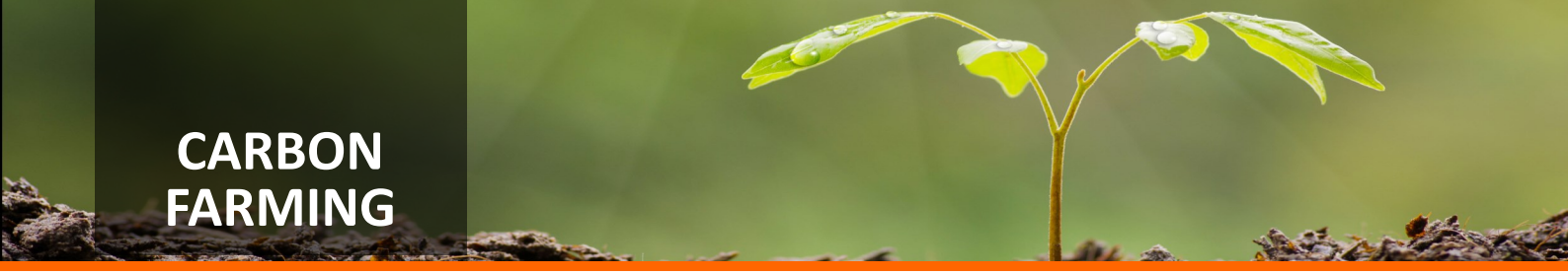

CARBON FARMING

ERF Soil method update creates new opportunities for compost users

peats SOIL & GARDEN SUPPLIES

The much-anticipated Emissions Reduction Fund (ERF) determination for the Measurement of Soil Carbon Sequestration in Agricultural Systems was released by the Department of Environment in late January 2018. It's good news for landowners working to improve soil carbon, and potentially great news for those helping their efforts by supplying compost.

The new determination builds on two previous soil carbon methods and makes it easier for landowners to claim creditable carbon with lower compliance costs. For the first time this determination allows landowners to claim credits for increasing soil carbon on cropped land using a direct measurement method. This means growers using eligible practices to build soil carbon on cropping properties can apply for Australian Carbon Credit Units (ACCUs). The determination also recognises the application of compost as an eligible activity for building soil, and compost application will be a useful tool for farmers wanting to boost the carbon benefits they get from other land use changes.

The direct measurement method means that landowners can get credits for both the carbon in composts as well as the increase in biotic carbon achieved by having healthier soils and more plant growth. Better soil means more root and plant growth, and with good soil management practices that means more soil carbon. Every 1% increase in soil carbon levels is equivalent to carbon abatement of around 80-110 tonnes CO2 per hectare with a current ACCU value in Australia of around $960 -1,540 per hectare. Most cropping soil has soil carbon levels of less than 1%, with potential to increase levels to at least 4-5%. An achievable target of a 4% increase would sequester 320-440 tonnes CO2-equivalents per hectare, with an ACCU value of $3,840-6,160 per hectare.

Most of the carbon in compost is in a slower-to-degrade form than carbon in plant matter grown in the paddock. Periodically applying compost will see soil carbon levels build more rapidly and reliably than land use changes alone, so any grower with a recognised carbon abatement project would be wise to consider using composts to build and maintain soil carbon and improve the productivity of their soil.

Compost gives the dual carbon benefit of carbon contained in the compost plus the benefit compost has on helping soils to grow and store soil carbon. Composts can be expected to directly contribute 180-300 kg CO2-equivalents of slow-to-degrade carbon to the soil per tonne of compost, and with good soil management, more than 70% of this will still be present in the soil after ten years. This does not count the sequestration from improved plant growth and soil health. US EPA modelling suggests this additional sequestration can be higher than the carbon contained in the compost, but soil type and other land management practices will affect how much benefit landowners see from compost application.

The main opportunity for composters will be to work with landowners who are striving to meet a soil carbon target. Research suggests soils need at least 4-5% organic carbon to function as a healthy 'living' soil, with a thriving soil biology that boosts nutrient availability and plant growth. On many Australian soils it is hard to build and maintain such levels under dry-land cropping systems. It is estimated that around 75-100 tonnes of compost per hectare would be needed to directly increase soil carbon by 1%, but compost also improves the fertility and capacity of soils to grow and retain carbon in plant matter. The indirect soil carbon benefit of compost use can be as least as great as the carbon 'in' the compost. With other land management practices such as stubble retention, and use of green manures and cover crops, applying compost at rates of as low as 10-20 tonnes per hectare every few years will help to build and maintain healthy soil carbon. Because carbon in composts is slower degrade, repeated compost application result in on-going increases in soil carbon if soils are well managed. On very low carbon soils, higher rates (e.g. 30-40 tonnes per hectare) of compost might be used initially combined with other practices to build and retain soil carbon, followed by lower rates of compost to maintain healthy soil carbon levels over time.

The new ERF methodology should help landowners to see the benefit of compost, and should help composters promote products to farmers working to improve soil carbon and health.

Author: Bill Grant, Director, Blue Environment
bill.grant@blueenvironment.com.au
www.blueenvironment.com.au