

# FIELD LAB: Grass Seed Mixes Report 2018

*This field Lab explored solutions to challenges farmers are experiencing growing grass in Scotland. The soil type and climate at Mouldyhill Farm (on the eastern edge of Dumfries & Galloway) can lead to poaching, so sheep are housed over winter, and there are short weather windows to cut silage. The farm business has invested in drainage, lime, and soil nutrients, and has carried out some reseeds.*

*This Field Lab was set up to trial grass seed mixes that would respond well to longer periods of wet weather with the aim of producing grass that performs well, persists, provides adequate nutrition, and competes with weeds, particularly rushes.*

## The story so far

Five plots of comparable size were sown with different grass seed mixes in July 2017. Plots A and B were seeded with herbal seed mixes (B is a bespoke mix designed to suit the wet weather and low pH soil at Mouldyhill). Plots C, D and E are grass mixes with less complex mixtures. For more details on the seed mixes used see **Field Lab Note: Grass Seed Mixtures**.<sup>1</sup>

<b>A</b> HERBAL LEY	<b>C</b> WATSON SEEDS PERSISTENT MIXTURE
<b>B</b> MOULDYHILLS HERBAL LEY	<b>D</b> DUNDAS SPECIAL MIX
	<b>E</b> GREENAN MIX

In 2018 the fields were mowed and baled. The weight of the wet silage was taken. The chart below compares this to the seed cost. Labour costs were uniform across all five plots so have been excluded. Each figure is proportional to the area of the field.



Looking at soil structure and root mass in the different plots just after mowing (Field Lab meeting, July 2018)

<sup>1</sup> For more info see: <https://www.soilassociation.org/media/17160/field-lab-note-grass-seed-mixtures.pdf>

Category Plot	Herbal A	Herbal B	Grass C	Grass D	Grass E
Seed Mix	Herbal Ley	Mouldyhill's Herbal Ley	Watson Seeds Persistent Mixture	Dundas Special Mix	Greenan Mix
Size (ha)	3.57	4.1	3.34	2.41	3.35
Seed price (£/kg)	6.15	6.05	5.05	4.95	5.05
Seed rate (Kg/Ha)	37.00	37.00	37.00	37.00	37.00
Cost per ha (£/ha) <sup>2</sup>	227.66	223.85	186.85	183.15	186.85
Gross wet weight (t)	56.70	65.80	32.20	28.00	32.20
Proportion dry matter	0.627	0.548	0.689	0.658	0.691
Gross dry matter (t)	35.55	36.06	22.19	18.42	22.25
Protein (g/kg DM)	91.00	78.00	97.00	95.00	89.00
ME (Kj/t DM)	9600.00	9100.00	9400.00	10500.00	9700.00
Dry matter per hectare (t/ha)	9.96	8.79	6.64	7.64	6.64
ME per hectare (Kj/ha)	95599.06	80032.06	62439.08	80270.54	64425.95
Cost dry matter (£/t)	22.86	25.45	28.13	23.96	28.13
Cost ME (£/Kj)	419.92	357.53	334.17	438.28	344.80
Average cost DM (£/t)	Herbal:	24.16		Grass:	26.74
Average cost ME (£/Kj)	Herbal:	388.72		Grass:	372.41

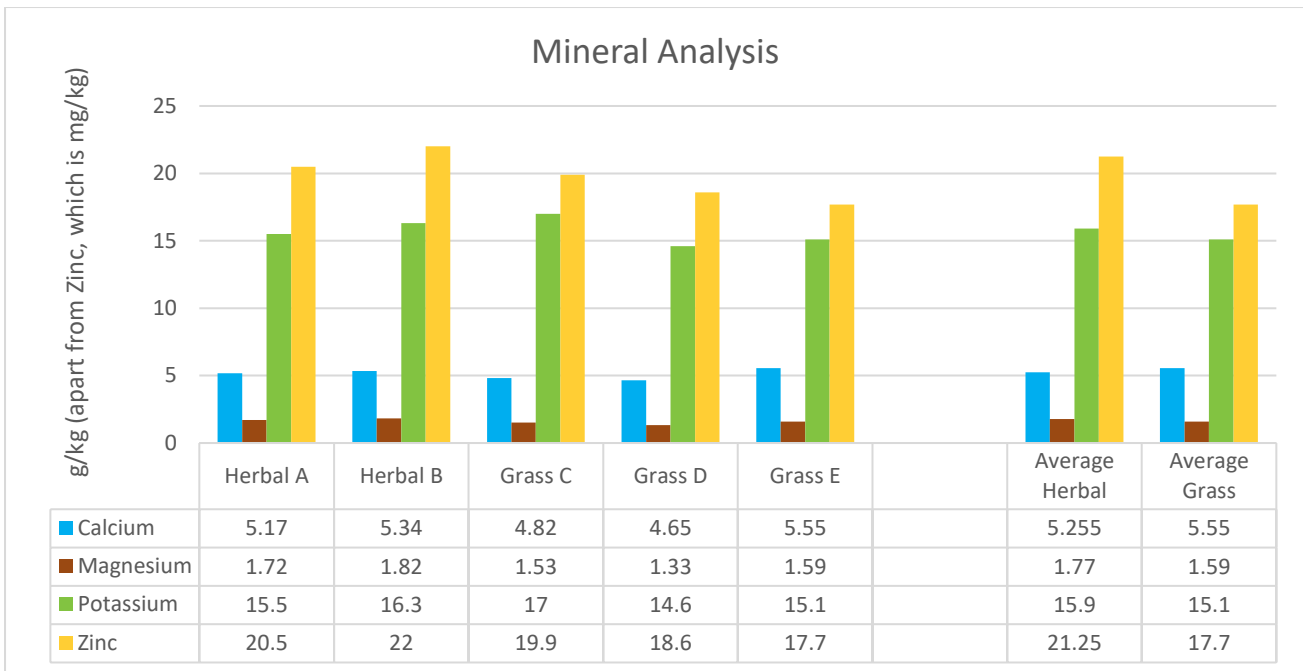
## Key Results

- Herbal leys have a higher seed cost (18% more on average than the grass mixes) but produced more silage per hectare on a fresh weight and dry matter basis (per Ha) in this particular trial.
- Plots A and B produced an average of 15.96 t/ha, compared to the grass seed's 10.29 t/ha. This means that, despite the higher outlay for the seed, it costed £4.06 less per tonne to produce herbal silage than grass silage.
- There was not much difference in the energy and protein content between the herbal silage and the grass silage. This could be due to variable factors including cutting date, wilting time and environmental conditions, rather than solely due to the seed mix.
- When accounting for cost per tonne of dry matter, the herbal silage group produced 10% more dry matter per pound spent in this trial.

## Forage mineral analysis

The chart below shows several minerals which are important for the health of grazing animals. The herbal leys outperform the grass leys in potassium, zinc, and magnesium, while the grass leys contain more calcium on average. High mineral content in the forage could reduce the need for dietary supplements and will improve the welfare and performance of the livestock. It is worth noting that the herbal leys may have been more successful due to the unusually dry summer in 2018. Yield and resilience of the seed mixtures would ideally need to be monitored over a few years to determine overall success rate.

<sup>2</sup> NB: The cost calculations in this report are based on full seed price per plot and do not take into account how long the ley will persist. The actual costs of a ley will be much lower when cost of seed is spread over a number of years.



## Next steps

Mouldyhill Farm was put up for sale by the Buccleuch Estate in October 2018, and farming operations have ceased so we were unable to continue the Field Lab trial unfortunately. We had hoped to look at performance and persistence of the seed mixtures over a longer period.

The Soil Association is currently running another Field Lab on Mob Grazing, one of the goals of which is to explore whether a grass sward's resilience and diversity can be increased without reseeding through grazing management practices. More information about this can be read on the Soil Association website.<sup>3</sup>

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<sup>3</sup> <https://www.soilassociation.org/our-work-in-scotland/farming-for-the-future/field-labs/mob-grazing-scotland/>