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Vaccine Could Safeguard $80B Livestock Industry

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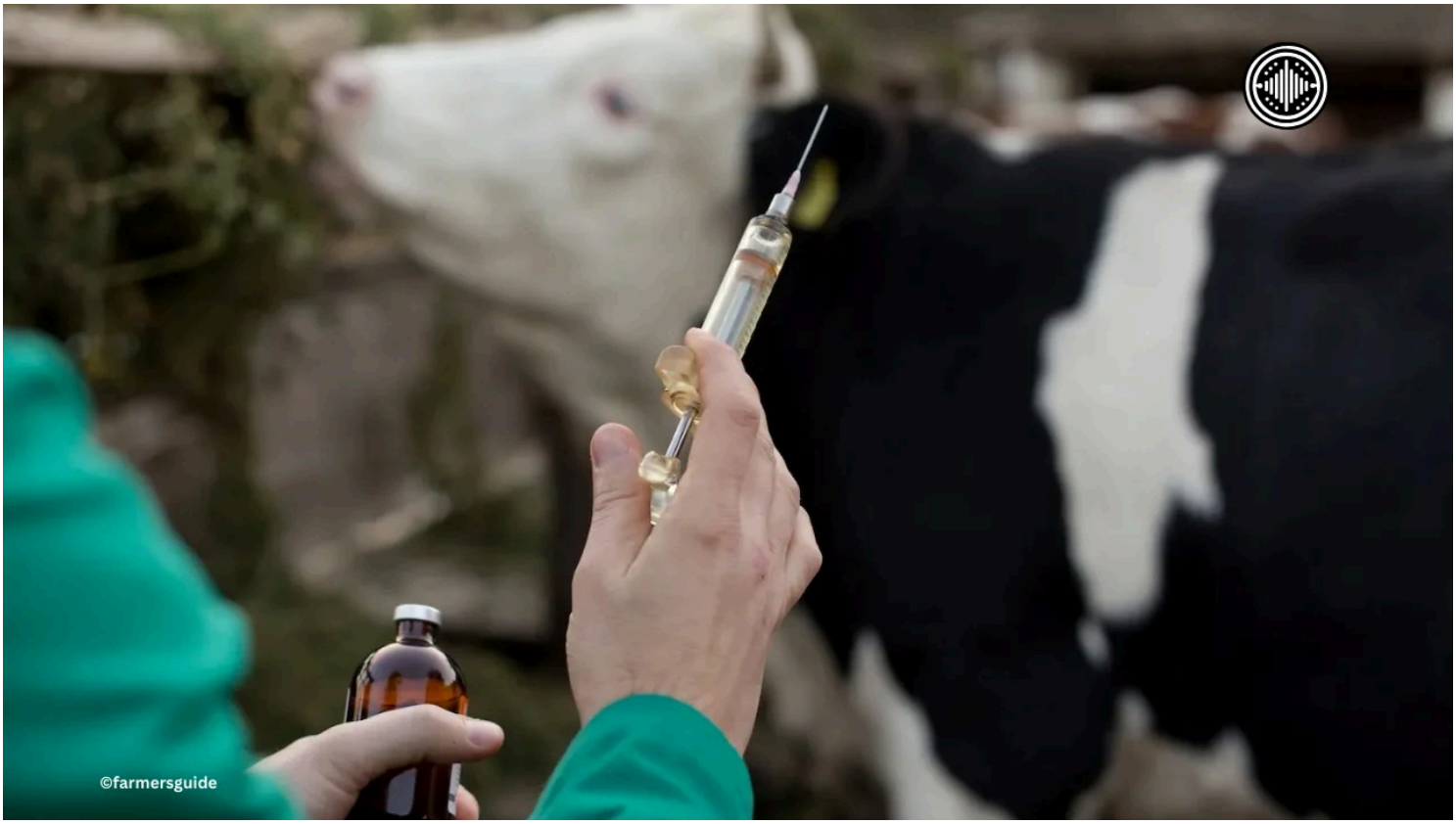

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Australia's $80 billion livestock industry may soon have a powerful defense against one of the world's most destructive animal diseases. Scientists at the University of New South Wales (UNSW) say they have developed a vaccine that could help protect the country from a potential outbreak of foot-and-mouth disease (FMD), a highly contagious virus affecting cattle, sheep, and pigs.

FMD has long been considered one of the greatest threats to Australia's agriculture sector. The disease spreads quickly among livestock and, if it were ever detected within the country, strict measures would require the culling of millions of animals to contain the outbreak. Such a scenario could devastate farmers, threaten food supplies, and collapse export markets.

Professor Pall Thordarson, who is leading the UNSW research, explained that the team's new mRNA vaccine offers several advantages over traditional approaches. Unlike older vaccines, which use weakened forms of the virus, the mRNA version carries no risk of accidentally spreading the disease. Instead, it provides genetic instructions that teach the immune system to recognize and block the virus if it enters the animal's body.

"The mRNA code for a fragment of a protein on the surface of the virus sends instructions to the animal's immune system, which will then recognize and stop the virus when it gets challenged by it," Thordarson said.

Trials overseas have provided promising results. In one German study, cattle given the mRNA vaccine were fully protected from FMD exposure, raising hopes that the same outcome could be achieved on a larger scale in Australia.

The challenge now, according to Thordarson, lies in scaling up production. "Our main role is to scale up the vaccine and accelerate its journey from the lab to a local mass scale production," he said. "Because with an outbreak, you need 100,000 or even a million doses, not just a few dozen."

The stakes are high. Beyond the immediate threat to animal health, an outbreak of FMD would have far-reaching consequences for Australian households. "It's not just about stopping disease. This is also about protecting livelihoods and keeping our own supermarket shelves stocked," Thordarson added.

Australia's livestock sector is currently safeguarded by some of the strictest biosecurity laws in the world, a framework that has so far kept FMD from breaching the nation's borders. However, the risk is never zero. Neighboring Indonesia has battled the disease in recent years, and the United Kingdom's 2001 outbreak demonstrated how devastating FMD can be when it takes hold. Millions of animals were slaughtered there before the disease was brought under control.

The global history of FMD underscores why Australia's trading partners place such value on its disease-free status. As Thordarson noted, "The main reason why we have these markets is that other countries don't want to buy beef from countries that have disease, because they are trying to keep their own herds immune."

If the UNSW vaccine can be produced at scale, it could mark a turning point in how Australia and the world defend against FMD. For farmers, it offers the hope of stronger security. For the broader public, it represents a safeguard for both livelihoods and food supplies.