



## ADAPTING TO A CHANGING CLIMATE: CASE STUDY 20

# MONITORING AND PLANNING

## Maintaining production in a changing climate

### THE FARM

- 94-hectare dairy farm in Putaruru, Waikato.
- 298 milking cows.
- Cows are milked once a day and produce about 1100kg milk solids per hectare per year – more than the regional average.
- Managed by Hamish Putt.



*A Waikato dairy farmer undertakes a comprehensive monitoring programme to give early notice of changing conditions, particularly drought.*

Hamish Putt runs an efficient dairy operation and plans for the best, and worst, possible conditions. Detailed monitoring of pasture, soil moisture, animal health and pregnancy allows him to set measurable objectives and benchmarks to gauge the state of the farm and the animals.

### PLANNING FOR THE UNEXPECTED

Hamish's farm production plan is based on the expectation of relatively regular seasonal climatic conditions: frost and rain in the winter, mild but windy spring, and a dry summer with a dry period of 4 to 6 weeks.

Some variation within this seasonal climate pattern is expected, such as the onset of the summer dry period, so flexibility is essential. Variation in precipitation is managed with feed budgeting between March and October and a "worst case scenario" plan in case of low growth rates and poor quality silage.

The farm is expected to experience even more change in the future: summers will become warmer and drier, winters will become wetter. Recent conditions suggest that the variation between high/low and wet/dry is becoming increasingly greater.

"The increase in variability between, and within, seasons could pose a significant threat to production unless I adapt some of my farm management practices," says Hamish.

### DEALING WITH CHANGING CLIMATIC CONDITIONS

Hamish has adapted many of his management practices to adapt to the changing climate.

### DETAILED MONITORING

Hamish uses a comprehensive monitoring system to continually assess the state of the farm's soil temperature, soil moisture and pasture growth. This means that:

- pasture is used efficiently during dry periods in summer;
- production levels are maintained all year round;
- paddock rotation is effective;
- conditions that could affect production are picked up early.

### CLIMATE CONDITIONS EXPECTED IN THE WAIKATO

- Summer will become warmer and drier.
- Winter will become milder and wetter, with fewer frosts.
- Droughts will be more frequent and possibly more severe.

*Hamish milks once a day to allow the herd to rest and give him more flexibility during adverse conditions.*

# Key points

1. The farm adopts a range of strategies and “worst case scenario” plans to respond to the effects of changing climatic conditions.
2. Potential feed shortages and dry conditions are detected early from detailed and frequent pasture, soil, and animal health monitoring.
3. Cropping was introduced as a buffer against low pasture growth and to reduce feed costs.
4. Diverse pasture species makes feed management easier during poor growing conditions.
5. Feed is sourced from a range of different regions to lessen the impact of expected climatic conditions that might affect feed supplies.

The monitoring programme gives early notice of dry conditions, which means Hamish can stock up on feed before increased demand pushes the prices up. He prefers to buy off-farm feed during summer and reserve the farm’s own feed for winter to extend the number of productive milking days.

Hamish also uses the monitoring programme to set 10-day grazing plans. Data from a pasture monitoring instrument is analysed in a feed budgeting programme, similar to commercial programmes, that Hamish developed himself. Pasture height determines day and night paddocks for effective paddock rotation.

## HERD MANAGEMENT IS ABOUT FLEXIBILITY AND EFFECTIVENESS

Hamish milks once a day to allow the herd to rest and give him more flexibility during adverse conditions.

### THIS IS ONE IN A SERIES OF CASE STUDIES CALLED ADAPTING TO A CHANGING CLIMATE

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Culls and herd pregnancy testing are done as early as possible so Hamish can allocate feed as effectively as possible and optimise milk production when feed is limited.

## CROPPING PROVIDES A FEED BUFFER

Hamish recently introduced cropping to the farm as a buffer in times of low pasture growth and high off-farm feed costs.

The cropping operation also contributes to pasture redevelopment because excess nutrients and plant pests are removed before the pasture is reseeded.

## FEED IS SOURCED FROM DIFFERENT REGIONS

Hamish has arranged sources of feed outside the Waikato region. He believes that future climatic changes will vary from region to region, and it will be increasingly important to have a feed source in a region that is less prone to drought.

## DIVERSITY IN PASTURE SPECIES

The farm’s pasture is made up of a diverse range of species so it performs better during poor growing conditions.

Dominant species, such as white clover, often grow poorly in dry conditions so species with deep roots, such as plantain and chicory, are also grown to provide year-round pasture cover.

## KEEP EVERYTHING IN PERSPECTIVE

Hamish employs many technical strategies and tactics to respond to climatic pressures, but he also has a philosophical piece of advice. He believes it is vital to take a break from the farm to keep everything in perspective.

“I think that’s the advantage of once a day milking,” he says. “You milk the cows early in the morning, you feed them as best you can, and then you leave the farm in the afternoon. I think that’s vital so you don’t get all stewed up about it.”

