

# ON THE FARM - THE GOOD DIRT

## JULY EDITION

### HOW DOES MY PASTURE GROW?

Many important aspects of healthy soils are not well known simply because we concentrate on the top 10 cm or the pastures themselves. To effectively use and nurture our soils we need to understand what is below the surface.

A recent field day at Strathbogie organised by the Goulburn Broken CMA, DPI and Strathbogie Tableland Landcare set out to show farmers about the soil profile, and why it is useful to understand what is going on below the top 10cm. Presenters talked about soil profiles, how they are formed and what influenced their structure and the arrangement and stability of aggregates in soil.

DPI soil expert David Rees explained that much of the Strathbogie soil is granitic loam, made up of weathered granite quartz particles and clay, and that this has important implications for things like erosion and the capacity of soils to retain nutrients.

David illustrated this using audience members to act as granite and clay particles. They tried to attach to each other without success, which is how clay particles are washed out of the profile to lower in the landscape. David also demonstrated how clay particles, which are chemically charged, hang on to nutrients, meaning that important nutrients are also transported with the clay.

As well as structure, parent material, thickness of the soil horizons, movement of water through the soil, compaction and disturbance, and vegetation all indicators influencing pasture growth.

Colour is useful in understanding soil too

because it shows what the parent material might be but also what processes of wetting and drying have been going on in the soil for many, even hundreds of years. The colour of the soil pit in the lower end of the Hamilton's paddock was iron red in the deeper part or B horizon. This iron oxidation showed that oxygen and other gases were moving freely up and down this horizon.



Soil structure expert David Rees showing the difference between A and B horizons in a Strathbogie soil pit

David Rees pointed out that roots also play a crucial role in creating pathways through the soil. Participants were interested to see just how far down some roots reached. Water, gases, microbes and nutrients travel through these minute pathways and are critical for cycling of

nutrients and why it is that deep root growth can often be important for overall pasture health.

Consultants Cath Botta (PCB Consulting), Brad Costin (DPI) and Peter Ockenden (Peter Ockenden and Associates) showed how simple tests could help farmers identify soil type by understanding texture, structure, colour and soil pH.

Determining the pH of soil is important when deciding what to grow or if action is needed to reduce soil acidity. This is critical to creating the best conditions for pasture and crop growth. Many soils in the Strathbogies are acid. Field tests on the day using a colorimetric field kit indicated a pH of about 5.5 in water verifying that the soil was acidic.

Applying water to a small clump of soil, called a ped, can tell us a lot about the stability of soils. If the ped remains intact aggregates are well structured. There is enough organic material to keep soil aggregates together, water will drain quickly, roots can penetrate and there is no hard crust following drying. Conversely, if the ped collapses and the water becomes cloudy this indicates the soils are dispersive and prone to sealing. This limits water movement and root development.

A number of the farmers from the area mentioned they have trouble with dams leaking. Peter Ockenden suggested this is because of soil structure. Soils of granitic origin are too porous to construct dams on, so site selection according to soil type is everything.

Reflecting on the day one participant observed, "It's nice to know what's happening under our feet, now I understand what the different layers in the soil can tell me."



Soil structure expert David Rees uses audience members to demonstrate the ability of clay to hang on to nutrients.

### WHAT'S ON

#### GMLN Annual Farm Forum 2012

7th Aug Numurkah Town Hall, 9-3pm

8th Aug Kyabram Football Club, 9-3pm

Details and RSVP [gmln@iinet.net.au](mailto:gmln@iinet.net.au)

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Soil and sustainable farm practice demonstrations and trials to improve soil health can be supported through the Goulburn Broken CMA's Beyond SoilCare project with funding through the Australian Government's Caring for Our Country Program. For details on the Goulburn Broken CMA Soil Health Action Plan visit [www.gbcma.vic.gov.au](http://www.gbcma.vic.gov.au).

### FURTHER INFO

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