

# **The multicolored Asian lady beetle, *Harmonia axyridis*: A nuisance pest in Ohio**

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## **INTRODUCTION**

The multicolored Asian lady beetle (MALB), *Harmonia axyridis*, has become a well-established predatory insect in many parts of the United States, including Ohio. By outcompeting native populations, the MALB has become the dominant species of lady beetles in numerous agroecosystems, successfully managing populations of aphids, scale insects and other soft-bodied insect pests. While much heralded for their activity as a bio-control agent during the growing season, the MALB becomes a serious nuisance pest to homeowners during the fall, winter and early spring.

Problems with the MALB begin during the fall when they aggregate in large numbers in search of an overwintering site. In their native lands the MALB would normally overwinter in cracks and crevices of cliff sides and rock outcroppings. In Ohio where such structures are relatively uncommon, the preferred overwintering site has become individual homes. This aggregation usually begins in early October. Large swarms can be found moving across the landscape and settling on or around individual homes. The swarming activity appears to be triggered by the occurrence of a rain event followed by a frost. The beetles begin to move on the first warm day after the frost. During the swarming period homeowners report the inability to leave the house without being covered with beetles that often times bite. After the warm days disappear the beetles settle into their overwintering sites on or just inside the home. If they remain dormant throughout the winter the beetles are of little concern to the homeowner. However during warm spells in the winter and spring the beetles become active and often find their way into the home and become a nuisance again.

For years very little was done to address the MALB nuisance problem because of the desire to preserve it as a biological control agent. However the nuisance problem has grown tremendously and now many homes throughout Ohio are being invaded each year. In order to assess the extent and nature of the MALB nuisance problem in Ohio a survey of residents was conducted. The survey was designed to give a sense of the types of houses typically invaded and the nature of the problem experienced by the homeowner. The following describes the survey results and information gained.

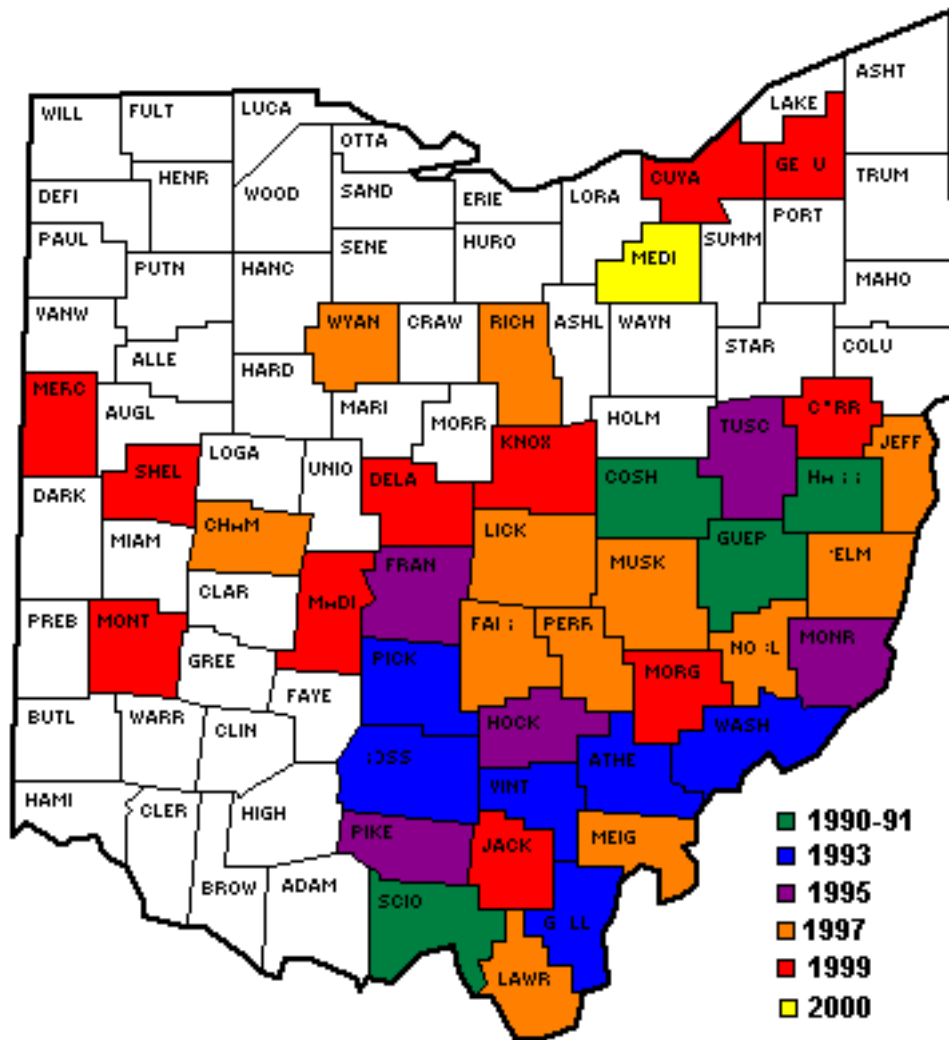
## **METHODS**

In late May of 2001 the Ohio State University IPM program established a toll free number (The Ohio Lady Beetle Hotline) so that individuals could call and request that a survey be sent to them. County Extension Agents advertised the existence of the Hotline throughout the state. By the time that the survey results had begun to be

tabulated in late August nearly 1550 surveys had been sent and of those 1148 returned. Since that time an additional 150 surveys have been received. All of the responses to the survey questions were entered into an Excel spreadsheet and summary statistics produced. In some cases to further refine the results, the data was put into three categories, whether the respondents reported having **low** (100's or less), **medium** (thousands) or **high** (millions to "too many to count") populations of beetles.

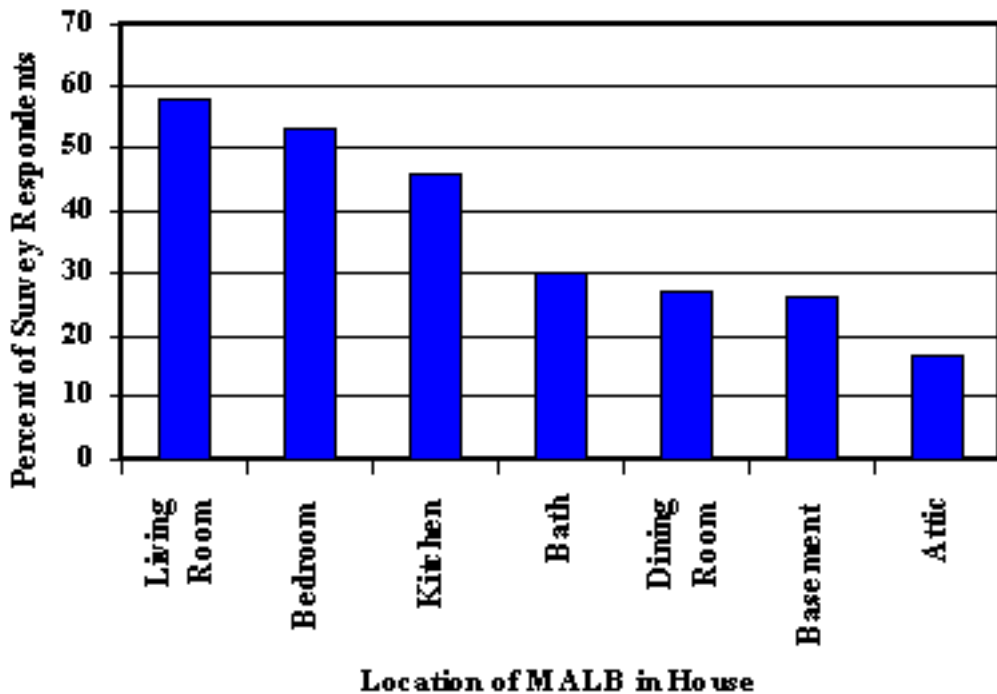
## RESULTS

The survey respondents were asked when the beetles first became a problem in and around their home. A few respondents reported that their problem began in the late 1980's, but the majority of respondents reported dates in the 1990's. The map (Figure 1) shows how the problem has spread from a few counties in eastern and southeastern Ohio in the early 1990's to nearly half of the counties in Ohio.



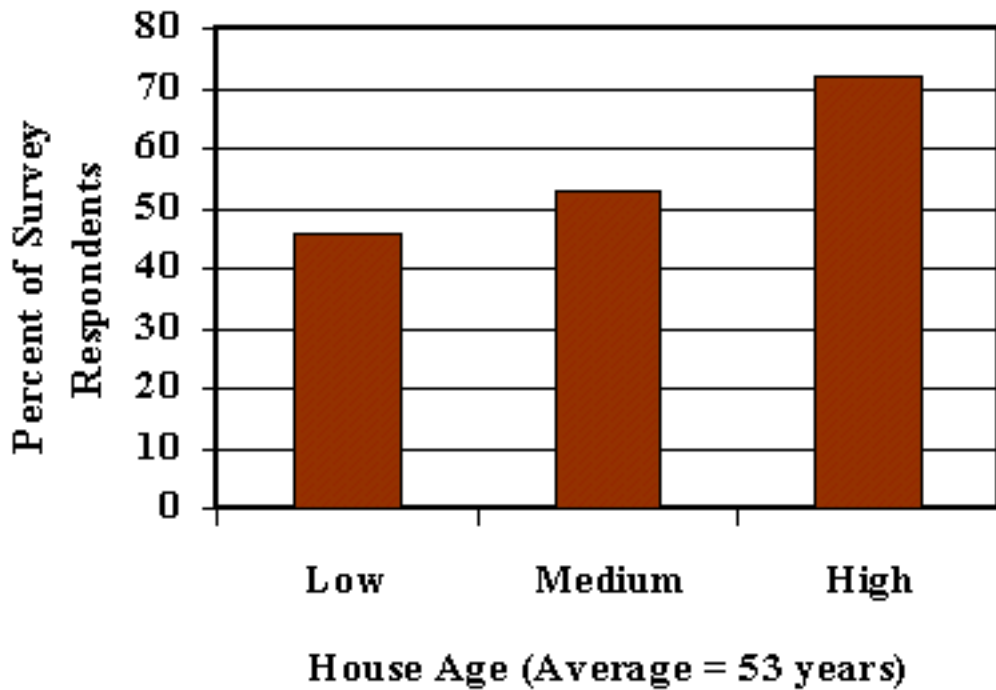
**Figure 1 - Map of the progression of the MALB infestation problem in Ohio from 1990 to 2000.**

The survey respondents were then asked to describe their home. Over half (57%) of the respondents had two-story homes while 31% had a single story. On the exterior of the home, 54% had wood, 43% had vinyl and 23% brick. However the results did not indicate that either house or roof color was a determinant for an infestation problem. As Table 1 shows, even when the data was broken down into the low, medium and high population categories the beetles equally invaded houses of light, medium or dark color.



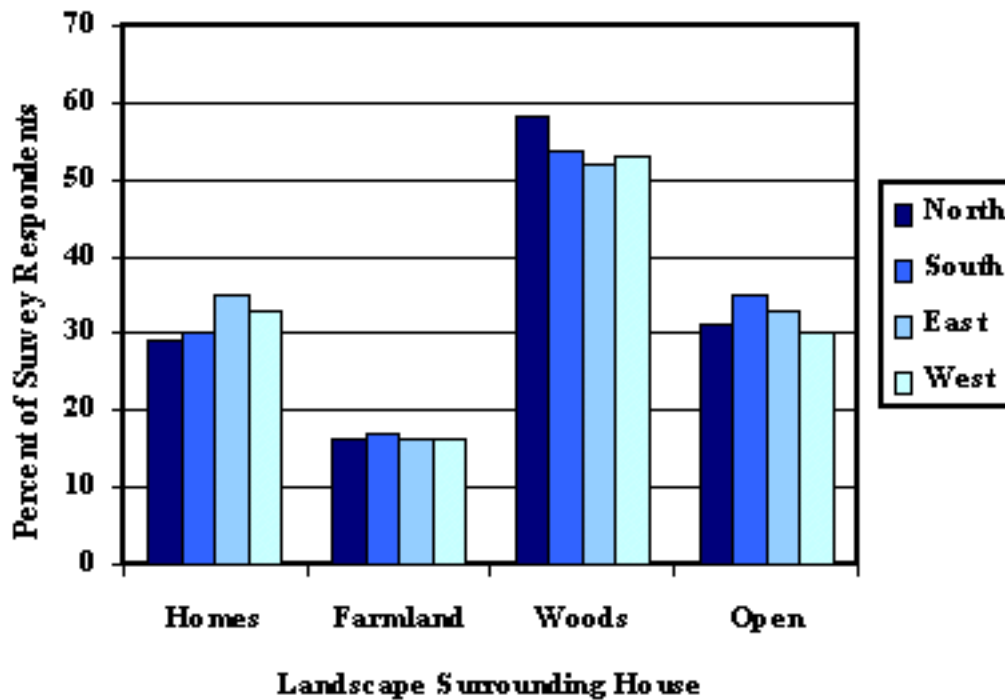
**Table 1 - House color of survey respondents in each MALB population size category.**

With an average house age of 53 years the data did not indicate that house age was a determinant of an infestation problem. However older houses were slightly more likely to experience high populations of lady beetles (Table 2).



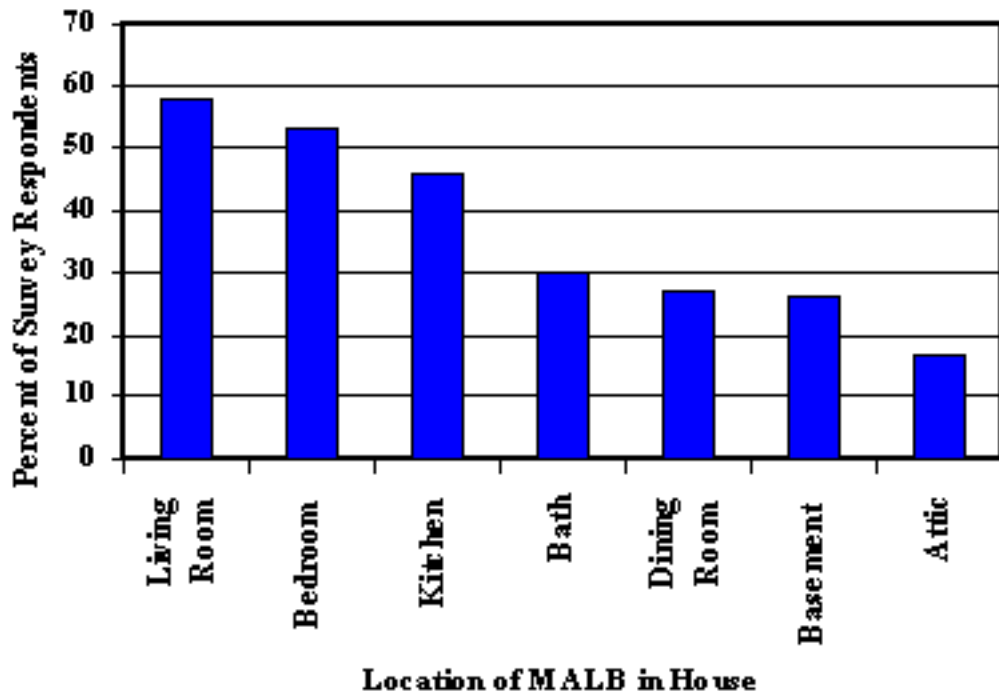
**Table 2 - Average age of the house in each MALB population size category.**

The survey respondents were also asked to describe the landscape immediate surrounding their home in the four directions (N, S, E & W). Table 3 indicates that having trees or a forest to any of the four directions was a good indicator of a MALB infestation problem.

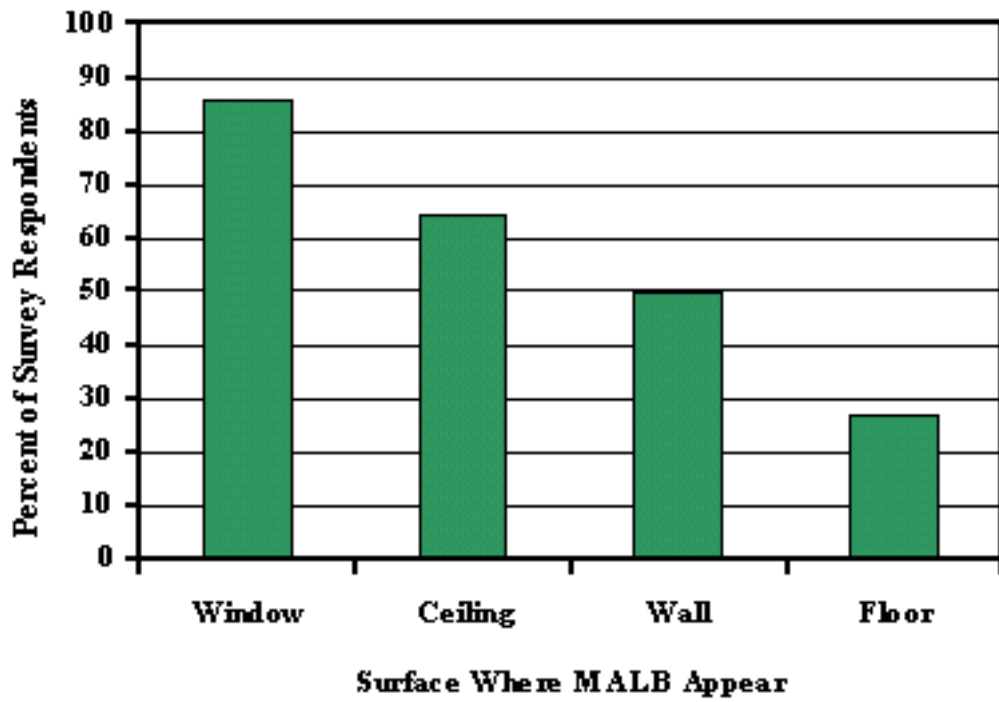


**Table 3 - Landscape surrounding the survey respondents' homes in the four cardinal directions.**

Questions were also designed to gain an understanding of the nature of the infestation problem experienced. The respondents were asked in what room and on what surface did the beetles most frequently appear. As Table 4 and Table 5 show, most of the people experienced problems in their living rooms, bedrooms and kitchens with the beetles appearing most frequently on the windows and ceilings.

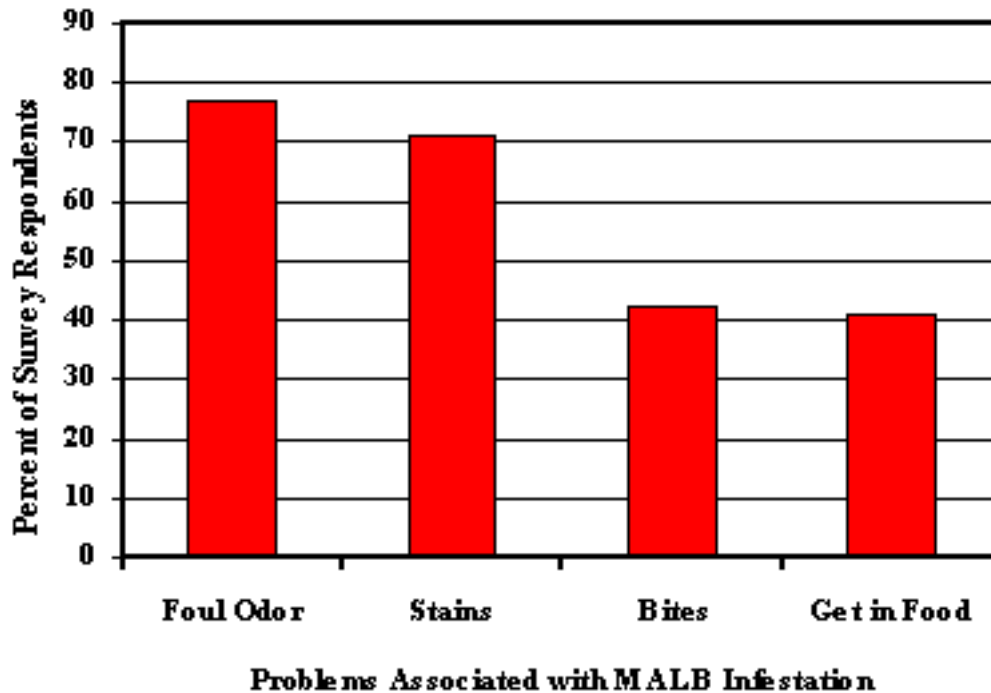


**Table 4 - Rooms in the house where the most MALBs appeared**



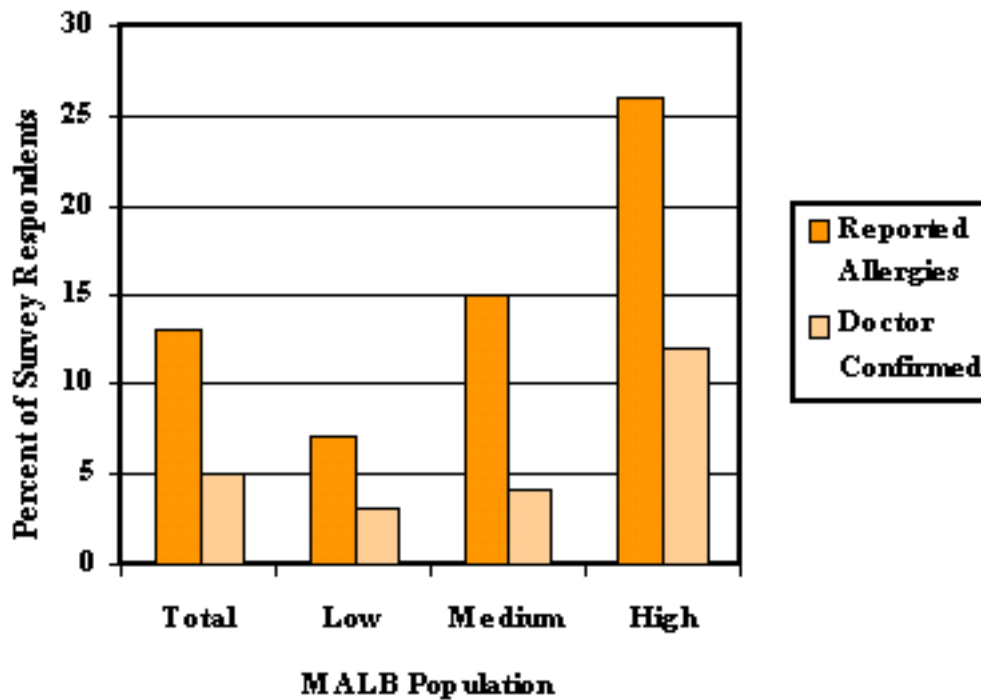
**Table 5 - Surfaces in each room where the most MALBs appeared**

Table 6 shows the problems associated with a MALB infestation. The survey respondents most frequently mentioned that the beetles produced a foul odor and stained various surfaces throughout the house. However a significant number also indicated that they were bitten by the beetles or that the beetles ended up falling into their food and drinks.



**Table 6 - Problems associated with a MALB infestation.**

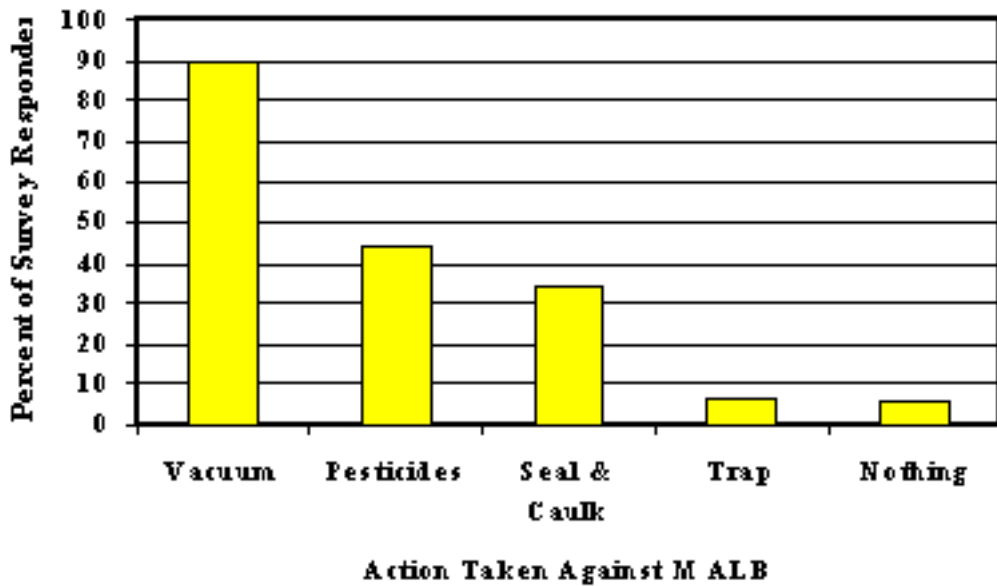
The respondents were also asked if they experienced an allergic reaction to the beetles. Overall 13% of the respondents reported having allergic reactions and 6% actually had that reaction confirmed by a doctor. Additionally, the data does suggest a dose response when broken down into the high, medium and low population categories (Table 7). More of the respondents who reported allergic reactions also reported having high populations of beetles in their homes.



**Table 7 - Percent of survey respondents reporting allergic reactions to the MALB and those reactions confirmed by a doctor in each MALB population size category.**

Finally, the respondents were asked what action they took against the lady beetles. Table 8 indicates that a large majority of the respondents used vacuuming as their primary method of managing their MALB infestation problem. Other methods used included applying pesticides, sealing and caulking and trapping. A small percent of the survey participants also reported that they took no action against the beetles. When asked how pleased they were with the results of the actions they took, only 1% of the group reported being satisfied.





**Table 8 - Actions taken by survey respondents to manage their MALB infestation problem.**

## SUMMARY

The multicolored Asian lady beetle has become a significant problem for many Ohio residents. The results of our survey indicate:

- The MALB infestation problem, while originating in eastern and southern Ohio, has spread throughout many parts of the state in the past decade.
- The average type of house experiencing a MALB infestation problem is 73 years old, two-story, wood or vinyl sided and has lots of trees on at least three sides of the house.
- The colors of the house and roof are not a determining factor for an infestation.
- When the MALB invade a home they are found in rooms throughout the house but most frequently in the living room and bedrooms and usually on the windows and ceiling.
- The most irritating problems associated with a MALB infestation are the foul odors the beetles emit and the stains resulting from their hemolymph when they reflex bleed but biting and food contamination are also significant concerns.
- An associated health problem is emerging as evidenced by the 13% of the respondents reporting dermal or respiratory allergic reaction to the beetles.

Vacuuming is the primary management option utilized by the survey respondents to deal with the beetles. Others have also tried pesticides but nearly everyone has been dissatisfied with the results of the methods they have used.