GREENGrass – exploring regenerative agriculture for grazing sheep

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The background:

Livestock, and livestock health and welfare, should be considered in the conversation around sustainable food production.

Roundworm infections are a major constraint on livestock production, which are affected by climate and farm management and result in reduced efficiency and increased emissions

Introducing regenerative grazing practices, such as rotational grazing and integrating legume crops, has been estimated to result in up to a 38% reduction in emissions intensity from livestock[1].

There is scant scientific evidence for impacts of rotational grazing or biodiverse sward on animal health, welfare and production in the UK

Aim: to evaluate the effects of regenerative livestock grazing practices on animal health, productivity, parasite abundance and wormer use

The research:

Field trial in progress to compare different regenerative grazing practices, in a 2 x 2 design (Figure 1), in a paired trial with JHI, Glensaugh:

- rotational grazing versus set stocking
- traditional rye grass/clover versus improved biodiverse (see Figure 2)
- 10 lambs per paddock, 4 treatments, 3 replicates = 120 lambs in total

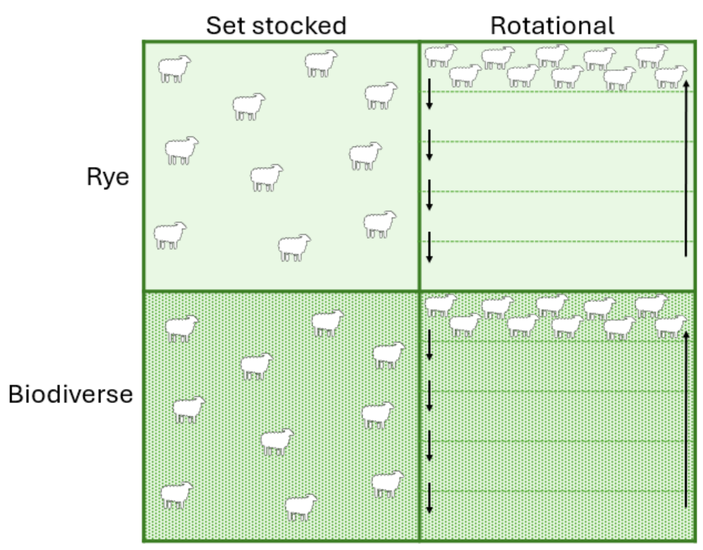
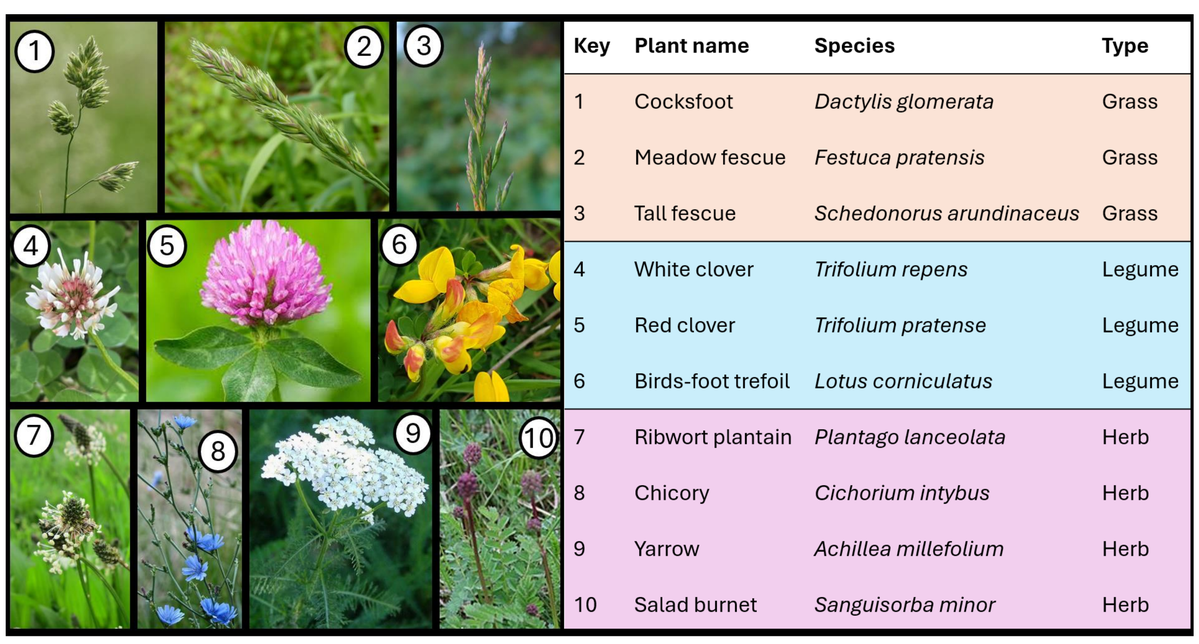


Figure 1. The 4 treatment groups in a 2 x 2 design



Key	Plant name	Species	Type
1	Cocksfoot	*Dactylis glomerata*	Grass
2	Meadow fescue	*Festuca pratensis*	Grass
3	Tall fescue	*Schedonorus arundinaceus*	Grass
4	White clover	*Trifolium repens*	Legume
5	Red clover	*Trifolium pratense*	Legume
6	Birds-foot trefoil	*Lotus corniculatus*	Legume
7	Ribwort plantain	*Plantago lanceolata*	Herb
8	Chicory	*Cichorium intybus*	Herb
9	Yarrow	*Achillea millefolium*	Herb
10	Salad burnet	*Sanguisorba minor*	Herb

Figure 2. Biodiverse species composition, direct drilled into existing rye grass/clover pasture

Sample collection and analysis:

From each lamb every 2 weeks from May to October a range of samples was collected to measure numerous variables (Figure 3)

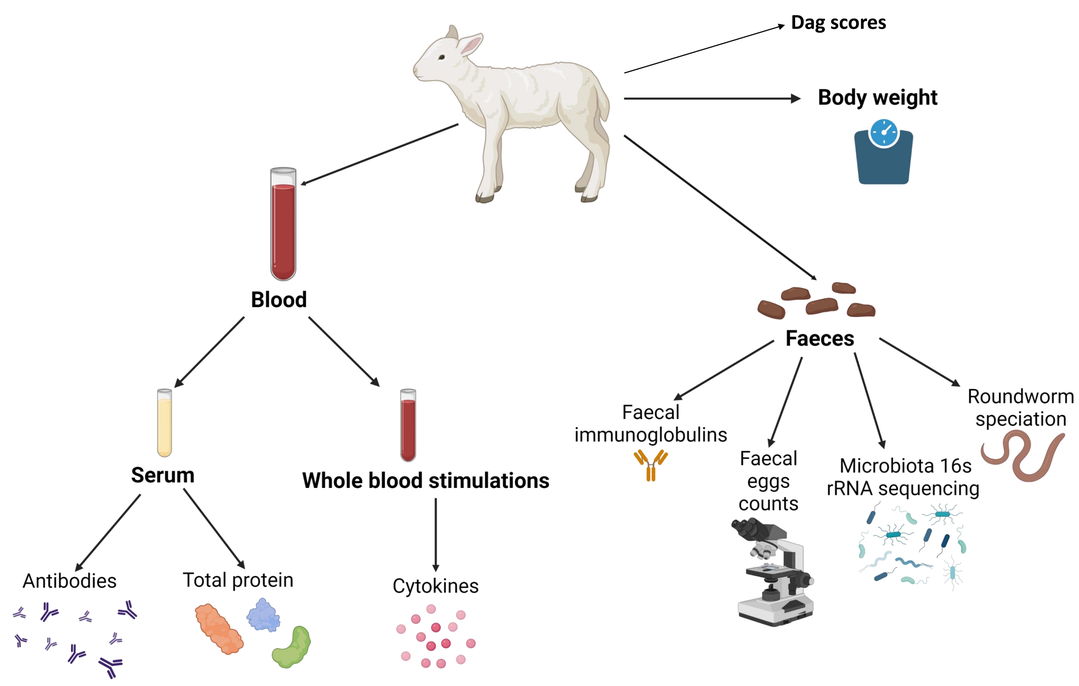


Figure 3. The sampling undertaken and analysis

The results:

There is no difference in weight between treatment groups, but a potential difference in antibody response towards the end of the trial (Figure 4 A and B)

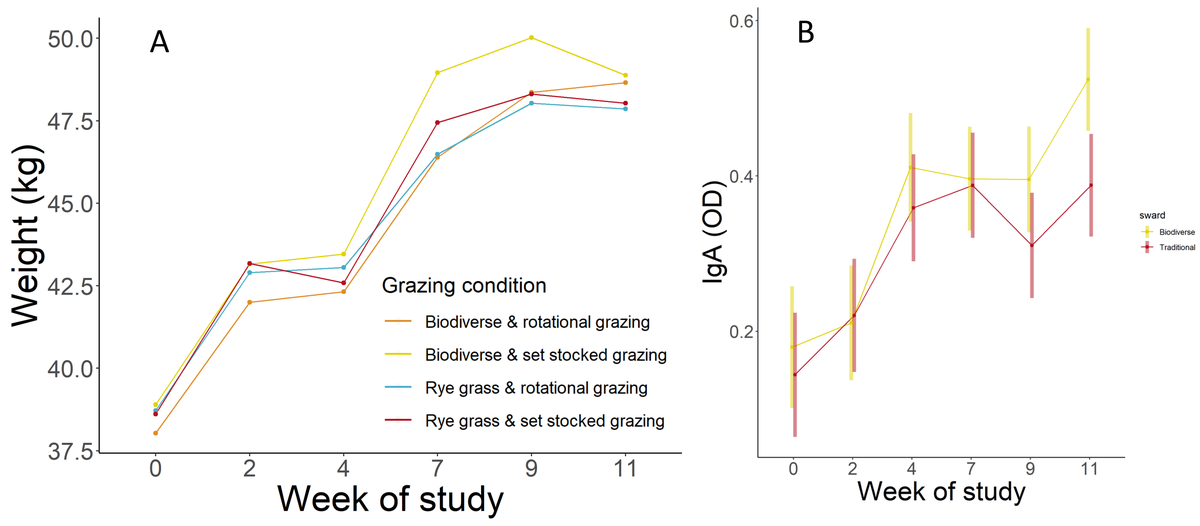


Figure 4. A. The weight of the lambs in each treatment group and B. IgA (a measure of immune response) throughout the study

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1. World Wildlife Fund '*Reaching Net Zero in Scotland*' Report 2019)