Overview of NAPPO RSPM 30

Guidelines for the Determination and Designation of Host Status of a Fruit or Vegetable for Fruit Flies (Diptera: Tephritidae)

Purpose: RSPM 30 describes experimental protocols and trials for determining if a specific fruit or vegetable is a host to a specific species of fruit fly. Understanding if a particular fruit or vegetable can host, or sustain, the pest is important when assessing the likelihood that the fruit fly will spread when the commodity is moved internationally. Host status of a fruit or vegetable is also important for determining the strength of measures that may be necessary to prevent this spread. Host status determinations are typically needed when clear evidence of the pest/host relationship is not available.

Contents: The body of the standard defines host categories and describes the requirements for determining host status based on statistically valid data. The standard describes experimental design elements and other requirements for host status trials. Handling of fruits and vegetables for pest emergence, interpretation of data, and record keeping are also described. **Appendix 1** contains a diagram showing if, and when, a pest risk analysis would include the determination of host status. **Appendix 2** describes statistical analyses that may be used to analyze host status determination data.

Summary of RSPM 30: The purpose of host status trials is to determine if a specific fruit or vegetable is a host, non-host, or a conditional host of a specific fruit fly species. A **natural non-host** will not become naturally infested in nature. A **conditional host** may be a host only under favorable circumstances. A **natural host** is a fruit or vegetable that becomes naturally infested by the fruit fly species in nature. Requirements for host status determination include selecting the fruit fly species, the suspected fruit or vegetable host, and the controls (a fruit or vegetable that is a known host); defining parameters of the trial; rearing fruit flies after exposure; evaluating experimental results; and analyzing and interpreting results. RSPM 30 provides guidance on sampling; selection and handling of fruit flies, fruits and vegetables and control hosts; and data analysis. Host status trials may be based on natural infestation trials; field-cage and glass house trials; and laboratory cage trials. Natural infestation trials, which are based on surveillance in fruit and vegetable growing areas over multiple seasons, are thought to provide the most accurate assessment of host status. Field-cage or glasshouse trials are conducted when natural infestation trials are inconclusive. Laboratory trials are conducted when data from natural infestation and field-cage trials do not clearly establish that the fruit or vegetable is a natural host.

Appendix 1 contains a flow chart that illustrates where host status trials occur in the PRA process. ***Appendix 2*** contains optional equations for determining host status and the effectiveness of the specified defined conditions in host designation.

Please read RSPM 30 for more complete guidance on determining the host status of fruits and vegetables for fruit flies.

Photo by Peggy Greb https://www.ars.usda.gov/oc/images/photos/jan08/d963-1/