Grower Summary

Developing Nutrient Management Recommendations for Rhubarb

SF 172

Annual report 2021

Project title:	Developing Nutrient Management Recommendations for Rhubarb
Project number:	SF172
Project leader:	Angela Huckle, ADAS Boxworth
Report:	Annual report, 31 March 2021
Previous report:	None
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AUTHENTICATION

We declare that this work was done under our supervision according to the procedures described herein and that the report represents a true and accurate record of the results obtained.

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1. Grower Summary

1.1 Headline

- Pre-emergence nitrogen applications to mature rhubarb applications are unlikely to have significant benefits, most likely as a result of draw-down of nutrient and energy reserves in the crown.
- Time applications of nutrients to match likely periods of significant crop need – recovery from harvests, or late season applications to promote crown storage in advance of the following season.
- Trials are underway to examine the impact of a range of nitrogen application scenarios over the 2021 and 2022 seasons.

1.2 Background

Rhubarb is a complex cropping system, with energy and nutrients carried over between seasons to impact yield year-to-year. The early season growth of rhubarb, it has previously been seen as necessary to apply fertilisers, particularly nitrogen (N), in the early spring. Current grower practice (as demonstrated in the grower survey reported in the 2020 annual report of SF 172) showed considerable variation in both volume and timing of N applications, with growers targeting pre-emergence and post-harvest applications, using application rates between 100-250 kg N/ha/year against current RB209 recommendations of 70-300 kg N/ha/year for established crops. Recommendations for rhubarb are significantly out of date and may not reflect current practice, such as the use of multiple selective pulls, or include references to practices that are no longer suitable (e.g. manure use). Other cultural approaches including the use of wool waste (“shoddy”) and the discarding of leaves onto the soil surface as a secondary source of nutrients add further layers of complexity to understanding the nutrient requirements of rhubarb. SF 172 is a multi-year project looking to further examine optimum nutrient management approaches for commercial rhubarb in the UK. The work will address the following objectives:

1. To update information on nutrition and feeding for rhubarb
2. To determine whether additional feeding of green rhubarb increases yield, quality and season length when pulled multiple times during a season
3. Knowledge exchange to include provision of speakers for AHDB or third parties events throughout the project duration
4. To update relevant sections of the Nutrient Management Guide (RB209)

It is likely that N is likely to have the biggest impact on yield responses, so trials in the 2020 season focused on timing and rates of application. Whilst significantly impacted by the Covid-

19 epidemic, early results from the trial indicated that pre-emergence applications did not have a significant impact on yield (at least for the first harvest). This is most likely to be due to the accumulation of nutrients and energy in the crown that is drawn down for early season growth rather than assimilating fresh inorganic N from the soil. As a result of these findings, trial activities were refocused to look at the impact of increased late spring applications, with the significant portion of N applications targeted at the first and second postharvest periods. This reflects the likely increased demand for N during the recovery phase after harvest after the crown reserves are likely to have been exhausted. In addition, trial activities have been expanded to examine the impact of a late-season application of N to test whether it is possible to enhance crown reserves of N and whether they would feed forward into yield outputs.

1.3 Summary of 2021 Trials

Trials in the 2021 season were focused on three scenarios. Varied rates of N application were tested with the majority of applications targeted at the post-harvest period after the first harvest, with smaller applications made either after the second harvest (trial 1) or before emergence (trial 2). In addition, the application of N in the late season was tested (trial 3). A summary of application rates and timings are given in **Figure 1.**

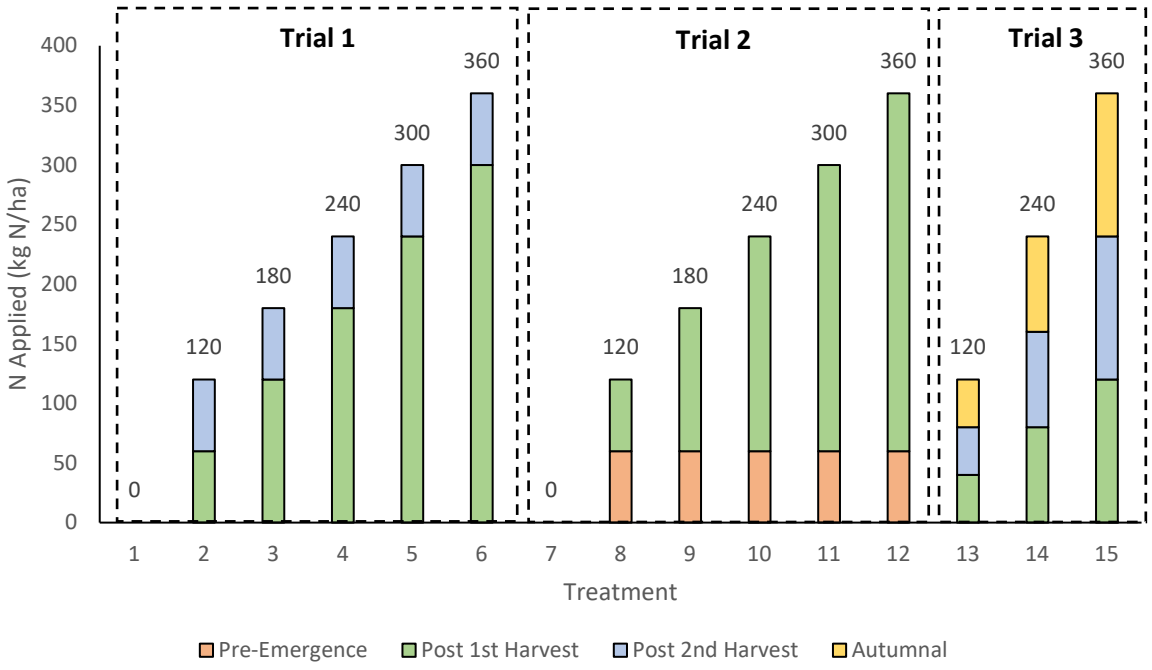

Figure 1. Summary of nitrogen treatments in the 2021 season.

Trials were established at two commercial sites – T Hammonds and Son, Redhill, and E Oldroyd and Sons, Rothwell. Results are undergoing analysis at the time of writing, but this report summarises the methodology implemented in the 2021 season.