

Irrigating Crops

Why change?

More than 1,000 agri-businesses, large and small, depend on irrigation to supply high quality fresh fruit and vegetables to the nation's supermarkets. In some parts of the country there are already restrictions on the availability of surface and groundwater. Reviewing your water use can help ensure you have access to sustainable supplies in the long term. Wise use of irrigation water:

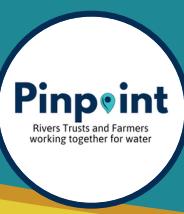
- improves crop production
- reduces costs
- protects soils
- protects the environment
- helps to safeguard future supplies.



Steps to Success

1. **Raise awareness** of water costs with staff.
2. **Check you are delivering** the correct quantities where and when you want it, without damage to the soil, crops or the environment.
3. **Undertake** an irrigation water use audit - preferably with an agronomist - to check your system/s for waste and ensure you have sufficient water to meet crop requirements. (Use water consumption levels in recent years as a guideline).
4. **Use irrigation scheduling** programmes to assess the seasonal soil water deficit and crop water requirements.
5. **Irrigate at the optimum time** e.g., night-time applications reduce evaporation.
6. **Ensure rates or droplets** do not seal the soil surface resulting in accelerated run-off and erosion (loss of valuable soils and nutrients) damage to crops (greening of potatoes) and water pollution. Use techniques such as tied ridges, e.g., in potato crops to retain water and reduce soil erosion.
7. **Identify potential improvements** by:
 - Ensuring the water supply for irrigation is not a limiting factor for your business
 - Reducing water loss: from leaks in your delivery system(s) or evaporation from storage
 - Annual routine maintenance checks of irrigation equipment as part of your farm operations. (See sheet 50)
 - Comparing your irrigation costs with your crop margins.
 - Check the availability of alternative surface and groundwater supplies to meet your current and future needs
Finding the most cost-effective water sources available for different purposes by calculating the cost-benefit from different forms of irrigation e.g., trickle irrigation or booms, and any saving from reduced water use.
Identify payback periods
 - Consider use of roof and recycled water, e.g., vegetable wash after treatment and settlement.
8. **Develop and implement** an irrigation improvement plan, prioritising the most cost-effective of the improvements you have identified.

NB. Some options may require permission to change abstraction conditions so remember to consult the EA. If mains water is involved your local water provider may also provide help.



Best Practice Irrigating Crops

Sheet 49.0b

Irrigating crops - practical examples

Potato crop

In a potato crop, which traditionally shows the best economic response to irrigation, an old-style hose reel irrigator was identified as wasting water at the headland. Water losses also occurred from runoff and erosion resulting from poor uniformity of application and large rain gun droplet size.

A turbine irrigator with speed regulation avoids water loss and improves uniformity of application. Before crop canopy cover, a boom with sprinklers was used to improve distribution and reduce erosion. Costs were reduced by saving water and decreasing greening, which improved the potato crop quality.

Improving irrigation management and equipment can reduce water consumption by 10% for overhead irrigators, and 20-30% for trickle systems. The savings and potential benefits to crops and soils can be used to further reduce the payback period for changes.



Nursery irrigation losses

A nursery growing one million container plants a year initially missed the opportunity to reduce costs and increase business growth, due to the limited availability of water supplies. All irrigation run-off from container standing beds (15 acres) and building roofs (5 acres) ran to waste.

Following a review, a water harvesting system was developed which transferred the drainage water by pipe to a six-million-gallon reservoir to provide irrigation water. A system for measuring water soil water deficit/ crop requirements was introduced to automatically irrigate the plants.

This allowed business expansion from 5 to 20 acres with 84% of the water coming from harvested sources. This has saved the equivalent of over £52,000/year in mains water costs (prices approximately £1.60p/m³ (Anglian Water 2021-2022)).
NB. Please note cost/m³ will vary depending on your water company. Payback on the recycling system 4 -5 years.



Remember

- Water is a valuable commodity and is likely to become increasingly scarce and costly – the less that is wasted the more you will benefit.
- Changes in water management such as abstractions may require licence variations so consult the EA.
- Some water companies provide free advice to business customers.
- **For further information please contact:**
The Rivers Trust: www.theriverstrust.org/who-we-are/find-your-local-trust,
Environment Agency: www.gov.uk/government/organisations/environment-agency,
Catchment Sensitive Farming: agricultural-water-pollution
www.gov.uk/guidance/catchment-sensitive-farming-reduce-agricultural-water-pollution



Pinpoint

Rivers Trusts and Farmers
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This information sheet is part of a series produced by Westcountry Rivers Trust providing farmers with advice on land management practices to protect water bodies. The advice enables farmers to use farm resources more efficiently, helping to meet Nitrate Vulnerable Zone, Cross Compliance, Farming Rules for Water and other regulations while protecting our environment and natural resources.

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