



# Summer

# Managing grass supply





The key to mid-season or summer grazing is to ensure a constant supply of high-quality grass ahead of the animals.

High weight gains can be achieved from a grass-only diet once the correct pre-grazing yield is offered and high levels of utilisation are continuously achieved. Allowing pre-grazing yield to exceed recommended levels leads to a decline in grass quality and poor bodyweight gain.

Finishing the first rotation on time is critical for mid-season grass supply and quality. It will ensure that grass will be more easily managed in the second and subsequent grazing rotations. Finishing the first rotation too early will mean animals are grazing on too short a rotation from April onwards and grass will run out. Finishing the first rotation too late means that grass will be in surplus, post-grazing residuals will be hard to achieve and quality will be affected

## Getting it right during the main grazing season

DOs 	DON'Ts 
Walk the farm weekly	Walk farm fortnightly or less frequently
Keep monitoring the recovery of re-growths	Delay the reaction to high grass growth
React quickly to increasing grass growth	Let pre-grazing yields increase
Maintain pre-grazing yields at 1,300-1,600kg DM/ha (8-10cm)	Increase SR too much on grazing area, by closing paddocks for long-term silage
Graze paddocks out to 4-4.5cm	Graze paddocks to 5.0-5.5cm
Top only when necessary to 4-5cm	Extend rotation length >23 days
Keep rotation length at 18-21 days	
Continually react to changes in growth	
Take out paddocks quickly	

for the rest of the year. The biggest problem on farms is that the first rotation starts and ends too late. The level of re-growth recovery from late March to April 10th is the real indicator of the second rotation's re-growth and how much grass will be on the farm.

### Avoid wasting grass offered to the grazing herd

Too often on livestock farms there is excessive grass offered to the grazing herd. High grass utilisation is possible when pre-grazing yields are at levels that the grazing animals can graze out well.

The key focus during the main grazing season is to offer high-quality/leafy material to the grazing herds as often as possible through the season. Grazing animals respond positively to high-quality grass and it is far easier for them to graze swards of range 1,300-1,600 kg DM/ha (8-10cm) than swards of 2,000-2,200kg DM/ha (12+cm).



Grazing to 3.5-4cm in the first rotation provides a platform for excellent quality grass re-growth.



The ideal pre-grazing yield for maximum animal performance is 1,300-1,600kg DM/ha (8-10cm).



Under-grazing leads to a greater proportion of stem. This will lower grass quality and animal performance.



Avoid turning stock into too heavy covers. React quickly to surplus grass and save as baled silage.



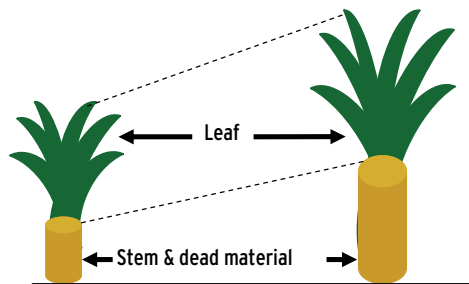
# Summer quality key to success

➔ Too often on livestock farms there is excessive grass offered to the grazing herd. High grass utilisation is possible when pre-grazing yields are at levels that the grazing animals can graze out well. The key focus during the main grazing season is to offer high-quality/leafy material to the grazing herds as often as possible through the season. Grazing animals respond positively to high-quality grass and it is far easier for them to graze swards of 1,300-1,600 kg DM/ha (8-10cm) than swards of 2,000-2,200kg DM/ha (12+cm).





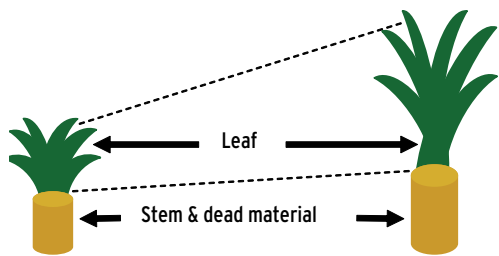
**Undergrazed: >5cm**      3 weeks re-growth



- Higher proportion of the grass available is stem and dead material
- Grazing like this encourages continuous under-grazing, poorer quality swards and weeds

**Ideal grazing: 4 - 4.5cm**

3 weeks re-growth



- Increased proportion of growth is leaf
- Small increase in stem and dead material
- Good re-growth levels

The pre-grazing yield guidelines for a given pasture height taken with a plate meter are as follows:

Pre-grazing Yield (kg DM/ha)	Equivalent Pre-grazing Height (cm)
700 – 900	5 – 6
1,000 – 1,200	6 – 6.5
1,300 – 1,600	8 – 10
>2,000	12+

Grazing pre grazing yields lower than the target will lead to poor growth

### Post-grazing height

- Once the correct pre-grazing yield is achieved, it will be easier to achieve ideal post-grazing height of 4–4.5cm.
- When paddocks are poorly grazed during the previous rotations, animals should not be expected to graze tighter in the following rotations as high levels of weight gains will not be maintained.
- Continually grazing to a very low post-grazing height will reduce grass growth.

### Post-grazing height and grazing residual

Post-grazing Residual	Equivalent Post-grazing Height *	Description
0 – 50 kg	3.5 – 4 cm	Tight grazing
100 – 200 kg	4 – 4.5 cm	Ideal grazing
200 – 400 kg	5 – 6 cm	Under grazing
500 kg	6 – 7 cm	Topping required



\*Post-grazing height measurement includes dung pad area. Post grazing heights measured with a plate meter



## Getting it right during the main grazing season

	Too low	Just right	Too high
Pre-grazing yield (kg DM/ha)	950 - 1,050	1,300 - 1,600	2,000 - 2,200
Pre-grazing height (cm)	6-7	8-10	12+
Rotation length (days)	14/16	18/21	26/30
Leaf content (%)	>70	>70	>60
Days ahead	10	14	22

## Advantages of grazing a cover of 1400kg DM/ha and disadvantages of not

 Advantages	Disadvantages 
Have 7-9cm of grass (1400kg DM/ha) on paddocks for grazing next	Too much grass on farm
Have the recommended 10-14 days grass on the farm	Have 21-28 days grass on farm (double the requirement)
High grass quality - high leaf content	Poor grass quality and low utilisation
'Wedge' shaped supply – the most grass will be in the paddock to be grazed next and the least in the paddock grazed last	Post-grazing height too high
Have flexibility to close for silage	Will have to close >50% of farm to correct grass surplus
Little topping required	Two to three rounds of topping required
Higher weight gains	Weight gain poor

## Grazing Guide

## The role of fertilizer in summer



Grazing stocking rates are low on beef farms nationally - about 85,000 farms are stocked <100kg organic N/ha. Therefore, low nitrogen grazing regimes are in use. A recent survey suggests that beef farmers tend to take one large silage cut. This opens up the remainder of the farm for grazing after the silage has been cut.

There is major potential to increase the contribution of clover to productivity on beef farms. If possible, beef farms should try to incorporate clover into the grazing swards by either over-sowing or through their reseeding policy. With clover, split nitrogen applications in March and April are sufficient to meet the total N requirements for the year. Clover swards need to be

Recommended rates of fertilizer N for grassland during the year where approximately half of the farm is mowed for first-cut silage and the amount of second cut is kept to a minimum (0 – 30% of the grassland area). Rates of fertilizer N are presented in kg per ha (units per acre in brackets)

Stocking rate (kg/ha organic N)	Jan/Feb	March	April	May	June	July	August	Sept	Total (kg/ha) (u/ac.)
155 – 170	0	28 (23)	43 (35)	34 (28)	34 (28)		25 (20)		164 (133)
170 – 180	28 (23)	28 (23)	43 (35)	34 (28)	34 (28)		25 (20)		192 (156)
180 – 190	28 (23)	37 (30)	49 (40)	34 (28)	34 (28)		34 (28)		216 (175)
190 – 200	28 (23)	49 (40)	49 (40)	34 (28)	34 (28)	34 (28)	25 (20)		253 (205)
200 – 210	28 (23)	49 (40)	49 (40)	51 (41)	34 (28)	34 (28)	34 (28)		279 (226)
211 – 250	28 (23)	43 (35)	49 (40)	34 (28)	34 (28)	34 (28)	25 (20)		247 (200)

The recommendations in this table are for farms on soils of average natural fertility. At stocking rates less than 200 kg organic N/ha substantially more fertilizer N than is recommended in this table can be applied on poorer soils. Less than recommended fertilizer N is needed on soils with above average natural fertility or where there is plenty of clover in the sward. At very high stocking rates of greater than 200 kg organic N/ha slightly more fertilizer N (for example 8 kg/ha) than is presented in this Table can be applied in southern counties and this should be applied in spring as part of the first or later applications

grazed out well to open the swards for clover to establish. In autumn, the grazing rotation should be 40 days on clover swards.



Some farmers in mid season think their swards contain considerable levels of clover. However, in many cases this is wild clover, which is easily recognizable as it tends to grow in circles. This clover is not as productive as new clover varieties, is variable in its growth capacity and cannot be depended upon. Silage fields should also get slurry where it is available at closing up in

**Applying 2,500 gallons per acre can reduce the requirement of bagged N to less than 70 units per acre on older permanent pasture destined for first-cut silage**

the spring. Applying 2,500 gallons per acre can reduce the requirement of bagged N to less than 70 units per acre on older permanent pasture destined for first-cut silage. On fields that have been reseeded in the last four years it may be worth applying a further 20 units of bagged N per acre as these swards have the potential to produce higher quantities of grass with adequate N.

Each crop of silage that is cut will remove Phosphorus (P) and Potassium (K) from the soil. Continuous cutting in the same area in

## Nitrogen application mid-season

DOs 	DON'Ts 
Change to CAN from Urea in late April/May before the ground dries out	Use Urea in dry periods
Apply slurry to paddocks harvested for first-cut silage	Apply nitrogen to clover-rich pastures
Apply low levels of nitrogen rather than missing N on paddocks	Miss nitrogen on paddocks if possible
Use light applications of slurry, if available	

the absence of spreading slurry or application of P & K fertilizer will lead to a reduction in soil fertility.

The optimum approach is to take regular soil samples (at least once every five years) to check the soil status of particular fields. If P & K levels are low, these should be targeted with slurry or compound fertilizers.

If the P & K status is high, Nitrogen fertilizer will generally suffice on silage and grazing ground with slurry application targeted for silage areas.

# Measuring grass







## METHOD 1

The first method uses a quadrat and shears. Once you become confident at estimating the quantity of grass in the paddock you can start to estimate it by eye (eyeball)

- A 0.5m x 0.5m quadrat is placed in an area that is representative of the amount of grass in the paddock
- Knock water off the grass before cutting if wet
- The grass within the quadrat is cut to between 3.5 and 4cm
- The following equation is used to calculate the DM yield in the paddock:

$$\text{Weight of grass (kg)} \times \text{DM\%} \times 40,000 = \text{kg DM/ha in the paddock}$$

### EXAMPLE

Grass cut within the quadrat weighs 200g (0.200 kg) (Remember to take off the weight of the empty bag)  
 Grass DM% = 16% (0.16)

$$0.200 \text{ kg} \times 0.16 \times 40,000 \text{ (there are 40,000 quadrats in a hectare)} = 1,280 \text{ kg DM/ha}$$

### Estimating Grass Dry Matter % (DM)

Weather	Grass DM%
Continuous rain	14 - 15
Mixed sunshine and rain showers & second rotation	16 - 17
1st rotation in spring / drier weather	18 - 19
Over a week of continuous sunshine & high temperatures	20 - 21
Drought conditions	22 - 23

- DM will be higher if there is more dead (yellow) material at the base of the sward
- DM will be lower if the sward is green and leafy
- DM is always 2 - 3 units higher in the afternoon than the morning
- Refer to Grass Watch and BETTER Farm growth figures in the *Irish Farmers Journal* every week to get an idea of growth rate and DM figures in your area. Regional growth rates are also available from your local Teagasc office, where grass budgeting courses are ongoing.



## METHOD 2

The second method uses the plate meter

- Take heights across the entire paddock in a 'W' or 'X' pattern to ensure the quantity of grass in the paddock is accurately represented
- Subtract the ideal post grazing height/residual (e.g. 4cm) from the height of the grass in the paddock
- Multiply the figure you get by 250 as there is 250 kg DM/cm

### EXAMPLE

- Paddock height was 9.5cm
- 4cm is the desired post-grazing residual

$$(9.5\text{cm} - 4\text{cm}) \times 250 \text{ kg DM/cm} = 1,375 \text{ kg DM/ha}$$



**COMPLETING A FARM COVER**

- Measure/estimate the quantity of grass in each paddock - DM yield  
e.g. 1,400 kg DM/ha
- Multiply the DM yield of each paddock by the area of the paddock in ha  
1,400 x 1.8 ha = 2,520 kg DM in the whole paddock
- Repeat this for all the paddocks on the farm
- Sum all the paddock DM yields together
- Sum all the paddock areas together (i.e. get total area of grazing platform) in hectares
- This can be completed on the table below (example in the first line)

Paddock	DM yield (kg DM/ha)	Area (ha)	Paddock cover
1	1400	X 1.8	= 2,520
		X	=
		X	=
		X	=
Sum the next two columns		(A)	(B)

- To calculate farm cover divide total cover (B) by area (A)

**Converting growth rate into kilos of liveweight per hectare/acre**

Daily growth rate kg/DM/HA	20	30	40	50	60	70	80
Kg/LW/ha	700-1,000	1,000-1,500	1,400-2,000	1,750-2,500	2,100-3,000	2,450-3,500	2,800-4,000
Kg/LW/Ac	280-400	420-600	560-800	700-1000	850-1,200	1,000-1,400	1,100-1,600

\*during period of poor utilisation, use figures at the lower end of the range.

**CALCULATING GRASS DEMAND PER HA**

Calculate liveweight/ha

- Calculate the individual stock numbers on the grazing area
- Assign a liveweight to the individual animals (or weigh them if possible)

**EXAMPLE**

Grass intake is estimated at 2% of live weight

50 - Suckler cows @ 640kgs - 32000kgs

50 - Calves @ 140kgs - 7000kgs

45 - Weanlings @ 480kgs - 21,600kg

**GRAZING 40HA**

Grass intake is estimated at 2% of live weight

$$\begin{array}{rcl}
 \mathbf{60,600\text{kg}} & / & \mathbf{40\text{ (ha)}} & = & \mathbf{1515\text{kg liveweight/ha}} \\
 \text{Total} & & \text{Area of} & = & \text{Stocking rate/ha} \\
 \text{liveweight} & & \text{grazing} & & \\
 & & \text{block} & & 
 \end{array}$$

Grass demand/ha: 1515kg x 0.02% (of body weight) = 30.3kg demand/ha/day

## CALCULATING GRASS GROWTH

- Grass growth is calculated on the paddocks that were not grazed during the week before walking the farm, i.e. if you walk the farm on a Monday all the paddocks that were not grazed from the previous Monday are used to calculate the grass growth rate
- Subtract the DM yield measured last week from the DM yield measured in the same paddock this week and divide by the number of days since the last farm walk
- Repeat for all un-grazed paddocks
- Average all the values obtained to get average growth rate

### EXAMPLE

#### Week 1 (Monday):

Paddock 1 = 500 kg DM/ha; Paddock 2 = 1,100 kg DM/ha

#### Week 2 (following Monday):

Paddock 1 = 800 kg DM/ha; Paddock 2 = 1,300 kg DM/ha

### Growth

**Paddock 1:**  $800 \text{ kg DM/ha} - 500 \text{ kg DM/ha} = 300 \div 7 \text{ days}$   
(since last cover) = 42.9 kg DM/day

**Paddock 2:**  $1,300 \text{ kg DM/ha} - 1,100 \text{ kg DM/ha} = 200 \div 7 \text{ days}$   
(since last cover) = 28.6 kg DM/day

**Average Growth Rate =  $(42.9 + 28.6) \div 2 = 35.8 \text{ kg DM/day}$**

This can be completed in the table below (example in first line)

Paddock No.	DM yield this week	DM yield last week	Growth (kgDM)	Days between farm walks	Growth Rate (kgDM/day)
1	800	- 500	300	7	42.9



# Use wedge during main grazing season



**The objective during the main grazing season (May to August) is to achieve high daily live weight gains from a grass-only diet. High animal performance will be achieved by maintaining a consistent grass supply for the herd and monitoring farm grass cover weekly. This will allow decisions to be made to alter grass supply early; for example, adjusting stocking rates or removing surplus grass.**

The key grassland management guidelines for this period are:

- Aim to consistently offer animals a sward where there is green leaf to the base and very little stem
- Ideal pre-grazing yield targets are 7 - 10 cm (1300 - 1600 kg DM/ha). Maximum pre-grazing yield is 10 - 11 cm (1600 - 1800 kg DM/ha). If this is exceeded, excess grass should be removed as baled silage (depending on grass supply)
- Rotation length should be maintained at 19 - 21 days
- Early identification of surpluses by measuring grass weekly may reduce or eliminate the requirement for topping
- No more than a maximum of 14 and a



The picture shows the ideal post-grazing height of 4 - 4.5cm during the main grazing season - this can be simply measured by placing a mobile phone on its side in the sward after grazing.

minimum of 10 days ahead should be maintained during the main grazing season

- Days ahead give a 'snapshot' of the

amount of grass present on the farm on the day the farm walk is completed, but it does not take account of growth, so it is preferable to use the wedge

- Use the grass wedge to identify grass surpluses and deficits
- These surpluses can be removed as round bale silage, which will replace the necessity to top pastures. They will also act as extra feed supply if the winter is unexpectedly extended
- Farm grass cover should be maintained at 550 - 600 kg DM/ha for farms stocked at 2500 kg LW/ha. This target was calculated as follows:

**50kg demand x 11 days ahead = 550 kg DM/ha**

This figure can be adjusted depending on farm stocking rate

- If pastures have high post-grazing residuals (400- 500 kg DM/ha) or high post grazing height (>6 cm), they should be topped. Pasture topping should take place early (mid May) rather than late in the season





## Understanding your wedge



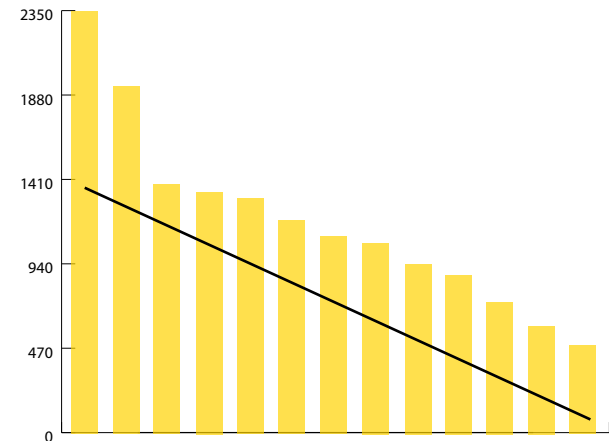
The line on your wedge graph is drawn from the ideal pre-grazing yield (1300 – 1600 kg DM/ha) to the target post-grazing residual (100 kg DM/ha).

A perfect wedge is one where all the paddocks are meeting the line – that is there are no surpluses (paddocks above the line) and no deficits (paddocks below the line), everything is on target. However, frequently this is not the case. The following sequence of graphs gives various scenarios that may arise and also outlines actions that should be taken to correct surpluses or deficits.

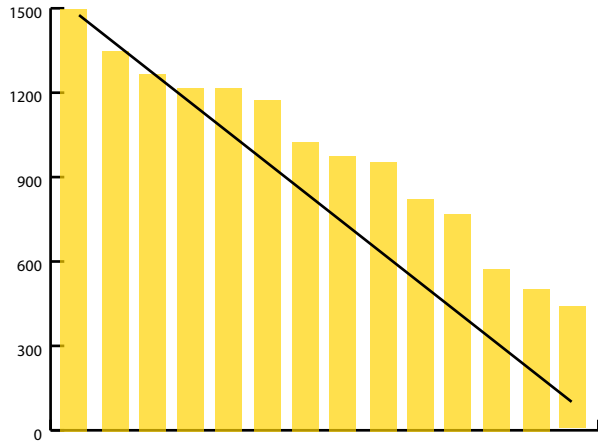
The next four graphs are examples of farms with surplus grass. There is a brief explanation underneath each graph, after the fourth graph there is a list of actions that can be taken if a surplus is encountered on the farm.



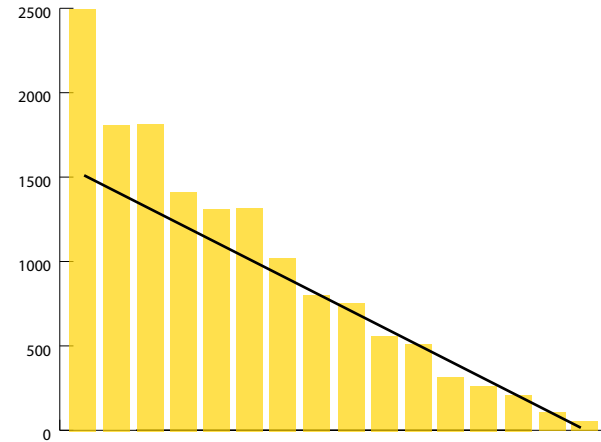
### Surplus wedges



From the wedge above it is evident that this farmer has lost total control of the grass on the farm. Pre-grazing yields are too high and well above target, as are residuals. Decisions need to be made to rectify the problem.



In the wedge above although the paddocks with the highest covers are on target all the rest are above target. It is clear that there will be a large surplus on the farm in a week's time thus action needs to be taken to ensure target pre-grazing yield is not exceeded. In addition it is clear that the target residual (post grazing height) is not being achieved and this needs to be addressed or sward quality issues will be encountered in subsequent rotations.

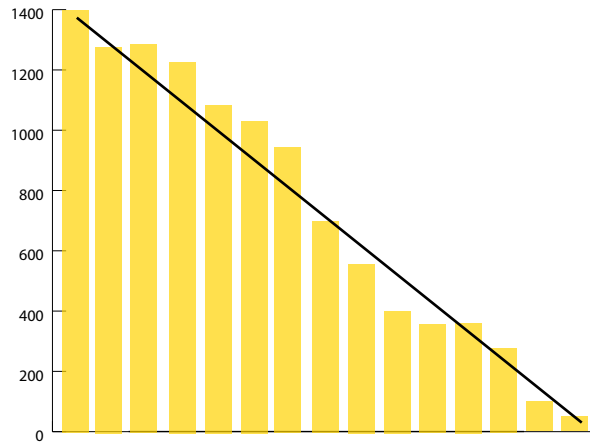


It is clear from the above wedge that grass is in surplus on the farm and will need to be addressed. When taking action the farmer should be mindful that some paddocks are below target and therefore all paddocks with surplus should not be removed.





## Surplus wedges



The wedge above shows a situation where there will be a surplus of grass in a few days. However, in this example target residuals are being achieved.

### KEY POINTS

#### Dealing with surplus grass

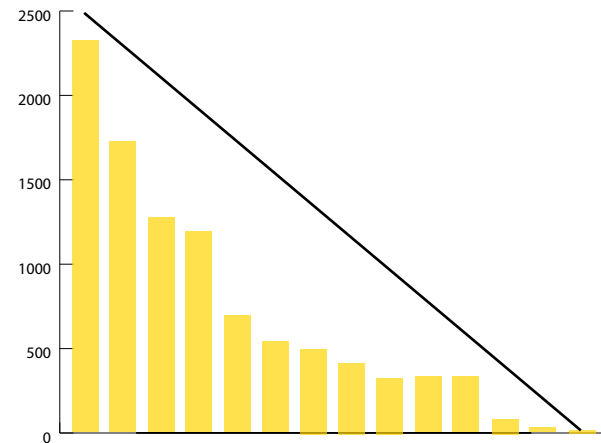
- ✚ Remove surplus paddocks as silage – this should be completed as soon as possible (or once the paddock reaches 2,500 kg DM/ha) so that the paddocks will be back in the grazing rotation as quickly as possible
- ✚ Don't delay the reaction to high grass growth
- ✚ If the grass in the paddock is not too 'strong' get other animals to graze it e.g. suckler cows/steers
- ✚ Don't increase SR too much on the grazing area, by closing too many paddocks for long term silage
- ✚ Caution should be exercised so that in situations excessive grass is not removed resulting in a deficit
- ✚ Removing surplus grass as soon as it is identified will result in the area being included in the grazing round and therefore making it available to cope with a slowing of pasture growth





## Deficit wedges

The next three graphs are examples of farms with deficits i.e. not enough grass available to meet target pre-grazing yields. There is a brief explanation underneath each graph, after the third graph there is a list of actions that can be taken if a deficit is encountered on the farm.

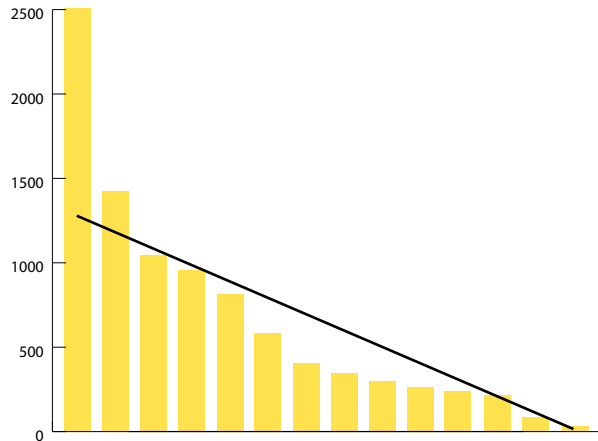


It is clear from the graph above that there is a serious deficit of grass on the farm. Extreme action needs to be taken to address this problem.

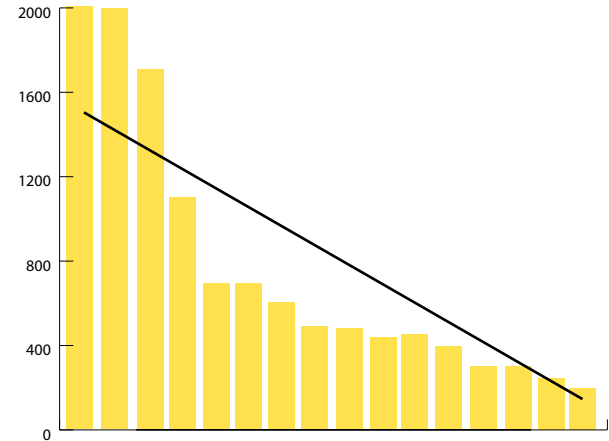




## Deficit wedges



In the graph above, although the first two paddocks are above target there may be a deficit in a week or two weeks time if growth rate remains low. Therefore caution should be exercised and hasty decisions to remove surpluses should not be taken or if necessary the skipped over paddocks are partly or wholly grazed to fill any small deficit.



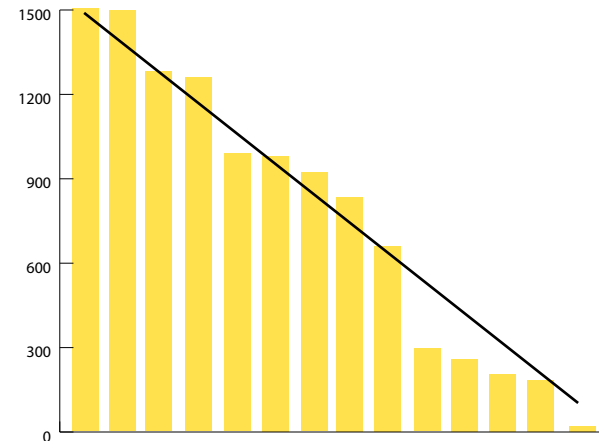
It can be difficult to make decisions when faced with the graph above. In this situation the next three paddocks to be grazed have a pre-grazing yield higher than the target (i.e. there is surplus grass) however, there is a deficit on the way. Again, quick decisions to remove surpluses should not be made.

## KEY POINTS

### Dealing with a deficit

- ✎ In all cases before 'magic day' (day when grass supply equals grass demand) do not speed up the round
- ✎ After 'magic day' consider increasing the grazing area/day during the deficit period if soil temperatures have continued to rise and pasture growth is increasing
- ✎ Supplement with concentrate or grass silage (preferably high quality baled silage that was previously removed as surplus as it will be of better quality than pit silage)
- ✎ Re-graze area closed for silage once the pre-grazing yield is not excessive. A strip wire should be used in this situation

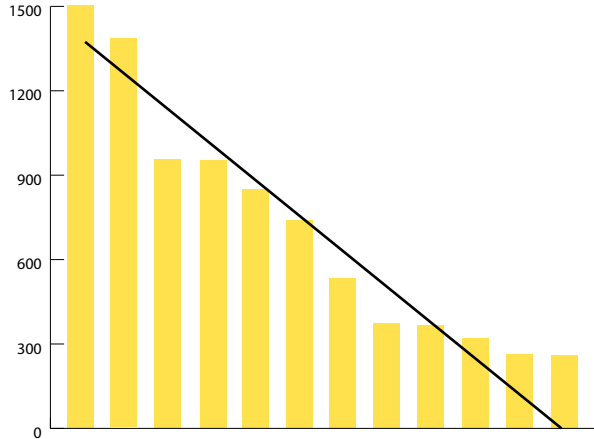
### A cold snap or soil moisture deficit



The above graph is a good example of what occurs during a period of heavy frosts and low soil temperatures, or during a period of soil moisture deficit. The last paddock was grazed well below the target residual, which will also impact on subsequent re-growth rate. Although this farm has plenty of grass for the next 10 days the farmer should be mindful that a deficit may be on the way and remedial action may be necessary before this occurs. If temperatures rise or rain falls the deficit may be short lived and not a problem. The key action to consider here is completing another farm walk during the week, i.e. walk the farm twice during the week



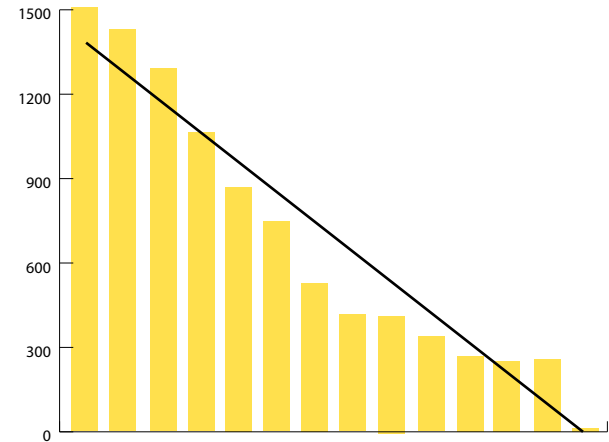
## Wet weather



A wedge, such as the one above, results when a period of very heavy rainfall is encountered and target residuals can not be achieved, as to do so would cause poaching damage. Consequently, sward quality will deteriorate in subsequent rotations. To prevent cows grazing poorer quality swards these paddocks could be grazed off when the weather improves or they could be closed for silage, depending on the time of year.

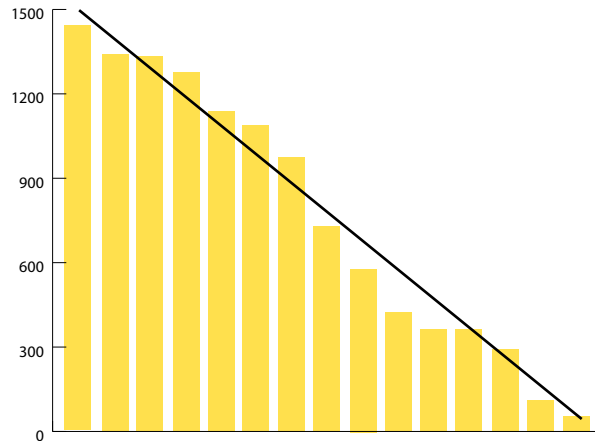


## Difficult to interpret wedges

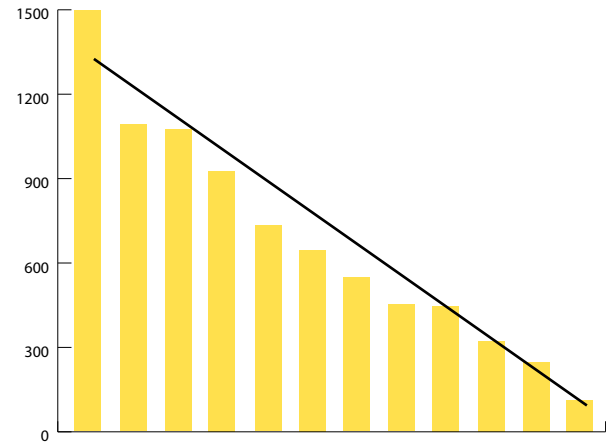


It is clear from this graph that there is surplus grass in the first three paddocks but there is a deficit on the way. On balance there is sufficient grass on this farm and no action needs to be taken. Target residuals must be achieved on the paddocks with surplus grass. This will slow down the grazing round and give more time for the paddocks below the target line to catch up.



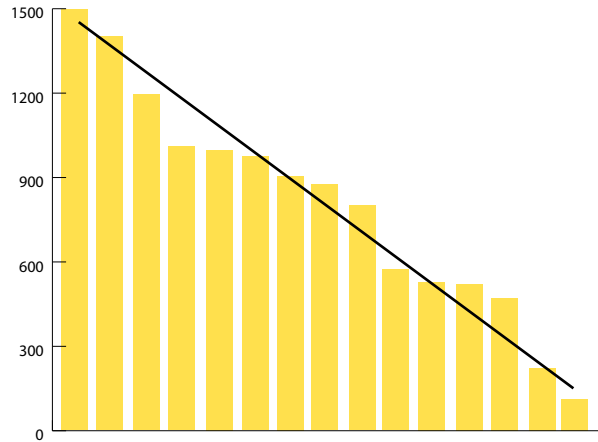


This graph shows a situation where the paddocks due to be grazed next are not at target pre-grazing yield. However, there is sufficient grass on the rest of the farm. No action needs to be taken in this situation.



In the graph above it appears that there is a deficit, however, the last four paddocks have sufficient grass. If there is a low stocking rate on the farm there should be sufficient grass and no action needs to be taken.





In the graph above the first two paddocks are at target pre-grazing yield, the next three paddocks are in deficit and all paddocks after this are at or above target. Consequently, there is sufficient grass on the farm and no action needs to be taken.

