

PHD RESEARCH PROJECT OPPORTUNITY

An exciting PhD research opportunity is available within FutureDairy and the Dairy Research Foundation at the University of Sydney!

Title: Forage-based rations for high yielding dairy cows

Primary Supervisor: Associate Professor Sergio. C (Yani) Garcia

Additional Supervisor(s): Dr Md Rafiq Islam; Dr Pietro Celi

Research Location: Dairy Research Foundation- MC Franklin Lab, Faculty of Veterinary Science, Camden, The University of Sydney.

Project Summary:

This research opportunity will look at ways of overcoming the nutritional limitations of high-forage based diets as feed sources for high yielding dairy cows.

Project Synopsis:

FutureDairy is a national, industry driven project addressing the challenges Australian dairy farmers will face in the future. Two of these challenges are a) the decreasing availability (an increasing cost) of land and water to produce milk; and b) the predicted increase in grain cost in the long term (set aside the current context due to the international financial crisis).

Farmers are then looking for options to decrease their reliance on expensive concentrates and produce more milk from home grown feed. FutureDairy is investigating some of these options, including the production of >40t DM/ha using Complementary Forage Rotations (CFR) and more than 30,000L milk/ha from home grown feed using a combination of CFR and pastures. The latter is achieved by means of a very high stocking rate (4.5 cows/ha) and moderate milk production/cow (~7,500 L/lactation).

However, some top farmers in Australia are already producing >10,000 L milk/cow/lactation with diets more heavily based on grains and other concentrates. These farmers would be naturally reluctant to use forage-based diets (i.e. less grain) as they believe milk production per cow would decrease.

The extent of such an impact on cows' performance would strongly depend on factors like forage type and quality, management, combination of forages, stage of lactation etc. Thus, the present project will develop a research program to investigate these factors and overcome the limitation imposed by whole-forage based diets.

The research will potentially combine the use of rumen fistulated cows with modeling and on farm studies with dairy cows.

Keywords: Dairy system, feeding a high production dairy cow, rumen function, rumen nutrition, forage production, forage utilisation, concentrate, grain.

Additional Information/resources:

- The scholarship comprises an annual stipend of \$30,000.
- Our research facilities include 2 dairy farms with >500 milking cows: a top of the range conventional dairy farm and the first Automatic Milking System research farm in Australia.
- This opportunity also provides a framework to further develop more specific areas or research such as the impact of forage-based diets on rumen function; rumen microbiology; dynamic modelling or rumen function; rumen physiology; etc.
- We have a vast experience using fistulated ruminants (both cattle and sheep). Our Lab also provides facilities to carry out plant tissue and soil analyses and includes a brand new GC-MS. This equipment can also be used to study specific aspects of rumen fermentation (e.g. volatile fatty acids).
- The scholarships are targeted at Australian and New Zealand citizens or Australian permanent residents who hold either an Honours or an MSc degree in Agriculture or related area. International students are eligible to apply provided they have additional financial support to cover international tuition fees (~\$27,000/year).

Interested?

- Please send CV and a statement relating your skills/interests specific to this project to:

Associate Professor Yani Garcia

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- Overseas applicants, please clearly indicate availability of funds and/or institutional support to cover international tuition fees at The University of Sydney.
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