

# NFU Water Survey

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## 2011 Overall Results

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## Summary

Water matters to the agriculture sector because it is fundamental for food production. This document provides timely and useful evidence about how vital access to water is for agriculture. Farmers and growers need it for their animals and they need it for their crops. Some agricultural sectors need more water than others, but the NFU's 2011 survey shows just how important water is to all farm businesses and, given the increasing competition for available water resources, how continued access to abstract water remains vital.

Our survey showed:

- The volume of water used is largely (but not exclusively) driven by farm type and location e.g. a sheep and beef farmer in the South West is likely to require only small amounts of water for drinking purposes for his animals, while for a soft fruit grower in Kent, water requirements may be substantial.
- The majority of farmers and growers use small amounts of water (less than 20 m<sup>3</sup> a day).
- 71 per cent of respondents use mains water from the public water supply.
- 16 per cent of those surveyed said they own or had access to a reservoir.
- 18 per cent of farmers surveyed, irrigate their crops.
- 40 per cent of water needed to irrigate was abstracted before the season started.
- 55 per cent have limits on their licence which means under certain condition they will not be allowed to abstract water.

This report presents the results of the 2011 NFU Water Survey. The survey shows how farmers and growers are currently using available water resources and what steps are already being taken by the industry to conserve and make best use of this precious resource over the next five years.

The importance of water to agriculture has been highlighted in 2011 by the dry conditions affecting much of the southern half of England in the early part of the year. A drought (water shortage) affects both crops and animals and it can take a long time before the full impact of a drought becomes evident. For example, the legacy of the dry spring and summer in 2011 has led to fears for some livestock farmers that, if the 2011 winter is cold and dry, food and bedding could be in short supply and costly. In addition, some farmers and growers with winter storage reservoirs are being told by the Environment Agency (EA) that, despite this being an officially 'wet' summer', the underlying dry conditions means they cannot yet begin to refill their winter storage reservoirs in preparation for the next growing season.

The Defra irrigation survey<sup>1</sup> shows the agricultural sector uses only about 1 per cent of the total amount of abstracted water and that the majority of farmers and growers use mains water from the public water supply. This NFU survey supports this evidence, finding that more than two-thirds of farmers and growers use only small (less than 20 m<sup>3</sup> a day) amounts of water and that 71 per cent of respondents use mains water. Our survey also showed that the volume of water used is largely (but not exclusively) driven by the type of farm and location. For example, a sheep and beef farmer in the South West is likely to require only small amounts of water for animal drinking purposes; while for a soft fruit grower in Kent, water requirements may be substantial.

An abstraction licence from the EA is required for farmers and growers abstracting more than 20 m<sup>3</sup> of water per day. For these agricultural enterprises, access to water rights from the EA, through the abstraction regime is critical. Since the 2003 Water Act, all abstraction licences issued have been time-limited, making the long term planning and investment in water efficient measures such as building a reservoir difficult for some farmers and growers. The NFU also understands that a significantly higher proportion of the abstraction licences held by the agriculture sector are time-limited in contrast to those held by others such as the public water supply, and electricity sectors.

### Policy context

How water is managed is becoming an increasingly important issue for discussion among politicians as well as the water and agricultural sectors. Population growth, climate change impacts and a tightening of regulation to achieve sustainable water management are increasing the pressure and competition for available water resources. The Government of the day responded to these pressures by commissioning a series of Reviews looking at different aspects of the water sector, namely:

- The Cave Review of competition and innovation in water markets;
- The Walker Review of charging for household water and sewerage services;
- The Gray review of Ofwat and consumer representation in the water sector.

In addition, the Natural Environment White Paper (published in June 2011) announced the Coalition Government's intention to "reform the abstraction regime" and "provide clearer signals to abstractors to make the necessary investments to meet water needs and protect ecosystem function". Defra's forthcoming Water White Paper expected in December 2011 will set out the Government's response to the recommendations made in these four documents.

The NFU is concerned that water continues to be dealt with through specific measures addressing drought and flood e.g. the floods and Water Management Act of 2010 and commitment to the reform of

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<sup>1</sup> **Water Usage in Agriculture and Horticulture** – Results from the Farm Business Survey 2009/10 and the Irrigation Survey 2010. Defra June 2011

abstraction regime (announced in the Natural Environment White Paper in June 2011 and proposals expected in the forthcoming Water White Paper) In our view, an integrated water management approach should be employed such as that used by Internal Drainage Boards (IDBs). These organisations cover 10% of land in England and Wales and protect some of the most low-lying vulnerable areas of urban and rural land. The current approach is likely to result in the agricultural sector suffering from increased water costs as a result of the changes to Ofwat's Price Review mechanism and a reduced access to water through further reform of the EA's abstraction regime. Both of these proposals are likely to be made in the forthcoming White Paper.

The NFU continues to promote water efficiency among its members and, in addition, would like to see:-

- Support by Government and its agencies for the use of voluntary abstraction restrictions and abstraction management in catchments and times of low water availability as an option enforced by farmer abstractor groups themselves;
- Support the establishment of farmer-led catchment abstraction groups to manage water use in agriculture and horticulture;
- A transparent, consistent but flexible delivery approach by the Environment Agency in relation to the regulation of abstraction licences;
- A restoration of the threshold for the 'large' category of reservoir to be defined as 25,000m<sup>3</sup> to encourage the building of more on farm storage reservoirs;
- Recognition that using high flows at any time of the year to refill reservoirs can benefit the wider environment;
- More research and development into drought tolerant plant varieties and on-farm demonstrations of new, more efficient irrigation technologies;
- Investment incentives, such as appropriate exemptions, tax incentives and grants to encourage the use of water efficient irrigation technology such as drip and computerised irrigation systems etc;
- Ring fenced water rights for agriculture so that agriculture is not disadvantaged or out-competed by other, larger water users and better water trading guidance to enable more water trading to take place (provided a volume is ring fenced);
- Water companies have, and abide by, a Code of Practice, when drawing up drought orders.

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5. Water Efficiency
6. Drought & Climate Change
7. Regulation
8. Methodology, weightings and descriptive statistics

### 1. Introduction

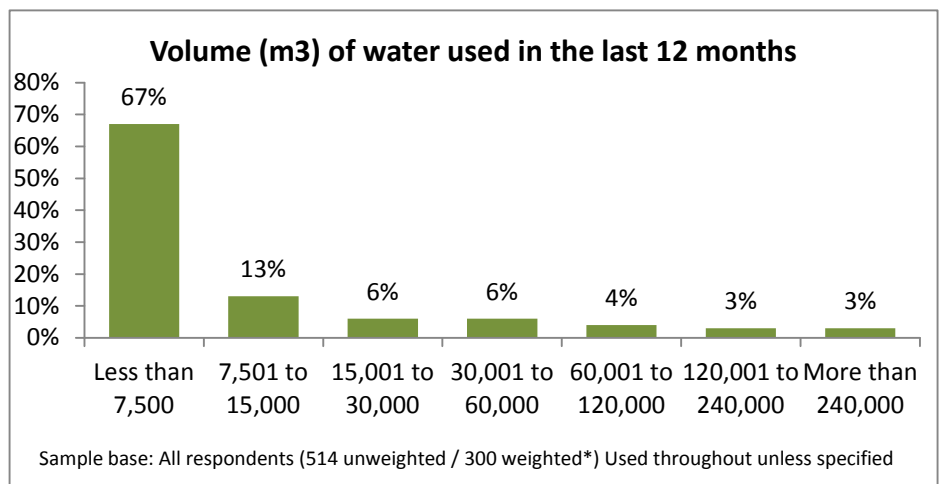
This is the third water survey of farmers and growers. It is conducted by the NFU every five years. It uses information provided by farmers and growers to analyse the sector's water use, investment and water efficiency measures and considers attitudes towards the impacts of drought, climate change and regulation on their businesses. 514 farmers and growers from England and Wales were questioned through a mixture of telephone and web based survey which was run up to the 9<sup>th</sup> September 2011. Overall results are weighted by sector in order to build a representative picture of farm types across England and Wales. More information on the methodology used can be found in Section 8.

## 2. Water Access & General Use

### 2.1 Water used on the farm in the last 12 months

The data shows 67 % of the farmers who participated in the 2011 survey use relatively small quantities of abstracted water (equivalent to 20m<sup>3</sup> or less per day). However, water use on the farm varies greatly depending on the type, size and location of the farm owned or managed by the respondent; and the farming methods employed.

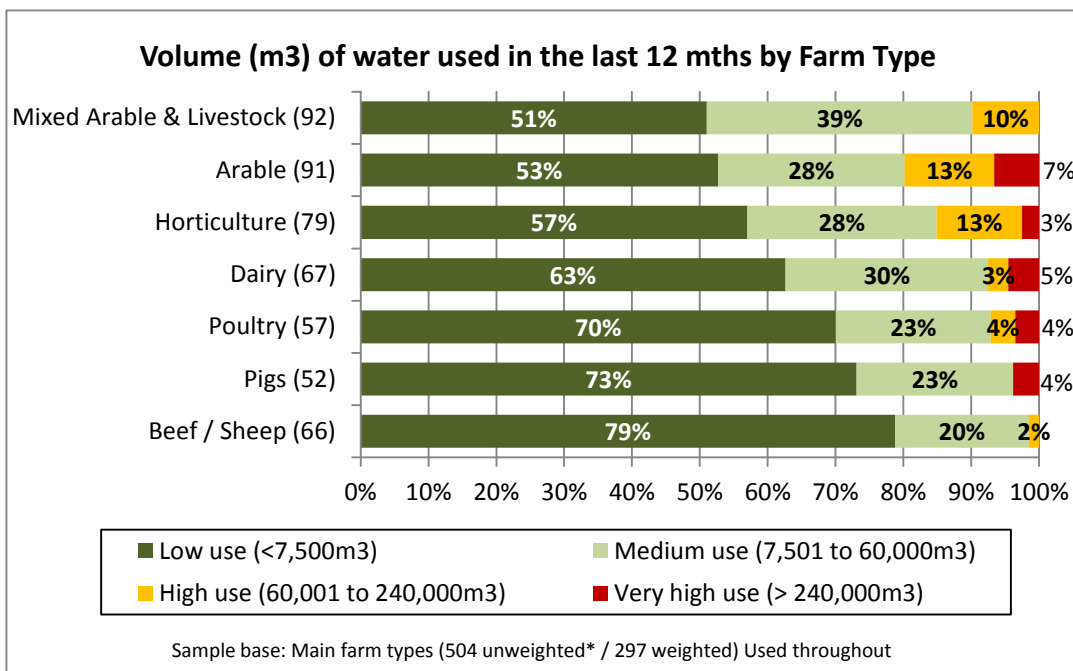
In addition about a quarter of farmers have used between 7,500m<sup>3</sup> and 60,000m<sup>3</sup> over the last year.



10% of respondents have used more than 60,000m<sup>3</sup> with a small minority (3%) of heavy water users employing more than 240,000m<sup>3</sup> in the last 12 months.

#### 2.1.1 Water use by farm type

The chart below shows the volume of water used in the last 12 months across the different farm sectors. Those with an arable or horticulture focus were more likely to be high volume users of water in the last year compared to those with mainly livestock.



20% of arable farmers used more than 60,000m<sup>3</sup> (or 164m<sup>3</sup> per day) in the last year compared to 16% for horticulture and 10% for mixed arable & livestock.

For those with a livestock focus, dairy and poultry farmers had the largest proportion of high volume water users with 8% respectively using more than 60,000m<sup>3</sup> however the majority of

farmers in these groups used less than 7,500m<sup>3</sup>

The results indicate that beef / sheep farmers surveyed used the least water overall last year with 79% using less than 7,500m<sup>3</sup> and only 2% using more than 60,000m<sup>3</sup>.

## 2.2 Water sources used by farm type

	Mains	Groundwater	Reservoir	River abstraction	Canal abstraction	Other surface watercourse abstraction	Harvested rainwater	Recycled	Other storage facility
<b>Arable (91)</b>	63%	32%	23%	20%	2%	6%	7%	4%	1%
<b>Beef / Sheep (66)</b>	69%	40%	9%	15%	2%	15%	20%	6%	0%
<b>Dairy (67)</b>	75%	63%	10%	13%	0%	0%	6%	5%	2%
<b>Horticulture (79)</b>	65%	51%	43%	10%	1%	4%	18%	8%	0%
<b>Mixed Arable &amp; Livestock (92)</b>	88%	37%	10%	10%	0%	6%	10%	1%	1%
<b>Pigs (52)</b>	90%	39%	8%	4%	0%	2%	6%	2%	0%
<b>Poultry (57)</b>	84%	33%	12%	4%	0%	0%	11%	2%	0%

**Mains supply** – Respondents with a pigs or mixed arable & livestock focus had the highest propensity to draw from mains (given importance of water quality for animal drinking) with 90% and 88% respectively. Arable and horticulture farmers were least likely to draw from the mains last year – with 63% and 65% respectively

**Groundwater abstraction** - dairy (63%) & horticulture (50%) farmers were most likely to draw on groundwater sources (e.g. borehole, spring, and well).

**Reservoirs** – horticulture farmers were almost twice as likely to have drawn water from a reservoir as those with arable farms in the last year with 43% drawing from this source compared to 23%. This contrasts with 12% or fewer using reservoirs for all the other farm types

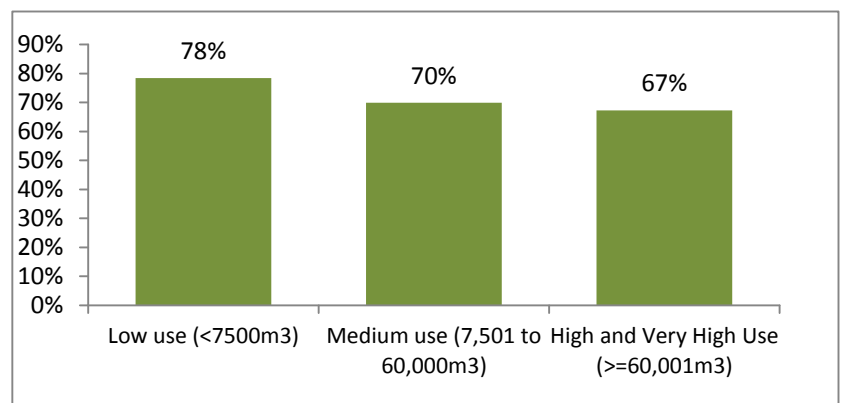
**Watercourses** (e.g. river, canal and or other surface watercourse) – Pigs and Poultry farmers were least likely to draw from these sources in the last year.

**Harvested rainwater** – beef / sheep (20%) and horticulture (18%) farmers were twice as likely to have used harvested rainwater in the last year compared to the other groups.

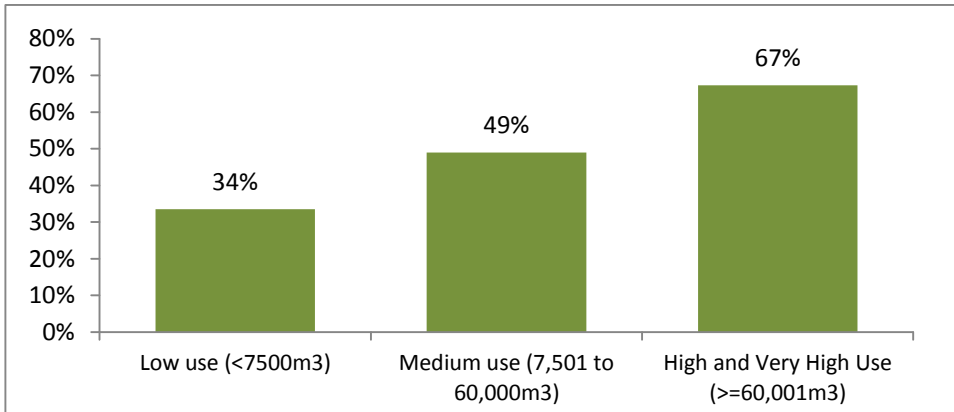
## 2.3 % of respondents that used a mains supply in the last year by water usage in the last 12 months

The results show that respondents with low water use last year were slightly more likely to have drawn from the mains in the last 12 months than medium or high / very high water users.

However, the majority of respondents in each of the three groups (67% or more) used the mains supply last year.



**2.3.1 % respondents that used a groundwater supply by water usage in the last 12 months**



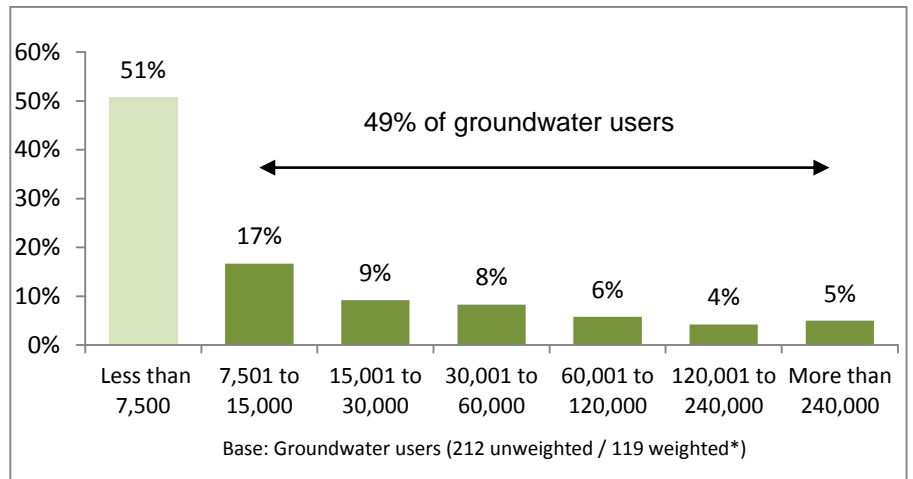
This chart shows that the greater the level of water usage last year, the more likely the farmer is to have drawn water from a groundwater source.

Farmers using high / very high levels of water last year were significantly more likely to have drawn water from the groundwater supply last year

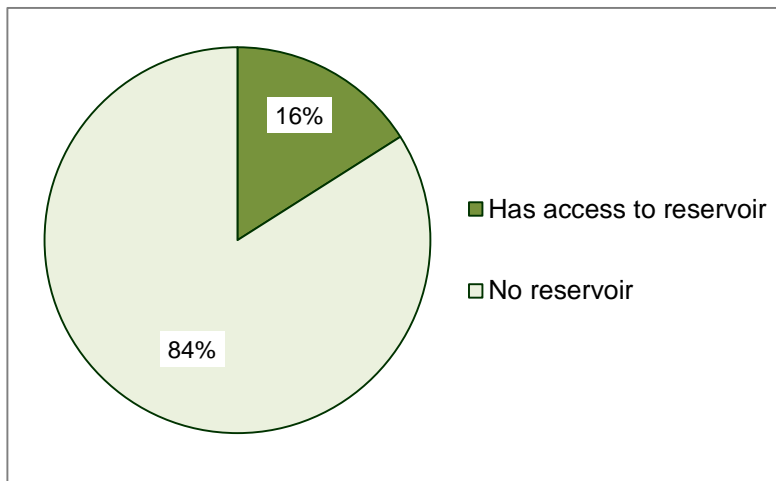
than medium level users – 67% compared to 49% respectively. In turn, medium level users were significantly more likely to have drawn from groundwater sources than low level users – 49% and 34% respectively.

**2.4 Volume of water drawn by groundwater users in the last 12 months**

The chart opposite shows that just under half of groundwater users (49%) abstracted over 7,500m<sup>3</sup> / year or 20m<sup>3</sup> / day. To summarise the above, around 1 in 5 respondents overall drew more than 20m<sup>3</sup> / day from local groundwater supplies last year and this source generally made up the majority (68% on average) of their total supply where used.



## 2.5 Reservoir ownership



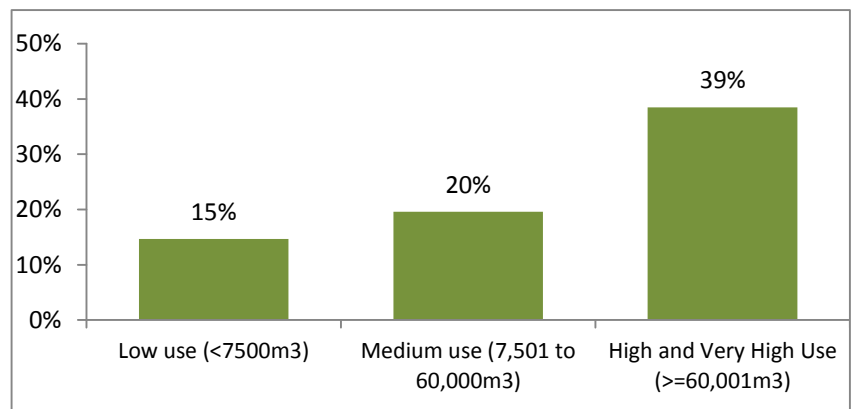
16% of respondents overall have a reservoir on their farm or have access to one compared to 84% that have no reservoir.

The above proportions have changed little since the 2006 NFU Water Survey (18% and 82% respectively).

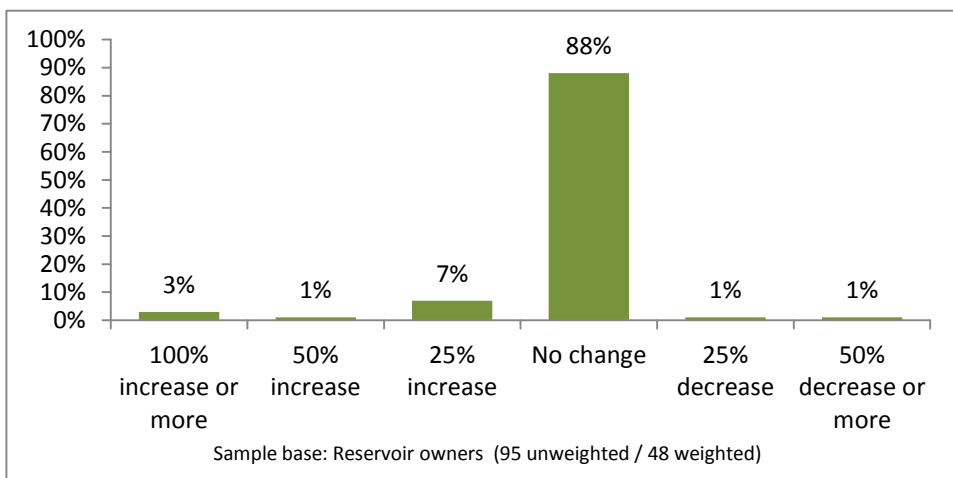
N.B. Reservoir ownership across the farm types mirrors the proportions using this source in the last year (see point 2.2). I.e. those with horticulture (45%) or arable (25%) farms are most likely to have a reservoir – compared to between 9% and 16% for all other main farm types.

### 2.5.1 Reservoir ownership by water usage in the last 12 months

Those with high / very high water usage in the last 12 months are significantly more likely to have access to a reservoir than those with medium or low use for the last year – 39% compared to 20% and 15% respectively.

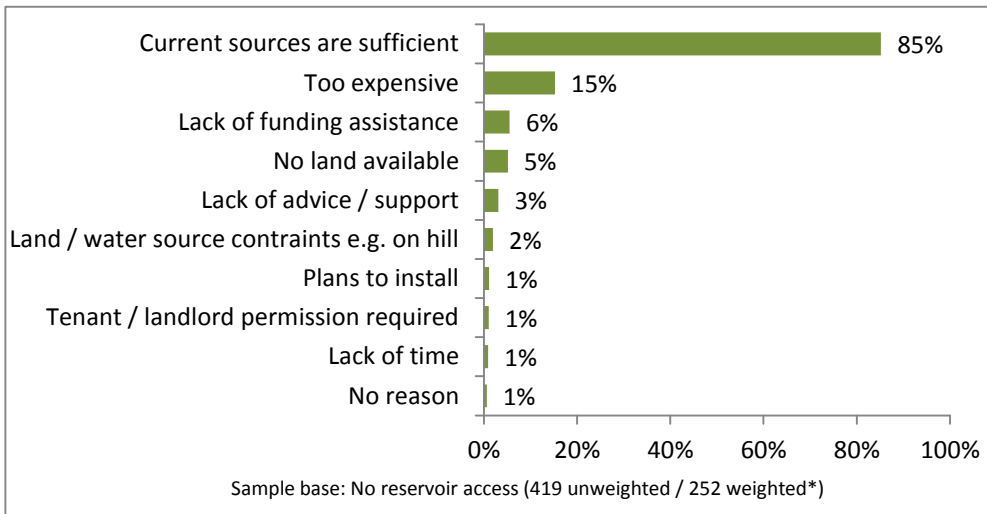


## 2.6 Changes in reservoir capacity over the last 5 years



16% of respondents have a reservoir and of these, 11%, have increased storage capacity, whilst only 2% reported a decrease in capacity. The vast majority (88%) reported that there has been no change in their reservoir capacity over the last 5 years.

### 2.7 Reasons for not having / installing an on farm storage reservoir

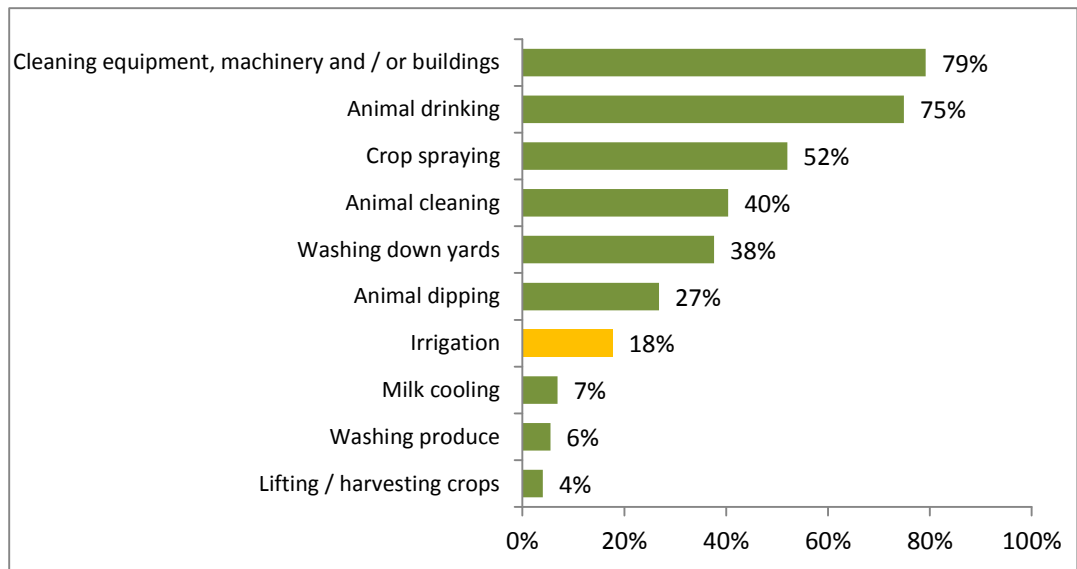


84% of respondents have no reservoir and most of these (85%) reported that they believe 'current sources are sufficient' - unsurprisingly given that 60% of respondents (when weighted to reflect main farm type distribution in England and Wales) have a predominantly livestock focus and therefore have relatively low water use, often met by mains supply.

15% of this group highlighted the expense of installing such a facility and 6% said there is a lack of funding.

### 2.8 Water requiring activities carried out in the last 12 months

Respondents were asked to select which of the listed water related activities they carried out over the last year. Most respondents have used water to 'clean equipment, machinery and / or buildings' or for 'animal drinking' – 79% and 75% respectively.

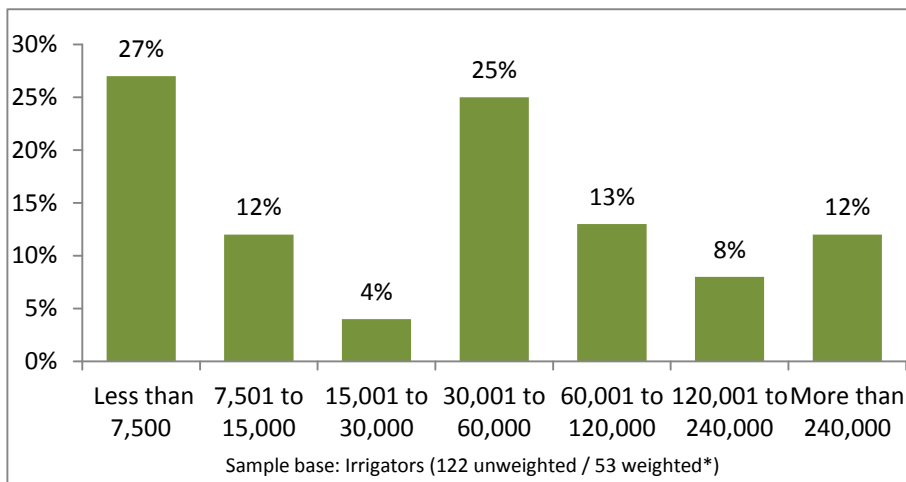


'Crop spraying' was carried out by more than half of those surveyed in the last year. 18% of respondents have carried out 'irrigation' in the last 12 months and this group

were asked specific questions about this activity – see section 3.

### 3.0 Irrigation

#### 3.1 Volume of water (m<sup>3</sup>) used for irrigation in the last 12 months



18% of respondents have irrigated in the last 12 months (see previous page) and the chart opposite shows how much water they used.

27% of this group used less than 7,500m<sup>3</sup> for irrigation in the last year

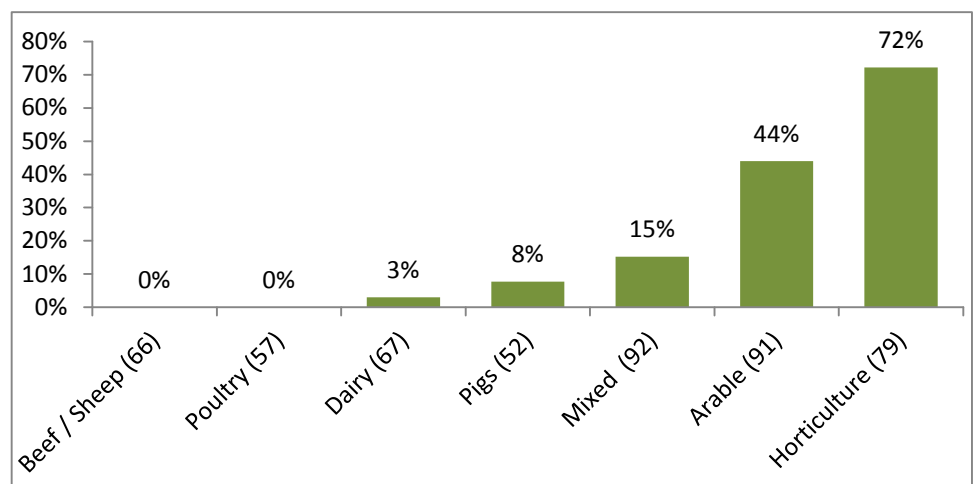
41% used between 7500m<sup>3</sup> and 60,000m<sup>3</sup>

21% used between 60,000m<sup>3</sup> and 240,000m<sup>3</sup> whilst 12% of those that irrigate used more than 240,000m<sup>3</sup> for this purpose in the last year.

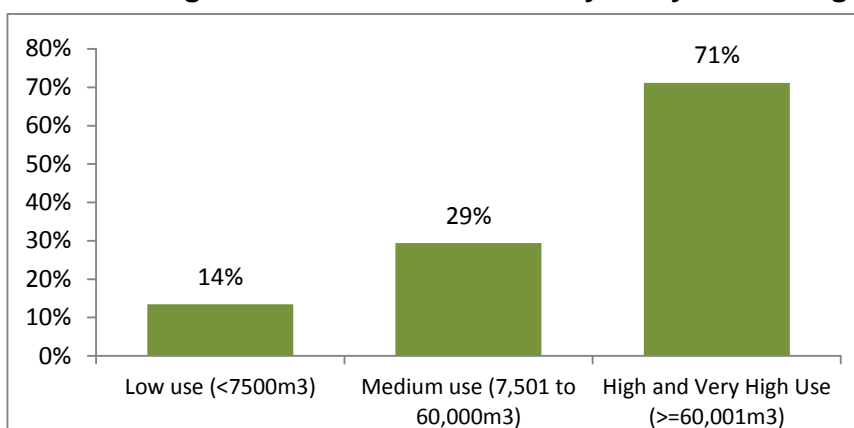
#### 3.1.1 Irrigation carried out in the last year by farm type

72% of respondents with a horticulture focus irrigated crops last year compared to 44% of arable farmers and 15% of mixed arable & livestock farmers.

With regards to the primarily livestock groups, those with pigs were most likely to have irrigated in the last 12 month (8%) compared to 3% of dairy farmers. None of the poultry of beef / sheep farmers irrigated in the last year



#### 3.1.2 Irrigation carried out in the last year by water usage in the last 12 months

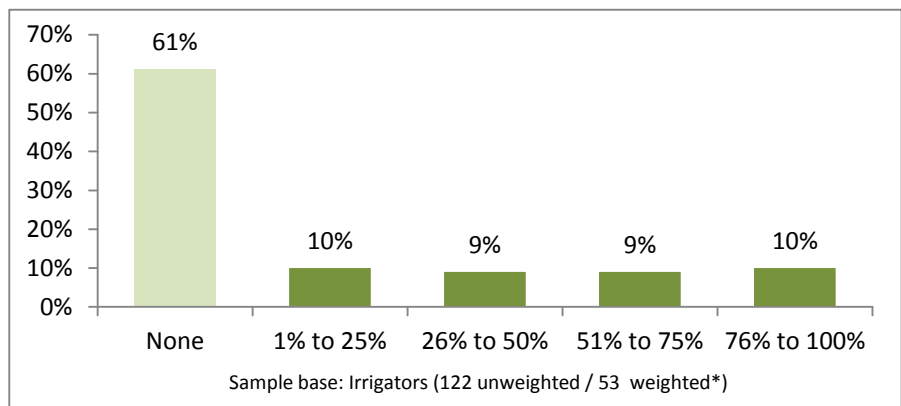


The chart opposite shows that farmers that were high / very high level water users last year were significantly more likely to have irrigated crops in the last 12 months than medium and low level users – 71% compared to 29% and 14% respectively.

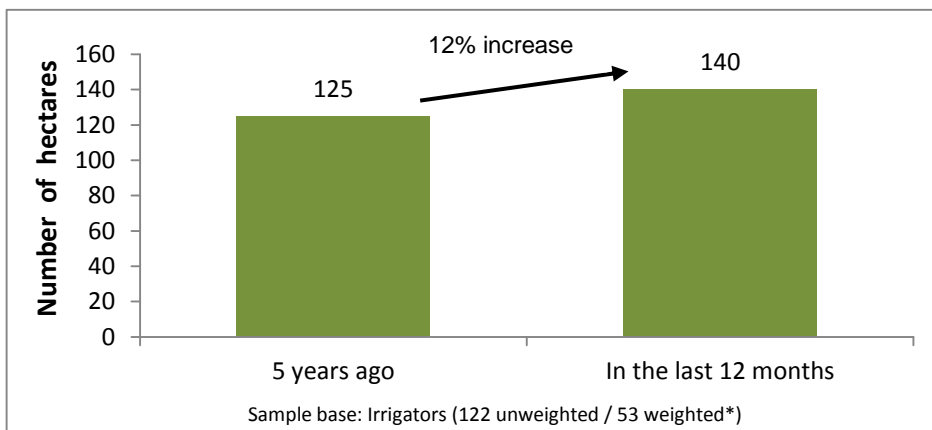
### 3.2 % of irrigation water abstracted before the last irrigation season started

This chart shows that 61% of irrigating farmers abstracted 'none' of the required water before the last irrigation season started.

19% abstracted up to half of all irrigation water whilst 19% drew more than half.



### 3.3 Average area (ha) irrigated in the last 12 months compared to 5 years ago



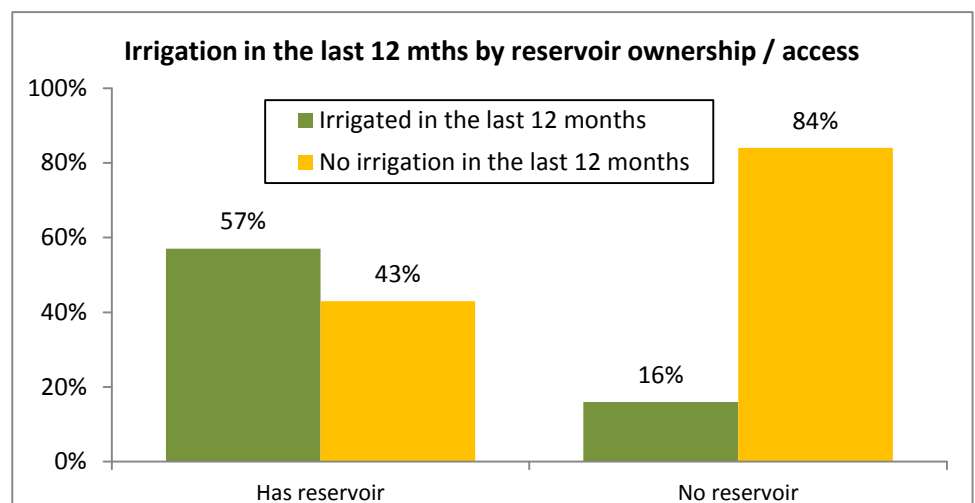
Respondents were asked to specify the area of land they irrigated 5 years ago as well as the area irrigated in the last 12 months.

The research indicates that there has been, on average, a 12% increase in the area of land irrigated of the last 5 years.

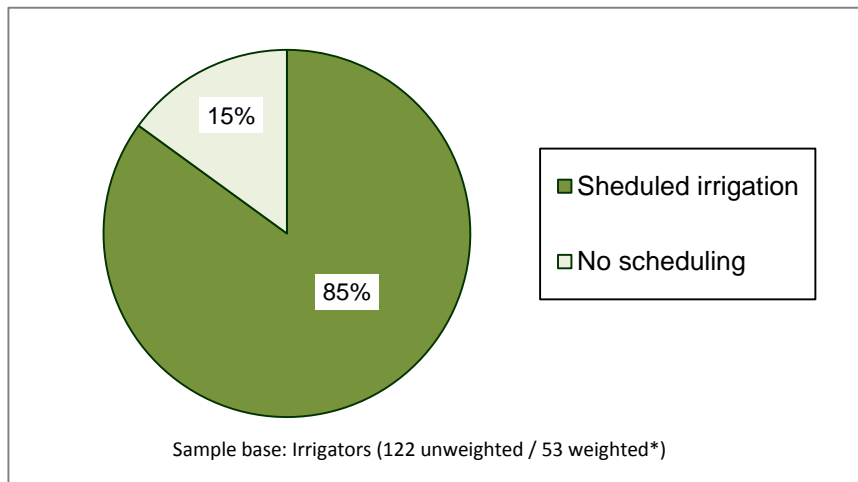
### 3.4 Irrigation utilisation in the last 12 months by reservoir ownership / access

In point 2.2, the report highlights that those with horticulture (45%) and arable (25%) farms are up to four times and twice as likely respectively to have a reservoir than all other farm types (between 9% and 16%). Also, horticulture and arable farmers are both much more likely to have irrigated crops in the past year – therefore the chart opposite is mainly driven by these two farm type groups)

57% of respondents with a reservoir irrigated their crops in the last year compared to only 16% that do not have a reservoir.



### 3.6 Use of scheduled irrigation & timing of schedule

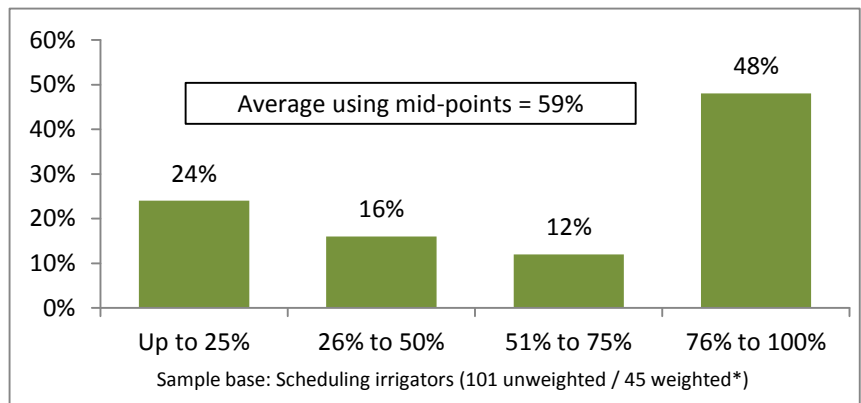


85% of farmers that irrigate, budget their water use for this activity by scheduling their irrigation.

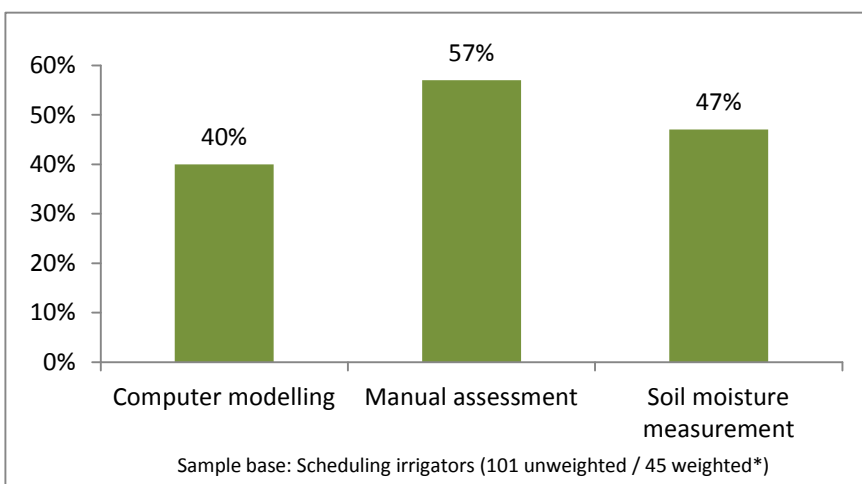
Nearly all of this group schedule on a monthly (50%) or seasonal (45%) basis with only 5% scheduling on an annual basis

### 3.7 Percentage of crops on which scheduling is used

Where scheduling is utilised: on average this is applied to an estimated 59% of crops.



### 3.8 Scheduling method(s) used



Respondents were asked to select the scheduling method or methods that they use.

The results show that a 'manual assessment' is most often employed by those scheduling their irrigation – with 57% of this group.

'Soil moisture assessment' is employed by 47% of those that schedule while 40% conduct 'computer modelling'

## 4.0 Water Infrastructure, Investment and Operational Costs

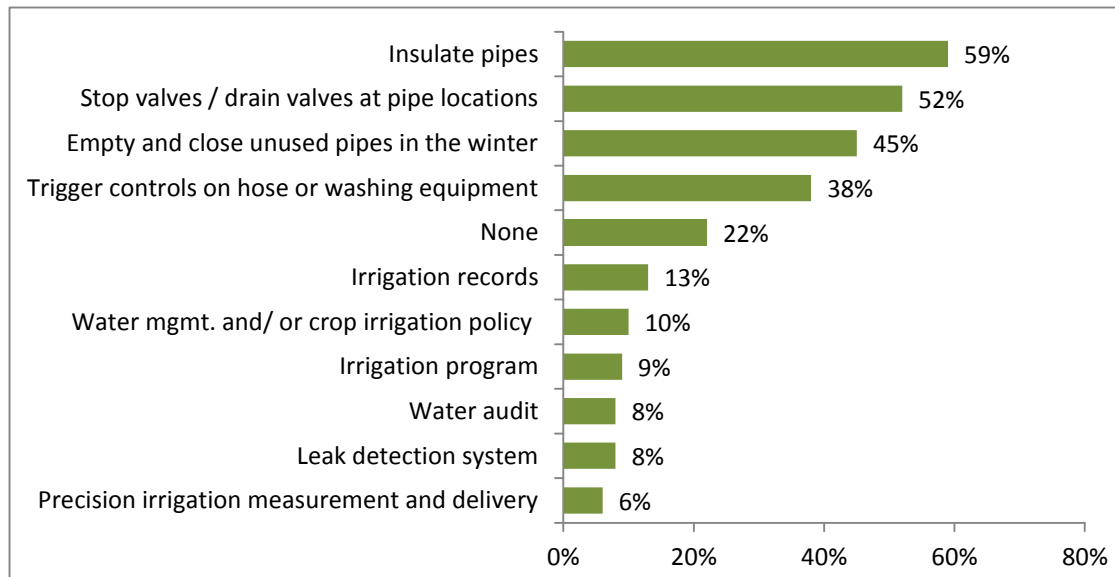
### 4.1 On farm water management measures

The chart on the right shows the proportion of respondents that employ various water management measures.

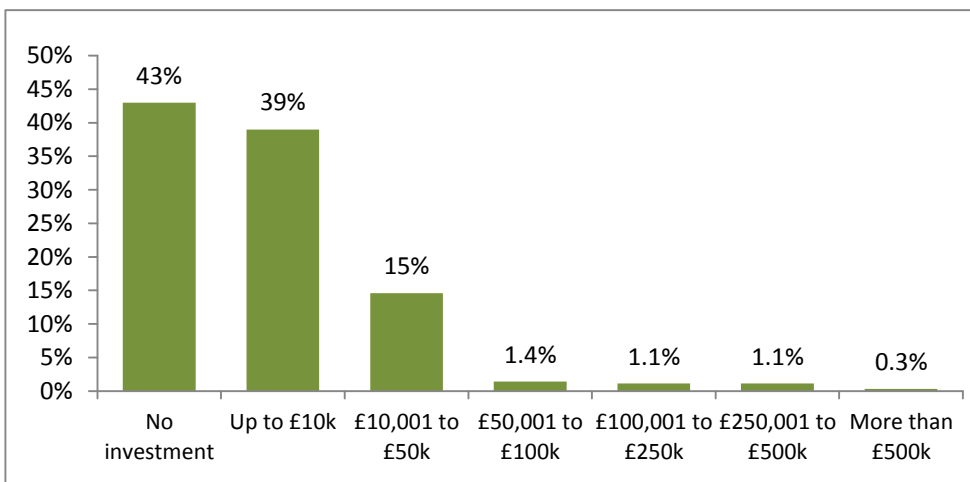
Respondents employ around three water management measures each on average however 22% stated that they use none.

59% of those surveyed have ‘insulated pipes’ and over half of the sample have installed ‘stop valves and / or drain valves at pipe locations’. 45% of respondents ‘empty and close unused pipes in the winter’.

In terms of monitoring measures – 13% keep ‘irrigation records’; 10% have implemented a ‘water management and / or crop irrigation policy’; 8% have carried out a ‘water audit’; and 8% have a ‘leak detection system’



### 4.3 Level of capital invested in water infrastructure over the last 5 years

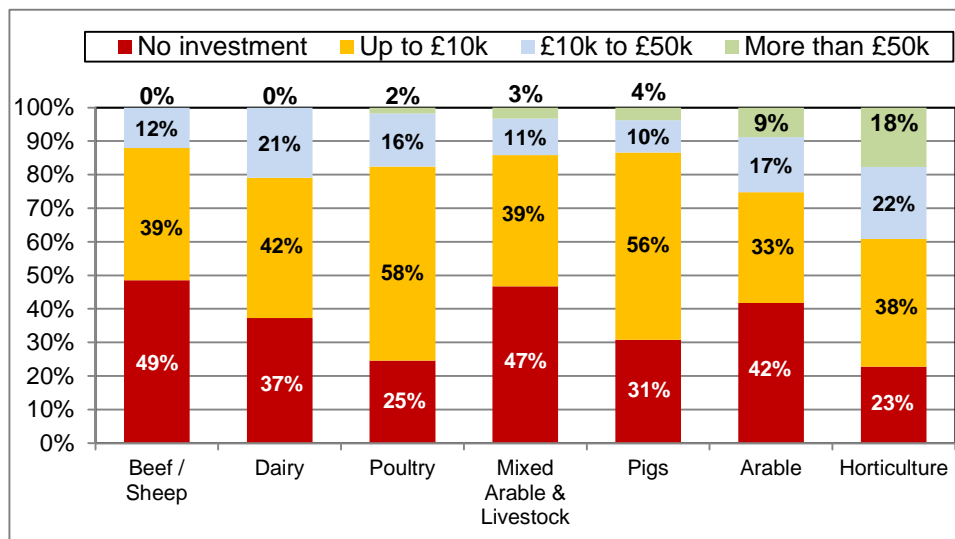


(E.g. reservoir, irrigation systems)

57% of respondents have invested in their water infrastructure in the last 5 years compared to 43% that have not invested.

39% have invested up to £10k; 15% have invested up to £50k; 2.5% have invested up to £250k, whilst 1.4% of farmers surveyed have invested more than £250k in the past 5 years.

**4.3.1 Level of capital invested in water infrastructure over the last 5 years by farm type**



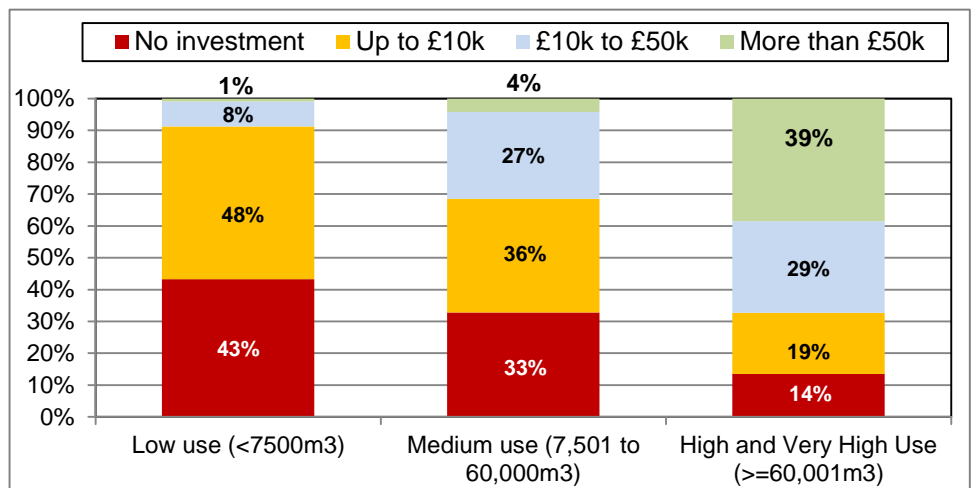
Respondents with a horticultural focus were most likely to have injected high levels of capital into their water infrastructure over the last 5 years- with 40% of this group investing more than £10k and nearly 1 in 5 investing more than £50k

26% of arable farmers spent more than £10k in the last 5 years (9% investing more than £50k)

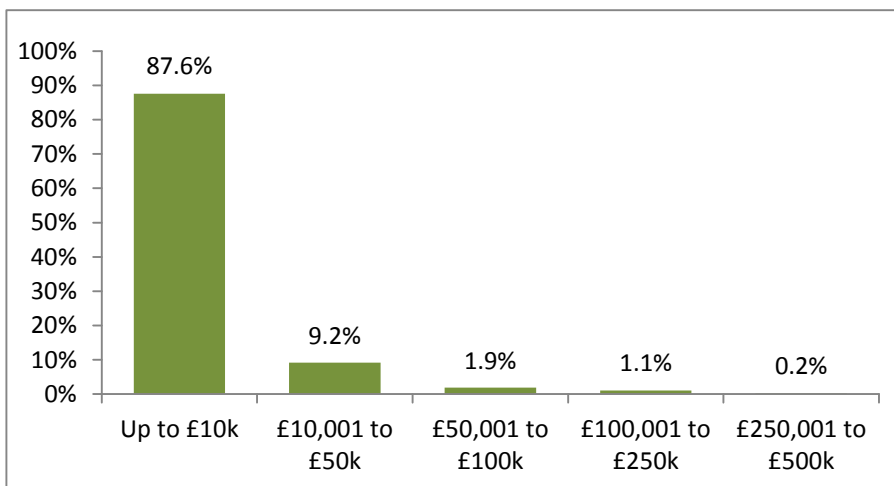
Just over half of beef / sheep farmers, who tend to have lower water use, report some level of investment, a small minority (12%) invested up to £50k.

**4.3.2 Level of capital invested in water infrastructure over the last 5 years by water use**

Those with high / very high water use last year were most likely to have made large investments in their water infrastructure over the last 5 years – with 68% overseeing an outlay of £10k or more. This group was much more likely to have invested very high levels of capital i.e. £50k or more than those with medium (4%) or low water use (1%) last year.



**4.4 Average annual cost of operational water over the last 5 years**



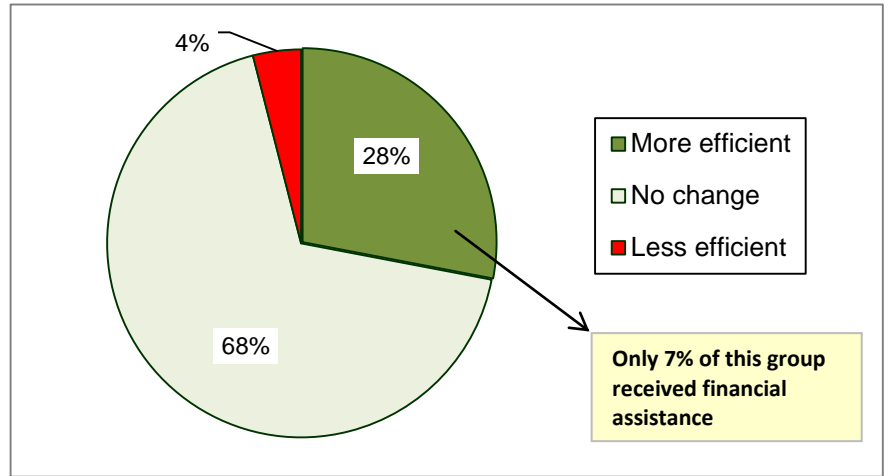
The average annual operational cost (including cost of mains water; licences; labour; treatment and disposal; energy required to pump the water) incurred by those surveyed over the last 5 years was less than £10k for the vast majority - 88%.

9% spent up to £50k per annum; 3% up to £250k but only 0.2% spent over this.

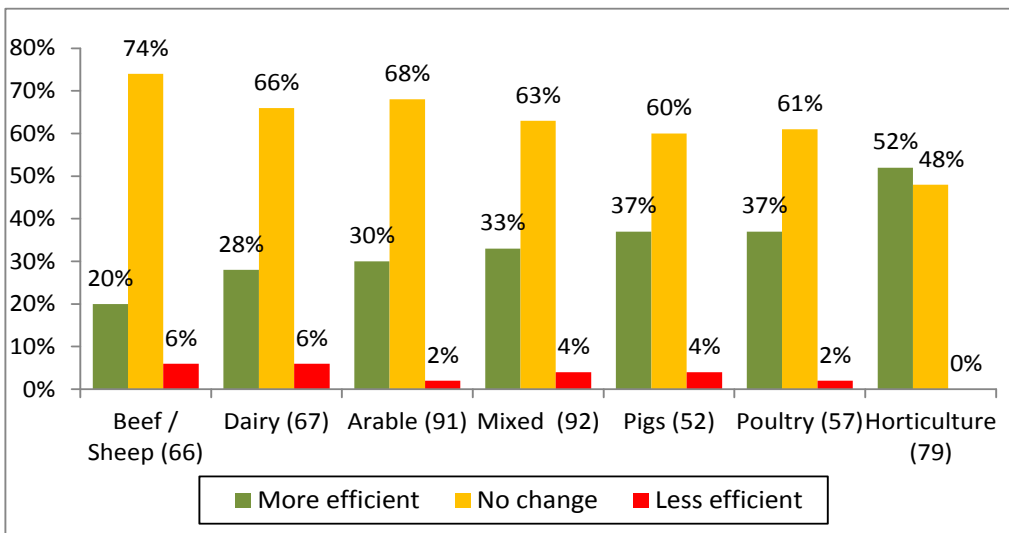
## 5.0 Water efficiency

### 5.1 Change in water efficiency over the LAST 5 years

28% of farmers surveyed have increased efficiency in the last 5 years with the vast majority of these receiving no financial assistance. 7% of this group did however receive grants – with funding originating from European and national government schemes as well as regional development agencies. This small minority received funding for measures such as installing rainwater harvesting capacity; recycling facilities as well as winter storage and reservoirs.



#### 5.1.1 Change in water efficiency over the LAST 5 years by farm type

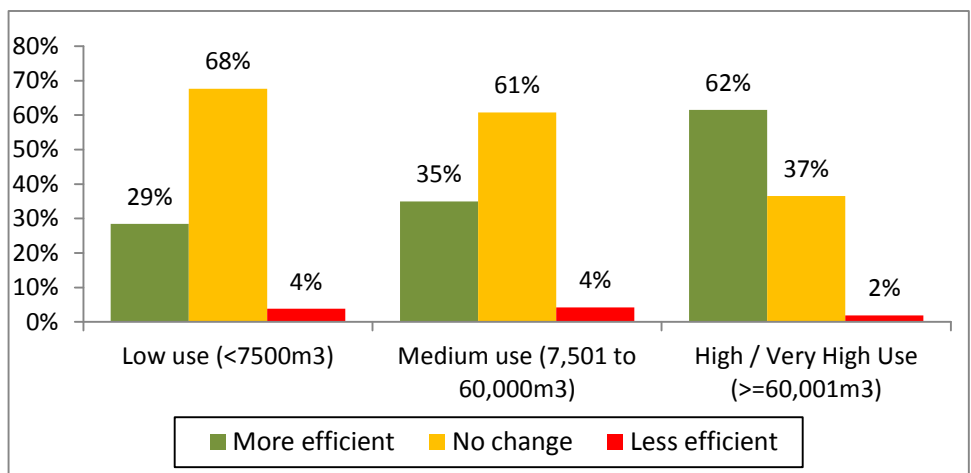


Horticulture farmers were most likely to have increased efficiency in the last 5 years with around 52% - followed by Pigs & Poultry – 36% and 37%

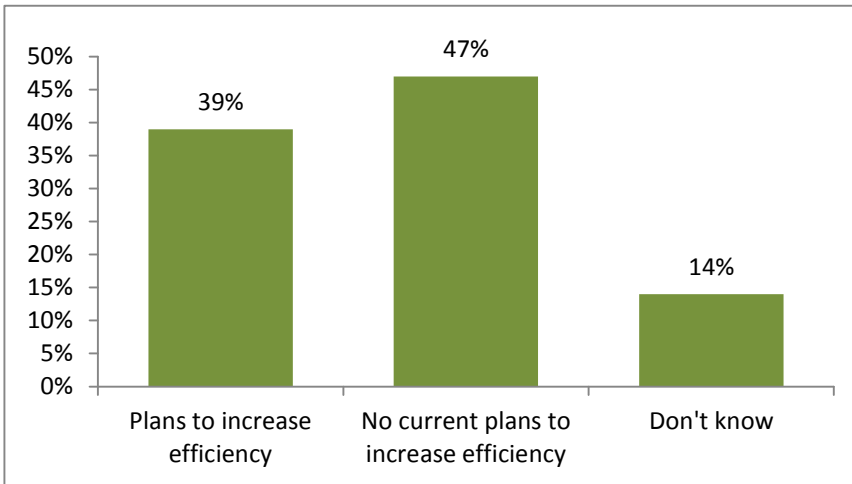
Between 28% and 37% of farmers from the other farm types have increased efficiency - with the exception of those with beef / sheep farms where only 20% have increased water efficiency in the last 5 years.

#### 5.1.2 Change in water efficiency over the LAST 5 years by water usage

Those with high / very high water usage last year are significantly more likely to have increased water efficiency in the last 5 years than those with medium or low water usage – 62% have done so compared to 35% and 29% respectively.



### 5.2 Water efficiency intentions for the NEXT 5 years

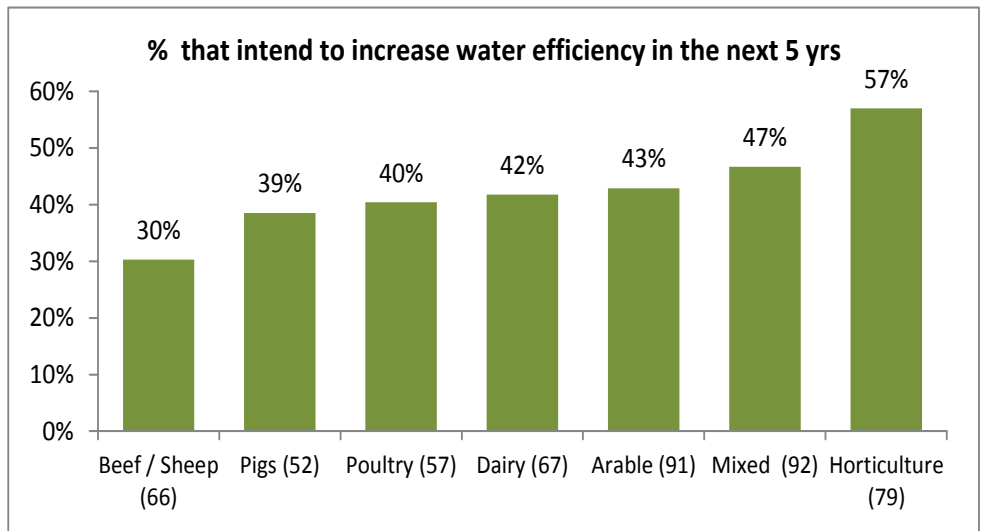


Farmers surveyed have increased ambitions for water efficiency over the next 5 years compared to the last with 39% aiming to increase compared to a reported increase of 28% for the last 5 years.

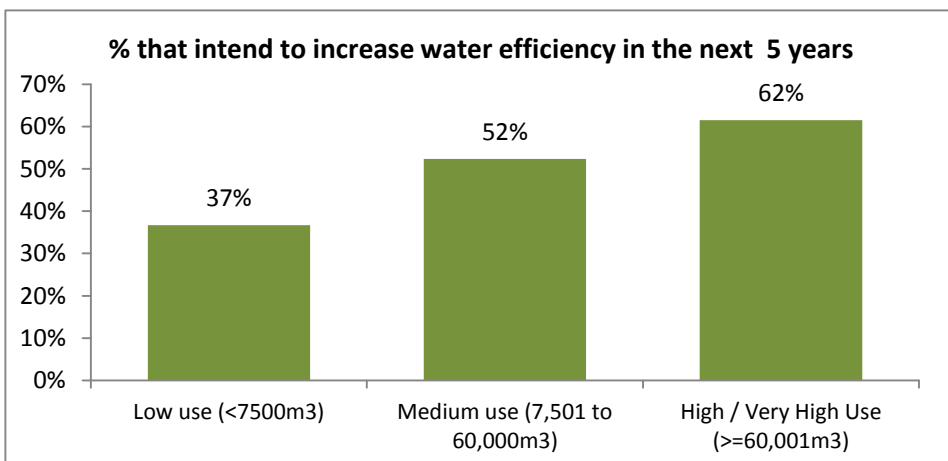
47% of respondents do not plan to increase water efficiency – however some of these farmers may face obstacles in doing so and these are discussed in point 5.3. They may also have previously carried out all possible actions.

#### 5.2.1 Water efficiency intentions for the NEXT 5 years by farm type

Encouragingly, a higher proportion of farmers across all the farm types aim to increase efficiency of the next 5 years than had increased over the last 5 years. Horticulture farmers would like to again lead the way with 57% stating the ambition to increase in the next five years. Between 39% and 47% of respondents for each of the other farm types intend to increase efficiency except for beef / sheep farmers where only 30% are hoping to be more water efficient in 5 years' time.



#### 5.2.2 Water efficiency intentions for the NEXT 5 years by water usage in the last 12 months



This chart shows that the greater the respondent's water usage in the last 12 months, the greater the likelihood that they intend to increase water efficiency over the next 5 years.

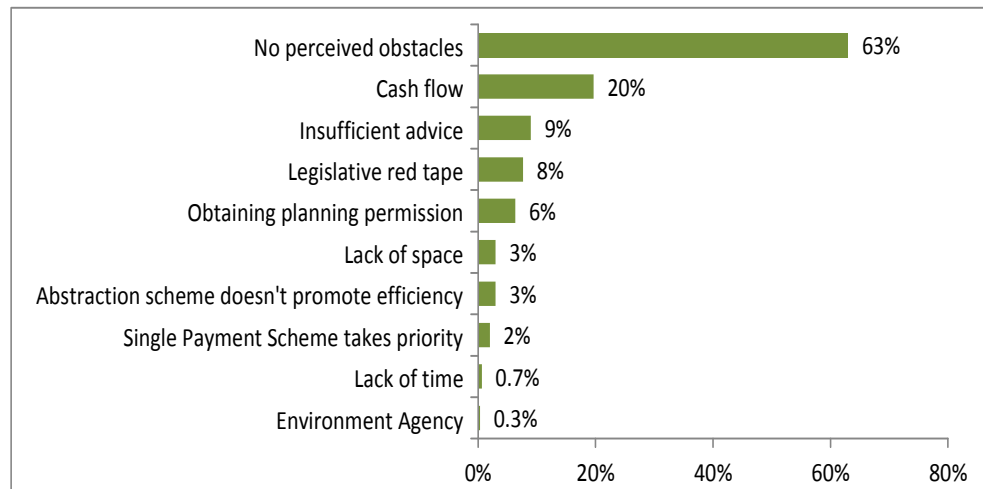
Those with medium usage or with high / very usage in the last year are significantly more likely to intend to increase water efficiency than those with low water usage – 52% and 62% compared to 37% respectively

### 5.3 Perceived obstacles to increasing water efficiency over the next 5 years

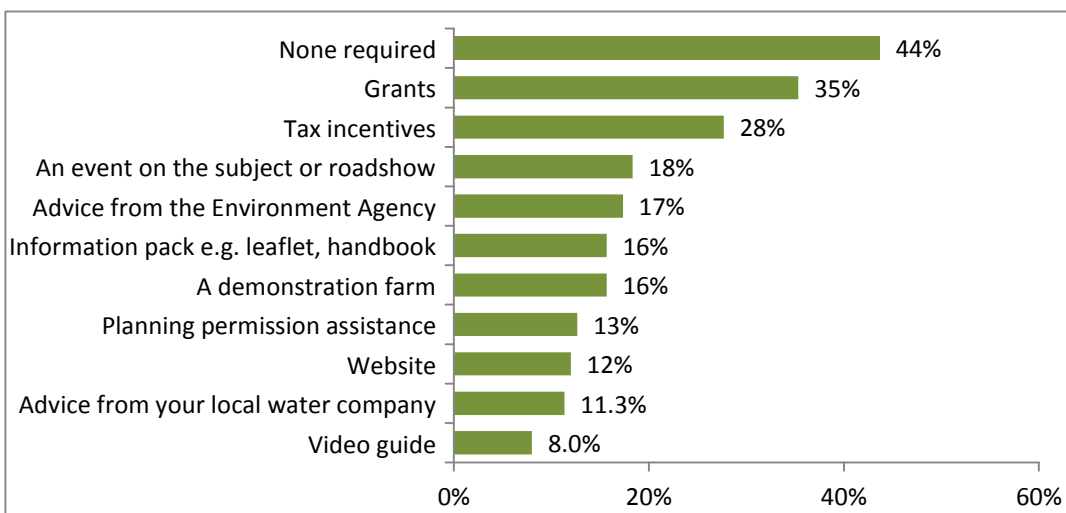
Most farmers surveyed (63%) *'perceived no obstacles'* in terms of increasing water efficiency over the next 5 years at the point of interview.

*'Cash flow'* (20%) was most often cited by those that do see issues in taking action followed by *'insufficient advice'* with 9%. The sort of advice farmers would like to see is discussed below in point 5.4.

*'Legislative red tape'* (8%) and obtaining *'planning permission'* (6%) will prevent a few from taking steps in the next 5 years.



### 5.4 Additional support that would assist in increasing water efficiency

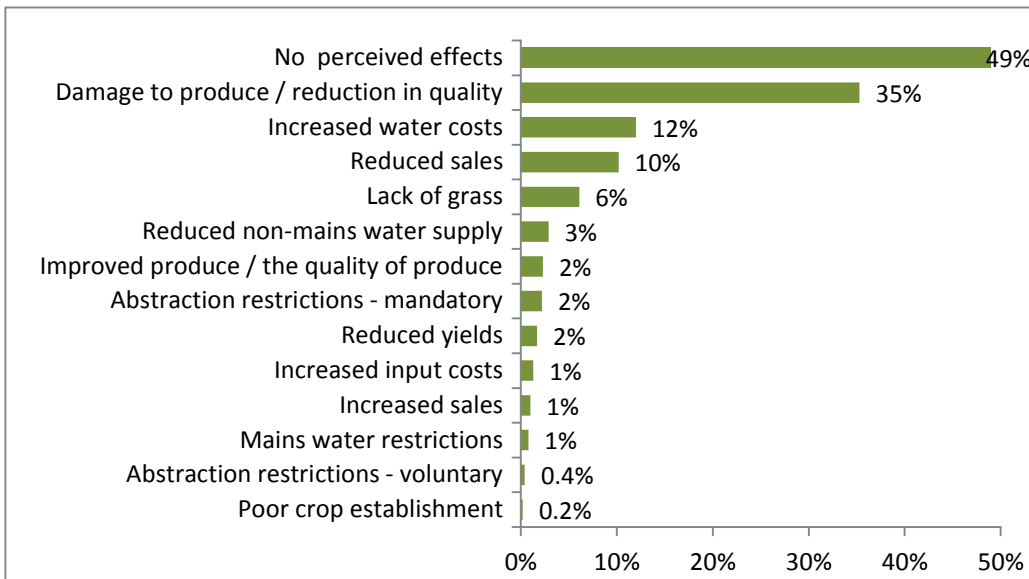


Lack of capital was highlighted in chart 5.3 above as the most common obstacle to increasing water efficiency in the next 5 years. Therefore as one might expect, farmer and growers surveyed were most likely to suggest *'grants'* (35%) and *'tax incentives'* (28%) as the support that would assist them in improving water efficiency.

Water efficiency *'events / roadshows'* or a *'demonstration farm'* were popular choices with 18% and 16% respectively along with *'advice from the Environment Agency'* (17%) or information packs (16%). *'Planning permission advice'* was requested by 13% of farmers.

## 6.0 Drought & Climate Change

### 6.1 Effects of the spring 2011 dry period



52% of respondents were affected by the spring 2011 dry period. Of these, a few were only impacted positively (1%) but the vast majority (99%) were only negatively affected.

Respondents were most likely to have experienced 'damage to produce or a reduction in quality' – with 35%.

12% saw 'increased water costs' with a further 3% and 2% respectively experiencing a 'reduced non-mains water supply' and / or 'mandatory abstraction restrictions.'

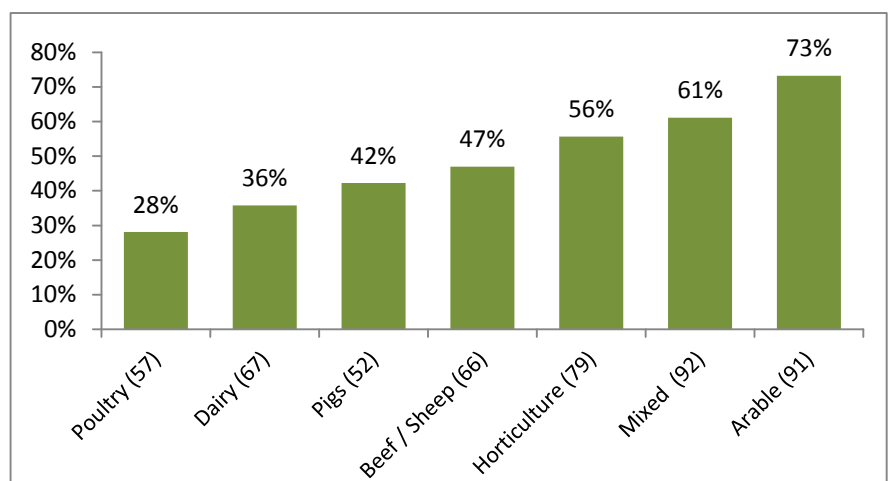
10% of farmers surveyed were affected through 'reduced sales' and a further 6% saw a 'lack of grass' which may in turn lead to higher input costs this winter through lack of fodder

A small minority, however, experienced positive effects such as an 'improvement in quality of their produce' (2%) or 'increased sales' (1%)

#### 6.1.1 % of respondents that were negatively affected by the 2011 dry period by farm type

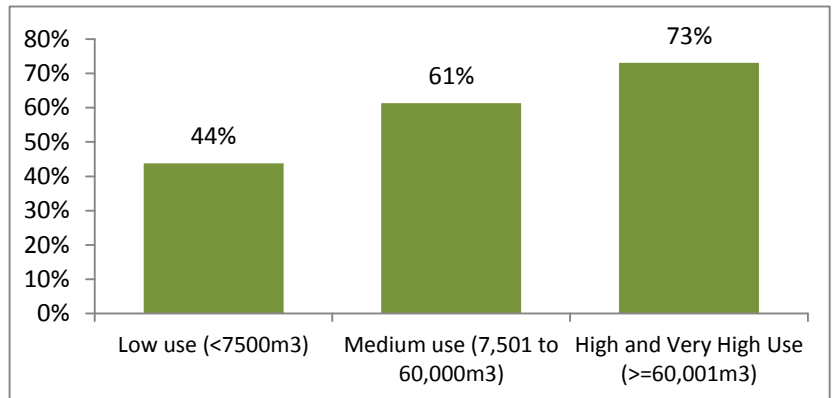
As one might expect, arable farmers were most affected by the spring 2011 dry period (73%) followed by mixed arable & livestock (61%) & horticulture (56%)

Farmers with a mainly Poultry focus were least likely to be affected with 28%.

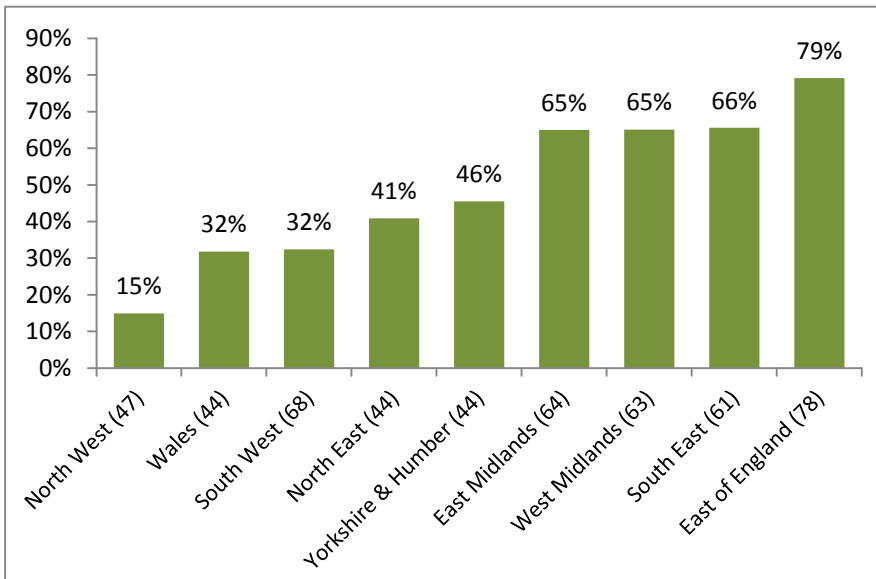


**6.1.2 % of respondents that were negatively affected by the 2011 dry period by water use in the last 12 months**

Those with high / very high water usage or medium usage last year are significantly more likely to have been negatively affected by the spring 2011 dry period than those with low water usage – 73% and 61% compared to 44% respectively.



**6.1.3 % of respondents that were negatively affected by the spring 2011 dry period by region**



Farmers from different regions across England and Wales had a wide range of experiences in the spring 2011 dry period.

79% of farmers in the East of England were affected followed by 66% in the South East.

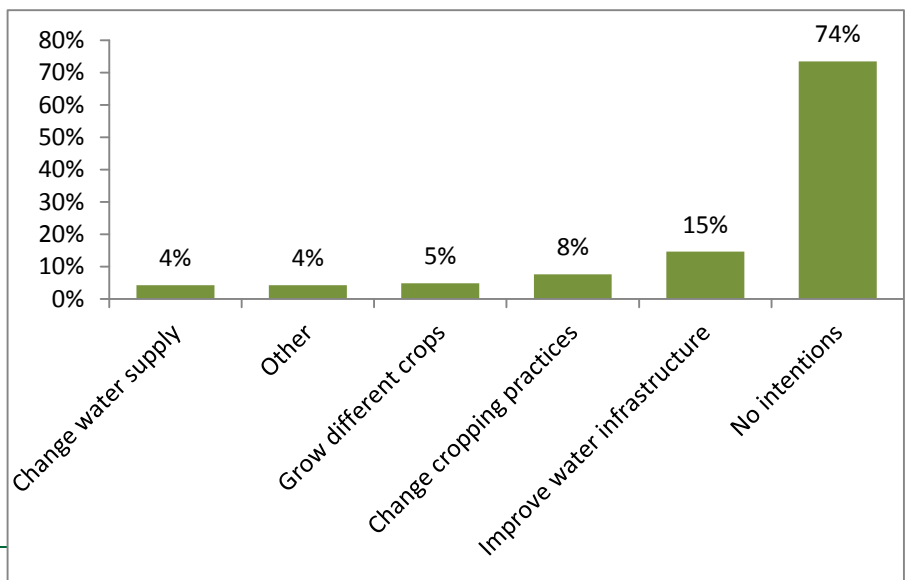
65% of respondents were affected in both the East and West Midlands respectively during this period – therefore the regions hardest hit were the extreme East of England and the Midlands. The North and other Western regions were less likely to be affected – with those in the North West only

having a 15% chance of seeing any effects of the spring 2011 Dry period.

**6.2 Intended preparations for similar dry periods over the next 5 years**

Currently, the majority of farmers have ‘no intentions’ to prepare for similar dry periods in the next 5 years – however there were large differences depending on region and farm type of the respondent – see point 6.3.

15% however intend to improve the water infrastructure whilst 8% and 5% respectively will be ‘changing cropping practices’ and / or ‘growing different crops’.



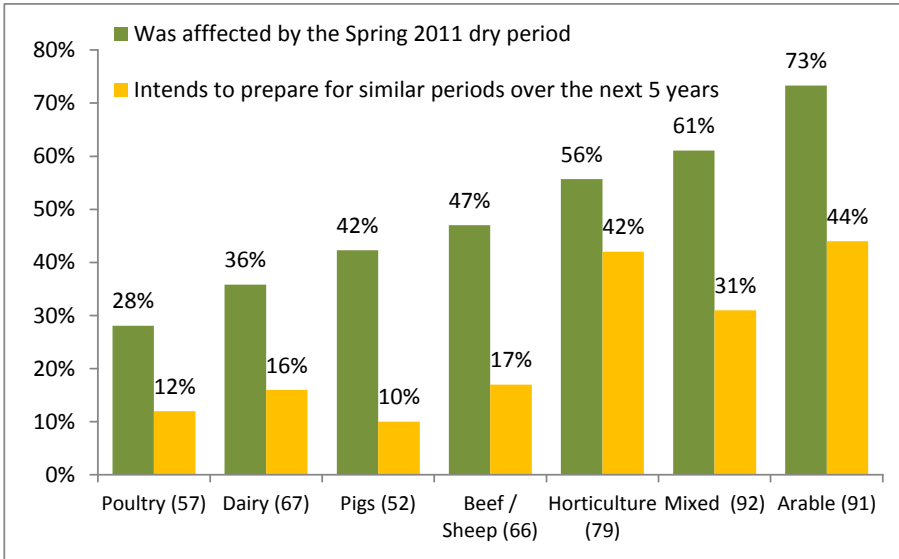
**The voice of British farming**



### 6.3 % of respondents that were affected by the spring 2011 dry period and % that intend to prepare for similar periods over the next 5 years

The three charts on this page shows the positive correlation between the proportion of respondents that were affected by the Spring 2011 dry period and the proportion of respondents that are intending to prepare for similar periods – for each of the sub-groups respectively.

This correlation indicates that there is a tendency for farmers to behave reactively rather than pro-actively in terms of their preparations in this area. It's worth noting however that not all farmers will be able to or need to make any preparations.



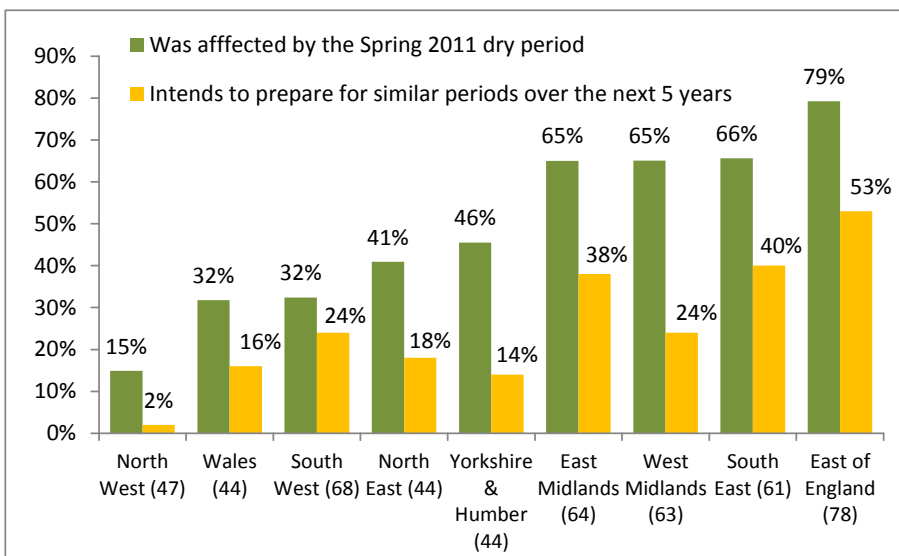
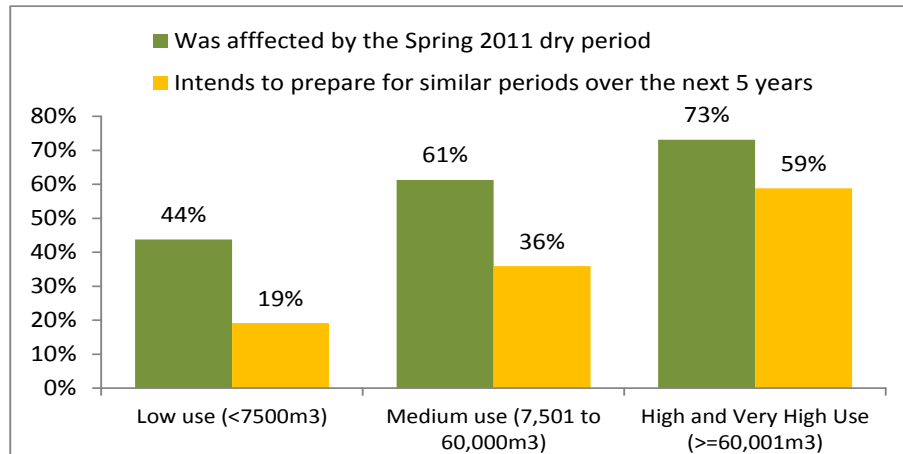
#### 6.3.1 By Farm Type

Those with an arable, mixed arable and livestock or horticultural focus were most likely affected in spring 2011 and are therefore more likely to be making preparations for a

similar spell in the future. The opposite is true for those focussed on livestock i.e. they were less likely to be affected this year and less likely to be making preparations overall.

#### 6.3.2 By Water Use in the last year

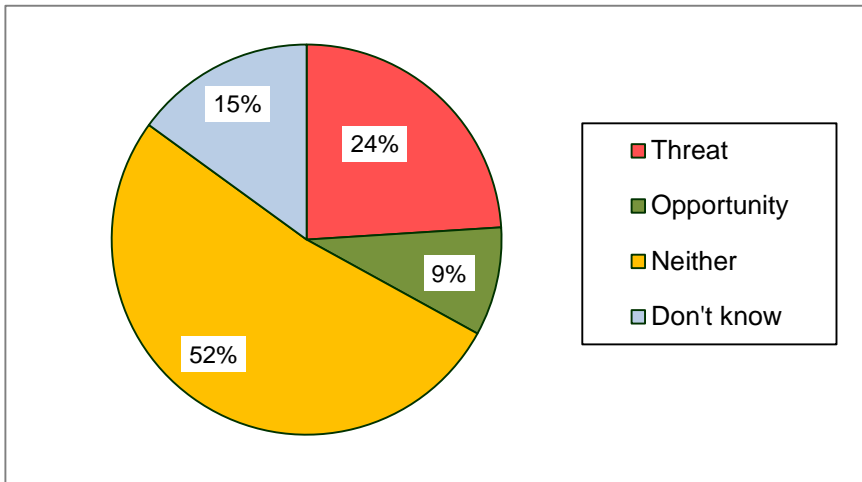
Similarly, the groups of water users that were most affected in 2011 see a greater proportion of farmers that intend to take mitigating actions against future periods.



#### 6.3.3 By Region

Finally, the chart opposite shows that in general, farmers in the East of England, South East and East Midlands were most affected in 2011 and these groups see the highest intent to take action.

**6.4 Perception of climate change effects on water resources over the next 5 years**

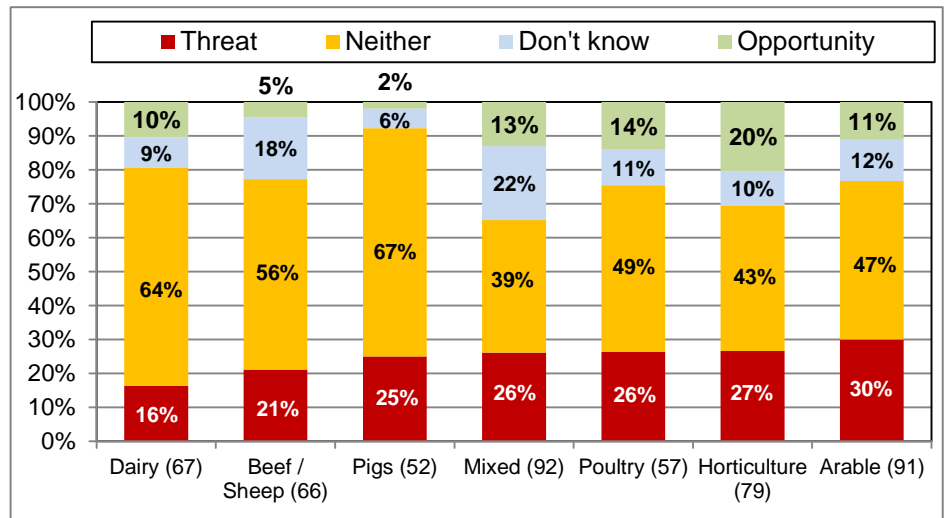


52% of farmers surveyed predict that climate change will present neither threat nor opportunity with regard to their water resources over the next 5 years.

However, nearly three times as many respondents perceive a threat than an opportunity with regard to climate change effects on their water resources over the next 5 years– 24% compared to 9% respectively.

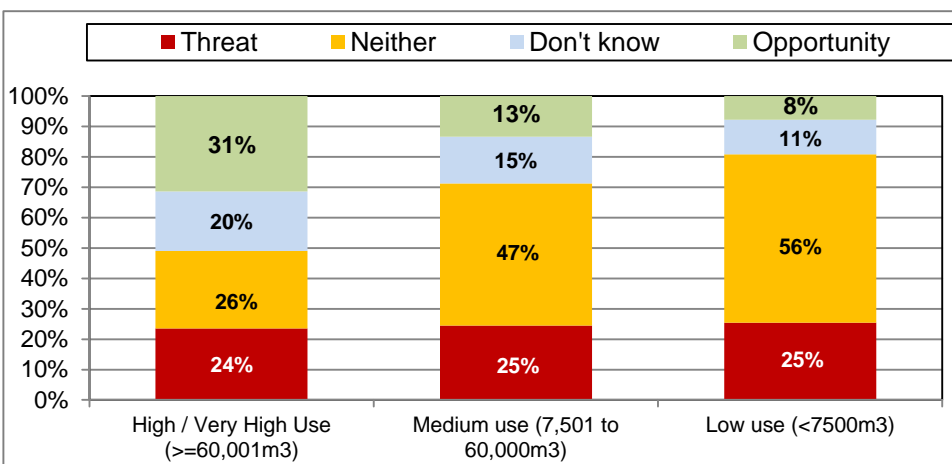
**6.4.1 Perception of climate change effects on water resources over the next 5 years by farm type**

For all the main farm types, a greater proportion of respondents predict that climate change will be a threat than an opportunity. Arable farmers were most likely to predict a threat to water resources due to a changing climate with 30%. Similar proportions of between 25% and 27% of farmers from the other farm types predict threats expect beef / sheep and dairy where 21% and 16% expect threats respectively.



20% of respondents with a horticultural focus think there may be opportunities for their water resources due to climate change over the coming years compared to between 2% and 14% for the other types

**6.4.2 Perception of climate change effects on water resources over the next 5 years by water usage in the last year**

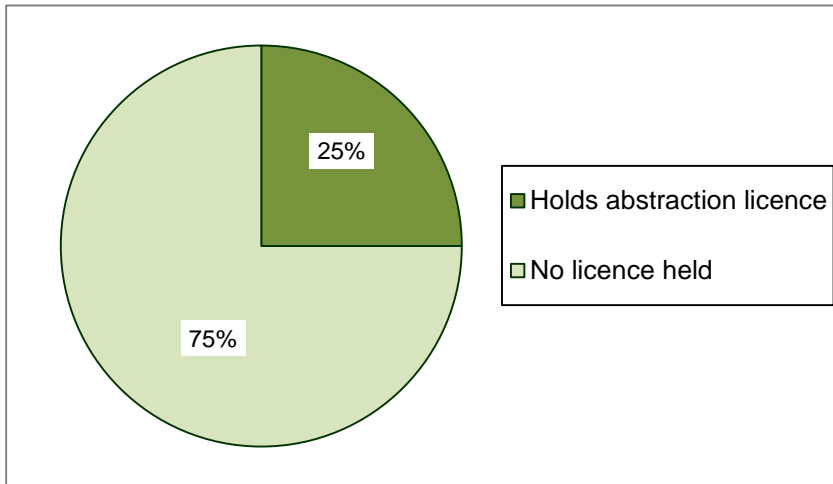


Across the varying water usage groups for the last 12 months a fairly equal proportion (24% to 25%) predict threats to their water resources.

However those with high / very high use last year were much more likely to predict opportunities than medium or low level users – 31% compared to 13% and 8% respectively.

## 7.0 Regulation

### 7.1 Abstraction licence



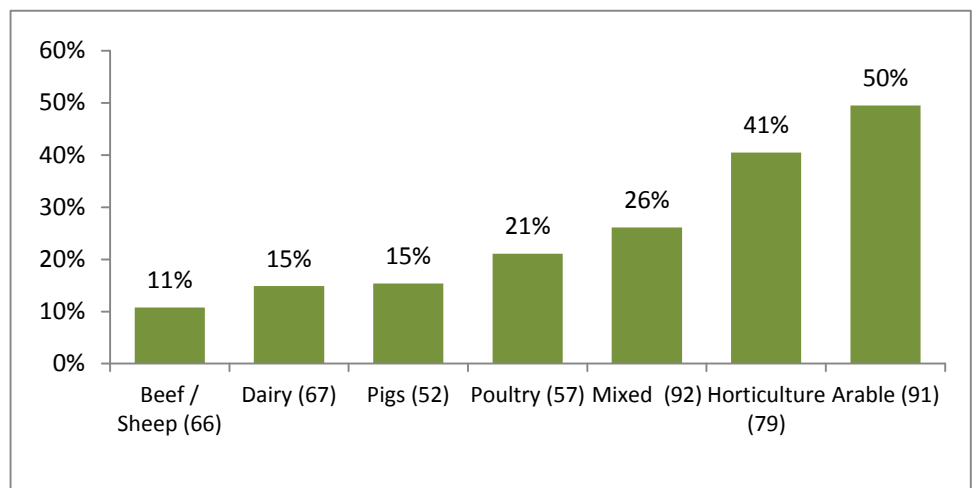
25% of respondents reported that they currently hold one or more abstraction licence/s.

The rest of section 7 relates to this group only.

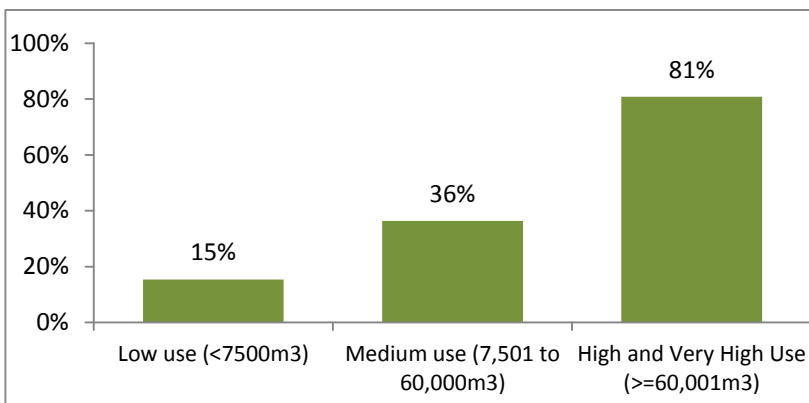
#### 7.1.1 Abstraction licence by farm type

Farmers with an arable focus are most likely to have at least one abstraction licence followed by those with a horticultural bias – 50% and 41% respectively.

Between 11% and 21% of livestock farmers have a licence while 26% mixed arable & livestock currently have an abstraction licence.



#### 7.1.2 Abstraction licence by water usage in the last 12 months



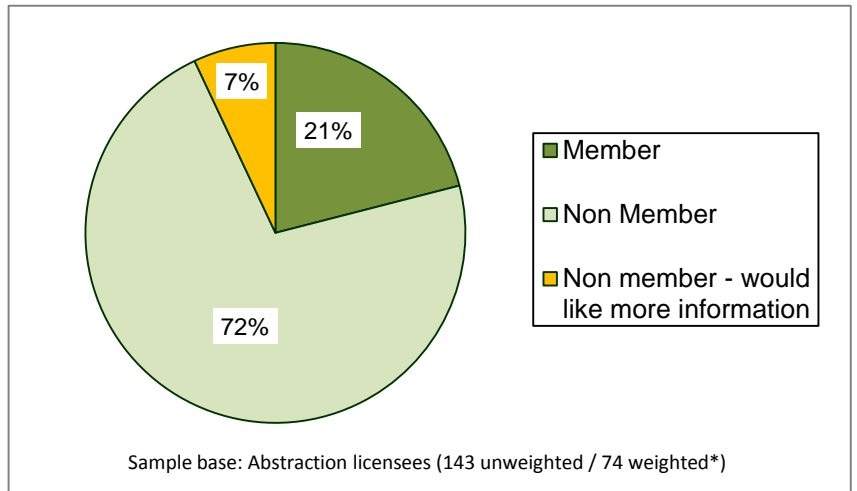
As one might expect, those with high / very high water use were significantly more likely to have one or more abstraction licences than those with medium level use.

In addition medium level users are more than twice as likely to have a licence as low level users.

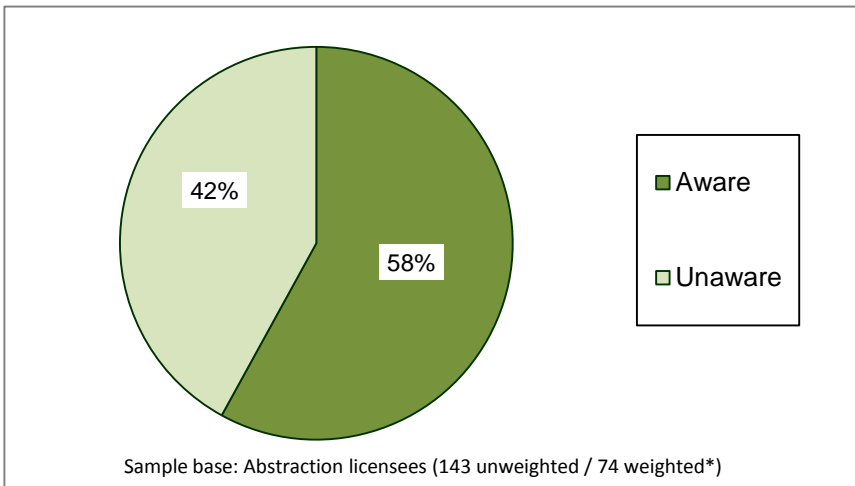
**7.2 Membership of abstraction group**

25% of respondents hold an abstraction licence and of this group – 21% are a member of an abstraction group. This means 1 in 20 respondents overall are in such a group.

7% of those with a licence would like to have more information about the abstraction groups.



**7.3 Awareness of the Environment Agency CAMS process**



Again, looking at the group of respondents with an abstraction licence only – 58% of them are aware of the Environment Agency’s CAMS (Catchment Abstraction Management Strategy) process.

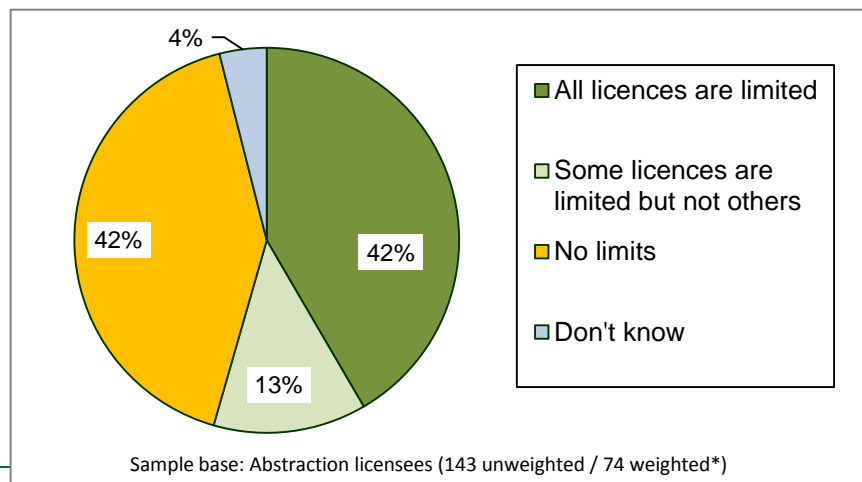
**7.4 Do you know how to contact the Environment Agency about your abstraction license?**

97% of abstraction licence holders know how to contact the Environment Agency.

**7.5 Time limits on abstraction licences**

42% of respondents with an abstraction licence have limitations on all of them whilst 13% have limitations on some licences but not others.

42% of this group have no limitations to their abstraction licences.



## 8.0 Methodology

### 8.1 Sample

- 514 respondents from England & Wales were surveyed via telephone interviews (333) or web (161) / paper (20) self-completion during August & September 2011
- Sub-group quotas based on main farm types and regions were set to ensure representation from all relevant groups. Between 48 and 78 interviews were carried out per region / country and between 52 and 91 interviews were carried out per main farm type
- The overall results were weighted (see below) to better represent the distribution of main farm type holdings across England & Wales
- All results shown are based on weighted data except for cross tabulations based on sub-groups (e.g. by farm type, water usage in the last 12 months, or region) where non-weighted data is employed i.e. each sub group is viewed as a separate sample for comparative purposes.

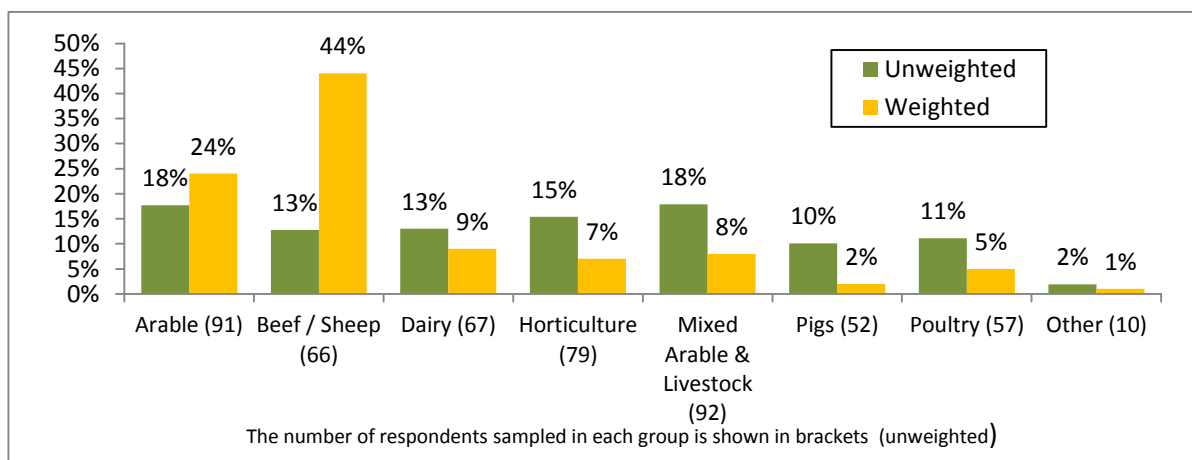
### 8.2 Weightings

(Source: DEFRA figures for 2008)

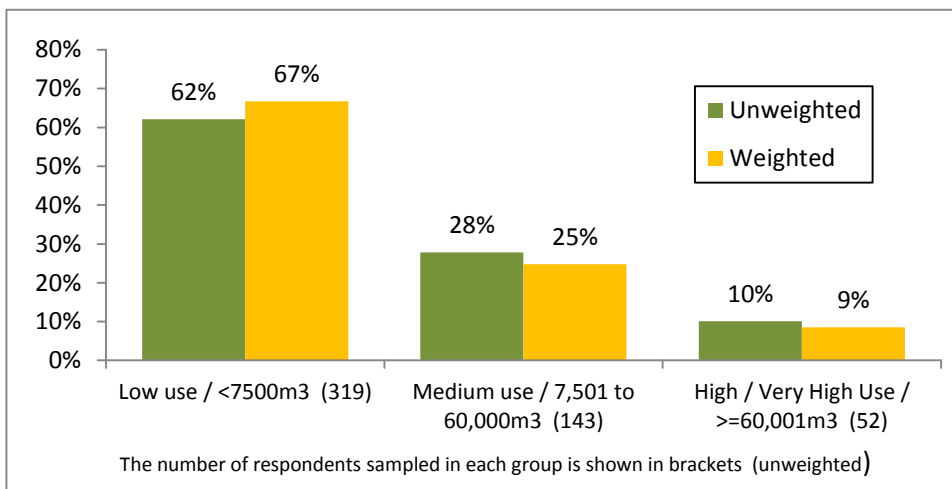
Main Farm Type	% of farms in England & Wales
Arable	24%
Beef / Sheep	44%
Dairy	9%
Horticulture	7%
Mixed Arable & Livestock	8%
Pigs	2%
Poultry	5%
Other	1%

### 8.3 Descriptive statistics

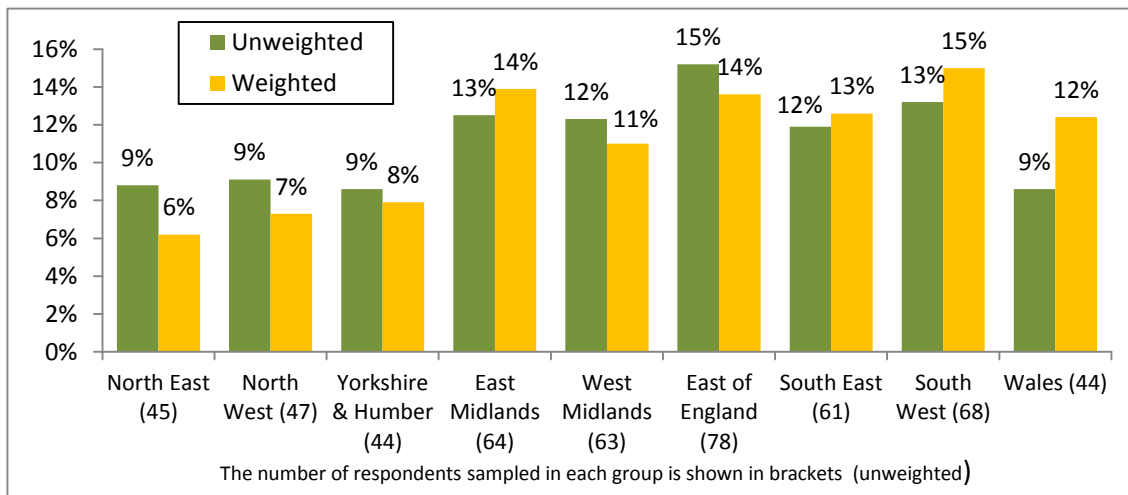
#### 8.3.1 Predominant Farm Type



### 8.3.2 Water use (cubic metres) in the last 12 months



### 8.3.3 Region / Country



### 8.3.4 Farm Size (hectares)

