

MONASH INDUSTRY TEAM INITIATIVE (MITI)

Controlling Sediment in Farm Milk

Benjamin Briggs (Bachelor of Mechanical Engineering (Hons))

Shilong Yang (Bachelor of Chemical Engineering (Hons))

Introduction

Background

Burra Foods is a globally renowned Gippsland based dairy manufacturer that specialises in creating high quality dairy products for global markets. Founded by the Crothers Brothers over 30 years ago, it has created products including natural cheese, fresh milk concentrates, food preparations, specialty milk powders, nutritional milk powders, and fresh dairy ingredients.

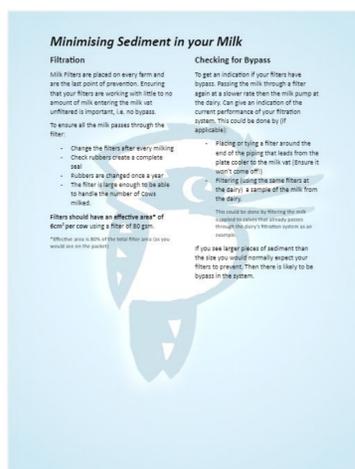
Project Scope

- Audit, assess and identify the best practice for sediment control on farm
- Determination of the steps required to achieve best practice
- Formulate method in order to better predict the potential sediment rates in farm milk

Milk Sediment Control

What is Sediment?

Sediment is the unwanted material that gets into the milk. This includes udder hair, sand, mud and bedding/grass/hay etc. that can get through on farm systems and into the milk. In order to comply with a wide range of standards, from internal product quality to national food safety to international export standards, sediment must be removed before the final product is ready.



Project Outcomes

Best Practice Guide (A4 sheet)

Through the visiting of a range of Gippsland dairy farms, we were able to identify and isolate the primary and secondary factors that caused high or low concentrations of sediment in farm milk. These identified factors were collated into an A4 best practice sheet, which would then be distributed to farmers. This allows the farmers to monitor and compare their practice to the identified best practice.

Farm Data										
	Wash (0 or 1)	Staff (integer value)	Soil Moisture [%]	2 day Soil Moisture [%]	Feed Pad (0 or 1)	Number of Cows (integer)	Number of Filters (integer)	Filter Width [mm]	Filter Length [mm]	Paddock fed (0 or 1)
Effect (%)	78.07935473	0	3.062922462	2.63290753	0	250	1	150	790	0
Numerical Rank value	1.233043942									
Predicted Sediment Rank	A									
Key	<ul style="list-style-type: none"> Wash: Do the farmers wash the teats at all? Staff: How many staff milk on the farm? Soil Moisture: Soil moisture from the BGM site 2 day Soil Moisture: 2 day average of the soil moisture for the day of and Feed Pad: Does the farm use a feed pad? Number of Cows: Size of milking herd Number of Filters: How many filter units does the farm use? Filter Width: Dimension 1 of filter Filter Length: Dimension 2 of filter Paddock Fed: Does the farm put feed into the paddock? 									

Predictive model

Using the identified factors that affected sediment rate in milk, we were able to construct a predictive model for sediment rate in milk based on provided details from farms. By combining past sediment data, identified factors and newly tested sediment data, a preliminary predictive model was able to be produced which enables Burra Foods to identify the potential rate of sediment in every milk collection.

Future Recommendations

- Update the predictive model to allow for more effective data collection
- Further sediment testing to better calibrate the model
- Investigate potential engineering solutions at a factory level

Acknowledgements

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