UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
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7 February 2025

NEWS RELEASE

UP researchers use groundbreaking tech to limit livestock methane emissions

From left to right: New Zealand Deputy High Commissioner, Nick Meehan; New Zealand High Commissioner H.E. Phillip Hewit; and University of Pretoria Vice-Chancellor, Prof Petersen.

PRETORIA - The Faculty of Natural and Agricultural Sciences at the University of Pretoria (UP) is revolutionising sustainable agriculture with cutting-edge technology that holds promise for curbing methane produced by cattle.

Thanks to an investment from the New Zealand government, researchers at UP's experimental farm have implemented the latest technology in cattle feed machinery. The animals are equipped with radio frequency identification tags, which trigger the machines to dispense a specialised feed. This technology allows researchers to control and monitor the amount of feed consumed by each animal, resulting in a significant reduction in both methane and CO_2 emissions.

This research is an important advancement in the fight against global warming, as cattle play an integral role in socio-economic systems in many African cultures, while meat accounts for about 70% of the diet of many African populations. The research also tackles the issue of data availability in the African context. The different farming systems and methods used in Africa influence the number of emissions produced by cattle. Since these systems and methods are unique to the continent, data generated by foreign countries does not allow for an accurate measurement of greenhouse-gas emissions of cattle in Africa.

New Zealand High Commissioner to South Africa Phillip Hewitt's recent visit to UP's Future Africa platform was an opportunity to shed light on some of UP's most impactful research in agriculture. During a roundtable discussion, several points were raised about greenhouse-gas emissions in the agricultural sectors in South Africa and Africa at large. The discussion included UP Vice-Chancellor and Principal Professor Francis Petersen, and members of the Qinisa Initiative – a research programme hosted at Future Africa that centres on climate change, agricultural greenhouse-gas emissions and food insecurity in Southern Africa – and the Sustainable Food Systems project.

"We need to answer Africa's problems using the best methodologies available," said Professor Wanda Markotter, Interim Director of UP's Future Africa Platform. "We must access the most innovative technologies in the world and apply it to also solve Africa's problems."

In order to effectively transform food systems, the researchers felt that a grassroots approach needs to be taken, which means working directly with farmers across South Africa. Because cattle are equipped with a digestive system that converts low-level roughage and natural grazing to high-quality, nutrient-rich protein, they form a key part of food systems on the continent. By involving farmers and connecting science to the community, researchers can address the global warming crisis without jeopardising the livelihoods of local communities.

While South Africa has the capacity to conduct research in terms of equipment, institutions and expertise, these elements need to be enhanced to effectively address global warming and the part that South Africa's agricultural sector plays in it. Regional coordination, institutional collaboration and research partnerships need to be strengthened to achieve transformation in African and global food systems. This is systematically being achieved through collaborations between academic and research institutions and organisations around the world, such as the collaboration between UP, the Qinisa Initiative and the Sustainable Food Systems project.

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ABOUT THE UNIVERSITY OF PRETORIA

The University of Pretoria (UP) is one of the largest contact and residential universities in South Africa, with its administration offices located on its Hatfield Campus in Pretoria. This 115-year-old institution is also one of the largest producers of research in South Africa.

Spread over seven campuses, it has nine faculties and a business school, the Gordon Institute of Business Science (GIBS). It is the only university in the country with a Faculty of Veterinary Science, which is ranked the

best in Africa. UP has 120 academic departments and 92 centres and institutes, accommodating more than 56 000 students and offering about 1 100 study programmes. It has the most academic staff with PhDs (70%), NRF-rated researchers (613).

The 2025 Times Higher Education subject rankings placed UP first in South Africa in the fields of Accounting and Finance; Architecture; Electrical and Electronic Engineering; Law; Sport Science; and Veterinary Science. UP's Faculty of Law has been ranked as the top law school in Africa for a remarkable eighth consecutive year.

Quacquarelli Symonds (QS) ranked the University among the top five in Africa, as part of their 2024 World University Rankings (WUR). UP was the only South African university featured in the 2023 World University Rankings for Innovation (WURI), falling within in the 101-200 range of innovative universities.

For more information, please go to www.up.ac.za