



Endemic Livestock Diseases Initiatives Call phase 2, 2022

#### **BBSRC Contacts:**

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# Endemic Livestock Diseases Initiative Call – phase 2, 2022

Please type your questions using the chat function on Zoom



Please send your questions throughout the webinar
We will read as many questions as we can during the Q&A session
We will respond to any unanswered questions after the webinar



# Agenda 13:00-15:00

#### 1. Funder's Introduction

Dr Ruth Nottingham, Head of Business Engagement and Intelligence, BBSRC

Dr Esther Harper, Senior Portfolio Manager, BBSRC

#### 2. DEFRA perspective

Dr Thom Erritt, DEFRA

#### 3. Academic perspective

Professor George Oikonomou, University of Liverpool

- 4. Break
- 5. AHDB perspective

Dr Mandy Nevel, AHDB

#### 6. Call Scope and How to Apply

Dr Linda Millyard and Dr Esther Harper, BBSRC

#### 7. Q&A Session





BBSRC Supporting Collaborative Research and Innovation

**Endemic Livestock Diseases Initiative – phase 2** 

Ruth Nottingham
Head of Business Engagement & Intelligence
BBSRC







# **UK Research and Innovation**

UKRI is the **UK's largest public funder of research and innovation** 

We invest over £8 billion a year to advance our understanding of society and the world around us and deliver benefits for society, the economy and environment

Our organisations comprises nine councils

We work with businesses and academia, across disciplines and sectors, and between the UK and its international partners.





#### **BBSRC Business Interaction Unit**

#### Vision

For **businesses to thrive** in their collaborations with the UK's world-leading research base, ensuring that **bioscience research and innovation** are at the **forefront of global opportunities and challenges** to improve lives and boost economic growth.

#### **Mission**

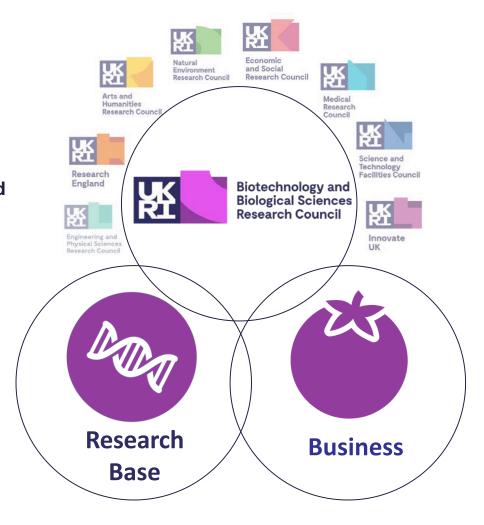
To be a centre of excellence across BBSRC, UKRI and UK Government that catalyses, supports and drives engagement and strategic co-investment in pre-competitive areas with bioscience and biotechnology businesses, as well as businesses in other sectors and industries with relevant interests, to ensure academic-business collaborations deliver maximum impact across the UK and globally.



#### **How BBSRC works with business**

We work with, and support others to work with, a wide range of businesses

- Strengthening partnerships with businesses, and engage them in helping to inform, shape and promote national strategy and policy across BBSRC, UKRI and UK Government.
- Helping businesses to grow and thrive through co-design, co-investment and co- delivery in strategic, industrially-relevant collaborative R&D programmes with the bioscience research base.
- Supporting businesses with bespoke research and innovation insight, and connecting businesses to world-leading expertise and facilities across the UK.
- Enabling businesses to partner, invest in, and inform our investments in nurturing and training the next generation of diverse talent.
- Providing businesses with opportunities to meet new academic and business collaborators through business engagement activities, strategic partnerships and forums.



## Helping businesses grow and thrive across the UK

#### BBSRC works with a wide range of bioscience and biotechnology businesses to:

Help businesses to grow and thrive through co-design, co-investment and co-delivery in strategic, industrially-relevant collaborative R&D programmes with the bioscience research base

- Industry Partnering Awards (IPA): Include a 10% cash investment from the industry partner. More
  fundamental academic-led research
- **LINK grants:** Include a 50% cash and/or in-kind contribution from the industry partner. These are more applied research with significant industry involvement.

Next application deadline: 28 September 2022

• Co-funding cross-council investments e.g. Co-funding Research for a plastics circular economy with EPSRC outline proposals closing 15<sup>th</sup> September, National Biofilm Innovation centre with Innovation UK

# Background

**Endemic Livestock Diseases Initiative – phase 2** 

**Dr Esther Harper Senior Portfolio Manager, BBSRC** 





# Overview

#### Endemic Livestock Diseases Initiative – phase 2



Endemic diseases in livestock directly affect animal health and welfare and can cause up to £710 million loss each year.

Reduced productivity due to poor health impacts both farm profitability at a time when rising feed and energy costs are negatively impacting livestock producers. Furthermore, improving livestock health remains a critical factor in reducing carbon emissions and making the sector more sustainable.

The Endemic Livestock Diseases Initiative aims to reduce the overall levels and impact of endemic disease on UK livestock sector productivity and the health and welfare of animals, bringing academia and businesses together to co-create and develop novel prevention and intervention solutions. Phase 2 will build on the progress already made in Phase 1.



# What support is available?

Endemic Livestock Diseases Initiative – phase 2



Funding type	Grant	
Total Fund	£7,350,000	
Award range	£500,000 - £1,000,000	
Earliest start date	1 <sup>st</sup> April, 2023	
<b>Expected duration</b>	Up to 36 months	
Latest end date	1 <sup>st</sup> July, 2026	

Standard grant costs are allowed. BBSRC will fund 80% of the full economic cost.

All projects must include at least one Project Partner, contributing a minimum of 10% cash or in-kind.



# Challenge Areas

#### Endemic Livestock Diseases Initiative – phase 2



A range of approaches are welcomed. The themes below are not comprehensive or intentionally siloed:

- Digital agriculture
- Genetics and Breeding
- Farm Management
- Vaccine platforms and technologies
- Novel therapeutics
- Co-infection

Bovine TB and research on general animal nutrition are not included in the scope of this call.

We welcome proposals which incorporate the expertise of social scientists in the project to ensure the behaviour change aspect of research translation is given proper consideration.



# Endemic Livestock Diseases Initiative – phase 2

Addressing endemic livestock disease threats has been identified as a strategic need across the community

- Total losses from endemic livestock diseases are estimated to cost the UK livestock sector between £290 million and £710 million per year.
- Research and innovation relating to endemic livestock diseases is a priority for BBSRC within the strategic challenge of bioscience for sustainable agriculture and one health priority.
- Endemic disease specifically has been identified as the main limiting factor for improving livestock efficiency and causes losses from costs associated with testing, production loss, treatment costs and, compensation.





# Endemic Livestock Diseases Initiative – phase 2

We are investing £7.35M to enable co-investment and collaboration between academic researchers, farmers, and businesses to reduce overall levels and impact of endemic livestock diseases on the UK livestock sector.

- Collaborative research and innovation projects and partnerships that purposefully engage farmers in solution development that is informed by on-farm practice.
- This investment in research to support the development of technologies and evidence-based guidance to manage endemic diseases across the UK could lead to a measurable difference in the numbers and severity of outbreaks. This will in turn improve animal welfare and productivity in the sector.
- The initiative will ensure industry partners are integrated into research projects from their inception and continue to engage with grant holders as they generate research outputs and progress toward in-house development or on-farm use.





Catalysing Partnerships (2021/22)

AHDB-BBSRC: Catalysing Partnerships in Farmed Animal Health Background (2021-22)

- Pilot initiative with AHDB, a leading public funder of R&D for farmers and growers.
- £500k to support 11 projects of 5-6 months.
- Aimed to address critical research questions associated with endemic diseases that present a significant threat to UK livestock production.
- Connect farmers to the research and translation activities proposed, to promote consideration of realistic on-farm application.
- Develop broad-spectrum solutions to endemic diseases in livestock that may be adapted for multiple disease and animal species.







# Priming Partnerships (2021-23)

**UKRI-BBSRC: Priming Partnerships Opportunity: Online Workshop and Associated Funding (2021-23)** 

- Initiative with DEFRA, DAERA and Scottish Government
- £1.95m to support 11 projects of up to 12 months
- Two week workshop to immerse everyone in collaborative thinking process
- Aimed to facilitate partnerships and idea co-creation across academic and industry
- Funded projects that aimed to reduce overall levels and impact of endemic disease on UK livestock sector productivity and the health and welfare of animals in the UK herd.









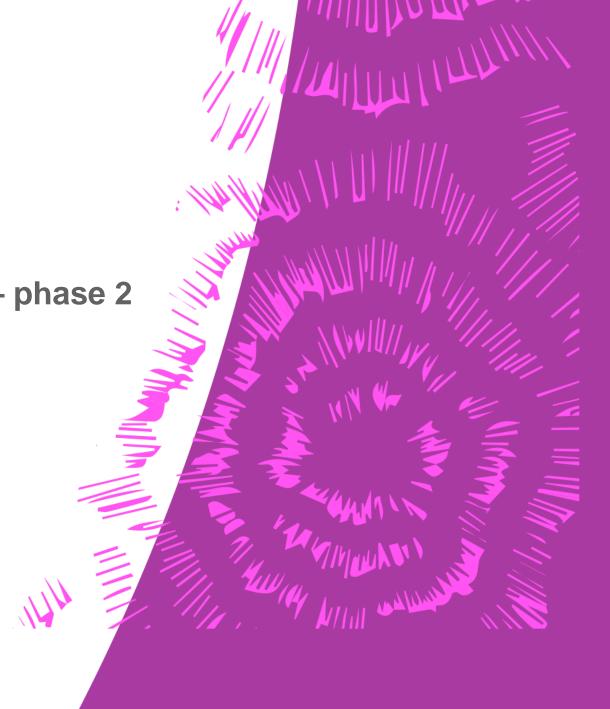


# **DEFRA** perspective

**Endemic Livestock Diseases Initiative – phase 2** 

Dr Thom Erritt
DEFRA







## **Endemic Livestock Disease Initiative: Phase II**

19th August 2022

#### Defra Animal Health Science: who we are

Our vision is to develop integrated programmes of science that address global and domestic challenges in support of Animal Health and Welfare policy.



To develop and coordinate AHW science investment across UK Government



Support national scientific capability for outbreak response, disease control and trade facilitation



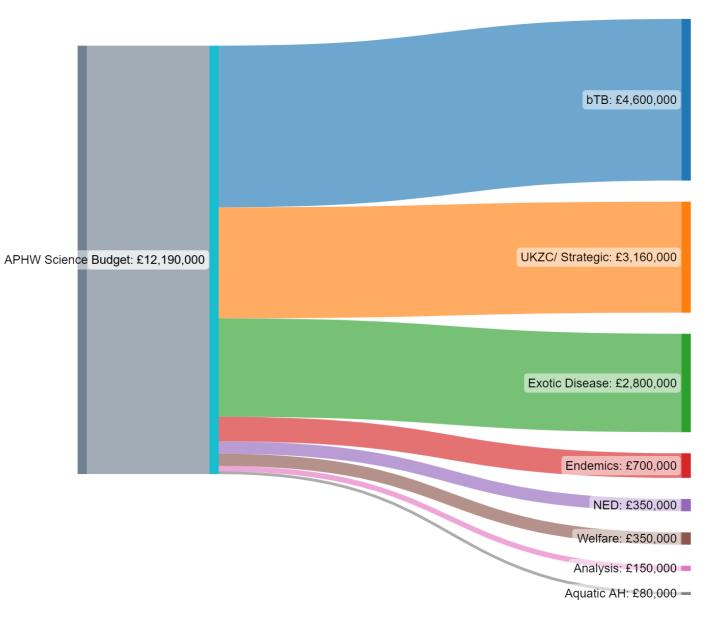
To develop and lead international strategies for science investment addressing global / regional priorities



Management and oversight of Defra's AHW science programme and associated evidence budget (£20m/pa)

# Our AHW R&D programmes

- Defra animal health R&D 2021/22 - £12.2m p/a
- There is also approximately £8.5m of research funded by Defra agencies:
  - APHA
  - VMD
  - Cefas



# Strategic priorities

Defra Group Research and Innovation Interests 2021 (published on gov.uk)

#### UK 5-year action plan for antimicrobial resistance

Delivery of commitments to develop new veterinary vaccines

#### **UK Government priorities:**

- Improving animal welfare
- Reduction in greenhouse gas emissions

#### Research needs identified by the Animal Health and Welfare Pathway:

- Quantifying (inc. monetising) benefits of action on antimicrobial resistance
- Improving understanding of GHG reductions from increased control of endemic disease
- Improving vaccine efficacy for endemic diseases
- Faster, more accurate diagnostic tools, inc. pen-side tests

# Impact of endemic livestock disease

Within the English livestock industry, endemic disease has been estimated to cost between £290m and £710m per year.

# Costs of lost productivity for specific endemic diseases are significant, for example:

- Lameness in dairy cattle costs £40m per year in lost productivity.
- PRRSv in pigs costs £53m per year in lost productivity.

A 5% reduction in the impact of endemic disease has the potential to generate a productivity gain of around £30m per year.

Wider impacts of reducing endemic disease include key priorities for Defra:

- AMR
- Greenhouse gas emissions
- Animal welfare

(Farming for the Future, Defra 2020; Defra internal analysis)

# A collaborative approach

Our goal is to improve the health and welfare standards in the UK

These challenges can only be tackled in partnership – and Defra is committed to working with industry, farmers, veterinarians and the science community to build those partnerships.

#### **Animal Health and Welfare Pathway**

 Aim: By 2030 the national herd/flock will be healthier and produced to higher welfare standards.

# Any questions?

Thomas.Erritt@defra.gov.uk

Academic perspective

**Endemic Livestock Diseases Initiative – phase 2** 

Professor George Oikonomou, University of Liverpool







# Develop solutions for endemic livestock disease: phase two; An Academic's perspective

Georgios Oikonomou DVM PhD FHEA MRCVS
RCVS Specialist in Cattle Health and Production
Professor of Cattle Health and Welfare
Department of Livestock and One Heath

**●** @GeorgeOikonUoL







### **Ruminant Health & Welfare**

Cattle and sheep health and welfare priorities – a 'grassroots' survey across the four nations of the UK

MAY 2021

# Top diseases impacting cattle production and welfare in the UK were:

- Digital dermatitis
- BVD
- Johne's disease
- Liver fluke
- Viral pneumonia (PI-3, RSV)

# Top syndromes impacting cattle production and welfare in the UK were:

- Lameness
- Reproductive failure
- Neonatal or calf disease
- Mastitis (sub-clinical and acute)
- Bovine respiratory disease (BRD)



# Using cattle lameness as an example

- Painful condition, animals in severe discomfort
- Severe economic impact: £142m UK loss
- Lower reproduction performance
- Treatment costs (medication, hoof trim)
- Premature culling when treatment unsuccessful

A cross-sectional study into the prevalence of dairy cattle lameness and associated herd-level risk factors in England and Wales

BE Griffiths, G Dai White, G Oikonomou Frontiers in veterinary science 5, 65

Average herd lameness prevalence:





71 2018

31.6%

28.2%



# Aetiopathogenesis and genomic architecture of resistance to claw horn disruption lesions in dairy cattle

2 4 mins to read

#### Cash boost for cattle lameness

£1 million for researchers from Scotland's Rural College, RVC and University of Liverpool to develop new tools to tackle lame dairy cows.

Holly Kernot | January 18, 2019

















A £1 million research project examining "debilitating" lameness in dairy cows is underway.

Lameness affects around one in three milking cows in the UK on any given day and costs the industry around £250 million a year.

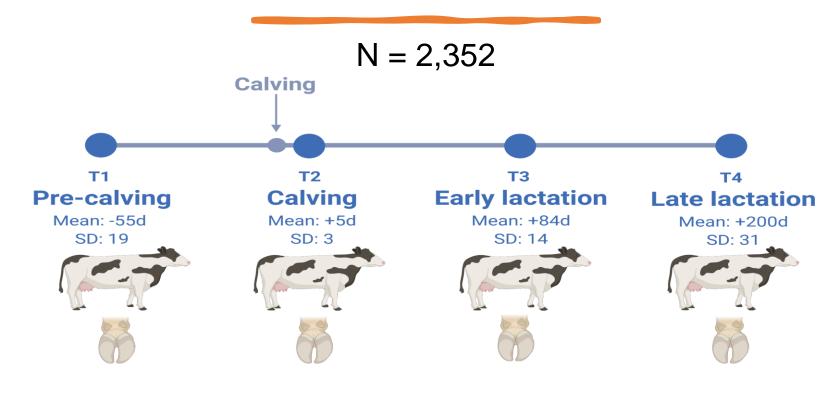








# Ongoing lameness genetics project

















# Results: Heritability

Lesion	Frequency	Heritability
Sole haemorrhage	83% (40% ≥ grade 2)	0.20 (± 0.06)
Sole ulcer	14%	0.29 (± 0.08)
White line lesions	89% (26% ≥ grade 2)	0.06 (± 0.05)

**DD** is 34%!!

Received: 2 December 2021

Revised: 15 February 2022 | Accepted: 23 March 2022

#### ORIGINAL RESEARCH



#### Association between a genetic index for lameness resistance and the incidence of claw horn lesions in Holstein cows

```
Matthew Barden<sup>1</sup>
                               Alkiviadis Anagnostopoulos<sup>1</sup>
                                                                              Bethany E. Griffiths<sup>1</sup>
Cherril Bedford<sup>1</sup>
                              Marco Winters<sup>2</sup>
                                                           Bingjie Li<sup>3</sup> | Mike Coffey<sup>3</sup> ©
Androniki Psifidi<sup>4</sup>
                               Georgios Banos<sup>3</sup>
                                                              Georgios Oikonomou<sup>1</sup> ©
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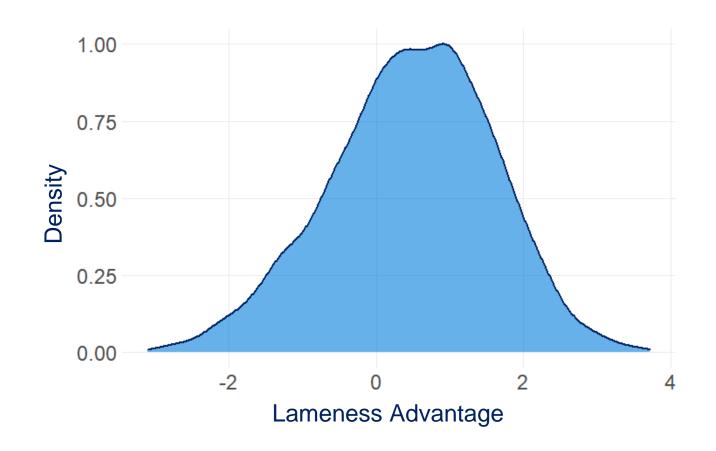


#### Lameness advantage

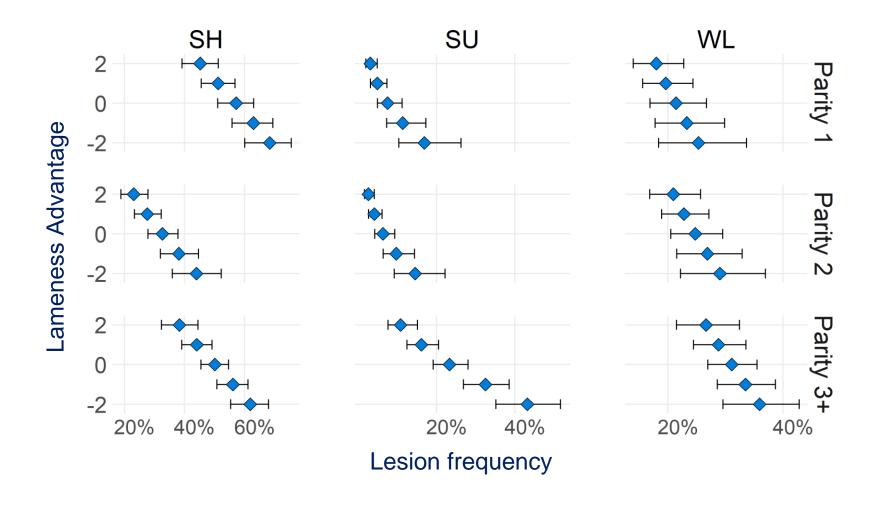
#### Digital dermatitis genetic index for dairy cows

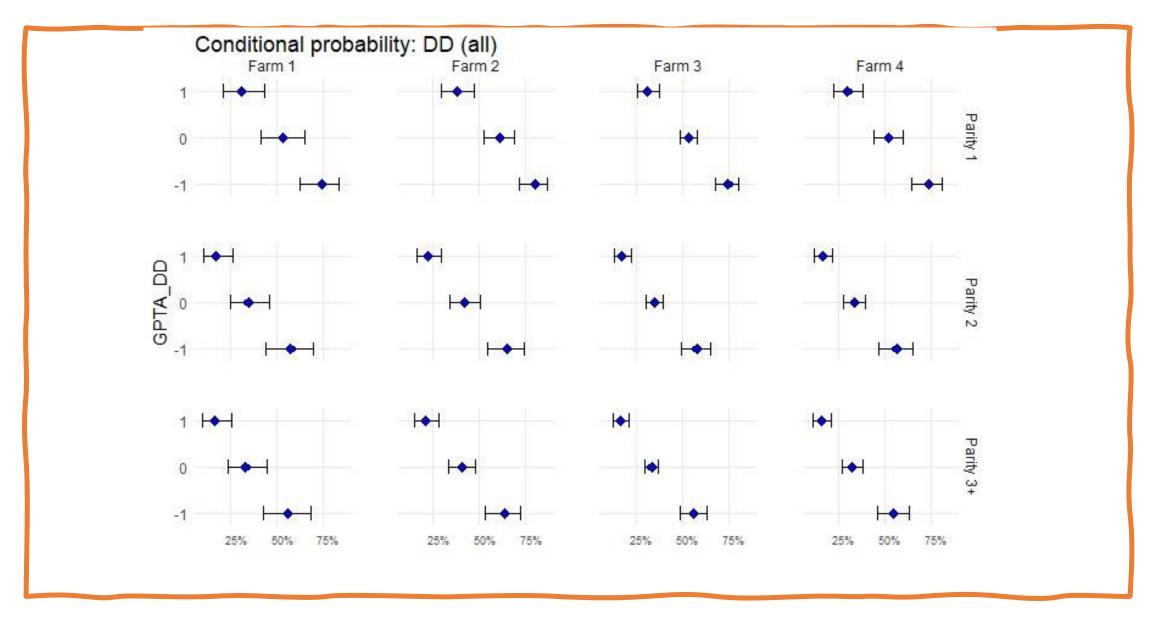
This genetic index can help you breed cows who are less susceptible to Digital Dermatitis and reduce the likelihood of going lame.

# How does Lameness Advantage work in our population of cows?



# Results: Lameness Advantage





• For every 1 point increase in the DD genetic index there is a 61% reduction in the odds having DD!

Foot lesions are moderately heritable; genetic selection <u>can</u> make a difference

## Take home messages

The AHDB Lameness Advantage and DD genetic evaluations are already performing well

Can only get better with better quality phenotypes!

# P2108376: AHDB and BBSRC call for full proposals on Research and Knowledge Exchange

Utilising foot trimmers' records to inform genetic evaluations of resistance to lameness causing foot lesions in dairy cattle.











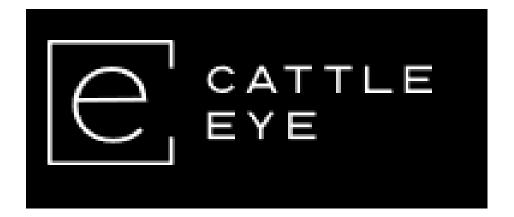
## Automatic Lameness Detection





#### Conclusions/ thoughts

- Safe to say that CattleEye is at least performing MS similarly to a trained scorer
- Larger trials with more farms are warranted
- Further training of algorithms (lesion data)
- Use as part of a holistic approach in herd lameness management







**Business** 

Livestock

Land -

**Our Farms** 

News

What's On

Home > News > Cow mobility issues nearly halve at Welsh dairy farm after video monitoring

# Cow mobility issues nearly halve at Welsh dairy farm after video monitoring

Type

News

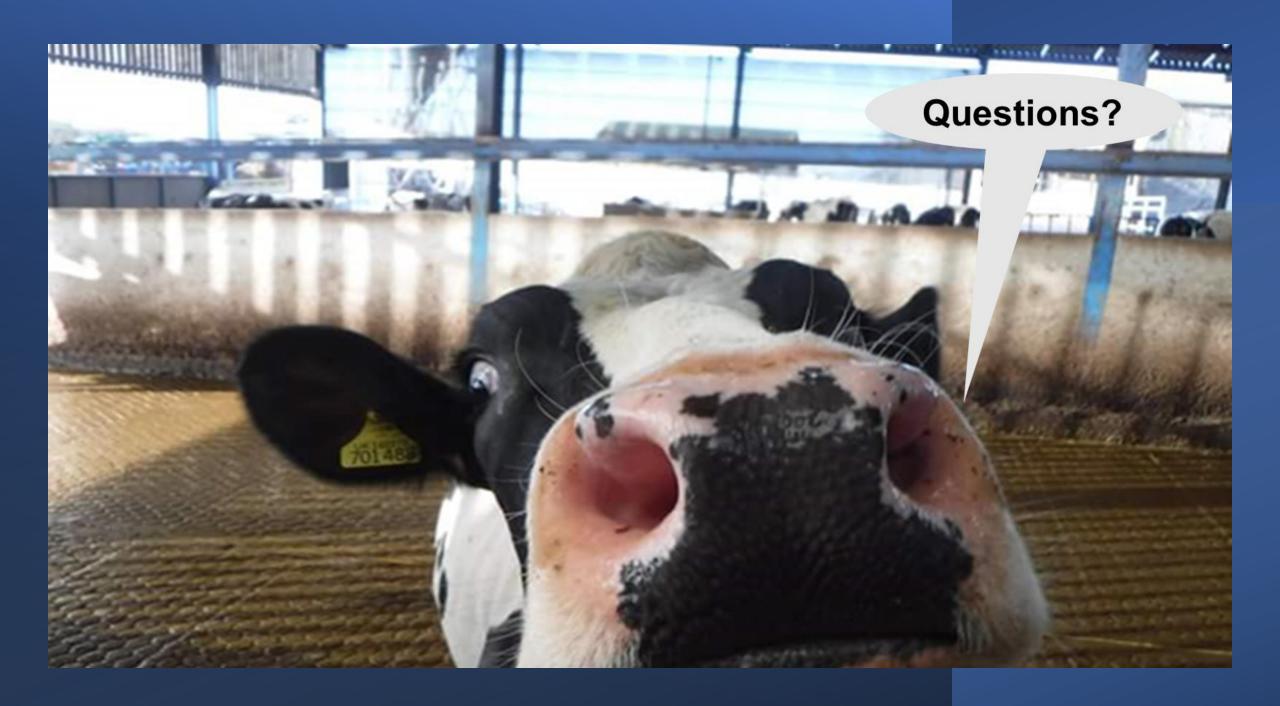
**Key Sector** 

Dairy

Theme

Business, Livestock







## Break 10 minutes

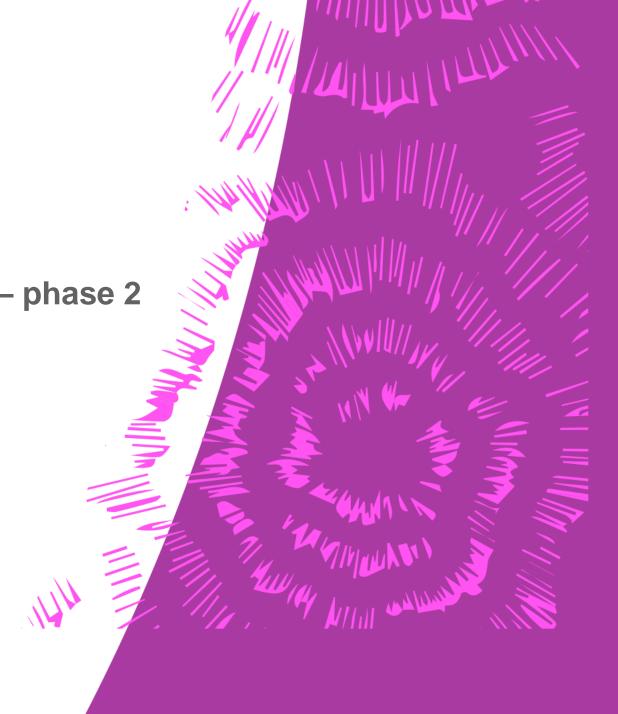


## **AHDB** perspective

**Endemic Livestock Diseases Initiative – phase 2** 

Dr Mandy Nevel, AHDB







**Endemic Diseases of Livestock** 

## **BBSRC**

Mandy Nevel

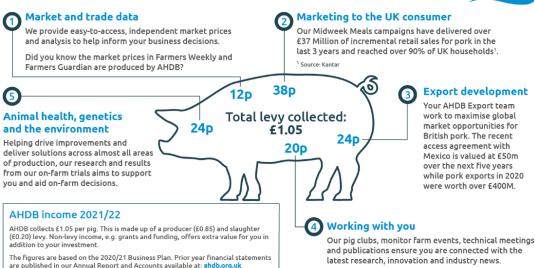


#### The role of AHDB

- We are funded by a statutory levy all pig, dairy, beef and sheep producers
- Our work is to add value to our levy payers

#### PORK What do I get for my levy?











#### Focus on priority areas

- Identify gaps not filled by other funders
- Research into animal health and welfare in a One Health context
- Develop farmer and vet resources
- Data capture, analysis and benchmarking
- Team of animal health and welfare experts
- Knowledge transfer and exchange









#### AHDB is changing

- New strategy will be launched in the autumn
- New budgets decided to align with the strategy
- Watch this space.....or even better, have a voice! Autumn open meeting
- Will Jackson, AHDB Director for Engagement



But we don't want the conversation to end there – the door is never shut and we always value hearing from our industry community.



#### Can AHDB add value to your research?

- Early input into research ideas
  - Aligned with priorities of industry
  - Ensure proposed outcomes are valuable
- Less 'blue sky', but still innovative

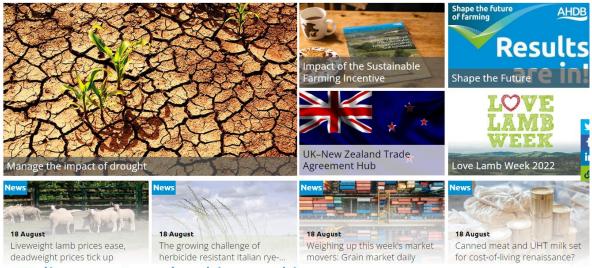


The Pig Health and Welfare Council (PHWC) promotes a coordinated and integrated approach to improving pig health and welfare. It is a cross-industry alliance representing every stage of pig production.





#### When research is complete



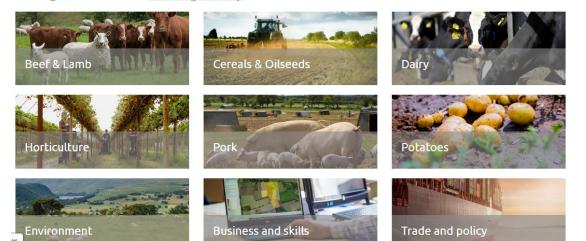
Getting the information out to farmers in a language they understand

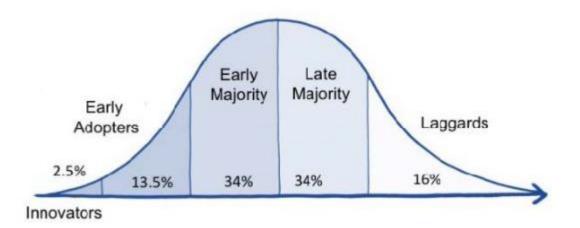
Understanding how best to drive those changes on farm

Networks of farmers/innovators

#### Online events and webinar archive

Watch the latest recordings of our <u>AHDB online events</u>. You will find videos of our webinars and online meetings here and in the <u>Knowledge Library</u>.











Help getting the right messages out to the right audiences to create change and make sure that IMPACT happens!





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Version: 16:9/2017-11-30a

Call Scope & How to Apply

**Endemic Livestock Diseases Initiative – phase 2** 

**Dr Linda Millyard Portfolio Manager, BBSRC** 





#### Call Scope

#### Endemic Livestock Diseases Initiative – phase 2

#### Theme Areas

The scope is solutions-focused. Research and translation activities that cut across the themes are encouraged.

- Digital agriculture
- Genetics and Breeding
- Farm Management
- Vaccine platforms and technologies
- Novel therapeutics
- Co-infection

Bovine TB and research on general animal nutrition are not included in the scope of this call.

We welcome proposals which incorporate the expertise of social scientists in the project to ensure the behaviour change aspect of research translation is given proper consideration.



#### How to apply

Endemic Livestock Diseases Initiative – phase 2



## What support is available?

Funding type	Grant
Total Fund	£7,350,000
Award range	£500,000 - £1,000,000
Earliest start date	1 <sup>st</sup> April, 2023
Expected duration	Up to 36 months
Latest end date	1 <sup>st</sup> July, 2026

Standard grant costs are allowed. BBSRC will fund 80% of the full economic cost.

All projects must include at least one Project Partner, contributing a minimum of 10% cash or in-kind.



#### **Project Partners**

Endemic Livestock Diseases Initiative – phase 2



#### Who can be a Project Partner?

At least one industry Project Partner is required for all grant proposals. They must contribute a minimum of 10% cash or in-kind.

Project Partners must be UK-based or have UK-based research activity, encompassing a wide range of stakeholders, including:

- Farmers
- Businesses of any size
- Veterinary practitioners
- Innovators
- Data management service providers

Businesses cannot be funded through this opportunity. See separate call guidance for conditions for 'subcontractors' and dual role.



#### **Project Partners**

#### Endemic Livestock Diseases Initiative – phase 2



#### **Contributions**

A minimum 10% contribution will be required from business partners, either individually or as a consortium, for each award. This contribution can be cash or in-kind.

Grant amount (100% FEC)	BBSRC contribution (80%)	Minimum business contribution (10%)	Minimum total grant amount
£1,000,000	£800,000	£100,000	£1,100,000
£750,000	£600,000	£75,000	£825,000
£500,000	£400,000	£50,000	£550,000



Contributions from business partners can exceed these requirements BBSRC is happy to discuss contribution details prior to submission

#### **Project Partners**

Endemic Livestock Diseases Initiative – phase 2



#### What counts as in-kind?

In-kind contributions should **meaningfully contribute** to the objectives of the project and be justified in the application.

Examples of potential contributions include:

- Hosting trials and undertaking analysis
- Access to equipment and experimental material
- Advice and expertise
- Support for knowledge exchange, commercialisation and translation
- ...and more!



Endemic Livestock Diseases Initiative – phase 2





Apply using the Joint Electronic Submission (Je-S) system.

When applying select 'new document' then:

council: BBSRC

document type: standard proposal

scheme: standard

call/type/mode: 2022 Endemic Livestock Disease Initiative.





Endemic Livestock Diseases Initiative – phase 2



#### What is required?

As well as the Je-S application form, the following documents must be submitted:

- case for support (up to eight sides of A4)
- justification for resources (up to two side of A4)
- CVs for all named applicants and named research staff only (up to two sides of A4 each)
- letter of support for any project partners (no page limit, must be on headed paper, and signed and dated within six months of the proposal submission date)



Endemic Livestock Diseases Initiative – phase 2



## Case for support

Your case for support should outline:

- the scientific case and strategic value of your project
- the timeliness and potential impact of the project
- the challenge that is being addressed
- an overview of how your proposed activities will progress towards solving the challenge

Your case for support should also detail the role of your industrial partner and the nature of their collaboration.



Endemic Livestock Diseases Initiative – phase 2



#### Project Partners

Every project partner must provide a Letter of Support for the application.

The letter of support from each project partner, signed off by the budget holder (or equivalent), that outlines their involvement in the project must include the following:

- the company's interest in the proposed project
- the company's contribution to the collaboration
- agreed routes for dissemination of emerging results and management of intellectual assets and/or intellectual property
- confirmation that, if the application is successful, a collaboration agreement will be put in place between all partners before research commences in line with UKRI guidance.



Endemic Livestock Diseases Initiative – phase 2





#### Standard BBSRC-UKRI eligibility rules apply to this call

You must be based at a UK institution eligible for funding in accordance with standard UKRI practice.

#### For example:

- UK higher education institutions
- research council institutes
- UKRI-approved independent research organisations
- UKRI-approved public sector research establishments (PSREs)

You must also be employed by (or scheduled to move to) an eligible research organisation before submission and hold a research staff appointment at the organisation at academic lecturer level or equivalent, resourced from the central funds of the organisation.

Please see call guidance text for further conditions or email: eligibility@bbsrc.ukri.org



Endemic Livestock Diseases Initiative – phase 2



### Further guidance

#### Please see the call guidance for information about:

- UKRI standard terms and conditions for research grants
- Responsible innovation
- International collaboration
- Equality, diversity and inclusion
- Guidance on journal-based metrics
- Intellectual property and Collaboration Agreements
   Projects must have a signed collaboration agreement between the partners before starting



#### **Application Assessment**

Endemic Livestock Diseases Initiative – phase 2



#### Review process

- Applications will be assessed by expert panel review.
- Applications will be sent to reviewers. Therefore, you will receive reviewer comments and be required to submit rebuttals.
- You must suggest four independent reviewers from outside your institution that you have not recently collaborated with.
- The expert panel will recommend applications for funding based on the published criteria.
- Your case for support should include sufficient details, approaches and methods for your proposed project. This is so that it can be assessed by experts with relevant, but not necessarily specialist expertise.
- Applicants to be informed in March 2023 of the assessment outcome.



#### **Application Assessment**

#### Endemic Livestock Diseases Initiative – phase 2



## **Criteria**

#### Your application will be assessed on:

- Scientific excellence
- Industrial and stakeholder relevance
- Relevance to BBSRC strategy
- Economic and social impact
- Timeliness and promise
- Value for money
- Staff training potential of the project
- Fit to call



Other funding opportunities

**Endemic Livestock Diseases Initiative – phase 2** 

**Dr Esther Harper Senior Portfolio Manager, BBSRC** 





#### **Collaborative Research**

**IPA and LINK** enable industry partners to leverage investment in a research project conducted at a UK Research Organisation (RO).

#### **Industrial Partnership Awards (IPA)**

- leverage a 10% cash investment from the industry partner.
- more fundamental academic-led research.

#### **BBSRC LINK**

- leverage a 50% cash and/or in-kind contribution from the industry partner
- more applied research with significant industry involvement.





## BBSRC Business and Academia Prosperity Partnership

- £11 million available to support projects up to five years
- Looking for established research partnerships between business and academic institutions
- A matched cash contribution is required from industry (see 'What we're looking for' for eligible cash contributions)
- Outline stage deadline: 08 September 2022

**Contact: Alastair Gibbons for further information** 

Email: <u>business.unit@bbsrc.ukri.org</u> <u>Web link</u>





## UK-US research: ecology and evolution of infectious diseases 2022

- £3 million available to support projects up to five years
- Apply to research the transmission dynamics of infectious diseases.
- You must collaborate with a US partner. You can also collaborate with partners from China or Israel.
- Outline stage deadline: 16 November 2022

**Contact: Elizabeth Treadwell for further information** 

Email: eeid@bbsrc.ukri.org Web link





## UKRI-Defra One Health approach to vector borne diseases

- £6.5 million available to support projects up to three years
- Apply for funding to forecast, understand, mitigate and avoid vector (arthropod) borne disease (VBD) threats to the UK
- This programme has two components, including research consortia grants and a VBD data hub.
- Outline stage deadline: 27 October 2022

**Contact: Madeleine Clark for further information** 

Email: onehealth@bbsrc.ukri.org Web link







# Questions?



## Break 5 minutes





# Thank you Contact

**Linda Millyard** 

**Business Interaction Unit, BBSRC-UKRI** 

business.unit@bbsrc.ukri.org

Please add 'endemic livestock diseases' to the email title





@BBSRC



**BBSRCmedia**