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Cattle parasite vaccine offers hope to world's poorest farmers

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A new approach to vaccinating cattle could help farmers worldwide, research suggests.

Scientists have developed a technique using a harmless parasite – which lives in cows but has no effect on their health – to carry medicines into the animals' bloodstream.

Researchers created the vaccine by inserting key genetic material from a vaccine into the parasite's DNA. The manipulated parasite is intended to be injected into cattle, where it would continue to thrive in their bloodstreams, releasing small amounts of vaccine slowly over time.

The treatment could offer long-term protection against common conditions such as foot-and-mouth disease or bovine tuberculosis, as well as a range of other diseases.

Scientists say the method could also be adapted to carry medicines as well as vaccines, to deliver drug treatments against common cattle diseases.

It is hoped the approach will help to control or eradicate major cattle diseases. Also, by controlling certain tropical infections, it could transform the economic outlook of poor farmers in Africa, where such conditions are rife.

The research, carried out in collaboration with the Moredun Research

Institute with funding from the Wellcome Trust and the Biotechnology and Biological Sciences Research Council, was published in the journal *PLoS Pathogens*.

Professor Keith Matthews of the University of Edinburgh's School of Biological Sciences, who led the research, said: "This method has real potential to control a wide range of cattle diseases throughout the world. It is also a fantastic example of how building on many years of basic scientific research can lead to unanticipated economic potential."

Provided by University of Edinburgh