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Diagnostic Robot boosts animal disease testing in New Zealand

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Testing for animal disease is faster and improved with the arrival of a new antibody testing robot now in action at the Biosecurity New Zealand Animal Health Laboratory.

The $580,000 new high throughput diagnostic robot is the first in New Zealand and will increase testing accuracy and consistency during future biosecurity responses.

"The Mycoplasma Bovis outbreak gave us useful insights into how our laboratory could increase its capacity during a response. In particular, it highlighted the need for automation," says Joseph Oâ??Keefe animal health laboratory manager.

"If an exotic disease such as foot-and-mouth disease (FMD) arrived here, our people could need to test some 3,000 up to 7,000 samples a day.

"Automating this process will speed our delivery of results, making the whole process faster for farmers, better for the wellbeing of our people and for the animals involved too."

The Explorer G3 workstation was manufactured in Germany and is designed to test up to 7,000 samples per day for antibodies to FMD and other exotic diseases.

Dr Oâ??Keefe says the robot doesnâ??t need frequent attention or intervention, freeing animal health laboratory staff for other testing and providing stability throughout intense response periods. The robot can even run tests overnight without staff present.

"Testing delays can affect our economy as antibody testing is essential for maintaining the access and security of product exports to New Zealandâ??s international markets. If there is an exotic disease outbreak in New Zealandâ??s animals, automation will allow us to recover faster."

The 750kg robot took a week to set up, bringing each part safely into the biosecure containment area. Once it was assembled, the team ran it through stringent testing and calibration to ensure the tests were as accurate as the current manual process. Now that this has been confirmed, the robot has begun day-to-day diagnostic testing.

The machine achieves its efficiency through moving test plates around. Each plate can contain approximately 90 samples and the robot manages up to 40 plates at once. Simultaneously it adds samples and different reagents, washes and incubates the test plates.

Outside of responses, the robot is used to perform antibody tests for surveillance programmes, and for testing groups of animals for import or export purposes.