An excerpt from a paper written by Dr Christine Jones…

"Soil Carbon – can it save agricultures bacon?"

Full report is available from her website www.amazingcarbon.com

Soil carbon and soil nitrogen

Aside from water, nitrogen is frequently the most limiting factor to crop and pasture production. It is one of the great ironies of agriculture that the atmosphere is around 78% nitrogen, but not one single molecule is directly available to plants. There are approximately 78,000 tonnes of N sitting above every hectare of land. Apart from small accessions via lightning, nitrogen cannot be accessed without a microbial bridge.

Nitrogen-fixing bacteria - be they free-living in the rhizosphere, confined to nodules on plant roots, or existing as endophytes in leaves or stems - derive their energy from liquid carbon fixed during photosynthesis.

Adding water-soluble nitrogen in the form of urea, anhydrous ammonia or nitrate destabilises the plant-soil ecosystem by reducing the activity of mycorrhizal fungi and free living N-fixing bacteria. The presence of soluble N sends a signal to plants to reduce the supply of liquid carbon to microbial symbionts, effectively inhibiting the microbial associations that would otherwise supply atmospheric N for free.

This directly contradicts the misconception that N needs to be added in order for stable soil carbon to form. Indeed, the opposite is true.

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