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# Consumer Responses to Alternative Flatheaded Borer Control Methods

*This e-GRO Alert discusses key findings from a study addressing U.S. consumers' responses to alternative pest control methods for flatheaded borers on nursery crops.*

Flatheaded borers (*Chrysobothris*) are wood-boring beetles whose larva feed on vascular tissue resulting in plant damage and death (Addesso et al., 2020). Evidence shows that flatheaded borer infestations can negatively impact grower profits. Existing control methods include sprays and drenches, but researchers are also exploring alternative control methods (such as cultivar selection and cover crops). This Alert shares key results from a study addressing consumer responses to these alternative control methods.




Figure 1. Blueberry Bushes Presented at Retail.

Source: A. Rihn (2022)


The project was funded by the USDA-NIFA and collaborators include Ben Campbell (UGA), Kim Jensen (UTK), Karla Addesso (TSU), and Samuel Gerloff (UTK). Data were collected in 2022 using an online survey of 519 U.S. consumers. Participants included individuals who made plant / gardening decisions for their households. They were shown pictures of flatheaded borer damage on nursery crop stems and trunks prior to the survey and 60% of participants indicated having noted flatheaded borer damage in the past.

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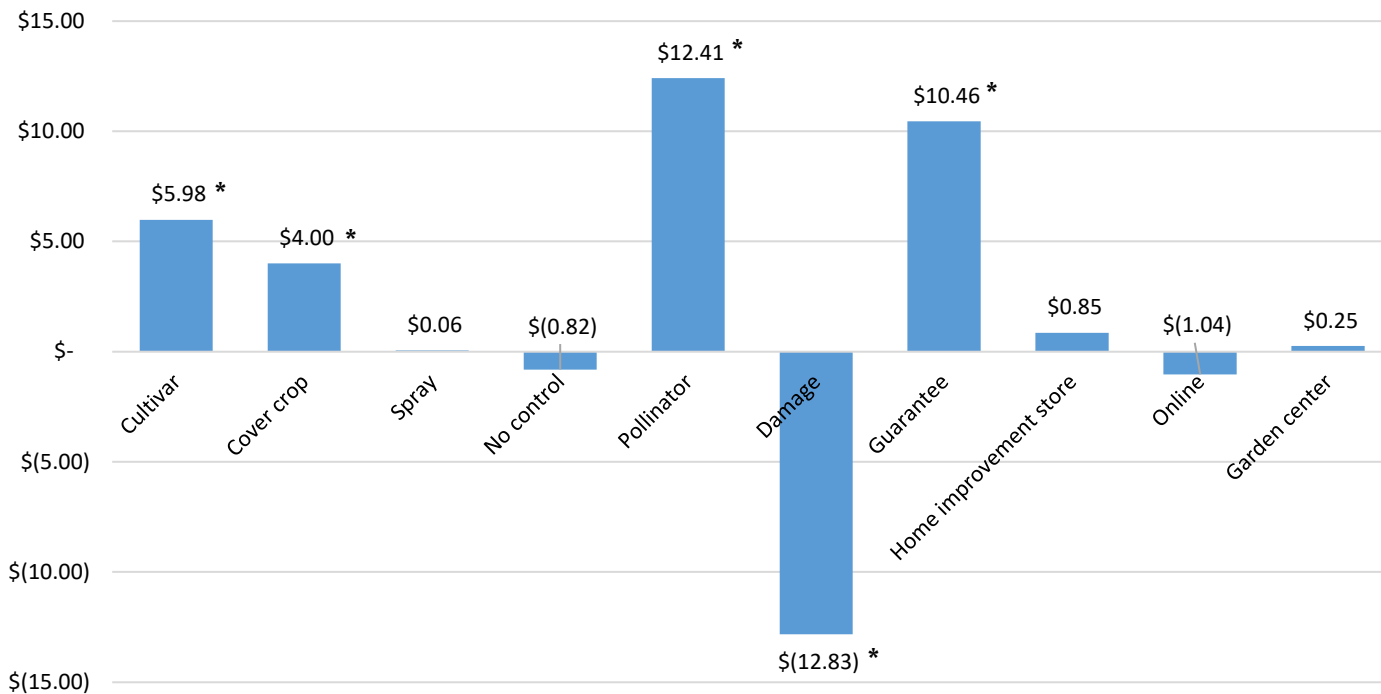


Figure 2. Estimates of U.S. Consumers' Willingness-to-Pay for Alternative Flatheaded Borer Control Methods on Blueberry Bushes (relative to drench control methods). (n=257)

\* Indicates significant differences in values relative to the base variables (i.e., drench, not pollinator friendly, no damage, no guarantee, hardware store).

Two crops were evaluated: blueberry bushes and maple trees (Fig. 1). These crops were of interest because of different end uses (i.e., fruit production, aesthetics). Results were estimated for each crop separately and include overall preferences and estimated premiums or discounts needed for crops with different attributes. The attributes included control methods (cultivar selection, cover crops, spray, drench, no control), visible damage (yes, no), pollinator friendly (yes, no), a 6-month guarantee of being protected from flatheaded borer (yes, no), and retailer where purchased (home improvement store, online retailer, garden center, hardware store). Participants evaluated plants with the different attributes and indicated which they would purchase, or they could indicate none of the options.

Results of the study varied by the plant type evaluated. For the blueberry bush, participants preferred plants produced using cultivar selection or cover crops to control flatheaded borers relative to drench controls and were willing to pay premiums for them (Fig. 2). No differences were observed between spray controls, drenches, and no control methods. If flatheaded borer damage was visible, they required a discount relative to blueberry bushes without damage. Conversely, the pollinator friendly attribute generated a premium and the presence of a guarantee against flatheaded borer infestation also generated a premium. Retailer location did not impact U.S. consumers' preferences or value for blueberry bushes.

For the maple trees, using spray to control flatheaded borers had a negative impact on preferences and required a discount relative to the drench control methods (Fig. 3). Visible damage negatively impacted preferences for maple trees, while the pollinator friendly attribute and guarantee positively impacted preferences and generated premiums. People were more likely to select and spend more on maple trees from home improvement stores than those available at hardware stores. None of the other retailers impacted choice or value.

In summary, this study demonstrates that alternative control methods for flatheaded borer can influence consumer preferences, but it varies by product. The blueberry bush results imply that for fruit producing plants, alternatives to drenches generate value for customers and should be promoted at retail to encourage sales. Conversely, control methods have less impact on maple tree sales implying that other factors have a greater influence on consumers' choices for ornamental species (e.g., aesthetic benefits). Additionally, pollinator friendly production practices and guaranteed pest protection both generate value and should be communicated to customers for both types of plants. Furthermore, damage greatly decreases plant value across species and should continue to be minimized. These results are consistent with previous literature meaning pollinator health and damage free plants consistently generate value for customers. In-store communications aligning with these findings could aid in engaging customers and encourage additional sales.



Figure 3. Estimates of U.S. Consumers' Willingness-to-Pay for Alternative Flatheaded Borer Control Methods on Maple Trees (relative to drench control methods). (n=262)

\* Indicates significant differences in values relative to the base variables (i.e., drench, not pollinator friendly, no damage, no guarantee, hardware store).

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