

## Case Study:

### Sustainable Grazing Systems at Hundleshope



Kate and Ed Rowell were part of the 2012 -2016 Monitor Farm initiative. During this time a key objective was to improve the silage quality at Hundleshope. The silage fields were shut off to livestock earlier and cut earlier and as a result, between 2012 -2014 the average metabolizable energy (ME) value of the silage improved from 9.3 MJ/kgDM to 11.3.

This had a knock-on effect throughout Peeblesshire as averages across the whole region improved as a direct result of the monitor farm project.

One of the biggest success stories from the Monitor Farm initiative at Hundleshope was the positive impact that improving silage quality has had across Peeblesshire. Many farmers who had attended the meetings went on to bring their cutting dates forward and significantly improve silage quality. Some prizes were even won at AgriScot!

The averages are shown in the below:

Year	Dry Matter	ME	Protein	SIP
2012	349	9.3	105	85
2013	379	10.5	128	100
2014	307	11.3	133	106
2015	296	11.1	128	98
2016	263	10.4	118	86
2017	314	10.9	120	101
2018	386	10.7	137	111
2019	319	10.2	112	97
2020	371	10.0	112	103
2021	472	9.9	124	115

*\* Please note that limited results have been analysed for 2021 at time of publishing.*

	One Cut System (cost/ha)	Two Cut System (cost/ha)
Fertiliser	£136.00	£238.00
Total Yield (tonnes)	17.34	22.48
Cutting Cost	£25.00	£50.00
Number of bales	24.7	34.6
Baling Cost	£59.06	£82.69
Wrapping Cost	£50.66	£70.93
Total Cost	£270.71	£441.62
Total Cost /bale	£10.96	£12.76
MJ energy	8.7	11.25
Cost/MJ energy	£1.26	£1.13

Taking an additional cut was marginally more expensive however, the cost was outweighed by improved yield and animal performance along with a reduced concentrate input. The cost per MJ of energy produced was lower due to the increased quality.

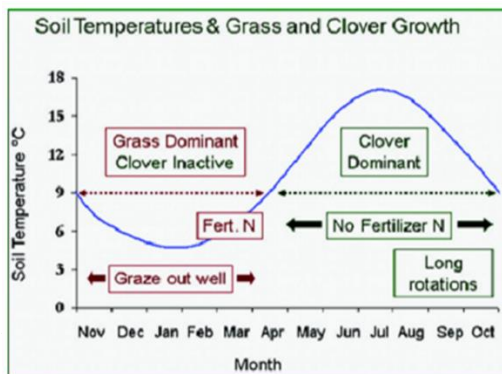
To further improve forage and grazing quality, there was a focus on reseeding and sward improvement. Multi-species swards including red clover and chicory were used to great effect with Red Clover proving effective for finishing lambs and chicory helping to reduce worm burden in lambs.

## The future – Multi Sward Species for improved performance?

In 2021, 17 acres of Spring Barley were under sown with a red clover mix. Due to a shortage of forage supplies the decision was taken to whole crop it in mid-September. The red clover crop is now well established, and lambs (above 33kg) were moved onto the sward in early October for finishing. Increased daily live weight gains are expected on this high energy sward.



Many farmers have reported a dramatic increase in Clover populations in swards during 2021, most likely due to the lack of grass in the early Spring enabling sunlight into the base of swards to stimulate clover growth. This creates an opportunity to tailor fertiliser applications to promote the clover growth (see chart below).



Clover will grow at higher temperatures than that of grass so it will sustain growth through warm spells. Clover is highly digestible so animals will preferentially graze it and with a D value 5% higher than ryegrass alone, this will provide high quality grazing. It maintains leaf and nutrition value at a time when grass plants are seeding and reducing in feed quality. Key minerals such as calcium, phosphorous copper and selenium are also greater in clover plants than in ryegrass.

As a forage legume, red clover can fix nitrogen due to the presence of bacteria in the root nodules. During establishment and growth of red clover there is no requirement for nitrogen, reducing fertiliser costs. Both potassium and phosphorus are required at 70kg/ha or 56 units/acre for red clover, but application should be guided by soil analysis. Red clover can be established in a wide variety of soil types however acidic, wet and shallow soils are not suitable. Red clover requires a soil pH of between 6.0 and 6.5 for successful establishment and growth, however it can tolerate a soil pH down to 5.5. Germination of red clover seeds or regrowth of red clover following winter dormancy will occur when soil temperatures reach 7°C which is 2°C higher than required for grass growth. This difference in soil temperature does impact the time of harvest for red clover which will generally occur three to four weeks later than harvesting of a grass ley.

## Forward planning?

With fertiliser prices currently the highest they have been in a decade forward planning now for next spring is crucial. Ensure soils are analysed to determine the nutrient status to review what multi-sward options could be available to utilise the grass available and reduce reliance on inorganic fertilisers. Introduction of clover fixing N crops such as clover bring many benefits including livestock performance gains whilst being environmentally sustainable creating a full proof grazing and forage-based system.