

# Reducing run-off, fuel usage and soil compaction



*Julian and Judith Hurford run a 250 acre dairy farm with a small amount of arable and some luxury holiday cottages in the hilly region of East Devon just 3 miles outside of Honiton. The farm is set on slopes of around 3 – 8% and the soils are red flinty clay loam over Mercia Mudstone classed as Whimple Series. The farm, Farwood Barton, is in a priority CSF (Catchment Sensitive Farming) catchment.*



A few years ago, Julian purchased a second-hand ultra-low rate Pulse Jet Irrigator designed by David Mitchell, a Norfolk Farmer, and manufactured by a British Company based in Northern Ireland (See below).



The dirty water on the farm is collected separately and spread on the fields using the ultra-low rate irrigator. It works by spreading a very small amount of dirty water over a large area allowing the soil to absorb this liquid with zero run off. The jet discharges 100 litres of dirty water (or slurry) in 3.5 seconds approximately 60 metres. As the water is propelled through the air, it breaks up into large droplets which are then dispersed over the wetted area. The maximum precipitation rate for dirty water to avoid producing run-off is 5mm per hour but the average precipitation rate for the Pulse Jet is 0.3 – 1.0 mm per hour.

Once a jet is fired the pressure in the pressure chamber drops, the jet moves around a couple of degrees, the pressure mounts again and the jet shoots out dirty water approximately one minute afterwards (depending on the settings).

The Pulse Jet Irrigator has been a great asset to Farwood Barton Farm. Julian explains *“The low rate irrigator is expensive to buy but it is very reliable,*

*very low maintenance and the run off is zero and it takes the headache out of it. It has allowed me to continue as a dairy.”*

*“The irrigator is light (approximately 500kg, or 0.5 ton) and does not need to be moved with a tractor but can be moved with light weight machinery such as a quad bike reducing soil compaction, fuel consumption and man hours.”*

The irrigator can be calibrated to disperse a known quantity of effluent over a set area with a low cost of energy, time (labour) with minimal pollution risk.



If farmers are interested in purchasing this low-rate applicator Julian recommends *“The irrigator needs a capable pump, at least 8 bar, to pump the dirty water via a field hydrant into the collecting cylinder which then drives the pulsejet.”*

*“This irrigator is a fantastic, simple piece of machinery designed by a farmer for farmers.”*

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- [Soil Erosion and Run-off](#)
- [Soil Structure and Compaction](#)
- [Fuel Efficiency](#)