Jean Marie Kalisa, a livestock farmer from Nyabisindu Cell, Kiramuruzi sector Gatsibo, one of the seven districts in Eastern province of Rwanda recently got immunization certificates after his cattle were vaccinated against Rift Valley Fever (RVF), a viral zoonotic disease that affects mostly cattle and sheep.

“In 2018 I didn’t have enough information prior to RVF outbreak and just as much I wanted to know what the main cause of death for my cattle,” the 58-year-old livestock farmer, father of six said in an interview.

In a span of two weeks, Kalisa lost 16 cows out of the 47 heads of cattle while two of his children and the herdsman developed fever with severe headaches due to the virus.

“I was relieved when all my cattle were vaccinated. I kept on thinking that the deaths would have been avoided had they received the vaccine earlier. I would have increased milk production,” Kalisa said.

“Initially, I would get about 84 liters of milk per day that would earn me 16,800Rwfs per day, that would enable me to take care of my family but nevertheless after the outbreak things changed as I earned about 7000 rwfs which was less and also the reduced animal productivity, trade bans on livestock and livestock products affected me severely.”

In 2020, Annonciate Vuguziga, 53, a livestock farmer from Ntaga cell, Mugesera sector, Ngoma district in the Eastern province was informed about the fever outbreak in the region through an SMS, it urged all farmers to take appropriate measures to prevent transmission, including vaccination.

“When I received an SMS to take my 32 cattle for vaccination, I responded quickly, it took me two days to have all my animals vaccinated,” says the 53 year old widow.

Annonciate Vuguziga at her home in Ngoma district

Rwanda, with extensive cattle production, reported RVF outbreak in Eastern Province in 2018. The province is made up of seven districts including Gatsibo, Bugesera, Kayonza, Ngoma, Kirehe, Nyagatare and Rwamagana.

Official reports indicate that throughout 2020, Rwanda experienced 32 new

outbreaks of RVF, with 689 total cases recorded in livestock.

RVF is caused by a virus transmitted by mosquitoes. In domestic ruminants, it results in abortion and high rates of mortality, especially among young animals. In humans, the disease ranges from a mild flu-like illness to severe hemorrhagic fever that can be lethal, meaning it is typically a self-limiting febrile illness. Severe disease, such as hemorrhagic fever and encephalitis, occurs in a small percentage of the cases.

Estimates by the Rwanda Agriculture and Animal Resources Development Board (RAB) indicate that most parts across Eastern Rwanda were among the hotspots of RVF during the 2018 outbreak which led to a lot of animal deaths..

Official reports show that at least 102 cows in Eastern Province died from the fatal disease, while 103 others have aborted since the disease was first reported in the province in 2018.

To respond to the outbreak, RAB embarked on awareness campaigns using various outreach approaches such TV, Radio also short message service (sms) and during community works commonly known as “Umuganda”.

Umuganda can be translated as “coming together to achieve an outcome” and in so doing members of the community gather to complete different tasks like building and maintaining different infrastructures every last Saturday of the month. Different information pertaining to the wellbeing of the community is also shared.

Community members after working around their cell hold an informative meeting led by the cell leader or a representative from the sector where health information among others is passed on.

According to Annonciate, besides receiving the sms, more emphasis for cattle vaccination was carried out by the sector leader during one of the Umugandas carried out at Ntaga cell communal playground.

During the awareness campaign, advertising spots have been running for several months on different platforms including National and community radio stations, television and other online magazine in order to broaden their reach to the general public.

mass cattle vaccination

Since 2018, the public awareness campaigns runs for three months annually resulted in 237,386 cattle, 22,727 goats, and 17,872 sheep getting vaccinated against RVF.

According to Amos Ntaganda, a veterinary doctor from Gatisibo, the vaccination program in the district has been carried out fairly well with most farmers in year 2022 responding positively to the vaccination campaigns.

“The messages aired or sent as sms calls for the locals to avoid direct or indirect contact with the blood or tissues of infected animals, bites of infected mosquitoes (most commonly Aedes), andavoid consuming raw (unpasteurised or unboiled cooked) milk from infected animals as well as bringing their cattle to designated centres for vaccination,” he said.

“Unlike in 2018 when I was caught off-guard not knowing about the RVF virus and lost cattle and revenue, this time around I listened to the awareness campaign announcements over the radio and even sms,” Kalisa said

“I responded quickly, none of my 68 cattle died because I had taken them for vaccination at our village designated Centre that was announced on umuganda day. My income is stable and the family members are now enlightened about the RVF virus.”he added.

But Simparinka Theogene, in his late 50s from Karama village, Rurenge sector in Ngoma district did not take heed towards the call for vaccination which resulted in nine of his cattle dying.

“I didn’t heed the call for vaccination when my animals got infected even when I heard the announcement on radio. All I did was to purchase tetracycline from nearby pharmacy and treat my animals with the antibiotic personally, but the solution was not appropriate,” he recalled.

Jean Leonald Sekanyange, Vice-Mayor in Charge of Economic Development from Gatsibo district in Eastern Rwanda, explained that the government embarked on vaccination of cattle in all affected areas. “Vaccination has been one of the most effective methods for controlling this disease, and farmers are strongly encouraged to present all their cattle for vaccination,” he said.

According to Sekanyange, “the budget allocation for 2021/2022 vaccination campaign in the district of Gatsibo was 11,710,000frws which was properly accounted for and it has been successful with 87% of cattle being vaccinated in the district.”

Jean Leonald Sekanyange, Vice-Mayor in Charge of Economic Development, Gatsibo district in Eastern Rwanda

He noted that the campaign will continue until 2024 as it has been beneficial for the farmers and the district at large from the revenues collected from farmers upon selling their cattle and dairy products.

Raban Iradukunda, a veterinary doctor in Eastern Rwanda, explained that most cows have been properly vaccinated with only one dose. “In the initial campaign we realized that one dose was sufficient, but boosters are sometimes required in high-risk areas for efficient response to the outbreaks,” he said.

Officials at Rwanda Agriculture and Animal Resources Board are convinced that a regular booster is deemed necessary for maintaining maximum protection after a series of primary immunization.

Most cattle vaccines are injected, although some have been given by other routes, such as nose and mouth. These modified live vaccines, according to veterinary experts, contains a small amount of virus or bacteria that has been altered so that it does not cause other side effects when used according to product label directions.

In addition, animals given the official vaccination are marked in the right ear with an official orange ear tag and a special tattoo, to separate them from non-vaccinated cattle.

According to Iradukunda, the one single dose of cattle vaccine against RVF has proven to stimulate more rapid, stronger, and longer-lasting immunity among cattle in the affected region.

“But for a vaccine to work, the animal’s immune system must be able to respond to it, and for an immune system to respond, an animal must receive proper nutrition,” the veterinary expert said.

According to him, vaccinations and nutrition are related in terms of maintaining

healthy immune functions in cattle.

Cows' daily energy requirements according to veterinary experts depend on their specific requirements for maintenance, reproduction, milk production and body reserves.

Solange Uwituze, the Deputy Director General in Charge of Animal Resources Development Board, said improving information dissemination about vaccination campaigns has been key to a record high countrywide vaccination penetration of about 68% for year 2022 compared to 47% in 2018.

"The government of Rwanda has been able to carry out spraying of all ruminants, vaccinating all non-pregnant ruminants and calves that are less than three months old, testing suspected cases and also treating the sick," said Uwituze.

Solange Uwituze, the Deputy Director General in Charge of Animal Resources Development Board

According to Uwituze, the government also implemented vector control, ante- and post-mortem inspections, and public awareness education campaigns on when to contact the Veterinary Services Authorities for information on vaccinating their animals against RVF.

As part of the awareness campaign, Jean Bosco Kagame who is the information officer for Mugesera sector said that on some market days in the sector, he rides his motorcycle fitted with loud speaker playing the recorded awareness campaign messages.

"The messages call upon livestock farmers to take their cattle for vaccination against RVF and restrict animal movement to limit the spread of RVF," he said, adding that it urges people in contact with ruminants to practice hand hygiene, wear gloves and other appropriate individual protective equipment when handling sick animals or their tissues or when slaughtering animals."

He also warned that people should avoid consuming fresh blood, raw milk or animal tissue and products without thoroughly roasting them while informing them about other relevant issues.

However, Kagame explained,"The limited resources like getting fuel on time, rainy

season slows one’s abilities to pass on the information on some days and sometimes farmers asking me veterinary questions that I normally have no answers too,”

According to Simparinka, some of the challenges faced during the vaccination exercise is the shortage of veterinary doctors to cater for the cows thus they waste the whole day at the vaccination centre and even missing to graze their cattle.

Additionally, he said, some vaccination points are very far and sometimes the farmers miss out on the sector information officer reminding them of points for vaccination.

Annonciate further added that a few of her fellow farmers display passive attitudes about the whole program of vaccination because of ignorance and concerns about vaccine side-effects.

“I know of two farmers who have refused to adhere to vaccinating their cattle due to ignorance or negative attitude., reason being that they don’t believe in western made vaccines because of fears of adverse livestock reaction to the vaccine and negative mentality towards some veterinary doctors who practice privately charging exorbitantly for other services despite the nationwide vaccination exercise being free,” she said.

“Understanding these barriers can help veterinary workers design more effective community livestock vaccination programs to benefit the farmers and the nation at large,” she said.

The use of vaccines is still one of the most effective tools to control infectious diseases, but budgetary constraint remains one of the major obstacles to the effective vaccination rollout, said Sekanyange.

“The allocated district budget is not sufficient to cover the vaccination rollout because there is a need to address the demands of multiple stakeholders in line with the established planning,” he noted.

Zawadi Kayitesi Ingabire, the director of Health in Ngoma district, Eastern Rwanda also points out that budgets are still a lingering constraint to some approaches.

“This vaccination rollout against RVF has been conducted under a constrained budget to cater for infrastructure of health facilities, lack of enough capacity and support systems for field logistic, communication and insufficient information on the epidemiological and reservoir status of the RVF virus,” she said.

Ntaganda however called for recommendations to be made to improve participation and effectiveness of vaccination programmes.

“Programmes should be planned to integrate with annual cycles of disease risk, agricultural activity, seasonal climate, social calendar of villages and maximise efficiency for vaccinators with dates being well publicized, as some respondents frequently reported missing the vaccinators,” he said.

“Relevant farmer education should precede vaccination programmes to mitigate against poor knowledge or negative attitudes,” Ntaganda advised.