

Key considerations for good grazing infrastructure

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Summary

- Grazing infrastructure will need to change for increased herd sizes.
- Ensure farm roadway network is appropriate for herd size and soil type.
- Upgrade water supply to paddocks. Achieve a good flow rate to troughs with large pipe bores and “full flow” type ballcocks.
- Good fencing is an important aid to grassland management.

Grazing infrastructure

Improved grassland management relies upon robust grazing infrastructure; suitably sized and shaped paddocks with multiple access points serviced by roadways of sufficient quality and adequate drinking water. It is vital to consider the quality of your grazing infrastructure and acknowledge where deficits have arisen in recent years. Maximum grazing efficiency will not be achieved unless all grazing infrastructure is sufficient.

Paddocks

Paddock size will have to be changed as the herd size increases. The size of the paddock should be based on either two or three grazings of the planned number of cows in the herd. During mid-April to August, a three grazing system is preferred as this maximises pasture intake and milk production. The guideline paddock area is 1.2 ha/100 cows for two grazings and 1.8 ha/100 cows for three grazings (with a target pre-grazing cover of 1,400 kg DM/ha). For a 21 day rotation in mid-summer, this means that 21 (two grazings) or 14 (three grazings) paddocks are required. Ideally paddocks should be square to rectangular in shape, with the depth no more than three times the width. As a general rule, the distance from the roadway to the back of the paddock should be between 70–100 metres on heavy land, 100–170 metres in medium land and 170–250 metres on light land. The upper limits are more applicable to larger herds. Provide a few small paddocks near the parlour for lame/sick cows. Use multiple gateways to paddocks on heavy land and during wet weather.

Roadways

Design, construction and maintenance of farm roadways have a big impact on cow flow, walking speed and lameness. Does your current farm roadway system service all of the potential grazing area, and is it in good condition? If the current roadway system is inadequate, it needs to be upgraded and/or extended. Essential elements of a good roadway are adequate width, a smooth surface, adequate crossfall, raised above the grazing area and sweeping bends at corners and junctions. The main roadway should be wide enough for good cow flow (e.g. 100 cows - 4 metres wide; 200 cows - 5 metres wide).

New farm roadways must be laid in good weather and with dry soil conditions. Construction costs can vary, from €18 to €30/metre, depending on the cost of materials, the width, depth of material and the construction method. Cow tracks (spur roadways) are a cost effective way (€8 to €11/metre) to improve access, particularly on heavy land and to long paddocks. Cows like to walk with their heads down to see where to put their front feet. The hind foot is also placed on ground that the cow has seen. When cows cannot place their feet safely, they will slow down. They also slow down due to a poor roadway surface or if forced to move on from behind. If forced to move on from behind, cows become bunched and

stressed and they lift up their heads and shorten their stride. When this happens, they cannot see where to put their front feet and they lose control of where to put their hind feet. A cow that is left to move along quietly will seldom misplace a foot, even on a poor surface.

Water system

Ask the following questions when assessing your current water supply to the paddocks:

- Are pipe sizes adequate?
- Are ballcocks restricting flow?
- Are water troughs big enough and correctly located?
- What water flow rate is needed for your herd?

A flow rate of 0.2 litres/cow/minute and a trough volume of about 5–7 litres/cow is generally recommended. For example, a flow rate of 20 litres/minute and approx. 600 litre troughs per 100 cows. Don't be tempted to solve water supply problems with very big troughs; focus on flow rates and larger pipe sizes instead. Excessive trough sizes excessively increases installation costs. Farms are very different in terms of cow numbers, pipe length, farmyard location and topography, so take all these factors into account when deciding on pipe size and system layout. The aim is to minimise pressure loss due to friction in water pipes so that enough pressure is available to overcome lift and maintain a good flow rate in troughs. Err on the high side with pipe size bore. A ring main (loop system) is a cost effective way to enhance water flow rates and ensure an even flow rate to troughs. Main pipe size bores should typically be 25 mm, 32 mm or 40 mm and branch pipe bores to individual troughs should be 20 mm, 25 mm or 32 mm. Use "full flow" type ballcocks in all new troughs. These ballcocks typically have 9–12 mm jets, providing a good flow rate even with low pressures at the ballcock. A standard high pressure ballcock jet (3 mm diameter) is very restrictive even where pressure at ballcock is high. Position troughs to minimise walking distances to water and to avoid unnecessary smearing of grass. Keep troughs away from gaps and hollows. Troughs should be level and have no leaks. Isolate, monitor, locate and repair leaks. Troughs on roadways will slow cow movement and make roadways dirty. Allow trough space for at least 5% of the herd to drink at once. Assess costs in advance; costs can amount to €275/ha for new installations.

Paddock fencing

Good fencing is an essential element of any paddock grazing system. A specialised fencing contractor will be more skilled and better equipped to erect top quality fencing. Plan the location of fences carefully based on a paddock plan on the farm map, and plan the system to aid grassland management. Some paddocks may need two strands for calves, and farmers in Glas need to have these fences right. It should be easy to quickly set up access to paddocks between grazings. The fence should be designed so there is no danger that the electric current is off if gateways are left open. Good maintenance is essential.

Infrastructure workbook

A new Infrastructure workbook is being launched today. This workbook will aid assessment of the status of existing infrastructure and help prioritise investment in the coming years. It is available at the Dairy Farm Infrastructure Village.