

Title: A long term evaluation of different types of organic and inorganic soil nutrient inputs on dairy pastures.

Objective

This project will compare the use of synthetic (inorganic) and organic based fertilisers on irrigated mixed dairy pastures and their effects on soil nutrient status, pasture quality and production, organic carbon levels, water holding capacity, overall feed conversion efficiency (FCE) and the cost benefit analysis. The demonstration will be used as a key focus of extension days, providing a point at which farmers can access management strategies to do with manure management, the composting process, fertilising with organic materials and the cost benefit analysis of each of the treatments.

Demonstration design

The demonstration site is a 3 ha block at UQ Gatton dairy that has been divided into three 1 ha paddocks. The block contains established kikuyu with ryegrass and clover over sown during May 2012. The blocks are irrigated to supplement rainfall. Gypsum blocks and loggers will be installed in each of the three paddocks to monitor soil moisture content and assist in scheduling irrigation. The equivalent of 1.5 kg of nitrogen per hectare multiplied by the number of days in the grazing rotation will be applied post grazing throughout winter (cooler temps – long grazing rotation) and every second grazing (warmer temps – short grazing rotation) throughout summer for the duration of the demonstration. Treatments as follows:

1. **Inorganic nutrient application – Urea**
2. **Organic nutrient application – Compost**
3. **Inorganic and organic nutrient blend (alternate applications)**
4. **Stockpiled manure**

Measurements

Soil analysis

Compost analysis

DM production & forage quality pre grazing

Botanical composition

Water use efficiency- soil moisture holding capacity

Feed conversion efficiency

Economic analysis

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