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Developing a data-driven Systems approach for fruit fly in Australia

ABSTRACT

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Phytosanitary Systems Approaches involve the use of at least two independent measures that can be combined to give confidence that a consignment is free of a given pest to a level that is acceptable to the importing party. Our project aims to design a quantifiable framework with which to examine the relative influence of different measures on the overall efficacy of a Systems Approach protocol, and reduce the risk of pest infestation. For a number of measures that could be incorporated into a Systems Approach there may be limited data, or no standard methodology, to measure their efficacy.

In Australian horticulture, the fruit flies *Bactrocera tryoni* and *Ceratitis capitata* are significant pests for trade and limit the movement of consignments both within and out of the country. We are developing analytical components that integrate both physiological knowledge of the species with data streams from surveillance and inspection activities, which can be linked together using Bayesian inference to provide a quantitative framework transferable across pest species, regions and commodities. Here we demonstrate some of the measures that estimate pest pressure in the orchard and the efficacy of pack house procedures, in order to support a pest-free consignment of fruit.
Matt will be presenting on behalf of the Phytosanitary Systems Approaches team: https://research.csiro.au/psa/

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Dr. Matt Hill is a research scientist who develops data-driven solutions for questions relating to biosecurity and integrated pest management. Matt's research focuses on invertebrates in agricultural systems and generating predictions on how individual species and ecological communities may be affected by global processes such as climate change, biological invasions and application of pesticides, in order to better manage them. For the systems approach research, Matt develops and tests quantitative methods that support the design and validation of pest monitoring regimes and management measures applied through the production and packing process in horticulture systems.