Technical Brief: Ectol Organics "AGB Nitrogen" Amino Acid and Amine Plant Nutrient.

Nitrogen (N) as compound amino acid..... 5.2 % w/v
Nitrogen (N) as amino acid glycine ..... 4.0 % w/v
TOTAL NITROGEN (N) COMPOUNDS .....9.2% w/v

Ectol Pty Organics has brought to market a certified organic Nitrogen Liquid Fertiliser "AGB Nitrogen" for foliar and soil application. To assist farmers in understanding this product, an explanation of the nature and biological function of the Nitrogen compounds involved are outlined below.

Plant take up of Nitrogen (N)

Soil N is available to plants chiefly as either nitrate (NO_3^-) or ammonium (NH_4^+) and to a lesser extent, amino acids. Once assimilated into the plant, nitrate is converted to nitrite, then ammonium and finally to amines, peptides and amino acids. These, and other, nitrogen intensive compounds are critical to many biological processes or structures within the plant and deficiencies will limit its growth and development.

Nature provides this N to the plant by way of biological interactions between soil organism and plant roots, but this intertwined relationship requires a healthy active soil to function adequately.

Supplementing the plant 's N requirements with fertilisers

Modern agricultural practices and crop selections, have evolved around the use of applied chemical N fertilisers, lessoning the dependence on soil organisms . However the extensive use of chemical fertilisers in soil negatively alter the interactions between soil organisms and plants and have produced adverse environmental impacts.

New types of fertilisers, made of natural compounds, have focused on higher fertiliser efficacy, reducing the amount of fertiliser nitrogen necessary to optimise plant and fodder production. The efficacy is gained because the N uptake is performed not only by plant roots, but also by leaves through foliar applications at adequate levels, which can induce fast absorption, high nutrient availability and high economic benefits.

Importantly these natural compounds, are highly beneficial to the soil biology and structure , and support the plant's continuous sourcing of N by way of biological interactions in the soil

The latest research provides greater understanding of the importance of amino acids

Recent research has been increasingly directed to the evaluation of "dissolved organic nitrogen" , particularly free amino acids, amines and peptides, for plant uptake. The importance of amino acids is attributed to their wide utilisation for the biosynthesis of a large variety of organic compounds. Amino acids are critical in plant nutrition impacting yields, quality, shortening the productive cycle and higher dry matter production.

Understanding plant energy production and utilisation and the biochemical processes in plants, has bought attention to the amount of energy used by plants in the metabolic conversion of nitrates into amino acids and then into proteins. By taking up amino acids, amines or peptides into their roots or absorbed through the leaves, the energy saved by the plant and the shortening of the metabolic process improves the efficiency of the applied nitrogen fertiliser, impacting yields, plant health and profitability.

Additionally these amino acids and their building blocks, positively impact soil biology and importantly the plant-bacterial/fungal interactions.

Ectol-Organics "AGB Nitrogen" liquid plant nutrient:

- **contains Amino Acids and Amines, organic carriers and trace elements**
- **is applied as a foliar or soil fertiliser**
- **typically the application rates are from 10 to 20L/ha with sufficient water to achieve cover**
- **Low pressure spraying and the removal on boom-sprayer nozzle filters is recommended**

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