Hump and Hollow Drainage

This fact sheet is part of the Profitable Dairying series - *Good business management reduces greenhouse gas emissions.*

Good drainage is a win-win for profitable farming and reducing greenhouse gas emissions.

Well drained pastures are more productive with higher quality feed. High quality feed results in less methane emissions per L milk.

Maintaining aerobic conditions in soils means less nitrous oxide and methane production.

Hump and hollow drainage[1]

The aim of drainage is to:

- Prevent surface ponding, and
- Create an unsaturated zone in the surface 40 cm of soil that increases aeration allowing for improved plant growth.

Hump and hollowing is the practice of forming (usually while renovating pastures) the ground surface into parallel convex (humps) surfaces separated by hollows.

The humped shape sheds excess moisture relatively quickly while the hollows act as shallow surface drains.

Humps and hollows are useful in areas or on soil types that are not suitable for tile or mole drainage.

They are also useful where the lack of suitable outfalls prohibit the use of tile drains, usually due to insufficient depth or fall.

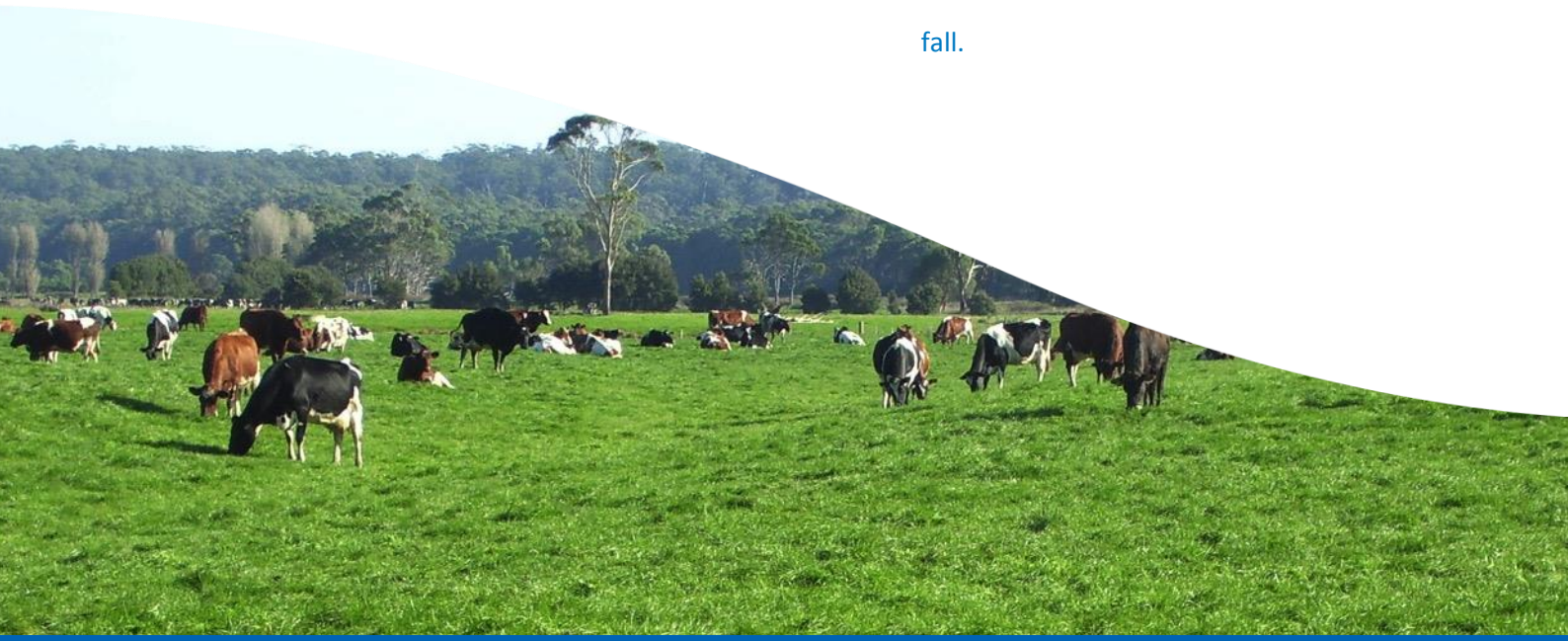
Structure of hump and hollow drainage

The humps and hollows system comprises lateral surface drains which discharge into headland drains which in turn discharge via short open drains or shallow pipes into natural watercourses or open drains.

Hump and hollow drainage - Victoria
Photo: Agriculture Victoria

Constructing a hump and hollow drainage system in Tasmania

fall.



If possible paddocks which have been hump and hollowed should not be grazed while the drains are still wet because they will become pugged. If this does occur then end of season maintenance must ensure that all the drains are reshaped or cleared to allow quick drainage.

Humps may vary from 10 – 20 m spacing's but the wider the hump, the more soil that must be moved, and the water run off may be substantially slower. Humps wider than this may not drain at all in their centers.

Disadvantages

Humps and hollows make it more difficult for machinery activity such as fodder conservation. The humps may be overgrazed while the hollows may become pugged. The depth of topsoil must be enough to allow the humps and hollows to be formed without exposing the poorer and nutrient deficient subsoil.

Alternatively more soil will be required to be moved to ensure a covering of topsoil in the hollows for resowing pasture. If the edge of the hump is too steep cattle trampling could cause soil movement into the hollows and possibly into watercourses.

Further resources:

Fert$mart waterlogging and drainage

Reducing drainage costs and impacts

[1]Agriculture Victoria: Planning farm drainage

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