



### **Bee Friendly Farming: Integrated Pest Management**

One of our goals at Pollinator Partnership is to provide science-based resources and expertise that make incremental changes to land-use practices. The Bee Friendly Farming program highlights and supports farming operations that set the standard for pollinator health management. The program is built on four criteria that support all pollinators: providing diverse forage for pollinators, providing and managing nesting habitat, providing clean drinking water, and developing mindful pest management programs. One of the keystones of the program is working with farmers to develop Integrated Pest Management (IPM) plans that consider pollinator health, while meeting the goals of the farmer.

The Bee Friendly Farming Certified application focuses on the main principles of IPM:

- Pest monitoring and identification
- Decision making based on monitoring and thresholds
- A multi-faceted approach that combines chemical, physical, biological, and cultural control methods
- Prevention of infestations
- Evaluation and improvement of management strategies

While each of these fundamental aspects of IPM play an important role in optimizing management of pests, careful consideration of pollinator health should be taken in each of these steps to support pollinators without limiting efficacy of pest management strategies.

The BFF Certified application requires adoption of IPM. Information on each of the IPM principles is described below.

**1. Pest monitoring and identification:** Proper identification and monitoring of pests is vital in understanding the specific situation and potential mitigation with any possible pest infestations. This series of questions asks for detailed information about how monitoring occurs, by whom, where the information for identification is coming from (extension guidelines, etc.), and if records are stored. This informs management decisions that might affect pollinators. Here are the questions we ask BFF Certified operations to answer:

- Do you use governmental or university IPM guidelines for pest management decisions?
- Which pests do you primarily treat for?
- Do you monitor for pests?
- How do you monitor for pests?
- How often are traps monitored?
- Who conducts trap monitoring?
- Are detailed records of trap counts collected and maintained?

**2. Decision making based on monitoring and thresholds:** Management decisions should be based on monitoring and assessing if threshold levels are met. Models are commonly used to help make decisions about the timing of management practices. These can be based on initial trap catches and weather data. By using these types of models, growers can make science-based decisions in developing management plans. This is important because it ensures



that growers are applying management strategies at the proper time and avoiding any unnecessary applications, reducing pesticide exposure to pollinators.

- Do you use degree-day modeling to assist in determining spray timings?

**3. A multi-faceted approach that combines chemical, physical, biological, and cultural control methods:** IPM benefits from a combination of management approaches that can use different modes of action and strategies, taking advantage of physiological, ecological, and behavioral characteristics of the target pests. These non-pesticide approaches reduce potentially toxic exposure to pollinators. The means of applying chemicals are also important in mitigating exposure to pollinators.

- Do you use chemical treatments?
- Do you use any mating disruption treatments?
- Do you release natural enemies for the control of any pests?
- What is the average temperature during spray?
- What type of spray application equipment is most commonly used for your applications?
- When do the majority of sprays occur?
- Describe how you mitigate drift during sprays.
- What do you do to limit pollinator contact with chemicals?
- Have you taken a pesticide certification class in the past 3 years? (not necessary for certification)

**4. Prevention of infestations:** An important aspect of IPM is the principle of avoiding potential infestations. Small steps can be taken to mitigate outbreaks, many of which directly benefit pollinators.

- How do you manage weeds?
- Describe how you prevent pest outbreaks in lieu of pesticide applications.

**5. Evaluation and improvement of management strategies:** Many of these principles can be adjusted as seasons change. Adapting farming practices to new methods, changes in the environment, or emerging pests are essential to developing impactful IPM programs. We are interested to learn more about the internal process and decision making for adapting to these situations and how pollinator health is incorporated in these decisions.

- Is this a change from previous protocols on your farm?

At Bee Friendly Farming, we understand how complex and important IPM is to our members. We believe that these key principles provide the growers a framework to not only protect their livelihoods, but incorporate pollinator health and awareness. We also understand that practices and situations change from year to year, and we continue to listen and adapt to the needs of our members and pollinators.