

**Request for Information**

**Data Pilot Study: collection, collation analytics and outputs from AHDB pest monitoring activities in cereals in the UK**

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1. **Introduction**

The Agriculture and Horticulture Development Board (‘AHDB’) is seeking Market Engagement for a network of data collection, monitoring and reporting activities as part of its Integrated Pest Management Programme (IPM) activities. Hereafter referred to as the Data Pilot Study and/or the Pilot.

The objective of the RFI is to better understand the appetite and supply landscape for monitoring and reporting activities that will support the adoption of Integrated Pest Management, particularly in regards to both the capacity of the wider marketplace, and the scope/feasibility of the drafted service requirement.

## About the AHDB

The Agriculture and Horticulture Development Board (AHDB) is a non-departmental government body, funded by levy income from farmers, growers and others in the supply chain, and managed as an independent organisation (independent of both commercial industry and of Government). The role of the AHDB is to help improve the efficiency and competitiveness of various agriculture and horticulture sectors within the UK. Our statutory functions encompass meat and livestock (cattle, sheep and pigs) in England; horticulture, milk and potatoes in Great Britain; and cereals and oilseeds in the UK. Our purpose is to inspire our farmers, growers and industry to succeed in a rapidly changing world.

As AHDB is funded in this manner, value for money is paramount, we welcome suppliers who can offer innovative and cost-efficient solutions to meet our needs, whilst also offering superlative service that will enable us to create a world-class food and farming industry. Solutions should look to help us not only reduce costs but increase business flexibility, lift productivity, bring people together to collaborate, innovate and drive change throughout.

Further information about AHDB can be found here: https://ahdb.org.uk/

## Introduction to the Data Pilot Study

The UK Governments have produced a draft revised National Action Plan for the Sustainable Use of Pesticides. It aims to increase uptake of Integrated Pest Management (IPM) and sustainable crop protection. IPM is defined as the combined use of all available control methods, including targeted use of pesticides used when alternatives are ineffective or unavailable. It encompasses the need to consider prevention, detection and control as the key elements of an IPM strategy. These have been an integral part of AHDB levy-funded provision for many years, but projects have not necessarily been presented or organised in a way that has brought IPM to the fore. We are now seeking to develop a new programme of activity addressing the detection of pests, weeds and diseases and will focus initially on monitoring activities and metrics that will support the adoption of IPM in cereals, with the emphasis on cereal aphids and Barley Yellow Dwarf Virus (BYDV). Lessons learnt from this Pilot will inform our thinking for a wider monitoring solution for pests, weeds and diseases and analysis and interpretation of the integrated datasets.

**Pest component**

We currently fund a [research project](https://ahdb.org.uk/management-of-aphid-and-bydv-risk-in-winter-cereals)  which aims to improve BYDV management through BYDV vector monitoring and decision support systems (DSS). The project outputs will include recommendations on the specific components of a cost-effective and practical BYDV monitoring service. Therefore, we wish to understand the supply landscape for pest monitoring activities with the intention that we procure a Data Pilot Study to begin in autumn 2021

As part of the Data Pilot Study we also intend to procure a short term project (1 year from autumn 2021) to provide information on the resistance status and BYDV incidence in aphid vectors across the UK in 2021/22.

**Data component**

The Pilot will have a data component from which we want to be able to address these questions:

* How can we collect data from a geographical location (field) associated with the aphid pest(s) and the crop?
* How can we store and analyse the data and produce output rapidly to provide farmers with a better understanding of the pest incidence and crop health based on aggregated data collected from different sites?

The data activity will be divided into four areas:

* Collection
* Collation
* Analytics
* Outputs

AHDB has in-house expertise in SQL server databases, MS Azure and ARC GIS (ESRI) and data visualization, so options can either be to create a solution, or work with AHDB on a consultancy basis. The solution would need to be owned by AHDB, but not necessarily utilising MS Azure or ESRI.

The first year (starting autumn 2021) will focus on the logistics of data collection, management and reporting using aphids as the target pests. Lessons learnt during the first year of the Pilot, in conjunction with the recommendations from the aphid research activity, will be used to refine AHDB’s pest monitoring provision in the second year onwards. However, continuation of activity beyond the first year of the Pilot will be dependent on successful completion of agreed project milestones. Our longer term goal is to use the outcomes from the Pilot to develop data management protocols for a diverse range of pests, weeds and diseases

The project is likely to comprise two or three lots, one focussing on the aphid pest(s) (which may include the BYDV and insecticide resistance testing or this may be provided as a separate lot) and another focussing on the data associated with monitoring the pest. Responses to this request for information can focus on one or all of these aspects, since data components do not require an understanding of aphids or BYDV or insecticide resistance.

AHDB has now outlined their requirements for the provision of monitoring and reporting activities to ultimately support the adoption of IPM for the management of BYDV in UK. This project is at this time under preparation and this research is to provide AHDB with a better knowledge of what is in the marketplace and at what type of cost. This is not a Tender, and any pricing requested is purely for a guideline as we do not know if/when the project will go live.

This document contains the following sections to inform the parties of our requirement and provide the requested method of response:

* The Scope of the Service
* The Response method including provision for any other relevant information.

***The Response Document is a separate file for ease of response.***

1. The Scope of the Service

**Pest**

We want UK-wide monitoring activities. It is envisaged that as a minimum this will include provision of information on the aphid vectors of BYDV. This could include national information on aphid flights as well as localized information on the numbers of aphids on individual crops. We are particularly interested in novel approaches to aphid monitoring. Additional, practically important information (e.g. insecticide resistance status, whether the aphids are carrying BYDV and/or discrimination of anholocyclic/holocyclic forms) should be provided from at least a subset of the aphid samples.

Applicants should provide suggestions as to the natural enemies of aphids, the agronomic practices and environmental/habitat variables that could also be monitored/quantified at the participating locations. The aim of including the agronomic and environmental variables would be to provide sufficient information to allow analysis of the factors that contribute to differing aphid population levels/BYDV risk in a locality.

**Sampling network**

AHDB has a network of Farm Excellence Platform (FEP) sites (Annex 1) comprising Monitor Farms and Strategic Farms. The former deliver whole-farm improvements, with a focus on business performance, and the latter deliver sector-specific improvements, with a focus on technical performance. However, there is cross-over between the two as they increasingly form part of an integrated network. At least some of the FEP network should be included in the Data Pilot Study from the start of the project. Although the specific aspects (e.g. location of sampling, frequency of sampling) of the national monitoring network will be informed by the outputs from the [research project](https://ahdb.org.uk/management-of-aphid-and-bydv-risk-in-winter-cereals) we welcome suggestions about potential sampling networks (in addition to the FEP) that may already exist, or could be re-purposed, to provide information for the Pilot. Applicants must specify the minimum number of sites that they would monitor in 2021.

**Data**

We want to be able to address these two questions:

* How can we collect data from a geographical location (field) associated with the aphid pest and the crop?
* How can we store and analyse the data and produce output rapidly to provide farmers with a better understanding of the pest incidence and crop health based on aggregated data collected from different sites?

Future AHDB aspirations will be to integrate monitoring data from a diverse range of pests, weeds and diseases and use artificial intelligence specialists to interpret the drivers and potentially conflicting information.

1. The Information we would like to investigate

(These questions will be repeated on the response form for your aid).

**Pest**

AHDB would like to investigate innovative approaches that will ultimately support the implementation of IPM for BYDV, with a focus on monitoring activities. We require that respondents address the following questions in their response:

* Which aphid /beneficial species would you be able to monitor, what approaches could be used, how frequently and by whom
* What practically important information could be provided about the aphid vectors (e.g. insecticide resistance status, whether the aphids are carrying BYDV, aphid genotype)? How could these characteristics be quantified? Specify the number of samples that could be processed each year
* What additional information could be provided about the insects that are monitored/collected that would add value/support decision making by growers.
* Do you already have an existing network of traps, personnel or sampling in place that would be able to provide the monitoring that you are proposing? If yes, please provide details of how that network/service currently operates. Comment on the coverage of delivery across the UK that would be achieved by the network. Are there regions where less comprehensive monitoring would be carried out? If yes, specify what would be monitored and how frequently.
* Are there new/prototype monitoring, trapping and/or forecasting tools that should be considered for investigation/validation as part of the Data Pilot Study?
* What agronomic and environmental variables could also be measured and how would these be reported/made available to the Data Pilot Study.
* Are there other monitoring approaches and options for provision of the Data Pilot Study that you would like us to consider? This may include the provision of information on other pest species.

**Data**

The activity can be split into four key areas:

Collection

* What data would be need to be collected on a one-time basis? (Registration of the sampling site)
* What data would be need to be collected multiple times? (Identified in collaboration with the aphid specialists). Uploads likely to be via phone or tablet
* What data can be collected automatically? (e.g. location, date, time)
* What potential future data collection methods might be available (e.g. Remote-Sensing)

Collation

* How might data be integrated with other platforms (e.g. MS Azure, ESRI ARC GIS)
* How would data be validated to minimise outliers?
* How will data be aggregated to present on a map for a rapid high level visualization of the data?

Analytics

* How might Machine learning and Artificial Intelligence be used to analyse photographic evidence (e.g. sticky traps or water traps with diverse range of insects)
* How might you achieve a minimum 24 hour reporting, and potential real time reporting?
* How might the data be shared with third parties for interpretation and integration with other data?
* What analytic tools are needed to analyse data from different geographical locations?

Outputs

* How will real-time analysis get back to farmers (e.g. visual online map, or text/email)
* How will messages from this interpretation be presented on the AHDB web site and visualization tools?
1. The Response Process

The Response Form attached with this RFI (or sent with this document if by invitation) should be populated with your reply/s to the areas of investigation in section 3 and emailed along with any supporting documents.

**Responses are required by noon on the 11th June by email to: simon.oxley@ahdb.org.uk**

Any queries can also be emailed to the same address. All questions will be anonymised and these will be published with answers on Contracts Finder after being answered to the requestor directly.

Please note that any submissions received after this specified deadline may not be considered in this market engagement process.

Responses from interested parties’ to this RFI do not constitute firm offers capable of acceptance.

AHDB are not be obliged to return any materials submitted by interested parties before, during or after this RFI or any subsequent procurement process as a result of this RFI.

In addition, there is an option to allow interested parties to submit their individual caveats in relation to any section of the Scope of the Service where they may identify outcomes that they may not be able to provide and/or offer alternative suggestions. It should be noted by interested parties that in making these suggestions, the areas where this information may arise could be substantive in the context of the potential delivery of the service requirement.

Please note that the Scope of the Service is indicative only and may not be reflected in any potential forthcoming procurement process, which, if there is one, may be subject to change based on feedback resulting from this process.

The Scope has been prepared in good faith by AHDB, however, AHDB and their respective officers, directors, employees, agents and affiliates do not undertake any obligation to provide the recipient with access to any additional information or to update the Scope or correct any inaccuracies in the Scope that become known to it. However, if any amendments are made, these will be advised on the Contracts Finder Website, therefore it is recommended that, **that you select “Watch this notice” against this advertisement therein**. Nothing in the RFI or accompanying documentation shall be relied on as a promise or a representation to AHDB’s ultimate decision in relation to the next stage, which will depend, at least in part, on the outcome of this RFI process. This document is not an Invitation to Tender (ITT), nor does it form any part of a procurement process.

Please note that AHDB will not reimburse any expenses incurred by interested parties in preparing their responses to this RFI.

AHDB reserves the right to discontinue the process at any time and will not accept any liability towards interested parties should it be required to do so.

Please also be aware that any information provided as part of this RFI may be used by AHDB to develop future market analysis activity.

Annex 1. AHDB’s Farm Excellence Platform: distribution of cereals and oilseeds sites.

Green markers = Monitor Farms

Blue markers = Strategic Farms



The location of the Rothamsted Insect Survey suction traps has been provided for information. Traps are indicated by the red markers.