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Public Views on Plant Health and Invasive Non-Native Species

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Public Views on Plant Health and Invasive Non-Native Species

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Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government

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Glossary

Acronym/Key word	Definition
INNS	Invasive Non-Native Species
CCC	Climate Change Committee

1. Introduction/Background

- 1.1 The Plant Biosecurity Strategy for Great Britain (2023 to 2028)¹ sets out an action plan and desired outcomes that all nations in Great Britain have committed to. The strategy was borne out of extensive co-operation between the UK Government, the Welsh Government and the Scottish Government, recognising that pests and diseases do not respect national boundaries, and the need for a joint commitment to co-ordinate an approach to plant biosecurity.
- 1.2 One outcome of the biosecurity strategy (2023 to 2028) aims to deliver “a society that values healthy plants”, this should be met through raising awareness of the importance of healthy plants and trees and encouraging the adoption of responsible behaviours across society.
- 1.3 Invasive non-native species (INNS) are plants and animals, which have been introduced by human actions to parts of the world where they would not naturally be found. They are considered to be amongst the top five drivers of biodiversity loss globally and are estimated to cost the British economy at least £2 billion pounds annually (Climate Change Committee, 2021), INNS have the ability to spread causing damage to the environment, the economy, our health or the way we live.
- 1.4 The number of INNS in Britain continues to rise. As of 2021, there were approximately 2,000 INNS established in the UK, with 10–12 new INNS becoming established every year. This trend is mirrored globally and, if not adequately addressed, numbers will continue to increase for the foreseeable future. The Climate Change Committee (CCC)’s 2021 assessment of climate risks to the UK highlighted INNS as a priority risk facing terrestrial, freshwater, and marine habitats and species, as well as agriculture and forestry. Climate change is expected to increase the risk from many INNS that are currently unable to establish. A combination of factors, such as frost-free winters and increased flooding events, will increase the range and abundance of many INNS. Stressed habitats may also be more vulnerable to invasion and disease, increasing the risk to biodiverse natural habitats. As a priority risk, with the

¹ Available at [Plant biosecurity strategy for Great Britain \(2023 to 2028\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/103441/plant-biosecurity-strategy-for-great-britain-2023-to-2028.pdf)

highest urgency score, the CCC has recommended that further actions to tackle INNS should be put in place as soon as possible.

- 1.5 Consequently, there is a need to control or manage INNS to reduce the risks of impact. In some cases, it may be necessary to attempt to totally eradicate a species, such as the Asian hornet which preys on honey bees, or the ruddy duck which was impacting on native duck species. Such management programmes can be controversial and, in some cases, have been delayed because of opposition from pressure groups. Public support can be critical to the success of such projects. Some invasive species are already well-established in Great Britain and for these species it is particularly important that the general public get involved in controlling their spread. Awareness raising campaigns are part of the process to engage the public so that they can implement simple biosecurity measures as part of their day-to-day routine. INNS can easily and accidentally be introduced and transported through leisure activities such as gardening, water sports and hiking. By implementing simple biosecurity practices such as cleaning equipment and clothing after undertaking certain activities, everyone can contribute to limiting the spread of INNS and consequently protecting Wales' wildlife. Understanding the underlying attitudes of the public can help inform policies and programmes and inform outreach education activities.
- 1.6 The Great Britain (GB) Invasive Non-Native Species Strategy (2023-2030) sets out an ambitious platform for future work on INNS. The strategy was written jointly by the UK Government, the Scottish Government, and the Welsh Government. Its existence is a recognition of the fact that INNS can spread across national borders, and as a result there is a need for a joint commitment between GB governments to co-ordinate an approach to INNS.
- 1.7 The INNS strategy is a key part of ensuring Great Britain continues to demonstrate, both nationally and internationally, that the Welsh Government take the threat posed by INNS seriously and are prepared to take concerted action against it.
- 1.8 The Welsh Government Plant Health and Environmental Protection Division commissioned Beaufort Research to conduct a survey of public attitudes towards plant health and the impact of invasive non-native species using the March 2022 Wales Omnibus. The survey sample reflects demographic

characteristics of the Welsh population. The aims of the study were to better understand the Welsh public's attitudes toward, understanding of, and engagement with, plant and tree health and diseases, and invasive non-native species in Wales. The results aim to help inform Welsh Government policy, research and public engagement work to promote the importance of healthy plants and trees and encourage responsible behaviours across society as part of the Plant Biosecurity Strategy for Great Britain (2023 to 2028).

2. Methodology

- 2.1 The survey was conducted through the Beaufort Wales Omnibus survey, which interviews a quota sample of 1,000 adults across Wales and reflects the population in terms of key demographic characteristics. Further detail on this is provided in paragraph 2.4. A different set of adults are interviewed each wave although samples are matched in terms of these key demographic characteristics.
- 2.2 Up to March 2020 interviewing on the Wales Omnibus was conducted face-to-face via CAPI (Computer Aided Personal Interviewing). As a result of the COVID-19 public health crisis, interviewing switched to an online approach using the Cint™ online panel exchange platform.
- 2.3 The Cint™ platform and its products comply with various industry standards including ISO 20252 - the international quality standard for market research services. Multiple data quality checks² are built into the Cint™ system and Beaufort builds in its own quality control questions and measures within the survey and excludes respondents who fail these checks.
- 2.4 The survey was subject to interlocking demographic quota controls³ of age within gender. A further separate quota control was set on social grade⁴ and interviews were undertaken with residents of every local authority in Wales. At the analysis stage, the data was weighted by age group, gender, local authority grouping and social grade. This ensures that the sample reflects Census 2011 figures and particular characteristics of the Wales population.
- 2.5 The questions for the Plant Health and Invasive Non-Native Species in Wales Survey were supplied to Beaufort by the Plant Health and Environmental

²These checks are to ensure that real people are answering the survey questions, to prevent duplicate responses and ensure that sufficient attention is paid to questions to provide high quality data.

³ Quota controls are target numbers of interviews set for specific demographic groups within the population, to help achieve a representative sample for the survey. Interlocking demographic quota controls means that the target incorporates two variables: age group within gender.

⁴ Social grade is a classification system based on occupation developed for use on the National Readership Survey (NRS). Social grades are defined as follows:

AB: Higher and intermediate managerial, administrative and professional occupations

C1: Supervisory, clerical and junior managerial, administrative and professional occupations

C2: Skilled manual workers

DE: Semi-skilled and unskilled manual workers, state pensioners, casual and lowest grade workers, unemployed with state benefits only.

Protection Division in the Welsh Government (see Annex A for the questionnaire).

- 2.6 Demographic questions are included as standard in the Wales Omnibus survey. The questionnaire was available in English or Welsh at the participant's choice.
- 2.7 Fieldwork for the March 2022 survey took place between 28 February and 20 March 2022. A total of 1,000 interviews were completed and analysed.
- 2.8 Full data tabulations from the survey have been provided to the Welsh Government in a separate technical report.
- 2.9 The data was broken down by age group within gender (gender-age)⁵, by region and by social grade. The data was then further analysed using cross tabulation of each pair of the above categories (e.g. region by social grade).
- 2.10 Five respondents selected the option 'Other / Prefer not to say' when asked their gender. The low number didn't allow for them to be considered as a separate category when analysing gender-age data. They were therefore not included in the percentages reported in the findings when gender-age categories are discussed.
- 2.11 Some of the questions asked participants to provide a rating along a 7-point Likert scale with an option to answer 'don't know'. For analysis purposes these response ratings were grouped. Ratings of 1-3 and 5-7 were grouped to represent opposite ends of the scale and 4 was considered a neutral response – with the exception of response categories on level of risk. The variable that the Likert scale measured varied by question. Table 2.1 sets out the groupings used in each report section where responses were along a 7-point Likert Scale:

⁵ Gender (male, female) was considered within age-group (16-44, 45+) to disentangle where a pattern in responses may be influenced by gender or by age. If age and gender were considered separately, this would risk missing particular response patterns. For instance, if females aged 45+ had high agreement levels with a statement and females aged 16-44 had lower agreement levels, this information would be lost if the data was analysed by gender only as agreement levels would meet somewhere in the middle.

Table 2.1: Groupings used in each report section where responses were given along a 7-point Likert scale.

Section	Response grouping 1-3	Response rating: 4	Response grouping 5-7
3, 4, 12	Does not matter / matters to a small extent	Neutral	Does matter (to some extent)
5, 6	Is not important / it is important to a small extent	Neutral	It is important (to some extent)
7	No to low risk	Medium risk	Medium to high risk
10	Disagree	Neutral	Agree
11	Does not prevent / prevents to a small extent	Neutral	Does prevent (to some extent)
13	Does not help / helps to a small extent	Neutral	Would help (to some extent)

2.12 Other questions either offered yes, no, and don't know categories or asked participants to report the frequency on a scale of: always or whenever I have the opportunity, often, sometimes, rarely, never. For presentation purposes, the 'always or whenever I have the opportunity' has been shortened to always when reporting.

3. Views on the loss of trees and plants

3.1 Respondents were asked how they would feel about nine different impacts of plants or trees dying or having to be removed due to pests and diseases in their local area (figure 3.1) and nationally across Wales (figure 3.2). The potential impacts were:

- a. Loss of carbon capture / release of carbon from dying plants/trees, which means that more carbon dioxide (CO₂) will enter the atmosphere, contributing to climate change
- b. Loss of shade
- c. Loss of flood alleviation, which means there would be more risk of flooding to homes and property
- d. Less attractive scenery / changed look of the landscape
- e. Loss of food production
- f. Loss of forestry / wood production
- g. Loss of recreational opportunities
- h. Loss of biodiversity / nature
- i. Reduced air quality / more air pollution

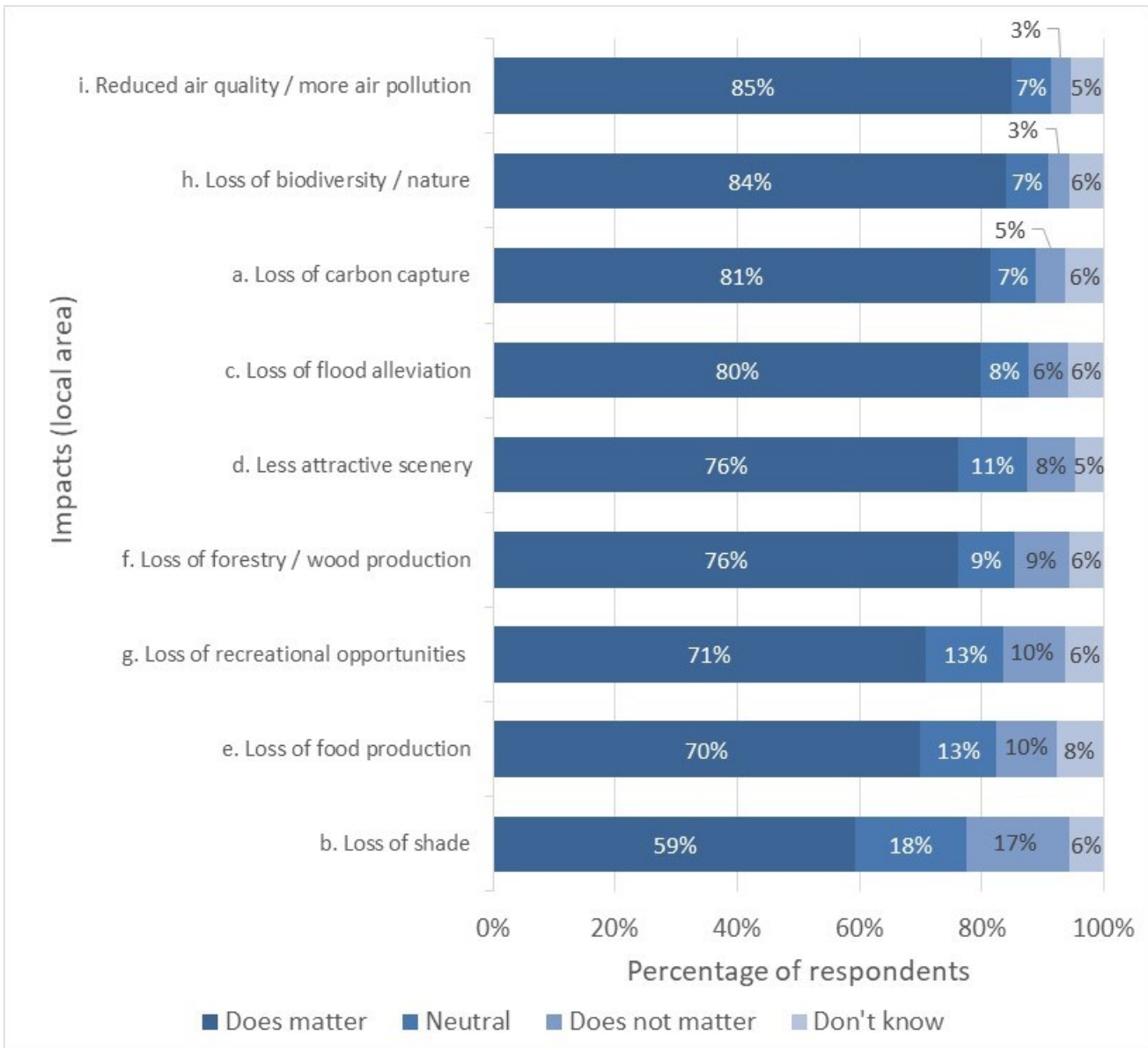
3.2 Most respondents felt that all but one of the impacts of plants or trees dying or having to be removed due to pests and diseases mattered. Overall participants reported that impacts at the national level mattered more to participants than at the local level. The impacts that the respondents felt mattered the most for both geographical levels were:

- reduced air quality/more air pollution,
- loss of carbon capture/release of carbon from dying plants/trees, which means that more carbon dioxide (CO₂) will enter the atmosphere, contributing to climate change,
- loss of biodiversity/nature.

3.3 The impact of loss of shade mattered to less participants than all of the other impacts. Loss of shade mattered to 59 per cent of respondents in their local area and mattered to 69 per cent of respondents nationally. Almost 17 per cent of respondents reported that loss of shade did not matter or only mattered to a

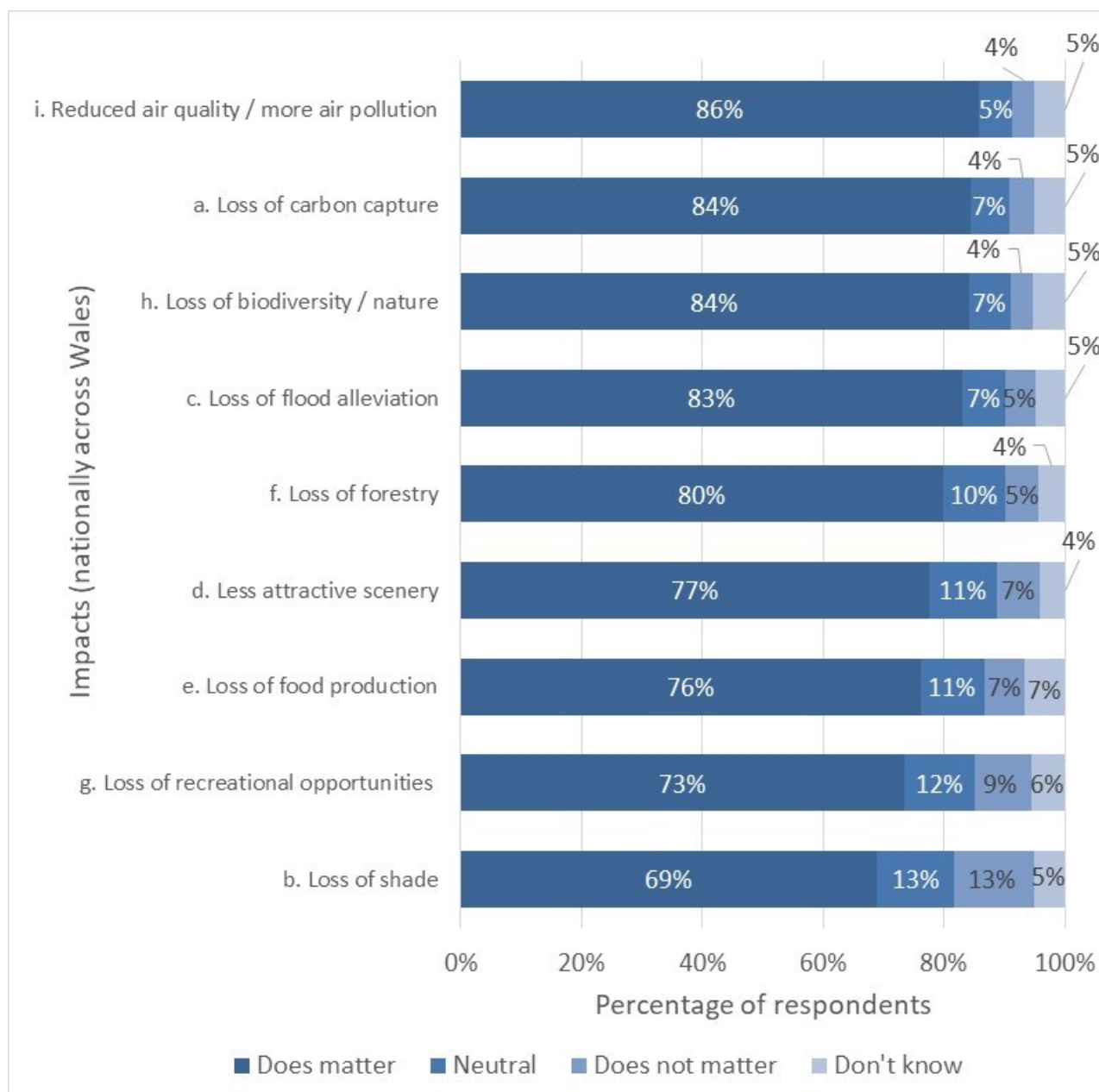
small extent in their local area and 13 per cent of respondents reported that loss of shade did not matter nationally.

Figure 3.1 – The extent to which respondents thought each impact due to plant/trees dying or being removed due to pests and diseases **in their local area** mattered – all statements



Base: all respondents (n = 1,000)

Figure 3.2 – The extent to which respondents thought each impact from plant/trees dying or being removed due to pests and diseases **nationally across Wales** mattered – all statements



Base: all respondents (n = 1,000)

3.4 Female respondents were more likely to report that the statement mattered to some extent than their male counterparts. Respondents aged 45+ were more likely to rate the statement as mattering to some extent than their 16–44-year-old counterparts⁶. This pattern was most evident for the impact of ‘loss of shade’, where the difference between age groups was between 10 and 17 percentage points. Age group differences were also particularly apparent for

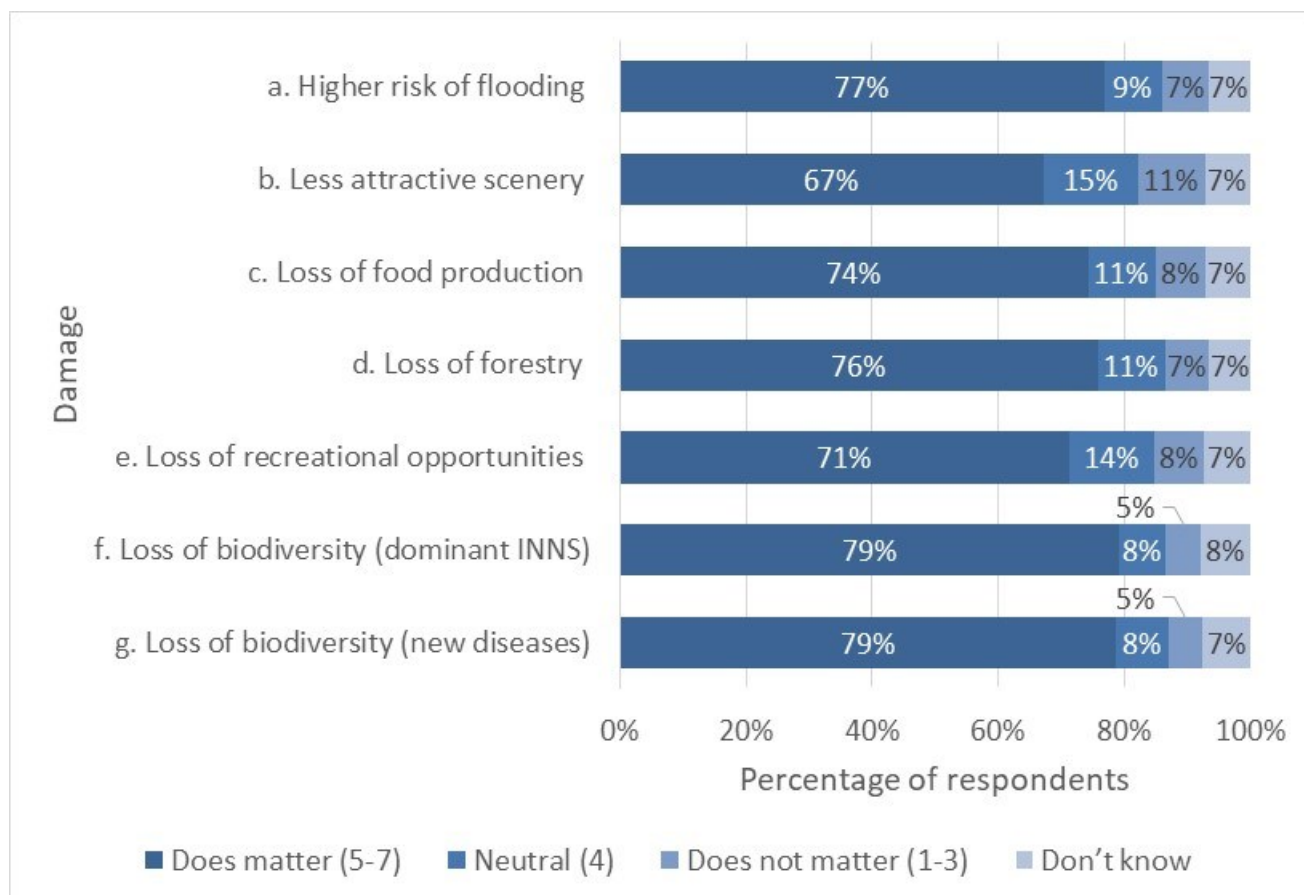
⁶ Except for views on loss of food production within male respondents in Cardiff & southeast Wales where respondents aged 16-44 were more likely to report the impact as mattering nationally than those aged 45+

male respondents in southwest Wales for impacts to loss of flood alleviation at both local and national level, and impacts on loss of carbon capture, shade and recreational opportunities locally: male respondents aged 45+ were 24 to 31 percentage points more likely to report that the above statements as mattering to some extent than male respondents aged 16-44. Social grade only influenced responses in Cardiff and southeast Wales for loss of shade: respondents in manual labour jobs, in casual work, unemployed seeking state benefits or on state pension (social grade C2DE) were more likely to report it mattering than participants in managerial, administrative and professional occupations (social grade ABC1).

4. Views on damage from INNS

- 4.1 Respondents were asked to rate if the potential impacts of INNS causing damage to their local area mattered. The seven potential impacts were:
- a. Higher risk of flooding due to waterways blocked by invasive plants or riverbanks devoid of vegetation
 - b. Less attractive scenery / changed look of the landscape due to dominant invasive plants replacing mixed native species
 - c. Loss of food production due to invasive pest species
 - d. Loss of forestry / wood production due to invasive pest species
 - e. Loss of recreational opportunities due to loss of access to riverbanks / waterways / woodlands / open country
 - f. Loss of biodiversity / nature due to dominant invasive species outcompeting native species
 - g. Loss of biodiversity / nature due to invasive species introducing new diseases
- 4.2 More than 65 per cent of respondents reported that each statement mattered to some extent (rating a score of 5, 6 or 7) – see figure 4.1. The impacts that the respondents considered to matter the most in their local area were loss of biodiversity due to dominant invasive species outcompeting native species, loss of biodiversity due to invasive species introducing new diseases, and increased risk of flooding. Although loss of biodiversity due to dominant INNS outcompeting native species mattered most to respondents overall, there was considerable variation in the percentage who reported that it mattered amongst young male respondents in different regions. For instance, 82 per cent of young male respondents residing in the Valleys thought it mattered, compared with 57 per cent in Cardiff and South East Wales.
- 4.3 Out of all the statements relating to impacts of INNS on the local area, the impacts on less attractive scenery / changed look of the landscape had the lowest proportion of respondents reporting that it mattered to some extent.

Figure 4.1 – The extent to which it mattered to respondents whether INNS caused damage to their local area – all statements



Base: all respondents (n = 1,000)

- 4.4 A greater proportion of respondents aged 45+ reported that all the statements mattered to some extent compared to respondents aged 16-44. This is more evident in female respondents; however, it is also substantial for male respondents in Mid/West Wales and South West Wales when asked about loss of food production and loss of forestry. Female respondents were more likely than male respondents to rate all the statements as mattering to some extent.
- 4.5 Generally, respondents were more likely to report feeling neutral about an impact than to report it not mattering.

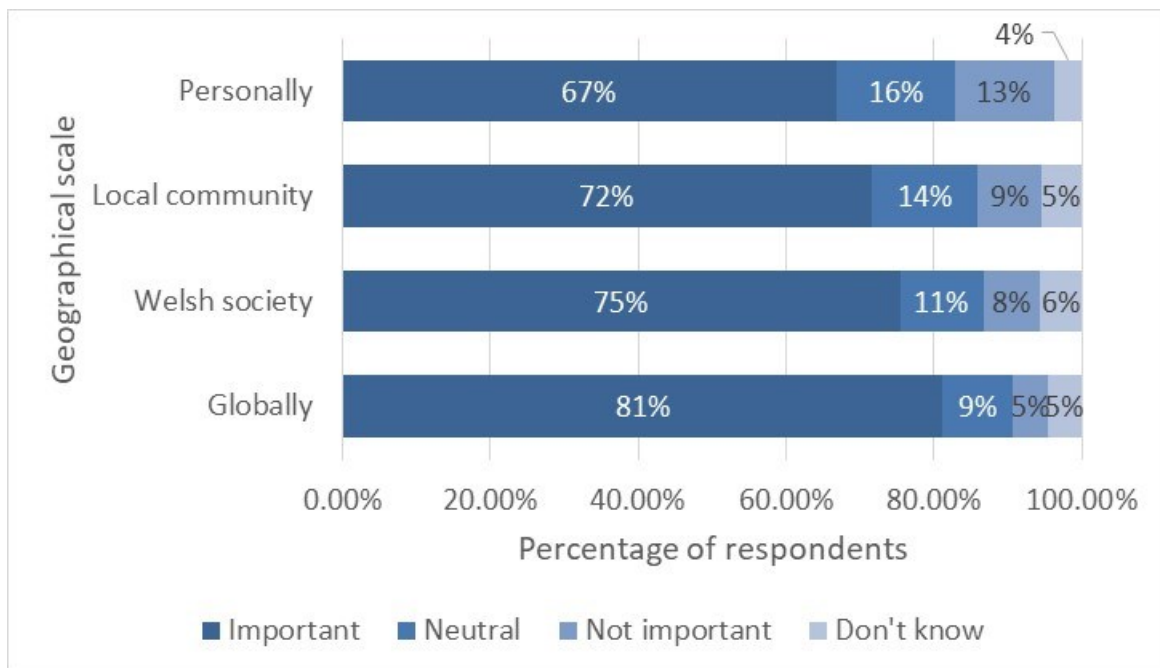
5. The importance of the issue of plant and tree pests and diseases

5.1 Respondents were asked to rate how important they felt the issue of plant and tree pests and diseases were across four geographical levels:

- a. To you personally
- b. To your local community
- c. To wider Welsh society
- d. Globally

5.2 Participants were most likely to state that tree and plant health was important on a global scale (81 per cent). The importance reduced as geographical level narrowed, with 67 per cent stating that tree and plant health is important to them personally.

Figure 5.1 – The extent to which respondents thought issue of plant/tree pests and diseases is important by geographical scale



Base: all respondents (n = 1,000)

5.3 Respondents aged 45+ were more likely to report that tree and plant health is important across all the scales. Female respondents had a greater difference between age groups.

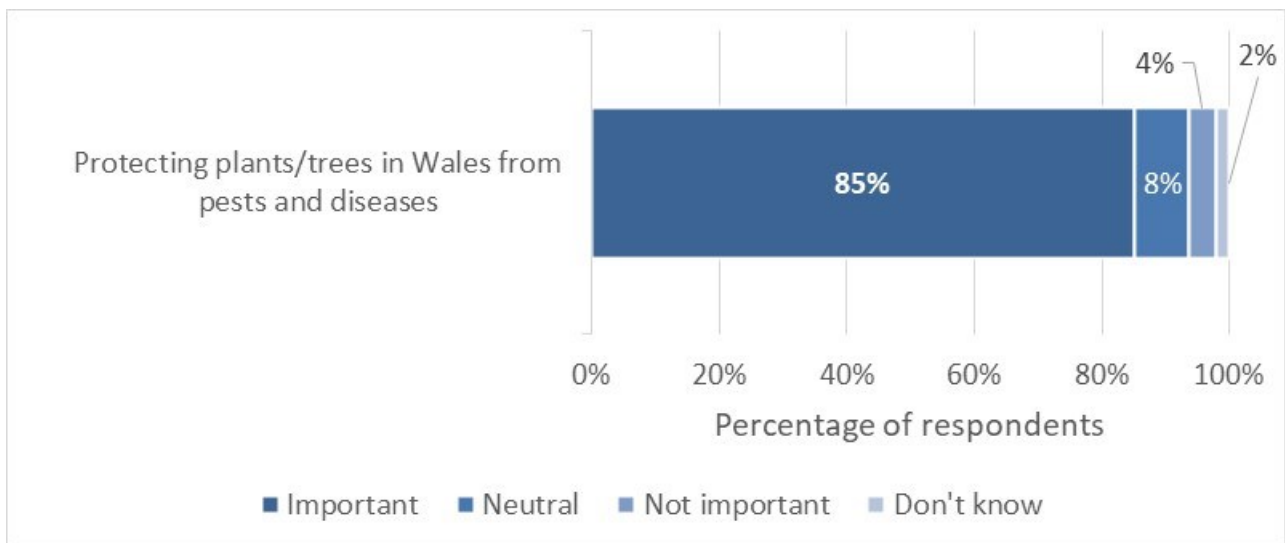
There was a substantial difference between age groups within female respondents of C2DE⁷ social grade – with 55 per cent of 16-44 year olds reporting plant/tree pests and diseases were important compared with 78 per cent of those aged 45+. This indicates that plant/tree pests and diseases were viewed as less of a personal issue by younger women in manual labour jobs, in casual work or unemployed seeking state benefits.

⁷ C2DE social grade includes manual labour occupations (across skill level), state pensioners, individuals in casual work unemployed people on state benefits – however, within the 16-44 age group it should be noted that this will not include state pensioners due to age.

6. The importance of protecting plant/tree in Wales from pests and diseases.

- 6.1 Respondents were asked to rate on a scale of 1-7 how they feel regarding the importance of protecting plants/trees in Wales from pests and diseases where 1 was 'not important at all' and 7 was 'extremely important'.
- 6.2 Most people, eighty-five per cent, reported that protecting plant/trees was important to them. Respondents aged 45+ were most likely to say protecting trees and plants was important.

Figure 6.1 – The extent to which respondents thought it was important to protect plants/trees in Wales from pests and diseases



Base: all respondents (n = 1,000)

- 6.3 Male respondents aged 45+ in Cardiff and South-East Wales had a lower proportion reporting the statement as important to some extent than males aged 45+ in other regions.

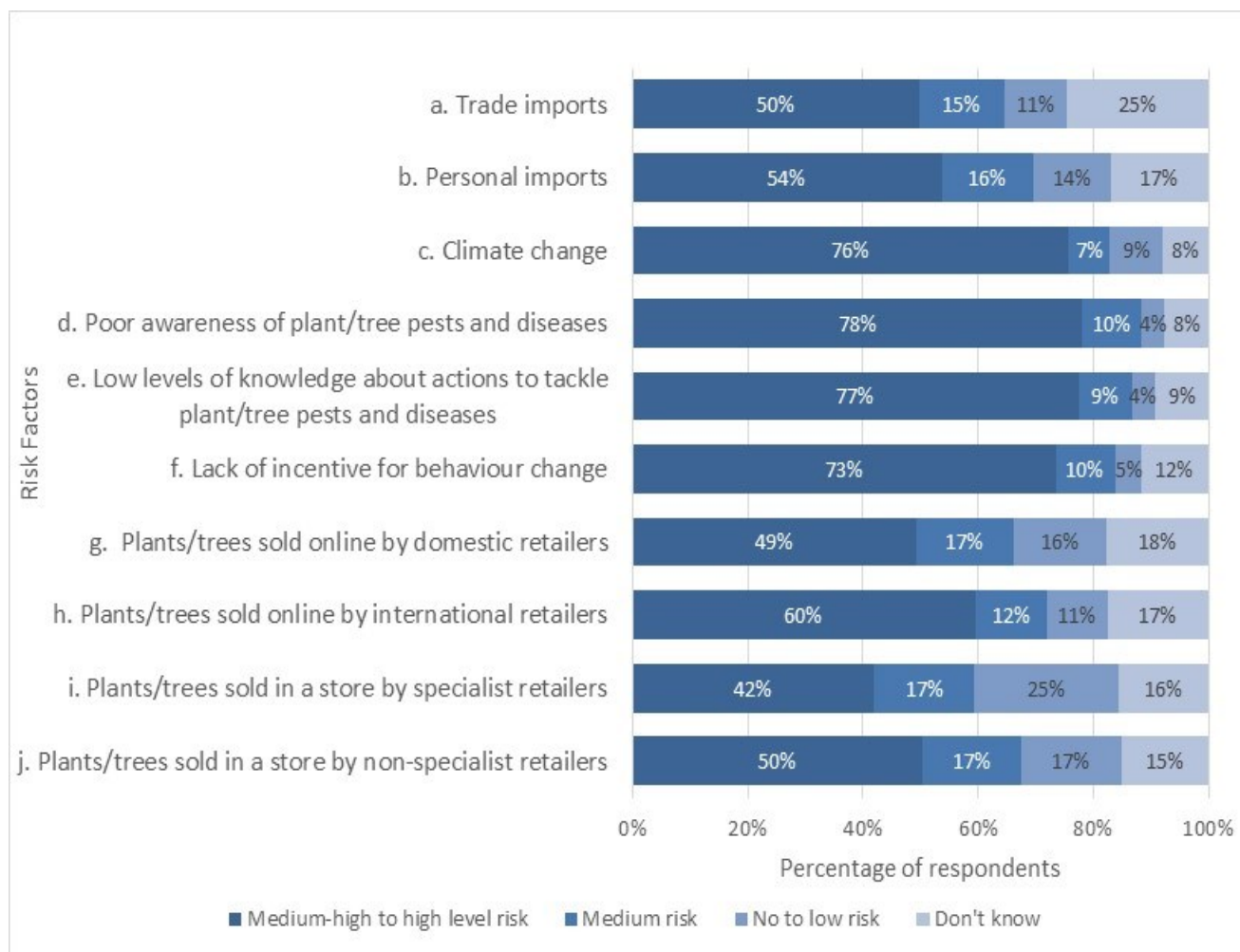
7. Factors that represent a risk to plant/tree health in Wales

7.1 Respondents were asked to rate risk factors to tree and plant health in Wales.

The risk factors were:

- a. Trade imports
- b. Personal imports (e.g. holidaymakers bringing back a plant/tree from a trip abroad)
- c. Climate change
- d. Poor awareness of plant/tree pests and diseases
- e. Low levels of knowledge about actions to tackle plant/tree pests and diseases
- f. Lack of incentive for organisations and individuals to adopt behaviours and practices to tackle plant/tree pests and diseases
- g. Plants/trees sold online by domestic retailers
- h. Plants/trees sold online by international retailers
- i. Plants/trees sold in a store by specialist retailers (e.g. garden centres, nurseries)
- j. Plants/trees sold in a store by non-specialist retailers (e.g. supermarkets, DIY stores)

Figure 7.1 – Views on the level of risk to plant/tree health in Wales from the following factors – all factors.



Base: all respondents (n = 1,000)

7.2 Participants rated low levels of knowledge, poor awareness, lack of incentive to behaviour change and climate change as the highest risk to plant health in Wales. Less than half of participants thought that plants sold online by domestic retailers, plants sold in a store by specialist retailers and trade imports posed a medium to high risk. For statements regarding imports and the sale of plants and trees⁸ many respondents (15 to 25 per cent) reported that they didn't know about the risk.

7.3 Respondents aged 45+ were more likely to rate climate change, poor awareness of plant/tree pests and diseases, lack of knowledge/incentives and

⁸ a. Trade imports; b. Personal imports (e.g. holidaymakers bringing back a plant/tree from a trip abroad); g. Plants/trees sold online by domestic retailers; h. Plants/trees sold online by international retailers; i. Plants/trees sold in a store by specialist retailers (e.g. garden centres, nurseries); j. Plants/trees sold in a store by non-specialist retailers (e.g. supermarkets, DIY stores)

personal imports as medium to high or high risk to plant/tree health than 16–44-year-old respondents.

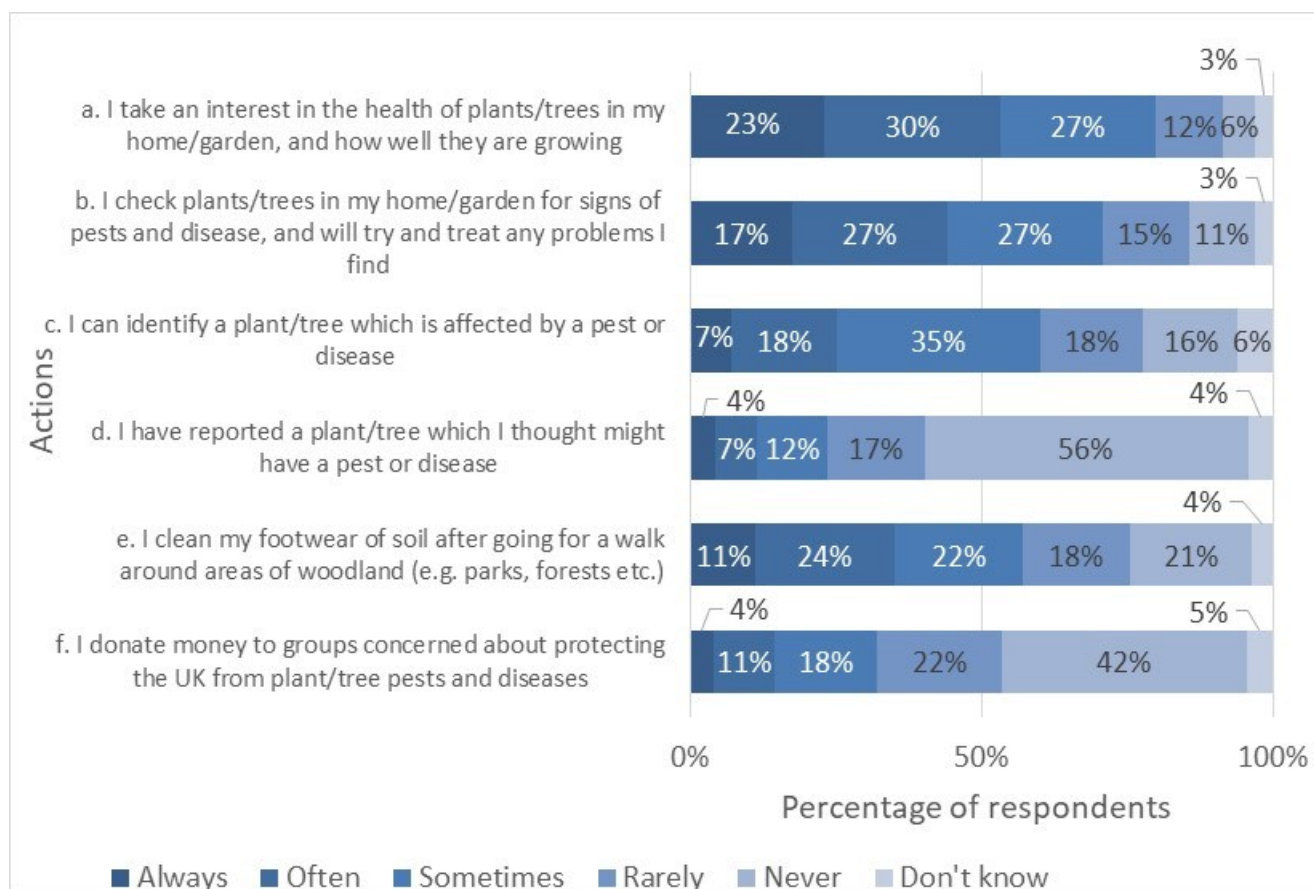
- 7.4 Generally, there were no clear response patterns by gender across the risk factors; however, climate change and poor awareness were the only risks where female respondents were more likely to rate the factor as a medium-high or high risk compared with male respondents. This pattern was particularly strong in respondents aged 45+ in Cardiff and South-East Wales – 89 per cent of females compared with 61 per cent of male respondents thought that climate change was medium to high or high risk to plant health. Whereas for poor awareness of plant/tree pests and diseases this pattern reversed in the Valleys: male respondents aged 45+ (90 per cent) thought that a poor awareness of pest and disease was a higher risk to plant and tree health than female respondents aged 45+ (71 per cent). Higher social grades (ABC1) in the Valleys were more likely to rate climate change as a medium-high or high risk (87 per cent) than lower social grades (C2DE) (71 per cent).

8. Knowledge, interest and actions taken on plant health and INNS prevention

Interest and knowledge about plant and tree pests and diseases

- 8.1 Respondents were asked to rate how often (if at all) each of the following statements on interest and knowledge about plant/tree pests and diseases applied to them. They had to choose one of the listed options: always or whenever I have the opportunity (hereafter abbreviated to 'always'), often, sometimes, rarely, and never. Respondents were asked to provide ratings for six different actions:
- a. I take an interest in the health of plants/trees in my home/garden, and how well they are growing.
 - b. I check plants/trees in my home/garden for signs of pests and disease and will try and treat any problems I find.
 - c. I can identify a plant/tree which is affected by a pest or disease.
 - d. I have reported a plant/tree which I thought might have a pest or disease.
 - e. I clean my footwear of soil after going for a walk around areas of woodland (e.g., parks, forests etc.)
 - f. I donate money to groups concerned about protecting the UK from plant/tree pests and diseases.
- 8.2 Participants are most likely to take an interest in their own garden, both the health of plant and trees, and in checking for and treating pests and disease – 53 per cent and 44 per cent reported they did this always or often respectively. Over a third of respondents (35 per cent) also reported cleaning their footwear after going for a walk around areas of woodland 'always or often'. Participants were least likely to have reported a tree or plant they thought had a pest or disease (73 per cent reported never or rarely), or to donate money to groups concerned about protecting the UK from plant/tree pests and diseases (64 per cent reported never or rarely). It is unclear whether participants did not report plant or trees that they thought had a pest or disease very often because they did not know about the process of reporting, they did not realise the plant or tree was infected or because there were no plants or trees that were infected for a respondent to report. Thirty-five per cent of respondents reported being able to identify pest and diseases 'sometimes', whilst a quarter of respondents reported being able to do so 'always or often'.

Figure 8.1 – Frequency with which the respondents reported that the following statements applied to them – all statements



Base: all respondents (n = 1,000)

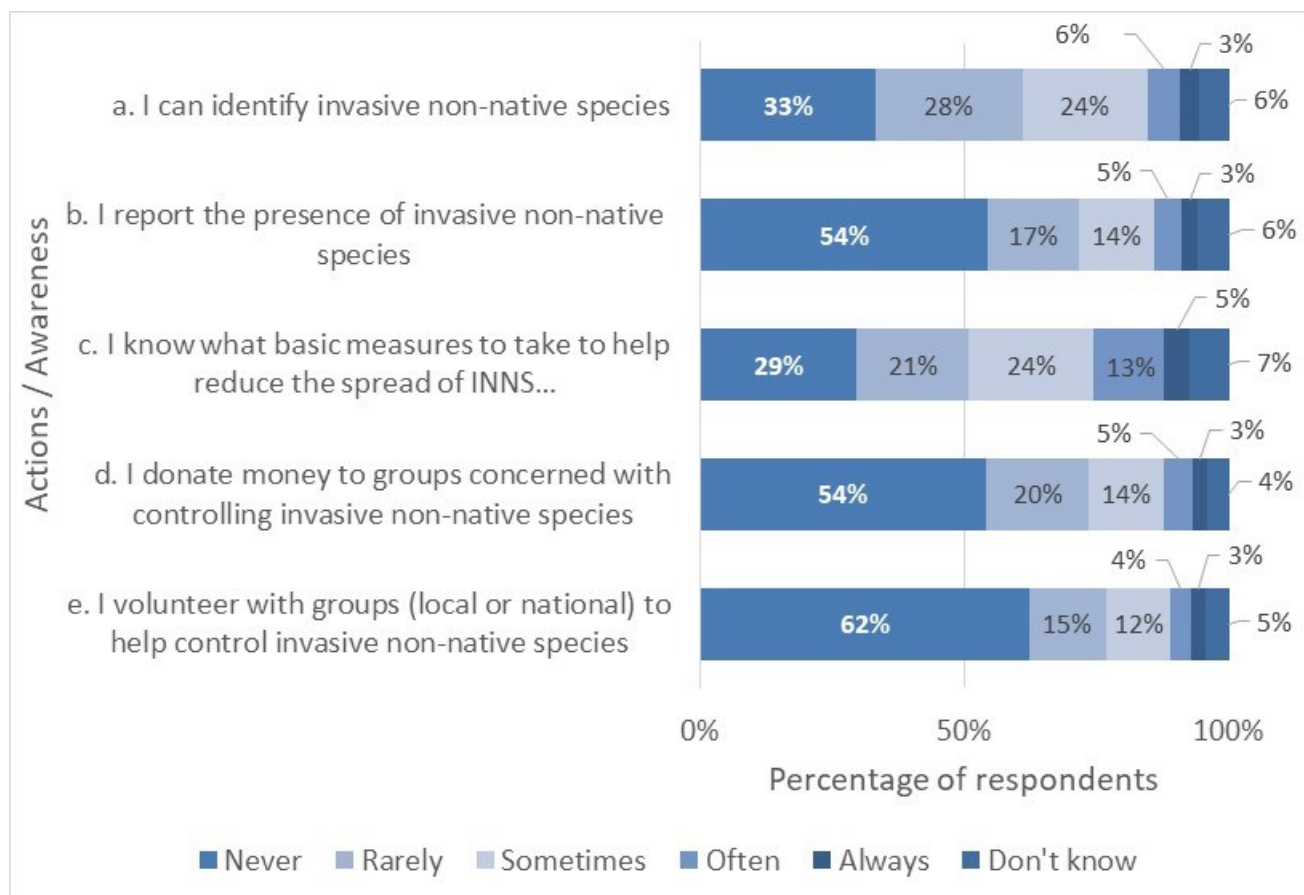
8.3 Respondents aged 45+ were more likely take an interest in tree and plant health. For respondents aged 16-44, male participants were generally more likely to report an interest in plant health than female participants; the opposite is generally true for respondents aged 45+ when female respondents were more likely to report an interest in plant health. In terms of taking action, male respondents aged 16-44 were more likely to report a plant which they thought had a pest or disease and donate money to groups – indicated by smaller percentages reporting having never or rarely done these activities (50 per cent and 54 per cent respectively).

8.4 In the Valleys, respondents in social grade in managerial, administrative, and professional occupations (social grade ABC1) were more likely to report never having reported a plant or tree which they thought might have a pest than participants in manual labour jobs, in casual work, unemployed seeking state benefits or on state pension (social grade C2DE).

Respondents' awareness and actions to tackle INNS

- 8.5 Respondents were asked to rate how often (if at all) actions or statements on tackling INNS applied to them. They had to select one of the following responses: always or whenever I have the opportunity, often, sometimes, rarely, never for each statement. The statements were as follows:
- a. I can identify invasive non-native species
 - b. I report the presence of invasive non-native species
 - c. I know what basic measures to take to help reduce the spread of invasive non-native species in my garden / local area e.g. clean my footwear after going for a walk around areas of woodland
 - d. I donate money to groups concerned with controlling invasive non-native species
 - e. I volunteer with groups (local or national) to help control invasive non-native species
- 8.6 The most common answer for all statements was 'Never'. For the statements 'I report the presence of invasive non-native species', 'I donate money to groups concerned with controlling invasive non-native species' and 'I volunteer with groups (local or national) to help control invasive non-native species', more than 50 per cent of the respondents reported that the statement never applied to them. These statements relate to respondents having to take action rather than knowledge of INNS which may indicate barriers to action on INNS from the general public.
- 8.7 Statement c 'I know what basic measures to take to help reduce the spread of invasive non-native species in my garden / local area e.g.: clean my footwear after going for a walk around areas of woodland' applied to the most respondents. Thirteen per cent of respondents answered 'Often' (compared to the overall average of the other statements 5 per cent), and a high percentage answered 'Sometimes' (24 per cent).

Figure 8.2 – How frequently the respondents reported being aware / doing the action stated to tackle invasive non-native species (INNS) – all statements



Base: all respondents (n = 1,000)

8.8 Respondents aged 16-44 were more likely to report ‘never’ to statements relating to knowledge⁹, whilst respondents aged 45+ were more likely to report ‘never’ to statements relating to taking action¹⁰, in particular donating money and volunteering.

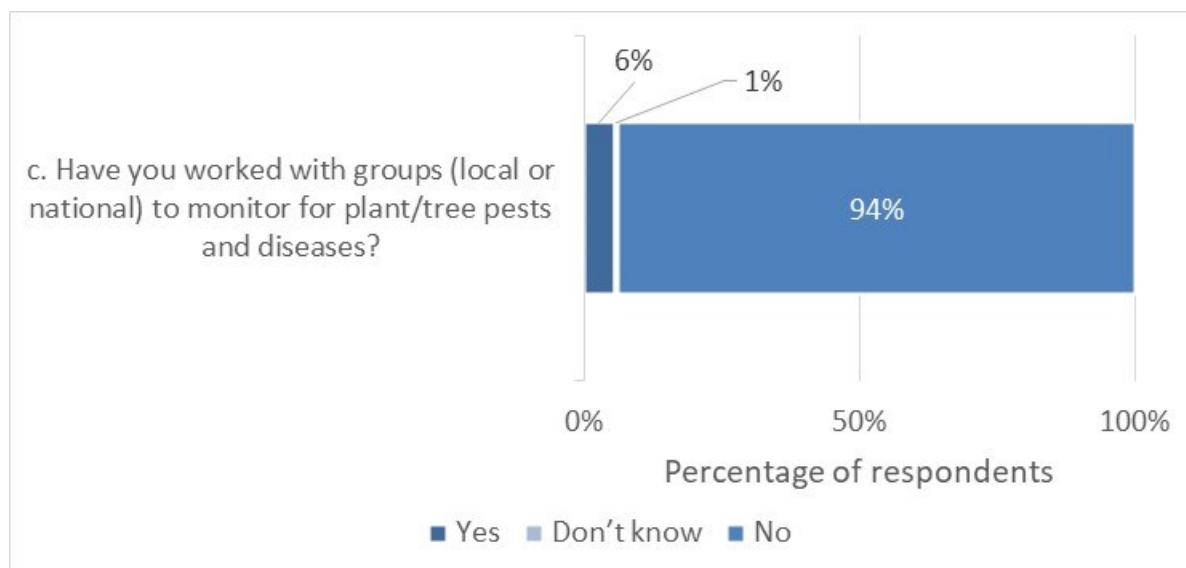
Work with groups (local or national) to monitor for plant/tree pests and diseases.

8.9 Most respondents (94 per cent) reported ‘no’ to having ever worked with local or national groups to monitor for plant/tree pests and diseases.

⁹ Statements: a. I can identify invasive non-native species; c. I know what basic measures to take to help reduce the spread of invasive non-native species in my garden / local area e.g.: clean my footwear after going for a walk around areas of woodland

¹⁰ Statements: b. I report the presence of invasive non-native species; d. I donate money to groups concerned with controlling invasive non-native species; e. I volunteer with groups (local or national) to help control invasive non-native species

Figure 8.3 – Respondents’ answers on whether they have ever worked with groups (local or national) to monitor for plant/tree pests and diseases.



Base: all respondents (n = 1,000)

8.10 However, younger respondents (aged 16-44) were more likely than older respondents (aged 45+) to have worked with these groups (about 10 percentage points more). Overall, male respondents aged 16-44 were most likely to have worked with groups to monitor plant/tree pests and diseases.

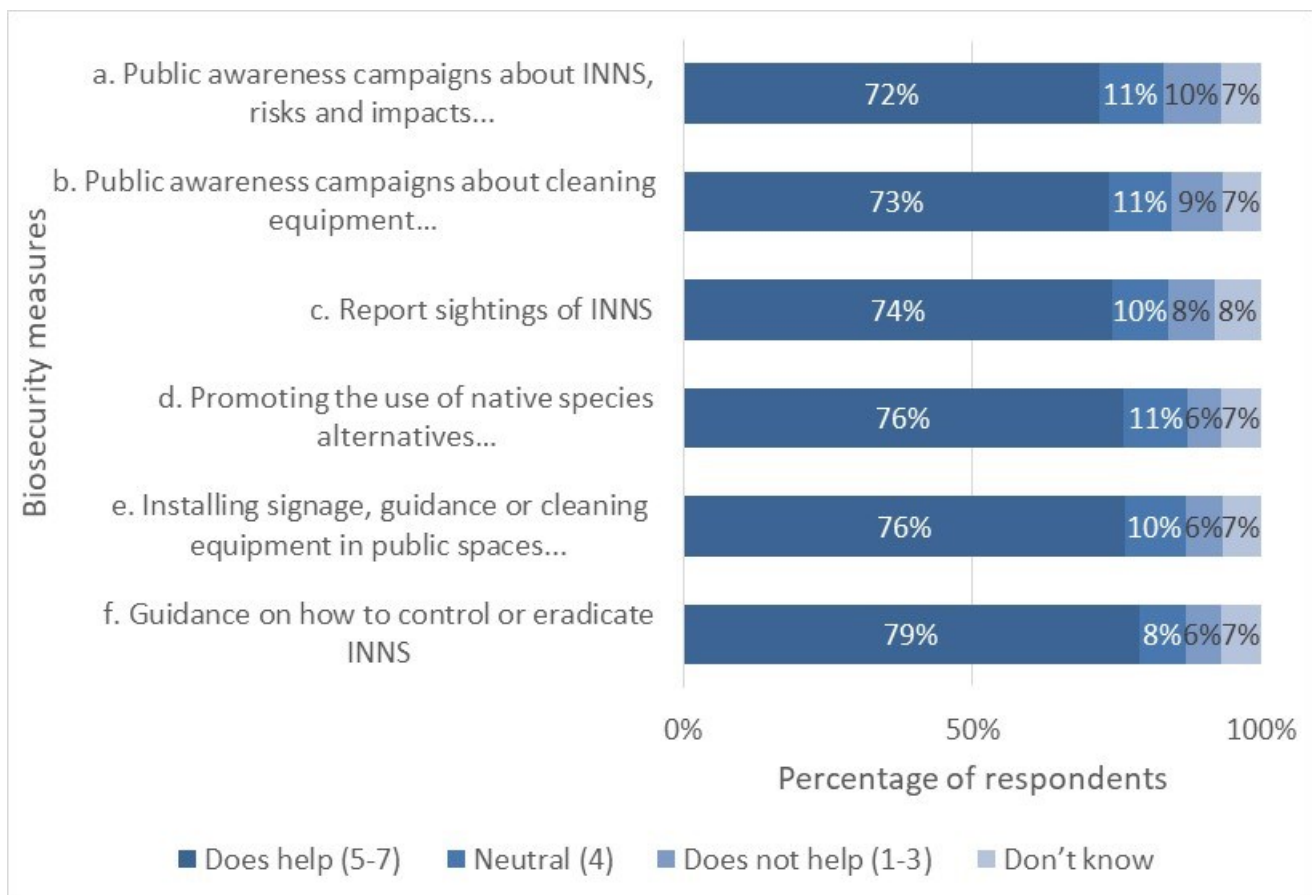
Views on biosecurity measures helpful to reducing the spread of invasive non-native species

8.11 Respondents were asked to rate how much they think certain biosecurity measures would help reducing the spread of invasive non-native species. The six biosecurity measures were:

- a. Public awareness campaigns about invasive non-native species, risks and impacts through information leaflets, online guides etc.
- b. Public awareness campaigns about cleaning equipment, footwear vehicles, fishing equipment to help prevent the spread of invasive non-native species.
- c. Report sightings of invasive non-native species e.g., on mobile phone apps
- d. Promoting the use of native species alternatives in gardening, public parks, recreation facilities etc

- e. Installing signage, guidance or cleaning equipment in public spaces where risk of spread of invasive non-native species is a risk.
 - f. Guidance on how to control or eradicate invasive species.
- 8.12 More than 70 per cent of respondents reported that each biosecurity measure would help to some extent (rating score of 5, 6 or 7) – see figure 8.4. The biosecurity measures that the respondents considered would help the most were guidance on how to control or eradicate invasive non-native species; installing signage, guidance or cleaning equipment in public spaces and promoting the use of native species in both private and public spaces.

Figure 8.4 – The extent to which respondents thought each biosecurity measure would help – all statements



Base: all respondents (n = 1,000)

- 8.13 Female respondents were more likely to report that the statement mattered to some extent than their male counterparts. Respondents aged 45+ were more likely to rate the statement as mattering to some extent than their 16–44-year-old counterparts.

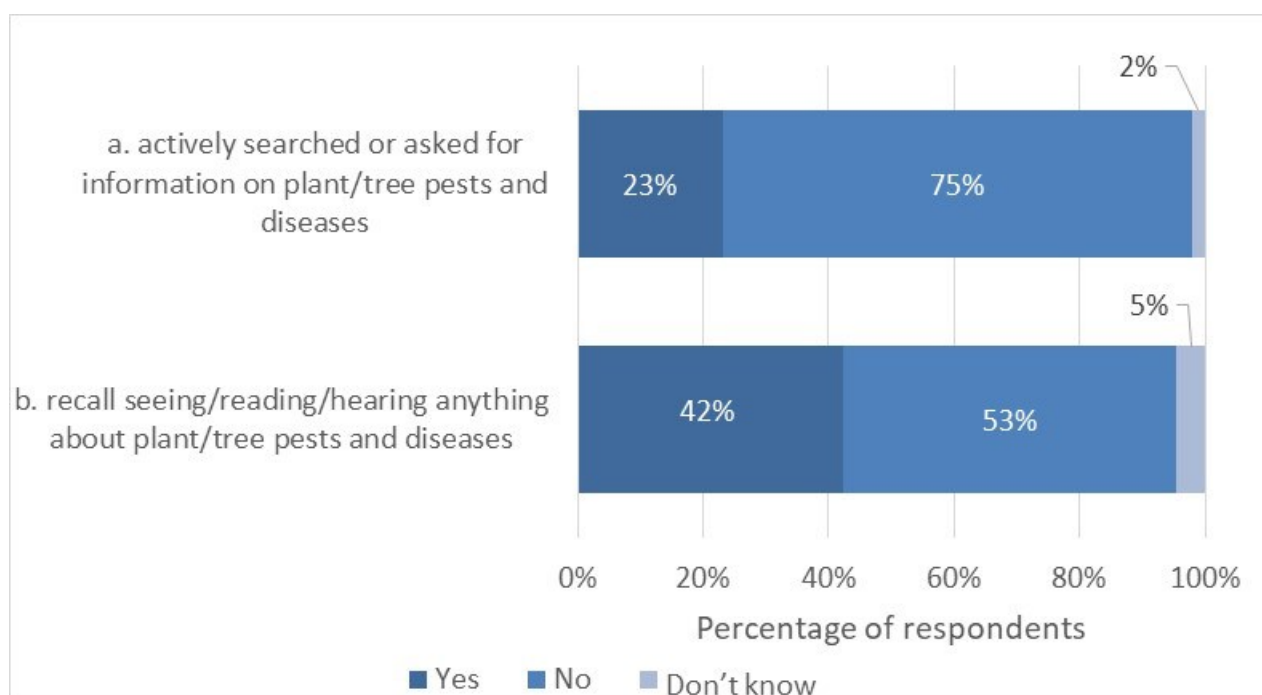
8.14 Respondents in manual labour jobs, in casual work, unemployed seeking state benefits or on state pension (social grade C2DE) were more likely to rate public awareness campaigns and the ability to report sightings of invasive non-native species as helpful measures than participants in managerial, administrative and professional occupations (social grade ABC1).

9. Researching and receiving information on plant/tree pests and diseases.

9.1 Respondents were asked a. 'Have you ever actively searched or asked for information on plant/tree pests and diseases?' and b. 'Do you ever recall seeing, reading, or hearing anything about plant/tree pests and diseases?'

9.2 Seventy-five per cent of respondents answered 'No' to having ever actively searched or asked for information on plant/tree pests and diseases, whilst 53 per cent of respondents answered 'No' to recalling having ever seeing, reading, or hearing anything about plant/tree pests and diseases. The findings show that although most respondents haven't actively searched for information (75 per cent), just over 40 per cent of them recall seeing information on plant/tree pests and diseases.

Figure 9.1 – Respondents' answers on their action regarding plant/tree pests and diseases described in the questions – all questions



Base: all respondents (n = 1,000)

9.3 Female respondents aged 16-44 were less likely to have both actively searched for information or could recall seeing, reading or hearing about plant/tree pests and diseases.

9.4 Respondents in Mid/West Wales were more likely than other regions to respond 'Yes' to having actively searched for information on tree and plant pests and

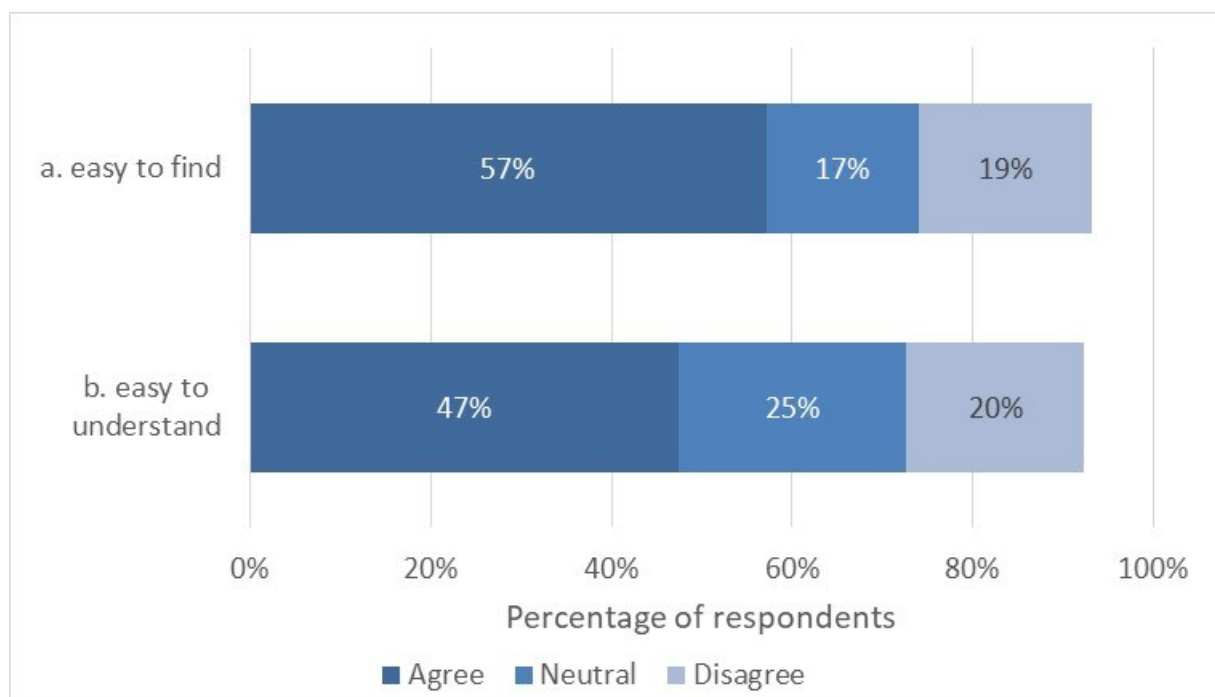
diseases. In particular, male respondents aged 45+ in this region were more likely to have actively searched for information than male respondents aged 45+ in other regions.

- 9.5 Generally, respondents in managerial, administrative and professional occupations (social grade ABC1) were more likely to answer 'Yes' to both questions than respondents in manual labour jobs, in casual work, unemployed seeking state benefits or on state pension (social grade C2DE). However, the opposite was true for male respondents aged 16-44, where those in manual labour jobs, in casual work, unemployed seeking state benefits or on state pension (social grade C2DE) were more likely to have actively searched for information on tree and plant pests and diseases than those in managerial, administrative and professional occupations (social grade ABC1). The largest difference between social grade was seen in Mid/West Wales: 60 per cent of respondents in managerial, administrative and professional occupations (social grade ABC1) reported that they recalled seeing, reading, or hearing anything about plant/tree pests and diseases compared to their 36 per cent of respondents in in manual labour jobs, in casual work, unemployed seeking state benefits or on state pension (social grade C2DE).

Respondents' views on the ease of access of the information found

- 9.6 Respondents that answered 'Yes' to one or both of the two previous questions were asked to rate how much they agreed with the two following statements:
- a. Information on plant/tree pests and diseases is easy to find.
 - b. Information on plant/tree pests and diseases is easy to understand.
- 9.7 Almost 50 per cent of respondents reported that they agreed to some extent with both statements. Respondents in managerial, administrative and professional occupations (social grade ABC1) were more likely to agree with the statements (10 percentage points difference) than respondents in manual labour jobs, in casual work, unemployed seeking state benefits or on state pension (social grade C2DE).

Figure 9.2 – Respondents’ answers on how whether they agree with the statements that information on plant/tree pests and diseases easy to find and/or understand – both statements



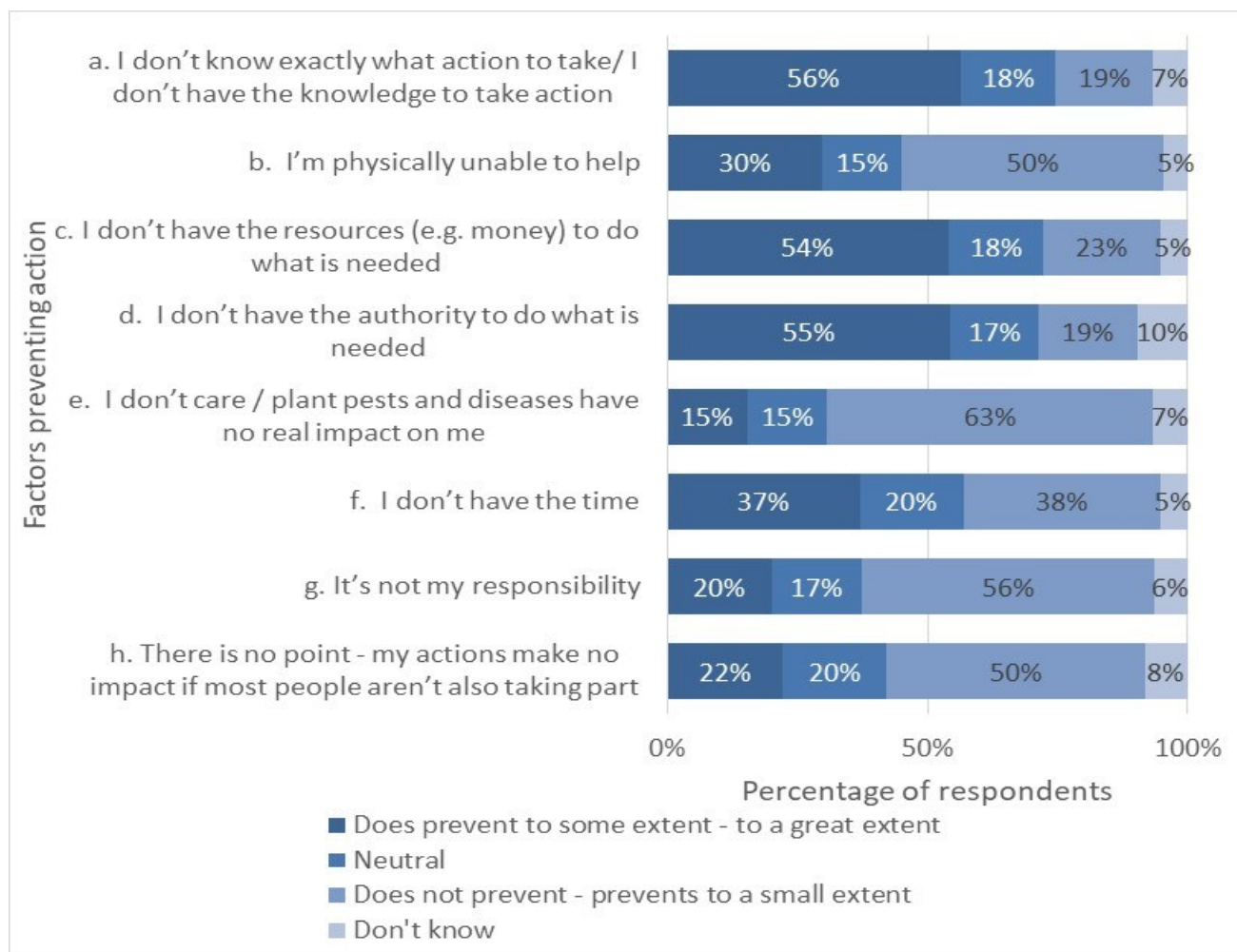
Base: all respondents (n = 1,000)

- 9.8 Generally, respondents aged 45+ were more likely to agree that information on plant/tree pests and diseases is easy to find and understand than respondents aged 16-44. This pattern is not true for male respondents for the statement ‘that information on plant/tree pests and diseases is easy to understand’, where the difference in responses was not substantial.
- 9.9 Respondents in Mid/West Wales were less likely to report that information is easy to find than other regions.
- 9.10 Generally, respondents in managerial, administrative and professional occupations (social grade ABC1) were more likely than those in manual labour jobs, in casual work, unemployed seeking state benefits or on state pension (social grade C2DE) to report that information was easy to find and understand. This is particularly evident in Mid/West Wales and North Wales; an exception to the pattern are respondents in South-West Wales, where respondents in manual labour jobs, in casual work, unemployed seeking state benefits or on state pension (social grade C2DE) were more likely to report that information was easy to find and understand than those in managerial, administrative and professional occupations (social grade ABC1).

10. Factors preventing taking action to benefit plant/tree health.

- 10.1 Respondents were asked to rate how much they thought certain factors prevented them from taking action to benefit plant and tree health. The factors were:
- a. I don't know exactly what action to take/ I don't have the knowledge to take action
 - b. I'm physically unable to help
 - c. I don't have the resources (e.g. money) to do what is needed
 - d. I don't have the authority to do what is needed
 - e. I don't care / plant pests and diseases have no real impact on me
 - f. I don't have the time
 - g. It's not my responsibility
 - h. There is no point - my actions make no impact if most people aren't also taking part
- 10.2 Most respondents (63 per cent) reported that not caring, or the belief that plant diseases have no real impact on them did not prevent them from taking action, this was particularly evident in females aged 45+ (75 per cent). This shows that a majority of the respondents did believe plant health to be important and impactful.
- 10.3 The factors that respondents reported prevented them from taking action the most were a. I don't know exactly what action to take/ I don't have the knowledge to take action, c. I don't have the resources (e.g. money) to do what is needed and d. I don't have the authority to do what is needed.

Figure 10.1 – Respondents’ answers on how much they thought the following factors prevented them from taking action to benefit plant/tree health – all statements



Base: all respondents (n = 1,000)

10.4 Male respondents were more likely to report barriers that prevented them from taking action on plant health than female respondents, this was more distinct in respondents aged 45+. Respondents aged 16-44 were more likely to state that the factors did not prevent them from taking action than older respondents.

10.5 Social grade appears to influence how participant responded to certain statements, whilst it produces very little difference in others. Within this research project, social grade is determined by occupation and employment status. It is hypothesised that the statements which are impacted by social grade are influenced by an underlying relationship between the resources described in the statements (time, money, health) and occupation or employment status. The statements are:

b. I'm physically unable to help

c. I don't have the resources (e.g. money) to do what is needed

f. I don't have the time

Respondents in manual labour jobs, in casual work, unemployed seeking state benefits or on state pension (social grade C2DE) were more likely to state that lack of resources and lack of authority prevented them from taking action than respondents in managerial, administrative and professional occupations (social grade ABC1).

- 10.6 Younger female respondents were more likely than older female respondents to report that lack of knowledge in what to do/how to do it did prevent in taking action. No difference was observed in male respondents based on age.
- 10.7 Older respondents were more likely to state that they were physically unable to help, and that time did not prevent them from taking action, compared to younger respondents.
- 10.8 Older female respondents were more likely than younger female respondents to report that the belief 'There is no point - my actions make no impact if most people aren't also taking part' did not prevent in taking action.

11. Review of Existing Evidence

11.1 Following survey analysis and interpretation, a rapid non-exhaustive review of existing evidence was carried out. The aim was to understand whether key findings from the survey analysis were reflected in the wider evidence base. The review focused on whether the views of specific demographic groups, older adults and female respondents, differed from the general population on issues related to plant and tree health such as climate, environment, biodiversity or nature. Literature included in the review adhered to the following criteria:

- Dates inclusion: 2000-2023 / exclusion: before 2000
- Geography – Inclusion - Wales / UK / exclusion: outside of the UK
- Types of literature – Inclusion: journal articles, peer reviewed documents, Government reports and documents / exclusion: opinion pieces, blogs, newspaper or magazine articles

11.2 The search terms are detailed in the table 11.1 below.

Table 11.1: Search terms included in the review of existing evidence

Impact of age on views of climate related issues in <u>Wales</u>	Impact of age on views of climate related issues in the <u>UK</u>
Impact of age on views of environment related issues in <u>Wales</u>	Impact of age on views of environment related issues in <u>UK</u>
Impact of age on views of biodiversity related issues in <u>Wales</u>	Impact of age on views of biodiversity related issues in <u>UK</u>
Impact of age on views of nature related issues in <u>Wales</u>	Impact of age on views of nature related issues in <u>UK</u>

11.3 Generally, there was limited evidence related to how different characteristics impacted on individual's views on issues related to the climate and environment. Literature also suggests that more research is needed on these topics (NHS Wales and Bangor University, 2022). More recent research reported findings that aligned with the findings of this report: female respondents were more likely to take an interest in issues surrounding climate change, and less likely to be sceptical of climate change (Poortinga et al, 2011; The Chatham House–YouGov Survey, 2011; Crawley et al., 2019; ONS, 2021;

Capstick et al., 2013; Hartley et al., 2018); Other studies did not identify a correlation between the aforementioned characteristics and view on climate change and the environment (Fischer and van der Wal, 2007; Bremner and Park, 2007).

12. Conclusions

- 12.1 This report has summarised the findings from a survey of 1000 members of the Welsh public on plant health, plant and tree pest and diseases, and the impact and prevention of invasive non-native species.
- 12.2 Most respondents reported that the issue of plant/tree pests and diseases were important at the personal, community, society and global levels. Respondents were more likely to report that plant/tree pest and diseases were important on a global scale rather than a personal level. Generally, respondents reported protecting plants and trees in Wales from pests and diseases was important.
- 12.3 Loss of biodiversity and increased risk of flooding as a result of INNS causing damage to respondents' local area mattered the most to participants whereas less attractive scenery mattered the least. Generally, poorer air quality, greater levels of carbon in the atmosphere and biodiversity loss as a result of plant and trees dying or being removed due to pests and diseases mattered the most to participants at both the local and national level. Whereas loss of shade as a result of plants and trees dying or being removed mattered the least to respondents. Impacts from plants and trees dying or being removed due to pests and diseases mattered more to participants at the national level than locally.
- 12.4 Respondents appeared to lack knowledge in how certain factors impact plant health risks. Fewer respondents reported plants/trees sold in a store by specialist retailers (e.g. garden centres, nurseries), plants/trees sold online by domestic retailers and trade imports as representing a high risk to plant health; this does not reflect the findings of risk assessments of plant pest and diseases carried out in recent years¹¹. Trade imports of plants, seeds and organic matter that utilise official channels are regulated and monitored by the importing country and National Plant Protection Organisations, such as the Plant Health and Seeds Inspectorate (PHSI) in the England and Wales. Vendors and distributors are also monitored and undergo regular checks. Personal imports, although also regulated¹², can go undetected when brought into the country using private vehicles. This increases the risk of an accidental import of a high

¹¹ [Plant health controls - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

¹² [Bringing plants and wood into Great Britain: Overview - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

risk organism, such as a prohibited plant or a pest. It is therefore important that members of the public are aware of these risks. Awareness campaigns, such as the Don't Risk It campaign¹³, have sought to spread information and guidance on the risk of illegal personal imports. There may be scope through further engagement with members of the public to understand how to widen the reach of this campaign.

- 12.5 The factors that respondents rated as carrying high risk to plant health were poor awareness of plant/tree pests and diseases, low levels of knowledge about actions to tackle plant/tree pests and diseases, climate change, and lack of incentive for organisations and individuals to adopt behaviours and practices to tackle plant/tree pests and diseases. Related to the perceived risk of poor awareness, a quarter of respondents reported that they could often or always identify a plant or tree which had been affected by a pest or disease, meanwhile over a third reported sometimes being able to do this. In addition, respondents were most likely to report that not having the knowledge to take action as a barrier that prevented them from taking action to benefit plant and tree health. This indicates that improving awareness of plant and tree pests and diseases and knowledge of how to take action might be beneficial.
- 12.6 Most respondents reported not having ever worked with groups to monitor for plant/tree pests and diseases, actively searched or asked for information on plant/tree pests and diseases, or not recalling having ever seeing, reading, or hearing anything about plant/tree pests and diseases. This appears to suggest that most responders are not interested in actively researching plant health; however, just over 40 per cent of them had access to information on plant/tree pests and diseases and recalled seeing it. About half of respondents that searched or saw information on plant/tree pests and diseases reported that the information was both easy to find and easy to understand.
- 12.7 The biosecurity measures that the respondents considered would help the most were guidance on how to control or eradicate invasive non-native species; installing signage, guidance or cleaning equipment in public spaces and promoting the use of native species in both private and public spaces. Respondents in manual labour jobs, in casual work, unemployed seeking state

¹³ [Don't Risk It campaign by the European and Mediterranean Plant Protection Organisation \(EPPO\)](#)

benefits or on state pension (social grade C2DE) were more likely to rate public awareness campaigns and report sightings of invasive non-native species as helpful than respondents in managerial, administrative and professional occupations (social grade ABC1).

- 12.8 In general, respondents aged 45+ and female respondents were more likely to report that the statements mattered or were important/helpful to some extent than respondents aged 16-44 and male respondents. Male respondents were also more likely to report that barriers prevented them from taking action to benefit plant/tree health. It would be beneficial to explore the gender difference identified within the sample of respondents' further to identify whether and how to engage men in actions to promote plant health.
- 12.9 Respondents aged 16-44 were more likely to report a lack of knowledge regarding both plant health, pest and diseases and prevention methods, especially female respondents aged 16-44. This might indicate an opportunity to target resources to promote knowledge on these areas to this group. However, they were also the group who were most likely to have taken action such as volunteering, donating and working groups (local or national) to monitor for plant/tree pests and diseases. Further segmentation could be undertaken to explore this further. Younger participants were also less likely to report that there were factors preventing them from taking action to benefit plant/tree health. Younger respondents were also more likely to be worried about climate change.
- 12.10 Social grade and region of the respondents did not impact the answers to a substantial extent; apart from issues that could be directly linked to consequences of occupation and income. For instance, respondents with manual labour or casual jobs, state pensioners and those receiving state welfare were more likely to report that lack of resources (money, time) impeded them from taking action. Respondents with managerial, administration or professional jobs were more likely to actively search for or recall seeing information about plant and tree pests and diseases than respondents in manual or casual jobs, claiming state welfare or state pensioners.

Recommendations for future research

- 12.11 These results provide an opportunity for comparison against findings from a 2021 survey in England¹⁴ on similar themes to identify any similarities and differences. To build on the findings from this survey, it is recommended that these findings are explored qualitatively to understand some of the reasons behind the response patterns and to test the findings further. Focus groups and workshops with members of the Welsh public, including a range of different characteristic groups, particularly age and gender could provide further detail on views of members of the Welsh public and the reasons for this. This would support achieving the biosecurity strategy outcome of “a society that values plants” through understanding levels of awareness and how best to promote awareness, knowledge and the ability and motivation to take action.

¹⁴ [Plant biosecurity strategy for Great Britain: Technical report - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/94441/plant-biosecurity-strategy-for-great-britain-technical-report.pdf)

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Annex A - B02210-2 March Wales Omnibus

Question Set – Plant Health and Invasive Non-Native Species in Wales FINAL 18.02.22

Section 1: Plant Health and Biodiversity

Plants and trees are all around us. They can be affected by pests and diseases which not only impact their health but may also lead to their death. Pests and diseases can also lead to reduction in biodiversity. Biodiversity is the variety of life found on earth. It includes all species of plants and animals, their abundance and genetic diversity.

This section of the survey aims to investigate:

- *the awareness of people in Wales of how plants benefit people, the environment and economy;*
- *the awareness of people in Wales about how to help protect plant health and biodiversity; and*
- *to understand what actions people in Wales would take if concerned about pests and diseases.*

Q1. If many plants/trees IN YOUR LOCAL AREA died or had to be removed due to pests and diseases, how would you feel about the following potential impacts?

LIKERT SCALE [1 (does not matter at all) – 7 (matters a great deal) / Don't know]

- a. Loss of carbon capture / release of carbon from dying plants/trees, which means that more carbon dioxide (CO₂) will enter the atmosphere, contributing to climate change
- b. Loss of shade
- c. Loss of flood alleviation, which means there would be more risk of flooding to homes and property
- d. Less attractive scenery / changed look of the landscape
- e. Loss of food production
- f. Loss of forestry / wood production
- g. Loss of recreational opportunities
- h. Loss of biodiversity / nature
- i. Reduced air quality / more air pollution

Q2. If many plants/trees NATIONALLY ACROSS WALES, died or had to be removed due to pests and diseases how would you feel about the following potential impacts?

LIKERT SCALE [1 (does not matter at all) – 7 (matters a great deal) / Don't know]

- a. Loss of carbon capture / release of carbon from dying plants/trees, which means that more carbon dioxide (CO₂) will enter the atmosphere, contributing to climate change
- b. Loss of shade
- c. Loss of flood alleviation, which means there would be more risk of flooding to homes and property
- d. Less attractive scenery / changed look of the landscape
- e. Loss of food production
- f. Loss of forestry / wood production
- g. Loss of recreational opportunities
- h. Loss of biodiversity / nature
- i. Reduced air quality / more air pollution

Q3. How important do you feel the issue of plant/tree pests and diseases is?

LIKERT SCALE [1 (not important at all) – 7 (extremely important) / Don't know]

- a. To you personally
- b. To your local community
- c. To wider Welsh society
- d. Globally

Q4. How important is it to you to protect plants/trees in Wales from pests and diseases?

LIKERT SCALE [1 (not at all important) – 7 (extremely important)]

Q5. How much risk to plant/tree health in Wales do you think comes from the following?

LIKERT SCALE [1 (no risk at all) – 7 (extremely high risk) / Don't know] FOR EACH

- a. Trade imports
- b. Personal imports (e.g. holidaymakers bringing back a plant/tree from a trip abroad)
- c. Climate change
- d. Poor awareness of plant/tree pests and diseases
- e. Low levels of knowledge about actions to tackle plant/tree pests and diseases
- f. Lack of incentive for organisations and individuals to adopt behaviours and practices to tackle plant/tree pests and diseases
- g. Plants/trees sold online by domestic retailers
- h. Plants/trees sold online by international retailers
- i. Plants/trees sold in a store by specialist retailers (e.g. garden centres, nurseries)

- j. Plants/trees sold in a store by non-specialist retailers (e.g. supermarkets, DIY stores)

Q6. How often (if at all) do the following apply to you?

SELECT ONE FROM [always or whenever I have the opportunity / often / sometimes / rarely / never / don't know] FOR EACH

- a. I take an interest in the health of plants/trees in my home/garden, and how well they are growing
- b. I check plants/trees in my home/garden for signs of pests and disease, and will try and treat any problems I find
- c. I can identify a plant/tree which is affected by a pest or disease
- d. I have reported a plant/tree which I thought might have a pest or disease
- e. I clean my footwear of soil after going for a walk around areas of woodland (e.g. parks, forests etc.)
- f. I donate money to groups concerned about protecting the UK from plant/tree pests and diseases

Q7a. Have you ever actively searched or asked for information on plant/tree pests and diseases?

Yes

No

Don't know

Q7b. Do you ever recall seeing, reading, or hearing anything about plant/tree pests and diseases?

Yes

No

Don't know

Q7c. Have you ever worked with groups (local or national) to monitor for plant/tree pests and diseases?

Yes

No

Don't know

**IF Q7 RESPONSE = "Yes" FOR EITHER Q7a OR Q7b, CONTINUE TO Q8;
OTHERWISE, SKIP TO Q9**

Q8. How much do you agree or disagree with the following?

LIKERT SCALE [1 (Strongly disagree) – 7 (Strongly agree) / Don't know] FOR EACH

- a. Information on plant/tree pests and diseases is easy to find
- b. Information on plant/tree pests and diseases is easy to understand

Q9. How much are the following preventing you taking action to benefit plant/tree health?

LIKERT SCALE [1 (Does not prevent me at all) – 7 (prevents me a great deal) / Don't know]

- a. I don't know exactly what action to take/ I don't have the knowledge to take action
- b. I'm physically unable to help
- c. I don't have the resources (e.g. money) to do what is needed
- d. I don't have the authority to do what is needed
- e. I don't care / plant pests and diseases have no real impact on me
- f. I don't have the time
- g. It's not my responsibility
- h. There is no point - my actions make no impact if most people aren't also taking part

Section 2: Invasive Non-native Species

Invasive non-native species are plants or animals that come from outside Wales, that have been introduced into Wales by human actions. They can spread and cause damage to the environment, the economy, our health and the way we live. Following good biosecurity practices can reduce the risk of them spreading. Biosecurity

measures are aimed at reducing the risk of introducing or spreading invasive non-native species (and other harmful organisms such as diseases) in the wild.

This part of the survey aims to investigate:

- ***the awareness of people in Wales of the impacts of invasive non-native species***
- ***the awareness of people in Wales about biosecurity measures.***

Q10. How would you feel about the following potential impacts of invasive non-native species causing damage in YOUR LOCAL AREA?

LIKERT SCALE [1 (does not matter at all) – 7 (matters a great deal) / Don't know]

- Higher risk of flooding due to waterways blocked by invasive plants or riverbanks devoid of vegetation
- Less attractive scenery / changed look of the landscape due to dominant invasive plants replacing mixed native species
- Loss of food production due to invasive pest species
- Loss of forestry / wood production due to invasive pest species
- Loss of recreational opportunities due to loss of access to riverbanks / waterways / woodlands / open country
- Loss of biodiversity / nature due to dominant invasive species outcompeting native species
- Loss of biodiversity / nature due to invasive species introducing new diseases

Q11. How much do you think each of the following biosecurity measures would help to reduce the spread of invasive non-native species?

LIKERT SCALE [1 (would not help at all) – 7 (would help a great deal) / Don't know]

- Public awareness campaigns about invasive non-native species, risks and impacts through information leaflets, online guides etc.
- Public awareness campaigns about cleaning equipment, footwear vehicles, fishing equipment to help prevent the spread of invasive non-native species
- Report sightings of invasive non-native species e.g. on mobile phone apps
- Promoting the use of native species alternatives in gardening, public parks, recreation facilities etc
- Installing signage, guidance or cleaning equipment in public spaces where risk of spread of invasive non-native species is a risk
- Guidance on how to control or eradicate invasive species

Q12. How often (if at all) do the following apply to you?

SELECT ONE FROM [always or whenever I have the opportunity / often / sometimes / rarely / never / don't know] FOR EACH

- a. I can identify invasive non-native species
- b. I report the presence of invasive non-native species
- c. I know what basic measures to take to help reduce the spread of invasive non-native species in my garden / local area e.g.: clean my footwear after going for a walk around areas of woodland
- d. I donate money to groups concerned with controlling invasive non-native species
- e. I volunteer with groups (local or national) to help control invasive non-native species