

Regional Western Bean Cutworm Monitoring Program Progress Report and Results Summary – Years 1 & 2 (2012-2013)

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The Pest Problem

The Western Bean Cutworm (WBC; Lepidoptera: Noctuidae: *Striacosta albicosta*) is an emerging problem in Vermont. This is a late season pest that attacks corn (including field, sweet and popcorn) and both dry and snap beans. Moth larvae (Fig. 1 & 2) feed on developing kernels in husks or beans in pods causing economic damage. In corn, infestations of one larva per plant over an acre can lead to a yield loss of four bushels per acre. Infestations typically involve multiple larvae per ear, so yield losses can reach 30-40% in heavy infestations. In beans, feeding causes direct loss of beans, but also decreases bean quality; 2% of damaged beans can cause the quality of a batch of beans to be down-graded and heavier levels of infestation will lead to batches being rejected by processors, seriously influencing growers' revenues. WBC can also indirectly cause disease in the crop, increasing damage and yield loss and posing health risks to domestic animals and humans.



Fig. 1. WBC larvae.

Prior to 2000, economic losses were limited to the western Corn Belt states. Since then it has moved East, causing damage in Iowa and Minnesota in 2000. It was found in Ontario in 2008, Pennsylvania and New York in 2009, and Vermont in 2011. This is an emerging pest in the Eastern US. To understand the movement of this pest, it is important to identify the current range and timing of WBC activity to develop suitable management strategies. During the summer of 2011, scientists at the UVM Entomology Research Laboratory collaborated with Penn State and Cornell Univ. on a WBC survey, which resulted in the first detection in the state in Chittenden County. In 2012, we expanded our survey to three VT counties (Franklin, Rutland and Addison) to better understand WBC distribution and abundance over the next three years. This will allow farmers to be prepared for WBC management in the future if necessary. It is expected that this could become a serious pest in this region.



Fig. 2. WBC adult.

Monitoring Procedure

The UVM Entomology lab monitored twelve corn fields in three western Vermont counties were selected in 2012 for surveying. One green bucket trap was hung on posts at each site to trap male moths (Fig. 3). The traps contained a WBC pheromone lure to mimic a female and attract male moths. In addition, one insecticidal strip was placed in the traps to kill the moths once they enter the trap. In 2013 at two of the sites, the traps had to be relocated to another nearby corn field due to crop rotation from corn to hay (Fig. 4). Traps were checked every 1-3 wks from mid-June to early-Sept in 2012 and every 2 wks from late-May to early-Sept. in 2013.



Fig. 3. WBC trap setup.

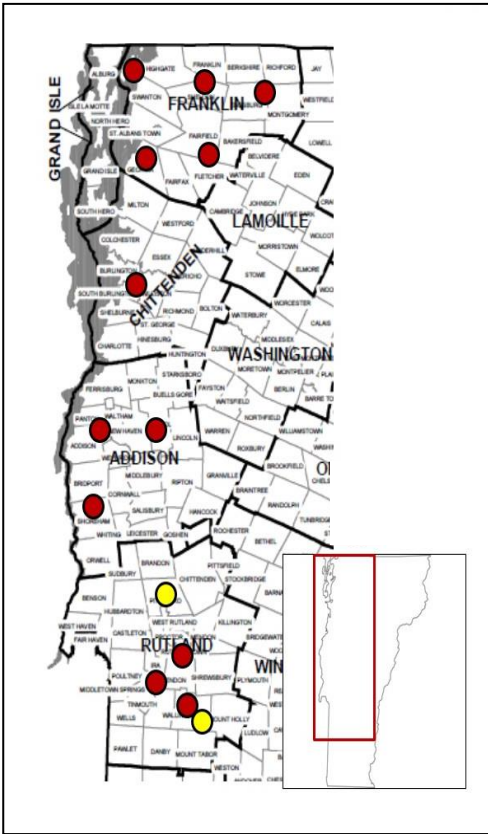


Fig. 4. VT WBC trap sites. Note: Red circles indicate location of 2013 sites, yellow circles are sites used in 2012 that were relocated.

2012-2013 Results

In 2013 moths were first found in traps on July 23, compared with July 11 in 2012. Fewer WBC moths were collected in 2013 than in 2012. A total of 22 WBC moths were collected in 2013, compared with 82 in 2012. When data from all sites were combined, the average number of WBC/trap was 6.8 in 2012, compared with 1.8 in 2013. The weather over the summer may have been a factor influencing these differences. The spring and summer of 2012 was unusually hot and dry whereas it was cold and wet during this period in 2013. WBC population levels in Pennsylvania (28-38 traps) have been higher than in Vermont, but show a similar pattern over the past two years. In 2012 the average number of WBC/site was 46, and in 2013 it dropped to 11 (J. Tooker, pers. comm.). Population trends in New York were quite different. In that state, WBC populations have increased annually since 2010, when formal trapping began. In 2010 the mean number of WBC/trap was 13, compared to 66.1 in 2013 (from 90 traps) (K. Waldron, pers. comm.).

In both years, the peak flight period, based on trap catches, was from mid-July to early-August, (Figs. 5A&B & 6). It is unknown if WBC is established in Vermont and can survive over the winter. Many of the moths collected from the traps from both years were in good condition. This suggests that they may have been overwintered here and emerged from local fields, rather than being blown in from New York or Canada.

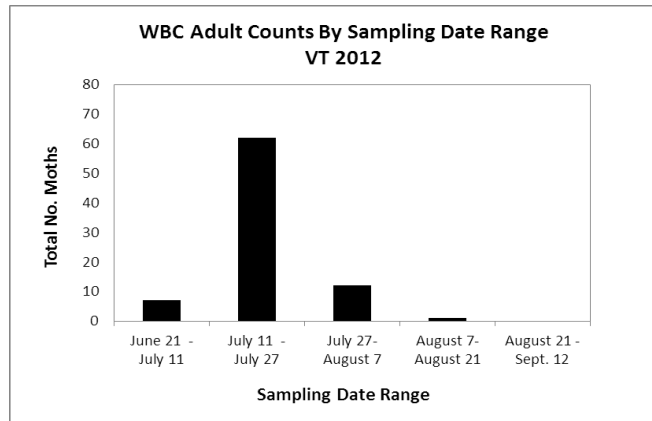


Fig. 5A. WBC adults collected during the 2012 season.

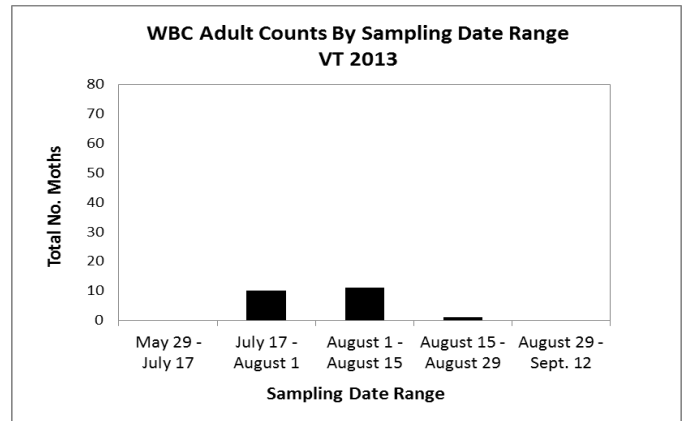


Fig. 5B. WBC adults collected during the 2013 season.

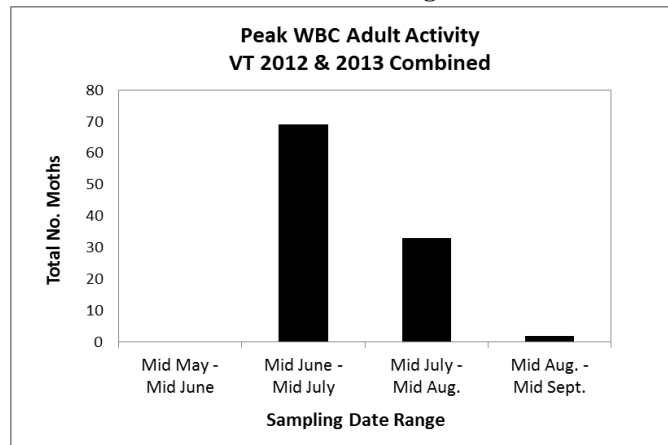


Fig. 6. Peak activity of WBC adults; 2012 & 2013 data combined.

In both years, most of the WBC were collected in Addison County, and a few in Rutland and Franklin Counties (Fig. 7). In 2013, moths were collected in Chittenden County, but not in 2012. In both years, the greatest numbers of moths were caught at the Addison and Shoreham sites along Lake Champlain (Fig. 8). This suggests WBC population in Vermont may be the greatest in this region. No larvae were observed in the fields in either year nor was there evidence of feeding damage at any sites.

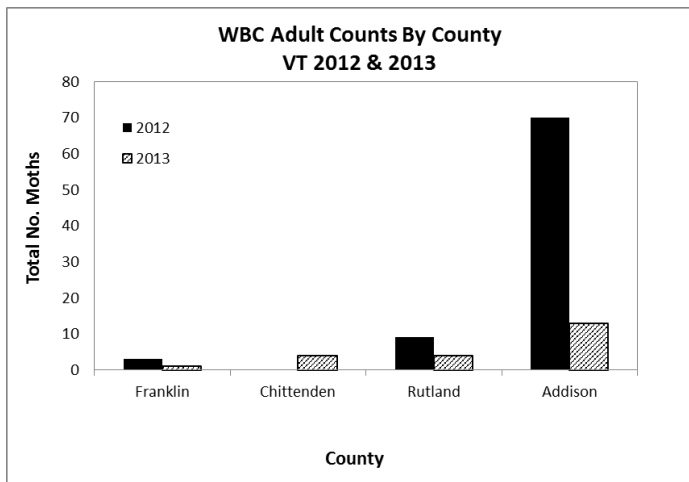


Fig. 7. WBC adults collected from each county.

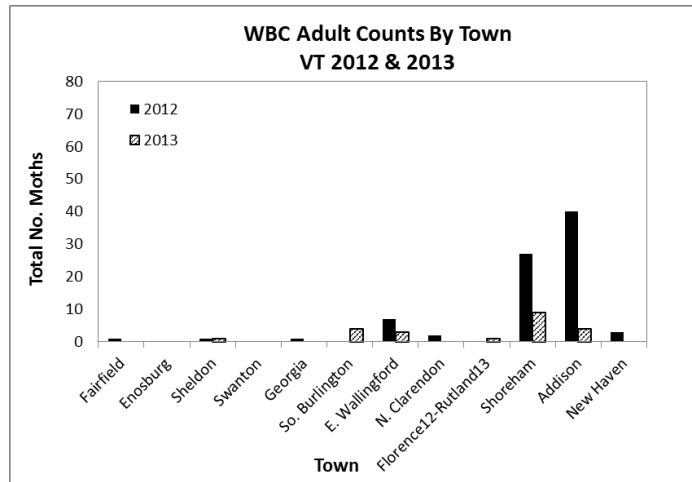


Fig. 8. WBC adults collected from each sampling site.

At this time, there is no reason for concern about WBC in the areas of Vermont surveyed, based on the numbers of moths collected over the past 2 years. These data provide baseline information from which management approaches could be developed if this pest reaches damaging levels in the future.

For more information on WBC catches and distribution, please visit:
Pest Watch: <http://www.pestwatch.psu.edu/>

**THANK YOU VERY MUCH FOR YOUR COOPERATION WITH THIS PROJECT!
 SEE YOU NEXT SUMMER!**

If you have questions, contact:
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