

## Grow Organic Dairy Project; Successes in Organic Dairying

### Overall Farm management

There is no Organic Magic! The key to successful organic farming is best practice management—this is not different than for conventional dairy farming, however organic farmers have to manage with fewer tools and more restrictions i.e. constraints of organic certification.

The risks to production and adequate feeding are higher for organic farmers – and these are made greater with drought years. Organic supplements are scarce and expensive. The organic farmers on the team have developed a number of strategies to minimise the risks:

- Securing supplements early, building up a buffer
- Reduce stocking rates
- Growing a wider variety of pasture species
- Growing own supplements (grass silage, hay, maize silage, turnips)
- Moving stock to runoffs for winter grazing
- Moving early or late calvers between farms
- Providing shelter for herd

There was some evidence of competition and ‘peer pressure’ within the Grow Organic Dairy team. Most farmers on the team did not use DairyBase as part of their farm management before they joined the project. Participating in DairyBase was a prerequisite of participating in the GOD project. The focus on numbers has resulted in more cost control than previously evident in the organic farmers.

Analysis of the physical data in DairyBase over 5 seasons shows that the Organic farmers on average perform similar to the system 1 and 2 dairy farms despite the constraints.

Production wise the Grow Organic Dairy farms produce less milk solids per hectare (MS/Ha), compared to their conventional peers, as a result of lower stocking rates. The Grow Organic Dairy farms on average had lower fertiliser and supplement costs per hectare and lower animal health costs per cow.

In New Zealand dairy farming systems, the competitive strategy has always been through cost leadership not differentiation. In recent times this has begun to vary and besides cost leadership, organic milk production has now become an option which is a differentiation strategy.

Generally, the cost of production for organic farming is higher than conventional farming and is the same with the Grow Organic Dairy farms. The average operating expenses per kg/MS of \$5.10 are higher than the average of the system 2 farms of \$4.70. So because the Grow Organic Dairy farms produce less and despite their operating expenses per hectare being lower over the last three years this has not resulted in a lower cost of production.

Typically under a differentiation strategy farms generate a low Asset Turnover Ratio (ATR) but balance that against a high Operating Profit Margin (OPM). The Grow Organic Dairy farmers are achieving good OPMs compared to the industry profit benchmarks, and they're doing this through management skill, cost control and the organic premium.

The Grow Organic Dairy farms have shown not only a higher OPM, but also a higher ATR compared to their conventional system 2 peers.

This means that the Grow Organic Dairy farmers made more money from their assets (ATR) and did it more cost effectively (OPM). This resulted in an improved Return on Assets (RoA) for the 2009-10 season.

### Animal health

It is possible to rear good quality young stock without resorting to drenching. Organic farmers have developed grazing strategies to avoid early exposure of young stock to the autumn larval peak by creating a bank of clean, good quality feed for autumn.

Regular monitoring of the weights of calves and young stock on the Grow Organic Dairy farms, as well as faecal egg counts, has helped to get an insight in the weight gains compared to industry targets. The organic farmers participating in the monitoring showed young stock with low worm counts and weight gains at or above industry targets.

Organic remedies, such as apple cider vinegar or homeopathics, may assist in prevention of worms, but appear to perform poorly once the burden is sufficient to stop or reverse weight gains.

Organic farmers are able to prevent mastitis by focussing on maximum hygiene and health of all cows at all times. Those organic farmers with the lowest SCC had in common that they milked cows with teats in very good condition. These farmers use high quality teat spray and emollient and make sure that the maintenance of the milking machine is up to date.

### Pasture management

The pastures of the Grow Organic Dairy farms consist of a combination of perennial ryegrasses, clovers, plantain and chicory. This gives a high quality, productive sward for organic dairy production.

Weeds are seldom a problem in organic dairy pastures if attention is paid to good management techniques combined with strategies such as timely mowing. Biological control organisms are also available for a number of weed species.

### Soil fertility management

The challenge for organic dairy farmers with long-term permanent pastures is to maintain soil fertility through nutrient cycling, with minimal external inputs. Within the Grow Organic Dairy team, there was little consensus as to what Best Management Practice was for maintaining and enhancing soil fertility; physically, chemically and biologically.

In general organic farmers put greater emphasis on the importance of pH, trace elements, nutrient ratios and soil conditioners applied to increase biological activity.

Most farmers on the Grow Organic Dairy team use animal manures in the form of effluent or composted manure as a way of redistribution of nutrients over the farm. Generally these manures are applied to silage or root crops. Apart from manure, a range of permitted fertilisers and soil conditioners are used, most commonly used is lime.

A field trial was conducted to research the effectiveness of 4 natural fertilisers commonly used by organic farmers to improve soil fertility: compost containing chicken manure, composted phosphate rock, agricultural Lime and a product containing ground basalt rock. The trial plots are located on 4 farms, including the Massey organic dairy farm, spread over the North Island to maximise the variation in climate and soil characteristics.

Pasture growth was monitored using the 'falling plate' technique:

- The composted chicken manure has significantly ( $P > 0.05$ ) and consistently increased pasture growth across all farms

Soil chemical characteristics were monitored by analysing a range of parameters:

- Lime has significantly increased the pH level
- The composted rock phosphate shows a slight increase in Olsen P values

Soil biological characteristics were measured:

- Soil food web results showed a high variability within the treatments and between the treatments

Overseer analysis was used to gauge the quantity of N leaching from the organic farms:

- Organic dairy farms leach only 50 to 60% of the quantity of nitrogen that is lost from conventional farms

Monitoring results show that even though the available soil-phosphorus is tending downwards on the organic farms, these phosphorus levels were not below the optimum levels. However if organic farms want to protect and increase their productivity, nutrient inputs might be required.

## **Grow Organic Dairy Project; Successes in Organic Dairying**

The Grow Organic Dairy project objective is to research and share successful organic management practices, as part of the drive to grow the organic dairy network, lift the production of individual farms, increase innovation and make sustainable dairy production methods an attractive proposition to other dairy farmers.

This project has brought a multi-disciplinary team together, consisting of leading organic dairy farmers and scientists from Massey University. Collectively, the team makes the decisions on how to proceed with the project, which includes data gathering, research and experimental trials, using the experiential science methodology.

The first part of the project we captured the successes in organic management in the four key areas: animal health, pasture management, soils and soil fertility and farm management.

As part of the data gathering, DairyBase is used to analyse physical and financial farm business information. In the near future, DairyBase will allow existing organic farmers and those considering conversion to compare themselves against an organic benchmark, rather than against a benchmark of conventional farms as at present. Initial results show that comparing organic farms can be a little misleading. There is a huge variance in the production of the farmers on the Grow Organic team, from around 450 to 900 kg MS/ha per annum, which reflects the different land and soil types.

The team analysed animal health prevention and treatments programmes for mastitis, lameness, bloat. The key message is: prevention through maximum hygiene and animal health and minimum of stress of all cows at all times. This requires a more holistic farming approach in which pasture management is important. Prevention is especially important for certified organic farmers, as they have fewer tools to treat sick cows. The team will undertake more in-depth monitoring to quantify successful mastitis and calf rearing practises in the next part of this project. Information sheets have been produced on the topics of mastitis, lameness, bloat and are available from the ODPG website ([www.organicpastoral.co.nz](http://www.organicpastoral.co.nz)).

Weeds are seldom a major problem on organic dairy pastures if attention is paid to good management techniques combined with strategies such as timely mowing. Organic farmers value a high quality, productive sward with a combination of perennial ryegrass, white clover, red clover, plantain and chicory. The most effective way of improving pastures is by resowing pastures after growing a crop. Oversowing is less effective but has its place for improving swards, especially if done in autumn or for fixing up damaged pasture following pugging. The next part of this project will focus on cropping.

Trial work will continue on organic soil management and soil fertility. Broadening the current knowledge around this key area is what the research team believes as being the most important in growing the organic dairy sector further in New Zealand. The team will research questions around the nutrient status of organic soils, organic soil fertility programmes, the effectiveness of organic fertilizers and the impact of organic dairying on the environment.

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