

Managing a critical resource



“By working together now, growers have a better chance of challenging licence reforms in the future.”

MELVYN KAY

The long-term impact of frequent droughts has implications beyond hosepipe bans and the suspension of irrigation licences, and can particularly affect root crop growers. CPM reports...

By Andrew Watts

Record dry weather for much of the year has led the National Drought Group – a body comprising industry, experts and the regulator – to warn that unless there's at least average rainfall this autumn and winter, England must prepare for an ongoing drought in 2026.

To highlight the severity of the situation, the Environment Agency warned that 'England cannot continue to take water for granted,' while reiterating its commitment to 'reduce the use of public water supply per person by 20% by the end of March 2038 to protect the environment and secure drinking supplies'.

A proportion of these intended savings should come from fixing leaky pipes – which account for around 19% of supply-side losses, and the government

is working with the water utilities to cut these losses by 50% compared with 2017-18 levels. Households too are under scrutiny to use less water, while agriculture is under pressure to improve its water use efficiency.

"Most growers could improve water use efficiency by 20-30% without difficulty simply through stemming losses, more targeted application timing and better scheduling," suggests Eric Anderson, senior agronomist with Scottish Agronomy.

"Importantly, users have to appreciate that the variation around the mean water requirement is greater than the mean itself, so growers should base assumptions on the extremes in demand, not the average," he adds.

Few would question the need for

better resource allocation and greater efficiency; the concern is how it's achieved and at what cost to those



Reducing water losses

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Notable drought years: 1976, 1989-90, 1997, 2003, 2012, 2018, 2022 and 2025

To minimise the impact on growers, especially those downstream, greater collaboration and communication between involved parties is considered essential to the new regime

The unavoidable reality is that growers have to be more collegiate, suggests Scottish Agronomy's Eric Anderson. "We've seen the success of this with the WAGs in England which have helped growers move on from rain-fed irrigation systems, but it's yet to be replicated in Scotland."

The summer of 2025 is officially the warmest on record with a mean high temperature of 16.1°C – this is above the 15.76°C in 2018, the previous warmest summer on record.

Such temperatures are often associated with high evapotranspiration rates, and while temperatures do influence irrigation requirements, it's soil moisture and its deficits that are the primary determinant, hence the focus on rainfall.

Temperature is important, but is only part of the issue – once it exceeds 27°C a plant will begin to shut down, but equally, once soil water reserves fall below 50% capacity, the plant also begins to shut down because it's effectively losing water faster than it can acquire it.

"The likelihood of a soil moisture deficit occurring is far greater than that of temperatures exceeding 27°C, so even though there may be plenty of sunshine when soils are in moisture deficit, the plant's capacity to function effectively is greatly reduced," explains Eric. "This may explain why crops failed to deliver on the exceptional growing conditions this season."

Sunshine data for the UK from the Met Office for March-July illustrate Eric's point. March 2025 was the third sunniest on record (+45% of the 1991-2020 mean), April was the sunniest (+47%), May was the second sunniest (+39%), June was the 40th sunniest (+6%) and July was the 32nd sunniest (+12%).

Eric points out that sunshine duration in spring and summer 2025 was exceptional. "Unfortunately, a lack of adequate soil moisture meant many crops failed to capitalise on these conditions."

"The 2025 growing season was one of the most favourable in memory. Crops were planted early and into warm soils, disease pressure was low, and crops enjoyed record levels of sunshine, so why were yields only average or slightly better?

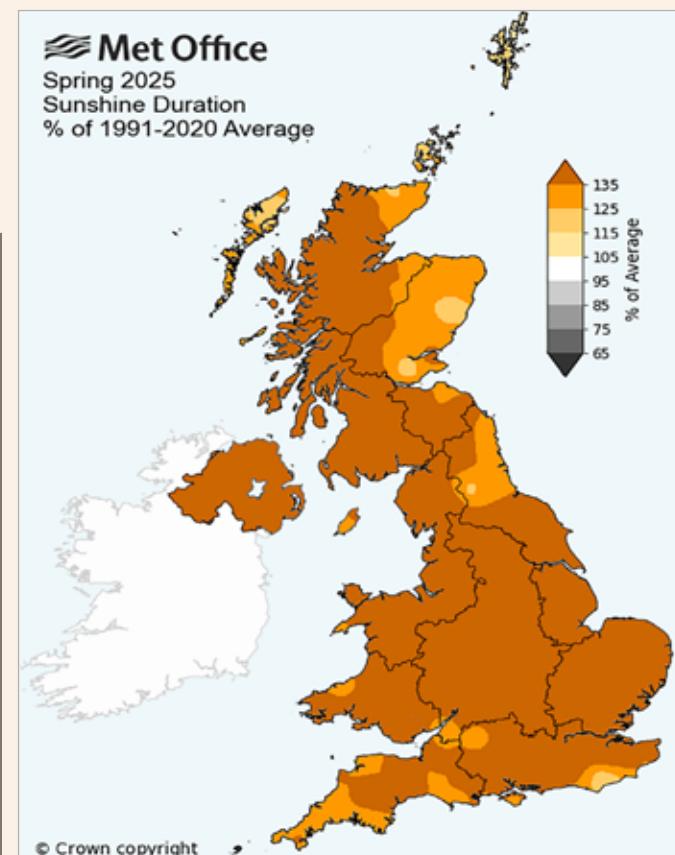
"We should have achieved far higher potato yields, arguably in the region of 80-90t/ha which would be equivalent to a dry matter yield of 17.6-19.8 t DM/ha (at 22% DM). A lack of adequate water within the root zone is largely to blame for this failure to capitalise on the season," he says.

Across much of Scotland, growers have generally been pleased with yields, especially on non-irrigated land where crops benefitted from good soil structure and favourable post-planting conditions, suggests Eric. As a consequence, most growers have run out of boxes.

While in England, drought and extreme temperatures meant many crops fared less well with reports of secondary growth, internal rust spot, bruising and other problems widespread.

"Through better water planning, some of these issues could have been avoided," he proposes.

Herein lies the dilemma facing growers – do they plant only what they know they have water for



Record-breaking

Sunshine duration in spring and summer 2025 was exceptional, with April the sunniest on record.

in a dry year, or do they roll the dice in hope of a typical year requiring only modest irrigation?

As what's considered an extreme year today becomes the average, growers may have to revise their attitude to risk, believes Eric.

"It's worth noting, especially for growers in England who are considering applying for a new winter abstraction licence, that the water utilities not agriculture, have priority on any spare capacity. Even if water is flowing past the extraction point, there's no guarantee that the application will be viewed favourably because the water utility has been given priority, perhaps for a reservoir that will not be built for at least 10 years," he says.

Accepting that growing fewer hectares in the expectation of being able to meet specification may be the reality, this'll do little to help spread fixed costs such as labour and machinery, that often determine the final area planted, adds Eric.

"It's far from simple. To justify a self-propelled harvester, for example, requires roughly 160ha. Do you grow a little more to warrant a second machine and the spare capacity that'll be utilised in a wet year? What if you only have enough water to irrigate 100ha in a dry year?

"Whereas the crop area was largely determined by planter and harvester capacity, the abstraction reforms mean water availability will become the third consideration. It's no longer safe to worry about irrigation capacity once the season has started," he concludes.



Future-proofing

Many of the measures either announced or under consideration by the Environment Agency should be seen as prudent forward planning, suggests the UK Irrigation Association's Melvyn Kay.

► farmers whose livelihoods depend on it.

"The longer-term issue is the environmental destination being set by the Environment Agency (EA)," says Melvyn Kay, executive secretary at the UK Irrigation Association (UKIA).

2025 drought facts

- This spring was the driest in 132 years and this summer was the hottest since records began in 1884, with four heatwaves. From 1 January to 31 October, England saw 83% of its long-term average rainfall
- In August, the National Drought Group declared a 'nationally significant water shortfall' in England
- Regions in drought: Yorkshire, East Midlands, West Midlands and parts of Sussex and Kent
- Areas in drought recovery: Cumbria and Lancashire, and Greater Manchester, Merseyside and Cheshire
- Total reservoir stocks across England for the period ending 11 November were 69.9%; the average for this time of year is 78.5%

The EA is modelling a range of scenarios to inform policy intent on ensuring sufficient water availability in 2050 and 2080. It's already announced plans to cut volumes taken by licenced abstractors by an average of 30%, but actual cuts vary across the country.

"Many of the measures either announced or under consideration should be seen as prudent forward planning. This is reassuring as it means we should avoid a crisis, but those reliant on abstraction to irrigate crops will feel aggrieved at the loss of volume," comments Melvyn.

To give water users across the regions

an understanding of the possible cuts to licences in their area, the EA has set up a website with forecasts of availability where users can see the river flow allowances in their catchment – see environment.data.gov.uk/hydrology/explore

"To be fair to the EA, it's not claiming to have all the answers. Its forecasts illustrate the potential impact and its severity, but these will be amended as more data is generated, and the model is updated. For some, the impact will be less than feared while for others, it may be worse," states Melvyn.

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Stepping up

Agriculture is under pressure to improve its water use efficiency. Photo: Eric Anderson.

those affected, the EA is supporting a programme of Local Resource Options (LRO) whereby it's providing a sum of money to fund scoping studies at the catchment level.

"It may be that there's water available in the catchment that doesn't appear in the national hydrological assessments, such as floodwater, drainage water or harvested water from roofs and tunnels that can be utilised by growers to improve resilience," adds Melvyn.

Many of the reforms being implemented mean the process of managing licences is becoming more complicated. For abstractors with no resource planning expertise, the EA in partnership with the NFU, the UKIA and Water for Food, is supporting the creation of Water Abstractor Groups (WAG).

"Some of the larger groups were formed in the early 2000s and have been instrumental in helping to challenge the EA's assumptions and protect the licence holder's rights through the collection of valuable data and alternative modelling. Hopefully some of the smaller groups will follow suit.

"By working together now, growers have a better chance of challenging licence reforms in the future, or supporting applications for abstraction. Such data is also useful documentation when applying for a grant, perhaps for a reservoir or other form of storage," says Melvyn.

Other initiatives are bringing abstraction into the digital age. At a trial on a river in Shropshire, sensors have been installed to give local abstractors real-time data on when water is available. In catchments where there's large demand, the use of such technology can help ensure that those downstream don't lose out at the expense of abstractors upstream.

"If you know those upstream will stop irrigating in the afternoon, you can plan

your activities accordingly. It's a neat example of how savvy use of technology and good communication between users is helping to support better planning and greater resource efficiency," he says.

While the long-term implications of these policy changes are still to play out, growers are being encouraged to consider how the increased risk of drought might impact their business and identify the measures required to mitigate it.

As such, growers should estimate their likely maximum demand for the crops they're growing and then identify the level of preparedness they consider necessary, suggests Eric.

"Is it a one-in-a-100-year event? Probably not. This would be overly

cautious while the cost of building a reservoir for such a situation would be extreme. It's more likely to be a one-in-10 or one-in-five-year event," he adds.

"Unfortunately, if you were then to take the average evapotranspiration rate for your crop over the past 25-30 years as a guide for how large your reservoir should be, you'd end up being short of water in many of the years in your one-in-10 or one-in-five scenario.

"Worryingly, the current modelling indicates that these scenarios are likely to be the average in the coming decades, rather than the extreme, meaning storage capacities based on these calculations will leave growers facing a shortfall in most years assuming there are no changes to the cropping area," he concludes. ●



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