

Using Precision Farming to make clover living mulches yield for growers



There has been much recent and widespread interest in both soil health management and the techniques which growers can use to protect their soil. Research has shown that clover living mulch understories have the potential to be a multifunctional component capable of addressing some of the key challenges faced by the arable sector today. With future arable production expected to focus on sustainable intensification and environmental responsibility, it is likely that the adoption of such multifunction solutions will be an important tool for industry in achieving policy- and market-driven competitiveness while maintaining yield. Despite benefits demonstrated by research, commercial uptake of in-crop clover living mulches in the UK has been limited by production conflicts and practical management challenges.

The RPA-funded 'Living Mulches' project, a 3.5-year project now in its final stages, saw Stockbridge Technology Centre and Manterra Ltd collaborate to validate and demonstrate the use of PAT-assisted strip tillage, using commercially available machinery and technology, as a tool towards overcoming some of the restrictions and challenges that have prevented commercial uptake in the UK, while still providing benefits that would be expected from soil conservation tillage approaches. The findings have shown that clover living mulches can achieve benefits in arable production, but that this can be tricky to achieve and depends on both how the crop and understory is managed, and on what the end goal is for the grower. Yield gains were consistently made when using minimum input approaches, although they were still reduced compared to a fully conventional, full-input approach. Some of this was mitigated by the performance of the clover itself. In well-established, highly competitive clover understories, the crop often failed to produce as highly, although excellent weed control was achieved without inputs. Where the clover understory was younger, did not cover the ground as well and compete as strongly, strip tillage allowed the crop to get away in early development and yield better by the end of the growing season, though there were also more weeds to contend with, and the soil health and environmental benefits were not quite as strong. Some soil health benefits took time to build up, while others were gained within a growing season, and there was a definite buzz in well-established clover, when bees flocked to it during flowering.

The gross margins, and the soil health and biodiversity benefits gained, made this a 'win' for Andrew Manfield, the project's applied farming research partner, and a supplier of PAT technology and agronomy expertise: "Clover understories are a 'work in progress', but they are truly worthwhile work. To see a field with a substantial clover cover buzzing with bees in August after a profitable crop of oilseed rape gives great encouragement for the future". Additional farmers were also engaged through a series of in-person and remote workshops, with Dr David George (speaker from Newcastle University) noting that, "It was a pleasure to see good and growing farmer interest in clover living mulches at the two events I attended at the start and end of the project. Projects like this one can help a great deal in driving uptake of new approaches on-farm, especially when results are communicated and discussed over the course of the work, as has been the case here".



The project has received funding from the Rural Payments Agency and EIP-AGRI to demonstrate and validate clover living mulches as a viable, achievable, and profitable option for UK arable agriculture.

ENDS

For more information on the 'Living Mulches' RPA project or on using clover living mulches in arable production, please contact either Dr Jennifer Banfield-Zanin or Mr Andrew Manfield using the details below:

Contact: Dr Jennifer Banfield-Zanin

Organisation: Stockbridge Technology Centre

Email: jen.banfield-zanin@stc-nyorks.co.uk

Contact: Mr Andrew Manfield

Organisation: Manterra Ltd.

Email: manterralimited@gmail.com



The European Agricultural Fund
for Rural Development:
Europe investing in rural areas

The project has received funding from the Rural Payments Agency and EIP-AGRI to demonstrate and validate clover living mulches as a viable, achievable, and profitable option for UK arable agriculture.