



This project is part funded by the European Regional Directive (ERDF) as part of the South East ERDF Competiveness Programme 2007-2013

# WSGA 'Plan to Grow' Conference 18<sup>th</sup> November 2015

## 'WATERR' Project Findings and Support

## Opportunities and Challenges for the Irrigation Sector in South East England



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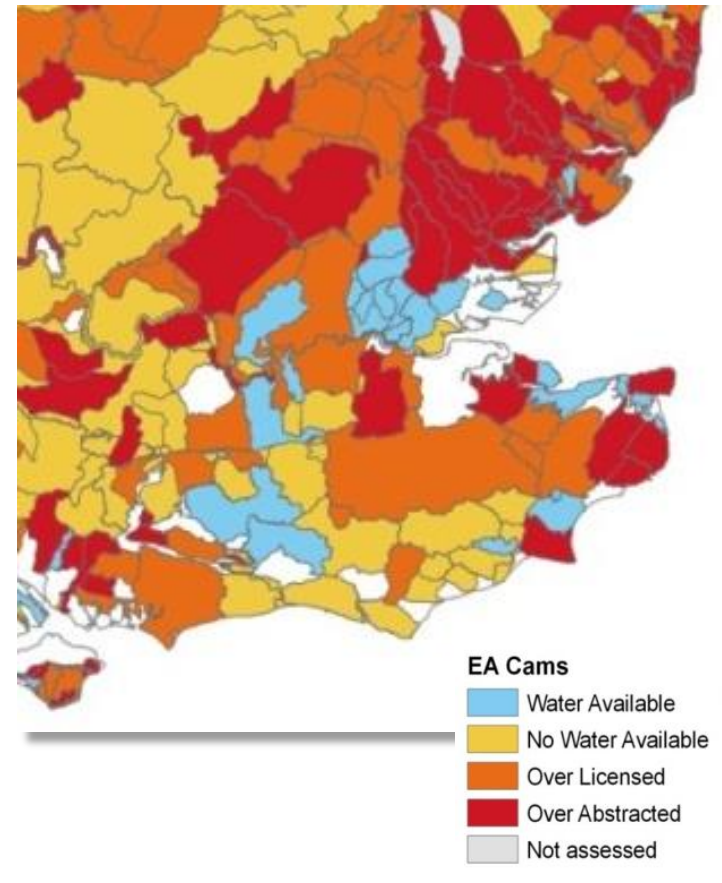
# 'WATERR' Project Background

## Irrigation is critical for food security:

- 70% increase in food output needed by 2050 (FAO)
- Irrigation = 20 % of agricultural land use but 40% of global food production

## South East catchments / habitats under pressure:

- Irrigators = largest users of direct water abstractions (rivers / boreholes).
- Many catchments already 'Over Abstracted' or 'Over Licensed' (EA)
- EA expect 25% increase in water use by 2020 and most SE catchments 'Over Abstracted' by 2050





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# 'WATERR' Project Objectives



**To support South East irrigators to improve their profitability and competitiveness by improving water availability and use efficiency**

- Improve irrigation productivity / returns by identifying and promoting irrigation 'Best Practice' and leading technologies to:
  - Increase yields
  - Improve produce quality / prices
- Identify opportunities to improve water availability and catchment management
- Improve the environmental footprint of South East river catchments



# 'WATERR' Project

## Irrigation Business Reviews

In depth interviews with 110 growers (30% of South East irrigators / 70% of total irrigation water use) to :

- Assess current water availability and irrigation use efficiency
- Impact of irrigation on production / yields, pricing and financial returns
- Identify 'Best Practice' technologies and techniques
- Define Grower Support Needs and Priorities
- Agree '**WATERR**' Project Support Programme



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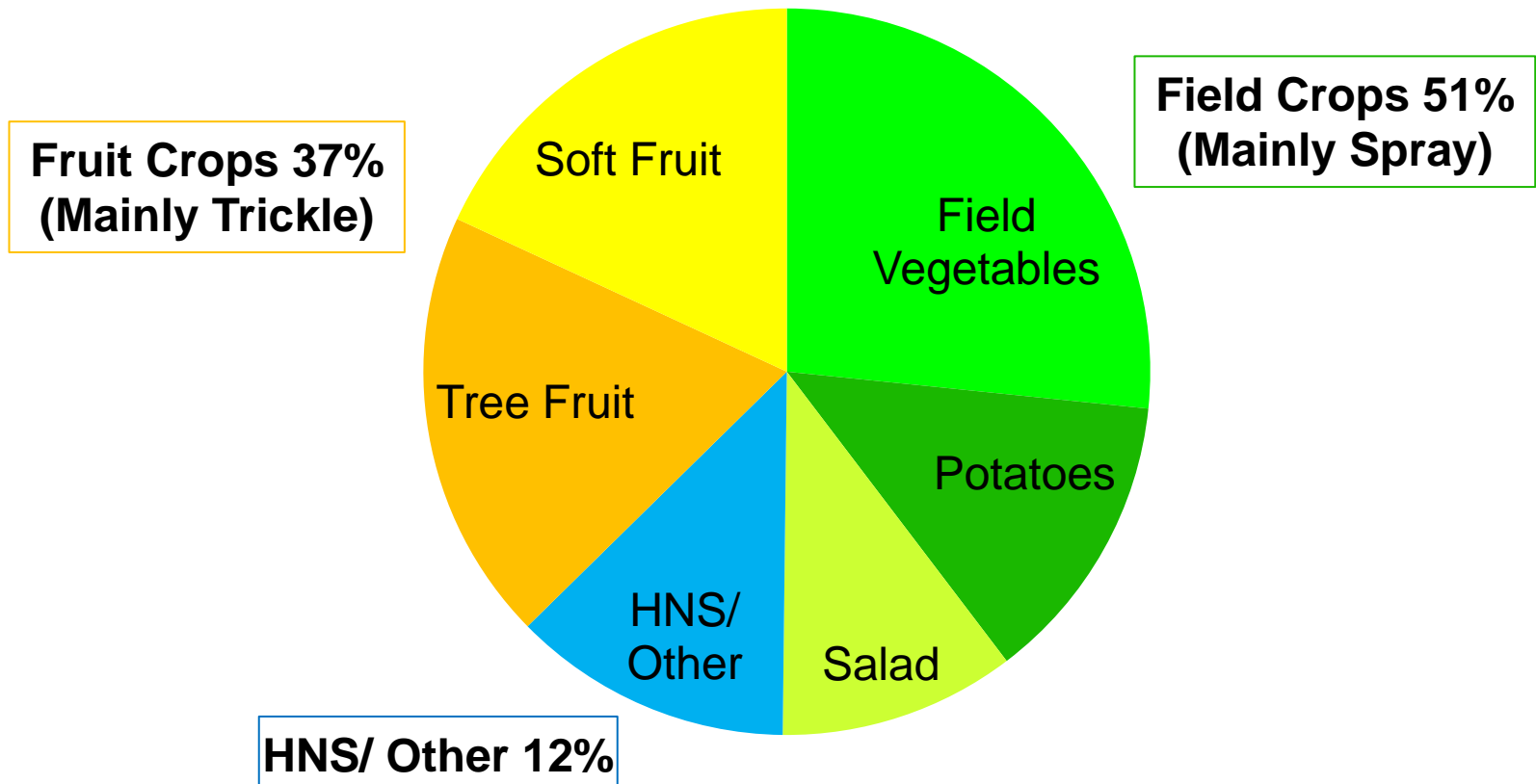
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# 'WATERR' Project Irrigation Business Reviews



## South East IBR Growers by Sector

(Total 5522 Hectares - 27 Crops )





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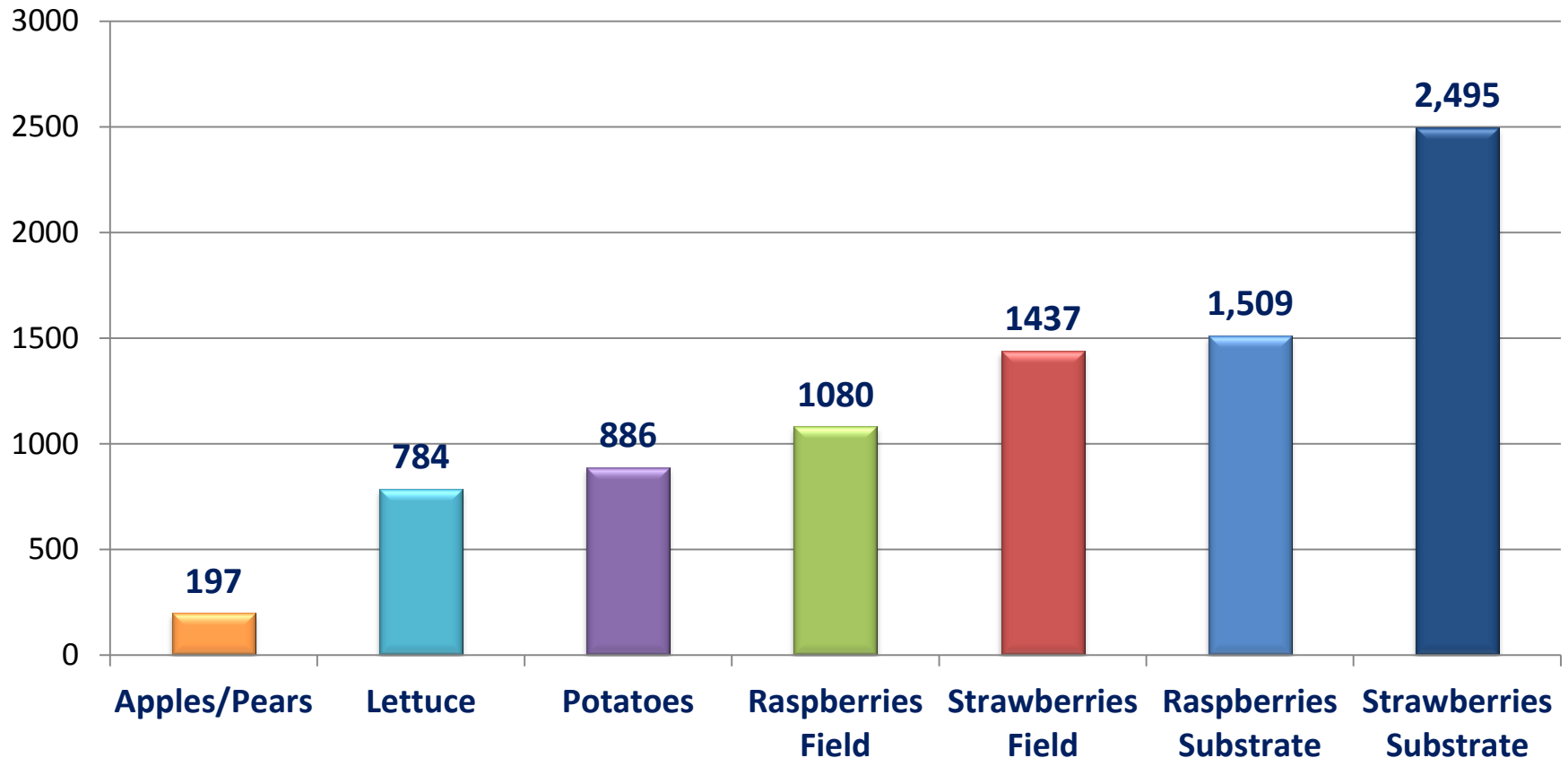
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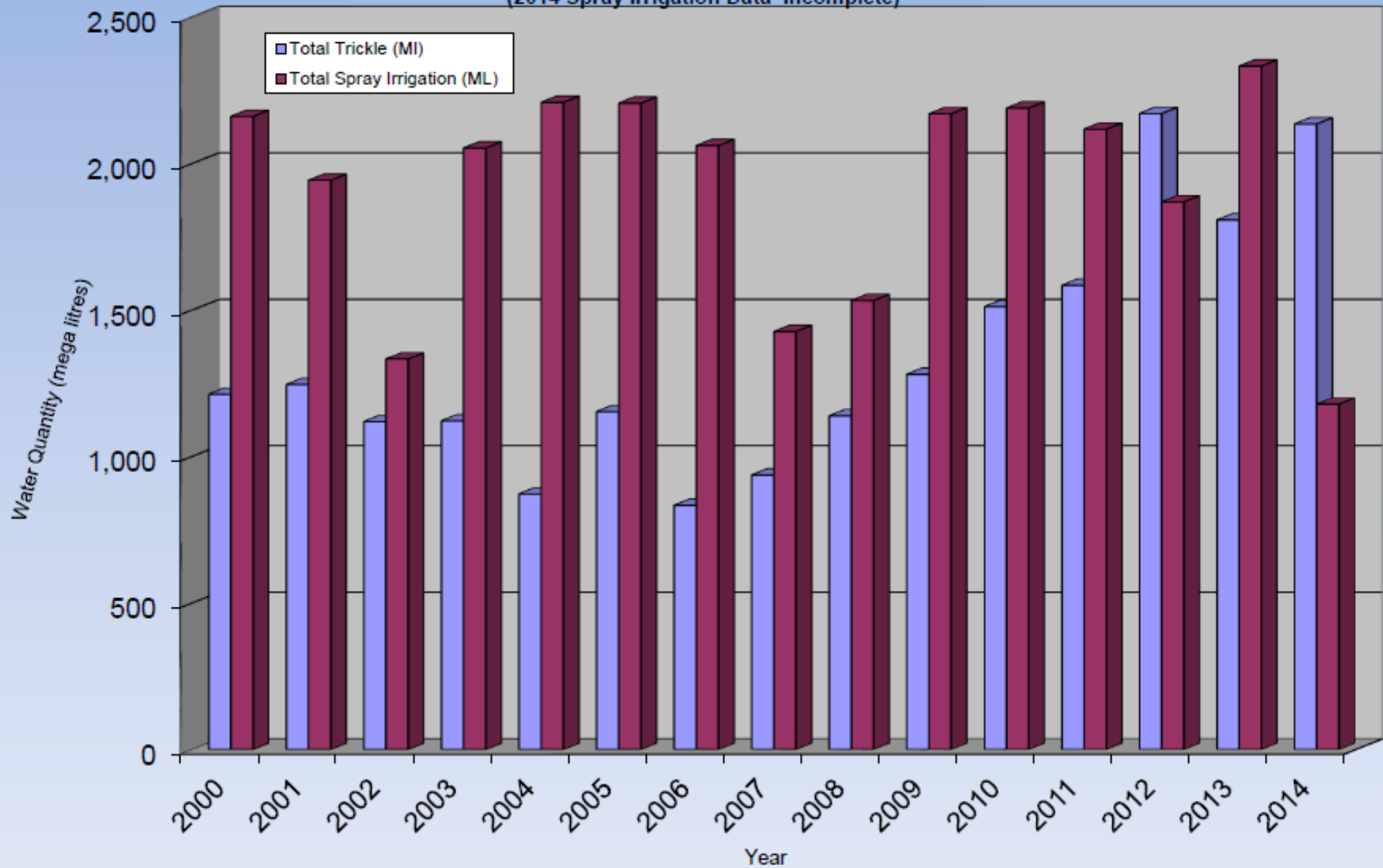
## Findings – Water Availability



### Average Water Use by Crop : 2011-2013 Cubic Metres per Hectare



Trickle & Spray Irrigation Trend Comparisons  
(2014 Spray Irrigation Data Incomplete)





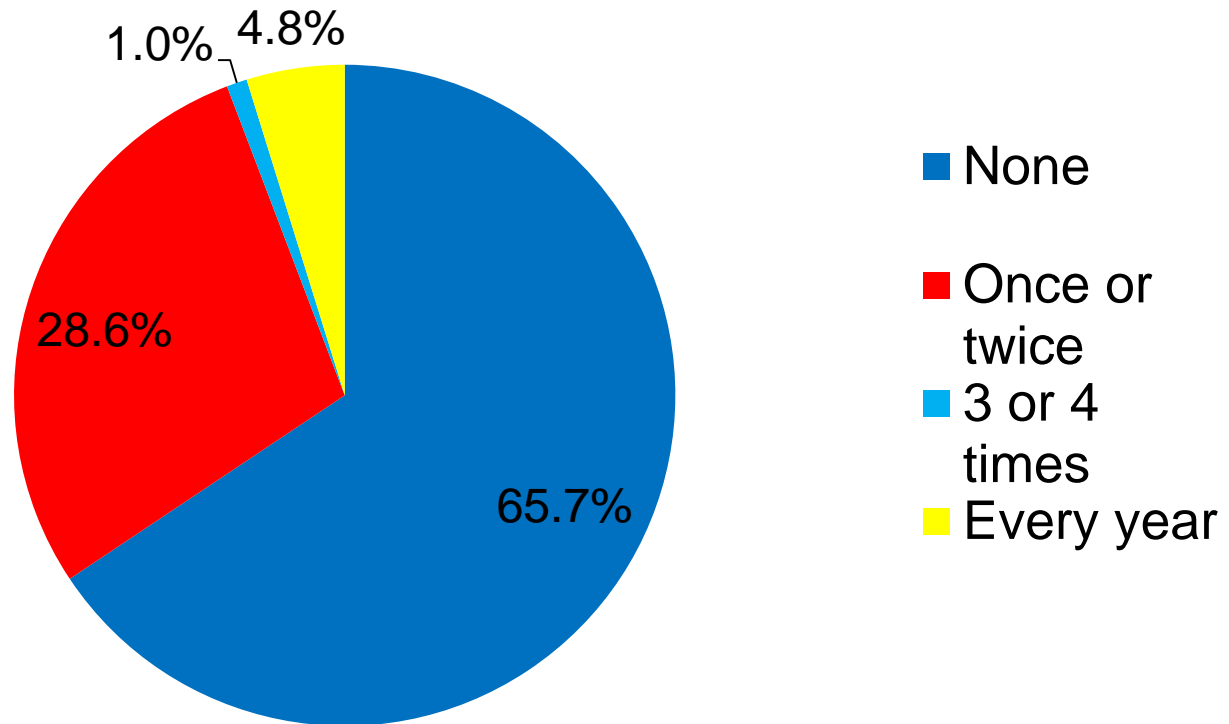
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# 'WATERR' Project Findings – Water Availability



## Impact of Limited Water Availability on Irrigator Businesses in Past 5 Years







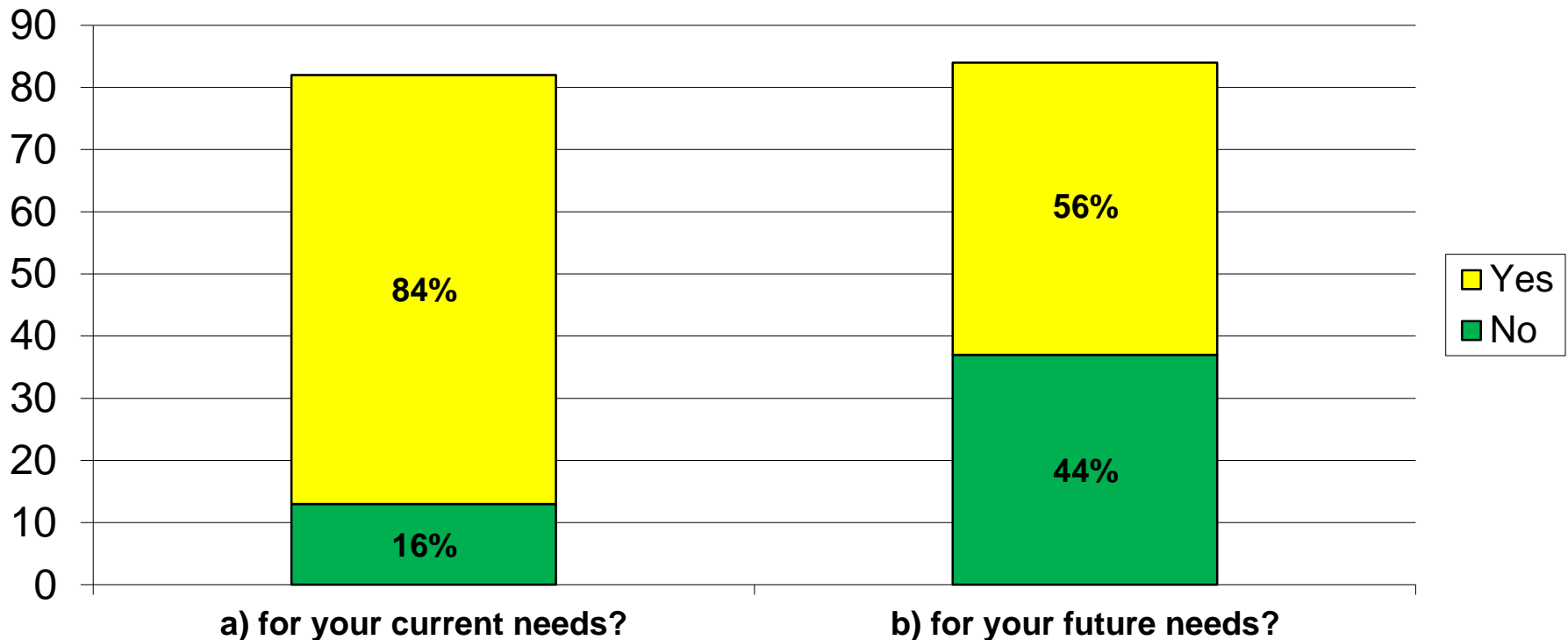
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# 'WATERR' Project Findings – Water Availability



## Adequacy of Abstraction Licence for Current and Future Needs



# 'WATERR' Project

## Findings : Water Availability

### Summary

- **Water restrictions already impacting a third of all growers**
- **Growth of trickle sector increasing pressure on supplies**
- **Abstraction Reform planned for 2020 a major concern:**
  - **If licensed volumes are restricted, or for limited periods only, production will be impacted and future investment decisions very difficult**
  - **Trickle irrigators particularly concerned about the removal of their licensing exemption**
- **Over 30% of growers are planning to increase capacity through new reservoirs and rainwater harvesting.**
- **Improving water use efficiency is seen as the best way of addressing water shortages and security of supply.**



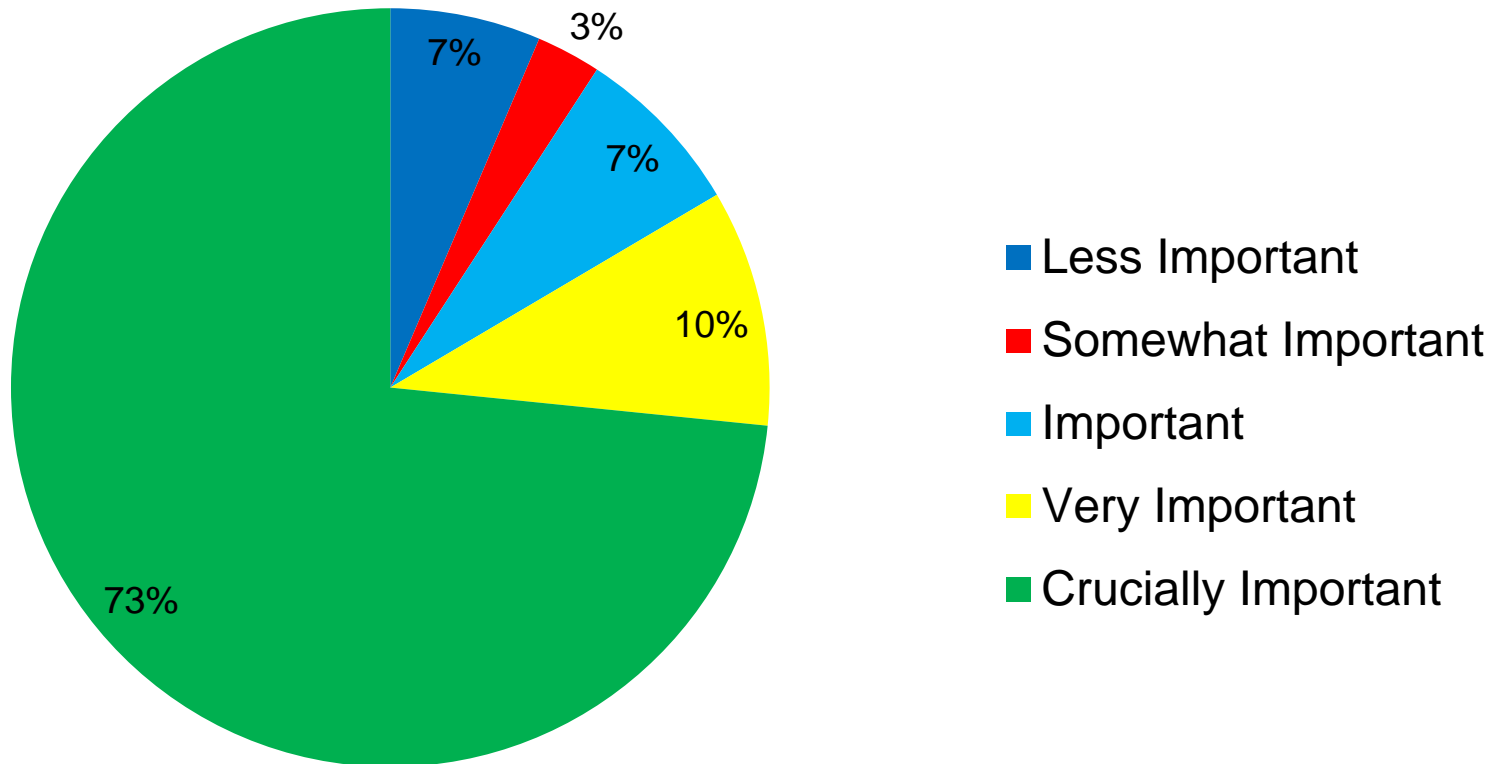
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# 'WATERR' Project Findings : Irrigation Performance and Returns



## Importance of Irrigation to Business Performance





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# 'WATERR' Project

## Findings : Irrigation

### Performance and Returns



## Impact of Irrigation on Financial Returns

£ per Hectare

**Financial Benefit of Irrigation:  
Grower Estimates**

	<b>Irrigation Cost</b>		<b>Gross Proceeds</b>	<b>Financial Benefit of Irrigation: Grower Estimates</b>	
	<b>Average</b>	<b>Range</b>	<b>Average</b>	<b>Average</b>	<b>% of Proceeds</b>

**Potatoes**

<b>791</b>	<b>108 - 3,636</b>	<b>8,084</b>	<b>3,904</b>	<b>48%</b>
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**Strawberries :**

<b>- Field</b>	<b>1,024</b>	<b>209 - 1,860</b>	<b>74,371</b>	<b>31,368</b>	<b>42%</b>
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<b>- Substrate</b>	<b>2,867</b>	<b>970 - 5,282</b>	<b>106,383</b>	<b>106,383</b>	<b>100%</b>
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**Raspberries:**

<b>- Field</b>	<b>1,138</b>	<b>554 - 1,800</b>	<b>66,464</b>	<b>51,291</b>	<b>77%</b>
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<b>- Substrate</b>	<b>2,527</b>	<b>840 - 5,014</b>	<b>74,091</b>	<b>74,091</b>	<b>100%</b>
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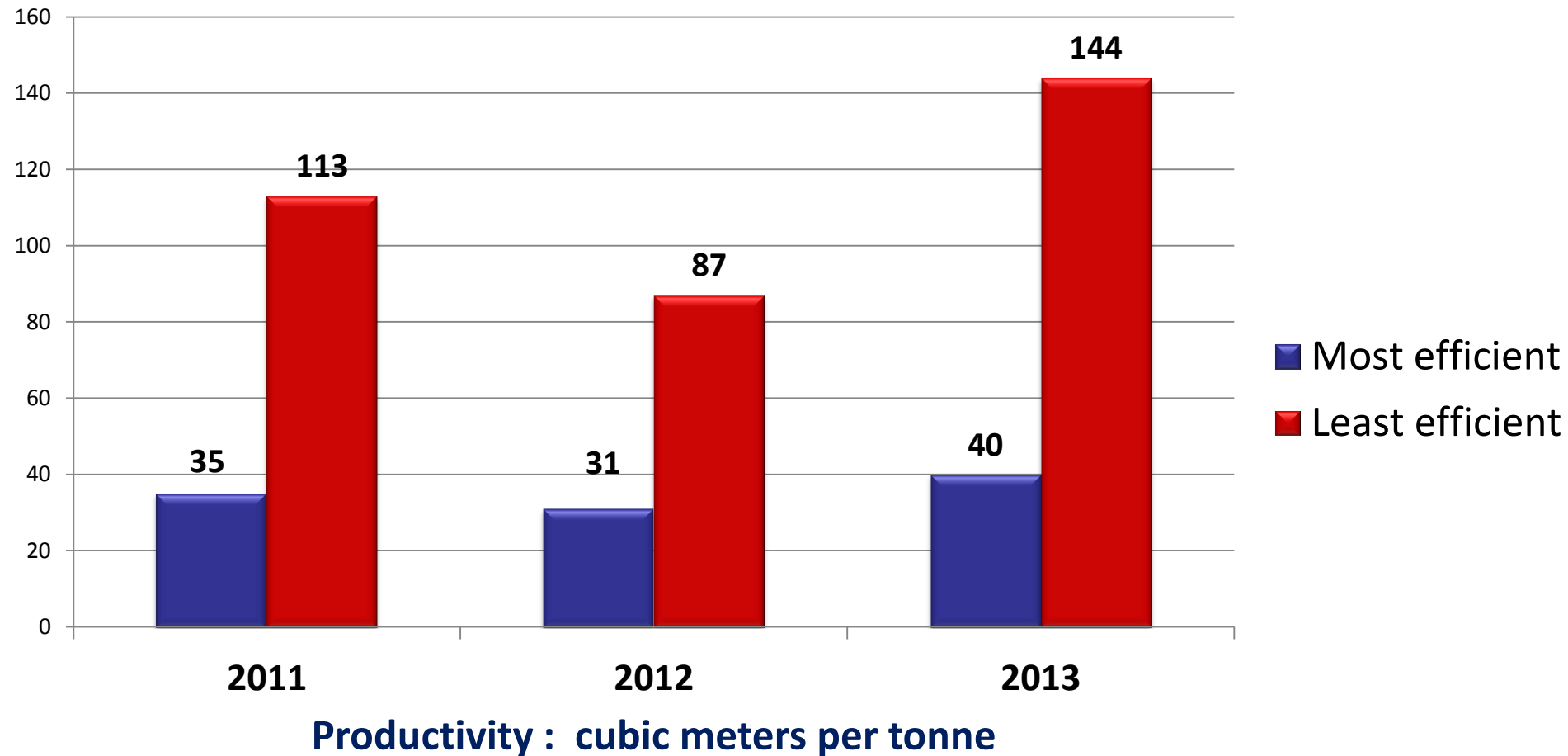


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# 'WATERR' Project Findings : Irrigation Performance and Returns



## Water Use Efficiency - Substrate Strawberries





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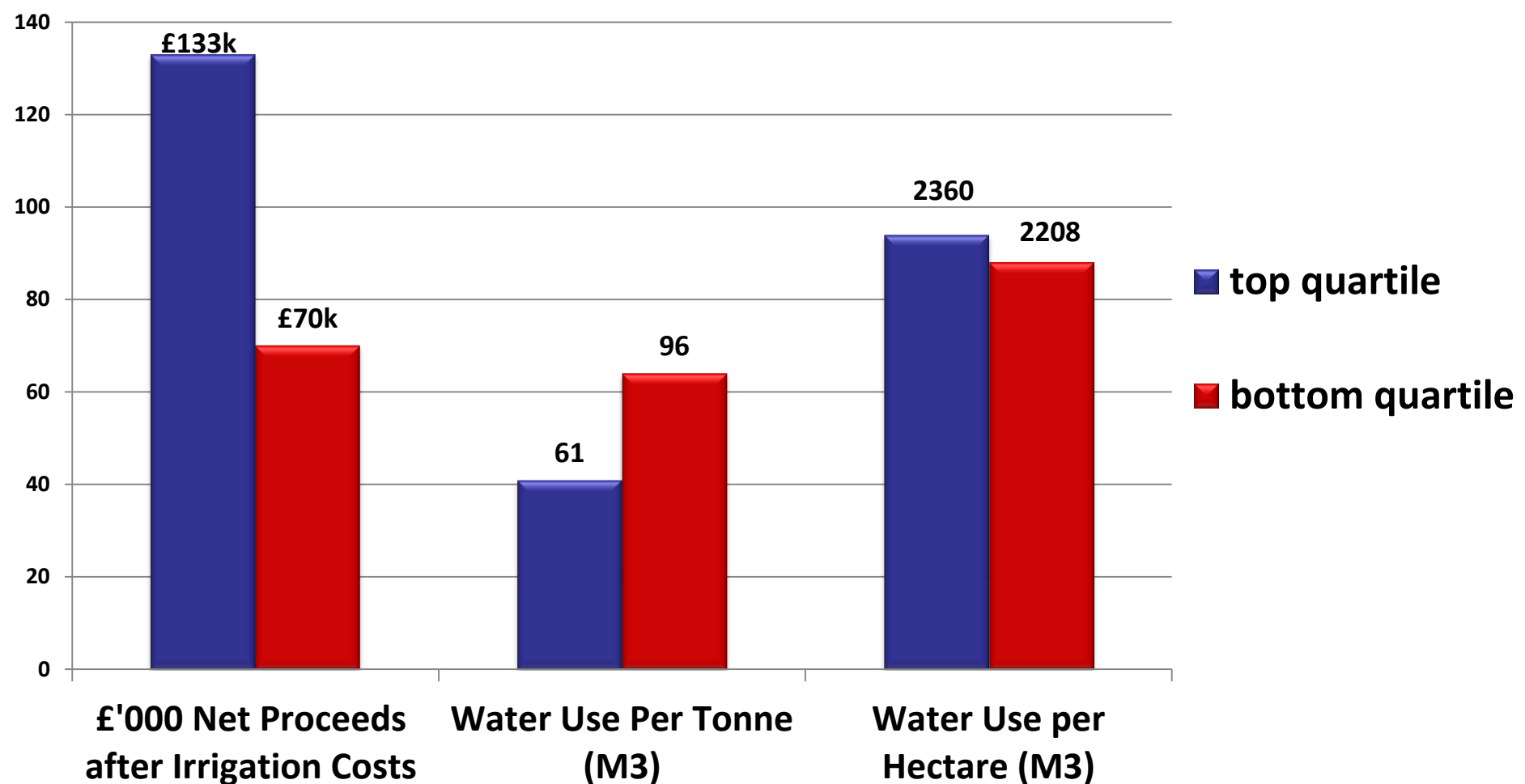
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# 'WATERR' Project

## Findings : Irrigation Performance and Returns



### £ Returns and Water Use - Substrate Strawberries





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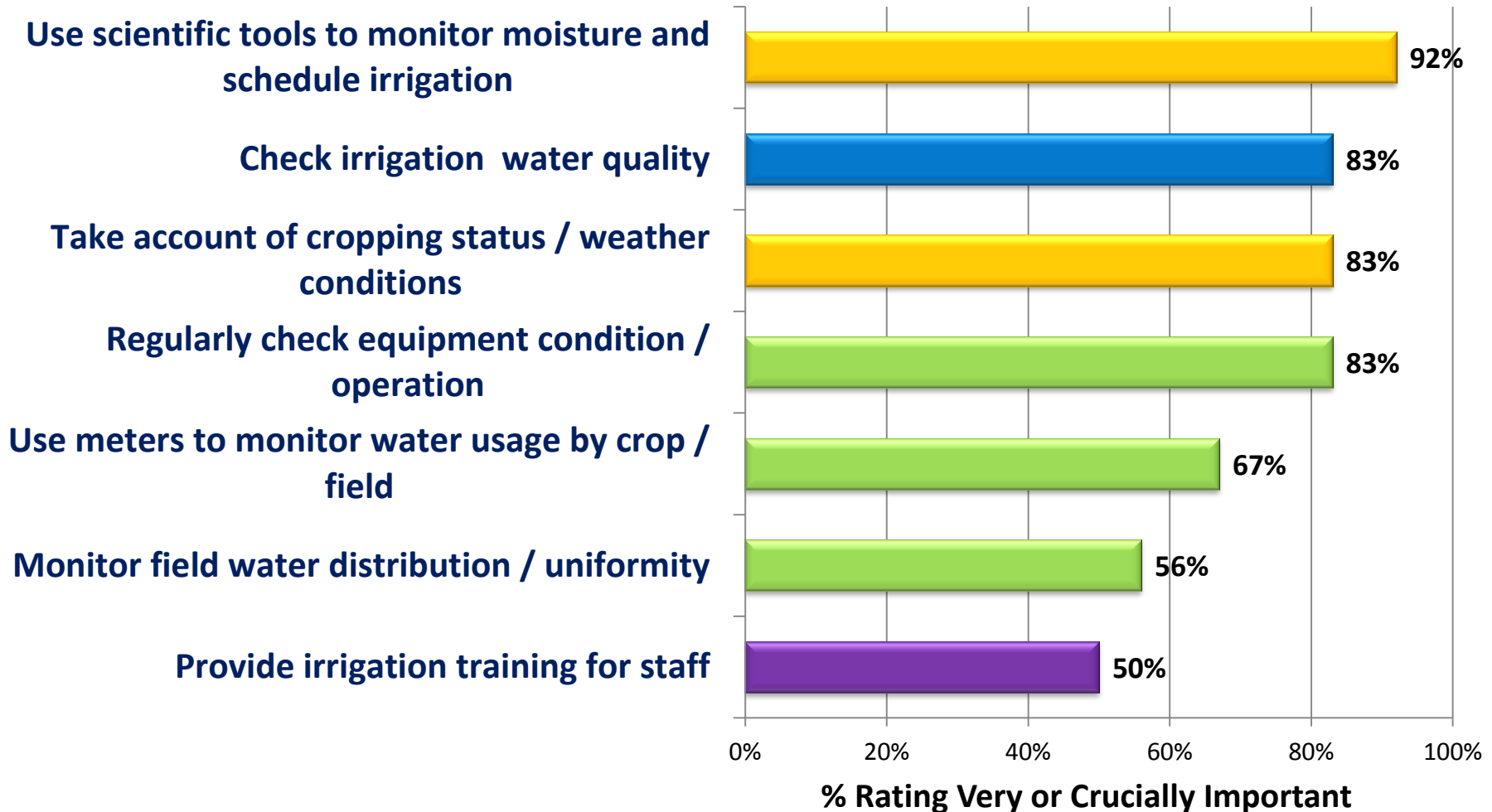
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# 'WATERR' Project

## Findings : Irrigation Performance and Returns



### Soft Fruit Growers : 'Best Practice' Ranking





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# 'WATERR' Project

## Findings : Irrigation Performance and Returns



### Summary

- **2 to 4 fold difference in water use efficiency / productivity**
- **Growers of field crops estimate that irrigation accounts for up 75 % of gross £ proceeds .**
- **Strong correlation between irrigation use efficiency and financial returns :**
  - **Monitoring soil / substrate moisture content to optimise water scheduling / volumes critical to maximising yields**
  - **Optimisation irrigation also delivers improved produce quality / prices:**
    - **shelf life / taste in soft fruit**
    - **fruit size / uniformity in tree fruit**
    - **tuber size / skin finish in potatoes**



# 'WATERR' Project

## Irrigation Business Reviews

### Irrigator Support Needs / Priorities

Ranking - % of Irrigators Rating Very or Crucially Important

1. Learning about planned changes to Abstraction Licensing System (85%)
2. Understanding which technologies/ techniques have the most impact on irrigation water use efficiency and financial returns (70%)
3. Collaborative opportunities to improve catchment management and water demand / supply balance (63%)
4. Understanding how own water use efficiency compares with other abstractors (60%)
5. How to improve own water availability e.g. build reservoirs, rain water harvesting (55%)
6. Visits to sites which demonstrate irrigation Best Practice (54%)



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# 'WATERR' Project Irrigator Support to Date



## Water Availability Workshops

**5 Workshops involving 128 irrigators / key stakeholders :**

- **Review of Abstraction Licensing Reform plans with Leader of the DEFRA Reform Team + NFU / Environment Agency/ River Trusts :**
  - options , proposals and potential impact
- **Opportunities to improve catchment management:**
  - better Environment Agency / irrigator collaboration
- **Opportunities to improve availability:**
  - Water Company untreated water supplies / trading

## Design Guide for Irrigation Reservoirs



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# 'WATERR' Project

## Irrigator Support to Date



### Irrigation Performance Improvement

**IBR Follow Ups , Sector / Crop Specific Workshops (x5) , and Best Practice Demonstrations (x4) involving 150 irrigators :**

- **Comparative irrigator water use efficiency performance**
- **Impact on Financial Returns : Top v Bottom Quartile producers**
- **Best Practice technologies/ techniques**
- **Latest Research / new technologies : EMR / irrigation suppliers**

### **Improvement Potential:**

**50% of growers targeting a 10 to 25% improvement in productivity**

### **Crop Specific Performance Information:**

**Water Use Efficiency / Financial Impact Data Sheets**

**Irrigator Performance and Best Practice Fact Sheets (7 crops)**

# Irrigator Support Needs Sources of Information

## Grower Comments

- Shortage of local advice and training : need crop specific, ‘hands on’ technical support .
- Equipment suppliers a key source of information, but equipment often not compatible and integrated / total system support needed.
- Research organisations need to focus on translating new technologies into commercial use

## Irrigation Supply Company Research (KCC / ADAS)

New technologies / systems can significantly improve irrigation performance but commercialisation requires

- Greater representation in the South East ( East Anglia focus)
- Grower engagement: ‘research extension, training and support’
- Collaboration and ‘integration through the supply chain’



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# Improving Irrigator Support: 'WET' Centre Proposal



## Future Plans

### UK Centre for Water Efficient Technologies at EMR

#### Objectives

Bring together leading irrigation researchers and equipment / services providers at EMR to:

- Research, develop and commercialise an integrated portfolio of technologies and systems for the tree , soft fruit ,HNS and Salad Crop sectors
- Deliver a step change in irrigation water use efficiency, productivity and financial returns .



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# Improving Irrigator Support : 'WET' Centre Proposal



## 'WET' Centre Strategy

- Create a Centre of Expertise with the research, development and commercialisation infrastructure and critical mass for suppliers to locate in the South East
- Engage directly with growers, Producer Organisations and Retailers to ensure technologies developed meet the needs of the horticultural sector / supply chain
- Develop integrated / compatible products and systems
- Support commercialisation / raise awareness of the commercial benefits of these new technologies through grower trials, crop specific workshops, demonstrations, training and 1: 1 support .



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# Improving Irrigator Support : 'WET' Centre Proposal



## Irrigator Comments

***'It's about getting the right amount of water to where it's required at the right time'***

**BUT :**

***'There is a lack of knowledge across the industry concerning specific crops.'***

***' There is a shortage of high level training e.g. CPD type courses'***

***' We have to draw information from many sources . It would be very helpful if it could all be in one place .'***