It Is A Good Idea For Every Farmer To Have A Microscope

Helen Disler

I recently made this statement in a conversation that I was having with a farmer new to biological farming. We were discussing the pros and cons of buying compost and he wanted my advice. My concern was that he had no way of knowing whether the compost he wanted to buy was any good. I had only just got off the phone from a member who had recently completed a microscope course. He was over the moon that he could know for himself whether the compost he had made was any good before using it to make compost tea. Furthermore, he was now able to check the compost brew for the presence of live organisms in the right balance. Lastly because he also had a camera attached to his microscope he could now send off a photo of the slide to a laboratory to double check his results. How good is that?

Ever since I was introduced to Dr Elaine Ingham, Soil Foodweb Institute (SFI) and to the soil food web I have been keen for the farmer to discover the exciting world of microbes and their role in the soil. I firmly believe that by understanding how the soil foodweb functions and learning to use a microscope is essential for any farmer or grower of food who is striving to produce nutrient rich food.

As a child I had a microscope. In fact, I still have it. Basic but it provided me a world like no other. I remember we'd put soil, food, plants, dead insects - in fact anything that would fit between the glass! I was fascinated as it revealed a totally different view and understanding of common objects. So, I was very pleased to see one day, when we were driving back from filming Dr. Ingham at Lismore, a sign on a shop: Microscope Classes for Children. We stopped and found the address which was that of a florist shop. And there at the back of a shop was a fully qualified nematologist holding after school classes for children. They LOVED it! Why? It's another world far away from modern electronics and allows one to delve deep into the wonderful world of nature. As anyone knows who has stared down the lens of a microscope, many hours can pass lost in a completely different world. I find it hard to think of a better way to introduce young people to understanding the intricate and delicate balance of nature.

So, what has this got to do with the farmer?

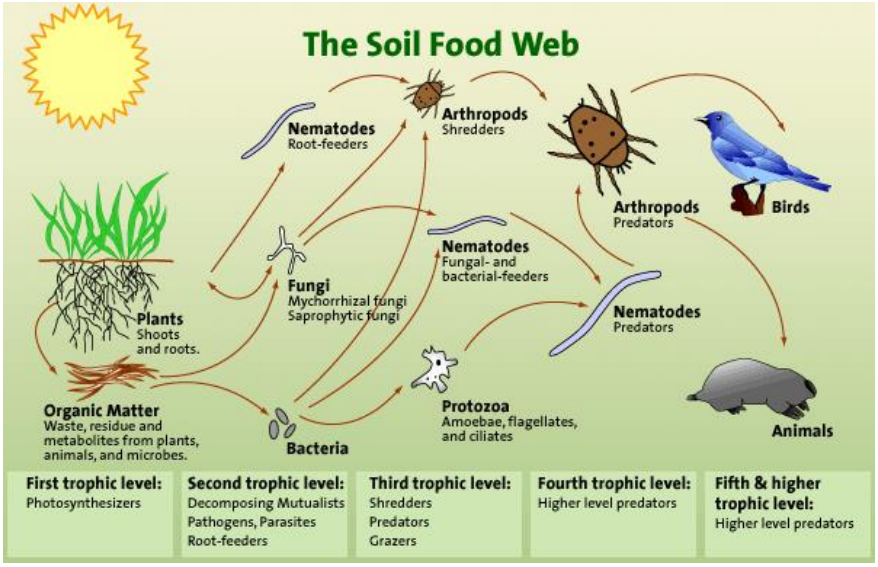
As it turns out, a lot! Increasingly farmers are using microscopes to discover this hitherto unknown magical world and clubs are starting up in many farming areas as farmers get more scientific. Colin Seis, member of the Mudgee Microscope Club and the father of pasture cropping, was reported in ABC's Landline "a group like the microscope club is important in understanding how and why different sustainable farming techniques are effective. A group like this that is looking at soils are the key to all of this" he says. "As we get healthier soils and functioning soils, we seriously can droughtproof our properties."

Once a month the group meets with their microscopes and soil samples in hand to see if their attempts at improving their soil biology have been effective. "And that's just so important," adds Jane Wilson. "People now realise that they are farming a living resource, which is their soil, and they have to look after it if they want to still be farmers; it's as simple as that," 1.

When I asked Dr Mary Cole * who holds microscope courses for farmer to comment Dr. Cole replied "Having access to even a simple microscope allows anyone interested in

biological farming to be able to actually see the individual microscopic organisms. These organisms utilise the nutrients that then make them available to the plant".

To the experienced eye, a healthy soil has a balance of the right organisms. Equipped with this knowledge a farmer can use a microscope to create and maintain a functioning soil which not only cycles nutrients but builds carbon and therefore is able to retain moisture.



Last year more than 90 farmers had a unique opportunity to look inside the soil food web through a $30,000 microscope during a dryland dairy field day at Simpson, Victoria, hosted by Future Ready Dairy Systems. The chance to see the likes of fungal feeding nematodes up close under the high magnification of the microscope was a strong attraction for farmers. Simpson dairy farmers Rob Methven and James Guy were among those to take a glimpse inside the microscopic world of the soil and to tour the farm's effluent system, feed pad area and compost system as part of the Better Use of Fertiliser and Effluent Field Day.

Mr. Methven said the microscope had opened his eyes to the intricate nature of the soil and the remainder of the program had broadened his thinking about maintaining his land.
"We've got to be open to new ideas so it's important for us to know how soils work," he said. "Urea isn't working as well for me as it used to, so I need to look at other options."
Mr. Guy said "We need to open up the nutrients in the soil instead of it being locked in the ground." 2. Farming Secrets was there to film this event and it was indeed an eye opener for many attendees who were keen to discover better options.

Later in the year we returned with Dr. Elaine Ingham to see for herself how onfarm composting by Camperdown Compost Company was transforming the conventional dairy systems. Where the Whitings had been annually replanting their pastures they now were benefitting from healthier soils requiring fewer inputs. Three other farmers we filmed are experiencing similar results. Following the field day over 60 dairy farmers have now started the programme with Camperdown Compost with still more farmers on the waiting list. This is a phenomenal turn around! Dr. Ingham will return in August to measure the continuing results from using compost.
As Tony Evans, from Camperdown Compost said the microscope is a useful tool for validating that the right levels of organisms were available in compost. It is in continual use in their office as farmers bring in their samples for checking. They know what they are looking for and love it when they see their progress.

References:

1. http://www.abc.net.au/rural/content/2008/s2477326.htm

2. http://www.standard.net.au April 7, 2011 On The Land p7

* Dr. Mary Cole founder of Agpath P/L and a Director of SFI Australia.

* Source of illustration: Soil Foodweb (SFI) www.soilfoodweb.com.au

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