

Assessment of large-scale plant biosecurity risks to Scotland from non-specialist and online horticultural sales

Supplementary Information



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1 Survey framework for online retailers

Ask: All
IOBS[N].
Serial Number

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(2)

Ask: All
Good morning/afternoon/evening, my name isand I am calling on behalf of Forest Research.

We are conducting a project funded by the Plant Health Centre that aims to better understand the retail movement of plants into, out of, and within Scotland and the UK, and the challenges faced by horticulture retailers when trying to deal with plant pest and disease risk.

Retail horticulture is a large-scale industry in the UK, with ornamental horticulture and landscaping worth an estimated £24.2 billion national GDP in 2017. The movement of plants through the live plant trade brings with it the risk of transporting plant pests and diseases. This research aims to better understand the views and experiences of retailers in the plant trade and help identify the best ways government and businesses can tackle the risk of pest and disease movement.

The survey has 4 sections: **About your business; Product types & flows; Risks to business & stock; Accreditation.**

Your responses will be confidential, and your answers to survey questions will not be shared outside of the research team.

Any data that is used in any reports and other documents produced will be anonymised; meaning the research team will not identify individuals or organisations who have taken part in the survey.

The final report will be made available to the Plant Health Centre, its funders, and others with an interest in the results. The information collected will be treated, stored and analysed in line with the requirements of the General Data Protection Regulation (2016) and Forest Research's Code of Ethics.

Do you consent to helping us with our survey today by answering a few questions?

MARKET RESEARCH SOCIETY CODE OF CONDUCT IF NECESSARY

Q1/1[S].

Yes, I consent to taking part in the interview	01	(3)	Refused	02
Not available	03		Non qualifier	04
Gone away	05		Duplicate	06
Number unobtainable	07		Engaged	08
Answer phone	09		No reply	10

Ask: All consenting to take part

Q1/1

Q2[S].

Thank you. First of all, about your business. Businesses of different types and sizes will have differing needs and challenges when it comes to sourcing and selling live plants in Scotland. In this section we want to know about your business so we can accurately categorise the rest of your responses and look for trends within similar business types.

Does your business sell seeds or plants or trees online?

Yes 1 (4)

No 2

Ask: All consenting to take part and saying yes at Q2

Q1/1 and Q2/1

Q3[M].

Where are your seed, plant or tree customers based. (MULTI-CODE POSSIBLE)

England 1 (5)

Scotland) 2

Wales 3

Northern Ireland 4

Other (please specify) 5

Ask: All saying customers are based somewhere else

Q3/5

Q3OTHER[C].

Record where customers are based

(6)

Ask: All consenting to take part and saying yes at Q2

Q1/1 and Q2/1

Q4[M].

Where is your business based. (MULTI-CODE POSSIBLE)

England 1 (5)

Scotland) 2

Wales 3

Northern Ireland 4

Other (please specify) 5

Ask: All saying business is based somewhere else

Q4/5

Q4OTHER[C].

Record where business is based

(6)

Ask: All qualifying to continue

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q5[S].

Which of the following terms best describes your business? (READ OUT. SINGLE CODE ONLY)

Tree/Plant grower	1	(46)	Nursery	2
Garden centre	3		Seed supplier	4
Supermarket	5		DIY Store	6
Lifestyle store (sells a variety of products including plants)	7		Other (please specify)	8

Ask: All saying something else best describes their business

Q5/8

Q5OTHER[C].

Record what else best describes business

(6)

Ask: All qualifying to continue

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q6[N].

1.1.1 How many plants / trees does the business sell in a typical year?

Ask: All qualifying to continue

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q7[N].

What was the business's annual turnover in the last financial year? (INSERT 0000 FOR DON'T KNOW OR REFUSED)

Ask: All qualifying to continue
(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q8[N].

Approximately what percentage of annual turnover was derived from seed, plant and tree sales in the last financial year?

Ask: All qualifying to continue
(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q9[N].

Approximately what percentage of annual turnover was derived from customers based in the following areas, over the last financial year? (READ OUT)

England

Scotland

Wales

Northern Ireland

Other

Total

Ask: All qualifying to continue
(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q10[N].

Knowing where plants and trees come from and what species are sold are important aspects when tackling risks from pests and diseases. In this section we ask where your stock comes from and where it goes, and what things are important for you when deciding how you buy and sell plants and trees.

Approximately what percentage of your seed/tree/plant product sales, by value are made up of

Trees - amenity

Trees - forestry

Hardy Nursery stock

Bedding/ornamentals

Edibles

Bulbs

Seeds

Other (please specify)

Total

Ask: All saying something else at Q10

Q10%H/1..100

Q10OTHER[C].

Record what other products make up sales

Ask: All qualifying to continue
(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))
Q11[N].

1.1.2 *Approximately, what percentage of your seed/plant/tree sales, by value, are generated through the following means?*

Customers visiting physical site

Online sales

Telephone sales

Magazine sales

Other

Total

Ask: All qualifying to continue
(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))
Q12[N].

How many physical sites which sell seeds, plants or trees do you have in the following locations

England

Scotland

Wales

Northern Ireland

Other

Ask: All qualifying to continue
(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))
Q13[M].

1.1.3 Do you sell seed/plants/trees to the following customers? (MULTI-CODE POSSIBLE)

General public	1 (46)	Landscaping businesses	2
Local authorities	3	Transport infrastructure providers (e.g. Highways and Railways)	4
Privately owned gardens and estates open to the public	5	Private and commercial landowners	6
Public forests (e.g. Forestry Commission)	7	Environmental charities and trusts (e.g. RSBP, Woodland Trust)	8
Developers (construction/housing companies)	9	Supermarkets	10
Lifestyle stores	11	DIY Stores	12
Garden centres	13		

Ask: All qualifying to continue
(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))
Q14[C].

Over the last three years what were the three most popular plants or tree species that you sold?

Most popular

2nd most popular

3rd most popular

Ask: All who have customers in Scotland
(Q3/2)

Q14A[C].

Over the last three years what were the three most popular plants or tree species that you sold in Scotland?

Most popular

2nd most popular

3rd most popular

Ask: All qualifying to continue
 (Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))
Q15[N].

Approximately what percentage of the seeds, plants and trees that you sell are

Seeds	
Grown by you from seed	
Plants or trees purchased from a grower	
Plants or trees purchased from a trader or wholesaler i.e. non-grower	
Total	

Ask: All qualifying to continue
 (Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))
Q16[N].

Approximately what percentage of your seeds, plants and trees come from suppliers based in

England	
Scotland	
Wales	
Northern Ireland	
EU or other international supplier)	
Total	

Ask: All qualifying to continue
 (Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))
Q17(N)- Randomised

Please rank the following 9 factors by importance when deciding where to source your seeds, plants and trees, where 1 is most important.

- Cost
- Quality
- Speed of supply
- Range available
- Quantities available
- Reliability of supply
- Supplier acts in good faith if problems arise
- Presence of biosecurity practices
- Use of domestically collected or grown seeds, plants and trees

Ask: All saying something else is a main risk to business over next 5 years

Q21/14

Q21OTHER[C].

Record what else is considered a main risk to business.

Ask: All qualifying to continue

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q22[S].

How much do you feel you know about the following pests and diseases, where 1 means you know nothing about it, 2 means you have some knowledge about it and 3 means you know a lot about it.

	Know nothing	Some knowledge	Know a lot
Ash dieback (chalara)	1	2	3
Phytophthora ramorum	1	2	3
Xylella fastidiosa (not currently in the UK)	1	2	3
Oak processionary moth	1	2	3
Citrus longhorn beetle (not currently establishes in the UK)	1	2	3
Emerald ash borer beetle (not currently in the UK)	1	2	3

Ask: All qualifying to continue

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q23[S].

Which of the following statements best matches how concerned you are about the risk of these pests and diseases negatively impacting your business

	Concerned about impact on suppliers	Concerned about being found in business	Both concerned about impact on suppliers and being found in business	No, I'm not concerned	Don't Know
Ash dieback (chalara)	1	2	3	4	5
Phytophthora ramorum	1	2	3	4	5
Xylella fastidiosa (not currently in the UK)	1	2	3	4	5
Oak processionary moth	1	2	3	4	5
Citrus longhorn beetle (not currently established in the UK)	1	2	3	4	5
Emerald ash borer beetle (not currently in the UK)	1	2	3	4	5

Ask: All qualifying to continue

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q24[C].

Are there any other plant pests and diseases that you are concerned about more than those we've just talked about?

Ask: All qualifying to continue
(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q25[S].

What action have you undertaken, or do you plan to undertake, specifically to improve biosecurity? First of all, about sourcing and suppliers

	Not recently undertaken and no immediate plans to do so	Plan to undertake in next 2 years	Already undertaken	N/A
Inspected a supplier's site and biosecurity practices	1	2	3	4
Changed to a supplier with better biosecurity practices	1	2	3	4
Sourced a greater proportion of seeds/trees/plants from domestic growers	1	2	3	4
Removed species which may be pest/disease hosts from your range	1	2	3	4

Ask: All qualifying to continue
(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q26[S].

And now about biosecurity?

	Not recently undertaken and no immediate plans to do so	Plan to undertake in next 2 years	Already undertaken	N/A
Inspected plants when arriving/departing your sites	1	2	3	4
Made use of quarantining facilities	1	2	3	4
Introduced other biosecurity practices (e.g. changes to aeration, irrigation, growing media, disinfecting routines etc.)s	1	2	3	4

Ask: All qualifying to continue
 (Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))
Q27[S].

And now about information and awareness?

	Not recently undertaken and no immediate plans to do so	Plan to undertake in next 2 years	Already undertaken	N/A
Underwent training/employed specialist staff	1	2	3	4
Actively sought information on pests and diseases (or prevention of)	1	2	3	4
Followed up with customers to understand rates of establishment/infection	1	2	3	4

Ask: All qualifying to continue
 (Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))
Q28[S].

And finally, formal accreditation

	Not recently undertaken and no immediate plans to do so	Plan to undertake in next 2 years	Already undertaken	N/A
Committed to formal biosecurity guidelines (self-developed or adopted)	1	2	3	4
Participated in the Plant Health Certificate Scheme's self-assessment	1	2	3	4

Ask: All qualifying to continue

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q29[M] - Randomised

From the following list what would you say are the main barriers to improving biosecurity practices. (RECORD UP TO 5)

Insufficient time to make improvements	1	(46)	Covid 19 related impacts such as reduced labour, forced changes in suppliers, can't visit supplier sites	2
Lack of skills and training	3		Unaware of what changes to make or how to implement them	4
Insufficient resources to fund improvements without reducing staff or raising prices i.e. losing competitiveness	5		Practices are not applicable to the business operations i.e. cannot be applied	6
Do not believe improvements are capable of reducing pest and disease related impacts	7		Would like to see sector-wide commitment to improve before committing ourselves	8
Do not believe improvements will alter customer buying habits or perceptions of improving businesses	9		Already operate to a high standard i.e. little room for improvement	10

Ask: All qualifying to continue

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q30[M]

Who do you look to for information about tree or plant pests and diseases? (MULTI-CODE POSSIBLE)

Royal Horticultural Society	1	(46)	Horticultural Trade Association	2
Agriculture and Horticulture Development Board (formerly HDG)	3		Universities and research agencies	4
Environmental charities and trusts e.g. Woodland Trust	5		Forestry Commission	6
Other Government departments and agencies e.g. DEFRA, Fra, APHA, SASA	7		Other (please specify)	8

Ask: All saying they look for information about plants and diseases somewhere else.

(Q30/8)

Q30oTHER[C].

Record other places looked to for information about tree or plant pests and diseases

Ask: all qualifying for interview.

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q31[C].

1.1.4 Please describe any information about plant health or pests and diseases you feel you need but can't currently access.

Ask: all qualifying for interview.

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q32[C].

How would you like to access this information?

Ask: all qualifying for interview.

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

The Plant Health Certification Scheme is based on the Plant Health Management Standard (audited by inspection and resulting in certification) that can be applied to a business' operating processes and procedures. The Scheme was launched in February 2020 and will be continually evaluated. The aims of the scheme are:

To make it easy to identify businesses or organisations that trade and grow plants to high plant health and biosecurity standard.

Reduce the risk of introducing / spreading destructive plant pests via plant supply chains (trade).

Protect the horticulture industry, other cultivated plants and natural habitats.

Q33[C].

What do you feel are the benefits of accreditation schemes such as the Plant Health Certification Scheme?

Ask: all qualifying for interview.

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q34[C].

What do you feel are the constraints of accreditation schemes such as the Plant Health Certification Scheme?

Ask: all qualifying for interview.

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q35[C].

Are you aware of any of your suppliers or commercial customers who might consider participating in the Plant Health Certification Scheme?

Ask: all qualifying for interview.

(Q1/1 and Q2/1 and Q3/2 and Q4/2) or (Q1/1 and Q2/1 and (Q3/2 or Q4/2))

Q36[S].

Do you participate or would you consider participating in the Plant Health Certification Scheme

Already participate	1	Would consider participating	2
No	3		

Thank you for taking the time to answer this survey.

We regularly talk to people from across the horticultural trade for a range projects aiming to improve biosecurity. If you are interested in participating in other projects in the future, or would like any more information about our work in this area at Forest Research, please email Chris Pollard chris.pollard@forestresearch.gov.uk

Learn more about this and other research at the [Plant Health Centre](#)

Pest and disease resources: [Defra Plant Health Portal](#), [Forest Research Pest & Disease Resources](#)

2 Interview framework for non-specialist retailers

PHC4 Interview Framework (Draft)

Target audience: key decision makers in supermarkets, DIY stores, variety stores

Potential participants: ideally plant buyers and those making rules about sourcing which are used by plant buyers. May also include those involved in Quality Assurance, Sustainability, or Corporate Social Responsibility

Key areas to explore:

- Knowledge, attitudes and behaviours relating to plant health
- Volume of plant material and flows in and out of Scotland
- Opportunities and barriers to better plant biosecurity
- The potential role of assurance schemes such as the Plant Health Certification Scheme

Introduction

Retail horticulture is a large-scale industry in the UK, with ornamental horticulture and landscaping worth an estimated £24.2 billion national GDP in 2017. The movement of plants through the live plant trade brings with it the risk of transporting plant pests and diseases. This research aims to better understand the views and experiences of retailers in the plant trade and help identify the best ways government and businesses can tackle the risk of pest and disease movement.

This project, funded by the Plant Health Centre (www.planthealthcentre.scot) aims to better understand the retail movement of plants into, out of, and within Scotland and the UK, and the challenges faced by horticulture retailers when trying to deal with plant pest and disease risk.

This short survey has 4 sections: About your business; Tree and plant sourcing; Tree and plant pests and diseases; Biosecurity in the retail sector

Consent form

Confirm participant has read & signed the consent form and answer any associated questions they have.

Section 1 - About the interviewee & business operation

Q1. What is your job title? And can you give an overview of what the role entails?

Prompts: duration in role, level of responsibility e.g. others in same or supporting roles, are they part of a team? Any focus e.g. particular geographic area or client?

Q2. In terms of business size, how many stores does XX have, how many employees does XX have? How many stores / employees do you have in Scotland specifically? How many depots in Scotland, where do they serve?

Q3. How many plants / trees move through the entire business in a typical year? How many go through Scottish depots, how many end up in Scottish stores?

Q4. Do plants go from English depots to Scottish stores and vice versa?

Q5. Do plants ever go directly from suppliers (International, UK, Scotland) to stores? Who do they come from, under what circumstances?

Q6. Do plants ever come back from stores to depots, if so why?

Q7. Do stores in Scotland have different plants from stores in England and Wales? If so, why?

Q8. Approximately what percentage of plants moving through the business are:

- Plants for planting
- Houseplants
- Other (please specify)

Q9. Approximately, what percentage of your plant sales (by value) are generated through the following means?

- Visits to a store
- Internet sales

Q10. How would a plant reach an internet customer based in Scotland?

Q11. What are the top three most popular plant or tree species you trade in? How many of them do you sell in a typical year? Is this the same for Scotland?

Q12. Can you explain if/how your range changes year on year? Who decides?

Q13. Why do supermarkets sell live plants?

Section 2 - Tree/plant sourcing

Q14. Who in your business is involved in sourcing suppliers of plants and trees? Is there more than one department who contribute to making the decisions?

Prompt: name of roles or departments

Q15. Where do most of your plant deliveries come from? Please name top three supplier locations & proportion they account for

Prompts: number of suppliers, location of suppliers, proportion self-grown if applicable, origin.

Q16. How long have you used these suppliers?

Q17. What do you look for when selecting a supplier? i.e. what separates a good supplier from a bad supplier? Who decides draws up the criteria are and who applies the criteria?

Q18. What proportion of all your plant products come from suppliers based in Scotland? What proportion are grown in Scotland?

Q19. Typically, how do plants move from where they are grown, through to leaving with a customer?

Prompts: are plants moved to a central location & then distributed, or direct from supplier to store? If stored, what are conditions – time, separation, checking? Are movements particular to a species, supplier, location, time of year? When are checks made? Do stock/inventory optimisation processes include biosecurity requirements?

Q20. Have you ever had to send plants back or recall them from stores because of a plant health issue? What was the issue, when, what was the outcome? Can you describe the process you would go through if there was a plant health issue?

Section 3 - Tree/plant P&Ds

Q21. Which plant pests or diseases concern you most, why?

Q22. Are there any species and or sources of plants / trees which you don't trade because of P&D risk? How do you make those decisions?

Q23. Have P&D related risks become more or less important to the business over time? If so, why have risks changed, when?

Q24. Have you and your staff undertaken education and/or training to allow you to understand and mitigate P&D threats? What kind of training? When? Who provided the course/training?

Q25. Who do you look to for info and guidance on P&Ds? How is the info packaged and received? How often or under what circumstances do you access the info? Examples?

Prompts: if inspectors are named as an important source, gauge importance of trust / relationship building. Is it importance of APHA as an organisation or a particular inspector.

Q26. Are there particular P&Ds you feel you need more information on? If so, where should information come from and how should it be communicated so business like yours can use it easily?

Section 4 – Biosecurity

Q27. Your business is capable of quickly moving large numbers of plants, how do you make sure to prevent introduction and spread of pests and diseases?

*Prompts: Care in selection of supplier e.g. must have certain practices/standards
Visit suppliers to inspect sites
Inspection of trees/plants when receiving/storing/distributing
Precautions when storing/growing e.g. prevent excess moisture, aeration, quarantining
Reliance on Scottish/domestic stock*

Q28. Who is most responsible for biosecurity in your business? And who is responsible along the supply chain – origin, transit, storage? Do you use or undergo any independent audits for live plants?

Prompts: name of role, department, other business

Q29. What drove you to adopt these measures and behaviours?

Prompts: explore influence of: stock losses (or fear of), customer backlash (or fear of), to improve the reputation of the business/grow customer base, in preparation for suspected changes in future regulations, to meet a standard (whose?)

Q30. What prevents you from adopting some of the other measures or behaviour? What support would help you overcome these barriers? Are any of the barriers different in Scotland?

Lack of time, funds, awareness, would reduce profit/competitiveness, already implementing, not applicable, wouldn't impact P&D risk, want to see sector-wide buy-in first, no demand or increased value for customers

Q31. What do you know about the Plant Healthy Certification Scheme led by the HTA? If you are aware, have you taken the voluntary assessment, and acted on the results? What is your opinion of the guidelines?

Q32. How could rules or processes inside or outside the company be improved to help you achieve better biosecurity? Who would be responsible for this?

Section 5 - Final thoughts

Q33. How have plant sales differed this year, due to the impacts of COVID? Are you expecting any long-term changes in your plant sales (range, volume) going forward?

Prompt: Total sales, range of species sold, impact on suppliers, customer choices, action taken up to now, to tackle challenges.

Q34. Are there any other people in your business (e.g. buyers) who you think would be suitable for this study? Are there any people in similar roles to you but in other businesses who you think might be suitable for this study?

Q35. Is there anything else you'd like to add in relation to anything we've talked about?

< Thanks, inform of related research, inform when and where findings from this study will be published >

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