

#### **4.16 Does insecticide drift into adjacent wildflower plantings affect bumble bee (*Bombus impatiens* L.) foraging activity and reproduction?**

**Emily May<sup>1</sup>, Clara Stuligross, Rufus Isaacs**

<sup>\*1</sup>Department of Entomology, 202 Center for Integrated Plant Systems, 578 Wilson Road, Michigan State University, East Lansing, MI 48824, USA

##### **Abstract**

There is increasing interest and government funding incentives for establishing wildflower plantings for wild bee conservation in agricultural landscapes. However, in intensively managed specialty crops – where they would provide the greatest pollination benefit – planting wildflowers directly adjacent to the crop might have unintended consequences by increasing the likelihood that bees nesting or foraging in the plantings will be exposed to insecticide drift.

To assess the degree and the spatial extent of the risk to bumble bees, we placed individual colonies of *Bombus impatiens* L. in a native wildflower planting located directly adjacent to a commercially-managed blueberry field. All pesticides were applied aerielly via fixed-wing aircraft for control of primary insect pests and diseases. Colonies were placed at 25m intervals along four transects at 25m into the crop field, at the field/planting border, and at 25, 50, 75, and 100m into the wildflower planting. Activity at each nest entrance and the abundance of bees visiting flowers at each distance into the planting were recorded before the first application and biweekly thereafter. Insecticide and fungicide residues were extracted from filter papers replaced weekly on top of each colony box to assess drift into the planting. After colonies were removed from the field they were dissected to measure reproductive output and nest parameters. Results will be discussed in terms of field-relevant insecticide exposure and the implications for the implementation of wild bee conservation efforts in agricultural landscapes.