

The Spotted Wing Drosophila (*Drosophila suzukii*) Monitoring Network in Ohio

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Abstract

The spotted wing drosophila (SWD) was first detected in Ohio in September 2011 and has significantly increased its geographic range through 2014. In April 2014, a second SWD workshop focusing on identification, biology and management was held for growers and Extension educators to expand the monitoring network. In 2014, 11/17 counties monitoring for SWD reported positive samples from baited traps primarily in small fruit crops and grapes. The earliest detection was 25 June in a raspberry field. Salt water tests were used at some locations to determine larval infestation.

Introduction

Spotted wing drosophila larvae and adults were first detected in Ohio in fall fruiting raspberries in September 2011. To date SWD has been detected in nearly 40 counties on small fruits, elderberries, mulberries, pokeberries, and grapes. In Ohio, SWD threatens over \$50 million in fruit production and the viability of commercial and backyard fruit producers.

On April 30th, 2014, the 2nd annual SWD workshop was held in Columbus, OH to train growers and Extension educators to identify and manage this pest. All 29 participants were given a utility caddy full of monitoring supplies (yeast, whole grain flour, apple cider vinegar, traps, vials, strainer, alcohol, etc) to establish a site on their farm or in their county with the expectation they would report any positive SWD specimens directly to the MyTraps.com website. This group plus eight formerly trained Extension personnel formed the statewide monitoring network for SWD in 2014.

Methods

Extension educators and trained growers monitored 52 SWD trapping sites in 17 counties including all types of small fruit, grapes, serviceberry, mulberry, elderberry, pokeberry, and sweet cherries (Figure 1). At most sites, one to three apple cider vinegar (ACV) baited traps were placed in the crop canopy, separated by ca. 30 meters. At six sites both ACV and fermented yeast baited traps were set out to compare earliness of first detection. Most of the baited traps were deployed in mid June and retrieved the first week of October, others were removed once the crop stopped fruiting. The traps were serviced weekly, with any insects captured placed into ethanol filled vials for identification of male or female SWD within 48 hours. Each trap was rebaited with ACV or yeast based on the original bait type. Once yeast baited traps captured SWD, those traps were switched over to ACV bait. Cooperators were instructed to report weekly trap catches on MyTraps.com. Upon SWD detection at a site, growers were notified to begin exercising their management options.

Positive SWD sites were assumed infested for the rest of the fruit bearing season. Although traps were still serviced on a weekly basis, only a few sites continued counting SWD adults. Insects caught in the traps were placed in ethanol filled vials for future sorting.

At sites in Clark, Clinton, Greene, and Warren counties, healthy looking fruit were collected on a weekly basis and subjected to the salt water test to determine the level of larval infestation. Other locations in the state tested fruit periodically using the salt water test to find SWD larvae including a produce auction in Northeast Ohio.

Results

Spotted wing drosophila flies were detected at 29/51 sites in the monitoring network (Figure 2). The earliest detection was 25 June on a raspberry planting in Wooster County but adults were found later in blackberry, blueberry, elderberry, mulberry, pokeberry, and grapes.

Peak detection of 400 SWD/trap was found in Greene county on blackberries during the week starting 14 September.

Beginning 2 July, weekly salt water tests were conducted on healthy looking fruit at the Clark, Clinton, Greene, and Warren county sites. Larvae were first detected 30 July in Clark county on red raspberry, 13 August in Greene county on red raspberries and blackberries, 20 August in Clinton county on red raspberry, and 12 September in Warren county on grapes. All salt water tests used 50-75 visually healthy berries.

Conclusions

-Despite SWD officially detected in only 11/17 monitored counties in 2014, this pest is generally thought to be widespread across Ohio

-At locations with both ACV and Yeast baited traps, ACV traps detected SWD adults earlier at 3 sites, tied at 1 site

-Insecticide use is increasing on small fruits and grapes

-Salt water tests on “healthy” fruit revealed larvae on small fruit and grapes at several sites; being used at produce auctions to detect infested fruit

-Anecdotally, grower awareness of SWD as a serious threat to both backyard and commercial production is rising

-MyTraps.com service not seen as viable solution to reporting trap catches at this point

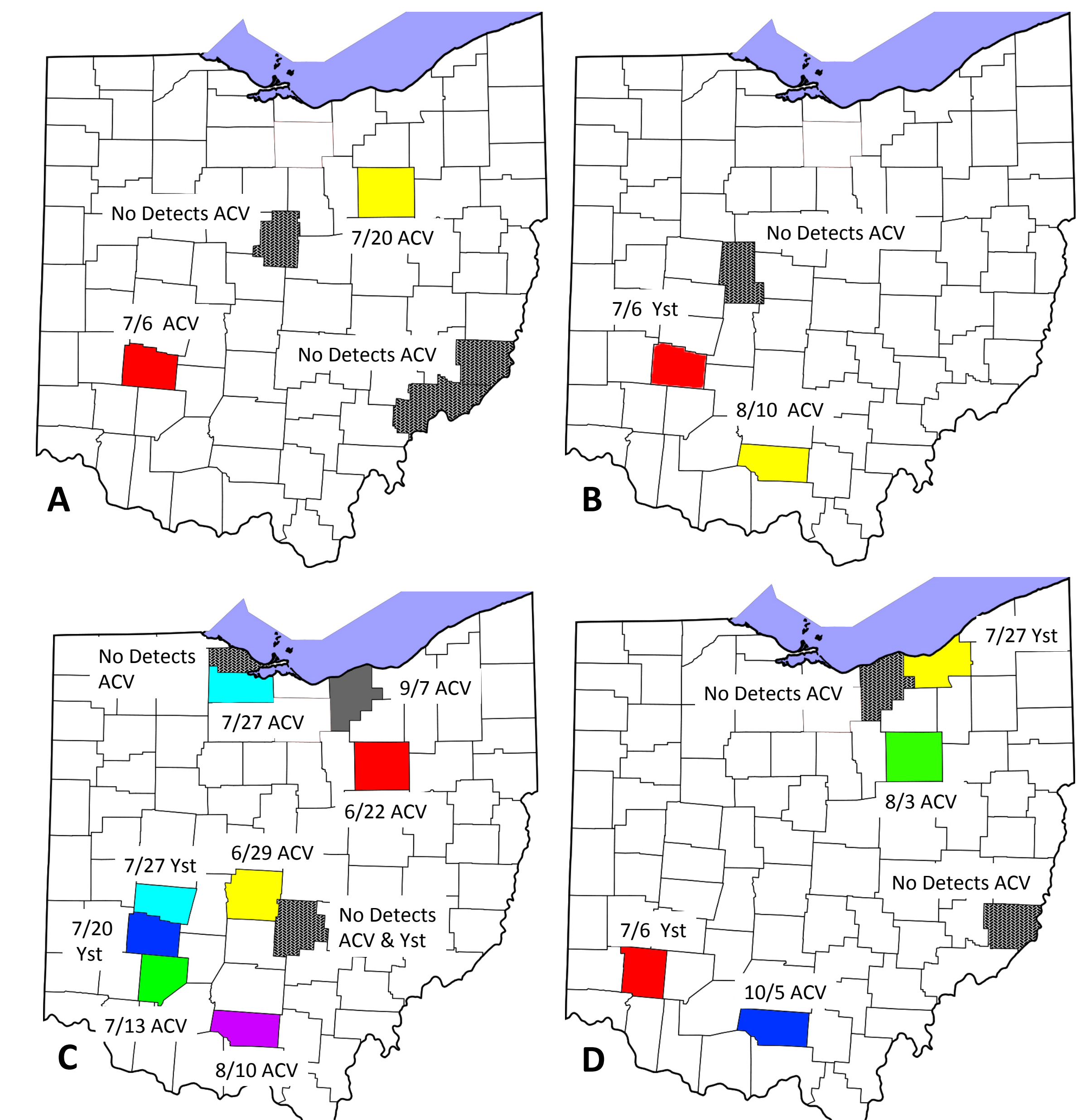


Figure 1. First detect of SWD adults in blueberries (A), blackberries (B), red & black raspberries (C), and grapes (D). Date indicates beginning week of capture. Traps are designated ACV or Yeast (Yst) at specific sites.

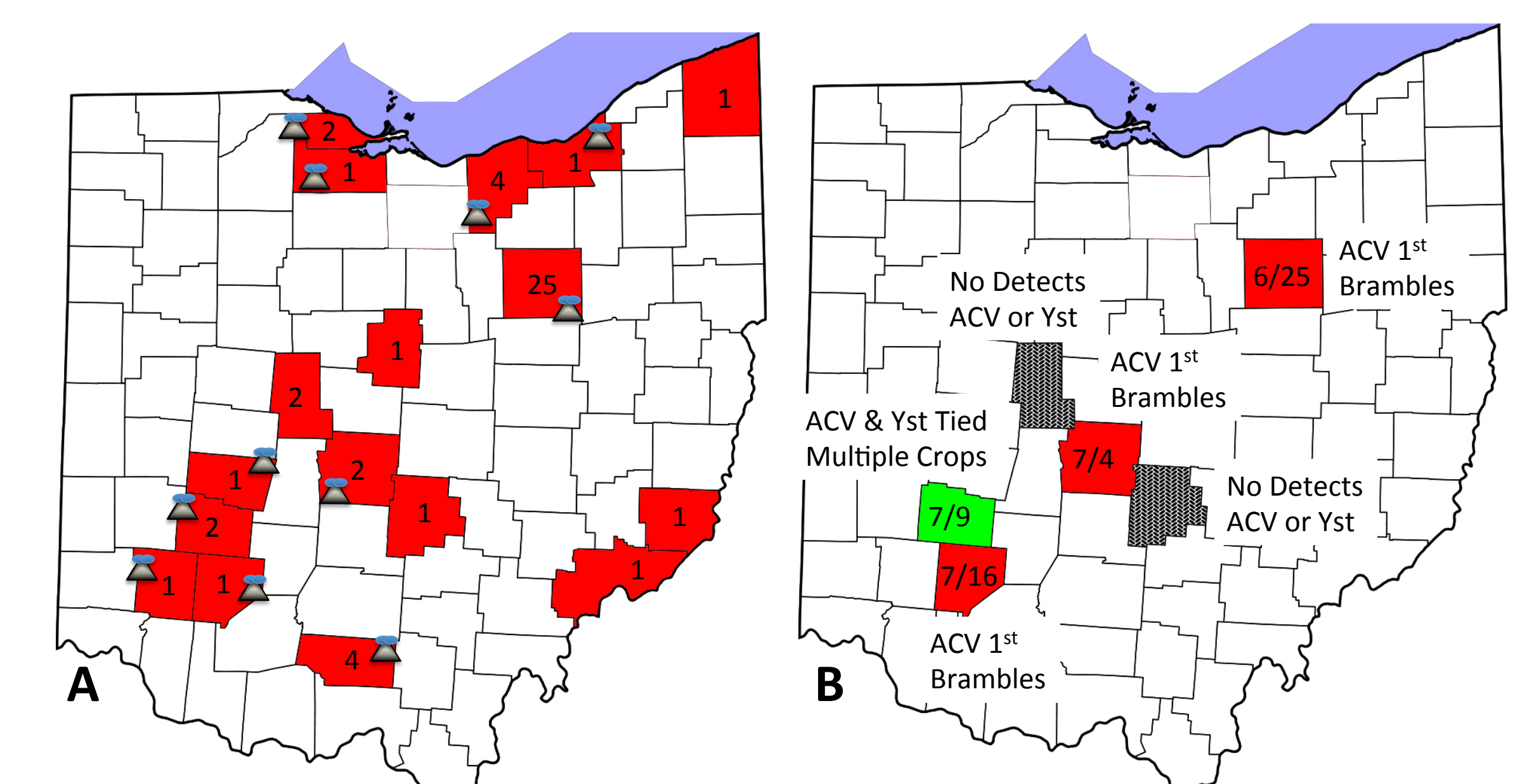
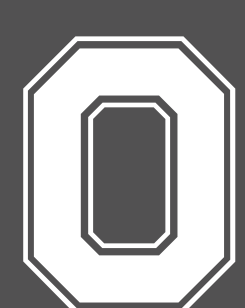


Figure 2. The distribution and number of SWD monitoring sites per county in 2014 (A) and comparison of ACV and Yeast (Yst) first catch date at selected sites (B).

Acknowledgements

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