



Fruit of the Vine

David Keely highlights how reducing reliance on mains water supplies can be a win-win scenario for industry and the environment

The cost of mains water continues to rise, and there are good reasons for this. The first is water quality. The quality standards set in the Water Supply (Water Quality) Regulations, which enshrine the EU Drinking Water Directive, are ever more demanding. This is not EU bureaucracy but a matter of public health: a reflection of the growing number of identifiable trace pollutants – mostly



anthropogenic – that are potentially harmful. The second reason for rising costs is the increasing demand for drinking water from a growing population and the third is the effects of global climate change on water resources and the now familiar “feast or famine” pattern of rainfall. What all this means is that industries are paying more for water which meets a quality standard far higher than is needed for most industrial and agricultural applications. But help is at hand. Private water supplies – even if partial treatment of the water is required – can be very cost effective as

the APS Group, the UK's largest supplier of British tomatoes – around 500 million a year – and other produce to all the major supermarkets, demonstrates.

A. Pearson & Sons was founded in 1949 in Alderley Edge, Cheshire. Since then the business has expanded dramatically and the APS Group now includes 141 acres of glasshouse and 103,000 square feet of packing facilities in Cheshire, Kent, Isle of Wight, Chichester and the North East. In 2015 APS acquired Wight Salads with 26.3 hectares of glasshouses at five sites on the Isle of Wight. Tomatoes contain about 95% water so water is vital to the crop.



Darren Oatley, Plant & Facilities

Manager at Wight Salads, explains. “The story starts in Margaret’s Nursery which has thousands of tomato plants. We take shoots from these, plant them out and end up with about a million tomato plants which we grow in soil and using hydroponics. Last year we packed around 40 million punnets of fruit”. During the summer, the growing plants at each vinery (that’s the posh name for a tomato glasshouse) are fed with about 500m³ of water every day from three 400m³ storage tanks. Watering is controlled by an automatic irrigation system, depending upon the light levels, the weather, the yield and the size of the plants.

Water which is not taken up by the growing tomatoes is filtered and returned to the storage tank for recycling. The water which is consumed by the fruit is made up with water from the company’s three storage reservoirs which have a combined capacity of about 47,800 m³. “Annual water consumption for the Island’s five sites is about 120,000m³, roughly 70% of which comes from collected rain water run-off from the glasshouses,” says Darren, “The balance is from boreholes. The only mains water we use is for the drinking water taps and kitchens.” The borehole water has a significant concentration of dissolved iron.



Using this water for spray irrigation would result in black deposits on the leaves and fruit, so it is vital that this is removed. “Each of our vineries is provided with a Lubron Water Technologies iron removal filtration system, which ensures that only iron free water is supplied to the plants. These are serviced annually when the plants are not too big that they need constant watering, and have never gone wrong. The filters are backwashed to remove the accumulated iron, and this waste water is treated in our own reed beds before discharge.”

At today’s prices, that water would cost nearly £200,000 per year, so the savings accrued by rain water harvesting and borehole sources is substantial. But cost reduction isn’t the only aim. Using non-mains water is environmentally friendly, because treatment is minimal, there is no need for chemicals for clarification or disinfection and it reduces stress on the mains water resources. The APS Group is very keen on sustainability and all their sites have gas turbine energy centres to generate their own electricity, heat the glasshouses and use the carbon dioxide to promote tomato growth. In 2016, they installed a 22MWe Combined Heat and Power plant on the Isle of Wight using Rolls Royce engines, making the vineries autonomous in power as well as water.

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