

The coolbox: a greenhouse cooling system that uses recycled water

320m² of greenhouses on the 4700m² estate of Domaine de Saint Maurice in Avignon (PACA), are cooled by spraying water onto thick pads of wood shavings through which air is pumped. This system, called the coolbox, has been developed by the GAFL in the context of efforts to optimise existing resources.


[en français](#)

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Cooling productive greenhouses during heat-waves can soon prove very expensive and consumes rare resources such as water. In the south of France, research scientists in INRA's Fruit and Vegetable Genetics and Breeding Unit (GAFL) received support from the Sustainable Development Commission to initiate a project on greenhouse cooling that uses a water recycling system: the coolbox.

320m² of greenhouses cooled by recycled water at the Domaine de Saint-Maurice in Avignon

The cooling system involves spraying water onto thick pads of wood shavings laid over the greenhouses, through which air is pumped. Until now, 14,000m³ of water extracted from groundwater resources and removed as waste water were necessary to ensure the cooling process. This water was lost at a period in the year when groundwater resources are at a low point, and because of its high content in calcium salts, also had the drawback of calcifying and clogging the wood shavings.

The Coolbox collects and recycles cooling water

Thanks to its new collection and recycling system, the Coolbox can now achieve substantial savings in water. In parallel, the water jets have been reoriented to the highest point of the wood shaving pads, and the output of spray nozzles has been halved. 300m³ of softened water are now sufficient to ensure the efficiency of the cooling system. Because of its counterflow cleaning system that deconcentrates the water and cleans the filters, this innovation can also save hundreds of hours of cleaning time.

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