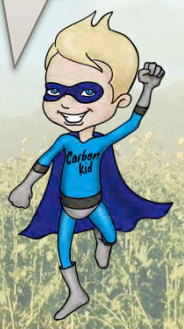
Biofumigation 101

By Ashley Hobbins

Biofumigation is the use of certain *Brassica* cultivars, which are grown, pulverised and incorporated into the soil prior to cropping. High biomass and especially masses of roots can provide the traditional benefits of green manure crops, *PLUS* these plants have naturally occurring compounds (isothiocyanates, ITCs) that can suppress various soilborne pests and diseases, and weeds.

Biofumigation can be a practical time & money saver!

Did you know that about 50% of OM is organic carbon?



Improved efficiency can mean spending less $$ on:

- ✓ **Fertiliser** – organic matter (OM) improves nutrient holding capacity, turnover and access; deep-rooted break crops can take up nutrients stored deeper within the soil profile that are unavailable to shallow rooted crops. Increased rates of nitrogen mineralisation following brassica and other break crops have been recorded
- ✓ **Irrigation** – water infiltration and, water and air holding capacity improves with increased OM levels
- ✓ **Chemicals** – weeds are outcompeted through overall improved crop vigour and, the production of ITCs can suppress soil borne pests, diseases and germination of weeds
- ✓ **Soil amendments** – OM is replenished after biofumigation crop incorporation, which improves water holding capacity, structure and root growth

Improved OM levels can mean spending less time:

- ✓ **Working soil** – soil friability is improved, making it easier and faster to work
- ✓ **Dealing with compaction** – improved soil structural stability reduces the occurrence of compaction
- ✓ **Dealing with erosion** – the soil becomes more resilient to wind and water erosion

For every additional tonne of soil organic carbon created, 3.67t CO_2 are removed from the atmosphere.[1]

- ❖ Biofumigation is not a silver bullet. It is an effective tool in the toolbox for sustainable and successful crop production.
- ❖ Growing a biofumigant crop requires good management and attention to detail just as with a cash crop. Unlike many of the low input, low management green manure crops of the past, they need some fertiliser, irrigation and care to get the full benefits.

Tas Farming Futures

Free on-farm services to support producers in improving farm efficiency & reducing GHG emissions

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Working with industry and NRMs statewide

This project is supported by funding from the Australian Government

1 https://www.agric.wa.gov.au/climate-change/soil-organic-carbon-and-greenhouse-gas-emissions