

Genome editing preemptively fights disease in African cattle

Animal diseases cost cash-strapped African farmers about \$300 billion a year in lost income and veterinary bills. Now scientists are proactively breeding livestock with defenses against these pests before they strike.

Scientists from the Consultative Group on International Agricultural Research ([CGIAR](#)) consortium are setting up a “pre-emptive breeding” program to develop livestock with resistance to potential widespread outbreaks of currently localized diseases to help reduce some of the losses that would occur.

Current breeding strategies are inadequate because they are too slow to respond to disease outbreaks and climate challenges, the CGIAR researchers told the UNFCCC science advisory body.

The scientists are planning a research program that will use genome editing to take genetic material from resistant breeds and paste it into susceptible ones. This technology will allow a much more “precise” approach to creating animals with desirable traits.

In contrast, traditional breeding methods “mix and match” genes by mating individuals “in the hope” of producing individuals beneficial traits, Mwai says. But sexual reproduction offers no guarantees that offspring will exhibit the desired traits of the parents. “We need precision, not shotgun breeding,” Okeyo Mwai, a livestock geneticist at the International Livestock Research Institute (ILRI) in Kenya, says.

The CGIAR team hopes to use genome editing to breed new populations of cattle that are resistant to trypanosomiasis. The scientists are studying N'Dama cattle from west Africa, which have a natural resistance to the disease, and have located the genetic material responsible for the breed's protection. Next they will put that material into populations with other desirable traits such as increased milk and meat production.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion and analysis. Read full, original post: [Preemptive Genetics Girds Farmers for Climate Extremes and Disease](#)