

# Pasture pump

Supplying mains or borehole water for field grazed livestock at remote sites isn't always a practical option. Alternative watering systems are available, depending on the site and stock requirements.

**This leaflet looks at the installation of a pasture or 'nose operated' pump for field grazed livestock. The work was carried out as part of a Scottish Government funded trial to investigate alternative watering options.**

## What is a pasture pump ?

A pasture pump utilises stock action/movement to operate a mechanical pump and 'draw' water from an abstraction point, transferring water to an integral drinking bowl. One pasture pump is sufficient to water around 15 stock, however these systems are unsuitable for sheep alone as they are unable to operate the lever. Pumps can be sited individually or as a 'cluster'.

The pasture pump systems installed under the trial consisted of three main components

- An abstraction point removing water from the watercourse
- Pipework and mounting blocks
- Pasture pump



## Points to consider when choosing a pasture pump

- What is the water requirement of livestock?
- Numbers of stock in relation to pump units required to satisfy the maximum water demand.
- What is the distance and height (head) required to allow a pasture pump at a location **to remove risk** of poaching, erosion and faecal contamination of watercourse being protected?



## Protecting water quality

Under Diffuse Pollution General Binding Rules, significant **poaching within 5m of a watercourse is no longer acceptable.**

Where livestock frequently enter water for drinking or crossing and cause significant poaching, alternatives need to be considered. The following hierarchy is recommended when considering livestock watering options:

- Extension of mains supply
- Extension of existing spring or bore supply
- In-field bowsers
- Off-line gravity feed trough
- Alternative watering system, e.g. pasture pump, solar PV or ram pump.



## Pasture pump cluster

One of the trial sites installed a pasture pump 'cluster' comprising three pumps fixed by masonry bolts to a heavy concrete circular plinth (concrete manhole cover). This allowed more stock to drink together in one area.

The suction hoses were routed from the chamber base to the pump/bowls and via a below-ground reinforced duct where stock can access over-ground.

## Pasture pumps

### Pros:

- Standalone system: easy to site, install and maintain
- Mobile; can be easily moved to alternative locations
- Widely available from agricultural merchants. Costs around £250 for pump plus associated pipework
- Authorisation for abstraction falls under [GBR2](#) so no paperwork or CAR application needed

### Cons:

- May need a number of pumps in one field, depending on stocking numbers (one pump can supply around 15 cattle)
- System not suitable for sheep alone as they don't have the strength to operate pump lever.



## Funding

Funding is available towards **alternative watering for field grazed livestock**. See options under Scottish Governments [Agri-environment](#) [Climate Scheme](#) for details.

## What is required for a pasture pump system?

A pasture pump is capable of supplying water on demand to an individual animal and for the period of time the animal operates the pump. The lever is operated by the drinking animal's nose forcing the pump to make a stroke while the animal accesses the drinking bowl. Water is drawn by the pump stroke from the abstraction via a lower pipe end screen and 'non-return' valve, to the pump body. Water is simultaneously discharged from the previous stroke(s) into the drinking bowl. Livestock can learn to use these systems in a couple of days.

The distance and height from the water is limited by the maximum suction that the pump can be operated at; the higher the head the more force will be required to operate the pump. In practice it will be better to minimise the 'suction' head i.e. the height of the pump and drinker above the watercourse lowest level.

Sites must be considered carefully in order that the pump/drinker unit can still be placed far enough away and at a 'lower risk' location, to remove the potential risk of water contamination through runoff and poaching by livestock while drinking. The pump can be mounted on a heavy concrete block base to reduce the risk of theft or displacement if sited in an area at risk of occasional flooding.

An over ground pipe connection is routed from the abstraction chamber to the pump inlet. A dirt screen and non-return valve assembly is fixed to the lower end pipe termination in the abstraction chamber. The pipe, screen and valve can be easily removed from the chamber for maintenance and cleaning.



### Further information:

- Alternative Watering for field grazed livestock 1 - Abstraction Systems. SRUC Technical Note TN665 [www.farmingandwaterscotland.org/](http://www.farmingandwaterscotland.org/)
- Alternative Watering for field grazed livestock 2 - Pumping Systems. SRUC Technical Note TN666 [www.farmingandwaterscotland.org/](http://www.farmingandwaterscotland.org/)
- CAR Practical Guide; includes requirements for authorisation under CAR [www.sepa.org.uk/water/water\\_regulation/regimes.aspx](http://www.sepa.org.uk/water/water_regulation/regimes.aspx)
- Controlled Activities Regulations (CAR) - The Water Environment (Controlled Activities) (Scotland) Amendment Regulations 2013 [www.sepa.org.uk/water/water\\_regulation/car\\_application\\_forms.aspx](http://www.sepa.org.uk/water/water_regulation/car_application_forms.aspx)
- Grazing Animals Project (2007). Watering stock on sites – Information leaflet 13 [www.grazinganimalsproject.org.uk/stock\\_management.html](http://www.grazinganimalsproject.org.uk/stock_management.html)
- Sniffer (2002). Off-stream water provision for livestock. Report number [SR\(02\)01F](#) [www.fwr.org/snifprt.htm](http://www.fwr.org/snifprt.htm)

### Also in this series:

- Abstraction design for water powered (ram) pumping systems
  - Abstraction design for electrical/mechanical pumped systems
  - Ram pump systems
  - Solar powered systems
- For further details see [www.farmingandwaterscotland.org](http://www.farmingandwaterscotland.org) or speak to your local agricultural adviser.

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