Catching water off a polytunnel

Water is a very important part of horticulture that is largely taken for granted by most growers in this country. We are lucky in the UK to live in a temperate country that rarely leaves us with severe water problems. What has become very evident however is the increasing climatic extremes being experienced with long wet spells often followed by long dry spells. With climate change it is highly possible that rainfall quantities may decrease and that the patterns of rainfall may alter dramatically.

Most horticultural holdings have permanent and/or temporary buildings of some sort, which offer potential to catch rainwater (I’ve always hated the term “rainwater harvesting” - rain is not a crop!). Sheds, barns and glasshouses usually have guttering attached, but polytunnels...? Here on the Isles of Scilly we have water shortages due to a relatively low (and erratic) annual rainfall of about 850mm a year, so it makes a lot of sense to catch water off polytunnels.

I tested this idea for the first time four years ago and have now developed a reliable system. The investment required is not insignificant but is not expensive either - and is really very simple. It’s much easier to work with multispan and straight-sided tunnels, but a standard tunnel like mine works just as effectively (only requiring an extra modification).

The materials required are: U-bolts and nuts, plastic guttering and fittings, small wooden blocks, UVI repair tape, tunnel plastic and catchment tanks. First of all, work out where the gutting will be placed. As with any guttering it will obviously need a fall to make the water run - this is easy if you’re on sloping ground, but on the flat attach a string to either end of the tunnel about 4’ off the ground, ensuring the line has a gentle gradient the right way (!), then use a marker pen to make a mark on the plastic where the string crosses each steel hoop. The height of guttering off the ground has to be high enough to stop crap getting in the gutter and getting in the way, but low enough to be able to work on it when standing on the ground.

To ensure the guttering clips can be fixed to the tunnel frame, cut some pieces of 2” x 1” wood to about 6” lengths. Then get appropriately sized U-bolts for your tunnel frame; drill two holes in each wooden block so that the U-bolts will pass through. Recess each hole to about quarter of an inch to accept the nut. At the pen mark on the plastic (where the string crossed), lay a 6” strip of UVI polytunnel repair tape, ensuring it sticks well.

Take a medium-sized crosshead screwdriver and puncture holes in the plastic, one immediately either side of each hoop. From the inside of the tunnel, push the U-bolt through so the threaded ends are facing out (best done with two people!). From the outside push the wooden block on over the threaded ends of the bolt and fix with two nuts - this is where the recess comes in useful.

Next the guttering clips can be simply fitted by screwing in to the wooden blocks. Once this has been repeated along the entire length of the tunnel, fit the guttering in to the clips. It is unlikely the guttering joins will correspond with the wooden blocks, so just use guttering joiners wherever the join occurs - the extra weight caused by the joiner shouldn’t be an issue. At the end of the run use a stop-end outlet, fitted with a balloon leaf guard.

To attach the guttering to the tunnel cover, use UVI repair tape (at least 4” wide) - it’s essential at this stage that all surfaces are clean and bone dry. If you have a straight-sided tunnel or have a mid-rail then you have quite an easy job and should only need one strip of tape.
If you have an ordinary tunnel a little modification will be needed. Because the plastic dips inwards between hoops (due to tension), cut strips of spare tunnel plastic (there's usually some left at the sides) around 12"-18" wide to fill the gaps. Then simply attach the strip of tunnel plastic using UVI tape to the tunnel cover and to the guttering. It's slightly fiddly, so use two people - it'll be much quicker and some tension can be gained from two pairs of hands. Finally test the system with a watering can.

Now for water collection. I use 1500 litre black (ex-orange juice) tanks, which have to be sunk in to the ground a bit. If you extend the guttering from the end of the tunnel correctly the stop-end outlet will be immediately above the top of the tank. Therefore a 6' tank will only have to be sunk in around 2'. The problem with water is always storage and I found my 60' x 27' tunnel will fill two 1500 litre tanks (i.e. one each side) after around three hours of heavy rain. So a pumping system to take water to bigger storage facilities will be an essential part of the setup. It is surprising just how much water can be collected off tunnels – don’t waste this precious resource!

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A useful guide to "Rainwater Harvesting" for irrigation is available from Access Irrigation www.access-irrigation.co.uk