Section 6

Managing **your Grass**

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Introduction

The phenomenal grass growth that can be achieved in Ireland is our key competitive advantage over most other EU beef producers. When managed correctly, grass is a comparatively cheap, very nutritious feed for all types of cattle. With good grassland management farmers can minimize their animals' lifetime consumption of expensive silage and meals while achieving the same levels of animal performance. Greater profit will result.

1. **How do I maximise the proportion of grazed grass in my animals' diet?**
2. **How should grass be managed in spring?**
3. **How should grass be managed in mid-season?**
4. **How should grass be managed in autumn?**
5. **Which grassland management tools are available to help achieve high performance from pasture?**
6. **How should I manage reseeding?**

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Managing your Grass

1 How do I maximise the proportion of grazed grass in my animals' diet?

Extend the grazing season in early spring and late autumn

- Turn animals out early, to an adequate grass supply, to achieve a long grazing season and increase total animal liveweight gain from pasture.
- Have a planned autumn closing date for paddocks.
- Close the farm in rotation from mid – late October onwards.
- Target about two-thrids of paddocks closed by early November.
- Do not regraze closed paddocks, if yield is below 700kg DM/ha.
- Target a closing farm cover of 500kg DM/ha.
- Consider housing some animals during periods of poor weather.

For Suckler herds match calving pattern to the start of the grass growing season

- Begin calving at the onset of grass growth.
- Target an opening farm cover of 600–700kg DM/ha (depending on stocking rates) and graze the whole farm during the first grazing cycle.
- Use the Teagasc spring rotation planner and stick to daily area allocations as planned.
- Aim to have the silage areas grazed by April 4 – 6. Then move stock to the grazing area.

Match your stocking rate to the growth potential of your swards

- Perennial ryegrass dominated swards will produce the highest grass yields.
- You must have enough stock for a field's grass growth. (match supply and demand).
- Don't waste grass.
- Use rotational grazing, strip grazing or block grazing. This will help you improve grass utilisation.

Maximise the productivity of your swards by improving soil fertility

- Soil sample one fifth of the farm each year. If there has been no sampling for many years consider getting the whole farm sampled.
- Apply P, K and lime as recommended.
- Consider reseeding poor performing paddocks.
- Only use varieties on the recommended list.
- Graze the newly re-seeded sward for the first time before it reaches 1000kg DM/ha.

Use farm grass cover measurement and grass budgeting, throughout the year

- Consider housing stock in very wet conditions if soil damage is taking place and grass utilization is poor.
- Graze-out paddocks to a low post grazing height in early spring. This will maximize grass utilization and 'condition' swards to produce more grass during subsequent grazing rotations, while also improving sward quality.

Key skill

You must be able to estimate herbage mass in each individual paddock on the farm and use this information to achieve both short (daily) and medium term (weekly and monthly) targets which are critical to the success of the grazing system. These skills can be learned from advisors, through farm discussion groups and through practice and self-training.

Key Target

Aim for a grazing season of at least 220 days

Key Fact

A days grazing always costs less than indoor feeding.

Table 1. Target pasture covers for a spring calving herd stocked at 2.5 LU/ha.

Month	Growth (kg DM/day)	Target average farm cover (kg DM/ha)	Event
Mar 15	15	600-700	Cattle out full-time
May 10	80	700-800	Expect supply to exceed demand
Aug 15	65.0	700-800	
Sept 1	51.0	1100-1200	
Sept 15	37.1	1200	Peak cover achieved
Oct 1	30.0	1000	
Oct 15	26.8	900	Start to close paddocks for winter
Nov 1	15.0	700	Consider housing finishing cattle
Nov 15	8.5	650	
Nov 22	2.7	600	House by day and night

Managing your Grass

② How should grass be managed in spring?

Spring grass is an ideal cattle feed - highly digestible and high in protein. To make the most of grazed grass in spring, cattle should be turned out to pasture as soon as grass supply is adequate, ground conditions permitting.

Key objectives:

(1) Increase the proportion of grazed grass in the diet of the beef animal,

(2) Shorten the winter,

(3) reduce costs, and

(4) to condition swards for subsequent grazing rotations

How to
Ensure maximum grass intake in spring

- Farm cover at turnout should be approximately 600-700kg DM/ha. If you have a high stocking rate this will result in higher animal demand and the need for a higher opening cover.
- Getting turn-out dates and pasture covers matched is critical on beef farms as the majority of units are not set up to easily move cattle in and out (often there is no internal road system) and once animals are out the farm needs to be self sufficient in grazed grass
- Plan to have silage paddocks grazed by April 6th, at the latest.
- Early grazing of silage swards has only a very small effect on subsequent yield (a reduction of 3-5%), but improves the quality of the silage.
- Aim to have grazed grass as the only feed after turn-out.
- During the first grazing rotation animals should be offered a daily grass allowance of 2% of the animals' body weight. This will ensure good weight gain while maintaining sward quality.
- From early April onwards (when the herd graze the grazing block and stocking rates may increase) total daily herbage allowance must be increased in line with cattle numbers to ensure animals continue to have 2% of their body weight in grass available.

How to
Ensure first-rotation swards are able to yield well in subsequent rotations

- The available grass supply should be budgeted so that the first grazing rotation finishes in the silage area before 6th April.
- Post-grazing height should be maintained at 4-5cm during the first rotation to ensure pasture is well utilised and that quality is high during subsequent rotations.
- Lighter stock (e.g. yearlings) do less damage in poorer weather.

How to
Manage grazing during wet weather

- In continuous difficult grazing conditions, house some animals, particularly, heavy stock.
- Provide sufficient grass allowance during wet periods.
- While serious poaching must be avoided, a mild one-off poaching has only a short term effect on sward productivity.

How to
With spring grass, aim to:

- Get good gain in stock (greater than 1.2kg/day)
- Get body condition increased in cows
- Feed no supplements (other than where necessary to carry magnesium for critical stock).

3 How should grass be managed in mid-season?

The objective during the main grazing season is to maximise animal performance from an all-grass diet. In general, from late April onwards, grass supply is not restricted on farms. In many cases the difficulty is with grass surplus and under-utilisation of herbage, leading to pasture with less than ideal quality. Maintaining high pasture quality is the most cost effective way of achieving good animal performance.

How to
Maintain high grass quality in mid-season.

- Keep rotation length to 18-21 days.
- Cattle should be on an all-grass diet.
- Target pre-grazing yields between 1,500- max 2,000kg DM/ha with high leaf content.
- Graze to 4-5cm post-grazing sward height. If there are is a grass surplus remove it as round bale silage.
- Surplus grass exists when pre-grazing yields exceed 2,000 kg DM/ha and when grass growth exceeds herd demand and rotation length goes beyond 25 days (in good growth periods).

Key Fact
The influence of grass quality on intake and performance

- The more green leaf content that is present in the sward the higher the digestibility (feed quality).
- Poorly managed swards can have a lot of poor quality stem which reduces animal performance.
- Well grazed swards (grazed to approx 5cm) will contain high (80%+) leaf levels in the mid-grazing horizon (5-10cm). This is the grazing layer which has the greatest influence on the grass intake achieved by the grazing livestock

Topping paddocks

- Generally topping is carried out from the middle of May onwards.
- Top to under 5cm (removing the tall grass from dung pats).
- Removing surplus grass (paddocks with more than 2,000 kg DM/ha) as round bale silage will reduce the need for pasture topping.
- On well managed cattle and sheep farms topping may not be necessary.

4 How should grass be managed in autumn?

Managing Grass: Autumn

- In autumn grass growth cannot keep up with herd demand (growth is slowing and animals are bigger) and pasture supply decreases. Building up grass supply from early July is important.
- The two main objectives of autumn grazing management are:
  (1) to maximise the proportion of grazed grass in the animal diet and
  (2) to finish the grazing season with the desired farm grass cover ensuring there will be sufficient grass for early turnout the following spring.Grassland budgeting is essential to ensure that these objectives are achieved. Usually from mid-August onwards, the entire farm is available for grazing. Building up grass covers to prolong the grazing season into October/November is necessary in order to maintain animals at grass in late autumn.
- Late-autumn grassland management largely determines the supply of grass available for grazing during the following spring and planning for the next grazing season actually begins in autumn.

Managing your Grass

Manage autumn pastures

- Build up average farm covers by increasing rotation length from 20-25 days in July to more than 35 days in mid September.
- Once the entire farm is available for grazing (after second cut silage) in early August, grass supply will increase on the farm. Some pre grazing yields will exceed 2,500 kg/DM/ha (some reaching 3,000 kg/DM/ha). This provides the opportunity to both save on fertiliser (N) usage and build up a supply of grass for autumn grazing.
- Highest average farm cover should be achieved in mid to late September at which point a farm cover of more than 1,200 DM/ha is achievable and necessary.
- Last rotation should commence in mid-late October -every paddock grazed from this date onwards should be closed (i.e. not grazed again) if covers on the paddock are less than 700 kg/DM/ha or the rotation is less than 21 days.

How to

Manage autumn closing

- Uncontrolled grazing and delaying autumn closing will reduce spring grass growth.
- Target post-grazing height of less than 5cm during the last rotation to encourage winter tillering, if ground conditions allow.
- Do not regraze closed paddocks.
- Be flexible – graze the lower grass covers in wet weather.
- Close some of the drier-soil paddocks earlier to allow early spring grazing.
- Aim to have all of the farm closed by late November. House the heaviest animals first.

Key performance indicator

Closing cover target is 500 kg DM/ha in late November

How to

Decide whether to feed concentrate supplements at grass

Sucklers: Creep feed the suckled calf with concentrates (as required under the Suckler Welfare Scheme).

Heavy cattle: Cattle planned for winter finishing (a 4-5 month winter) will not show an economic response to supplements at grass.

Supplement dairy beef weanlings from late September onwards (1.5 kg meal head/day).

5 Which grassland management tools are available to help achieve high performance from pasture?

Key grassland management tools

Spring Rotation Planner

The spring rotation planner is used to divide the farm into weekly portions and takes the guess work out of planning the first grazing rotation.

Data needed

- Estimated date for start of grass growth.
- Date you want to turn out your animals.
- Date when you think you are going to be growing enough grass to supply all the grass you need (i.e. supply = demand).

The spring rotation planner will not tell if the herd is receiving enough grass - this must be gauged by walking the paddocks and assessing the level of grass supply.

The spring rotation planner is a simple tool and if used properly it ensures that:

- Sufficient area is grazed early enough to allow time for regrowth for the second rotation.
- A wedge-shaped grass supply (see Fig 1. and 2.) is created, ensuring a continuous grass supply during the 2nd rotation.

Managing your grass: General concepts

Rule of thumb

Dry farms

- Turnout in mid-late February
- 30% (just under a third) of the farm grazed by 1 March
- 66% (two thirds) of the farm grazed by 17 March
- 100% of the farm grazed by 1-5 April

Heavy farms

- Use the above percentages, but operate approximately one-two weeks later.

How to
Use the pasture wedge

During mid-season the farm must be walked at least once a week and the grass yield on each paddock or field determined. This information can then be used to make critical decisions about the quantity of feed available to the herd.

Plotting (on a graph) the yield on each field, where the fields are ranked from the highest (on the left) to the lowest (on the right) will give a picture of grass supply – and the chart will look like the steps of a stairs. This picture of sorted grass yields is called the 'pasture wedge' or 'feed wedge'.

The pasture wedge visually illustrates the breakdown of the pre-grazing yield distribution on the farm. A line is superimposed onto the graph calculated from the intended herd demand, rotation length and grazing residual.

If the yield in a paddock is below the line, it indicates that the yield of grass in the paddock is lower than planned. If it is above the line it indicates the yield is ahead of expectations, and if it is on the line, it is on target. If too many paddocks are under the line, forecast a grass shortage in the near future. Too many paddocks above the line forecasts a surplus (especially in a period of growth that exceeds herd demand).

Figure 1 represents a farm which is on target with its pre-grazing yield profile, as the paddocks have a stepped profile and are almost all on the pre-grazing target line. Figure 2 shows the opposite situation, with all pre-grazing yields below target; this farm is in a deficit grass supply. Decisions will have to be made on how to overcome the grass deficit.

Figure 1. Grass supply normal, pre-grazing cover on target line

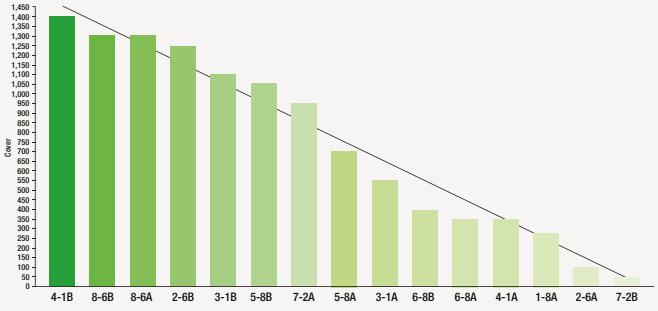
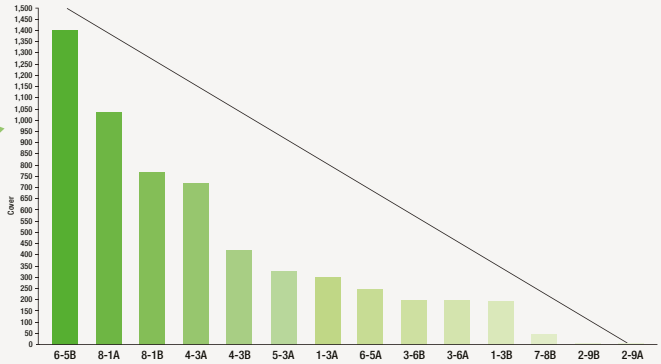


Figure 2. Grass supply in deficit, pre-grazing cover well below target line



Managing your Grass

Continuous measurement of farm cover is essential and it is important to react to prevailing grass growth and weather conditions. The key point is to use the data captured to make the right management decisions. With farm cover, herd demand and 'pasture wedge' information available grazing decisions are more easily made. On beef farms, dividing the average pasture cover by the daily herd demand, gives the "grazing days" on the farm.

60:40 Autumn rotation plan

The autumn rotation planner is a tool to help extend the grazing season into late autumn and if followed, will ensure that paddocks are set up correctly for grazing the following spring.

The 60:40 plan is based on having proportions of the farm closed by certain dates. These dates will vary slightly across the country and depend on soil type and the amount of grass that is likely to grow over the winter months.

The objectives of the autumn rotation planner are:

- To keep grass in the diet of cattle for as long as possible
- To set up paddocks for grazing the following spring.

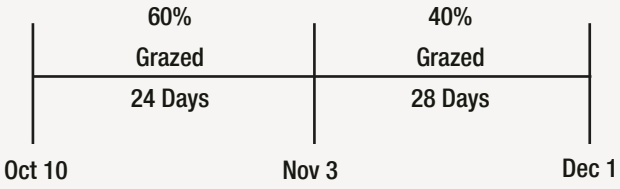
Rule of thumb

Dry Farms

- Start closing 20 October.
- Two-thirds of the farm grazed by mid November.
- Remaining third grazed by 1 December.

REMEMBER: Once a paddock is closed, it should not be regrazed.

Example
Below is an example for a 20ha farm where closing starts on 10 October and housing date is 1 December.



How to

Measure the grass on your farm

Maintaining a constant supply of high quality green leafy grass can be easily achieved by walking paddocks weekly and measuring the amount of grass on the farm.

Poor grazing management leads to fluctuation in the pre-grazing yields, with problems of not enough or too much grass on the farm.

Measuring/estimating the quantity of grass in each paddock

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 it.)

- A 0.5m x 0.5m quadrat is placed in an area that represents the average cover over the paddock.
- Knock water off the grass before cutting if wet.
- The grass within the quadrat is cut to between 4 - 4.5cm.
- The following equation is used to calculate the DM yield in the paddock:
  - Weight of grass (kg) x grass DM% x 40,000 = kg DM/ha in the paddock.

How to
Measure the grass on your farm

Guide to: Estimating Grass Dry Matter % (DM)

Recent Weather	Grass DM%
1-2 days continuous rain	14 – 15
3-4 days continuous rain	12 – 13
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 usually 2-3 units higher in the afternoon than the morning.

Method 2:
The second method uses the plate meter (below right)

Calculating the pasture height.

- Record the starting meter reading, take 10-20 heights, record the final meter reading:
  Height (cm) = closing reading - opening
- No of height taken x 2
- 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 250kg DM/cm.

Example:
Paddock height was 8.8cm
4cm is the desired post-grazing residual

(8.8cm – 4cm) x 250kg DM/cm
= 1,200kg DM/ha

Completing a farm cover

- Measure/estimate the quantity of grass in each paddock – DM yield
  e.g. 1,400kg DM/ha.
- Multiply the DM yield of each paddock by the area of the paddock in ha
  1,400 x 1.8 ha = 2,520kg 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 area) in hectares.

To calculate farm cover:
- Divide the sum of the quantity of grass on the farm by the total area
  e.g. 10,000kg (grass on the farm)
  ÷ 20ha = 500kg DM/ha.

Managing your Grass

6 How should I manage reseeding?

Checklist

Reasons to reseed

- It is very difficult to achieve high grass yields and high animal performance in pastures which do not have a high proportion of perennial ryegrass (PRG).
- Many Irish fields have large levels of old permanent pasture and insufficient PRG in the sward.
- High PRG swards can produce three tonnes more DM/ha than old permanent pasture.
- Old permanent pastures with low levels of PRG give a 25% poorer response to nutrients than PRG swards.
- The majority of the difference in DM yield between high PRG swards and old permanent pasture swards is accounted for up to mid May.

Key facts

- High PRG swards will yield an additional 10kg of grass dry matter per kg of nitrogen used compared to old permanent pastures.

Alternatives

Spring or autumn reseeding?

Spring reseeding

- A spring reseed will produce as much grass dry matter in the year of establishment as old permanent pasture.
- Establishing clover in a spring reseed is more reliable than autumn due to the stability of soil temperatures in late spring.
- The sward will return to production faster following spring reseeding compared to autumn reseeding.
- It is possible to 'turnaround' the sward in 60 days.

Key fact

Cultivations can begin 7–10 days after spraying off the old sward.

Reseeding cost

Reseeding is a costly but worthwhile investment – see indicative cost in Table 2. Newly reseeded swards should last for at least 8–10 years.

Table 4. Conventional method reseeding costs (estimates)

	€/acre
Spray	20
Glyphosate application pre-cultivation	16
Ploughing (30)/Till & sowing (one pass)(30)	60
Fertiliser (2 bags x 10:10:20)	37
Fertiliser spreading	10
Levelling	10
Rolling	10
Grass seed	75-80
Total Costs (excl. sprays)	213
Post emergence herbicide sprays (examples)	
Alistell – (1.5litre/ac -€30)	30
Legumex DB - (2.8litre/ac - €18)	18
Spraying	10

How to

Choose varieties

- Combine three to four varieties of differing traits to obtain good seasonal DM production (spring/autumn) and high sward density.
- In a silage mix, high overall DM production and density are the key targets. Silage mixes should not be used where swards are used mainly for grazing.
- A small range in heading dates (e.g. 7-10 days) is preferable to shortening the heading period. All varieties will head, however some have a greater tendency to head and continue to re-head, which is not desirable in a grazing sward.
- There are two recommended lists available in Ireland, from DAFM and AFBI www.agriculture.gov.ie, afbini.gov.uk. Only varieties on these lists should be used.

Clover

- Clover should be incorporated into grazing swards, as it can reduce fertiliser costs mid-season, and left out of swards designed for intensive silage harvests. At stocking rates below two livestock units/ha clover has a major role to play.
- Small-leaf clover varieties are lower yielding, but more persistent than large leaf varieties and vice versa, while medium-leaf varieties are intermediate in terms of yield and persistency.
- In grazing swards, small and medium-leaf clover varieties are recommended in combination with late heading perennial ryegrass varieties.
- Take care with the larger-leafed clovers as their aggressive growth habit dominates swards over time. Varieties with high yield potential and good grazing persistence at both high and low nitrogen levels should be used.

How to

Create a grass seed mixture

- No single grass variety has all the desired agronomic traits and a grass seed mix can address this. Within the first 11 months after sowing, the cultivar hierarchy will be established.
- Ensure spring and autumn production, mid-season DM production is consistent across varieties and a more flattened grass supply is advantageous (more grass in spring and autumn and less surplus mid-season).
- Ensure sward quality – better than the average value.
- Choose varieties with a narrow range of heading dates.
- Adequate ground cover is a major requirement on wetter soils.

Key points

- 3-4 varieties in a mix.
- Sow 36 kg/ha 14-15kg per acre)
- Post-emergence spray is crucial.

Grazing specific mixtures

- 33% tetraploid.
- Late heading.
- Select varieties with high spring growth to extend the grazing season.
- Medium or large leaf clovers have a role at low stocking rates. (1.5 LU/ha)

Silage ground

- Increase tetraploids to 40%.
- Choose intermediate heading varieties.
- Avoid clover on silage ground.

Grass Cover Analysis (Indicative)

Grass cover 50kg

Grass cover 250kg

Grass cover 500kg

Grass cover 1,000kg

Grass cover 1,500kg

Grass cover 2,000kg