



The Soilsmart Newsletter

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Adapting soil and plant management to a changing climate.

Welcome to the first issue of **The Soilsmart Newsletter**. It's a busy one aimed at raising awareness about some of the pressing climatic issues currently facing us.

Given the predictions of climate change and the increasing pressure this will create for us to provide viable farms, recreational and playing surfaces for the community, it has never been more important to consider the biological management of your soil.

Climate change and how it will affect you !

The recent CSIRO report on climate change concurs with most experts on the subject, that our average temperatures are likely to increase by somewhere between 2 and 5 degrees over the coming 50 years or so. The Australian Climate Group highlights the fact that **the average global temperature during the last 'Ice Age' was only 5 degrees less than it is today!**

We are already beginning to see some of the symptoms of climate change in our daily lives, and these are predicted to become more severe with the passage of time.

- 1) The incidence and severity of drought will increase.
- 2) Evaporation rates will increase with average temperatures.
- 3) Our water supply will continue to be under threat and water restrictions will be a part of our lives from here forward.
- 4) Rainfall events are more likely to be spasmodic and increasingly connected with storm events.

The rehabilitation of soil biology is one of the keys to improving soil manageability, but it is also

crucial to the ongoing provision of viable farming land, recreational and sports surfaces. As governments, shires and municipalities look at the adoption of permanent water restrictions we need to improve and rebuild our soils' flexibility and resilience.

We must adapt our methods

For anyone managing the soil, we need to be aware that **past management practices are simply not going to cope with the changes expected in the climate**. The lack of rainfall and the availability of water for irrigation are key areas likely to put pressure on land managers to **ensure that every drop of rainfall or irrigation water is captured and used efficiently by the soil**.

As well as climatic changes, **traditional soil and plant management has been having a negative effect on the biological life in the soil**. In less than a century, since the wide spread adoption of chemical fertilizers & crop chemicals, we have done more damage to our productive soils than had ever occurred previously.

Some of the signs are:

- Soil compaction
- Shallow root systems
- Increasing disease & insect pressure
- Soil salinity
- Increasing chemical use

Applying the soil microbiology tool

It is the largely unnoticed action of billions of soil organisms that are primarily responsible for the health of our soils, and it is their decline that is responsible for many of the symptoms, which have become commonplace in recent years.

There are steps that we can help you take to improve the health of your soils. In most circumstances only a slight refocusing of effort towards rebuilding soil vitality, will quite quickly improve manageability.

Dr Elaine Ingham is an internationally renowned Soil Microbiologist and founder of the Soil Foodweb Institute*. She has been researching the role of soil organisms for most of her professional career.

Rather than a job too big to contemplate, Dr Ingham has demonstrated that rehabilitating soil biology is not only possible, but can occur in a relatively short time frame, if we adopt the right strategy and use quality inputs.

Our own work in Australia confirms that soil structural improvement and soil moisture retention are both examples of the potential benefits of rejuvenating soil biology. Based on her work with farmers over several decades in the USA, Dr Ingham has demonstrated (on a commercial scale), that **rebuilding soil biology and structure has resulted in a reduction in the need for watering by as much as 50% in only 1 – 2 years.**

More sustainable soil management

Imagine if you could increase your soil moisture storage capacity by 30%-50%. How much could you reduce irrigation costs, salinity build up, and improve your ability to manage and tolerate the periodic dry conditions that are increasingly a fact of life in our country.

Once soil life improves we can also reduce the use of chemicals, nutrient run off and leaching, along with the costs and risks associated with them.

By re-establishing threshold populations of beneficial 'aerobic' soil organisms we can quickly rebuild fungal and bacterial populations. These create billions of micro-pores in the soil to trap capillary water (the most available water supply in the soil, for plants to access). This structural improvement also helps retain more of the gravitational water in the soil which will otherwise end up, along with the nutrients it carries, in the sub soil and eventually the water table.

Biologically active soils are able to capture and make maximum use of periodic rainfall events.

Where to from here.

Fortunately we know and understand much more about the management of soil biology than we did in the past, and rather than throw a few 'snake oil' type products at the problem, we are now able to offer a holistic approach, which provides effective measurement, inoculation and management of this most important aspect of environmental management.

The principals of Soilsmart have more than 50 years experience in agriculture, horticulture and turf based industries and are in a unique position to integrate their knowledge and experience of current land management practices with a comprehensive and scientifically sound biological approach.

We can help in the development of biologically focused management programs and in the provision of naturally diverse inoculants, bio-stimulants and measuring tools. Depending on your specific needs we can tailor a program to move at your desired pace either quickly or slowly toward your targeted goals.

For more information please contact.

Soilsmart Horticulture

Paul Patten

Mobile 0407 284051

Fax/Office (02) 9831 4309

Email: paul@soilsmart.com.au
