



caring about you & your environment

Report 00.808

10 November 2000

File: Y/2/5/4

Report to the Rural Services and Wairarapa Committee
from Dave Cameron, Regional Soil Conservator

Regional Soil Quality Monitoring and Management

1. Purpose

To inform the Council of two new programmes for soil quality monitoring and management that are being implemented by the Environment Division and Soil Conservation (Wairarapa).

2. Background

“Soil quality” refers to the state of soil properties required to maintain the life-supporting capacity of soil. These properties include soil fertility and chemical (e.g., pH, nutrient presence and availability), physical (e.g., organic matter, structure, porosity, moisture) and biological properties (e.g., soil biota, earthworm numbers).

Loss of soil quality can significantly affect the environmental sustainability of soil and the economic sustainability of farming businesses. This is acknowledged in the Regional Soil Plan (Issue 2.2.3). Method 6.2.6 of the Soil Plan states that the Council will “establish a monitoring framework for soil health by identifying and establishing a regional network of representative soil benchmark sites”.

Our state of the environment report, “Measuring Up” states that “we have little detailed knowledge about the quality of soils in our Region - no baseline has yet been established” and that “without a baseline monitoring programme, we can’t assess changes in soil quality over time nor determine whether the Region’s soils are being managed sustainably.” (WRC, 1999, pp. 46, 49).

We are implementing two new, proactive programmes to address the shortcoming identified in Measuring Up and to implement Soil Plan method 6.2.6. The *500 Soils Programme* is a benchmark soil quality monitoring programme. The *Visual Soil Assessment Technique* is both a land owner education programme (implementing Soil Plan methods 6.1.1 – 6.1.3, and 6.1.7) and a soil quality monitoring programme to complement *500 Soils*.

3. **The National 500 Soils Programme**

The 500 Soils programme is a nationally co-ordinated benchmark soil quality monitoring programme, developed by Landcare Research and funded by the Sustainable Management Fund and participating regional councils, including the Wellington Regional Council. Each participating regional council determines the soils and sites that will be monitored in their region and the timeframes for repeat monitoring. Normally, a soil is monitored across a range of soil types and land uses.

Once benchmark sites are chosen, Landcare Research scientists obtain soil samples and analyse indicators of chemical and physical health. This provides regional scale benchmark soil quality information that can be used to:

- determine the effects of different land uses on soil quality;
- determine how soil quality is changing over time; and
- provide data for state of the environment reporting.

The monitoring information is also collated into a national soil quality database that participating councils have access to.

Approximately seventy five benchmark soil quality monitoring sites will be adopted in the Wellington Region. Approximately twenty five sites on extensive lowland soils will be assessed this year, followed by a further twenty five sites on less extensive lowland soils in 2001/2002 and twenty five hill country sites in 2002/2003. Appropriate soil monitoring sites in Wairarapa and on the Kapiti Coast have been identified for this year's sampling, and we are currently seeking consent from land owners to sample on their properties. Sampling will take place in November 2000. We intend to repeat the monitoring every 5 years.

4. **The Visual Soil Assessment Technique**

The Visual Soil Assessment Technique (VSAT) was developed by Landcare Research and horizons.mw, with assistance from Hawkes Bay Regional Council and Wellington Regional Council. The technique was designed for land owners to monitor soil health for cropping, dairying, and hill country land uses, and links the natural resource (soil) with enterprise profitability. VSAT involves simple visual assessment and 'scoring' of soil 'state' and plant 'performance' indicators. It requires no previous knowledge of soil science, although some knowledge of immediate crop and paddock history is necessary. A field guide provides step by step guidance on assessing health and accompanying sustainable management guidelines promote good soil management practices.

800 copies of the VSAT guides were received in September 2000. Staff training is being arranged for mid-November, so that staff can effectively train landowners to use the VSAT. A plan and programme for targeting certain landusers, raising their interest and awareness, then providing training, will be complete by late November and implementation will begin immediately. The programme will include displays at community field days, and on-farm training days. The plan will include methods by which the Council will collect and collate monitoring information obtained by landowners, to complement soil quality information attained through the 500 Soils programme.

5. **Communications**

Council staff have had regular meetings with Landcare Research and other participating councils during the development of the two programmes. Communication with these organisations will continue during implementation of the programmes. The implementation of both programmes will also involve extensive direct communications with rural landowners throughout the Region.

6. **Recommendation**

That the report be received and its contents noted

Report prepared by:

Approved for submission:

Dave Cameron
Regional Soil Conservator

Ian Gunn
Manager, Operations