

PHD RESEARCH PROJECT OPPORTUNITY

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

Title: Developing sustainable complementary forage dairy systems

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

Additional Supervisor(s): Dr Md Rafiq Islam

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

Project Summary:

This PhD research opportunity will combine modelling and field research approaches to investigate new dairy production systems with the greatest potential to increase on farm productivity from home-grown feed.

Project Synopsis:

Set aside the present international crisis, the long term trends are for grain availability to be limited and price of grain to be higher due to increased use for human consumption and ethanol production. This would result in higher costs of milk production for those farms that rely more heavily on grain-based concentrates as feed for dairy cows.

An alternative is to produce more feed on farm.

FutureDairy, a national, industry driven program of work, has achieved over 40 t DM/ha/year by means of a Complementary Forage Rotation involving 3 crops/year (CFR, Garcia *et al.* 2008, Grass and Forage Science, 63:284-300). We have also combined CFRs with typical pastures into a so called Complementary Forage System (CFS). This system is demonstrating a huge potential to increase total milk production up to about 30,000L/ha from home-grown feed.

However, more work needs to be done to account for regional, climatic and systems variations in order to increase the applicability of this technology.

Thus, the focus of this PhD project will be on the development of intensified CFS systems which comprise both CFR's and high production pastures, to achieve a total forage production beyond the potential of pasture alone. This will also provide a concrete response to the question of *where to from here* from top farmers in irrigation regions.

It is envisaged this project will require an innovative research approach that may combine dynamic system modelling with field research and potentially on farm research/survey data.

Keywords: Dairy system; forage production and utilization; dairy cow; pasture; forage crop; forage rotation

Additional Information/resources:

The scholarship comprises an annual stipend of \$30,000.

This project provides a unique opportunity to work in collaboration with other Feedbase-related projects in Victoria, Tasmania and Queensland.

The project also provides a framework to further develop more specific areas of research such as impact of forage production on soil characteristics and health; carbon footprint of different forage systems; economic modelling; animal nutrition; etc. There are also opportunities to develop undergraduate (Honours) projects within these areas.

The group have several PhD students already working in some of the above areas.

We have experience using a combination of modelling, field research and on farm data as a research approach. Our Lab also provides facilities to carry out plant tissue and soil analyses. Recently we have acquired a top of the range brand new GC-MS.

FutureDairy 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 also 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

sgarcia@usyd.edu.au

- 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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