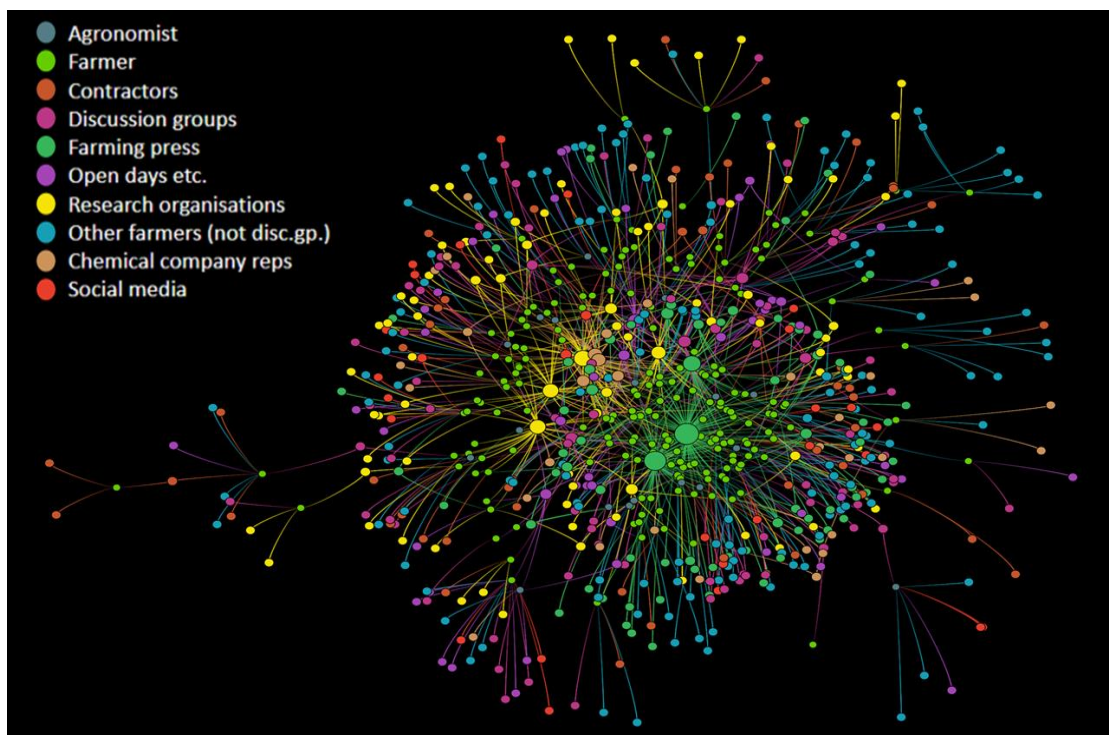


Perceptions of pest risk and differences in IPM uptake by arable farmers and agronomists in Scotland

Policy Summary



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1 Policy Summary

1.1 Project rationale

1. Greater uptake of Integrated Pest Management (IPM) measures on Scottish farms will be key in improving resilience against invertebrate pests, weeds and diseases, whilst maintaining or improving crop yields and farm profitability, reducing environmental impact and reliance on pesticides.
2. Previous research shows that better informed farmers and agronomists make better IPM decisions and score higher in IPM metrics. It is therefore important to understand Scottish IPM information networks to improve the flow of information to farmers and agronomists by targeting their preferred information sources.
3. Decision making on farm is often shared between the farm agronomist and the farmer, so it is important to understand any differences between the perceptions and preferences of key decision makers.
4. Identifying the drivers and barriers to further adoption of IPM practices for different decision makers, farm types and systems will improve the ability to tailor IPM research and knowledge exchange activities to consider, if not overcome, those barriers and improve uptake.

1.2 Project findings

1. In 2021 a telephone survey of 267 arable and mixed arable/livestock farmers and 26 agronomists collected information on currently perceived invertebrate pest, weed and disease threats in Scotland, the level of IPM uptake, and the information sources consulted.
2. Many factors were found to influence IPM uptake including farm type (arable specialists scored higher than mixed farmers), location (East of Scotland performed best), using an agronomist (increased uptake), farmer age (younger farmers had higher IPM scores) and farmer education (having a formal education increased score).
3. Information network analysis identified the key role of peers, a small number of the farming press and several research organisations in spreading IPM information. Key differences between decision makers were identified. Agronomists rely more on social media whilst farmers relied more heavily on a few key technical press outlets. Both groups utilised information from research organisations.
4. One of the key barriers expressed was the perception that IPM is always complicated and costly to implement, and that it increases rather than reduces the risk of pest outbreaks and subsequent yield losses. More impartial, independently acquired evidence on the effectiveness and associated risks of IPM measures coupled with advice on how to develop and optimise IPM solutions may increase grower confidence in implementing IPM strategies by providing a better understanding of the relative risks.
5. Agronomists had very different perceptions of the main crop health risks compared to farmer perceptions. This could lead to interventions (including the use of pesticides) which do not accurately reflect the risk to crop yield. Better understanding of agronomist perceptions is needed but improving the degree to which decision making is discussed and shared between a farmer and their agronomist could be an impactful way to improve decision making.

1.3 Recommendations

1. Develop a Knowledge Transfer and Exchange (KTE) strategy and plan that presents IPM in simple actions and seeks to reduce the perception that it is always complicated and costly. Simple measures, such as selection of disease resistant crop varieties, can be very effective. Having a single, recognized knowledge hub (i.e. the Plant Health Centre website) for practitioners seeking independently verified IPM research, advice and guidance would limit confusion around IPM messaging.
2. Agronomist advice is one of the major drivers of IPM score and understanding their characteristics and motivations is a key gap to explore. Improved knowledge of IPM practices will allow farmers to effectively engage in IPM discussions with their agronomist, allowing for co-development and co-ownership of the IPM strategy.
3. Farmer and agronomist perceptions on pest risk varied, which implies very different KTE requirements. Agronomists require technical information on pesticide efficacy and disease management. Farmers require information on cultural solutions to managing weeds and invertebrate pests. KTE activities should account for these differences so that the required information reaches the intended target.
4. The biggest barrier to further IPM uptake was 'time and effort required to increase knowledge of IPM' for farmers, and for agronomists it was 'market constraints', which could potentially be overcome by working with the retailers and consumers to collectively relax certain constraints related to superficial quality specifications. This would make 'insurance sprays' unprofitable and would also reduce food waste.
5. Economics is often cited as a main driver/barrier to IPM adoption. Assessing real cost-efficiency of IPM strategies would require detailed context-specific data for a range of cropping systems over a gradient of IPM adoption, for different types of production situations and such data are infrequently available outside of networks of demonstration farmers.
6. IPM advice must be tailored to the farming system as the potential and need for IPM differs according to the crop and its intended end-market. In Scotland, mixed farmers commonly grow grass and feed spring barley. There is often greater potential to increase IPM uptake in these feed crops that are less affected by market constraints relating to quality and for which fewer barriers to pesticide reduction exist. This should be a R&D and KTE priority due to the significant amount of mixed farming and feed crops grown in Scotland.
7. Most farmers exchange IPM information with peers. Local discussion groups could be used to support mixed farmers to uptake more IPM practices especially if an adviser knowledgeable in IPM facilitates the discussions around what IPM practices are particularly beneficial and feasible within the constraints and capabilities of mixed farms.
8. Future IPM research and developments should help to overcome the barriers, whilst taking consideration of the differences in perceptions and priorities for the farmer. This is especially important when targeting either mixed farmers or specialist arable farmers who often grow for different markets which influence IPM decision making.
9. There are many factors that influence pesticide usage e.g. local environmental conditions, specific crops grown, target market. To further understand the relationship between IPM uptake and pesticide usage a detailed survey of many farmers that considers all aspects of the farm and farming business is required.
10. KTE should utilise the most effective outlets - farming press, levy boards, research organizations and professional memberships for the key decision makers involved, for example focusing more on the farming press for Scottish farmers and social media for their agronomists.

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