

I am happy to say that the proceeds really help us to pay school fees for children and buy farming inputs. We used to sell maize so we could buy medicines for treating animals. But these days, the money from milk sales at the co-operative is enough for us to treat the animals as well as earn a sustainable livelihood.

**HOST:** Dear listener, we have come to the end of this program. We discussed the effects of climate change and animal diseases on dairy farmers in Southern Province. We invited Dr. Belindah Chilala, GIZ’s Senior Advisor to answer questions. We also spoke with Rita Mweene, Kenny Moomba, and Chilube Nabene, dairy farmers from Mazabuka and Namwala districts of Southern Province. Thank you to all our listeners and guests.

 Until next time, it’s bye for now.

**Acknowledgements**

Contributed by: Raphael Banda, script writer, translator, radio and TV producer, Lusaka, Zambia.

Reviewed by: Dr. Belindah Chilala, Senior Advisor, Green Innovation Centres for the Agriculture and Food Sector, Zambia

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