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# **Adopting New Zealand dairy farm principles and practices in Argentina**

**A thesis presented in partial fulfilment of the requirements  
for the degree of Masters in Applied Science  
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# ABSTRACT

The dairy sector is important to Argentina because it creates genuine wealth and employment. The competitiveness of Argentine dairy farms is crucial to the endurance of the dairy sector. One way to increase the competitiveness of dairy farm systems is to incorporate beneficial innovations. New Zealand (hereafter NZ) dairy systems are internationally known for their competitiveness without the presence of subsidies. Argentine dairy farmers have been attracted to NZ systems for more than 40 years. Simultaneously, NZ researchers and extension agents have been interested in extending NZ knowledge to Argentina. Despite the fact that the NZ knowledge appears to be beneficial to Argentine farms, and after so many resources spent, NZ practices have been rarely adopted. This seemingly fruitless effort in extending this technology shapes the research question of the present study: *Can Argentine dairy farmers benefit from adopting New Zealand dairy farm principles and practices?*

The main objectives of the research are the following: 1) Define a group of New Zealand ideas, practices and technologies that could be considered potentially useful innovations for Argentine dairy farmers. 2) Assess the adoption and rejection of the NZ innovations by a group of Argentine farmers. 3) Identify the reasons of adoption and rejection for each innovation. 4) Describe the impact of the adoption in the physical and financial performance of the farms. 5) Assess which have been the main causes of the non-spread of NZ innovations in Argentine dairy farms.

Seven Argentine dairy farmers, who were aware of NZ dairy systems, were selected as case studies. The data was collected through interviews, farm physical and economic records, and a field visit to the farm. In order to investigate the Argentine socio-economic environment and the Argentine dairy sector, relevant literature was reviewed and two key industry informants were interviewed. Two frameworks were utilized to analyse the qualitative and quantitative data: the Diffusion Theory (Rogers, 2003) and the IFCN network (International Farm Comparison Network [www.ifcnnetwork.org](http://www.ifcnnetwork.org)), respectively.

Ten NZ innovations were defined; they were principles and practices considered typical in NZ dairy farms and not common in Argentine dairy farms. The innovations were related to four areas of the dairy system: pasture management, herd management & genetics, farm structure & organization, and human resources. The seven farmers differed in the level of adoption or rejection of the innovations.

The two innovations most adopted were: Focus on Production per Hectare and NZ Style of Milking Shed and Milking System; and the two least adopted were: Less than 15 cows per Set of Teat-cups and other innovations related to labour productivity and Utilization of Formal Pasture Budgets. Some associations were found between the level of adoption of NZ innovations by the case study farms, the most relevant follows: increments in Return on Investment (ROI); reduction of land costs per kg of milk produced and increments in labour productivity. The NZ principle Less than 15 cows per Set of Teat-cups was found to be the innovation most closely associated with increase in labour productivity. NZ Genetics cows were found to be necessary for the adoption of seasonal calving. An association was found between the adoption of NZ Genetics and higher milk yield per kilogram of live weight, and lower mortality and replacement rates, than those that had not adopted.



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I cannot find the words to thank sufficiently my supervisors Nicola Shadbolt and Colin Holmes. Nicola, I am deeply grateful for sharing your knowledge and time with me. I want to express gratitude to you for always being so positive and for believing in me. Professor Holmes, what an honour for me to have the opportunity to work with you, I will never forget your example of commitment to your work, to your students, and to the NZ dairy industry. Thank you both for clarifying and refining my thinking, rough ideas were converted with your effort into academic writing. In Argentina, I would want to show my gratitude to Bernardo Ostrowski, the IFCN coordinator for Argentina.

I would like to acknowledge the seven Argentine dairy farmers that participated in the present research. Thank you for your trust and for providing me with data from your farms, thank you also for receiving me so well in your farms and for sharing with me part of your experience and wisdom.

I would also like to acknowledge the staff at Massey University for this wonderful two years of living in Palmerston North. Especially thanks to Susan Flynn from the International Student's Office, and to Yvonne Parks and Matthew Levin from the Institute of Food Nutrition and Human Health.

To my friends from the *Latin America Society for the Development of NZ Dairy Industry*: Hector Laca-Viña from Uruguay and Rene Pinochet from Chile. Thank you for those passionate discussions about dairy farmers, and their farms' productivities, risks and returns.

Thanks to you Gonzalo Tuñon and to you Javier Baudracco, for reading my drafts and for providing valuable alternative views of NZ and Argentine dairy systems and dairy farmers. Thank you for sharing the same passion for dairying, but thank to you the most for being such good friends.

Alan & Carola, Ana, Vicky and Maca, you are incredible people that have made the word "friendship" more meaningful. Thank to you for enriching our perception of the world with your different views. We feel lucky that God crossed our paths. My parents and brothers and sisters back at home, I missed you all a lot. Dad I am especially grateful to you for your constant support, for introducing me into the fascinating world of dairy farming, and for initiating me in the adoption of NZ principles in Argentine farms.

Finally, my greatest gratitude and appreciation goes to my brilliant and beautiful Maria Elisa. Thank to you Eli for helping me so much by correcting patiently my grammar, and for your constant support and encouragement during these two years of intensive experience. I am so happy that I married to you; life would be meaningless without you. Lastly, thank to you God for the gift of our baby that is still to be born.



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