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Obviously, grass growth varies throughout the year and it is also affected by grass species, soil temperature, light, water, nutrients etc. Typically, highest growth is seen in May with a second peak in early September.

One important point to note from figure 1 is the need of the grass plant to use some of its reserves to generate a new leaf. This becomes important when fields are over-grazed as the plant will then be slow to recover, reducing total grass yields - think "grass grows grass".

## Grazing systems and grass recovery

Set stocked grazing, with limited control over sward heights, will typically result in $50 \%$ of the grass grown being used by the stock. Clearly, for some farms this is inevitable e.g. turning stock out onto common grazing.

Using rotational grazing, or going for the full paddock system improves grass utilisation (less waste), grass quality (less dead leaves so more energy) and grass quantity (fields can be rested and allowed to recover). For some farms, these systems may require additional fencing, or water troughs but any investment is soon returned by the increased productivity of the grass land.

## Making the most of grass

To make the most of grassland means measuring grass cover on different fields, to plan where stock will go next. For the purists, plate meters are available, which measure compressed sward height and convert back to kg DM/ha (kilograms of dry matter per hectare). However, stealing a ruler from the kids' school pencil case will do a similar job for a bit less money.

To check sward height place the end of the ruler on the ground, and measure the highest grass or clover plant.


A sward stick (or ruler) in action - height 11 cm


Grass growth relates to pasture cover

Target sward heights vary by species. For sheep, begin grazing with $8-10 \mathrm{~cm}$ cover, and then move to the next field when residuals are down to around 5 cm . For finishing lambs in the autumn, these figures should be increased by 2 cm .

For cattle, the pre-grazing cover is $12-14 \mathrm{~cm}$, with 6 cm residuals early in the year, rising to 8 cm by autumn. Growing cattle can be turned in with a pre-grazing cover of 10 cm , to benefit from the younger, more energy rich plant.

Farms on paddock grazing systems will often use higher initial covers, as the stock are grazed more intensively for less time.

Controlling sward heights is vital to get the maximum grass quantity and quality, as the aim is for young leafy fast growing grass. Very short swards will suffer reduced growth (by up to $85 \%$ ) as the plant has to use its reserves to generate new leaves, whilst over long swards have increased leaf death, blocking light and reducing growth and quality. Ideal growth is at 2,000 to $2,500 \mathrm{kgDM} / \mathrm{ha}$, which coincidentally is a sward height of $8-12 \mathrm{~cm}$.

Taking multiple (ideally 30) measurements per field will give a good average cover.
Full details on sward heights, pasture cover, grazing strategies and planning ahead are available in the AHDB Planning grazing strategies for Better Returns booklet, available on the web.

