

Biostimulant Action: Stress-busting benefits of Albatross confirmed in Potatoes



Potato productivity is greatly reduced with temperatures above the optimum of 20°C. The earlier in the season heat stress occurs, the more negative the impact on growth and yield. Previous research commissioned by Interagro has shown the positive effects of biostimulants on potato crops which experience heat / drought stress during the growing season. Replicated field trials conducted by Greencrop Information in 2021, showed that new seaweed biostimulant Albatross, is just as effective in helping to minimise the effect of temperature stress on the potato crop, with significant yield increases achieved as a result.

Influence of Albatross on performance of Potatoes

The experiment investigated the effects of Albatross applied to the foliage of a commercial crop of potatoes in Lincolnshire. Three applications of Albatross were applied each at a rate of 2 litres per hectare and applied in relation to crop growth stages. The first treatment was applied at the onset of tuber bulking on 30th June, with the two subsequent applications applied 2 weeks apart (see table 1 right). Crop health assessments and test digs were performed throughout to measure the impact of Albatross on plant health and tuber yield. A period of heat stress began mid July, after which, the rate of tuber bulking declined in untreated plots. Albatross allowed tuber bulking to continue despite stressful conditions.

ALBATROSS KEY BENEFITS

- Protects against temperature stress
- Maintains tuber bulking in stressful growing conditions
- Improves the production efficiency of the crop in stressful growing conditions
- Enables burndown and potato lifting to start earlier

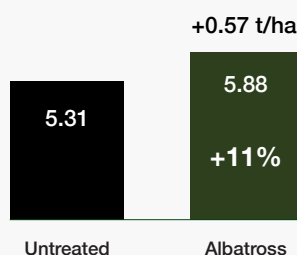
Table 1. Potato growth stage and Albatross application dates

Stage at application	Date	Temp. (°C)
Ob (onset of bulking, first tubers > 10mm)	30 June	15
Ob2 (2 weeks after Ob)	06 July	18
Ob4 (4 weeks after Ob)	21 July	24

Note: Ob2 & Ob4 planned timings had to be adjusted due to weather constraints.

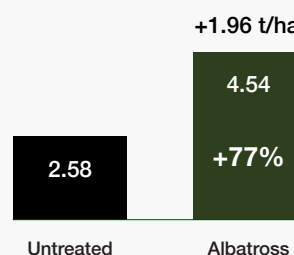
Pre-stress - Albatross increased tuber bulking by +11% per week

Effect of Albatross on rate of tuber bulking per week (t/ha)



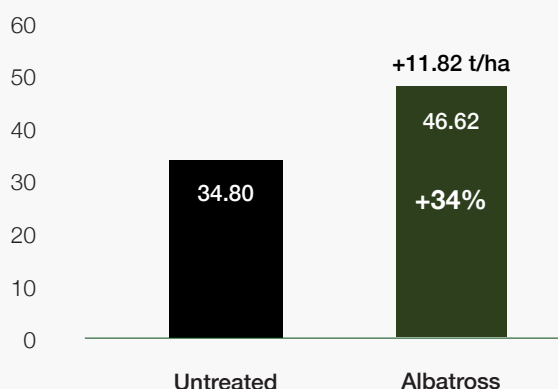
Post-stress - Albatross increased tuber bulking by +77% per week

Effect of Albatross on rate of tuber bulking per week (t/ha)

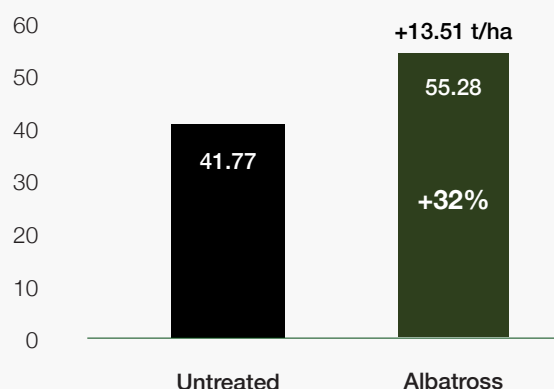


Albatross increased tuber yield by 34% at the August lift and 32% by the September lift

Effect of Albatross on tuber yield
August test dig (t/ha)



Effect of Albatross on tuber yield
September test dig (t/ha)



Conclusions

Crop potential including the number of progeny tubers and the rate of tuber bulking is established early in the season at about the time tubers reach 10mm in size. Stressful growing conditions during this time can therefore have a big influence on crop yield, and biostimulant applications applied at the onset of bulking therefore have the greatest potential to mitigate the effects of stress on the crops bulking and yield potential.

Potatoes start to suffer from high temperature stress as temperatures exceed 25°C, when the rate of photosynthesis begins to decline, whilst the rate of respirations continues to increase. Once tuber bulking has started, the rate cannot be increased but can be reduced or interrupted by stress. Heat stress during tuber bulking may reduce the rate of bulking or pause bulking.

Effect of Albatross on Potatoes - KEY TAKE AWAYS

- The rate of tuber bulking in untreated plots was reduced after stress
- Albatross had a significant, positive effect on post-stress rate of bulking
- Albatross increased yield at August and September lifts by over 30%
- Albatross showed real positive effects on the performance of potatoes



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