

Healthy Soils for Sustainable Farms



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Is a two year project focused on improving soil health and sustainable soil management practices in the region.

Demonstration Sites

BCG has established four sites to demonstrate and evaluate soil health management practices at a local scale. Management practices at the demonstration sites are compared spatially through paired paddocks and temporally through long term trials. These sites are located at Sea Lake, Birchip and Minyip. During 2007 seven soil pits were characterised across the sites. The soils have been classified using the Australian Soil Classification System and full chemical analyses undertaken on each site. This information is freely available at www.dpi.vic.gov.au/vro/birchip_soils. In addition to the vast amount of soil data available on the website, there will be an interpretation of the results, recommendations of management practices and so forth. An example of the data able to be viewed on the website is presented in Table 1.

Table 1. Birchip Farming systems site soil analysis

Horizon	Horizon depth	pH water	pH CaCl ²	EC dS/m	NaCl %	Exchangeable cations				Boron mg/kg	Field pH pF2.5	Wilting point pF4.2	Coarse sand 0.2-2.0mm	Fine sand 0.02-0.2mm	Silt 0.002-0.02mm	Clay ≤0.002mm
						Ca	Mg	K	Na							
						Meq/100g										
A11	0-12	8.7	8.1	0.17		29	6.1	1.8	0.42	2.2	32.2	13.7	30	20	6	30
A21	12-18	9	8.3	0.17		28	7.4	0.98	0.99	2.9	34.7	13.9	29	21	5	29
B21	18-32	9.5	8.5	0.29	<0.02	8.6	9.7	0.76	3.1	3.9	34.1	17.8	27	18	3	30
B22	32-45	9.8	8.8	0.64		4.1	11	0.79	6.2	9.2	35.7	18.7	25	16	4	29
B23	45-80	9.9	9.1	1	0.13	2.2	12	1.1	11	24	38.7	18.5	26	17	13	31
B24	80-100	9.8	9	1.3	0.18	2.1	13	1.3	13	32	44.7	21.7				
B25	100-140	9.5	8.8	1.6	0.26	2.5	12	1.2	13	25						

Three of the sites have been extensively sampled for soil biological and soil physical measurements. One test conducted is soil biomass which gives an estimate of the potential weight of microbial biomass in the soil and is good for comparisons between treatments and an early indicator of organic carbon changes over time. Organic carbon measurements were taken from the soil pit at each site. These measurements provide a base line measurement which future measurements will be compared against, monitoring any change. Organic Carbon readings were taken from 0-10 cm.

Sea Lake This site focuses on Precision Agriculture and the impact on soil health. The site is a paired paddock demonstration located between five and ten kilometres north of Sea Lake on McClelland's (No-till) and Brennan's (traditional) paddocks. Organic Carbon measured 0.46% at McClelland's and 0.62% OC at Brennan's.

Birchip There are two demonstration sites located in the Birchip area – one at BCG's long term Farming System Trial site, and the other at BCG's Main Field Day site.

The Farming System Trial site is located 28 kilometers north of Birchip. This site was established in 1999 to determine the medium to long-term impacts of four different farming systems on the financial viability and physical and environmental sustainability of the farming operation. This site focuses on demonstrating the impact of compaction on soil health over time. The cultivated plot at the farming system site had 0.8% OC and 0.95% OC in the no-till plot.

The Main Field Day site, which is moved each season, has been selected as an extension site - to provide an opportunity to improve knowledge and understanding of soil health. The theme is 'Measuring and Managing Soil Health'. It aims to clarify some of the issues around what 'soil health' actually means and how soils can be managed to improve the productivity and profitability of a farm business. In 2007, the Main field day site, located on Hogan's property had 0.99% OC in the top 10cm of soil.

Minyip This site is located approximately fifteen kilometres east of Minyip in the Wimmera. The site is part of a collaborative project with the Victorian No-Till Farmers Association, and the paired paddocks are comparing the impact on soil health of a strict no-till farming system with a system that includes some degree of cultivation. Organic carbon in the no-till paddock measured 1.2% and the district practice measured 1.3% OC.

Communications

Workshops are being conducted by BCG, Southern Farming Systems, Mallee Sustainable Farming and Rural Solutions SA. The workshops will build on the knowledge, networks and experience of the organisations involved. There is a focus on tailoring the content to the local needs of farmers, based on the market needs analysis and making use of locally relevant demonstration sites.

It is recognised that a major source of information and advice for farmers comes from the private sector through the various categories of advisers and consultants. Potentially, much can be achieved by increasing their level of knowledge and confidence in the area of soil health management; so that they can pass this information on to the farmers that they work with. In addition, there is an ongoing turnover of extension and advisory staff in the public sector agencies and there is a need to update their skills in soil health management. Therefore specific workshops targeting these groups, independently of farmers, are also being delivered.

Running alongside the demonstrations sites and workshops is a tailored communication program using a range of mediums including the internet, fact sheets, verbal information, and information delivery at both farmer field days and agribusiness advisory days.

Soil health is not a static issue. Soil is the foundation of our agricultural systems. Collating existing knowledge and building a framework for visual, tactile and oral learning based on the needs of the 'customer', in this case farmers and advisors, is supporting more informed decisions and a greater capacity to manage soils for a healthy future.