



Integrated Pest Management (IPM) Evaluation Training Using Secondary Data

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Case Study: Impacts of Spotted Lanternfly IPM



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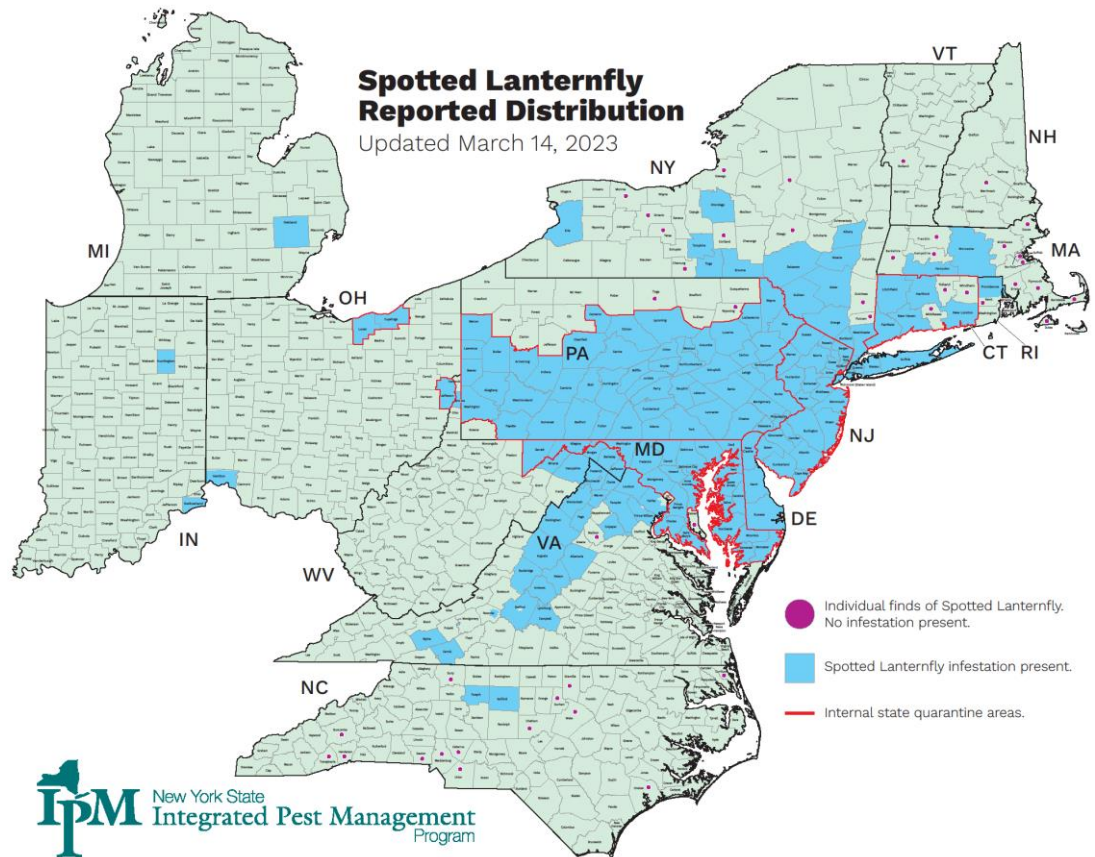
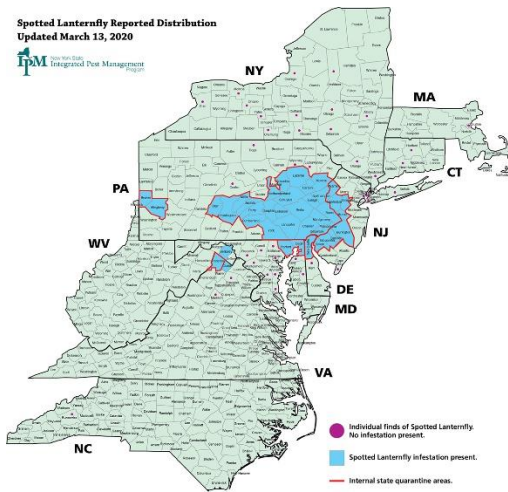
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SLF on Grapes

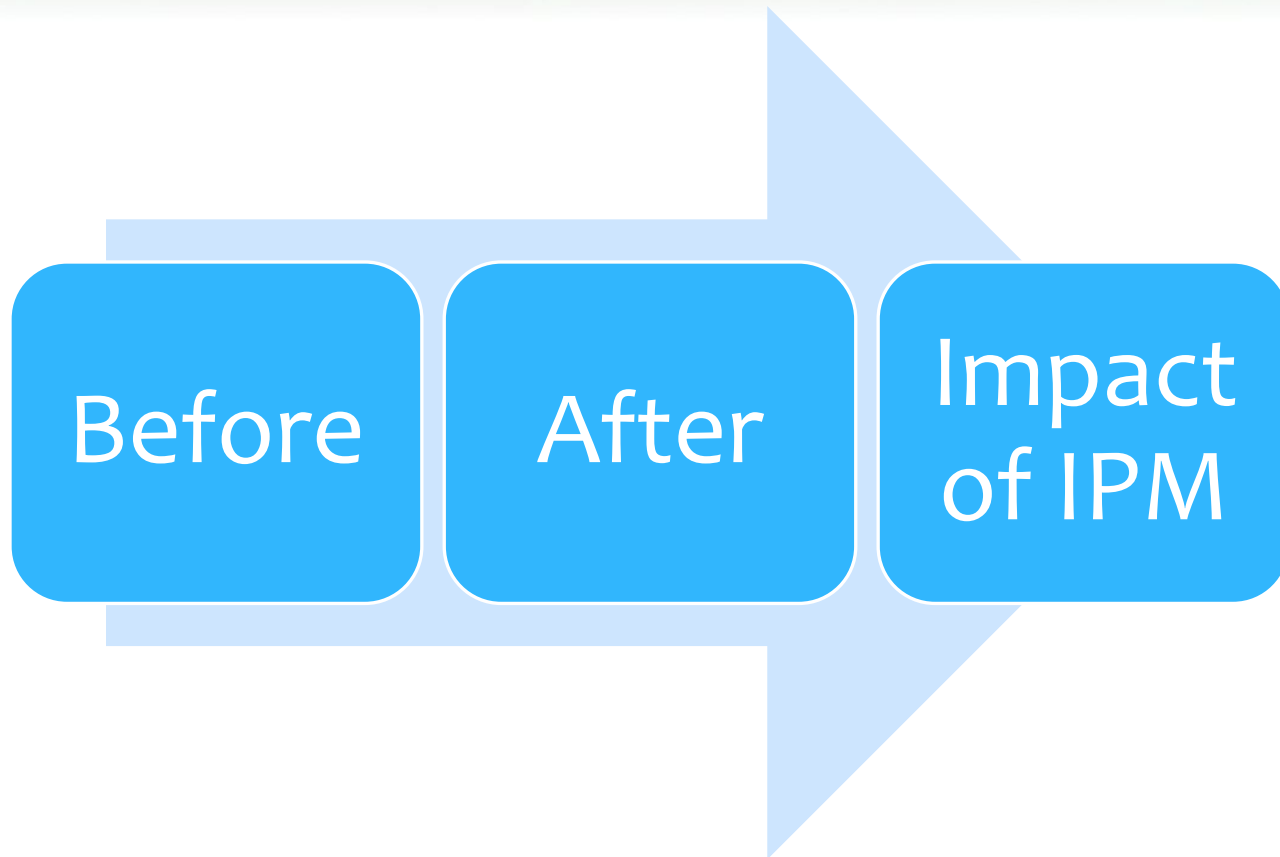
Photo: Erica Smyers



Correlate SLF Distribution with Pesticide Application Data



Pesticide Application Data Before and After SLF Invasion?



National IPM Evaluation Triangulation Plan

NASS IPM &
Chemical Use Data

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graph TD; A[NASS IPM & Chemical Use Data] <--> B[Surveys to Co-PIs on SCRI, Extension, Consultants, and State IPM Coordinators]; A <--> C[Focus Groups with Extension, Growers, and State IPM Coordinators]; B <--> C;
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Surveys to Co-PIs on SCRI,
Extension, Consultants, and
State IPM Coordinators

Focus Groups with
Extension, Growers,
and State IPM
Coordinators

Survey to SCRI Co-PIs:

- * Impacts of IPM Implementation and Barriers

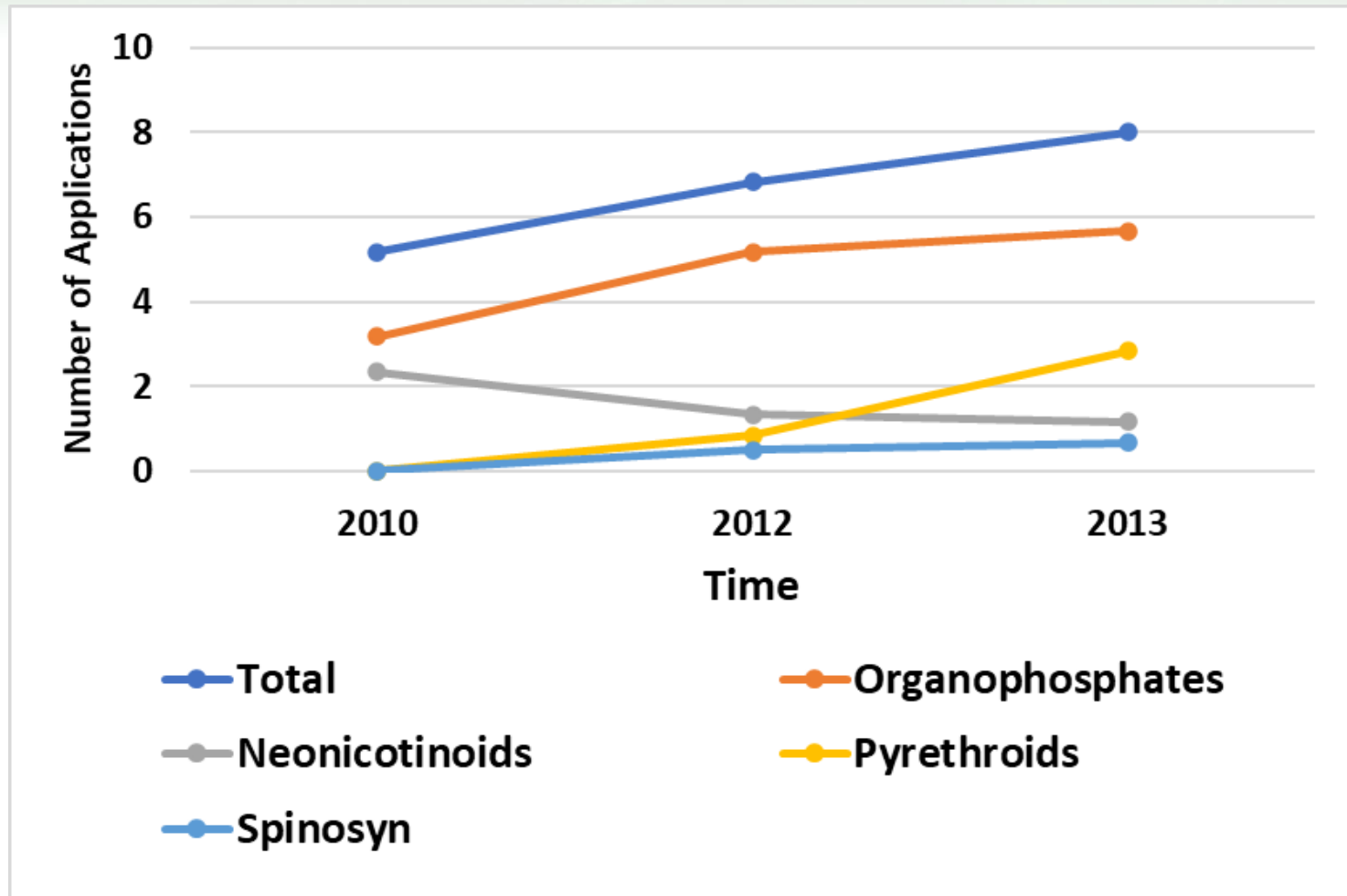
Spotted Wing Drosophila

- * Spotted Wing Drosophila* (SWD) was first detected in the North American continent in California in 2008.
- * SWD was first detected in NJ highbush blueberries late in 2011. The following year was the first-time growers treated for this insect, with 2013 marking the first year that most growers truly accepted the fact that SWD was a key pest requiring regular treatments (Polk, 2013).
- * The emergence of SWD as a key insect pest has changed grower spray programs from a blueberry maggot and aphid centered program to a SWD centered program.

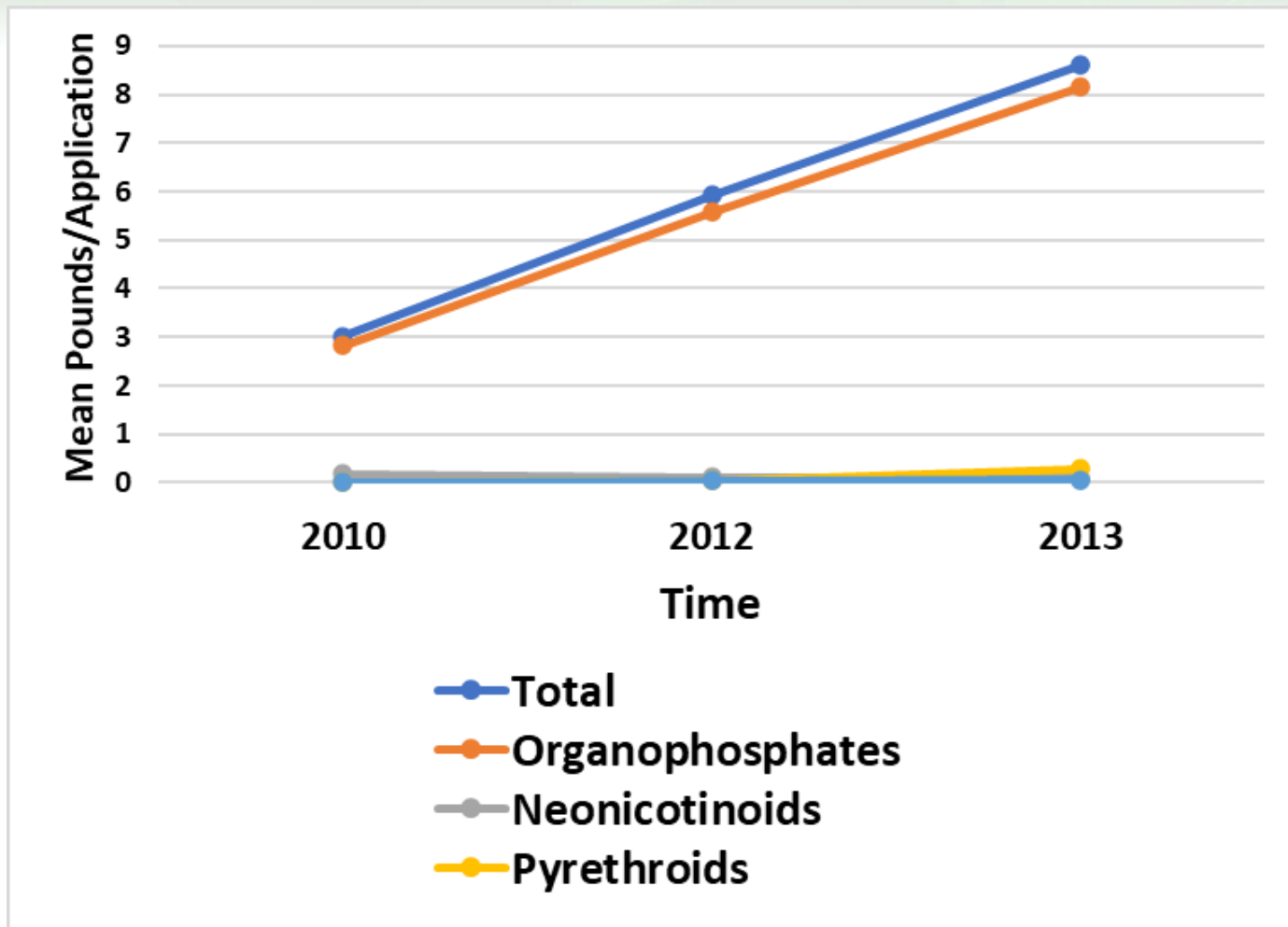
Spotted Wing Drosophila

- * This has resulted in decreased use of neonicotinoid insecticides for aphids and blueberry maggot, to an increased use of organophosphates (OP's), pyrethroids and spinosyn (Delegate) materials.
- * By 2013 the number of insecticide applications increased 62% and amounts of active ingredient used (as measured by lb or pt a.i.) increased by 2.5 to 3 times (Polk, 2013). Table 1 highlights these blueberry insecticide use trends.
- * Carbamates have been used for both aphid and SWD control, but some are better than others for SWD.

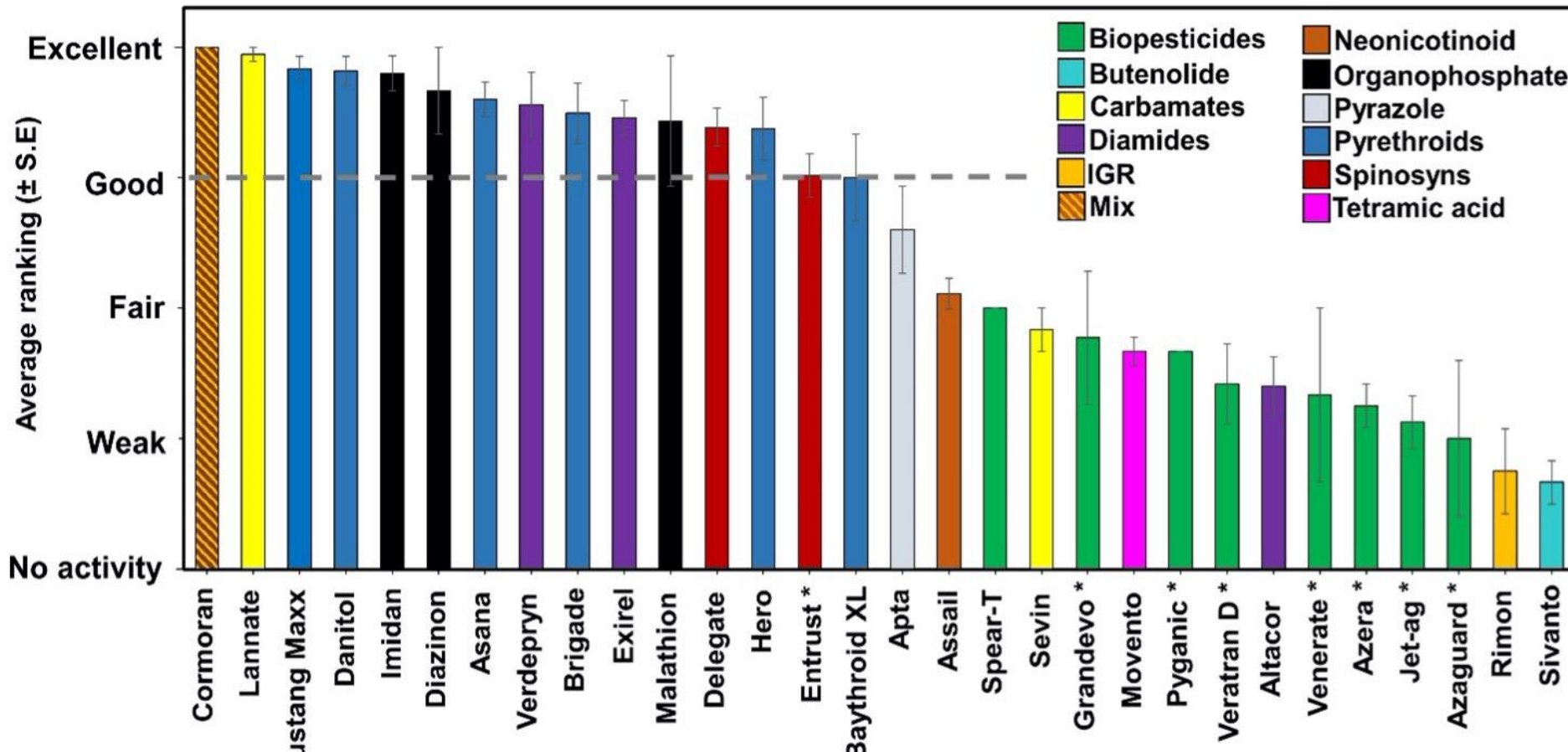
Per Acre NJ Blueberry Insecticide Use



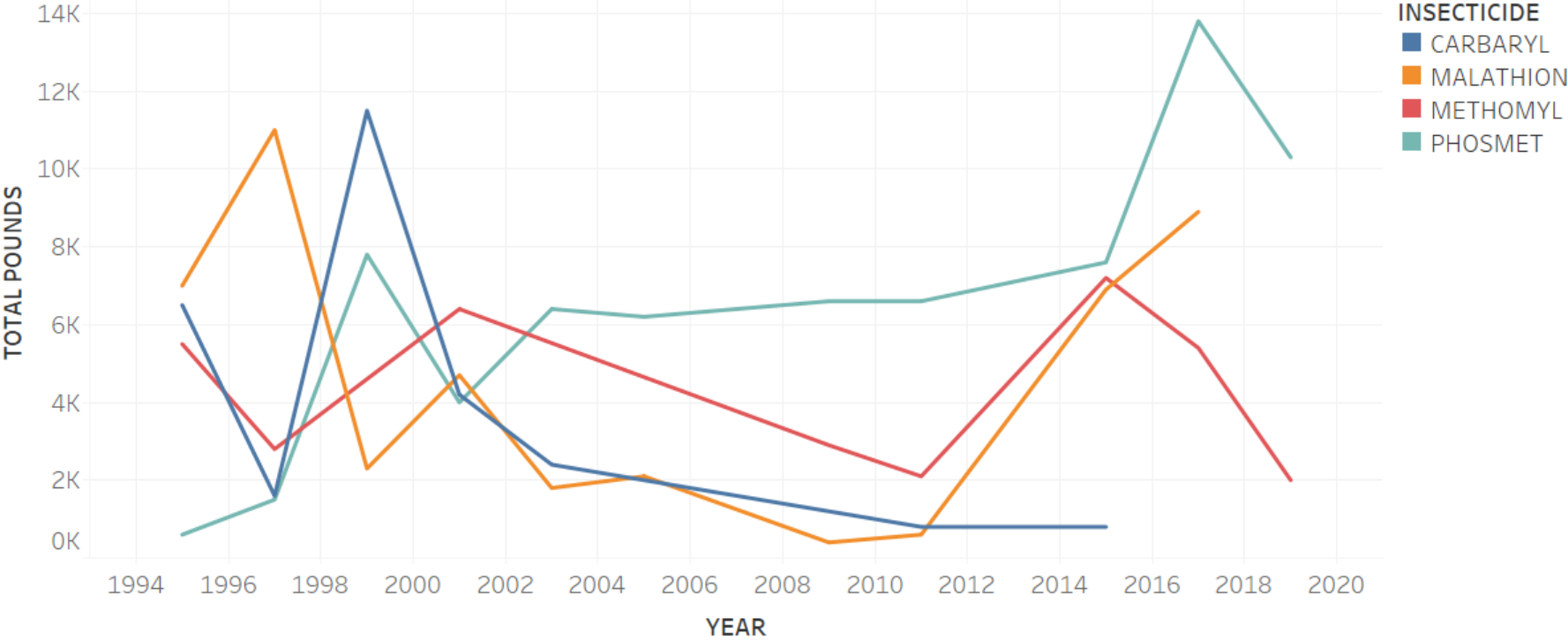
Per Acre NJ Blueberry Insecticide Use



Ranking of Insecticide Efficacy for SWD (Polk et al., 2021)



INSECTICIDE APPLICATIONS ON NEW JERSEY BLUEBERRIES



Spotted Wing Drosophila

- * Based on these spray data trends, we searched for neonicotinoids, organophosphates, pyrethroids, and spinosyn in the USDA NASS Chemical Use Survey to examine insecticide applications on New Jersey blueberries from 1995-2019.
- * (Call NASS about 'D's to see if they will release more data for us to analyze). Though data on many of the insecticides were not available to keep growers anonymous, we did find four commonly applied insecticides, with fairly consistent data through the years, to give us insight into grower spraying trends.
- * From these records, we estimated the costs if these applications were to continue. Figure 1 demonstrates how carbaryl (carbamate) used to be used more commonly to control aphids especially (?), and it was used less and less over time.

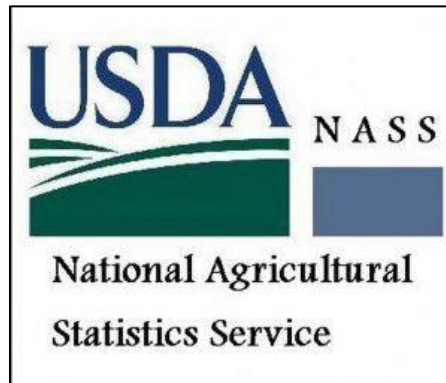
Spotted Wing Drosophila

- * As expected, due to the SWD invasion in 2011 and 2012, we see the rise of methomyl (carbamate) and malathion (OP).
- * Interestingly, in 2015, when methomyl (carbamate) begins decreasing, the use of phosmet (OP) increases to historic highs.
- * The reduction in methomyl, may at least partially be due to the fact that in January 2015, manufacturers agreed to voluntarily cancel certain uses of methomyl because of EPA's estimates of the drinking water risks for the use of methomyl in agricultural settings (<https://www.epa.gov/ingredients-used-pesticide-products/methomyl>).
- * Keep in mind that the acres planted were increasing throughout these years (NASS, 2019)

Spotted Wing Drosophila

- * <https://pemaruccicenter.rutgers.edu/programs/entomology/pest-management-information/spotted-wing-drosophila/>
- * <https://njaes.rutgers.edu/fs1246/>
- * <http://www.stopswd.org/stopswd/assets/File/SWDWG/SWD-Impact-NJ-blueberry-Polk-2013.pdf>

Partners



- * **Doug Farmer (202) 690-3229**
- **contact for chemical use surveys**

Partners

- * [Pesticide Risk Tool](#)
- * [pesticiderisk.org](#)

Partners



- * **EDDmapS for SLF and Tree-of-Heaven Distributions**
- * <https://www.eddmaps.org/distribution/>
- * **Pesticide Sales and Use Reporting**
- * <http://psur.cce.cornell.edu/>

Thanks and Questions

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