EVALUATING THE IMPACTS OF COVID-19 ON KNOWLEDGE EXCHANGE IN AGRICULTURE

ONLINE SURVEY ANALYSIS

FINAL REPORT

MAY 2021

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Contents

1. Introduction

A survey was undertaken targeting the farming community and a range of stakeholders representing a cross section of knowledge exchange (KE) activities in the Agricultural Knowledge and Innovation System (AKIS). The aim was to explore the following overarching questions, with reference to the wider AKIS context:

- What has been the impact of COVID-19 on knowledge exchange activities?
- What are the opportunities for future knowledge exchange activities?

This report presents analysis of the online survey which sought to examine how information and advice are accessed and delivered exploring: what has (and what hasn't) worked during the pandemic; and what are the opportunities for future delivery and innovation. The survey is intended to help develop an online platform (Farm PEP) that allows the agricultural sector to collaborate and share knowledge.

The analysis reported here helped to inform the stakeholder workshop and stakeholder interviews. Together these three methods form part of the rapid appraisal methodology used in this research. Further details of the project's approach and methodology can be found in Interview Analysis report.

2. Methods

The online survey was designed iteratively with projects partners. Initially The Farming Forum analytical tool FarmIQ was used to identify any trends in farmer KE activities or use of digital tools and media, by assessing any increase in use of terms such as webinars or social media use, that could inform the survey design. In addition, a discussion thread was initiated on the forum asking: "How has the way you get advice and information changed since Covid 19 restrictions? What has been the biggest difference?" to ascertain if there were particular issues that farmers were concerned about that needed to be addressed in the survey questions.

Questions were designed to be relevant and appropriate to two broadly separate groups: farmers and stakeholders. Farmers were asked to answer them from the perspective of accessing, and stakeholders from the perspective of providing, information and advice (with the expectation of two questions which asked about accessing). These groupings are for the purposes of simplifying the survey questions, as it is acknowledged that both produce and utilise information and advice.

The survey was delivered using JISC and designed to be completed online (on a smart phone or PC) in 10 minutes with mainly closed questions, although there were options for participants to provide additional information. A final open question asking respondents what are most important areas to explore regarding the impact of COVID-19 was also added. Following a pilot with four invited respondents from different backgrounds, the survey was distributed during February and March 2021.

The survey link was circulated through multiple channels to attract respondents from the farming community and stakeholders representing the key KE categories in the AKIS across different sectors in UK (using the stakeholder analysis framework described in the Interview Analysis report). A link to the survey was circulated by all project partners and the steering committee to their networks through email, twitter, newsletter and websites. These represent a large proportion of the farming community and industry. The Farming Forum used their newsletter and email to reach their large farmer membership (some 32,000 active members).

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We collected 265 responses[1] to the survey, representing a broad sample in the agricultural community. This included farmers (arable, horticulture, mixed, livestock), agricultural researchers, knowledge exchange/information providers, agronomists, contractors, advisers, agritech specialists, livestock/grassland consultants, and a range of others. Participant information and the results of the survey are presented in the following sections.

Clearly an online survey precludes farmers, who cannot or will not engage digitally, from responding. This was addressed by asking some questions about broader issues in farming and giving them the opportunity to add additional comments and answer the open question at the end. However, it should be noted that the analysis of the farmer groups largely reflects experiences of those already digitally engaged.

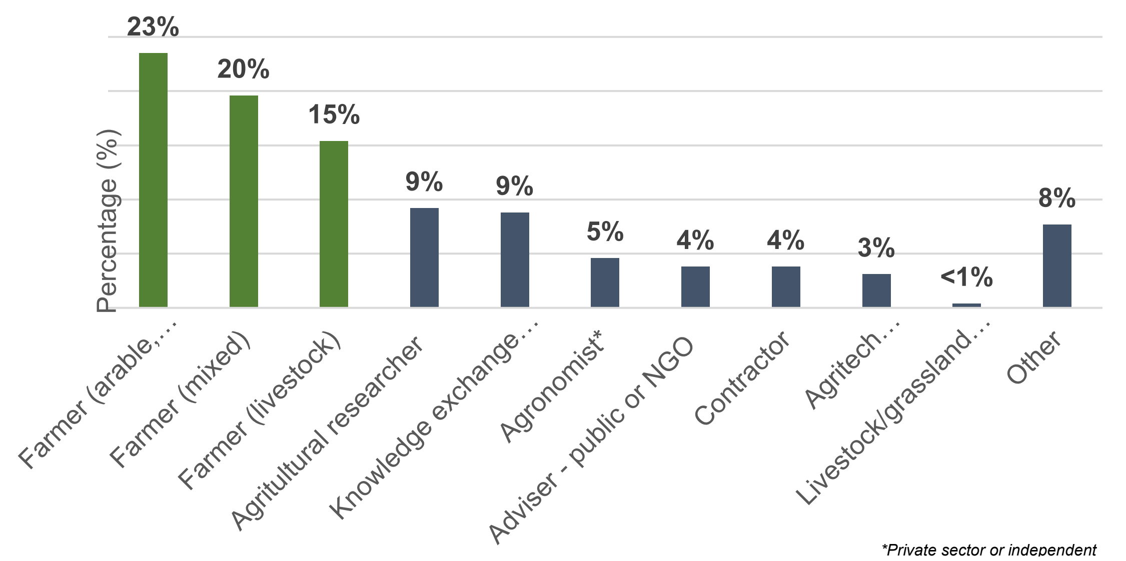
3. Results

Following a description of the participants, the results are presented in order of the questions asked. The final section collates the results from the final open question into themes. A full commentary of the survey data, with reference to the interview and workshop analysis, is provided in the synthesis section of the Interview Analysis report.

3.1 Participant information

Out of participants, **58%** were farmers (arable, horticulture, livestock, or mixed) and **42%** worked in other areas in the agriculture sector (researchers, advisers, consultants, etc.). This distribution provides a good balance to capture both famer and stakeholder experiences. The results in the following sections are presented for farmers (green) accessing, and for stakeholders working in other areas (blue) providing information and advice.

Fig. 1. Roles and responsibilities within the agricultural community



[1] The total number of responses was 270. Five participants (1.9%) ***did not*** agree to the privacy and informed consent notice for our survey. The responses provided by these participants were removed from the dataset and any further analysis.

Figure 1 shows the breakdown of participants' main roles and responsibilities – 24% were arable and horticulture farmers, 20% were mixed farmers, and 15% were livestock farmers. Other participants included agricultural researchers (9%), knowledge exchange and information providers (9%), public or NGO advisers (4%), contractors (4%), and agritech specialists (3%). Some participants (8%) worked in areas which did not fit within these categories, including:

- Agricultural Consultant
- AG Service Provider
- Artist/researcher
- Bee farmer
- Broker
- Data & information consultant
- Engineer (out of farming, but assists with the family business)
- Equestrian
- Equipment supplier
- Smallholder
- Farm secretary
- Hobby farming
- Independent Pea Adviser
- Media
- Media (agricultural)
- Merchant
- Farmer and independent agronomist
- Product Manager
- Smallholder
- Training provider

3.2 How have the main methods for knowledge exchange changed?

Fig.2. Increase or decrease in the main methods for **accessing information and advice,** before to during COVID-19 (farmers)

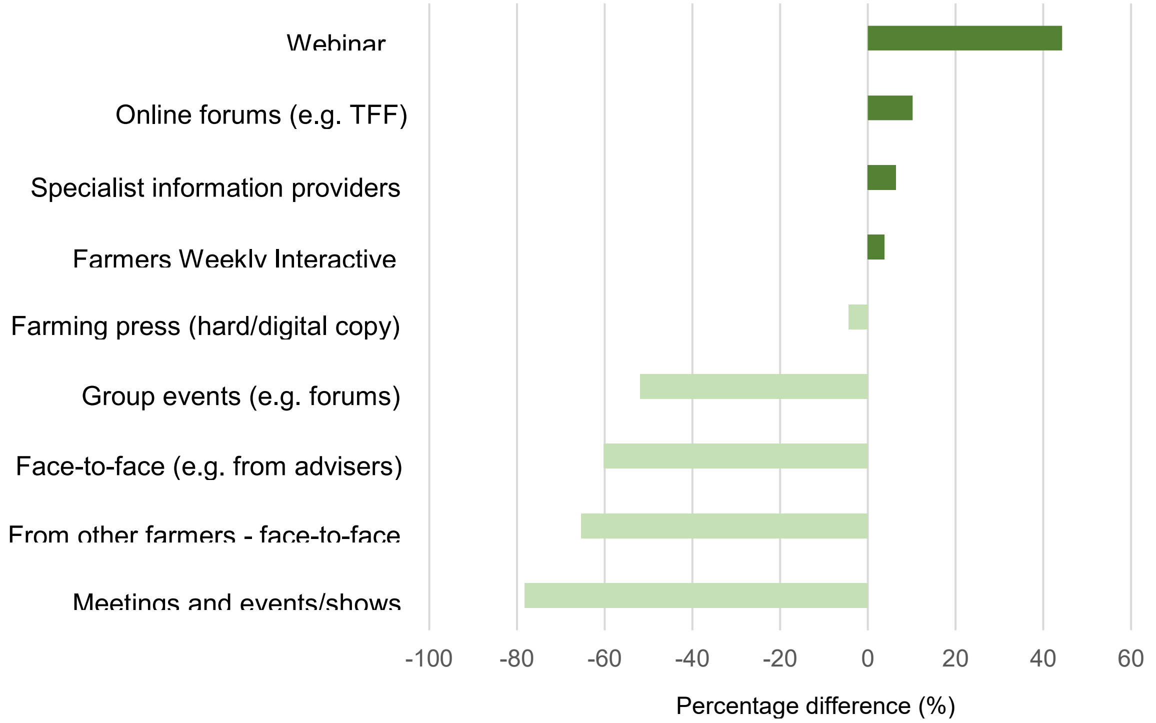
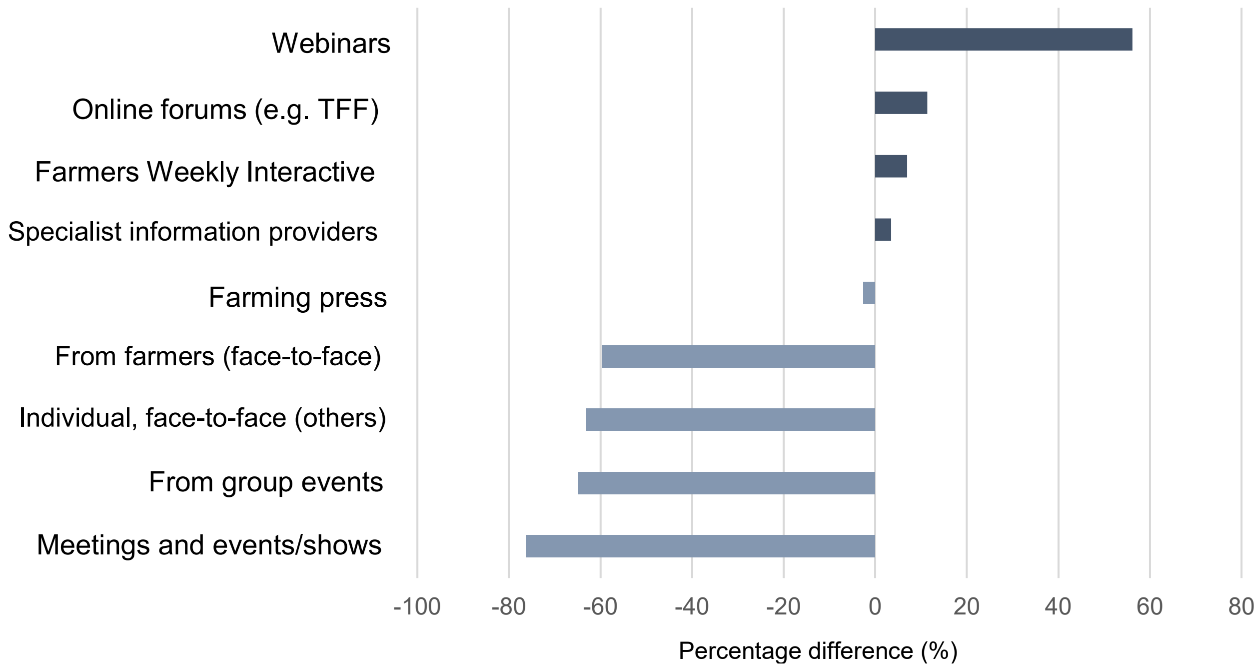


Fig.3. Increase or decrease in the main methods used for **providing information and advice,** before to during COVID-19 (stakeholders)



A series of questions were asked to compare methods for accessing (farmers) and providing (stakeholders) information and advice before COVID-19 and during. These responses have been amalgamated to indicate the % extent of change (see figures above) and the key points are highlighted in the summary below.

Summary of how digital tools and media changed

The results show a similar pattern of increase and decrease of methods for both groups. Unsurprisingly, both charts show that face-to-face events decreased significantly for both groups.

Methods that increased:

- The use of **webinars** increased for both *accessing* (increased by 44%) and *providing* information and advice (increased by 56%).
- The use of **online forums** (e.g. The Farming Forum) increased for both *accessing* (10%) and *providing* (11%) information and advice.
- The use of **specialist information providers** increased for both groups, but the increase was just under double for *accessing* information and advice (6.4%) compared to *providing* information and advice (3.5%).
- The use of **Farmers Weekly Interactive** increased for both groups, but more for *providing* information (7%) compared to *accessing* (3.8%).

Methods that decreased:

- The use of **farming press (hard or digital copy)** decreased for both *accessing* (4.4%) and *providing* information and advice (2.6%).
- The use of **group events** (e.g. discussion forums) decreased more for *providing* information and advice (65%) compared to *accessing* (52%).
- *Accessing* information and advice via **individual, face-to-face communication** (e.g. from advisers or others) decreased by 60%; similarly, *providing* information and advice in this way decreased by 63%.
- *Accessing* information and advice through **face-to-face communication with other farmers** decreased by 65%; *providing* information and advice in the same way decreased by 60%.

3.3 How has the use of digital tools and media change?

Fig 4. Increase or decrease in the use of digital tools and media **for accessing information and advice,** before to during COVID-19 (farmers)

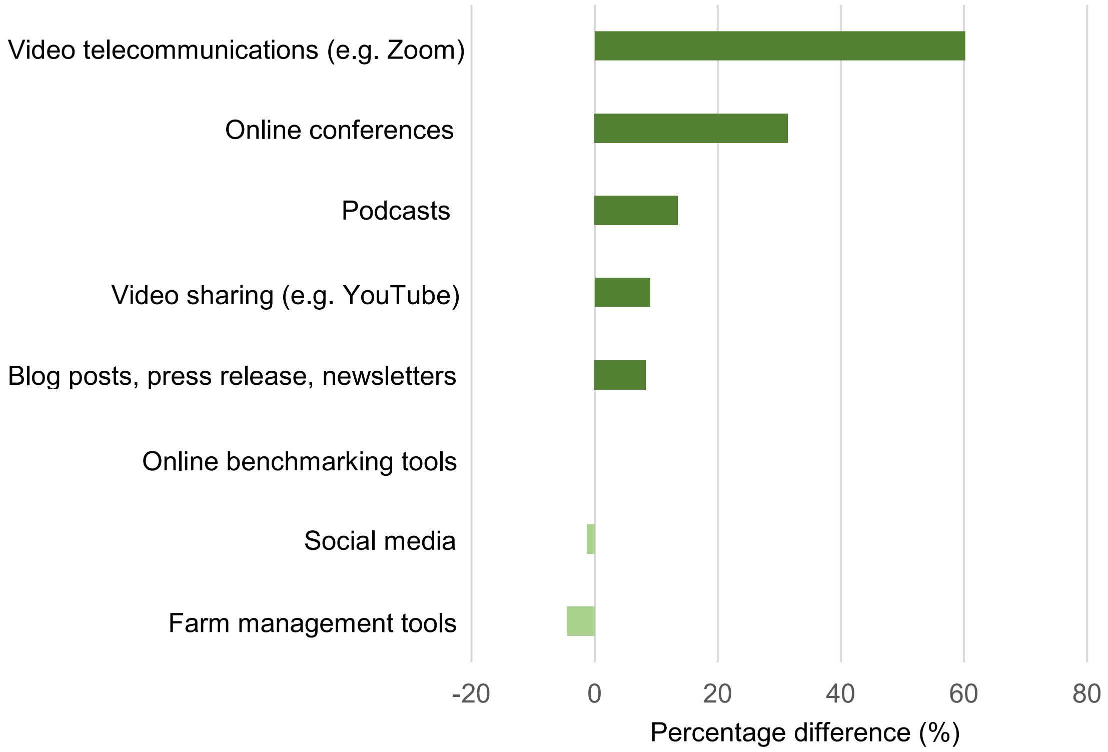
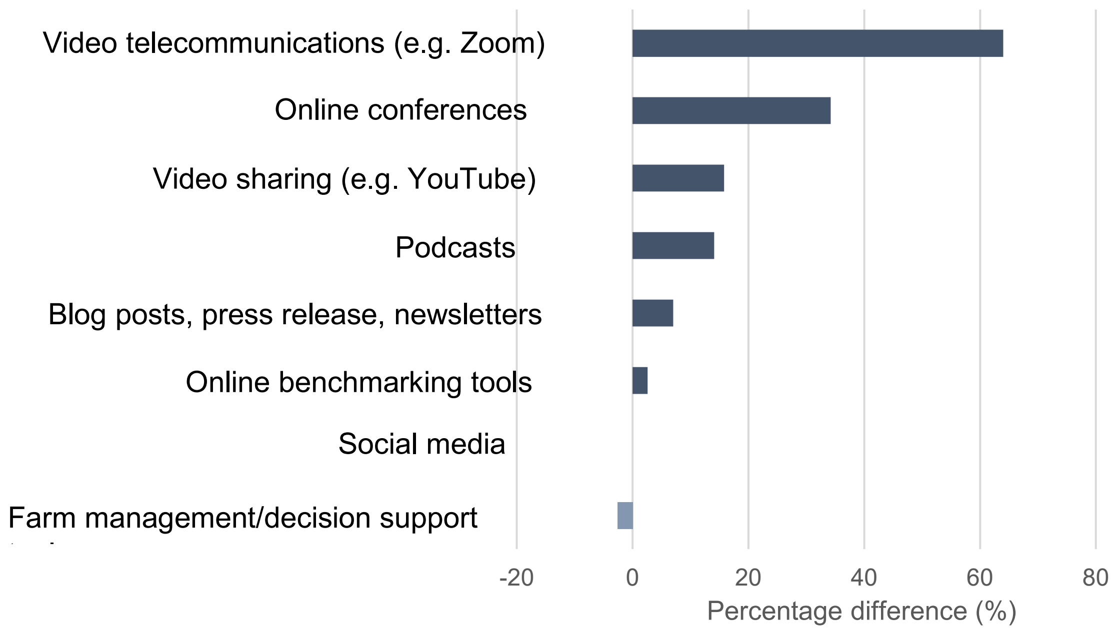


Fig. 5. Increase or decrease in digital tools and media for **providing information and advice**, before to during COVID-19 (stakeholders)



A series of questions were asked to compare how digital tools and media were used for accessing (farmers) and providing (others) information and advice before COVID-19 and during. These responses have been amalgamated to indicate the extent of change (see figures above) and the key points are highlighted in the summary below.

Summary of how digital tools and media changed

Very similar patterns of increase/decrease can be seen for the two groups. Notably the use of video sharing increased more for those providing than accessing advice. Use of social media, surprisingly, did not appear to change for either group.

Digital tools that increased:

- **Video telecommunications (e.g. Zoom, MS Teams)** – *accessing* information and advice (60%), *providing* (64%).
- **Online conferences** – *accessing* (31%), *providing* (34%).
- **Podcasts** - *accessing* (14%), *providing* (14%).
- **Video sharing (e.g. YouTube, Twitch) -** *accessing* (9%), *providing* (16%).
- **Blog posts, press release, newsletters -** *accessing* (8%), *providing* (7%).
- **Online benchmarking tools -** *providing* (3%).

No change:

- Accessing via online benchmarking tools.
- Providing via social media.

Digital tools that decreased:

- **Social media -** *providing* (-1%).
- **Farm management support tools -** *accessing* (-5%), *providing* (-3%).

3.4 How has COVID-19 impacted knowledge exchange?

Fig.6. How has COVID-19 changed the way that information is accessed (farmers)?

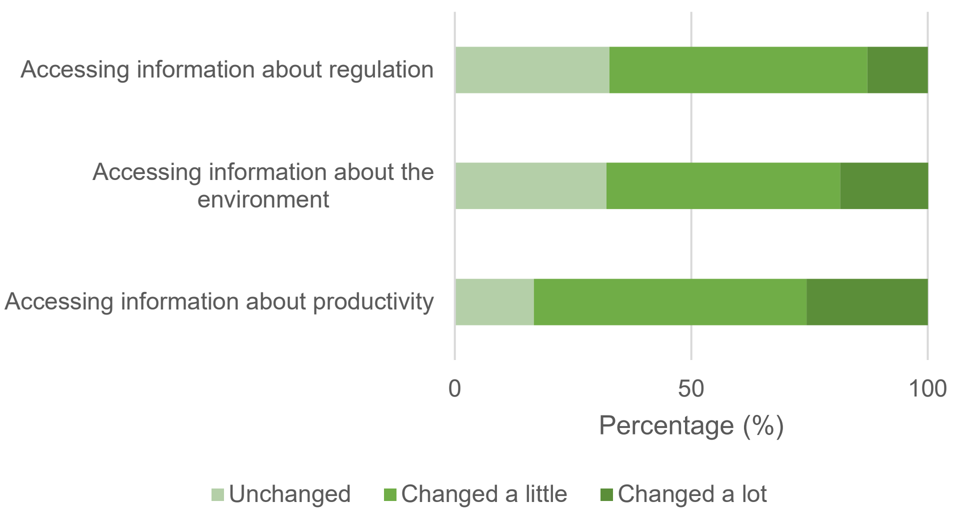
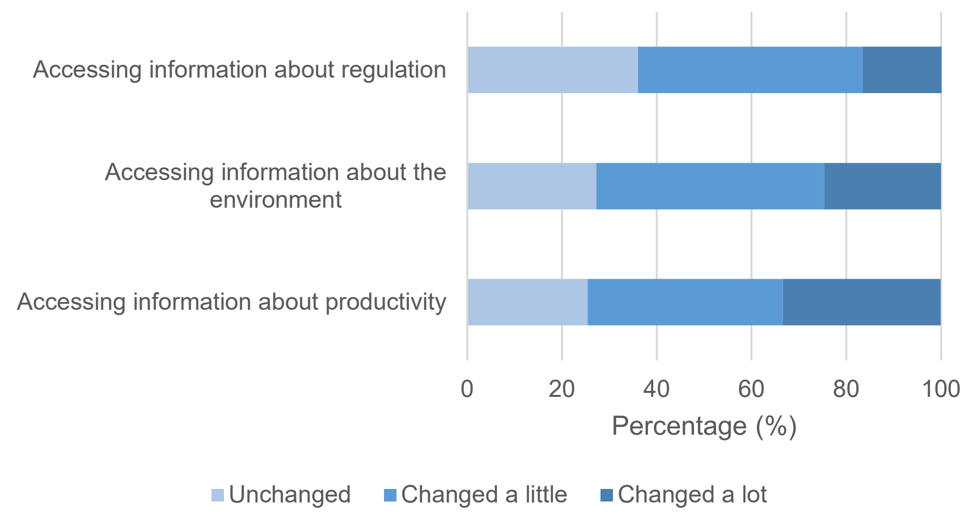
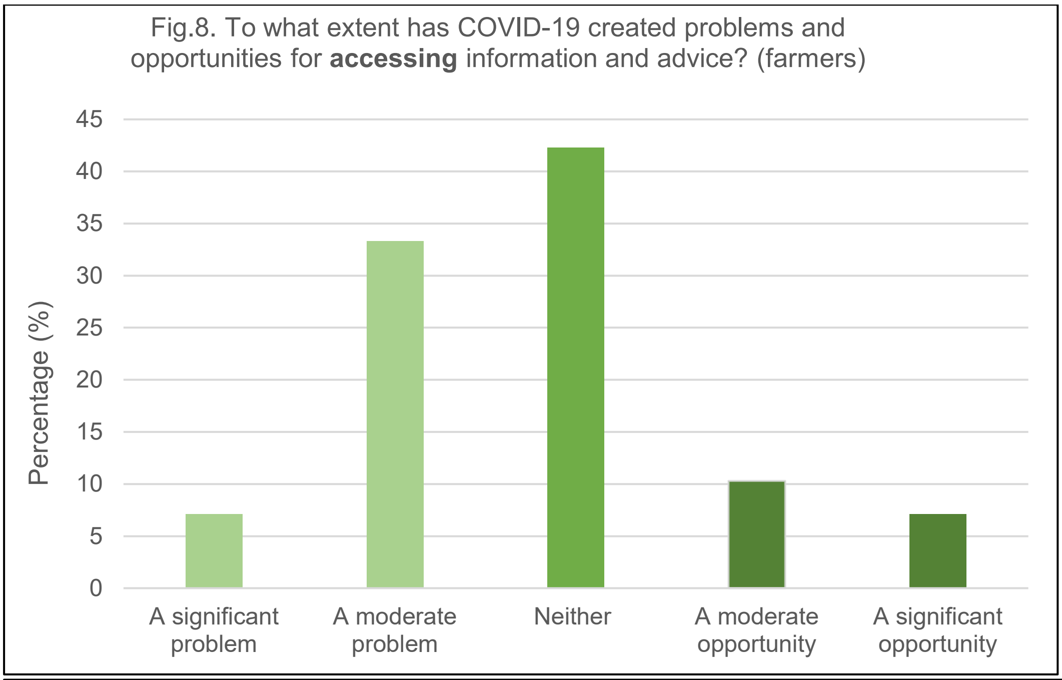


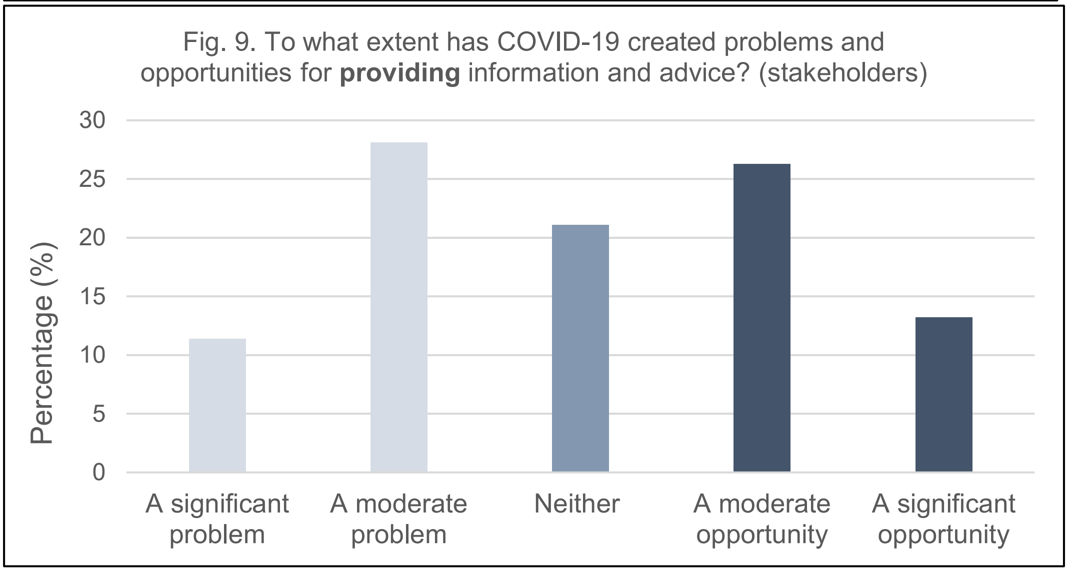
Fig.7. How much has COVID-19 changed the way that information is accessed (stakeholders)?



In these questions all respondents were asked **the same questions**: How much has the way you **access** information about regulation, environment and productivity changed since COVID-19? This was to ascertain the extent of change in the ways farmers and other stakeholders accessed information about particular topics. The responses were synthesised in the figures above. In summary the results show very similar results for farmers and stakeholders with the most common response being 'changed a little'; and with the productivity topic showing the most change. Overall the stakeholder group felt that COVID-19 led to more changes (more 'changed a lot' responses) for each topic.

3.5 Has COVID-19 created challenges or opportunities?





Respondents were asked to what extent COVID-19 created problems and opportunities for accessing (farmers) and providing (stakeholders) information and advice. Interestingly, many more stakeholders thought COVID-19 created opportunities (40%), compared to farmers (17%). Overall stakeholder opinions were more polarised than farmers, with farmers being more indifferent ('neither/neutral responses') (42%).

3.6 What opportunities for KE have been created by COVID-19?

Fig.10. What are your opinions about the **opportunities** for digital tools and media? (farmers)

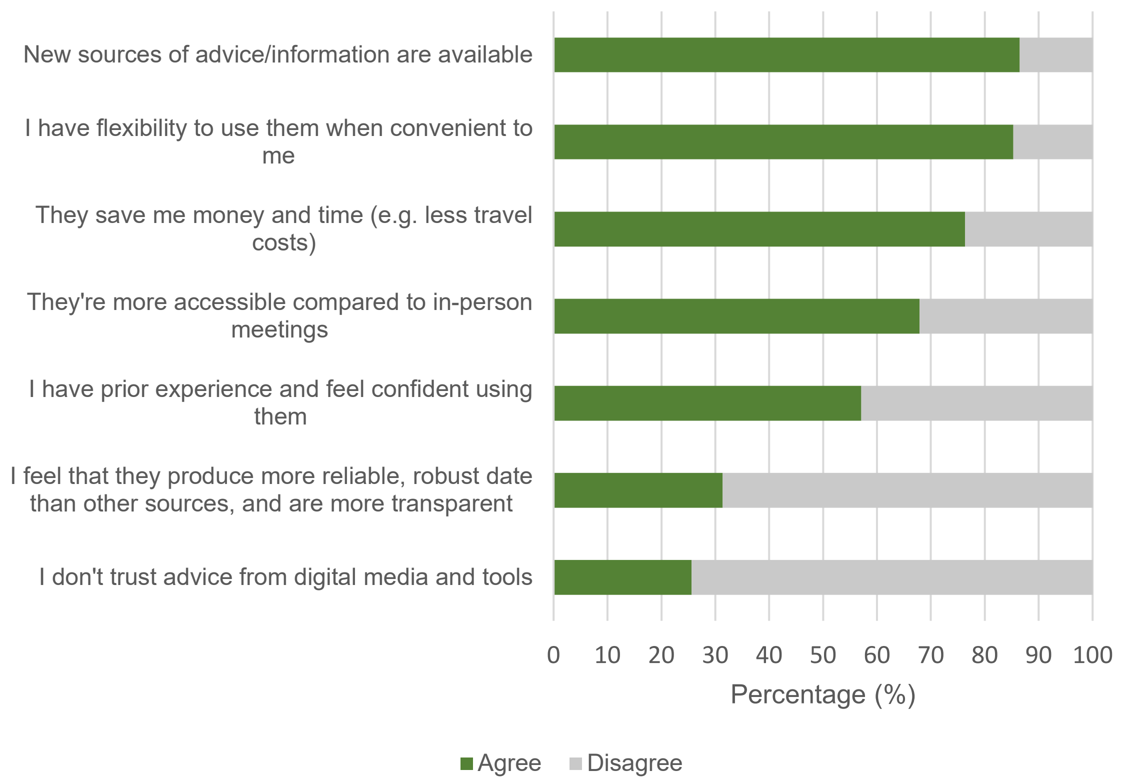
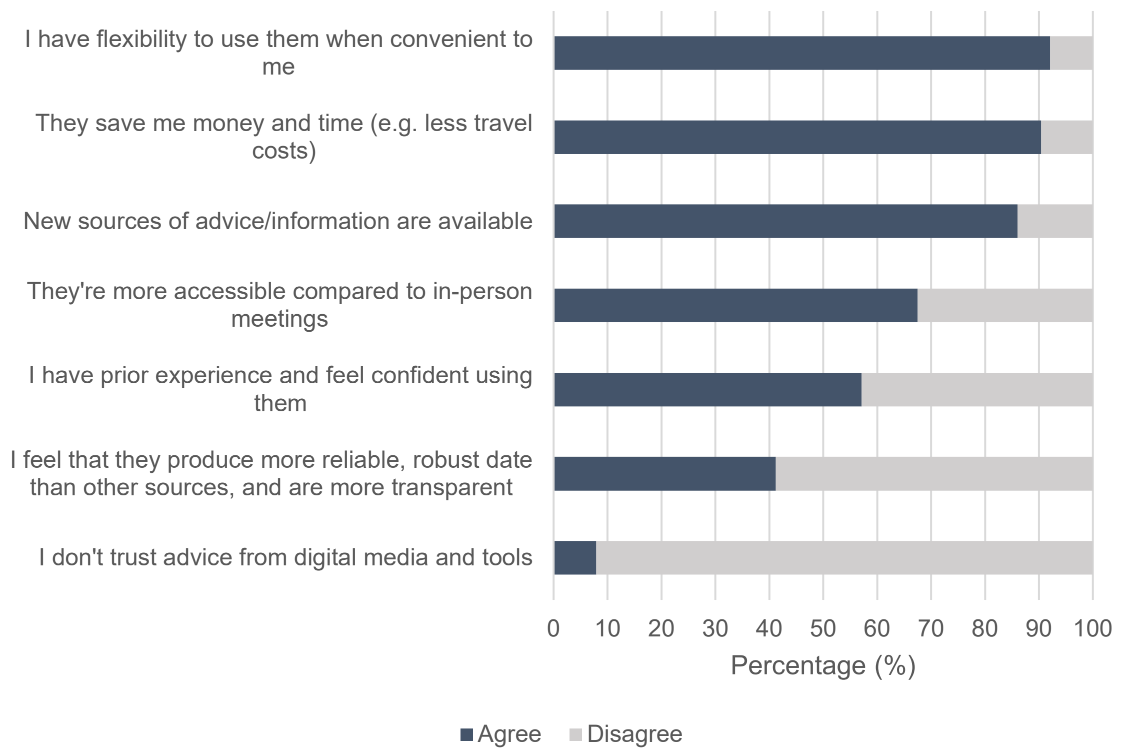


Fig. 11. What are your opinions about the **opportunities** for digital tools and media? (stakeholders)



This set of questions asked for about opinions about the opportunities and challenges for digital tools and media by ranking a set of statements. The figures above show the final ranking of the statements for opportunities. A summary of the responses regarding opportunities is provided below:

Summary of opportunities

- There are many similarities between the ways that farmers and stakeholders scored the opportunities, these are almost in the same order. Both groups share the same top three opportunities with some 80% farmers and 90% of stakeholders agreeing that access to new sources of information, the flexibility to use them when convenient and savings on time and travel costs, present opportunities.

3.7 What challenges for KE were created by COVID-19?

Fig. 12. What are your opinions about the **challenges** for digital tools and media? (farmers)

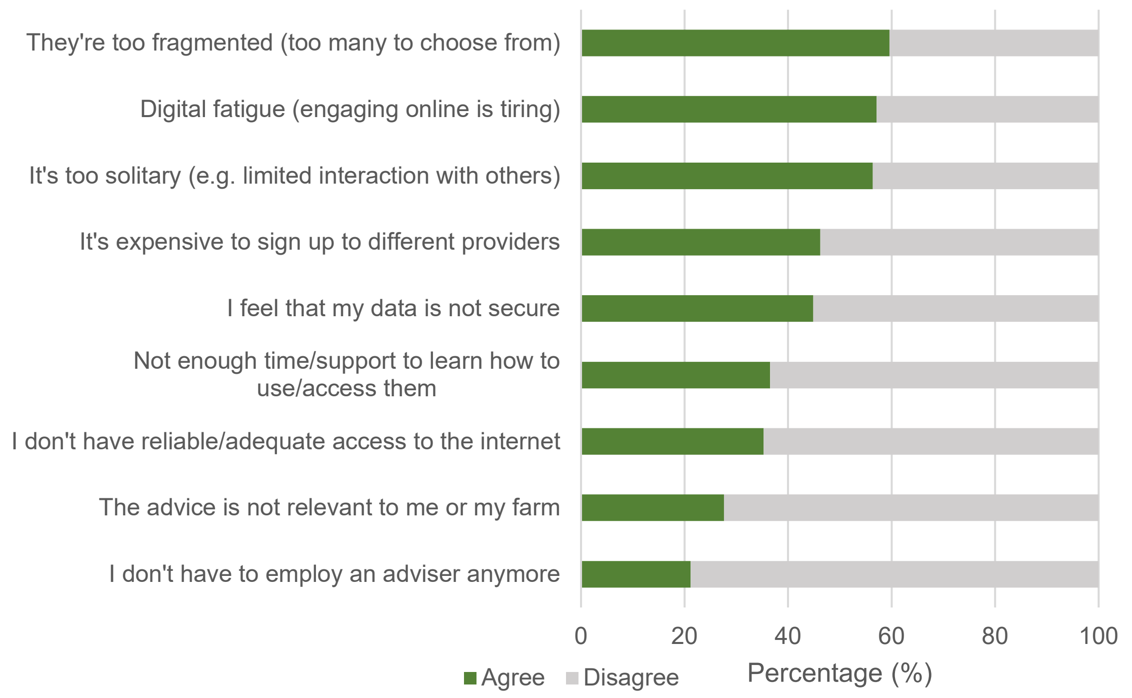
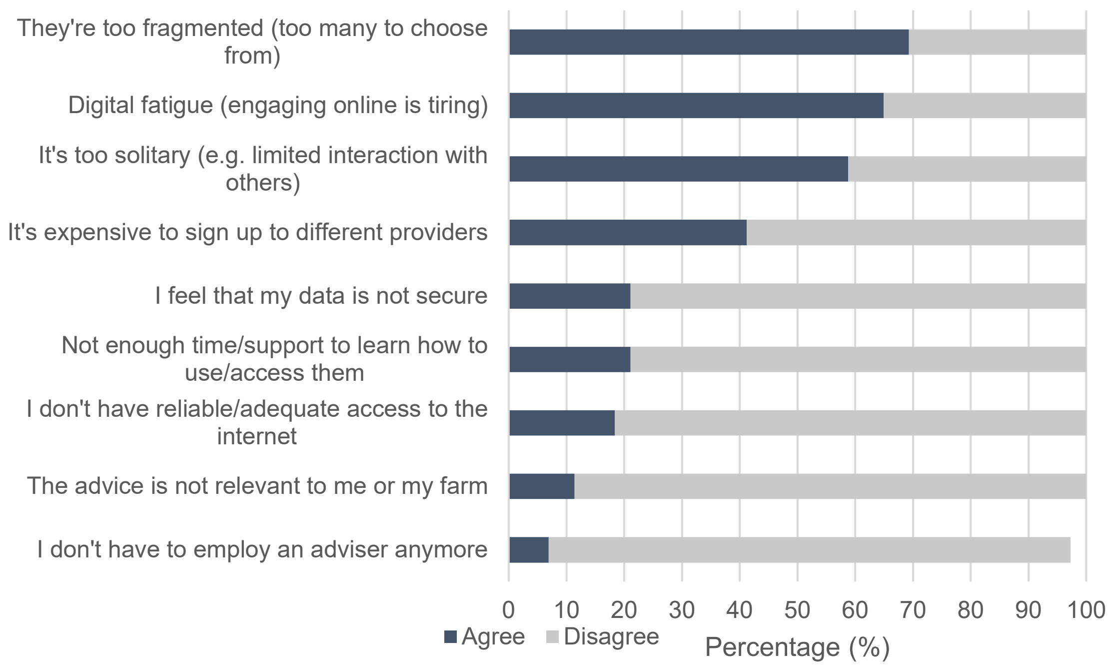


Fig. 13. are your opinions about the **challenges** for digital tools and media? (stakeholders)



The figures above show the final ranking of the statements about challenges for digital tools and media. A summary of the response regarding challenges is provided below:

Summary of the challenges

- The analysis shows exactly the same order of importance of challenges for farmers and stakeholders. The top three refer to fragmentation of tools/media, digital fatigue and limited interaction with others.
- Overall stakeholders tended to agree with the top three statements more but agreed less with statements about security of data and access to the internet being challenges.

3.8 What will happen in the future?

Fig. 14. What do **farmers** think about accessing information and advice in the future? (farmers)

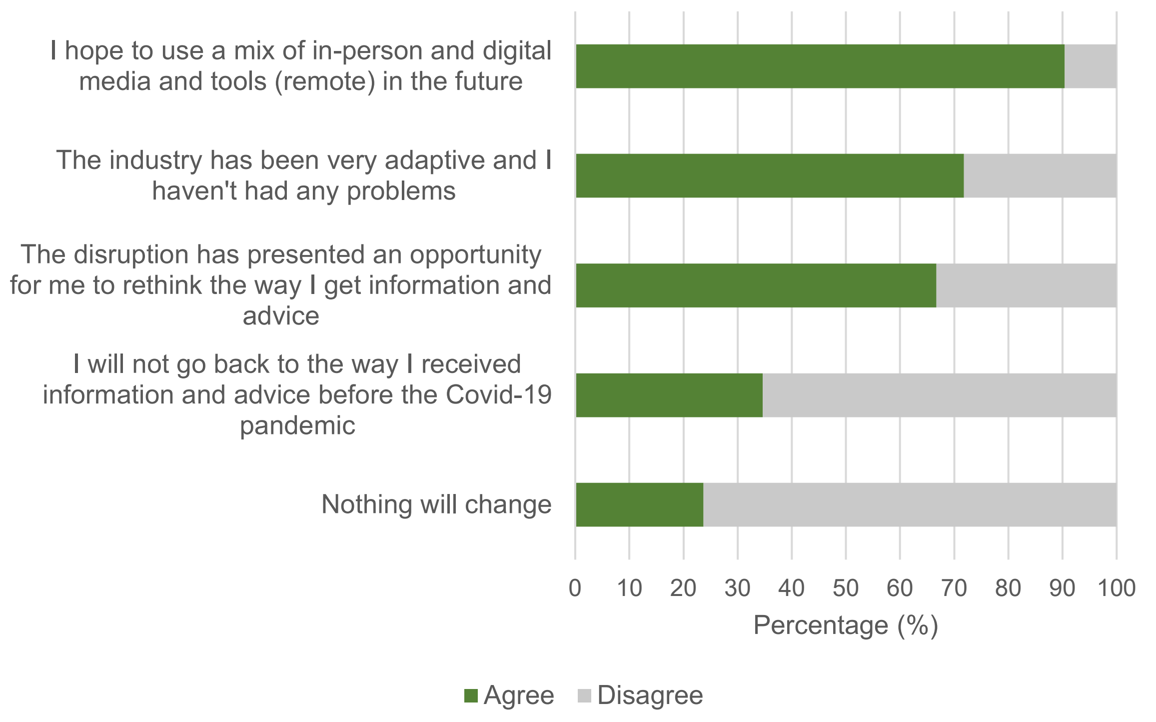
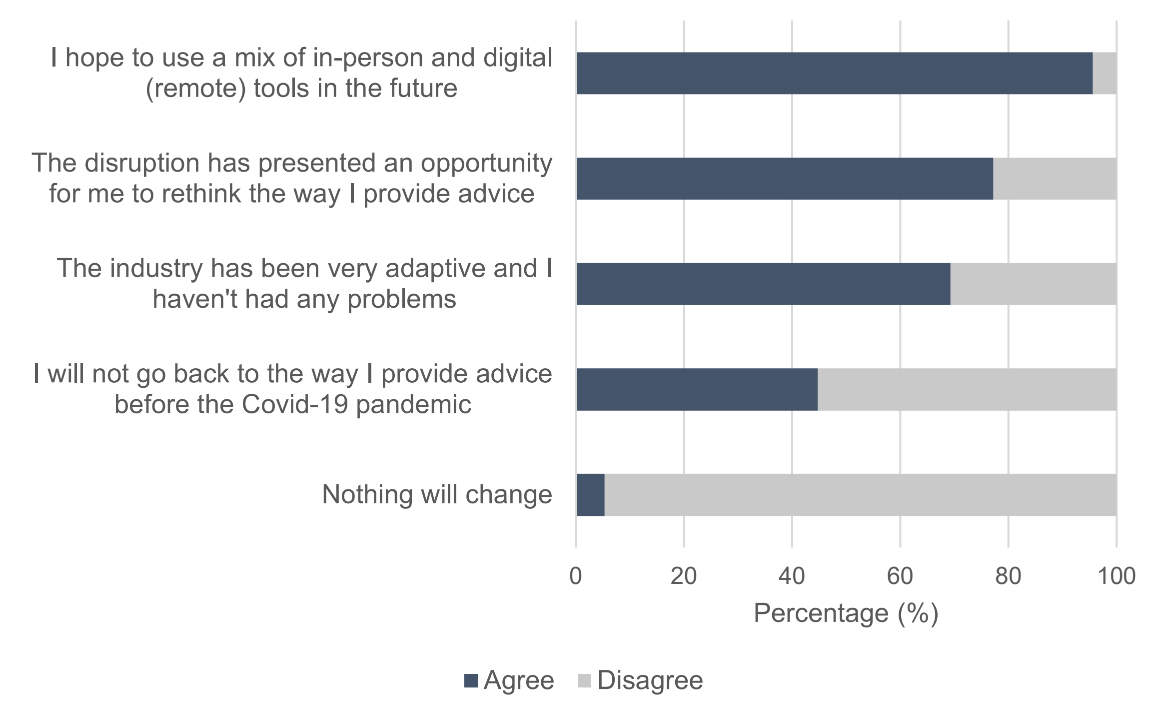


Fig. 15. What do **advisers** think about accessing information and advice in the future? (stakeholders)

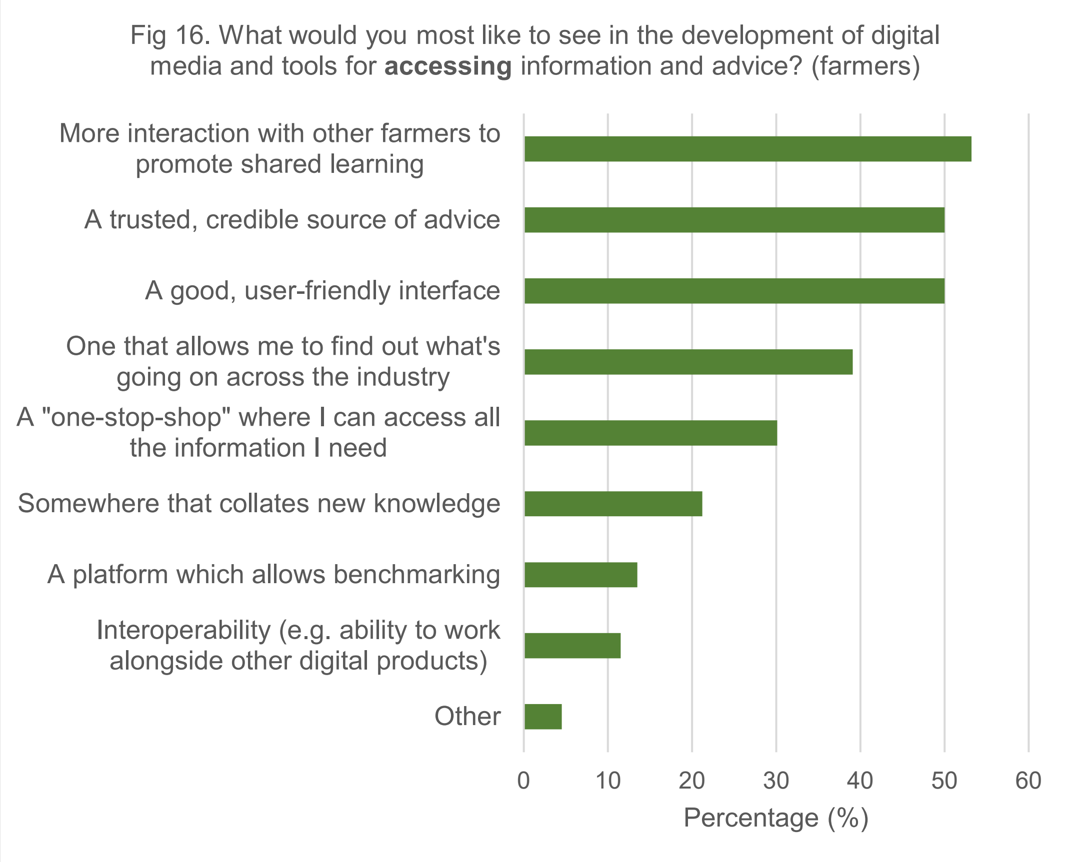


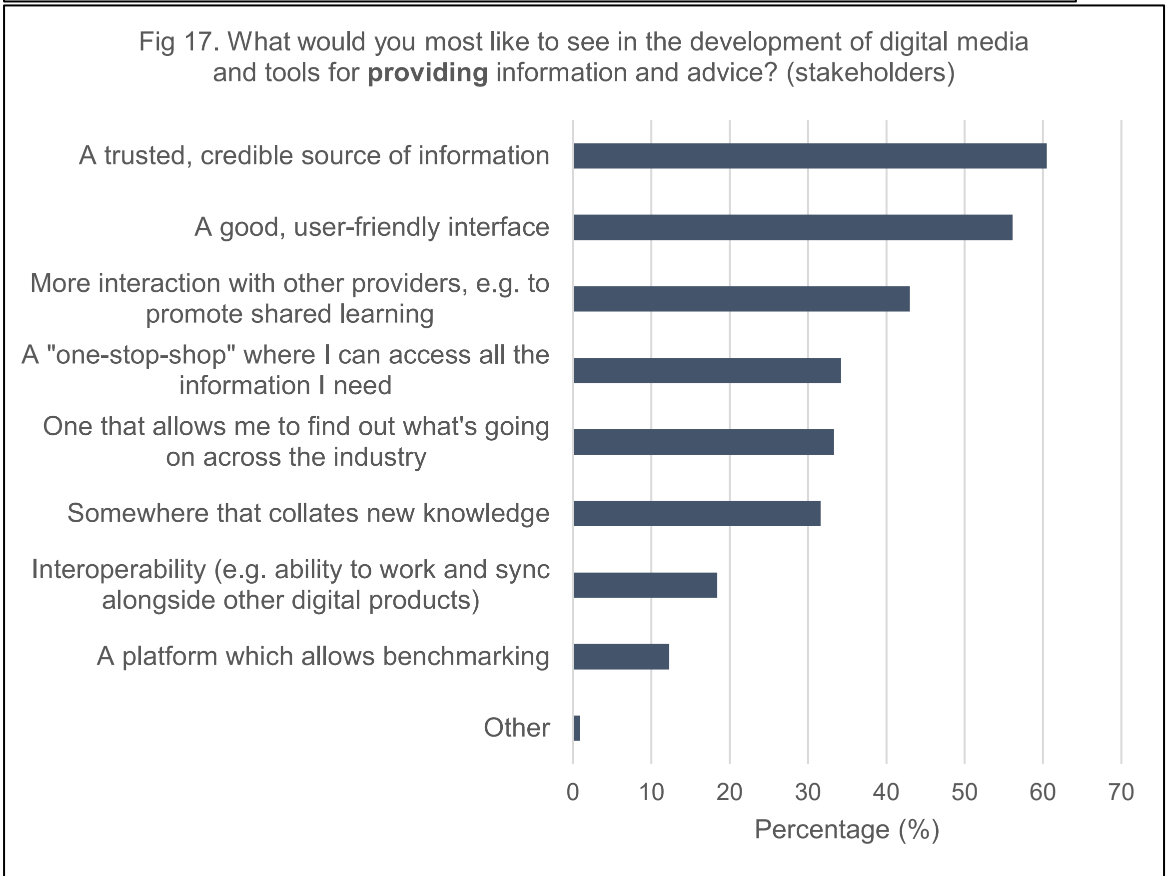
This series of questions sought to find out farmers' and stakeholders' views about **accessing** information and advice in the future using statements for ranking. The figures above show the final ranking of the statements. A summary of the response is provided below:

Summary of future directions

- Hybrid KE methods (mixed virtual and in-person methods) were most popular with >90% of both farmers and stakeholders agreeing with the statement.
- Interestingly both stakeholders (77%) than farmers (66%) agreed that the disruption has presented an opportunity to rethink how they access or provide advice.
- Both groups also agree (~ 70%) that the industry has been adaptive and they haven't had any problems.
- Notably in the future, more farmers felt that nothing would change after the pandemic (23%), compared to stakeholders (5%).
- Overall the results suggest that stakeholders are more optimistic for a future of technical innovations for KE.

3.9 What would farmers and advisers like to see in the development of digital tools for KE?





This final set of questions asked respondents what they would like to see in the development of digital media and tools for accessing and providing information and advice in the future. A summary of the responses is provided below:

Summary of future directions

- The top three ranked statements were the same for each group but with a different order of importance. Most important for farmers were: more interaction with other farmers to promote shared learning; a trusted, credible source of information; and a good user interface.
- Most important for stakeholders was: a trusted, credible source of information; a good, user friendly interface; more interaction with other providers.
- Statements ranked 4th, 5th and 6th are those that refer to a 'one-stop-shop', a 'tool that allows me to find out what is going on across the industry', and somewhere that collates new knowledge, indicating that measures to address fragmentation are also important.

3.10 Important considerations (challenges and opportunities) for digital knowledge exchange (open-ended question).

174 participants responded to an open-ended question at the end of the survey: "What do you feel are the most important areas to explore regarding the impact of COVID-19 on how information/ advice is accessed/delivered?". These provided a rich set of data which support the data from the closed questions. They are was used to identify some emerging interconnected themes, as shown in the table below. These are illustrated with selected comments from respondents. These provided entry points for discussion in the workshop and interviews. Based on subsequent analysis these themes were iteratively developed and regrouped into a final collection of themes, as shown in Fig 1 in the Interview Analysis report.

Table 1. Emerging themes from open question comments

Challenges (?) and opportunities (✓) for (digital) knowledge exchange

<table>
<tr><th colspan="2">Theme: Access & engagement (Inclusions and exclusions)</th></tr>
<tr>
<td>✓ Increases accessibility for some, e.g. saves time and less need to travel.

✓ Opens up networks and access to knowledge.. There is more opportunity to get international knowledge and advice.

✓ Easier to connect with groups and individuals who previously did not engage e.g. those who are not confident (or do not have the time) to join in with in-person meetings and events. Therefore, some people feel more connected as a result of digital KE.</td>
<td>? Some groups and individuals can be excluded from digital and remote KE methods. For example, due to socio-economic factors, confidence and digital literacy, access to rural broadband and digital divides.

? It is important to think about – who is excluded and why? What are the barriers to being involved in digital/remote KE, and how can we mitigate them?

? Access to broadband in rural areas is a key barrier, e.g. preventing farmers from engaging when at work. Rural broadband and connectivity should be kept in mind, e.g. offering webinar recordings and transcripts as well as the "live" events.</td>
</tr>
<tr><td colspan="2"><u>Access</u>
Advice is now much more readily and instantly available without having to drive miles, wasting a great deal of time

Online webinar and video messaging is certainly the way forward. It makes it more easier and convenient to access than having to plan to leave the farm.

International meetings have been rewarding, hearing about solutions from the industry in other parts of the world. With virtual meetings the norm, connecting with global participants has been enlightening. In this way feeling more connected, but isolated at the same time.</td></tr>
</table>

Useful having meetings that can be attended by dialing in from phone. Have attended many whilst still driving a tractor and mainly listening in. Previously either I had to miss work or miss the meeting by cancelling at last minute.

<u>Inclusion & exclusion</u>

Equity, and ensuring we account for the opinions of farmers who are less well connected or even willing to access online info etc

Assess engagement across all sectors ... those that can access online content have made the most of the opportunities but still a large number of people that have become completely disengaged without in person meetings to attend.

Lack of face-to-face meeting isn't good for mental health as farming can be a lonely business.

Those that are not connected and do not find digital comms/info accessible. Who are they and where are they? How can we help? What skills do people want to navigate the increasingly online world and can critical appraisal help? Should and how could this be provided to farmers and related industry?

Rural broadband quality will always limit the use of any digital opportunities for advancement within the industry. Covid serves to highlight the fact that poor broadband limits learning and progression in rural industries.

Theme: Digital skills & confidence	
✓ More opportunities to **learn digital skills** due to increased use of/engagement online. These skills are useful for preparing for a world post-COVID. Opportunity for digital literacy and training online – **learning about new tech and how to embrace it.** ✓ Many people feel that they have gained a lot of confidence for using digital tools, compared to before COVID-19. ✓ Many farmers and advisers are becoming more open-minded, embracing different digital approaches and knowledge types.	? **Lack of confidence** to engage online, and lack of computer skills (digital literacy), can be a barrier for some. Some in-person training could be provided or signposted by KE providers, to help build confidence.

Farmers have adapted very quickly to accessing info and data through a digital route.

I have adapted to the way we have had to use but hope we can go back to more face-to-face meetings

I don't feel I am getting the most of the information available due to my lack of computer skills ! I think some face-to-face learning on how to use the various digital media sites might improve my confidence

Digital engagement has been hugely beneficial but what about those who are not confident or not able to access the internet?

Theme: Social interaction, community, and shared learning	
✓ Digital KE methods can reach **wider audiences** quickly and efficiently, over different spatial and time zones. This can help bring diverse people together, who may not have connected before COVID-19. ✓ There are ways that a **shared, communal feeling can be created in digital/remote environments**. For example, sending food and drink to participants (e.g. beer or cheese tasting) to provide something to kick-start conversation. Skilled facilitators can also help create online situations which are interactive, promoting a "communal spirit" and shared learning.	? People can be **isolated in their learning**. They can miss the reassurance and the formation of more well-rounded ideas and knowledge, that can be developed through testing ideas with others, debate, and joint learning in a face-to-face situation. ? **Issues with mental health and isolation** has been exacerbated during COVID-19. Farming can be a lonely and isolated business by nature, so the lack of in-person and social interaction can have a negative impact on mental health. ? **Some feel that mental health support is needed** and that this should be a part of digital KE. E.g. KE providers signposting mental health support and advice.

How to be more interactive. Bigger events are less so than face-to-face.

Some are like being back at school being lectured at without the chance to ask questions and have a dialogue without needing to type into chat.

I think more people will try to do more things on line but farmers typically like to learn from each other at meetings which you don't get with online meetings

The information would be more usable if there could have more talk and discussion between all participants

Farming is insular at the best of times need to get back to face-to-face meetings more business can be done in person through debate face-to-face and ideas gained from the debate

The removal of face-to-face learning during the pandemic, e.g. the inability to provide knowledge transfer on a face-to-face basis, and the impact of this on how farmers learn. Is the lack of face-to-face interaction disabling them from taking more information in?

People can also feel that they are isolated in their learning. They can miss the reassurance that comes with joint learning in a face-to-face setting.

<table>
<tr><th colspan="2">Theme: Robust and trusted information and advice</th></tr>
<tr><td>✓ It can be easier and more effective to share scientific knowledge and information online, to wider audiences.
✓ Knowledge can be shared and discussed in online spaces – e.g. via farming press, social media, and discussion forums (e.g. The Farming Forum).</td><td>? Some people are suspicious of information and “facts” being shared online, e.g. via social media. Information shared from these sources can be biased – it can be hard to tell what information can be trusted, and what cannot.
? It is important to be able to access transparent, factual, robust, unbiased information – needs to be scientific, peer reviewed information.
? Communal discussions and shared leaning (e.g. to “test” scientific advice) can be lacking in digital/remote situations.</td></tr>
<tr><td colspan="2">I largely avoid social media and some news outlets as they try to make the news rather than report the news. Any new site must be a source of accurate, trustworthy and independent advice.

I avoid social media but without it is hard to know what is going on. With it there is endless trivia and gratuitous self-promotion - empty vessels make most noise!

Information available from non commercial sources trying to sell something

Making sure that digital information/advice provided is based on robust, independent evidence</td></tr>
<tr><th colspan="2">Theme: Diversity and fragmentation</th></tr>
<tr><td>✓ Embracing new tools and technologies, creative and innovative methods for KE. E.g. using a variety of different digital tools or one platform as a ‘one stop shop’.
✓ Some people felt that COVID-19 had increased the diversity of available digital tools (and the awareness of them and how to use them).</td><td>? Too much choice and fragmentation – the sheer volume of digital tools available can be an issue, e.g. it can be confusing for farmers and advisers to choose the ‘right’ tools and approaches. Also lack of trusted sources of advice for what digital tools to choose and why.
? Some people felt that COVID-19 had increased the fragmentation of the digital tools and media on offer.</td></tr>
<tr><td colspan="2">It magnified the diversity / fragmentation of offers - we need to find a better way of joining things up for the benefit of farmers and growers</td></tr>
</table>

There are so many online tools and learning opportunities that it can be overwhelming and people can fear that they are missing out.

Collaboration across the sector - build to each others' strengths and signpost services. podcast and video

Organisations need to talk more to each other - lots of good info, but lots of repetition and way too many sites to read them all.

I think that now there is a lot more advice, opportunities for engagement, shows, webinars, digital tools etc. available online. In some respects this is good, but I think that many will feel overwhelmed by the amount of information and the time required to trawl through this to find the most
appropriate for their needs.

One platform for people to use for their webinars etc. Everyone is using different providers and some are not interactive enough

Theme: Future innovation: knowledge exchange should be flexible and 'blended'

- There is no 'right' or 'wrong' way to do KE with regards to virtual and in-person tools and approaches.
- Online/remote and in-person approaches should be carefully suited to the context and purpose in which they are used – e.g. thinking about who the information and advice is being shared with, what the goals of KE are, etc.
- Mixed-methods and 'hybrid approaches for KE are favoured for the future, involving different types of information (scientific and non-scientific, expert and "lay"/farmer knowledge) and different tools (e.g. different digital tools and media, as well as a blend of in-person meetings and events).
- There is a strong feeling that: "Online is great for some but will never replace some face-to-face networking".

No right or wrong way, online great for some but will never replace face-to-face networking. Diversity of independent knowledge sources is important to avoid bias

How can online learning be combined with in person learning and demonstration to strengthen it? What gaps can online learning fill, now that all farmers have learnt how to use zoom? How can we use online stuff to strengthen messages from in person content?

I think it is important to take the best bits of online learning and combine with face-to-face meet ups. Some things you just can't learn in front of a screen and it's important to get out into the environment. But the accessibility and wealth of knowledge shared during pandemic has been amazing

I hope that the long term effect will be maximise alternative forms of advice without doing away with face-to-face boots on the ground interaction.

A platform that collates what is going on where would be useful

To what extent does digital KT have an impact on influencing behavioural change compared with face-to-face delivery? I would presume that digital delivery can be just as effective for raising awareness and sharing new information but how effective has it been in replacing face-to-face coaching and mentoring, peer to peer support and one to one advice?