World Organisation for Animal Health

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WOAH Collaborative Centre Reports Activities 2024

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CENTRE INFORMATION

***Title of WOAH Collaborating Centre**	Economics of Animal Health in the Americas Region
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***Name Director of Institute (Responsible Official):**	Allen Featherstone
***Name (including Title and Position) of Head of the Collaborating Centre (WOAH Contact Point):**	Dustin Pendell, Professor
***Name of the writer:**	Dustin Pendell

TOR 1 AND 2: SERVICES PROVIDED

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by WOAH

Category	Title of activity	Scope
		Provided a webinar, for the Americas

Training, capacity building (true)	Webinar for Technical Guide Launch	region, on GBADs Technical Guide v1.0. Introduction of GBADs approach, successes and learnings of the major case study in Ethiopia, and introduction to the newly published Technical Guide. This webinar was one of several provided across the different WOAH regions by members of the GBADs consortium.
Economics (true)	CCEAH-Americas Outcomes	The CCEAH-Americas has continued to promote the use of economics in animal health decision making. It has done this by developing and using innovative methods and tools to estimate animal disease burden. Associated work with other Collaborating Centres have included efforts to improve economic data literacy, standardization of data collection, and consultation with users of the information provided to assess its value.
Economics (true)	HPAI Vaccine Project	Kansas State University and Washington State University have been working with the USDA to evaluate alternate prevention and control strategies as the current HPAI H5N1 outbreak has lasted almost three years since the first confirmed detection in the United States. This project is to help inform emergency preparedness and response activities by generating economic analyses measuring the impact of alternative poultry management practices and vaccination strategies on outbreak severity, duration, and cost during simulations modeling the introduction and spread of HPAI. To quantify the economic impacts to the U.S. broiler, egg layer, and turkey industries, an epidemiological disease spread model – partial equilibrium economic model framework is being developed.
		GBADs Phase II was completed, culminating in the production of a Technical Guide. This project was led by the GBADs Program and CCEAH-Europe. The guide provides a foundation in the process of undertaking a burden assessment, which may be further supported by scientific papers and other

Economics (true)	GBADs technical guide	peer-reviewed GBADs outputs, and if appropriate through development of collaborations with the GBADs program. Additionally, for policy makers and those principally interested in GBADs output, the Guide provides insight into how estimates are derived and interpreted, in a form more accessible than academic papers and other GBADs technical outputs. The current document is version 1.0 of the GBADs Technical Guide and as such outlines the current approaches used within the program. These methodologies, which are in use in country case- studies across the world, will continue to be expanded and refined. New approaches may be added as the program moves into different areas of focus, such as additional species or production systems, and further research questions arise. Each chapter of this guide is a working document, outlining the present version of living methods that will change and develop over time, as additional research is conducted, and further case-studies implemented. As a program, we are keen to engage and work with anyone who is interested in estimating the burden of animal diseases. We encourage readers of this Technical Guide to engage with the GBADs program, CCEAH-Europe, and CCEAH-Americas. Each chapter is authored by members of the GBADs consortium leading on the different methodologies. However, all the work in this Guide and its chapters builds on collaborative teamwork from all members of the GBADs consortium, as well as our country-level partners. Kansas State University is leading the economic modeling efforts to evaluate the economic impact of African swine fever on the U.S. swine supply chains. These impacts could be devastating for the United States' agricultural economy, where swine production is a key component. In recent years, the United States has consistently ranked among the top two global

		exporters of pork and pork products, with a global export share averaging 32%. To quantify the welfare implications of ASF on each of the agents in the swine supply chain, we adapted a partial equilibrium, which is based on the underlying supply and demand relationships of the United States swine industry. Additionally, direct, indirect, and induced effects of the U.S. swine industry, allied industries, and non-agricultural industries were evaluated utilizing a model and database describing the whole economy and interactions among economic agents.
Economics (true)	ASF Project	Kansas State University is leading the economic modeling efforts to evaluate the economic impact of African swine fever on the U.S. swine supply chains. These impacts could be devastating for the United States' agricultural economy, where swine production is a key component. In recent years, the United States has consistently ranked among the top two global exporters of pork and pork products, with a global export share averaging 32%. To quantify the welfare implications of ASF on each of the agents in the swine supply chain, we adapted a partial equilibrium, which is based on the underlying supply and demand relationships of the United States swine industry. Additionally, direct, indirect, and induced effects of the U.S. swine industry, allied industries, and non-agricultural industries were evaluated utilizing a model and database describing the whole economy and interactions among economic agents.

TOR 3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main fucus area for which you were designated

Proposal title	Scope/Content	Applicable Area
	CCEAH-Americas worked with CCEAH-Europe and	

GBADs Technical Guide v1.0	the GBADs Program in creating the GBADs Technical Guide. This guide is designed to provide guidance on implementing and interpreting key GBADs methodologies. There are five chapters in the GBADs Technical Guides. All five chapters can be found at: https://animalhealthmetrics.org/gbads-technical-guide/. Each chapter provides a background and overview of the approach, a brief description of the methods and required data, and guidance on interpreting the results. This technical guide is intended to be used by anyone who wishes to use the GBADs methods to conduct a burden of animal disease assessment. These guides will provide insights into how to interpret the information generated by GBADs for policy-makers and other stakeholders. Every chapter is stand-alone (a user can use only this single methodology), as well as forming part of the GBADs analytical framework (Figure 1.1). The GBADs team encourages users to consider the wider analytical framework, and how methods presented in the other chapters could be useful in helping to achieve the goals of the animal disease burden assessments they are undertaking. Although the guides are written in non-technical language where possible, readers who want to explore the methods in more detail can use the provided links to published academic papers and other resources.	Training and Education Health Management Animal Production

3. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?

No

4. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

Yes

Name of WOAH CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
CCEAH Europe	UK	Europa	CCEAH Americas has worked with the Director of CCEAH-Europe on the GBADs program.
			CCEAH-Americas has

CCEAH Asia Pacific	Australia	Asia y el Pacífico	supported the scoping of a new CCEAH in the Asia Pacific region.
ILRI	Ethiopia	África	ILRI continue to play a leading role in the delivery of the GBADs case study in Ethiopia. CCEAH-Americas assisted with assessing the economic impacts of animal health burdens in Ethiopia.
CABI	UK	Europa	WSU collaborated with UoL/CCEAH-Europe and CABI on the One Food project (i.e., align animal and crop health economic methodologies to evaluate the burden of diseases on food systems).

TOR 4 AND 5: NETWORKING AND COLLABORATION

5. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of WOAH CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
CEAH	Fort Collins, Colorado, USA	Americas	CCEAH-Americas collaborated with the Center for Epidemiology and Animal Health (CEAH) at the USDA in the United States, evaluating the economic impacts of alternate vaccine scenarios in HPAI outbreaks in the U.S.
IIAD	Texas, USA	Americas	CCEAH-Americas collaborated with The Institute for Infectious Animal Diseases (IIAD) at Texas A&M University in the United States, evaluating the U.S. supply chain impacts of African Swine Fever.

TOR 6: EXPERT CONSULTANTS

6. Did your Collaborating Centre place expert consultants at the disposal of WOAH?

Yes

Name of expert	Kind of consultancy	Subject
Dustin Pendell	National	Support to IIAD's work on the economic impact of a potential ASF outbreak in the USA
Dustin Pendell, Tom Marsh	National	Support to CEAH on the economic impact of HPAI control strategies

TOR 7: SCIENTIFIC AND TECHNICAL TRAINING

7. Did your Collaborating Centre provide advice/services to requests from Members in your main focus area?

Yes

The US government has benefitted from advice provided by members of the consortium, broadly on the use of economics in animal health to support domestic response to increasing cases of Highly Pathogenic Avian Influenza and a possible African Swine Fever incursion.

8. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by WOAH, to personnel from WOAH Members?

Yes

a) Technical visit : 0

b) Seminars : 1

c) Hands-on training courses: 0

d) Internships (>1 month) : 0

Type of technical training provided (a, b, c or d)	Content	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
B	Providing insights on how to estimate the economic burden of livestock diseases through partial equilibrium modeling	USA	10

TOR 8: SCIENTIFIC MEETINGS

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9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOAH?

Yes

National/International	Title of event	Co-organiser	Date	Location	No. Participants
Internationally	ISVEE (International Symposium on Veterinary Epidemiology and Economics) including GBADs and ISESSAH (International Society for Economics and Social Sciences of Animal Health) special sessions	ISVEE and ISSEAH	2024-11-09	Sydney, Australia	500
Internationally	GBADS annual meeting	GBADs, CCEAH-Europe	2024-11-06	Sydney, Australia	30

TOR 9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOAH that may be useful to Members of WOAH

a) Articles published in peer-reviewed journals:

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Gilbert, W., Marsh, T.L., Chaters, G., Jemberu, W.T., Bruce, M., Steeneveld, W., Afonso, J.S., Huntington, B., & Rushton, J. (2024). Quantifying cost of disease in livestock: A new metric for the Global Burden of Animal Diseases. The Lancet Planetary Health, 8(5), e309–e317.

Countryman., A., T.C. Menezes, D.L. Pendell, J. Rushton, and T.L. Marsh. "Economic effects of livestock disease burden in Ethiopia: a computable general equilibrium analysis." PLoS ONE 19(2024): e0310268.

Heinen, L., B.J. White, R.L. Larson, D. Kopp, and D.L. Pendell. "Economic impact of mortality prediction by predictive model at first and second treatment for Bovine Respiratory Disease." American Journal of Veterinary Research 16(2024): 1-9.

Marsh, T.L., D.L. Pendell, P. Schrobback, G. Shakil, P. and P. Tozer. "Loss of production and animal health costs needed for estimates for the economy level burden." Scientific and Technical Review 43(2024): 58-68.

Pendell, D.L., J. Romero, E. Benavides, J.L.D Flores, V.S.P Goncalves, T.L. Marsh, C. Meza, and S.H.G. de Miranda. "A Collaborating Centre for the Economics of Animal Health in the Americas." Scientific and Technical Review 43(2024): 152-158.

Kopp, D., R.L. Larson, P.A. Lancaster, B.J. White, K.J. Smith, and D.L. Pendell. "Determining the economically optimum metaphylactic strategy for cattle cohorts of varied demographic characteristics." Animals 14(2024).

Campbell, V.L., J.M. Thompson, J.L. Apriesnig, G.T. Tonsor, and D.L. Pendell. "Producer Perceptions of U.S. Livestock Indemnity Policy." Applied Animal Science, 40(2024), 542–548.

b) International conferences:

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Dustin Pendell - Evaluating The Economic Impacts Of African Swine Fever On The U.S. Pork Supply Chain

Tom Marsh - Are animal health investments optimal? An analysis of the determinants of public investment in agriculture and animal health

Peter Tozer - Impact of animal nutrition on the economic welfare of firms and consumers

Tom Marsh - An analysis of the economic impacts of tick-borne disease outbreaks on the U.S. meat sector

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Ning Chen - Egg market reaction to avian influenza outbreaks: an autoregressive distributed lag model approach
Amanda Countryman - Economic effects of African swine fever on U.S. and global agricultural markets
Goalm Shakil – Economic impacts of peste des petits ruminants (PPR) in Ethiopia

c) National conferences:
3
Merri Beth Day - Estimated Net Returns from Kansas Feedlot Cattle Treated for Acute Interstitial Pneumonia
Kaitlyn Weber - Evaluation of Bovine Respiratory Disease Morbidity in the Feedlot and its Effect on Net Return Distributions
Golam Shakil – A partial equilibrium model for analyzing economic burden of livestock diseases.

d) Other (Provide website address or link to appropriate information):

11. What have you done in the past year to advance your area of focus, e.g. updated technology?
The CCEAH-Americas has developed a dynamic network, resulting in multiple research funding awards and the training of graduate students (MS and PhD) as well as a post-doctoral fellow in animal health economics. Additionally, it has enhanced its implementation through capacity building.

12. Additional comments regarding your report: