



Water Research

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#AgConf16

Water Abstraction

?

Facts & figures

- 1%
- ‘Supplementary’ irrigation
- 38% Crop irrigation.
- Anglian region uses 57million m³, 93% for spray irrigation.
- 6% of water bodies over-abstraction
- Agricultural & horticultural irrigation demands forecast to increase between 15 to 55% across all regions in England and Wales by 2020.”

DEFRA reform proposals

- **Removing** licensing drip/trickle Irrigation license exemptions.
- **Removing** time-limit provision & incorporating flow controls in license conditions.
- **Tailoring** individual licenses to:
 - Business need based on a time series of 10 years
 - Remove seasonality specification from licenses
 - Introduce permissions to take water at high flows;
 - Graduate introduction & removal of 'hands-off flow' license conditions (a fixed volume of flow in the river below which abstraction is prohibited).

In Scotland, regulation for water abstraction has been recently updated, is no longer time-based and does not include exemptions for trickle irrigation.

Objective:

Potato & Horticulture resilience to changes in water licensing.

Response:

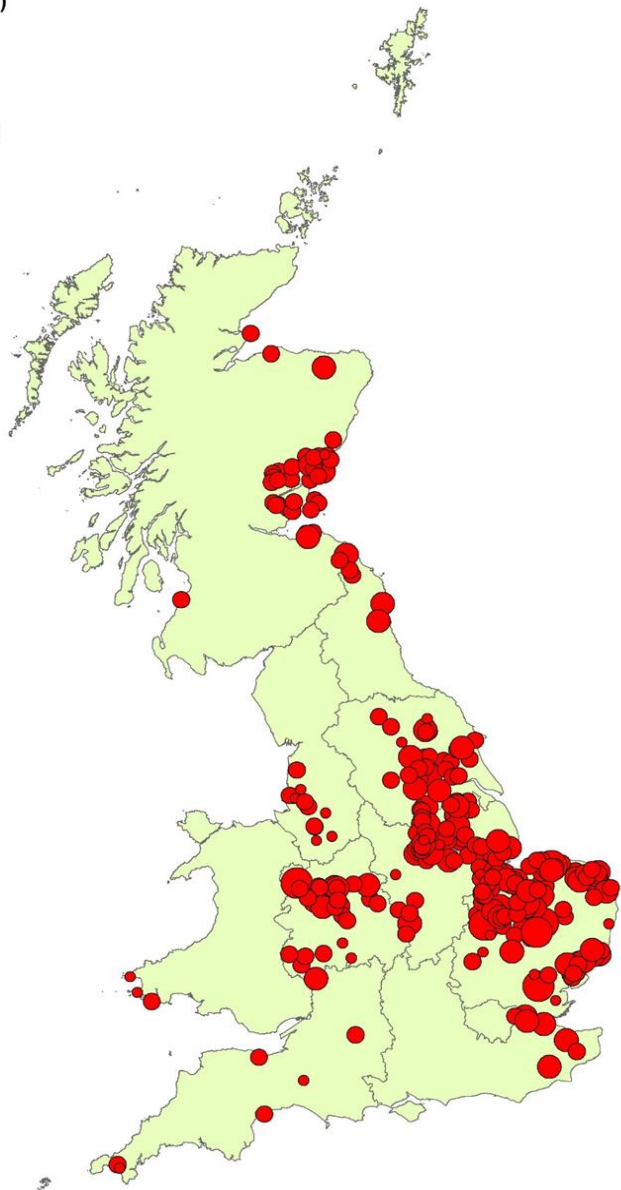
- 594 usable submissions
- 468 responses from potato sector
- Almost 50% of the UK irrigated area represented. (2010: Defra Survey).



Potatoes

Holding size (ha)

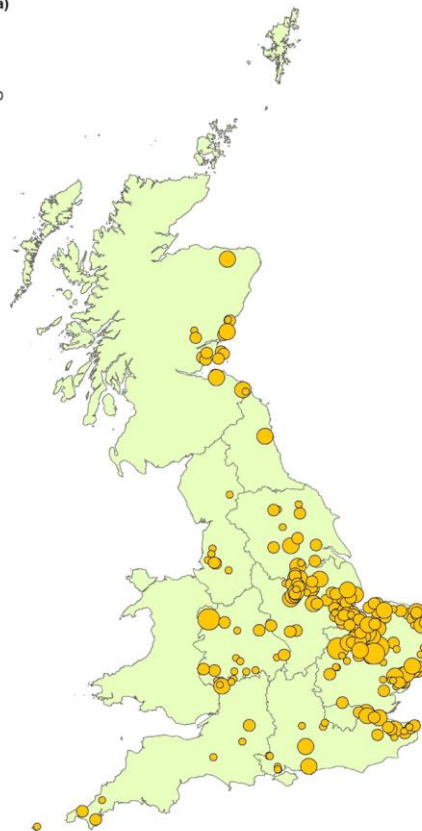
- 0 - 100
- 101 - 500
- 501 - 2,500
- 2,501 - 9,000



Field Horticulture

Holding size (ha)

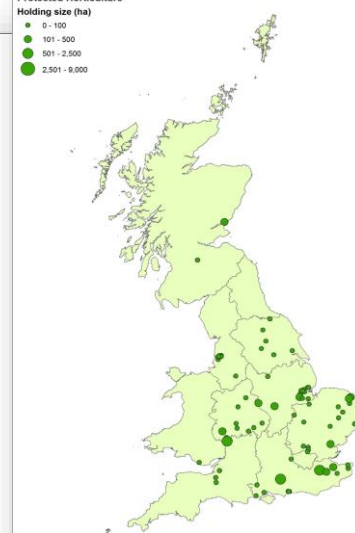
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- 101 - 500
- 501 - 2,500
- 2,501 - 9,000



Protected Horticulture

Holding size (ha)

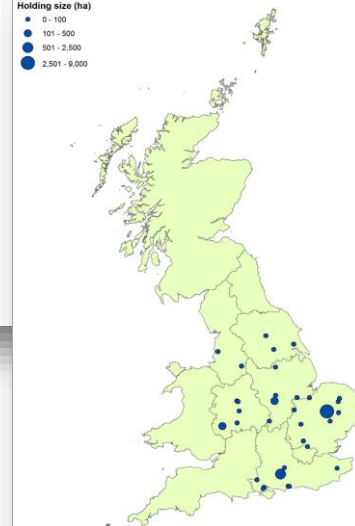
- 0 - 100
- 101 - 500
- 501 - 2,500
- 2,501 - 9,000



Outdoor Container

Holding size (ha)

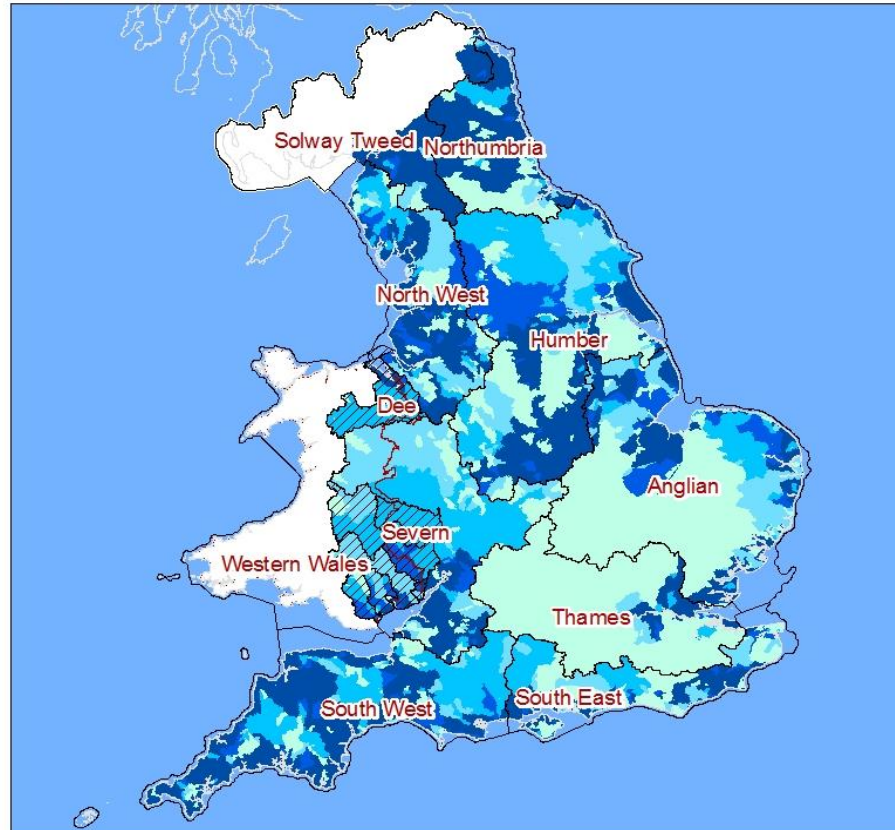
- 0 - 100
- 101 - 500
- 501 - 2,500
- 2,501 - 9,000



Water resource reliability: percentage of time water would be available for abstraction under a new licence



England



River Basin Districts	Resource availability (% of the time)
Welsh catchments managed by Natural Resources Wales	less than 30%
Country border	at least 30%
	at least 50%
	at least 70%
	at least 95%

WRGIS_Sept14_NBB

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0 90 180 270 km

Water Availability Categories

- Up to 50% primarily relate to winter abstraction (November to March) representing 151 days, - Reservoir fill.
- 70% & 95% water availability covers the whole year -183 days and 347 days respectively.

Research Findings

- Surface water primary water source for potato & field vegetable crops.
- Restrictions are an issue for surface water users.
- Fewer restrictions in catchments with greater availability.
- Storage costly but essential to some business.
- Rain guns/booms main application method for potato production & field horticulture.
- Respondents felt that trickle/drip application is technically difficult and expensive.



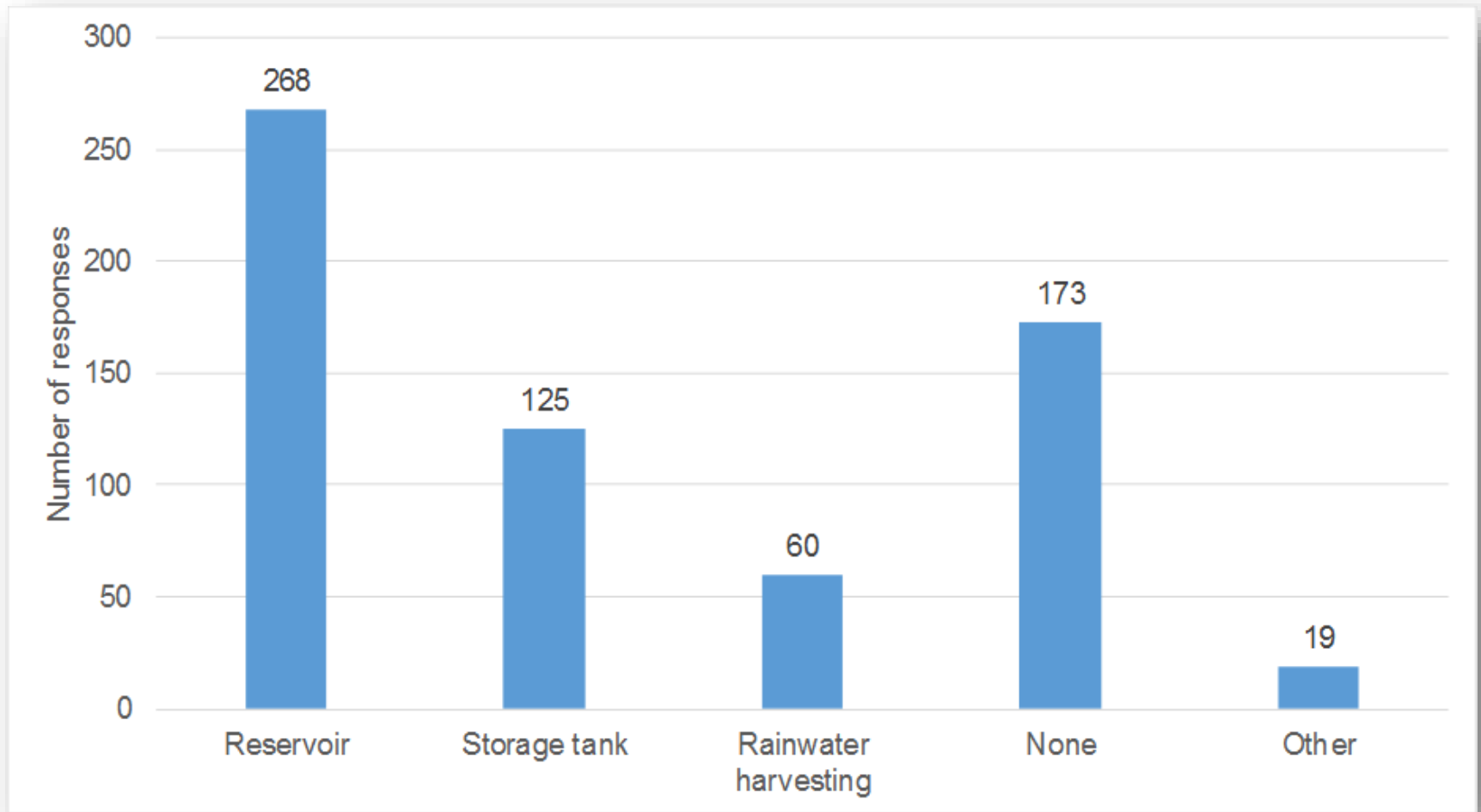
Research Findings Continued

Growers current actions include:

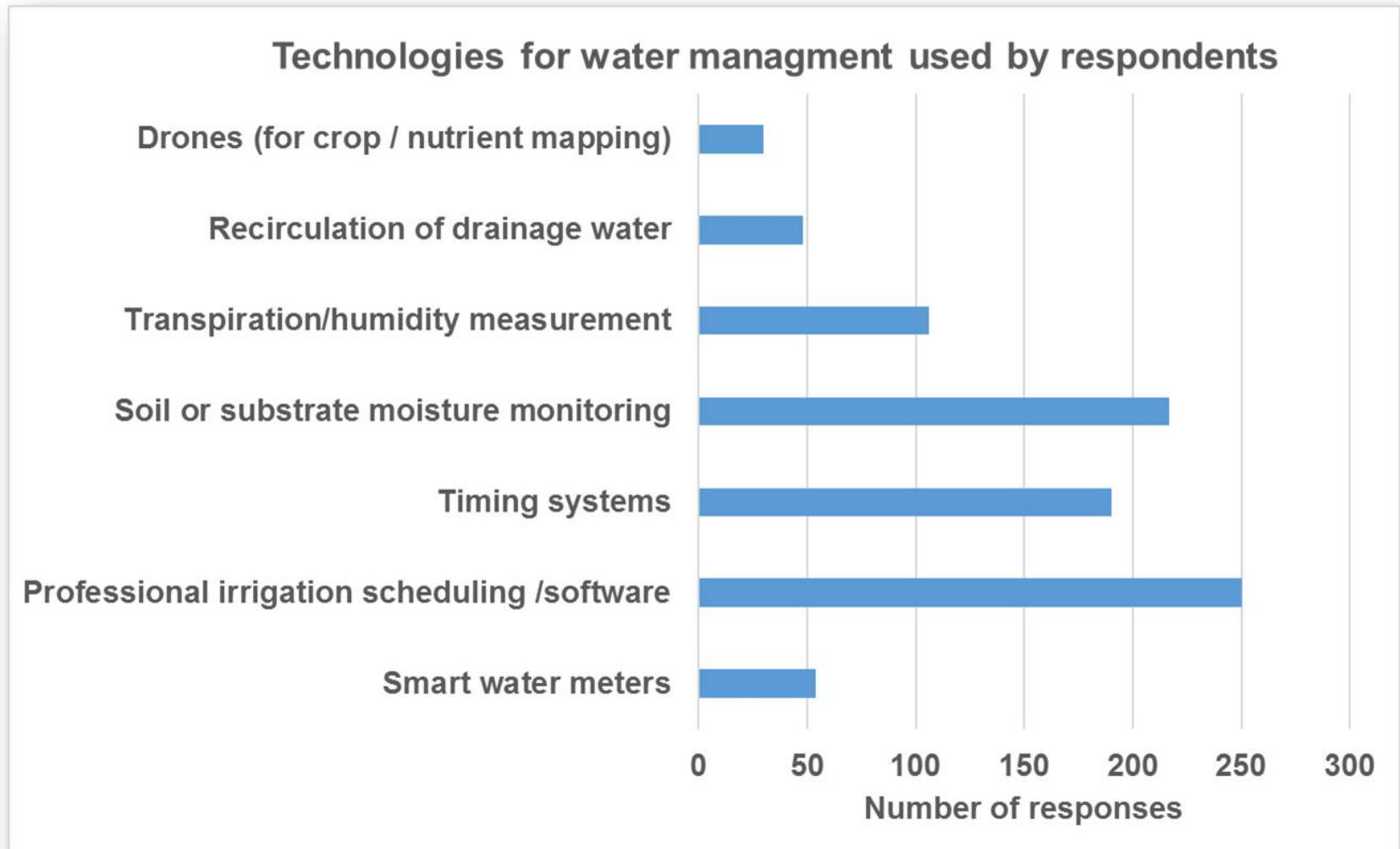
- Night irrigation
 - Improved monitoring and scheduling of crop water use
 - Installing new irrigation technologies or systems, and
 - Prioritizing irrigation of different crops.
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- **Land Tenure:** Significant number of respondents use land where the water abstraction licenses are held by others.
 - **Mains Water:** protected horticulture & outdoor containerized plants.
 - **Water Trading:** concern about profiteering.



Respondents with Storage Facilities 67%



Opportunities to improve efficiency



A work in progress...

Providing:

An updated evidence base to inform current & future AHDB activities such as:

- A Levy payer update on developments in abstraction reform
- A monthly hydrological review & outlook
- Relevant SPot Farm Demonstrations
- Relevant Soils & water Research programs: improving use & crop uptake of water.
- Technical information on optimizing water use: **'Seasonal Water Management for Potatoes'**
- New Technologies & systems for water application: Use of Data from Crop/soil monitoring irrigation scheduling systems

Growers actions to prepare for change include:

- Quantifying your license headroom
- Considering cost-benefit assessments of improved water management
- Considering land management improvements for appropriate soil water storage and retention.



Next Steps

