

## GRASSLAND

1. Identify the grasses in the diagram



a. PRG                      b. Timothy                      c. Meadow fescue                      d. Cocksfoot                      e. Meadow grass

2. Give reasons for the change in digestibility of a grass sward during the growing season.

At leafy stage most of the CHO in grass is soluble sugars (higher DMD)/ >70%/ as grass matures sugar is converted to cellulose/ cellulose has much lower DMD than sugar/ < 50%/

at heading date most sugar has been converted to fibre/ results in decrease in feeding value of grass (DMD falls)/ by 0.5% per day

3. Describe the characteristics of permanent grassland.

Never been ploughed, medium botanical composition, productivity and stocking density.

4. State two characteristics which assist in identifying a grass species.

Auricles found at the collar, ligules found at collar, inflorescence or seed head, blade.

5. Give a scientific explanation for:

a) A high incidence of tussocks of unproductive grass in a pasture sward.

Rotational grazing is not being used and the land isn't grazed out. Cattle are selective and will leave any grasses behind that they do not like, if grazed on set stocking. The ground has not been reseeded with more productive grasses like PRG.

b) Mixed grazing.

Grazing cattle and sheep together gets more out of the land, the sheep will eat around cow dung and will graze lower than cattle encouraging more tillering and less weeds. Higher live weight gain (LWG) than if grazed separately.

c) The leader follower system of grazing.

Young calves are let out to pasture first (dairy herds only). They are separated from the cows and get the best grass before older animals. This helps to control disease. Calves then weanlings then yearlings then older animals.

6. State two ways in which grass is adapted to wind pollination.

The grass flower has its reproductive organs hanging outside. The stigma is feathery to catch any pollen. A lot of very small lightweight pollen is produced which is capable of being carried by wind. Causes hayfever!!

7. Explain the term "tillering" and outline the conditions which promote it.

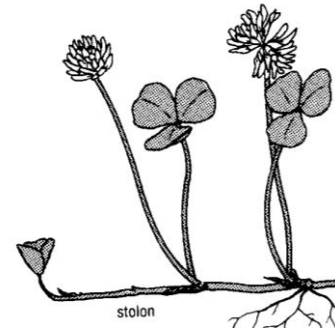
ability of grasses to produce side shoots/ vegetative shoots from base of plant

Any damage to main shoot: cutting/ topping/ rolling/ grazing/ fertilising or shock (frost)

8. The plant in the diagram is a member of the family Leguminosae.

a) Identify the plant.

White clover recognisable because of its prostrate growth habit. It has stolons which can root and shoot if stepped on by animals.



b) Name 2 more members of this family.

Red clover, vetch and gorse

c) Give a feature of this family of plants that is beneficial to agriculture and the reason why they are included in seed mixtures for grassland.

Fixing nitrogen, rhizobium lives in root nodules and converts  $N_2$  to  $NO_3^-$  (Nitrates). They also increase the protein content of the herbage and palatability.

Disadvantage is that too much clover can cause bloat.

9. Name the four methods of sowing grassland.

Direct sowing

Undersowing

Direct drilling

Stitching in

Slurry seeding

10. Distinguish between block grazing and paddock grazing.

Block grazing has enough grass for 7-8 days.

Paddock grazing is enough grass for 1 day.

11. Distinguish between the following:

a. Set stocking

Allowing animals to roam and stay in one field until they have it grazed (not rotational)

b. Strip grazing

Using a strip fence and a back fence to give enough grass for 1 grazing. It is often used in dairy herds to restrict the movement of the cattle when land is wet, early Spring.

12. How would you distinguish between Perennial Rye Grass and Italian Rye Grass.

Italian rye grass has awns like Barley.

13. Give 2 differences between red and white clover.

Red clover has upright growth habit, white is prostrate.

Red has large hairy leaves, white is small and hairless.

White is much better at nitrogen fixing than red.

14. Give 2 characteristics of rough mountain or hill grazing.

Large variety of plants and scrub. Low productivity and low stocking density.

15. What statistic is used to determine the size of a paddock in a dairy farming enterprise?

120 cows will graze 1 hectare in 1 day.

16. List the advantages of hay over silage.

Hay is cheaper to produce, it is cleaner to handle and feed. It is ideal for animals after calving as it helps prevent milk scour. Smells better!!

### SILAGE MAKING

1. Name a bacterium that produces good quality silage.

Lactobacillus

2. To make good quality silage, pH is very important. What is the pH of top quality silage?

pH 4

3. Silage is made by fermentation. Fermentation is anaerobic respiration. Explain the underlined part.

Without oxygen

4. In making silage, list 3 steps that you should take to ensure top quality silage.

Cut the grass when dry, at ear emergence when the DMD is 75% +, as near to May 15<sup>th</sup>. Cut in the afternoon when the sugars are at their highest. Leave to wilt for a day to increase sugar % and ensure that it is packed tightly and wrapped to exclude any air.

5. Mention the advantages to a farmer of producing silage in round bales as compared to wedge clamping in a silo.

Round bales can be produced in outlying farms, you can have some fields ready at different times whereas in the pit, the crop is all done together. They are very handy for situations where you have more grass than you need for your grazing program.

6. Explain how percentage moisture in grass at ensiling may influence each of the following;

a) Quality of the silage

If the percentage moisture is high, this leads to low % sugar. Low sugars encourage the bacterium Clostridium that makes Butyric acid silage which is not good and doesn't keep. You need a low moisture content for good silage.

b) Effluent production.

% moisture at ensiling	Effluent produced per tonne of silage, l
85-90	400
80-84	150
75-79	60
<75	0

7. Give a scientific explanation for the rolling or trampling of grass when making silage.

Grass is rolled in the pit to remove any air before it is covered in plastic to maintain anaerobic conditions to encourage lactobacillus to change the sugars to lactic acid, preserving it.