

Pastoral carbon farming — is it profitable?

BUILDING up topsoil by grazing animals on pasture has been practiced in New Zealand for at least 100 years, so it's nothing new. But call it the "permanent sequestration of atmospheric carbon into soil" or even "carbon farming", and in 2009 it takes on a whole new meaning.

Some people in Wellington still seem to think that growing trees is the only way to farm carbon. They have been convinced by a few conventional soil scientists that our soils are saturated with carbon and that it is not possible to increase topsoil depth. However, ask any biological or organic farmer and they will tell you that's nonsense — their soils are still growing.

In Australia they have had a similar situation, but research has shown that their various styles of pastoral carbon farming are both effective and profitable and they now have some thousands of farmers involved.

In New Zealand we are not as advanced as our mates across the Ditch, but some farmers in the eCogent system are making progress. In September last year they benchmarked their soil carbon levels using a protocol designed by soil scientist



by
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Graham Shepherd, and had accredited labs to do the analyses. They repeated testing this spring and the preliminary results are very encouraging — of the order of five per cent. Some tests are currently being repeated to confirm the figures.

Research by a university academic has shown that a number of dairying soils have actually lost carbon over the past 20 years or so. The reasons are not entirely clear but it is likely that the increased use of soluble fertilisers, particularly urea, is one of the causes along with the intensity of grazing resulting in pasture and soil damage and nutrient loss.

It seems that this damage can be remedied and soil depth increased using measures that protect and foster biological life in the soil.

• Aiming for permanent pastures with a diverse range of species

- Using the Visual Soil Assessment method supported by laboratory soil and herbage tests to determine the macro and micronutrients required to enhance soil biology.
- Using biologically active fertilisers with appropriate trace elements
- Increasing grazing residuals
- Protecting soil from pugging, compaction and overgrazing
- Adjusting stocking intensity to allow for full feeding of the most profitable stock entirely on pasture.

Is it profitable?

We now have enough experience to be able to say that this approach can increase soil carbon although we are not yet sure by how much. But the big question is whether or not it makes economic sense.

The answer for many eCogent members is "Yes". One of the main features of eCogent is its ability to analyse and predict the profitability of changes in management on a farm-by-farm basis, and to give actual profit figures almost immediately after stock or produce has been sold. This applies to conventional farm management just as much as to the alternative approaches



Two soil samples 10m apart with a boundary fence in between. The sample on the right shows the effect of pastoral carbon farming.

being used by carbon farmers.

It was some innovative members who wanted to know whether carbon farming would be profitable on their farms. Their individual analyses indicated it would, and their actual results have borne that out. Their profit per kilo of dry matter eaten has typically risen from 3c to 15c.

Where has the extra profit come from? Reduced cost of fertiliser, particularly after the first year, and a dramatic drop in animal health costs along with a better focus on identifying windows of opportunity to use additional stock to convert pasture surpluses to profit.

What about selling carbon? Yes, some are certainly aiming to sell carbon credits on the Voluntary Carbon Market, and that will happen once the soil analyses have been confirmed. A conservative estimate puts the possible return at around \$150 per hectare.

The interesting thing for me is that even without the prospect of selling carbon credits these farmers would continue to practise carbon farming.

They see healthier stock producing well on healthier pastures and have experienced greater satisfaction and less stress.

I would be the first to admit that what they have achieved has not been rigorously tested with scientific precision, but in terms of what eCogent is set up to measure — profitability — there is no doubt that they are winning.

In Australia, the first genuine carbon farmer increased his soil carbon by 2 per cent in 10 years — 0.2 per cent per year. It has been calculated that if all New Zealand farmers achieved that small annual increase it would more than offset the total carbon emissions of the rest of the country — transport, power generation, the lot.

Surely that in itself is a good enough reason to get positive about carbon farming.

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Benefits of biological agriculture

By **PHYLLIS TICHININ**

BIOLOGICAL farming is a best of both worlds mix between conventional and organic farming practices, involving careful monitoring of crops and soils to ensure pro-



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