

# SOIL FIRST FARMING



Volume 1 No.3

## Manganese life's spark...

Many autumn sown crops emerge out of the ground in good time, look healthy and vigorous, giving you the impression that all is well. Then after 2-3 leaves have emerged growth stops almost overnight. The plants sit and struggle to put on growth, this is compounded by slug grazing or extremes of wet and dry. How do we keep the plants growing through this period?

Manganese is central to the germinating crop's vigour & development. The industry places great emphasis on phosphate during germination and early growth which is correct, but without sufficient manganese the phosphate cannot be utilized. As the seed germinates it uses energy reserves, stored within the seed, to grow the primary root (radicle), coleoptiles or cotyledons and the first two true leaves. Once the first two true leaves are fully expanded and photosynthesizing the seed energy reserve is spent. The plant now has to rely on its leaves and roots to provide all it needs to survive and grow. This is when the 'stagnation' occurs as the plant struggles with little photosynthetic area and minimal root architecture.

What can we do to relieve these symptoms...?

Ensure the plant has access to the nutrients it needs to photosynthesize and grow. In the main this is manganese. Manganese is central to the plants ability to photosynthesize and utilize phosphate. Also manganese cannot be translocated within the plant, so a fast growing crop requires continuous access to manganese.

Most soils contain relatively large amounts of manganese but only a small proportion of this may be available to the plant. High risk situations for manganese deficiency occurs in high pH (high calcium), magnesium & iron soils and poorly consolidated soils.



"Research by Cranfield University for the All-Party Parliamentary Group on Agro-Ecology suggests that the UK loses 2.2 million tonnes of topsoil each year, equivalent to £9 million in lost food production."

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'With Mn'

'Without Mn'

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liquid squeezed from immature b'grass seeds



## The last chance...

As we approach the timing for pre-harvest glyphosate on winter wheat and other spring crops, let's be sure not to miss the opportunity to ensure any weeds present in the crop are controlled thoroughly; particularly meadow grasses, bromes and black grass. With a damp June we have seen plenty of late growth/germination from these weeds and although they might be green at harvest this doesn't mean the plants are going to be controlled by the harvesting of the crop. What we must avoid at all costs is a mature plant in this crop that can re-grow or lay dormant underneath a cover crop only to appear in the next cash crop. Such weeds are resistant to all treatments in crop until pre-harvest next year!

The added bonus of treating these crops is that any immature seeds still on the weed will have their viability destroyed and will not be able to continue to mature in the stubble. Even black grass plants that have started to shed seeds can still have glyphosate vulnerable seeds present on them. The simple way to check for susceptibility is to do the same thumb nail test as if you are checking the timing for the crop. If liquid material can be squeezed out of the seeds developing endosperm then its viability can be destroyed by pre-harvest glyphosate.

When using glyphosate products remember to use as low a water volume as possible, as the efficacy of this product is all about concentration of the active ingredient in the water droplet.

100 litre/ha of water will always outperform 150 l/ha, or rather, give less variability in performance. This is particularly relevant when using cheaper glyphosate products. To save cost the manufacturers have sometimes reduced the levels of the surfactants in their products, which are necessary for product performance. This matter is made worse when using the low 'harvest management' rates. By using low water volumes you are going to require less additional surfactants as well.

Spray quality is another common error with the use of glyphosate. Since its introduction into the market in 1972 the label has stated 'medium to coarse' spray quality using 1.5 – 2 bar pressure, initially this was used to reduce drift and potential damage to neighbouring hedges, crops etc. Over time we have seen the other benefit of not increasing the energy of the spray droplet. High energy droplets without the correct surfactant balance have difficulty sticking to the leaf as well as those with lower energy and correct surfactant balance. Hence the advice to reduce water volumes, this maximises glyphosate concentration in the droplet and reduces the impact of low surfactant formulations or cost of additional surfactant.

To get the best out of glyphosate use as low a water volume as possible with a medium to coarse spray quality using 1.5 – 2.0 bar pressure. Add additional surfactant when using rates at or below 720 grams of glyphosate/ha for all formulations/products.