THE SMEATON FARMING FOR SUSTAINABLE SOILS (FSS) GROUP

"I had an interest in the group from the start. I have been involved in many things that often don't end up going anywhere. But after I spoke with the North Central CMA program staff (Darren and Phil) about what they were doing and where they were coming from I realised that this program had a bit more vision and that we are going to get some good results from it. I was also happy to share what we do on our farm and teach anyone who wants to look at what we do.

"Recently the FSS group has been involved in a spread of soil testing across the district and the first lot of results have come back to a general meeting. Now it is up to everybody in the group to get it pointing in the direction they feel it needs to go.

"There were 20 samples taken and everyone got a basic test. I think some of the results will test the science behind our understanding of agriculture. Our organic matter came back at 4.9 per cent, the highest of all the tests. You would hope for a result like this after 15 years work.

"There were also three tests done on properties participating in a 'Vic No till' trial and again of the three samples we had the highest biological count.

"However the tests did show that our available soluble phosphorous (P) is extremely low, which is not surprising. We did a trial two or three years running where we applied P to a cropped paddock and then turned it off with five or six acres still to go. We saw no step difference in the crop between the treated and untreated areas, so we stopped applying phosphorous.

"There are three different tests you can do for phosphorus. One of these tests showed we had a soluble P level of 20kg/ha. This test showed from a chemical point of view that we have very limited soluble fertiliser in our ground. In another test our P level did not even register it was so low.

"I am certain that answers will come out from the FSS program as a result of this process.

"From a biological and biodynamic point of view it is the biology that will extract from our locked up sources what the plants require. Again, from a biological point of view there is more than adequate P available to the plant in our soils.

"One of the other 'Vic No-till' tests on potato ground showed there was heaps of soluble P in the soil, but less P available to the plant than we had.

"The differences are something that needs to be explored by the group.

"Biologically nutrients are held in microbes. Humus is a colloid which holds water. The correct definition of humus is the dead body of a microbe. Humus has to have been processed by a microbe or a worm. It is not simply organic carbon!

"Farmers need to stop worrying about what other people think and start getting together and sharing their knowledge. The Smeaton FSS group is providing this opportunity.

"There were several early meetings to set the direction for the group. Two thirds of the group members are under 40 and one third is older. The group is clearly farmer directed. It was put back to the group at the last meeting "what do you want to do and where do you want the group to go?"

"The Smeaton FSS group has met every two to three months. Hopefully now that we have some soil test results coming in we can meet more frequently – say every six weeks.

The timing of the FSS Smeaton group is right. There is much more interest in soils today. There are more farmers out there who really want to know the answers now.

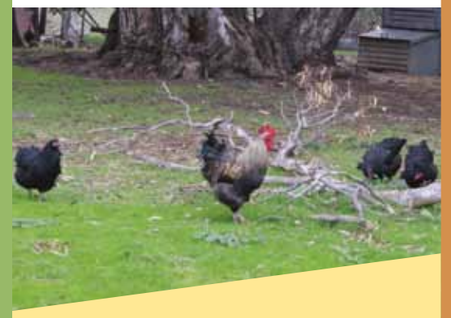
Everyone is there for the right reason. They all want to learn. They are not there because there is a beer or a sausage sizzle at the end of it. They are there because they want to know what is going on with their soils.

"There have been too many companies over the years who have been flogging product, and 'more product' is not the answer. The number one priority to being sustainable is you have to be profitable. That's the message I will keep sending to the group. And it is not just about quantity. My policy is 'I want to sell the least off the farm for the most.'

"I have seen 10-12 tonne crops grown around Smeaton. That is a big biological demand. If a crop was grown conventionally using the very best practice and we got everything right with our biodynamic farming approach our yield would probably still be at least a third, if not a half, less than the conventionally grown crop. But then with the value of certified grain I don't feel hard done by and also by value adding we are more profitable in the long run.

THE FUTURE

"We would like to buy more ground in time as the opportunities arise. We would also like to introduce poultry into the system as well as continuing to increase our sheep numbers. I'd like to see us get close to 4,000 ewes for the next joining which is close to double what we had two years ago. This is thanks to the Savory Holistic Planned Grazing system."



MORE INFORMATION

For more information on Powlett Hill Biodynamic farming and farm products visit **www.powletthill.com.au**

For more information on the Farming for Sustainable Soils Program contact Phil Dyson at the North Central CMA on (03) 5448 7124 or email phil.dyson@nccma.vic.gov.au

www.nccma.vic.gov.au

NORTH CENTRAL
Catchment Management Authority
Connecting Rivers, Landscapes, People

Ben Fawcett

Powlett Hill via Campbelltown

FARM FACTS

38km south west of Castlemaine, Victoria

ENTERPRISES:

Biodynamic Crops, Sheep (wool and meat), Processed Flour, Spelt Pasta

PROPERTY SIZE:

1200 hectares

AVERAGE ANNUAL RAINFALL:

500 mm

ELEVATION:

400 m AHD

MOTIVATION FOR CHANGE

To move away from a farming system that relied on chemicals to a more natural system. To be more resilient in dry times, and to be more profitable.

INNOVATIONS

- Development and application of biodynamic farming on Powlett Hill commencing in 2000
- Focus on soil health, cover cropping and holistic grazing management
- Value adding by milling grain on farm and retailing packaged biodynamic flour

KEY RESULTS

- Improved soil health
- Improved pasture growth
- Improved animal health
- Improved profitability and marketing edge from certified biodynamic status and meeting the exacting standards of DEMETER (See Introductory text for explanation).

Farming for Sustainable Soils Project Case Study

INTRODUCTION

Powlett Hill is a property situated near Campbelltown, Victoria. The area is a rich volcanic region with a long farming history. Farming here has been based around wool production with increasing cereal cropping and prime lamb production in recent times.

The soils comprise mostly grey clays, with some red and black clays. Approximately 50% of the farm is arable. The farm has access to good quality groundwater for stock and domestic use.

The Powlett Hill property has been farmed by the Fawcett family since 1865. Andrew (4th generation) and Ben (5th generation), along with their families, all contribute to a busy and productive farm.

In 2000, dissatisfied with conventional farming, the Fawcetts adopted Biodynamic farming methods. The change was quick to take hold, improving soil structure, increasing humus, generating healthier pastures and soils, and healthier livestock.

The 1200 ha property is fully certified with Demeter (the trademark owned in Australia by the Biodynamic Research Institute - operators that meet exacting quality standards may apply for certification to use this prestigious quality mark on their products) producing fine wool, prime lambs and milling grains – including Wheat, Rye, Spelt and Emmer. All flour milling is done on farm.

Ben holding the key biodynamic ingredient BD500

In 2013 Rodger Savory, a consultant and Director of Savory Grassland Management, got the Fawcetts going on holistic management. Holistic management is a process of decision-making and planning that gives people the insights and management tools needed to understand nature: resulting in better, more informed decisions that balance key social, environmental, and financial considerations.

THE CHANGE TO BIODYNAMICS

Prior to 2000 Ben experimented with different fertilizers and tried to get away from DAP (Di-Ammonium Phosphate). Ben says, "I looked at organic farming and started reading about Biodynamic farming and spoke to Alex Podolinsky on the phone. Dad and I went and had a look at four Biodynamic farms. That day driving home we looked at each other and said well that's that, no going back now."

It took three years to do the conversion and in 2003 the property was certified by the Biodynamic Research Institute, Powelltown Victoria.

After going through the conversion soil samples were tested from across the farm. The certifier looked at the farms chemical usage records and knew what to look for in the tests. Soil samples went all over the place, including Switzerland. All tests came back squeaky clean.

"The key with Biodynamics is that it starts from the ground and builds the soil up and improves grass quality and animal health. We stopped drenching when we converted to Biodynamic farming and have not drenched a sheep since 2000.

NORTH CENTRAL
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Australian Government

"We are improving the health of the soil and its water holding capacity. We are also improving the rate of water infiltration and soil biology and biodiversity through our cover cropping program."

The mixing tanks

"When we started growing linseed biodynamically we used to spray the crop with pyrethrum to control grubs. During the second or third year in we started spraying one paddock and got half way in and could see wasps and other insects were very active. "It was clear we were killing the predators that were attacking the grubs. Now we don't spray at all, and I don't even go looking for grubs. They do a little bit of damage but the birds are helping out too by preying on the insects. The key to farming now is to understand nature and work with it."

Biodynamics is an enhanced organic farming method using soil and plant enlivening natural preparations, producing clean food free of all chemicals inputs and Genetically Modified Organisms (GMOs).

"We buy the key ingredient 'BD500' from our certifiers in Powelltown, Victoria. There are two parts to BD 500. There is the physical side that reintroduces new strains of biology to the soil, and then there is the energy that you build in to it with the stirring.

"You can only understand by doing it yourself. The plants change their physical expression and function more in time with nature.

We had some tests done in August 2011. The roots on our spelt were down 1.2 metres whereas the majority of our neighbour's crops were down 600 mm. The infiltration tests showed that our neighbour's paddocks would run with 20mm of rain whereas our paddocks needed 120mm to run.

NATIVE VEGETATION

The original farm was a few hundred acres. At the time of settlement the volcanic plain on which Powlett Hill is located was only lightly treed, with approximately one tree to the hectare.

A long-term farm revegetation program is underway. The first planting was a lot of tall, straight trees mainly for shelterbelts. The more recent planting was biodiverse with grasses and shrubs to encourage more birdlife and insects. In addition, a number of creeks have been fenced out and revegetated.

FARM MANAGEMENT

"By converting to biodynamic farming we have probably saved a bit in our input costs. We still use lime and gypsum on our cropping ground. Some of our grey ground has a pH up to 6.0, particularly after the prolonged drought.

"I still cultivate some paddocks to kill weeds, but no more than two to four passes including sowing, depending whether it's a winter cereal or spring-sown linseed. May is the earliest we can sow the grain varieties grown on our farm, otherwise we can run into flowering issues with frost. I am about a month behind this year because of the dry conditions.

"I only work the ground to control weeds. We've been trailing the use of our big mob of sheep on the weeds instead of the cultivation before sowing, the results are positive. Lack of experience has stops me having a big go at it. This year was dry and there was a lack of weed germination early on. It is something we will be doing more of next year.

"This year I have sown 130 acres of oats, 250 acres of spelt, 20 acres of emmer (the mother of spelt), 140 acres of linseed, and a diversity cover crop comprising oats, peas, lupins, medic and canola). I will strip graze (animal impact) the diversity cover crop, flattening it. I may strip some of it for next year's cover crop seed.

"If I could get all of our cereals planted using No-till it would take me about ten days and I would get a month back of my time on the tractor. However I would need to modify some of the machinery, including the Great Plains disc.

"I direct drilled a bit of crop this year using No till and fuel consumption was between 1-2 litres to the acre. With a big tractor pulling a scarifier I can use up to 6 litres per acre of fuel. So there are more cost savings to be achieved on the farm.

GRAZING MANAGEMENT

"Our change to grazing management has been as big a change as moving to Biodynamic farming. On the advice of Rodger Savory we have pushed all our stock into one mob of about 3000 ewes. They are not rotating but are planned grazing the whole farm. The biggest paddock would be 150 acres but there are a lot of 50 acre paddocks. We also use electric fencing at times and run out three wires on the motorbike.

"We are finding that the big rest periods we are giving the paddocks behind the sheep is sending our grass production through the roof.

"Every acre of the farm is allocated to sheep at some stage during the year. They run both ahead of, and behind, the cropping program, providing two good grazings, which is the same as the rest of the farm, just different timing.

caption

SOIL MANAGEMENT

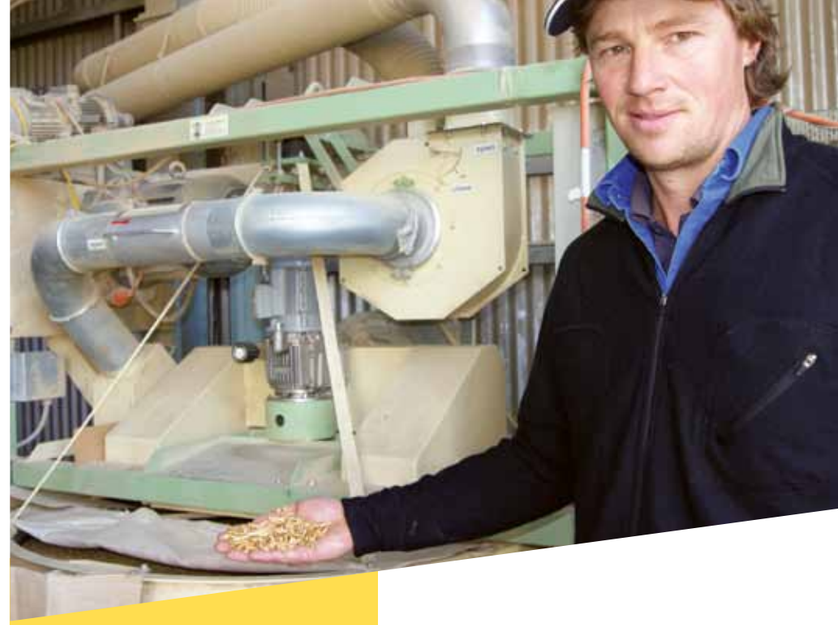
"We have learnt to farm in dry conditions, mainly through mulching and green manuring.

"The wet years of 2010 and 2011 have had an impact for years afterwards, setting the ground back biologically. It was too wet for too long. It has taken some time to get back up again. It was not the same across the whole farm. Some areas coped better than others. We found different soils have hugely different infiltration rates. Some soils will take an inch of rain in 30 seconds others will take the same amount of rain in five minutes.

The change to biodynamic farming has seen demonstrable changes in soil characteristics. One important characteristic for productive farming is water infiltration rate. A number of infiltration tests conducted in the area by Bond and Smith in 2012 saw the Fawcett's soils perform better than neighbour's paddocks.

At one site *'After an hour of infiltration the biodynamic soil had accumulated 119 ml of water in contrast to the conventional farm where only 37 ml had entered the soil below the infiltration cylinder, with the rest being forced to laterally traverse the soil'*.

At a second site there was clear evidence of the hard pan effect. *'After an hour of infiltration the biodynamic soil had accumulated 133 ml of water in contrast to the conventional farm where only 6 ml had entered the soil below the infiltration cylinder, with the rest being forced to laterally traverse the soil.'* (Harley Bond & Matthew Smith, La Trobe University November 2012).



"This year we are doing ten times what we did in our first year"

THE FLOUR MILL

"We bought the flour mill from a farmer near Boort who was retiring and started milling in 2005. The mill carried us though the dry years because we were able to value add to our grain. As we have got bigger we have bought additional hard wheat (approximately 200 tonnes per year) from a certified biodynamic farm at Murrayville in the Mallee.

"This year we are doing ten times what we did in our first year.

"We could sell twice as much of the milled flour as we currently do. This is because our customers are growing their own businesses and looking for more flour. Word of mouth has also been very important for us.

"The Biodynamic Institute has a marketing company that accesses the stores for us. We just deal direct with the bigger bakers.

"We put about 120 tonne of spelt through the mill each year and package it up into 20 kg bags for the bakers. We also produce five and one kilogram bags for the stores.

"We also produce spelt pasta which has become a popular option for consumers with wheat intolerance and allergies. Spelt is recognised as being higher in protein than conventional wheats.

"Our pasta is processed by specialty pasta processors in Victoria and South Australia. Both are committed to the high standards required by their certifying bodies. The dried pasta is darker in appearance but cooks lighter in colour and lighter in taste, much kinder on the digestive system. Once people eat it they can't go back.

"The lightly sifted flour used in processing pasta has the coarsest brans removed still producing a highly nutritious food. Our range includes Spiral, Tacconi and Rigatoni shapes and Spaghetti.