BLOG 01.05.2020

Amino Acids for Broad Leaf Crops

After an extremely difficult winter, growers are turning to spring sown crops to help make up for some of the losses incurred from the lack of winter drilling, but soil conditions are continuing to rotate from swamp to desert, putting still more stress on crops.

The first generation of amino acids that have been promoted widely are broad spectrum products, offering as many amino acids as possible as possible in one hit. But this approach could be wasteful at best or even counterproductive, as a plant requires and produces different amino acids at different stages in its development. For example, the amino acids produced and required by a plant at stem elongation are different to those required at flowering.

If we present a smörgåsbord of amino acids to the plant, it will either not use those that are unnecessary and simply metabolise them, or else may even risk signalling metabolic processes that are unnecessary or confusing and thus render the application of the product ineffective.

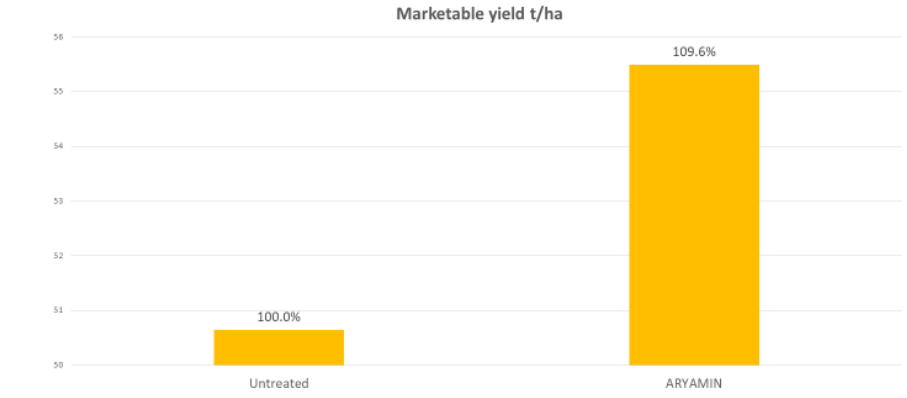
UPL have seen the clearest benefits from pure amino acids on crops such as potatoes, brassicas and pulses. However rather than using broad spectrum products UPL have been looking at the idea of 'finger printing' the plant's own amino acid characteristics, to emulate and provide the plant with what it would naturally require, in order to maximise energy use and minimise abiotic stress points. The result of this has been to develop a bespoke product that contains selected amino acids that are more suited to targeted use.

ARYAMIN is based around a high loading of glutamic acid which performs as a precursor to protein production. The availability of this particular amino acid allows the plant to more rapidly form the critical proteins that it needs, streamlining the plant's energy use and accelerating its ability to develop and cope with stress situations. This allows the plant to lay down more biomass.

Results in replicated independent field trials showed a 4.85t/ha marketable yield increase equivalent to 9.6% marketable yield benefits in potato, from

2 applications of ARYAMIN at 2l/ha - 21 days and 35 days post emergence. The data showed that ARYAMIN triggered an increase in tubers per plant, and this was carried through to marketable yield, with an overall increase in the marketable fraction of potato.

ARYAMIN Independent Potato field trials, cv Desiree, Derbyshire UK 2019



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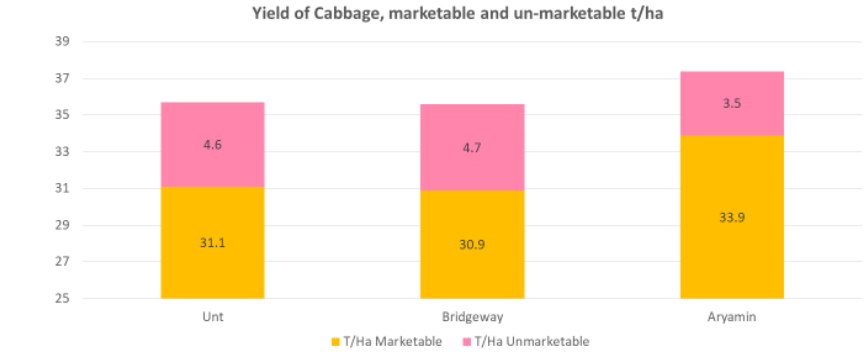
Similar yield benefits were also seen in replicated field trials on brassicas such as cabbage, with a 2.8t/ha yield increase in marketable yield, using 2 applications of ARYAMIN. This again compared favourably against broad-spectrum amino acids, which showed no yield benefits from comparable applications.

ARYAMIN Independent field trials on Head Cabbage, Derbyshire UK 2018



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The key message is that there is great potential for amino acid use in brassicas and potato increasing marketable yield potential. However, it is also important to remember that not all amino acid compounds are the same and growers should select products that are developed to suit the specific crop's biological needs.

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About

UPL is a leader in global food systems and one of the top 5 agricultural solutions companies worldwide. With revenue of approximately USD $5 billion, it has a footprint in 76 countries and sales in 130+ countries, with 10,800+ people worldwide. Having global market access to the world's food basket and focused on high-growth regions, we aim to transform agriculture through our purpose of OpenAg, an open agriculture network that feeds sustainable growth for all. UPL offers an integrated portfolio of both patented and post-patent agricultural solutions for various row crops and specialty crops, including crop protection, biosolutions and seed treatments covering the entire crop value chain. For more information on UPL, visit: www.upl-ltd.com

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