

# 2019 SHEEP MILK NEW ZEALAND CONFERENCE



# SHEEPMILKNZ

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UNIVERSITY OF NEW ZEALAND



## Sponsors



# **Programme 2019 SheepMilkNZ Conference**

Bledisloe Function Centre, Mystery Creek, Hamilton (entrance through Gate 3)

## **Tuesday March 19 Day 1**

9.30-10.00 Powhiri and Welcome

Morning tea 10.00-10.30

### **10.30-12.00 Session 1: SheepMilkNZ Consumers, Markets and Products (Chair, Craig Prichard, Massey)**

- 10.30-10.50 PGF-funded Sheep and Goat Market Projects (John Morgan/Shane Kells, Food South)
- 10.50-11.05 Raw Sheep Milk Cheese (Cressida and Michael McNamara, Pecora Dairy, Australia)
- 11.05-11.20 Sheep Cheese demand, supply and styles (Miel Meyer, Meyer Gouda)
- 11.20-11.35 Blue River Dairy – a global overview (Gareth Lyness, Blue River Dairy)
- 11.35-11.45 Fernglen SheepMilk Performance Protein (interview)
- 11.45-12.00 Extending the Shelf Life of Liquid Sheep Milk Products (Li Day, AgResearch)

12.00-1pm Lunch and trade stands

### **1.00-2.00 pm Session 2: MilkTestNZ Regulation, Processing, Manufacturing and Support (Chair Kavitha Babu, MilkTestNZ)**

- 1.00-1.15 Fonterra Food Service R&D (Therese Considine, GM R&D Food Service, Fonterra)
- 1.15-1.25 New Dryer Briefing (Stuart Gordon, Food Waikato)
- 1.25-1.35 Freezing Project Update (Jolin Morel, Massey)
- 1.35-1.50 Environmental Product Declarations (Ray Mohan, Ravensdown)
- 1.50-2.00 Protecting and supporting NZ's SheepMilk Sector – SheepMilkNZ Association proposal (Craig Prichard, Massey)

### **2.00pm – 5.45 Session 3. AgResearch - Spring Sheep Session (Chair Linda Samuelsson)**

- 2.00-2.10 Introduction to AgResearch Session, Linda Samuelsson (AgResearch)
- 2.10- 2.25 Sheep milk nutrient bioavailability and digestive comfort: a randomised control trial (Amber Milan, University of Auckland)
- 2.25- 2.35 Sheep and cow milk differentially modify infant faecal bacteria (Natalie Ahlborn, AgResearch)
- 2.35-2.50 Does fermentation of sheep milk affect protein digestion and gut function compared with that of cow milk? (Julie Dalziel, AgResearch)
- 2.50-3.10 Introduction to Spring Sheep Monavale (Nick Hammond and Thomas Macdonald, Spring Sheep) (in preparation for farm study tour).

3.10-3.30pm Pick up Afternoon Tea, board buses, travel to Monavale

### **3.45- 5.30 Spring Sheep Monavale Study Tour**

Monavale Rotation around Lamb Rearing, Feed and Barns and Milking Stations in three groups with joint farmer- scientist presentation and discussion at each station (using 'silent disco' headsets) David Stevens and Thomas (feed and barns), Diane Selby and John Ryrie (milking station), Sue McCoard and Jo Triggs (lamb rearing).

5.30-5.45 . Final questions and commentaries return of high vis etc.

5.45-6.15 - Transfer to Vilagrad Wines Ohaupo by Bus or by private car

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Conference Dinner: Pre dinner drinks from 6.15 and dinner at 7pm

Location: Vilagrad Wines

Guest Speaker: Juliet Ansell (Innovation Manager, Zespri)

Entertainment: Sheep Milk Shenanigans

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## Day 2

### **9.00-10.00 Session 4 International Guest Speaker Julie and Sandy Cameron (Meredith Dairy)**

10.00-10.30 Morning Tea

### **10.30-1pm Session 5: DeLaval Farm Operations (Chair Rowan Galloway, DeLaval)**

10.30-11.50 Sheep Dairy Farm - Feasibility (Ruby Mulinder, FarmWise)

10.50-11.10 Performance data from Waikino (Jake Chardon, Maui Milk)

11.10-11.30 'Using SIL (Sheep Improvement Ltd) database with Dairy Sheep; An Introduction and Demonstration' (Annie O'Connell, Beef and Lamb)

11.30-11.50 Dairy Sheep Health, Welfare and Diseases (Ginny Dodunski , Totally Vets)

11.50-12.00 New Animal Welfare Regulations (Nikki Pirihi, MPI),

12.00-12.15 Spoilage bacteria in the feed of New Zealand dairy sheep (Alexis Risson, Massey-AgResearch)

12.15-12.30 Italian Sheep Dairying comparison (Maria Laganga, Pisa/Massey)

12.30-12.45 Feed supplements (Nadine Olsen, Nutritech)

12.30-12.45 Fertilizer options (Murray McEwan, Agrisea)

1.00-2.00 Lunch

### **2.00-3.30 Workshop Sessions (delegates will be asked which workshop sessions you are keen to attend)**

**Workshop 1:** Getting Started in Sheep Dairying - New Entrant Session (farm systems, investment options, new products, contributions from Spring Sheep, Maui, Michael and Cressida McNamara, Jill and Art Eastham).

**Workshop 2:** Dairy Sheep Health, Diseases and Complaints (Led by Ginny Dodunski)

3.30-4pm Closing Final remarks and farewell

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March 21 Thursday Maui Milk Study Tour (Leaving from National Fieldays HQ 8.30am)

# Conference Presentations

10.30-12.00 Session 1:

**SheepMilkNZ Consumers, Markets and Products**

Chair: Craig Prichard



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10.30-10.50

## **PGF-funded Sheep and Goat Market Projects**

**Presenters:** John Morgan/Shane Kells ( Food South)

**Description:** In December 2018 the Government announced a \$490K grant from the Provincial Growth Fund to support research into future sheep milk products and markets. John Morgan (Food South) and Shane Kells (formerly of Food Waikato) will present what the project is, current status and overview the upcoming work.

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10.50-11.05

## **Raw Sheep Milk Cheese**

**Presenters:** Cressida and Michael McNamara (Pecora Dairy, Australia)

**Description:** Pecora Dairy is an artisan sheep milk dairy and cheesery founded in 2011 by Michael and Cressida McNamara. Their farm of 200 acres is situated in Robertson, the Green Heart of the Southern Highlands, within 100 miles of Sydney. Their presentation will focus on the production of their three new raw milk cheeses.

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11.05-11.20

## **New Zealand Sheep Cheese demand, Supply and Styles**

**Presenter:** Miel Meyer (Meyer Gouda)

**Description:** Miel Meyer is General Manager at Meyer Gouda Cheese in Hamilton and a board member of NZ Specialist Cheese Makers Association. He will discuss the position of sheep milk cheeses in the NZ specialist cheese market.

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11.20-11.35

### **Blue River Dairy – a global overview**

**Presenter:** Gareth Lyness (Blue River Dairy)

**Description:** Gareth Lyness is the marketing and supply chain manager for Blue River Dairy in Invercargill, he will discuss the company's global strategy.

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11.35-11.45

### **Fernglen SheepMilk Performance Protein**

**Presenter:** Cameron Ravenwood (Fernglen)

**Description:** The conference will sample Fernglen's three flavours of sheep milk 'Performance Protein' as we board the bus for the Spring Sheep's Monavale study tour. In this short interview (recorded on Wednesday March 13) Cameron Ravenwood discusses reactions from customers to the new drink, their farming set up, and plans for the future.

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11.45-12.00

### **Extending the Shelf Life of Liquid Sheep Milk Products**

**Presenter:** Li Day (AgResearch)

Authors: Day, L<sup>1</sup>, Broadhurst M<sup>2</sup>, Berry C<sup>2</sup>, Boggs I<sup>2</sup>, Wieliczko R<sup>2</sup>, Harris P<sup>2</sup>, Weeks M<sup>1</sup>

<sup>1</sup>AgResearch Ltd, Grasslands Research Centre, Palmerston North

<sup>2</sup>AgResearch Ltd, Ruakura Research Centre, Hamilton

Sheep milk is high in fat, protein and total solids. Its composition also varies considerably throughout the milking season. There have been challenges to process liquid sheep milk beyond pasteurisation, due to its poor heat stability. Research and pilot trials have been carried out to gain a better understanding of the issues related to high heat treatment of sheep milk and develop solutions to overcome these issues. Applying the knowledge that has been used in bovine dairy industry, we employed a number laboratory-based testing methods to determine the heat stability of liquid sheep milk and developed formulation technologies to improve their heat stability. A device that is designed to measure starch gelation, was used to heat milk up to the UHT conditions (e.g. 140 °C) to monitor the changes in milk viscosity as a predictor of processability at high temperatures. The method provides a good indication of whether the milk could be processed or not. Several pilot trials have been conducted to date at AgResearch and FoodBowl, to successfully produce the extended shelf-life (ESL) and UHT liquid sheep milk products.

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1.00-2.00 pm Session 2:

## **MilkTestNZ Regulation, Processing, Manufacturing & Support**

**Chair:** Kavitha Babu ( MilkTestNZ)



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1.00-1.15

### **Fonterra Food Service Research and Development**

**Presenter:** Therese Considine (GM R&D Food Service, Fonterra)

**Description:** Therese Considine will share the key features of Fonterra's food service research and development programme.

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1.15-1.25

### **New Dryer Briefing**

**Presenter:** Stuart Gordon (Food Waikato)

**Description:** SheepMilkNZ Conference honorary guest and Food Waikato CEO Stuart Gordon will overview the background and plans for the new specialist milk dryer under construction on the Ruakura Campus and due to open in early 2020.

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1.25-1.35

### **Freezing Project Update**

**Presenter:** Jolin Morel (Massey University)

**Description:** Jolin will update the conference on recent developments in developing a commercially viable sheep milk freezing technology.

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1.35-1.50

### **Environmental Product Declarations**

**Presenter:** Ray Mohan (Ravensdown)

**Description:** Ray Mohan's presentation opens with a comparison of regional council environment schemes from around the country before comparing product declaration schemes that might be used to test, support and develop sheep milk's environmental credentials.

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1.50-2.00

## **Protecting and supporting NZ's sheep milk sector**

SheepMilkNZ Association proposal

Presenter: Craig Prichard (Massey University)

**Description:** Craig will identify some of the key challenges the industry is facing and propose the formation of a sheep milk association as one means of helping to address these.

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2.00pm – 5.45 Session 3.

## **AgResearch - Spring Sheep Session**

Chair: Linda Samuelsson (AgResearch)



2.10- 2.25

## **Sheep milk nutrient bioavailability and digestive comfort: a randomised control trial**

**Presenter:** Amber Milan ( University of Auckland)

**Authors:** Milan AM<sup>1</sup>, Shrestha A<sup>1</sup>, Day L<sup>2</sup>, Samuelsson L<sup>2</sup>, Cameron-Smith D<sup>1</sup>

<sup>1</sup>Liggins Institute, University of Auckland, Auckland

<sup>2</sup>AgResearch Ltd, Grasslands Research Centre, Palmerston North

Sheep milk (SM) is an alternate milk for human nutrition and health, differing from cow milk (CM) in protein, fat, and micronutrient composition. Intolerances to CM, including lactose and protein sensitivities, are a driver for consumers to seek alternate dairy sources in pursuit of improved digestibility. Pre-clinical research has shown that in comparison to CM, there is greater retention of essential amino acids from SM proteins, suggesting that differences in digestion may exist between SM and CM. However, despite the known compositional differences between SM and CM and their potential to impact nutrient bioavailability and digestive comfort, the impact of these differences has not been investigated in humans. This trial was a double-blinded, randomised, cross-over trial, with 30 self-described dairy avoiding females aged 20-40 years. Following an overnight fast, subjects drank 650 mL of SM or CM on separate occasions in a randomised order, with one week between treatments. Breath and venous blood samples were collected at fasting and at regular intervals over 5hrs after milk consumption, as were subjective reports of digestive comfort. The rate of protein and fat digestion and appearance of amino acids, fatty acids and lipids in circulation will be assessed by chromatographic and mass spectrometric techniques. Lactose malabsorption will be assessed by expired breath hydrogen, while concurrent digestive symptoms will provide evidence of differences in tolerance. This study will provide comprehensive evidence for digestive and metabolic differences between SM and CM.

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2.25- 2.35

## **Sheep and cow milk differentially modify infant faecal bacteria**

**Presenter:** Natalie Ahlborn (AgResearch)

**Authors:** Natalie Ahlborn, Wayne Young, Linda Samuelsson  
AgResearch Ltd, Grasslands Research Centre, Palmerston North

**Description:** Cow milk is commonly used as a complement to human milk for infants and interest in other ruminant milks has grown in recent years. While many similarities exist between ruminant milks, their compositional differences may differentially affect the large bowel microbiome following consumption. This could result in differences in metabolite concentrations in the gut, which can impact both the development of an infant and their health later in life. In this study sheep and cow milk were digested *in vitro*, followed by fermentation using faecal inoculum from two infants (1 month old and 5 month old) to mimic the digestive system in infants following consumption of sheep or cow milk. The two milks significantly altered microbial composition and metabolite concentrations in faecal cultures from the one month old infant. However, only small differences between milks were observed in faecal cultures from the 5 month old infant. In the case of this study, these results suggest that the compositional differences of sheep milk and cow milk are sufficient to influence the gut microbiota, while emphasizing the individuality of the gut microbiome. Thus, different milks may have the potential to affect health through modulation of the microbiome and further studies in this area would be useful to determine this.

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2.35-2.50

## **Does fermentation of sheep milk affect protein digestion and gut function differently compared with fermentation of cow milk?**

**Presenter:** Julie Dalziel (AgResearch)

**Authors:** Julie Dalziel<sup>1</sup>, Elizabeth Rettedal<sup>2</sup>, Jess Gathercole<sup>1</sup>, Hanh Nguyen<sup>1</sup>, Eric Altermann<sup>1</sup>, Li Day<sup>1</sup>, Nicole Roy<sup>1</sup>

<sup>1</sup>AgResearch Ltd, Grasslands Research Centre, Palmerston North

<sup>2</sup>AgResearch Ltd, Lincoln Research Centre, Lincoln

**Description:** Background: Fermented foods have been associated with beneficial actions on gut function, but how they exert such effects is not well understood. Milk protein sequences differ among species, and this affects their respective physicochemical properties and means that different peptides will be released when digested. Resulting peptides would be different again when fermented products such as yogurt are ingested because the fermentation process affects the peptides released. Downstream physiological actions of released peptides, such as those affecting cardiovascular outcomes, are therefore likely to differ if milk is first fermented. Our research investigated how fermented milk (yogurt) alters digestion *in vitro*, and gastrointestinal (GI) transit and the gut microbiota *in vivo*, and whether these responses differ with milk sourced from different species.

**Methods:** The Infogest consensus protocol for simulated *in vitro* digestion was used. Relative differences in the amount of peptides released within milk types were measured using gel filtration chromatography. Differing peptides between yogurt and milk of the same species were further analysed using scheduled precursor lists with LC-MS/MS for identification. Male

Sprague-Dawley rats were fed a dairy-free diet supplemented with one of four treatment dairy drinks (cow milk, cow yogurt, sheep milk, sheep yogurt) for 2 weeks. GI transit was measured by monitoring the movement of solids from the stomach to the large intestine over 12 hours by high resolution X-ray imaging. Cecal bacterial community profiles were determined *via* 16S rRNA high-throughput sequencing.

Results: Limited proteolysis occurred during fermentation of cow and sheep milk, whereas during *in vitro* digestion the fermented products broke down into peptides to a greater extent than did the milks. The amount of bioactive peptides identified was higher for yogurts compared to their milk counterparts, particularly peptides with anti-hypertensive properties. Dairy animal species of origin had a dominant influence on GI transit. In contrast, fermentation status had a greater influence on the composition of the gut microbiota than did milk species of origin.

Conclusions: Overall these results suggest that fermented dairy products (e.g. yogurt) could bring cardiovascular and gut health benefits for consumers.

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Day 2 9.00-10.00

## **Session 4 International Guest Speaker**

Presenters: Julie and Sandy Cameron (Meredith Dairy)



**Sandy and Julie Cameron, Meredith Dairy, Victoria, Australia (Australia's largest sheep milk producers since 1991)**

**Biography:** Sandy and Julie Cameron started up this farm-based business when wool became unviable. Sandy, with his veterinary background, and Julie, a former nurse, took on sheep and goat dairying and cheese making. Today Meredith Dairy sheep and goat milk products are sold Australia-wide and internationally (Meredith is

Australia's largest producer). Sandy and Julie are great enthusiasts of sustainability. The whole farm and cheese factory run on green power. Julie has undertaken a massive tree planting program. Sandy is very proud of his earth worm populations and believes there is no point in doing something if you don't leave the land in as good or better condition for the next generation.

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Session 5: Wednesday (Day 2) 10.30-1pm  
**DeLaval Farm Operations**



10.30-11.50

**Sheep Dairy Farm - Feasibility**

Presenter: Ruby Mulinder (LIC, FarmWise)

**Description:** Using examples and case from her work as a farm consultant Ruby Mulinder presents a discussion of the feasibility of developing a sheep milking dairy farm.

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10.50-11.10

**Performance data from Waikino**

Presenter: Jake Chardon (Maui Milk/Southern Cross)

**Description:** Jake is a Geneticist known worldwide for his contribution to dairy cattle breeding (ex CEO of Holland Genetics). He was a co-founder of NZ's leading supplier of genetics for venison production, and also consults for the NZ Dairy Goat Cooperative. One of three genetics specialists on the Maui Milk team, Jake's primary focus is the development of a crossbred dairy ewe for a NZ pastoral farm system (the Southern Cross™ breed). The genetic programme at Waikino Station incorporates genes from Awassi, Coopworth, East Friesian and Lacaune breeds. Various hybrids have been performance tested in the 2018/19 season and the results will be presented.

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11.10-11.30

**Using SIL with Dairy Sheep; An Introduction and Demonstration**

Presenter: Annie O'Connell (Beef and Lamb)

**Description:** In this presentation Annie O'Connell will demonstrate the sheep milking module in the SIL data database and the development of nProve (the programme that will replace SIL).

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11.30-11.50

**Dairy Sheep Health, Welfare and Diseases**

Presenter: Ginny Dodunski (Totally Vets)

**Description:** Ginny Dodunski, from Totally Vets in Taumaranui, is one of NZ's most experienced dairy sheep vets. She has been involved Maui's WKT operation from the beginning and has worked at Waikino for several years. She will discuss dairy sheep health and management.

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11.50-12.00

## **New Animal Welfare Regulations**

Presenter: Nikki Pirihi (MPI)

**Description:** The Ministry of Primary Industry is developing a new set of regulations around on farm animal welfare practices. Nikki Pirihi will outline these and discuss where they connect directly with dairy sheep operations.

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12.00-12.15

## **Spoilage bacteria in the feed of New Zealand dairy sheep**

Presenter: Alexis Risson (Massey, AgResearch)

**Description:** With the rapid expansion in production of small ruminant's dairy products, sheep milk is developing as an alternative dairy product and as a means of diversifying farm production. Identified as a high-quality product owing to its exceptional nutritive value, New Zealand's sheep milk is mostly manufactured into powder-based goods and exported to Asian markets. In order to maintain high standards and match customers' expectations, product quality is of great concern to the industry. Such quality is highly dependent on the microbiology of raw milk and on factors contributing to its contamination. Two major threats to product quality are able to overcome the pasteurisation of raw milk: spore-forming and cold-tolerant non-spore-forming bacteria. The former is highly resilient and can withstand a variety of stresses including high temperature and desiccation. Contaminating the raw milk at the farm level, spore-formers can be found in pasteurized dairy products and will resume growth when subjected to suitable conditions. Conversely, cold-tolerant non-spore-forming bacteria can be removed by pasteurization but are able to grow at refrigeration temperatures and secrete heat-stable enzymes during raw milk storage and transport, affecting the sensory character and thus the quality of pasteurised dairy products. Few studies are available on the bacterial diversity and prevalence in dairy sheep farms and products. Our research aims to identify spoilage bacteria populations present throughout the farm environment. Silage is a crucial feed owing to its nutritive properties. Intrinsically, silage contains high counts of anaerobic bacteria, arising from the fermentative process it undergoes, and aerobic bacteria from the soil. Once ingested by the animal, these bacteria can be found in faeces, further contaminating udders and ultimately entering raw milk after the milking process. To investigate spoilage bacteria present in feed, 20 mixes of grain and silage from a dairy sheep farm were pooled into a single composite sample and analysed. The sample was processed using selective culture methods and bacteria identified by biochemical testing. The spoilage potential of isolates was also investigated by testing them for lipids- and proteins-degrading enzymatic activity. The bacterial load of the feed was the following: spores were found at counts of up to one million bacteria per gram of feed, while cold-tolerant non-spore formers were found at six hundred thousand per gram of feed. Of the 219 isolates obtained, 36% were positive for protein-degrading activity and 24% were positive for lipid-degrading activity. This data highlights the presence of spoilage bacteria in the tested feed of NZ dairy sheep. Research is ongoing and will attempt to characterize the bacterial populations in a variety of farm samples including bedding, faeces, pasture as well as raw milk. Additional molecular characterisation of isolates will be required to trace contaminants from the farm environment to the raw milk and develop protocols to mitigate their impact on dairy sheep products quality.

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12.15-12.30

## Italian Sheep Dairying

**Presenter:** Maria Laganga (Pisa/Massey U)

**Description:** Maria Laganga is an animal science student from Pisa University who has spent the last three months visiting and working on NZ sheep dairy farms as part of an EU-funded student exchange programme. Her family are sheep milk cheese makers who farm near the city of Volterra in Tuscany. Her presentation overviews the Italian sheep milk industry and the current challenges it is facing.

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12.30-12.45

## Dairy Sheep Nutrition

**Presenter:** Nadine Olsen (Nutritech, email: nadine@nutritech.co.nz)

**Description:** An introduction and general discussion on dairy sheep nutrition, focussing on observations from New Zealand dairy sheep farms. The uniqueness of New Zealand sheep dairy will be applied to an international context, particularly regarding nutrient requirements for protein and energy. This will then lead into a brief discussion on silage quality and its potential impact on dairy sheep production. The talk will conclude with the presentation of trial data on live yeast in dairy sheep diets, which is of relevance to NZ sheep producers in light of consumer trends leading away from antibiotic and ionophore use.

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12.30-12.45

## Fertilizer options

**Presenter:** Murray McEwan (AgriSea)

**Description:** Murray McEwan is the area representative for the seaweed fertiliser company, AgriSea. In the context of the pressure on farmers to work within fertilizer limits he will discuss some of the trial work the company has been doing on the use of seaweed fertilizers.

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Thanks again to our sponsors:



## Delegates (by first name)

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## Menu

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### Day 1

#### Morning Tea

Caramelized onion, **Castlepoint Feta** and Fresh herb savory scone

Freshly baked oat and golden syrup Anzac biscuits

**Sheep Milk Smoothie** -Mixed summer berry (Thorvald yoghurt base)

Tea and Coffee with **Sheep Milk** (AgResearch's longlife milk)

#### Lunch

Slow roasted rolled lamb shoulder with garlic and rosemary

Curried cauliflower, baby spinach with **Mt Bruce Havarti** sauce (Kingsmeade)

Salad of green pea, **sheep halloumi**, fresh mint, chargrilled beans & pesto dressing

Mixed Leaf mesculin salad with cherry tomatoes and shaved radish, **Meyer Sheep Gouda** cheese, pickled red onion and classic vinaigrette, fresh baked bread

**Sheep Milk Cheese board** display: **Tinui Blue**, **Mt Bruce Havarti**, Pear paste, apple slices, grapes and cracker selection (Kingsmeade)

Fruit, orange juice, tea and coffee

#### Afternoon tea:

**Fernglen sheepmilk** 'Performance Protein'

Muffins with Sheep Milk Powder, raspberries and white chocolate

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### Day 2

#### Morning Tea

Golden baked hot home-made savoury sized braized beef and **Opaki Manchego** cheese pies

Dark Chocolate chewy brownie bites

**Sheep Milk Smoothie** -mixed berry (Thorvald base)

Tea and coffee (with sheep milk)

#### Lunch

Hot chicken thigh roulade wrapped in smokey bacon with a **Meyer Gouda sheep** cheese sauce

Fresh baked Frittata of pumpkin, spinach and **Opaki Manchego** (Kingsmeade)

Warm roast beetroot, carrots and walnuts topped with **Castlepoint Feta** (Kingsmeade)

Cos and buttercrunch salad with cherry tomatoes, shaved with **Riversdale Pecorino (Kingsmeade)**, basket of fresh baked bread

Cheese board featuring Wairarapa Jack with sliced summer pear and Tinui Blue on manuka honey topped wholemeal toasts

Orange juice and tea and coffee

#### Afternoon tea

Caramelized onion, spinach and Meyer Gouda pastry palmiers

Orange Juice and (if available) Sheep Milk Smoothie/Fernglen Performance Protein

Tea and coffee (service with Sheep Milk)

## Notes and contacts

Thanks again to our sponsors:

