

Vaccine restores hope for cattle farmers



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Before 2013, Geoffrey Laboso Ngetich lost significant numbers of his calves to East Coast Fever (ECF) every year. But after he began vaccinating his cattle, the 42 year old dairy farmer from Chepseon Location, in Kericho County, Kenya, has not lost a single animal.

Laboso is one of the beneficiaries of a nationwide ECF vaccination awareness drive led by the Global Alliance for Livestock and Veterinary Medicines (GALVmed). Since 2011, efforts have resulted in over over 1.1 million vaccinations from April 2012 to March 2016. To achieve this, GALVmed has brought together vaccine researchers, regulators, multipliers, suppliers, trainers and vaccinators to collaborate in delivering the ECF-Infection and Treatment Method (ECF-ITM) vaccine to cattle keepers like Laboso around the country.

“In this region, ECF is the most common cattle disease, but we vaccinate against other diseases too if an outbreak is announced by the government,” said Laboso. On his nearly 140 hectare farm he has 112 cows (52 are for dairy and the rest are heifers), 50 goats and 70 sheep. Laboso practices semi-zero grazing for his Ayrshire and Friesian cattle breeds and has partitioned pastures so that after his animals exhaust one pasture they are moved to the next.

Every year, Laboso spends approximately KSh 50,000 (US \$495) on vaccines, which include protection against other diseases like Foot and Mouth Disease (FMD). He credits the vaccines with improving his cattle’s health and milk production. The dairy cows produce 150 litres of milk daily – sold to Brookside Dairy Limited, Kenya’s largest milk processor based outside Nairobi, and local milk vendors at KSh 35 (US \$0.35) and KSh 40 (US \$0.39) per litre respectively. From the monthly milk sales he makes KSh 157,500-180,000 (US \$1,500-1,700). Laboso, who was previously an electrician has since decided, “This is now my career.”

Expanding production

Philemon Kipkirui Mutai, a 33 year old community animal health worker (CAHW) and smallholder farmer, also values dairy farming. A resident of Kipyemit village in Kericho County, he says the regular vaccination programmes gave him the confidence to buy a Jersey dairy cow in 2014. Mutai has vaccinated both the Jersey and its Ayrshire-cross calf with the ECF-ITM vaccine, and every year he vaccinates them against FMD, which occurs most years during the onset of the dry season in October. “I have seen the danger of ECF here and I vaccinated my cow immediately when I bought it,” he said.

With protection against major diseases, Mutai plans to rear more dairy cattle. He considers dairy farming to be a low-cost and high-reward venture. The father of two rears his cattle and 13 chickens

on a 0.4 hectare farm. There, he also grows maize, vegetables, Napier and Boma Rhodes grass for cattle. During the first six months of calving, Mutai earned KSh 4,500 (US \$45) from milk sales to the Kenya Cooperative Creameries (KCC), while the total cost of vaccines (ECF and FMD) for his cow and calf was KSh 2,040 (US \$20.40) so far.

Another dairy farmer from Kericho County, Rebecca Birir, also appreciates the ECF-ITM vaccine. She began vaccinating against ECF and FMD in 2014. The cost of vaccinating each calf is about KSh 1,000 (US \$10) for ECF and KSh 30 (US \$0.30) for FMD. "Calves used to die a lot. But with the vaccinations, I no longer call the vet [as] many times like before," she said. The 64 year old beams as she watches her 24 healthy – mostly Friesian – dairy cattle graze on her 12 hectare farm in Chepseon location. She also grows maize, cabbages and beans for home consumption. She currently milks four Friesian cows, which she feeds dairy feed, and earns KSh 15,900-21,200 (US \$157.50-210) each month from selling 15-20 litres of milk daily to KCC.

Commercial ranchers also value ECF and FMD vaccines. In Isinya, in Kajiado County, Hitesh Pravin spends KSh 30,750 (US \$307.50) vaccinating his herd of 568 Ayrshire, Friesian, Sahiwal and Jersey crossbreeds. But, before investing in the vaccinations, Pravin paid for medicine to treat cattle infected with ECF and FMD, which was 80% more expensive than paying for the vaccines, according to livestock manager Alphonse Mabonga Juma. The cows are also precious to Pravin as he barter them for land with the Maasai community in Kajiado to expand his flower farming business.

Protecting cattle against ECF

ECF is spread by the brown ear tick (*Rhipicephalus appendiculatus*), which carries the ECF parasite (*Theileria parva*). According to the Kenya Agricultural and Livestock Research Organization (KALRO), ECF results in about 120,000 cattle deaths in Kenya every year and also costs the nation KSh 1.2 billion (US \$11.9 million) annually through control and treatment expenses and productivity losses due to death or morbidity. Outbreaks affect almost half of the country, in particular, areas where humid conditions foster the survival of ticks after the rains have stopped. In the worst-affected regions, GALVmed has partnered with Sidai Africa Limited, Vetaid, Bimeda Kenya, Agrihaus, Bora Biotech KDF and others to distribute and increase the reach of the ECF-ITM vaccine.

To tackle this disease, GALVmed partnered with the International Livestock Research Institute (ILRI) which produced the second iteration of the ECF-ITM vaccine, previously named ILRI-08 in 2008. The vaccine production technology was transferred to Malawi's Centre for Ticks and Tick-Borne Diseases (CTTBD) for mass production and from there, distributors are able to place bulk orders.

In Kenya, GALVmed identifies and trains graduate veterinarians and para-vets to be vaccinators. The one week training ensures vaccinators understand vaccine handling including cold chain management, the vaccination procedure, animal reaction to vaccination, ear tag application, the importance of post-vaccination follow up, and identifying ECF from clinical signs observed. GALVmed has also collaborated with KALRO to develop a training manual, approved by Kenya Veterinary Board.

In Kenya's 47 counties, there are currently about 300 trained ECF vaccinators in GALVmed's partnership network. Funding from the Bill & Melinda Gates Foundation (BMGF) and the UK's Department for International Development (DFID) enables GALVmed to provide training especially for new veterinary graduates, and vaccines to get them started. On average one vaccine 'straw' costs about KSh 40,000 (US \$400). "One straw vaccinates 40 cattle, and once this has been used, a vaccinator can plough that money back into buying more vaccines," said Heshborne Tindih, GALVmed's Technical Manager.

A start-up kit comprising of a small liquid nitrogen container to preserve the vaccine, dewormers, antibiotics and ear tags are also provided to the trainees. To receive the kit and vaccination straw, a trainee vaccinator is required to have mobilised farmers in advance and set up a vaccination date. Once a straw is opened, the vaccine needs to be used within six hours. For each vaccination, a vaccinator can expect to make a profit of KSh 200 (US \$2). "That is good money," Tindih explains. "We are creating jobs for these veterinarians and making vaccination sustainable."

