Using Grass budgeting software

Grass budgeting software tools such as Agrinet, Kingswood or Pasture Base, are very useful in making the most benefit from the data generated from grass measuring. Such programmes can easily calculate the amount of grass available for grazing, help to accurately calculate the grass demand from various groups of stock and provide figures including daily grass growth (kg DM/ha/day), grass demand /ha (kg DM//day), grazing days ahead and average farm cover (kg DM). An example from the Agrinet software used by CAFRE is shown in Figure 1.

Figure 1. CAFRE grass budgeting Information calculated by AgriNet from pasture measurements

Grass wedge

From the data entered, these programmes are designed to produce a grass wedge. A grass wedge is a simple bar chart of the grass covers in each paddock, ordering the paddocks from the highest to lowest pasture cover, creating 'the grazing wedge'. It is an easy to follow visual display of the quantity of grass available across the grazing platform, with the width of the bars in the chart indicating paddock area.

Below in Figure 2 is an example of a grass wedge created by the grass management software programme AgriNet. Each paddock is represented by a green bar, the width of the bar indicating paddock size. Paddock number is identified along the bottom x-axis of the graph and the vertical y-axis shows the pasture cover (kg DM/ha). The blue line is the grazing demand line and the numbers above the green bars are the number of days since the paddock was last grazed.

Figure 2. Grass wedge example taken from AgriNet

Alongside the grass wedge, the 'data view' tab allows the user to look at each paddock more carefully and attain precise details including paddock growth rate and paddock area etc as shown in Figure 3.

Code	Name	Area	Cover	Growth	Grow/Day	Feed	Days	Comment	Silage
16	Paddock 16	0.810	4104	1202	150.3	2028	1.6		TakeOut
3	Paddock 3	0.950	3646	868	108.5	1944	1.5		TakeOut
4	Paddock 4	0.980	3584	1017	127.1	1944	1.5		TakeOut
10	Paddock 10	1.120	3323	806	100.8	1930	1.5		TakeOut
18	Paddock 18	0.770	3286	1104	138.0	1298	1.0		TakeOut
7	Paddock 7	0.850	3150	744	93.0	1318	1.0		TakeOut
17	Paddock 17	0.570	2902	831	103.9	742	0.6		TakeOut
19	Paddock 19	0.400	2840	670	83.8	496	0.4		TakeOut
9	Paddock 9	0.850	2799			1019	0.8	pre graze 3199 (3/4)	TakeOut
14	Paddock 14	0.950	2691	819	102.4	1036	0.8		TakeOut
5	Paddock 5	0.980	2592	608	76.0	972	0.8		TakeOut
13	Paddock 13	0.950	2554	756	94.5	906	0.7		TakeOut
6	Paddock 6	0.980	2410			794	0.6	pre graze 3832(1/3)	TakeOut
12	Paddock 12	1.120	2394			889	0.7	pre graze 4377 1/4)	TakeOut
1	Paddock 1	0.950	2356			718	0.6	PG 4340 (1/2)	TakeOut
15	Paddock 15	0.400	2269	769	96.1	268	0.2		TakeOut
8	Paddock 8	0.850	2161			477	0.4	pre graze 3695(1/4)	TakeOut
20	Paddock 20	0.200	2120	99	12.4	104	0.1		TakeOut
11	Paddock 11	1.120	2071	783	97.9	528	0.4		TakeOut
2	Paddock 2	0.950	1773	423	52.9	164	0.1		TakeOut

Figure 3. An example of the data view tab taken from AgriNet

Some grass management software programmes allow the impact of different decisions to be assessed on a 'what if' basis before they are carried out. For example if there is a surplus of grass, a paddock can be taken out for 'short term' or 'long term' silage.

If it is for long term (to tie in with a 1st or 2nd cut) the programme will adjust the stocking rate on the grazing platform, the daily demand /ha (kg DM/day) and the demand line accordingly. If short term is selected, it is assumed the paddock will be taken out for bales immediately and the paddock will be available for grazing again in the next rotation therefore not affecting the stocking rate of the grazing platform.

For example in Figure 4 below, the blue demand line shows that there is a surplus of grass on the grazing platform. We can see there is a surplus of 4134 kg DM/ha from the green text. As shown in the bar chart, paddock number 16 has the highest pre grazing cover and therefore should be the first paddock to remove to address the surplus. By right clicking on the green bar for paddock 16 the option box shown in Figure 4 will appear, to select when the paddock will be taken out for silage.
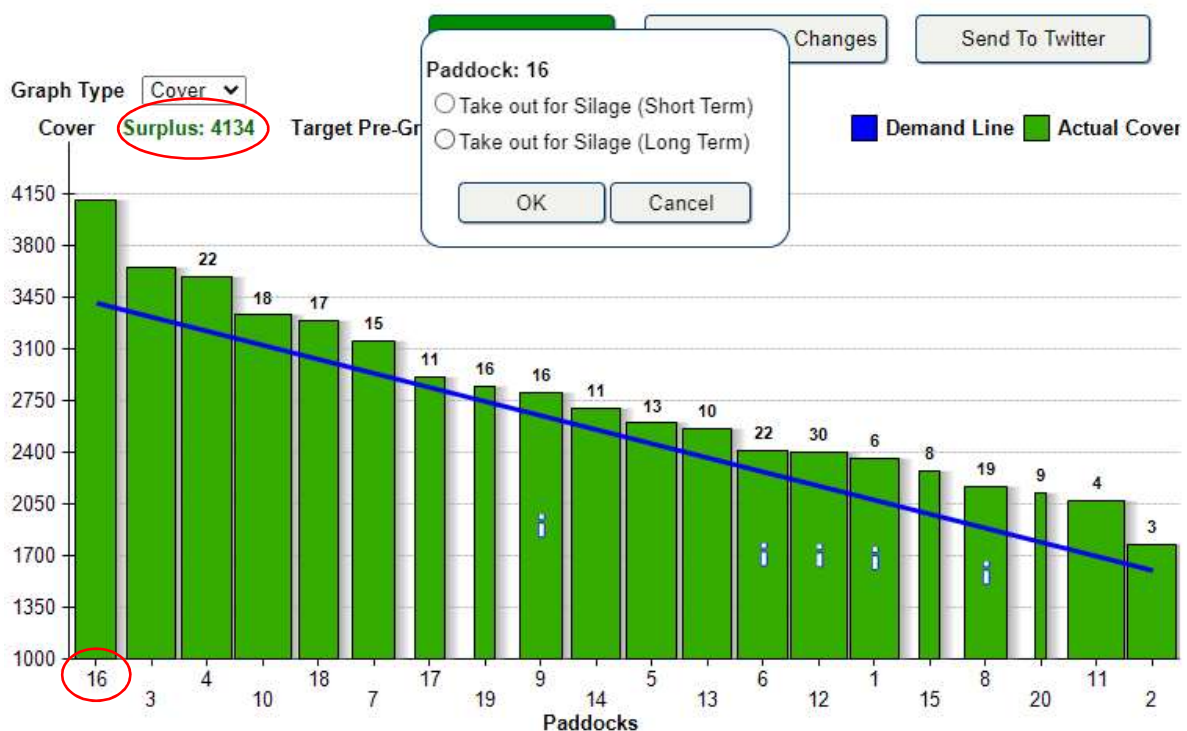

Figure 4. Removing a paddock to address a grass surplus

Predicted grass wedge from potential management actions
Grass software programmes also allow the user to view what the grass wedge would look like in the future, based on the predicted grass growth and grass demand. This can be a very helpful function, for example if it is known grass growth will decrease, if it is known that the grazing demand will increase, or if a small surplus exists but you are worried that removing it this week will leave you short next week. Figure 5 shows

the original grass wedge with the predicted wedge being calculated for 7 days' time, at a predicted grass growth of 50 kg DM/ha. Figure 6 shows the predicted grass wedge where we can see the surplus grass has decreased from 4134 kg DM in Figure 5, to 2113 kg DM in Figure 6.
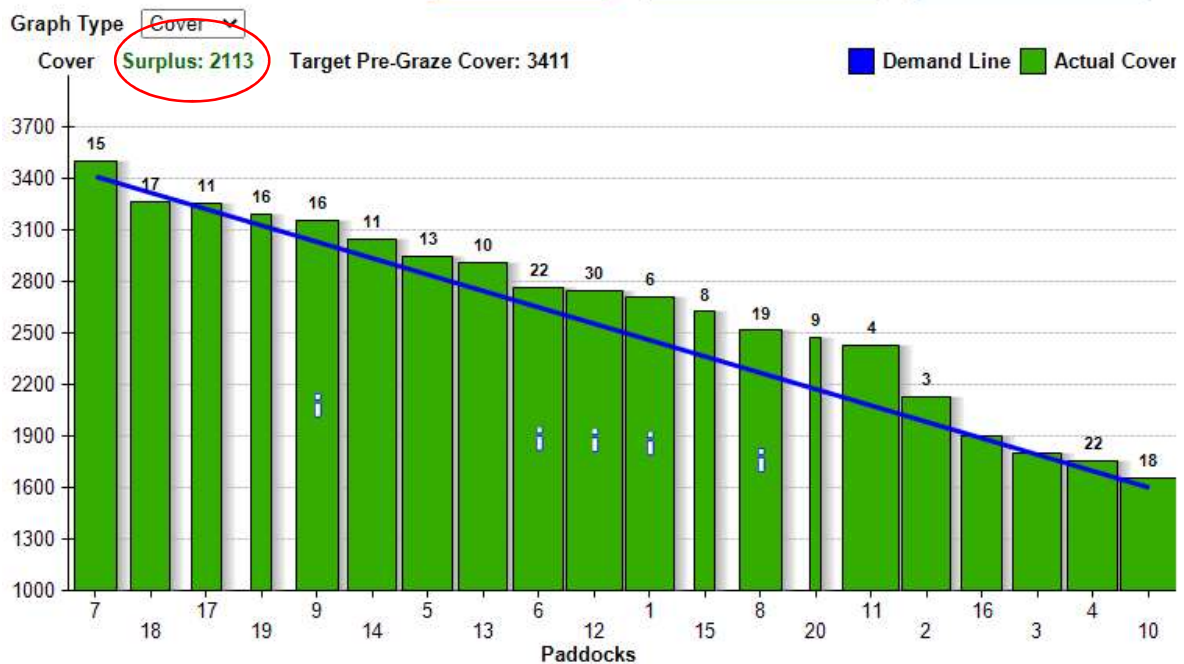

Figure 5. Inputting predicted grass growth into original grass wedge

Figure 6. Predicted grass wedge based on predicted grass growth in 7 days' time

Additional features of grass budgeting software programs

Grass budgeting software programs usually offer a range of additional features alongside the calculation of grass budgeting information. Figure 7 shows the AgriNet software home page. This provides the option to record fertiliser applications, soil sampling results, spray applications and the sowing of grass seeds. This information will all feed into the reports which can be generated on a farm or paddock basis. The 'paddock cards' tab allows you to view each event which has happened within the paddock on a year by year basis, including each grass measurements, grazing's, fertiliser applications etc. Farm reports allow total fertiliser application rates across the season to be monitored etc and provides comparisons between paddocks on the amount of grass grown between specific dates.
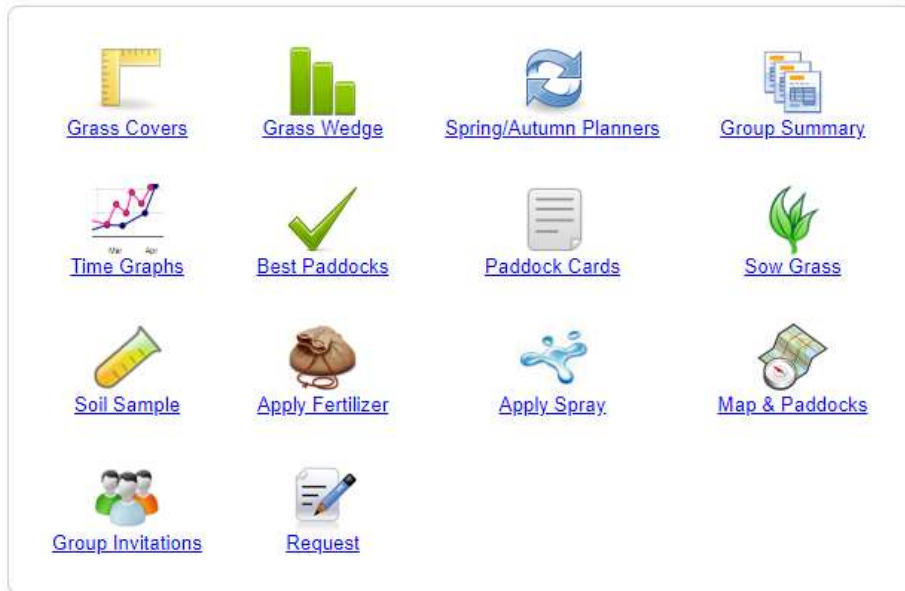
Figure 7. AgriNet home page

The length of the grazing season will be largely based on the success of the spring and autumn grazing rotations. Spring and autumn rotation plans are very useful tools to manage grass budgeting through these important periods of the season. Figure 8 shows an example of creating an autumn rotation plan on AgriNet. The software will calculate the target area to be grazed per day based on the information you provide. This includes the start date for the final grazing rotation, a housing date, a start and final target cover (kg DM/ha) and an interim date with a target % of how much should grazed by that point. The red line shown in the graph in Figure 8 is the target area to be grazed off and closed up per week. As paddocks are closed a green line will appear to show the actual area closed per week. Spring rotation plans will follow a similar layout.

Farm Area (Ha) 16.75

Start Date 28/09/2020

28 Days / 13.4 Ha Grazed

Interim Date 26/10/2020

% To Graze By Interim Day 80

11 Days / 3.35 Ha Grazed

Housing Date 06/11/2020

Target Start Cover 2654

Target Final Cover 2250

Notes:

Update/Save

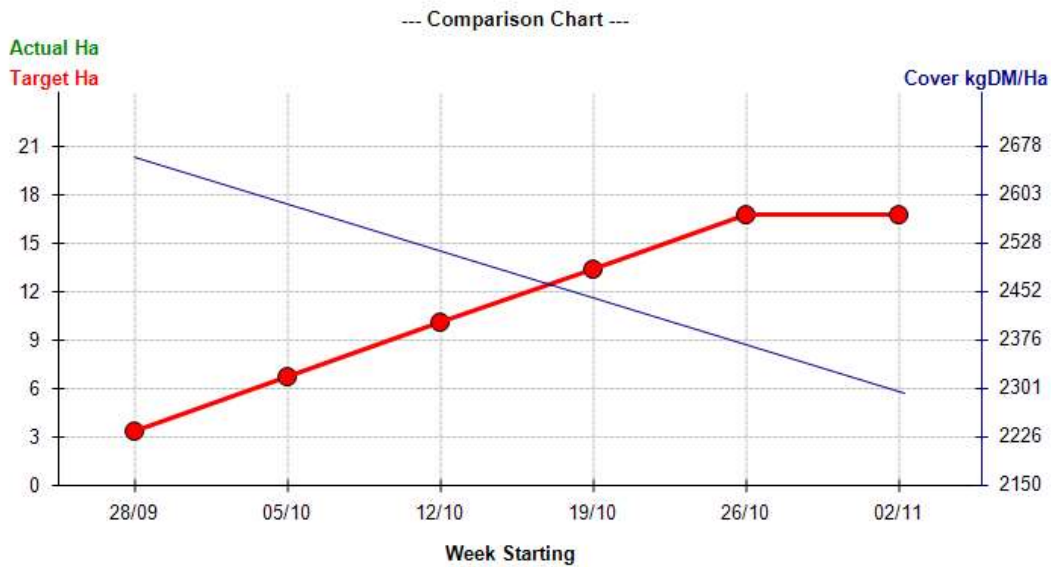| Week	Ha/Day	Target Ha Grazed by week end	Target %	Actual Ha Grazed by week end	Actual %	Week Start Target Cover	Actual Cover
28/09 - 04/10	0.48	3.35	20.0			2654	
05/10 - 11/10	0.48	6.70	40.0			2581	
12/10 - 18/10	0.48	10.05	60.0			2509	
19/10 - 25/10	0.48	13.40	80.0			2436	
26/10 - 01/11	0.48	15.53	92.7			2364	
02/11 - 08/11	0.30	16.75	100.0			2291	

--- Comparison Chart ---

Figure 8. Creating an autumn rotation planner on AgriNet