

## African scientists engineering genetically modified livestock vaccines

Agricultural scientists in different parts of Africa have been engaged in application of biotechnology mainly for developing improved crop varieties. Now, they are including livestock in their focus by developing animal vaccines through biotechnology. This has been taken on by scientists in South Africa. They have been conducting research to develop vaccines for five diseases that animals in Africa are prone to.

In Uganda, there are a number of vaccines imported by the government to be supplied to farmers. But they are developed using conventional mechanism; this include foot and mouth trivalent and bivalent vaccine, rabies vaccine, and Brucellosis F19 and East Coast Fever vaccine, among others.

Infectious diseases have a huge impact on food security not only by causing animal death but loss of animal ingredients like milk, which is a basic food for children. This was pointed out by Dr. Lorne Babiuk, from University of Alberta, in a paper on novel livestock vaccines, he presented during the Fifth African Green Revolution Forum held in Addis Ababa, Ethiopia. His team is collaborating with scientists from South Africa in developing vaccines using biotechnology to curb five animal diseases: Lumpy skin disease, goat pox, sheep pox, rift valley fever and peste des petits ruminants' animal disease.

"We are using modern biotechnology to come up with genetically modified animal vaccines, which are both life-saving and cure vaccines, but taking a gene from the animal virus and stacking it into another virus to get a vaccine with resistance for a specific disease," Babuik said.

He further explained that, at the laboratory level, scientists may remove a lumpy skin virus using a specific enzyme and stack it to a small pox virus. Then remove rift valley fever virus, which is stacked to the small pox virus. This will lead to a vaccine that causes resistance to both small pox virus and rift valley fever.

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