The Impact of herbal leys on the health and performance of grazing lambs

Background

There is a lot of discussion on the use of herbal leys on both livestock performance and anthelmintic properties, but limited studies on herbal leys within a commercial field scale basis have been carried out.

Herbal leys, containing legumes and herbs, are rich in compounds with potential anthelmintic properties. It is believed that they have the potential to help reduce worm burden within grazing lambs whilst maintaining / improving liveweight gain.

Herbal leys potentially need less fertiliser compared to conventional leys in a commercially stocked setting. Reducing inputs whilst maintaining productivity is key to improving the sustainability of farming in the future. Reducing the reliance on bought in farm inputs will improve business resilience.

The Project

This three year project (2020-2023) is investigating any differences in lamb health and performance when rotationally grazing a herbal ley in comparison to rotationally grazing a conventional ryegrass/clover ley on three commercial farms in Carmarthenshire and Ceredigion.

On each of the three farms one field (ranging from 1Ha to 2Ha) were marked out with a 50/50 split of equal size. One half was then sown with a herbal ley and the other half sown with a conventional ley.

Seed mixtures for the two leys are as follows;

Herbal ley costing £105/Ha	
Variety	Kg/Ha
Chicory	1.5
Plantain	2
Yarrow	0.5
Birdsfoot Trefoil	0.5
Timothy	1.0
Alsike Clover	0.5
White Clover	2.5
Perennial Ryegrass	8.4
TOTAL	**16.9 Kg/Ha**

Conventional ley costing £168/Ha	
Variety	Kg/Ha
Perennial Ryegrass	23
Timothy	2
White Clover	2
TOTAL	**27 Kg/Ha**

Site 1 and 3 used a plough and cultivation to prepare the seed bed, with site 1 broadcasting the seed and site 3 precision drilling. Site 2 used two passes of discs then precision drilled the seed as it was following a previous root crop.

Following establishment, a worm burden was introduced to the clean plots by grazing ewes on all three fields. The ewes were then taken off and the three fields were electrically fenced, separating the herbal and conventional leys, making 2 plots on each farm.

Throughout the grazing season measurements were taken to monitor the daily liveweight gain of the lambs, along with faecal egg counts (FEC) to monitor worm burden, and pasture larval counts to monitor the worm burden on the project plots.

This data, along with measuring dry matter yields via a plate meter gave an indication of how effective the herbal ley performed in a commercial setting. The plots will continue to be monitored over the next two grazing seasons to provide additional data.

Results of the 2020 growing season

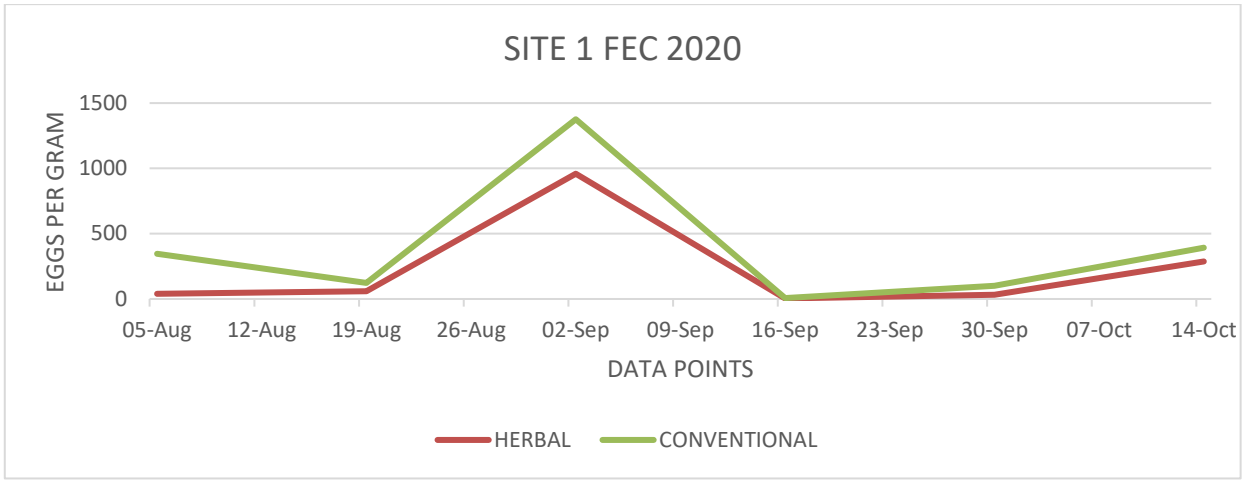
Due to the dry weather conditions in spring during establishment of the herbal and conventional paddocks, weeds such as Fat Hen became a problem, which was dealt with mechanically and by grazing stock.

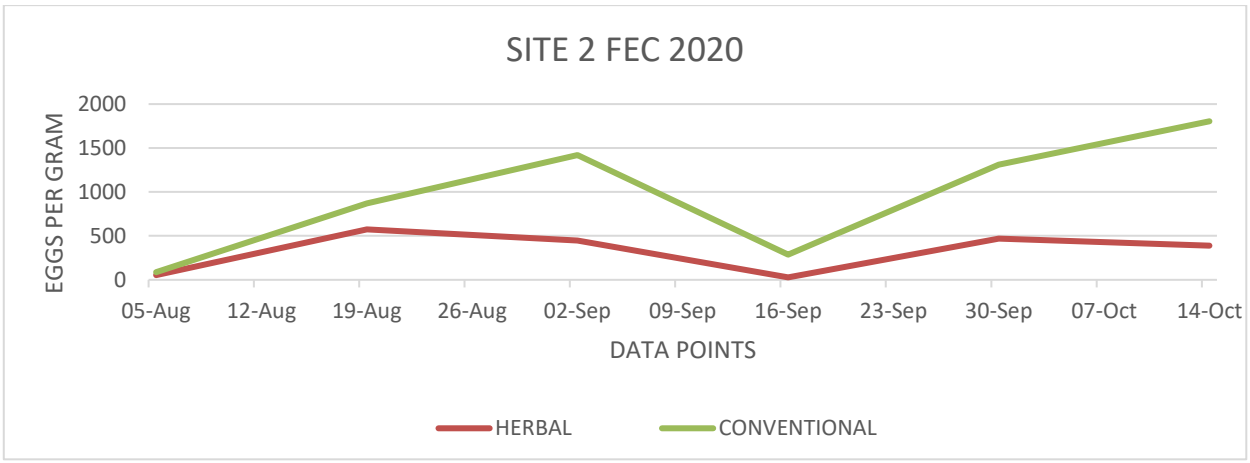
The third site established the leys post drought which was later than planned, so losing 2 months of data for the year.

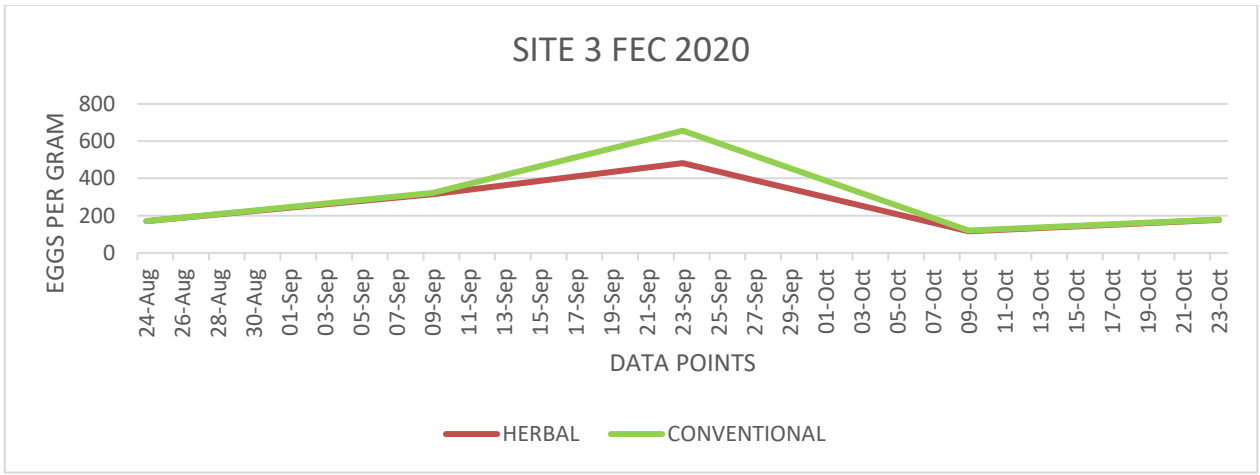
- Lambs were stocked at 70 lambs/Ha, or 2000kg liveweight/Ha, and were rotationally grazing the plots from August to mid October.
- There was no significant difference in the daily liveweight gain of the lambs on either the herbal ley or conventional ley.
- As an average the faecal egg count (FEC) of the lambs on the herbal ley was between 30-65% lower than compared to lambs on the conventional ley.
- Mob FEC samples were also taken at the same time and replicated the individual test results by showing lower FEC on the herbal leys.
- Fresh grass samples showed that the herbal ley had a more balanced protein level (17-19%), compared to the conventional ryegrass and clover mix (22-23%).
- Also, the level of sugars in the herbal mix was up to double that of the conventional mix (150-212 g/kg herbal compared to 108-115 g/kg conventional).

The above data needs to be taken into context as the late summer/autumn conditions were very wet at all sites in 2020. Continuing to collect data over the next two growing seasons should give a fair comparison on the performance of both leys.

The graph below shows the FEC levels on the lambs sampled over the data collection period. It is quite obvious at what point the FEC levels rose to a point where the stock needed drenching, and the resulting drop post drenching. Site 1 and 2 drenched on 5 September, with site 1 administering an orange drench, and site 2 administering a purple drench. Due to the lower worm burden on site 3, the lambs did not need drenching.


SITE 1 FEC 2020
EGGS PER GRAM
1500
1000
500
0
05-Aug
12-Aug
19-Aug
26-Aug
02-Sep
09-Sep
16-Sep
23-Sep
30-Sep
07-Oct
14-Oct
DATA POINTS
HERBAL
CONVENTIONAL


SITE 2 FEC 2020
EGGS PER GRAM
2000
1500
1000
500
0
05-Aug
12-Aug
19-Aug
26-Aug
02-Sep
09-Sep
16-Sep
23-Sep
30-Sep
07-Oct
14-Oct
DATA POINTS
HERBAL
CONVENTIONAL


SITE 3 FEC 2020
EGGS PER GRAM
800
600
400
200
0
24-Aug
26-Aug
28-Aug
30-Aug
01-Sep
03-Sep
05-Sep
07-Sep
09-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
01-Oct
03-Oct
05-Oct
07-Oct
09-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
DATA POINTS
HERBAL
CONVENTIONAL