

PHC2022/02: Understanding farmer / agronomist perceptions for decision making in crop health and the impact of that on key metrics such as IPM scores and pesticide usage

Background: Increased uptake of Integrated Pest Management (IPM) measures on Scottish farms will be key in improving resilience against pests, weeds and diseases, and also in maintaining or improving crop yields and farm profitability, whilst reducing environmental impact and reliance on pesticides. Previous research shows that better informed farmers and agronomists can make better IPM decisions and score higher in IPM metrics. Research has also identified that decision making on farm is often shared between the farm agronomist and the farmer.

A PHC funded survey in 2021 identified many factors which influence IPM uptake including farm type, location, using an agronomist, farmer age and farmer education. Although using an agronomist was identified as one of the drivers of higher IPM scores, the project revealed that agronomists and farmers rely on different information sources to each other, and also have different perceptions of the relative importance of the plant health risks they need to manage on Scottish farms. This could lead to interventions (including the use of pesticides) which do not accurately reflect the risk to crop yield. Another key finding was that mixed farms tend to score lower than arable only farms, despite the fact that they might have lower crop health pressures. Also, that there is often greater potential to increase IPM uptake in feed crops that are less affected by market constraints relating to quality, and for which fewer barriers to pesticide reduction exist.

There is a knowledge gap on how factors influencing IPM scores link to available impact metrics such as pesticide usage. A key barrier to uptake has been identified as the perception that taking up IPM measures increases rather than decreases the risk of crop health issues. Identifying the drivers and barriers to further adoption of IPM practices for different decision makers and for different farm types (including arable, grassland, potato, soft fruit and mixed) would improve the ability to tailor IPM research and knowledge transfer and exchange activities to consider, if not overcome, those barriers and improve uptake.

Impact: To improve the flow of IPM knowledge and its uptake to increase the resilience of Scotland's crops to pests and diseases, whilst reducing reliance on pesticides.

Objectives and research required for this call:

A key objective of this call is to provide a better evidence base on the differences in farmer and agronomist perceptions of risk, and evidence of how these perceptions shape crop protection decisions, including the use of pesticides. Farm type has also been identified as a significant factor on IPM scores so the research proposed should seek to explore interactions between the use of an agronomist, the farm type, the level of crop health risk and the decisions made. Evidence of decisions made could be derived from available metrics such as pesticide usage and other interventions made, as available from annual IPM plans submitted to PHC.

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Better understanding of agronomist perceptions is needed in order to improve the degree to which decision making is discussed and shared between a farmer and their agronomist, so it is important to understand any differences between the perceptions and preferences of these key decision makers.

Identifying the drivers and barriers to further adoption of IPM practices for different decision makers and farm types will improve the ability to tailor IPM research and knowledge transfer and exchange activities.

Farmer and agronomist perceptions on barriers to adoption varies significantly. This implies very different KTE needs so recommendations on a KTE strategy should be integral to proposed work.

Outputs required from individual project:

- Final Report (<20 pages of text excluding figures, appendices, and references) on investigations, to contain key sources, analysis, findings and recommendations for implementation or further work.
- Brief policy summary (1-2 pages) explaining how the work has contributed to filling evidence gaps and the context in which the findings can be used by policy makers and practitioners.
- Attendance at briefing discussion with PHC Steering group to discuss findings and next steps.
- Presentation at Scotland's Plant Health conference or any other relevant stakeholder meeting(s) to disseminate findings and contribution to other KE output such as the PHC virtual poster room or blogs.
- Grower / agronomist meeting(s) to discuss findings.

Indicative key dates:

- Deadline for submission of applications: **12pm on 31st October 2022**
- Project start: by 28th February 2023
- Overview of plans and project start-up meeting with PHC Directorate: by 17th March 2023
- Final report and policy summary: by end of August 2023
- Briefing meeting with PHC and Conference participation: dates to be confirmed

Detailed milestones to be confirmed by bidder.

Date all work needs to be completed by: 31st August 2023

Project type: Collaborative

Maximum funding available (including overheads and VAT, where applicable): Up to £35,000