Pesticide + Attractant Study Report - Blueberry 2013

Justification:
Organic pesticides, such as Spinosad (Entrust), are effective but have very little residual efficacy. If SWD adults are attracted to the pesticide treated plants immediately following treatment, more may become exposed to the pesticide and greater populations may be reduced. This study attempts to determine if adding attractants, such as yeast, Blossom Protect, or PFR will increase efficacy of organic pesticides.

This study was done in two areas, in the field and in the greenhouse/laboratory. The report is split between these two areas.

Procedures – field study:
Random, 3-bush replicates will be done on Elliott plants at WSU Mt. Vernon and at one or more commercial organic farms in Skagit County. 4 replications of each plot will be made.

Treatments:
1. UTC
2. Entrust 80W 2 oz
3. Entrust 80W 2 oz + Bread Yeast 3 lb + sugar 3 lb
4. Entrust 80W 2 oz + Blossom Protect 1.25 lb + Buffer 8.75 lb + sugar 3 lb
5. Entrust 80W 2 oz + PFR 1 lb
6. Entrust 80W 2 oz + PFR 1 lb + Bread Yeast 3 lb + sugar 3 lb

Spray schedule:
- Tag plants week of July 22nd
- Plan to treat week of August 12
- Treat every week for 3 weeks

Observation schedule:
- 7 days following treatment, before next treatment, pick 10 ripening berries / plot and hole in 2 fluid ounce cups for 7-10 days to assess larval infestation levels (%)

Results – field study:
Little difference in infestation was found between the different treatments. The Entrust+PFR+Yeast+Sugar treatment had the most fruit with SWD infestation. Does this treatment attract more SWD to oviposit in the fruit?

![Figure 1: Field treatments of pesticide + attractant](image)
**Procedures – greenhouse study:**

**Trial 1:** 4-fluid ounce cups were partially filled with a combination of Entrust pesticide and an attractant as well as 5 cotton swabs. These cups were covered with funnels and placed in a mesh dome where several hundred SWD were released. SWD were able to get into the funnel, but escape was difficult. Each dome was repeated 3 times. This was left for 1 week and number of SWD in each funnel was counted. (see figure 2)

**Treatments- trial 1:**
- Entrust
- Entrust + SWD growth media
- Entrust + Bread Yeast + Sugar
- Entrust + BP + Buff + Sugar
- Entrust + PFR
- Entrust + PFR + Bread Yeast + Sugar

**Trial #2:** 4-fluid ounce cups were again partially filled with the treatment material, placed in a 12 ounce cup, covered with a lid, and fitted with a funnel. The cups were placed in a mesh dome where several hundred SWD were released. SWD were able to get into the funnel, but escape was difficult. Each dome was repeated 3 times. This was left for 1 week and number of SWD in each cup was counted. (see figure 3)

**Treatments- trial 2:**
- Entrust
- Entrust + Bread Yeast + Sugar
- Entrust + Corn Steep Liquor
- Entrust + Corn Steep Liquor + PFR
- Entrust + BP + Buff + Sugar

![Figure 2: Funnel set-up for trial #1](image1)

![Figure 3: Funnel set-up for trial #2](image2)
Results:

In each treatment, some of the SWD were in each trap, but the majority were dead outside of the traps. Perhaps these flies entered the traps, were exposed to the pesticide and escaped; or they died naturally without being exposed to pesticide. In the first trial, few patterns emerged. There was a slight tendency for flies to be attracted to those traps containing sugar (figure 4). In the second trial, more SWD were attracted to the traps containing the Corn Steep Liquor (figure 5). This data is still preliminary and should be tested in a field setting.