

Smart Farming

A Guide to Help Improve Farm Returns and Enhance the Environment

The cost of water supplied by Irish Water now ranges from €1.05 to €1.87/m³.¹

The top tips here will help you to save money and protect the environment by encouraging you to conserve water and focus on improving water quality on the farm.



Study your Water Bill – It Could Highlight a Problem!






If your water is supplied from a source such as a group water scheme, you will get water statements each year which includes the amount and cost of the water you use.

Complete the table below which sets out average daily water use and then compare this with the amount of water used on your statement. Higher than average water use may mean that you have a water leak and are wasting water and money.

	A	B	A x B
	Daily Water Consumption ²	No. of Animals	Total Use
Dairy Cow	90 litres		
Dry Stock	45 litres		
Poultry (per 100 Birds)	40 litres		
Pigs	20 litres		
Ewe	5 litres		
Total Use			

Locate & Fix Leaks – It Will Save you Money

How much does a drip cost?³

				
One drip per second wastes 4 litres per day	Drips breaking into stream waste 90 litres per day	1.5mm (1/16") stream wastes 320 litres per day	3mm (1/8") stream wastes 985 litres per day	6mm (1/4") stream wastes 3,500 litres per day

Footnotes

1. Commission for the Regulation of Utilities, 2019. Irish Water's Non-Domestic Tariff Framework
2. Data provided by the National Federation of Group Water Schemes
3. Environment Agency 2007. Waterwise on the Farm - Version 2. A simple guide to implementing a water management plan. Environment Agency, Bristol, UK.



Spend 70 cents on a replacement washer for a tap - it could save you €36 on your water bill in one year

Most water losses are due to simple problems with small appliances.

For example, replacing a washer at a cost of 70 cents on a dripping tap losing 90 litres per day can save you €36 per year.

Repairing a leaking ball-valve on a trough will save up to 150 cubic metres (33,000 gallons) a year⁴. This will reduce your water bill by almost €170.

Finding leaks in buried pipes can be problematic. Where there are several pipes being fed through one meter, consider installing an isolation valve at the head of each line so that a pipe with a leak can be quickly identified.

Consider taking photographs as pipes are being laid and include the layout of water pipes on your farm maps. It will be a help in leak detection. Sometimes replacement of pipe work is necessary. Replacing a leaking pipe on a County Cork farm cost €450. The old pipe was losing 2,700 cubic metres per year, at a cost of €1,840.

Install a Water Meter – It Will Detect Leakage & Waste



A water meter can be a useful demand management tool and be the first indicator of a water leak

To find out if you are losing water, turn off all water appliances and then check each meter. If the meter is still turning, then you have leaks. If it's not turning but your costs seems too high, this may be down to wastage through simple things like leaving a tap running.



A running tap can use up to 10 litres (2.2 gallons) of water a minute³

Carry out regular checks on the flow of water into particular fields or group of fields. Drain unused drinkers in winter. Turn off field connections at the meter box when animals are off the land.

Future Proof Your Water Pipes

Leak prevention is more cost effective than paying for lost water or repairing leaks that have occurred.



Insulate exposed pipes and buy quality plumbing fittings. It will save money and grief!

Sub-standard fittings on a drinking trough are liable to blow, resulting in substantial water loss. By the same token, exposed pipes will inevitably freeze and this may result in a costly rupture in addition to the loss (albeit temporary) of your water supply.

When planning excavation works, be sure to consult the map of your pipe-work, so as to avoid severing a water line.

Reduce use by Recycling Water



While the pay-back period on proprietary rainwater harvesting systems is long (especially if retrofitting), it makes environmental sense

Rain water harvesting from the roof of a farm building can be used for hosing the floor of a dairy parlour, cattle shed or farmyard and may also be suitable for animal consumption. It can also be used for cooling milk.

If water is being used for washing, use a scraper or brush to remove solid wastes from yards and pens before hosing.

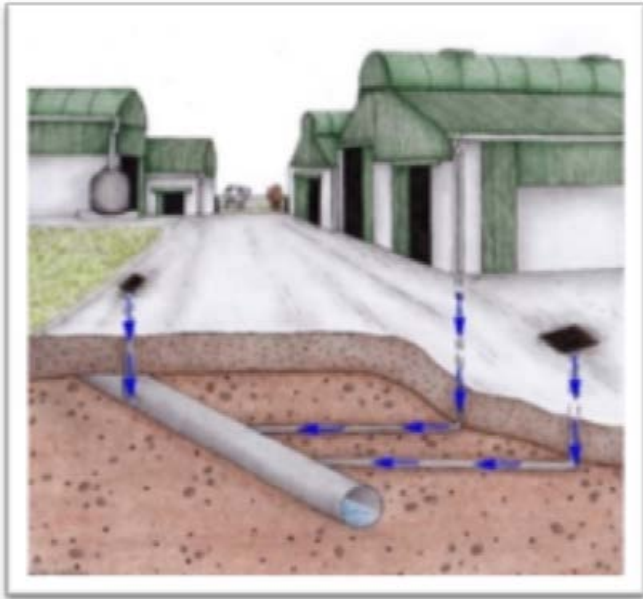
Rinse small equipment in a bucket of water rather than using a hosepipe.

Footnotes

4. Cork County Council - Water Conservation on the Farm

Your Farmyard is Plumbed to your Local Stream⁵

Therefore, good farmyard management helps to reduce the risk of penalties and improves water quality.



Three things to do in your farmyard to reduce risk of penalties:

- Keep gutters and downpipes in good repair
- Minimise soiled yard areas
- Check slurry tanks and silage facilities are fit for purpose

Your Farm is part of a Wider Water Catchment⁶

In water catchments the water moves through the farm from the source, through various pathways to rivers, lakes, wells or springs which are known as receptors.



SOURCE: A pollution source may include animal manure, chemical fertilisers, pesticides or sediments. Pollution 'hot spots' may include poorly managed yards, feeding points, farm roadways or cattle access to waterways.

PATHWAY: A pollution pathway may include surface run-off, underground pathways via shallow or deep groundwater or direct discharge via a pipe.

RECEPTORS can include wells, springs, rivers or lakes.



Ways to reduce risk of Source Pollution on your farm

- Have soil tests completed
- Aim to have the whole farm at pH 6.5, by liming
- Manage the timing of slurry and soiled water application, to maximise the fertilizer value and reduce risk of run off
- Aim to have fields at Index 3 for phosphorus and potassium
- Fix point source issues on the farm, such as cracks in silage pits
- Reduce the overall volume of dirty water entering slurry tanks. This reduces your workload and saves up to €60/hour in contractor fees for slurry spreading⁷



Ways to Break the Pathway

- Hedges and rough grass strips on headlands and along field margins act as barriers to soil loss. They trap nutrients, eroding soil and pesticides and help protect streams
- Wet and unimproved areas benefit wildlife including pollinators

A properly constructed well is a valuable resource.

Footnotes

5. Technical guidance for this section is kindly provided by the Local Authority Waters Programme Office (www.watersandcommunities.ie)

6. See www.catchments.ie for more information

7. The Association of Farm & Forestry Contractors in Ireland Contracting Charges Guide

Protect your Drinking Water Resource with Good Well Construction



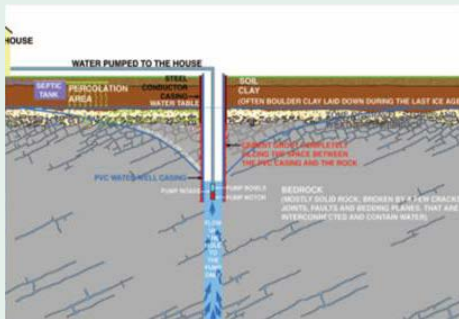
An EPA study found that E coli, which can cause serious illness, is present in 29% of Irish private wells.⁸

Keep your well safe - Check your well structure, check for any sources of pollution. Consider testing your well water annually (costs between €65 and €130).⁹



Proper use of pesticides helps protect drinking water quality.¹⁰

Safe Well Structure¹¹



Casing

- Is installed deep into bedrock below the natural water table level.
- PVC casing as it does not corrode in typical acidic Irish ground water.

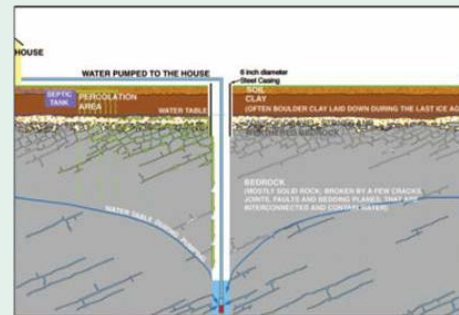
Grouting

- Area around the casing is backfilled with cement "grout".
- Prevents surface water contaminants seeping down into the borehole.

Pump

- Deliberately inside the casing to ensure the water level never falls below the casing so:
 - Water flows up to cool the motor.
 - Water is taken from deep within the bedrock, which is less exposed to pollutants.
 - Water level never drops below the casing to prevent air from entering which can promote bacterial activity.
 - The pump rising main and cable are protected, and can easily be installed or withdrawn.

Un-safe Well Structure



Casing

- Only installed to a depth to prevent the sides of the hole from caving in.
- Is steel, which is subject to corrosion.

Grouting

- None- loose material left to fall against casing, which provides a seepage pathway for surface water contaminants.

Pump

- Not inside any casing.
- This pulls the water table towards the bottom of the borehole.
- This pulls water from out beyond the percolation area as oppose to deep within the bedrock.
- Effluent from septic tank can migrate through soils or rock, into the borehole before being supplied to the house.¹⁰

Footnotes

8. <http://www.epa.ie/pubs/advice/drinkingwater/SS%20Wells%20Web.pdf>

9. See www.protectyourwell.ie for more information.

10. An advisory video for rush control is available on <https://www.youtube.com/watch?v=jPjWICPN3S0&feature=youtu.be>

11. The Institute of Geologists of Ireland