WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

This report has been submitted : 13 juin 2024 15:37

Laboratory Information

Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	New world screwworm (Cochliomyia hominivorax)
Address of laboratory:	Sterile Fly Production Facility
Tel.:	+5072960006
E-mail address:	john.b.welch@usda.gov
Website:	www.copeg.org
Name (including Title) of Head of Laboratory (Responsible Official):	Enrique Samudio, General Director, Panama
Name (including Title and Position) of WOAH Reference Expert:	John B. Welch, Technical Advisor, USDA-APHIS-IS
Which of the following defines your laboratory? Check all that apply:	Governmental

TOR1: DIAGNOSTIC METHODS

1. Did your laboratory perform diagnostic tests for the specified disease/topic for purposes such as disease diagnosis, screening of animals for export, surveillance, etc.? (Not for quality control, proficiency testing or staff training)

Yes

Diagnostic Test	Indicated in WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
None			
Direct diagnostic tests		Nationally	Internationally
Stereoscopic Examination		9164	151

TOR2: REFERENCE MATERIAL

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by WOAH?

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOAH Members?

No

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOAH Members?

Not applicable

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

No

7. Did your laboratory validate diagnostic methods according to WOAH Standards for the designated pathogen or disease?

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

No

9. Did your laboratory validate vaccines according to WOAH Standards for the designated pathogen or disease?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOAH Members?

Yes

NAME OF WOAH MEMBER COUNTRY SEEKING ASSISTANCE	DATE	WHICH DIAGNOSTIC TEST USED	NO. SAMPLES RECEIVED FOR PROVISION OF DIAGNOSTIC SUPPORT	NO. SAMPLES RECEIVED FOR PROVISION OF CONFIRMATORY DIAGNOSES
COSTA RICA	2023-08-01	Stereoscopic Examination	151	0

11. Did your laboratory provide expert advice in technical consultancies on the request of an WOAH Member?

Yes

NAME OF THE WOAH MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
COSTA RICA PANAMA	SIT, Biological and Ecological	In Loco and Remote

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAH Members other than the own?

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAH MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
Initial Survey of Fertile and Sterile Flies	14 Days	Provide baseline data before release of sterile flies	MIDA MAG-SENASA	COSTA RICA PANAMA

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

No

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

Yes

IF THE ANSWER IS YES, PLEASE PROVIDE DETAILS OF THE DATA COLLECTED:
Presence of fertile or sterile NWS

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

Yes

IF THE ANSWER IS YES, PLEASE PROVIDE DETAILS OF THE DATA COLLECTED:
Presence of fertile or sterile NWS

16. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category and list the details in the box)

a) Articles published in peer-reviewed journals:

6

Hickner P.V., L Pacheco, S.E. Duke, C Sanchez Ortiz, J.B. Welch, P.L. Phillips, et al. 2023. A new formulation of screwworm fly attractant with reduced hazardous chemicals and transport restrictions. Journal of Medical Entomology. tjad043.

Hickner P.V., A. Sagel, G. Quintero, M. Vasquez, M. Tietjen, K.H. Lohmeyer, A.P. Arp. 2023. An Alternative chicken-based diet for mass-rearing screwworm flies, Cochliomyia hominivorax (Diptera: Calliphoridae). J Econ Ent, DOI:10.1093/jee/toad219 Corpus ID: 265444805

Novas, R., T. Basika, M.E. Williamson, P. Fresia, A. Menchaca, and M.J Scott. 2023. Identification and functional analysis of Cochliomyia hominivorax U6 gene promoters. Insect Mol. Biol. 32(6): 716-724. https://doi.org/10.1111/imb.12875

Tandonnet, S., F. Krsticevic, T. Basika, P.A. Papathanos, T.T.Torres, and M.J. Scott. 2023. A chromosomal-scale reference genome of the New World screwworm, Cochliomyia hominivorax. DNA Research, 30: dsac042. https://doi.org/10.1093/dnares/dsac042

Tietjen, M,. A.P. Arp, K.H. Lohmeyer. 2023. Development of a diagnostic single nucleotide polymorphism (SNP) panel for identifying geographic origins of Cochliomyia hominivorax, the New World screwworm. Veterinary Parasitology. 315: 109884.

Tietjen, M., V. Pfeiffer, K.C. Poh, 2023. "Insights into the genetic landscape and presence of Cochliomyia hominivorax in the Caribbean." Parasitology Research (122:547–556) 2023.

b) International conferences:

3

Scott, M.J. "Genetic biocontrol of the New World screwworm and spotted wing Drosophila". Invited talk. The Instituto Pasteur de Montevideo, Montevideo, Uruguay, April 27, 2023.

Scott, M.J. "Genetic biocontrol of the New World screwworm and spotted wing Drosophila". Invited talk. The Harry Butler Institute, Murdoch University, Perth, Australia, March 3, 2023, invited talk.

Welch, J.B. "Historia de la Erradicación del Gusano Barrenador del Ganado," at the Uruguayan technical visit to COPEG. Virtual Presentation. College Station, TX/Pacora, Panama. 9 February 2023

c) National conferences:

17

Arp A. "Two female-lethal driver constructs for New World screwworm, Cochliomyia hominivorax: Similar expression, different performance" Presented at the Entomological Society of Ameri Annual Conference in National Harbor, MD, November 2023

Arp A. "Embryonic female-lethal New World screwworm strains, high expression, low performance" Presented at the American Society of Parasitology Annual Conference in Kansas City, MO, July 2023

Arp A. "Development of two early acting promotor strains of New World screwworm". Presented at the Livestock Insect Workers Annual Conference in Fredericksburg, TX, June 2023

Hickner, P.V. "The Cochliomyia macellaria genome provides insights into the evolution of parasitism in the blow flies (Calliphoridae)." Livestock Insect Workers Conference. Fredericksburg, TX, June 14, 2023.

Hickner, P.V. "The Cochliomyia macellaria genome provides insights into the evolution of parasitism in the blow flies (Calliphoridae)." Entomological Society of America Annual Meeting. National Harbor, MD, November 8, 2023.

Hudadoff, S. "Targeted gene insertion using PhiC31 integrase in the Australian sheep blowfly for germline promoter evaluation." Livestock Insect Workers Conference. Fredericksburg, TX, June 14, 2923

Kriete A. "A conditional sex transformation system in Lucilia cuprina for improved screwworm control." 65th Livestock Insect Workers Conference, Fredericksburg, TX. June 2023

Scott, M.J. "Progress towards improved genetic biocontrol of two livestock pests: primary screwworm and the Australian sheep blow fly". The 65th Livestock Insect Workers Conference, Fredericksburg, TX, June 11-14, 2023.

Scott, M.J. "Male-only and gene drive strains for genetic biocontrol of Drosophila suzukii". Invited talk. 2023 ESA Southeastern branch meeting in Little Rock, AR from March 12 to March 15, 2023.

Tietjen, M. "Invasion population genetics from the recent outbreak of New World Screwworm in Panama." Invasion Genomics Symposium, Plant-Insect Ecosystems (P-IE) Section Symposia Entomological Society of America, National Harbor, Maryland. Nov 2023

Tietjen, M. "Using whole genome re-sequencing for the population genetics of the blacklegged tick (Ixodes scapularis) and the New World screwworm (Cochliomyia hominivorax)." Veterinary Entomology Symposium, Society for Vector Ecology (SOVE). Charleston, South Carolina. Sep 2023

Tietjen, M. "Population genetics and ecology of the New World screwworm." Dimensions of Biodiversity Grant Retreat Collaborator Meeting. Reno, Nevada. July 2023

Tietjen, M. "Whole genome re-sequencing of samples from the recent outbreak in Panama of the New World screwworm (Cochliomyia hominivorax)." Livestock Insect Workers Conference, Fredericksburg, TX. June 2023

Vargas, A. "Desarrollo de cepas transgénicas de la mosca del gusano barrenador (Cochliomyia hominivorax) utilizando los genes promotores de acción temprana NULLO y CG14427. XIX Congreso Nacional de Ciencia y Tecnología. La Asociación Panameña para el Avance de la Ciencia (APANAC). 26 to 29 September 2023.

Vargas, A. "Doxycycline as a substitute for tetracycline in transgenic strains of New World screwworm". Congreso Nacional de Investigación para el Desarrollo. Universidad del Istmo. 2023.

Vargas, A. "Los genes de celularización Halop y G6451p como promotores de la letalidad sexo específico en moscas transgénicas del gusano barrenador". Congreso Científico. Universidad de Panamá. Campus Central 2023.

Welch, J.B. "Sterile Insect Technology Needs," at the 2023 Hands-On Electron Beam Technology Workshop, National Center for Electron Beam Research, Texas A&M University, College Station, Texas. Presented invited talk,

Welch, J.B. "The Advantages and Benefits of eBeam/X-ray to Support USDA Applications SIT Programs," at the Adoption of Electron Beam and X-ray Technologies - Industry Day, Arlington, VA, 13-14 June 2023

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

9

www.copeg.org, WhatsApp +507-6670-2164, https://www.facebook.com/COPEGAmerica, https://twitter.com/COPEGAmerica, https://www.instagram.com/copegamerica/, https://www.linkedin.com/authwall?trk=bf&trkInfo=AQFW5sMBqapBOQAAAY6pfWhAWOQhoPfGTVD5JGA8QkOT1YiqnXfAigW36LnuCMjR0i6rEZr-LWbEGw64J4NhF1wNrh4vqpEfnm_3VrRYnXeZkhYBHagZ6r6YElu_MG2z_2KpYyI=&original_referer=&sessionRedirect=https%3A%2F%2Fwww.linkedin.com%2Fcompany%2Fcopanam%25C3%25A1-estados-unidos-para-la-erradicaci%25C3%25B3n-y-prevegusano-barrenador-del-ganado%2F, Telephone: +507-296-0006, email: info@copeg.org

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAH Members?

Yes

a) Technical visit : 8

b) Seminars : 8

c) Hands-on training courses: 25

d) Internships (>1 month) 0

Type of technical training provided (a, b, c or d)	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
A	URUGUAY	6
A	UNITED STATES OF AMERICA	2
B	URUGUAY	6
B	UNITED STATES OF AMERICA	2
C	URUGUAY	6
C	UNITED STATES OF AMERICA	2
C	PANAMA	22
C	HONDURAS	1

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO 17025	PDF	Alcance Acreditacion LE-071.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Diagnostic Laboratory for Identification of NWS	DGNTI-COPA, NIT ISO/IEC 17025:2017

20. Does your laboratory maintain a "biorisk management system" for the pathogen and the disease concerned?

Yes

COPEG has a Department of Biological Security to address Bsl-2 compliance and risk mitigation.

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOAH?

No

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOAH?

No

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

23. Did your laboratory exchange information with other WOAH Reference Laboratories designated for the same pathogen or disease?

Not applicable (only WOAH Reference Laboratory designated for the disease

24. Do you network (collaborate or share information) with other WOAH Reference Laboratories designated for the same pathogen?

Not applicable (Only WOAH Reference Laboratory designated for the disease)

25. Did you organise or participate in inter-laboratory proficiency tests with WOAH Reference Laboratories designated for the same pathogen?

Not applicable (Only WOAH Reference Laboratory designated for the disease)

26. Did your laboratory collaborate with other WOAH Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

Not applicable (Only WOAH Reference Laboratory designated for the disease)

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAH Reference Laboratories for the same pathogen?

Yes

Purpose for inter-laboratory test comparisons1	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the Test	WOAH Member Countries
NWS Identification	Organizer/Participant	1	Stereoscopic Examination	COSTA RICA,

TOR12: EXPERT CONSULTANTS

28. Did your laboratory place expert consultants at the disposal of WOAH?

No

29. Additional comments regarding your report:

No