

FOR INFORMATION

SWFSPP Annual Meeting 2022

Agenda Item 3.2

[last updated: 20 September 2022]

Prepared by J Mollinger

Old World Screw-Worm Fly (*Chrysomya bezziana*) and New World Screw-Worm Fly (*Cochliomya hominivorax*) detection by multiplex real-time PCR in Queensland

RECOMMENDATION

1. That the SWFSPP Steering Committee **NOTE** the development of multiplex real-time PCR for detection of Old World Screw-Worm Fly (OWSWF) and New World Screw-Worm Fly (NWSWF) at the Biosecurity Sciences Laboratory (BSL) in Queensland and ongoing work

BACKGROUND

1. The BSL acquired the OWSWF PCR as of March 2021 to enable PCR testing of large samples following an investigation of a suspect PCR result from a trap set in September 2020 by NAQS. During July 2020 - Feb 2021, subsamples for PCR testing were referred to NAQS.
2. Trap contents > 1,000 insects of correct size are subsampled and subsamples are tested by PCR for OW-SWF.
3. Trap contents are examined microscopically to exclude OWSWF, NWSWF, and Warble fly at BSL if contents are < 1,000 insects.
4. Queensland and AHA negotiated that PCR testing at BSL be claimed at the rate of the Queensland government service fee for that test.
5. The OWSWF assay is from the Jarret et.al. MLA report (2008) and targets the Internal Transcribed Spacer 1 (ITS1) gene.

DISCUSSION

6. PROJECT DETAILS/DESCRIPTION

1. More recently, BSL has piloted expanding the detection of this assay to include NWSWF.
2. The NWSWF assay is an in-house design from BSL and targets the Cytochrome oxidase (Cox1) gene.
3. To date, a total of 18 samples have been tested by the new multiplex-PCR, collected from three sites near Townsville, Queensland.
4. The main benefit of the assay is the ability to detect both OWSWF and NWSWF in a single test, without the need to destroy the fly trap samples. This allows any positive real-time PCR detection to be confirmed with visual identification by trained personnel.

5. Final assay specificity and sensitivity is yet to be finalised. Desktop analysis of primer sets has been conducted. Additionally, no cross-reaction has been seen in the fly traps tested so far.

6. FINANCIAL IMPLICATIONS

7. Biosecurity Queensland welcomes the recent indexing of payment amounts for the cost of SWF trapping and is grateful to AHA for their agreement to compensate BSL for conducting the OW-SWF PCR at the rate of the Queensland government service fee for that test.
8. Queensland would also like to extend this to the new multiplex PCR. This will have minimal financial impact.

9. CONSULTATION/COMMUNICATION

10. There is insufficient data at this stage of the project to communicate the results or determine diagnostic specificity and sensitivity.

11. NEXT STEPS/ACTIONS

12. BSL is now running this assay on all large number samples submitted under the SWFSPP.
13. BSL is open to collaboration with other states in the SWFSPP on this project if there is interest.