

MANAGING TO MAINTAIN SOIL HEALTH

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When David Swallow rang and asked if I would present this paper my first thoughts were "Why would you pick on me?" I'm 54 years old, nearly as old as my farm. I'm flat out looking after my own health let alone my soil. Then it occurred to me that there are a lot of similarities in maintaining soil health and the way I go about maintaining my own health.

The soil is a living organism, just like me, so if you want it to perform, you must be prepared to spend some money and time on it.

When I purchased Mayfield some 21 years ago it didn't take me long to realise that it was in pretty bad shape. It was one of the first farms in the area to use ground water for flood irrigation. For some 35 years this was its only means of irrigation. I built the first dam on this property in 1984. At that time I basically knocked everything down and, starting from scratch, redeveloped the farm so that all fields could be watered and drained quickly and all run-off recycled back to the dam. Now we could mix some overland flow water with the high sodium salt ground water. This eased the burden of salinity in our soil. Over the next few years we could see our soil structure, with the help of gypsum, was improving. Our heavy box clay soil was more like "chewing gum" now – a big improvement from "araldite" which is the word I had previously used to describe it. Unfortunately the price of gypsum today in the Dalby area has made this option less attractive than it was some years ago. Gypsum works well but, unfortunately, economics also comes into the story of maintaining soil health.

OK. Where to from here? I said my soil was a bit like me – and I don't mean old and tight. I know that I have to keep an eye on two main elements to keep my body functioning well. That is blood pressure and cholesterol. These have to be maintained at a certain level through constant monitoring. Similarly nitrogen and phosphate in the soil have to be maintained at a certain level by constant monitoring. If my blood pressure is up, for instance, I don't just go and take a heap of pills all at once. My doctor puts me on a programme. If my soil needs more nitrogen I don't just wack a heap on all at once. I split my applications and placement and, using research, work out a maintenance programme.

To perform well I must make sure that all my elements are in balance. If I'm a bit "off colour" sometimes I will take some vitamins. Likewise with the soil I will get other elements checked out and add some nutrients to get the balance right.

Sometimes the unusual happens (not very often lately on the Downs I might add) and we get a one off event causing this. I sort of associate an event like this to one like this in my boys' lives. They desperately need something to pick them up and get going again. So does the soil need a little extra help to get going after excesses.

Being a married man for almost 30 years I do know that every now and then I have found it's a good idea to spend a little extra on my wife to make her feel special, wanted, needed, loved – it does wonders for her performance. Mind you, sometimes, if the timing's wrong, it can be a waste of money. Same with the soil – splash out, shout a little of this stuff. Check out if the performance improves to see if it's worth the expense or not. There are a lot of "miracle" soil health products out there. I like to investigate and then trial these over a period of time and in different conditions. You never know which one may work for you, but I suggest that you don't spend too much money until you are sure you are getting a result. I must say that, after a number of years, I am a firm believer in the use of seaweed and feedlot manure for my soil – but I haven't worked out any really good sweeteners for my wife yet. However she is like the soil, the one thing she appreciates is a bit of TLC.

Treat the soil with a bit of TLC. I hate working around chemicals – so does the soil. I know we need them but I have always tried to stay away from the long residual types and use as little as possible. I try to band as much as I can rather than broadcast – especially herbicides. I believe that by trying to keep our fields "squeaky clean" we could be causing the soil to become a bit "off colour" and therefore the crops we are trying to grow are also "off colour" leaving them weak and susceptible to soil born disease.

I don't know about you, but I hate cold starts. It's much easier to get up and going when it's nice and warm. I reckon a cotton plant is no different. We have a bad habit of "jamming" the seed into freezing soil on the first hot change. What a recipe for disaster! Freezing cold in the morning, warm to hot in the middle of the day and freezing again by dark. (When I put myself through those same conditions I usually end up with "the wog" and definitely can't perform at all). Similarly the weakened cotton plant sits there allowing all the diseases to get a foothold. We expect it to grow but it can't. It's "crook". For goodness sake give the plant a fighting chance against soil born diseases. Plant when the ground is ready and not when you are. Don't look over the fence and start planting because your neighbour is.

How do you react when you're under a lot of pressure? Have you ever felt that you are being squeezed every which way you turn? I don't handle pressure well and neither does the soil. In my life I call it being bogged down or stressed out. In the soil I call it compaction. This year was a great example. We had a very wet start and, because the planting window was starting to shut, I found myself planting in conditions that were far too wet.

The result was this, a wave action in every set of 8 rows from one end of the field to the other. The 2 rows under the tractor compacted which cost me yield. I know what the problem was. What I don't know is how to handle it. We are in permanent 80" beds and, maybe, I should not have ripped the furrow itself as deep as I did at ground preparation.

Does this look familiar on your farm? I have never had the inclination or the desire to smoke – after all smoking is a health hazard. Well, that's what I feel about burning stubble. I cannot maintain soil health without stubble. I know, at times, it can be a problem incorporating stubble into the soil. Through trials and experimentation I have found there are some machines that can help achieve this. There is some small argument that burning reduces the fusarium risk; however I do not believe that. I do believe that the benefits of incorporating stubble far outweigh any reason at all for burning it – and that is without taking on board social and environmental issues.

When I look at a good crop of cotton I know I have had three things linked together to make that crop. They are soil health, plant health and favourable weather. We can measure soil health by using modern research to tell us what it needs. We can also do much the same thing by testing the plant. The one thing we have no control over is the weather. Going into a season we never know how much rain we will receive and how much water we will need from storage, how much cold or how much heat. All we can do is react to the circumstances. Sometimes we're too late, miscalculate how much water we thought we would have and we end up with this.... instead of this..... These two fields were planted the same day with the soil in pretty much the same condition. The only difference – water. After this effort I firmly believe it does not pay to take chances. While we never know for sure how much water we will have, we can do a lot towards managing it even in a dryland situation. Both long and short term water management can be greatly assisted by the use of computer modelling. There is good research continuing in this area and I find the data generated to be very useful.

You know after you have been working continually for a number of years there is nothing like a good holiday, a break or a change. I believe the soil is no different. A holiday, like a long fallow, or a change, as in crop rotations, is an essential part of my farm plan. The soil structure definitely improves making it so much easier to work with. This improved performance leads to higher yields which leads to increased profit and that's what interests me. I find I also need less chemical fertilizers which is another cost saving.

Finally, the way I see it is good soil health, good plant health and water availability all link together to produce a top crop. If one of these links break you have a problem.

I try to keep my own health on track by using modern technology and help and guidance from professional people. I try to keep my soil health on track exactly the same way.

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