

Summary of plant establishment at Llwyn y Brain – 23rd July 2019

Each plot was assessed by a visual assessment of plant numbers and % ground cover in 3 randomly positioned 0.1m² quadrats.

There is significant variability within the plot area – see photos below – the concern is that this variability appears to be quite stratified within individual plot areas – and so presents some issues with selecting sampling areas that are ‘representative of the plot’.



There is some speculation as to the cause of these clear lines/areas of different colour and growth – which may be caused by lime spreading or possibly drainage.

Following tricky establishment conditions, the level of overall plant establishment is excellent – although there are some areas of bare ground associated with areas that had a high level of rushes prior to establishment (plot 4 and 5). Without cultivations these sprayed off rush plants restrict soil/seed contact.

Broad leaved weeds are restricted to a few spear thistle (*Cirsium vulgare*) and sow thistle (*Sonchus oleraceus*) and chickweeds (*Cerastium fontanum* and *Stellaria media*). The main grass weeds present are meadow foxtail and annual meadow grass, with a few areas of creeping bent. Rush control appears to have been effective as there were no surviving rush plants evident.

Summary of quadrat assessments

		%Bare ground	%Timothy	%Ryegrass	%Wclover	%Plantain
0	drill	37	0	40	2	11
	broadcast	18	0	32	17	27
10	drill	15	3	33	14	17
	broadcast	25	5	52	3	10
25	drill	12	11	50	7	18
	broadcast	13	2	52	4	22
40	drill	12	3	52	6	5
	broadcast	7	35	35	8	8
	drill	19	4	44	7	13
	broadcast	16	11	43	8	17

There is a slight trend for increasing ground cover on the broadcast plots – and for greater initial timothy and plantain establishment where the seed is broadcast and not drilled, but these trends aren't consistent across all of the treatments

There are slight concerns about the lack of timothy in plots 5 and 6...but its early days!

Future sward measurement this autumn.

DM production assessments, along with chemical analysis of ME and CP and herbage separations to assess sward composition by weight.



Herbage yield assessments (31st July 2019)

Grazing on the plots began on the 12th July (219 lambs) – plus an additional 343 older yearlings on from 28th July as production was getting away from the lambs.

$(19 \times 219) + (343 \times 3) = 5190$ lamb grazing days to date

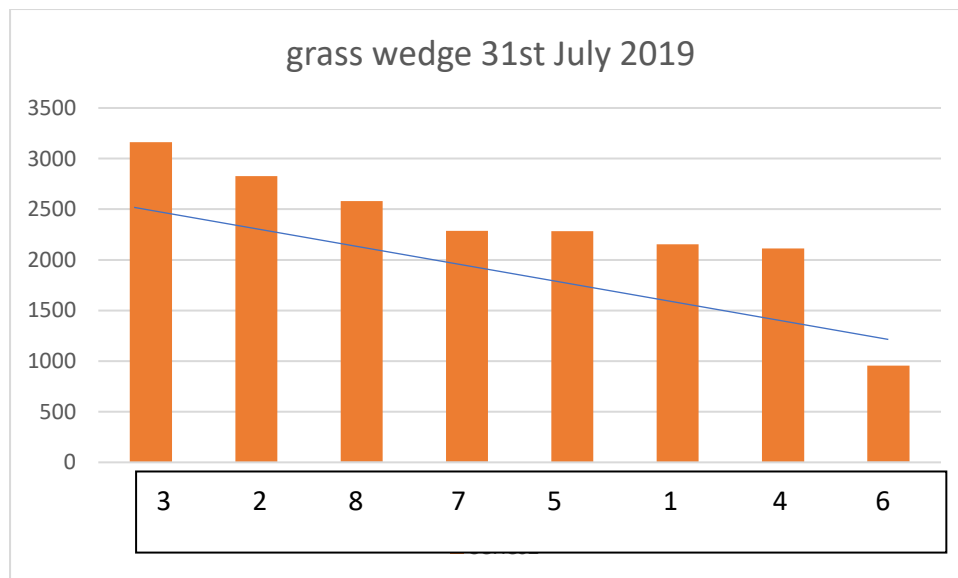
$5190 \times 1.2\text{kgDM/lamb/day} = 6228\text{kgDM}$ grazed to date

Over 8ha of plots that equates to an average of 780kgDM grazed per plot

The control area below the plots had insufficient herbage growth to sample

Average cover under exclusion cages was assessed at 2804kgDM/ha – equating to an average growth of 43kgDM/ha since establishment.

Average farm cover was measured at 2291kgDM/ha – which is above target of 2000kgDM/ha – and the grazing wedge is not yet fully established (blue line = approx. target)



Plots covers are extremely variable – with cage measurements ranging from 1700kgDM/ha to 3900kgDM/ha – cages have been repositioned to areas that are more representative of each plot.

Half of the yearlings will be removed this week – leaving around 390 animals on the plots (SR of almost 50/ha) – which may need to increase if grass growth rates creep above 65kgDM/ha/day.

At this stage of the season it isn't a major issue that plot 6 was slightly overgrazed – but care needs to be taken as we move into the autumn that residuals are targeted to closer to 1200kgDM/ha.

A recent article in Beef And Sheep News reproduced some NZ data on plantain/chicory swards (I assume they are pure swards rather than mixed with grass) – but it suggests that plate meter readings based on standard equations ($\times 125 + 640$) may be under estimating sward covers of plantain/chicory in the summer.

Their equations change dramatically in late season and the reverse may be true in wet conditions— in that as the dry matter of chicory plantain falls there is a tendency to overestimate the DM cover using UK standard equations.

Measuring Plantain and Chicory

Massey University have done trials on Plantain and Chicory swards which has led them to produce a specifically designed sward stick. They recommend going in at 15 cm and out at 7 cm. To feed budget, we need to determine kilograms of dry matter per hectare (kg DM/ha). They produced the following equations to convert sward height or plate meter readings to kg DM/ha.

	Sward height conversion	Plate meter equation
Early Spring	SH x 121.1 + 1603.9	PM x 84.4 + 1794.6
Late Spring	SH x 144 + 1569.8	PM x 95 + 1752.4
Summer	SH x 135.1 + 1396.7	PM x 83.7 + 1716.1
Autumn	SH x 104.7 + 854	PM x 75.5 + 1019.8

SH= Sward height; PM= plate meter reading

Alternatively, see ready reckoner below (kg DM/ha):

cm	Early Spring	Late Spring	Summer	Autumn
5	2209	2290	2072	1378
6	2331	2434	2207	1482
7	2452	2578	2342	1587
8	2573	2722	2478	1692
9	2694	2866	2613	1796
10	2815	3010	2748	1901
11	2936	3154	2883	2006
12	3057	3298	3018	2110
13	3178	3442	3153	2215
14	3299	3586	3288	2320
15	3420	3730	3423	2425
16	3542	3874	3558	2529

cm	Early Spring	Late Spring	Summer	Autumn
17	3663	4018	3693	2634
18	3784	4162	3829	2739
19	3905	4306	3964	2843
20	4026	4450	4099	2948
21	4147	4594	4234	3053
22	4268	4738	4369	3157
23	4389	4882	4504	3262
24	4510	5026	4639	3367
25	4631	5170	4774	3472
26	4753	5314	4909	3576
27	4874	5458	5044	3681

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