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Cattle parasite study suggests new ways to combat infectious diseases

Herds of African cattle could hold the secret to fighting parasitic diseases – such as malaria – in people, research suggests.

A study has found that cows are protected from a parasite that causes deadly East Coast Fever if they have been infected with a closely related but milder species of the parasite in early life.

The findings could help develop new strategies to prevent parasitic diseases, including severe malaria infection in people, researchers say.

A team led by the University of Edinburgh tracked the health of 500 Kenyan calves from birth to one year old. They built up a unique set of data on the cattle's survival, growth, health and infection with viruses, bacteria, worms and tick-borne parasites.

Deaths caused by East Coast Fever – the biggest killer of East African cattle – dropped 89 per cent among calves also infected with other species of parasites that do not cause disease, the researchers found.

They say a similar situation may occur when humans are infected with the parasite that causes severe malaria – *Plasmodium falciparum* – at the same time as a less aggressive species – *Plasmodium vivax* – making people more likely to survive the disease.

The findings, published in the journal *Science Advances*, helps explain how African cattle survive in a region where European cattle quickly succumb to East Coast Fever.

Controlling East Coast Fever would benefit an estimated 30 million cattle in sub-Saharan Africa, which would have a tremendous economic and health impact on farmers living in these areas.

Vaccinating calves with benign parasite species could give them time to develop immunity to more aggressive species, the researchers suggest.

Professor Mark Woolhouse, of the University of Edinburgh's Centre for Immunity, Infection and Evolution, said: "This discovery suggests a completely new way to control a devastating

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disease in cattle, while reducing the use of antibiotics and environmentally damaging pesticides at the same time. It may also provide clues to new ways of combatting human diseases such as malaria.”

The study was funded by the Wellcome Trust and involved researchers from the University of Edinburgh, the International Livestock Research Institute, the Roslin Institute, the University of Nottingham, University of Glasgow and the University of Pretoria.

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