

The Real Value of Cover Crops



Whilst many trials and deliberations are being undertaken to demonstrate the way the diversity of cover crops can enhance soil health and crop rotation, we are able to demonstrate clearly the advantage of these crops to the nutritional sustainability of the farm as a whole.

Cover crops key functions are well recognised, from offering a break in rotation for diseases to stabilising soils from wind blow. But if we are able to focus

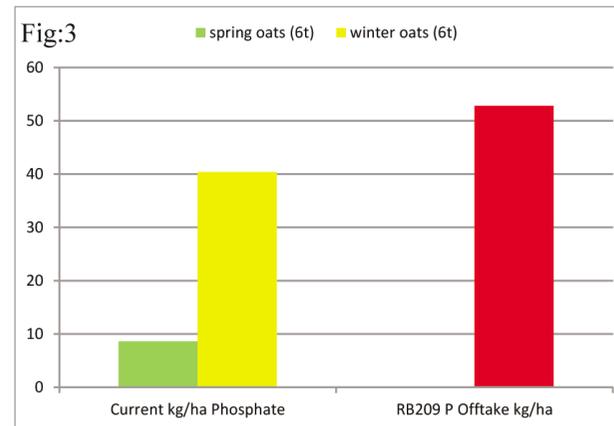
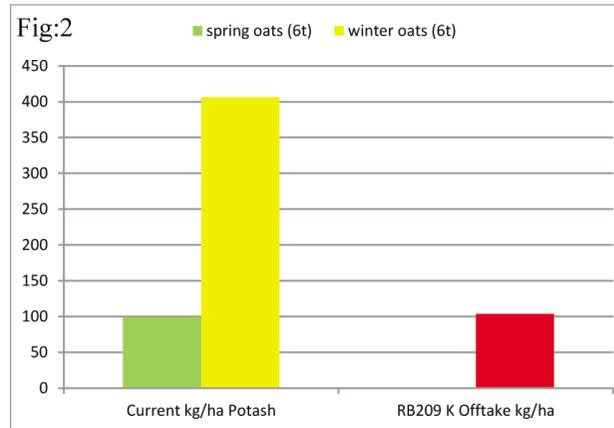
on the more specific area of nutrient retention and recycling in conjunction with soil microbial activity, we can see the additional benefits.

Much time and cost is spent within the fertiliser industry applying products which inhibit, slow down or complex out the natural functions of soil microbes to demineralise and cycle nutrients, this effectively is preventing microbes from doing what they might wish to do naturally.

Demineralisation takes a nutrient from being unavailable in the soil and making it available to plants by a biological process.

1. Via plants adsorbing it and releasing it back when that plant decomposes.
2. Via microbes themselves who consume the nutrients into their current form and again releasing it back in a different plant available form when they die.

From which we can see that a cover crop can play a role itself by demineralising nutrients into its tissues, cycling it whilst it grows, feeding and supporting soil microbes who in turn offer the same function within themselves to recycle unavailable nutrients into available nutrients for the next crop...



Q: Why should we suppress microbial process simply because its more convenient for us to apply a chemical fertiliser?

Plants and microbes will lock up and store nutrients themselves, releasing them cheaply and cost effectively when the crops require it.

Figure 2 Shows the amount of potash found just prior to the event date, end of May, winter oats at panicle and spring oats at stem extension, Figure 3 is for Phosphate. But it clearly shows how much nutrition can be extracted by a cover crop. Oats are a significant forager for nutrients in the soil and this contributes substantially to a soils natural fertility, supporting a diverse microbial community.

If we incorporate these crops at the right time we can recycle a tremendous amount of nutrients, maintaining and building soil indices, without the dependence on artificial fertilisers. The caveat to this reliance is of course that we should not mine the soils P reserves. But equally in the face of greater occurrences of water and environmental pollution from elements such as phosphate, we should by definition have the knowledge of the farms/fields phosphate reserves to be managed more effectively. If the phosphate applied is not cycling into production, environmental risks are inevitable. We can say clearly that this GREEN MANURE crop has financial return to a) the soil and b) the crops within it. Green manure cover crops once burnt off with a herbicide, are no longer GREEN but now BROWN, this fundamentally changes the way this cover crop can now function within the soil profile. Microbes will consume N if available from around themselves to work hard on the carbon, but they will have no N to do this with, contrastingly GREEN manure crops feed the soil microbes encouraging diverse populations.

Nutritional benefits should come from microbial farming.

And it might be relevant to remind ourselves here that any perceived plant growing which has not been sown, can be considered green manure until the point of becoming a weed. Eg blackgrass is green manure until seeding.