Small Fruits Research Consortium Project Update- January 2017

Title: Using molecular techniques to determine source-sink dynamics of spotted wing drosophila to target management programs

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Objectives

(1) Create PCR primers for known food resources of spotted wing drosophila.
(2) Determine if primers can identify ingested food in the gut of spotted wing drosophila.
(3) Determine how long post-consumption gut contents can be identified.

Progress to date:

Objective 1: Create primers for known food resources of spotted wing drosophila.
Known PCR primers for strawberry, raspberry, and blackberry have been identified with the assistance of NCSU horticultural researchers. All three of these fruits are known food resources for SWD. Existence of these primers decreases the cost of primer development, enabling those funds to be devoted towards objectives 2 and 3.

Objective 2: Determine if resource-specific primers can be used to detect food sources in the gut of spotted wing drosophila.
This objective will be completed in March 2017 when PI Diepenbrock trains with Lundgren at the Ecdysis Center in South Dakota. In addition to single-food resources, we will also be using mixed-food resources (e.g. combination of raspberry and strawberry) to determine the potential for identifying multiple feeding resources.

Objective 3: Determine how long post-consumption contents can be identified.
This objective will be completed in March 2017 when PI Diepenbrock trains with Lundgren at the Ecdysis Center in South Dakota. Due to the existence of markers, we will add time points to our proposed times of 2, 4, 6, and 8 hours after consumption, enabling a clearer picture of digestion time for use in developing field-relevant models.