

## The Topoclimate<sup>®</sup> Project



Soil and climate are the basis for land use diversification and Southland's future rural economic and social development. The region has large areas of high-class soils and microclimates capable of growing a wide range of crops and pastures. In the mid 1990s the Southland District council and Crops for Southland recognised that a lack of good detailed information about these fundamental resources was a major constraint to that development.

The Topoclimate<sup>®</sup> survey, initiated by Crops for Southland, was carried out in Southland and South Otago in 1998–2001 to obtain accurate information on the region's climate and soils. The resulting maps and information database are a legacy for this generation of land users to hand on to future generations.



The maps and database allow land users to match crops, grasses and trees to the nature of their soil and climate resource. They will be able to make better land-use decisions based on more accurate information generated by the project. Careful interpretation of the information can become the basis for developing more intensive land uses, increasing production or improving efficiencies in existing land uses within a more sustainable framework.



The project was financed by a co-operative effort between the Community Trust of Southland and five local authorities: Environment Southland, Southland District Council, Invercargill City Council, Gore District Council and Clutha District Council. The Topoclimate<sup>®</sup> South Trust was formed to take responsibility for the survey programmes and for making the information available to the community.

The technology and skills to undertake Topoclimate<sup>®</sup> surveys were developed in New Zealand in the 1980s by MAFTech and Otago University. They were initially applied to areas in Central Otago and the Waitaki Valley. At that time temperature measurements were carried out manually. Staff had to visit each recording site daily and read maximum-minimum thermometers, manually collate the data and transpose it into graphs.

Those programmes eventually lapsed for want of funding following the reorganisation of research structures. But they did produce successful outcomes and became an important catalyst for the development of the viticulture industry in Central Otago. They were also used in the redevelopment of suitable apricot growing areas following relocation of growers from the Cromwell Gorge when Lake Dunstan was formed in 1994.



Technology has advanced considerably since then. Affordable automated temperature recording systems are now available, allowing much larger areas to be surveyed in a shorter period of time for less cost and effort.

Geographical Information Systems (GIS) and computer technology also allow large amounts of data to be processed and mapped quickly and easily.

Topoclimate<sup>®</sup> South was set up to carry out the survey and produce soil and climate maps and databases and make the basic information it gathered available for the benefit of the community as a whole.

A team of up to 25 staff, including a data systems manager, pedologists, climatologists and technicians, working out of an office in Matura, was employed by the Topoclimate<sup>®</sup> South Trust to carry out the survey programme.



The team was led by Gary Hutchinson, a land management scientist with extensive experience in project management and land related issues.

Upon completion of the survey the Topoclimate<sup>®</sup> South team was disbanded and Crops for Southland became custodians of the data. They have since developed a range of products and services aimed at making the information readily available to the public. The presentation of the soil and

climate maps through the medium of the Internet is one such service.

### **The benefits of the Topoclimate<sup>®</sup> Project to land users include:**

- Better understanding of the landscape, allowing informed decisions to be made on a range of land uses including pastoral farming, forestry and specialist crops.
- Accurate identification of different soils to better match soil characteristics to appropriate and sustainable land uses.
- Identification of microclimates capable of growing a wider range of crops and pastures.
- Better crop timing decisions.
- Improved access to land use information through an integrated information database.
- Better risk management decisions based on more accurate information.
- Diversification of land use will create additional employment opportunities and strengthen the regional economy.

