

Consumers' Response to "Neonic-Free" and Other Insect Pollinator Promotions on Ornamental Plants¹

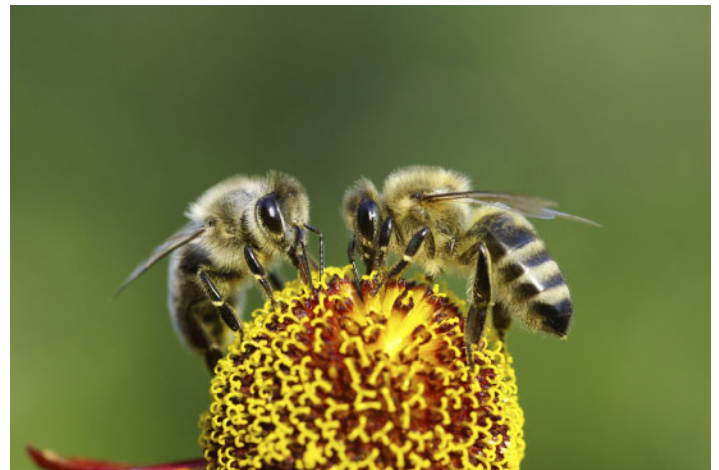
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Introduction

Neonicotinoid (neonic) insecticides are facing intense backlash from environmental groups due to their possible role in the decline of pollinator insect populations (Fairbrother et al. 2014; Goulson 2013). The decline of pollinator insect populations is concerning because of their impact on world food crop production, the economy, and the environment (Gallai et al. 2009; Klein et al. 2007). Neonic insecticides have been perceived negatively due to their systemic nature. Systemic insecticides provide internal protection from predatory insects throughout the entire plant. Therefore, they are present in all plant tissues, including pollen and nectar, which have led to concerns about how they influence pollinator insects.

Currently, research on the effects that neonic insecticides have on pollinator insects is inconclusive. Research indicates that neonics negatively impact pollinators' homing ability, foraging ability, colony growth, and learning (Goulson 2013). However, some studies show that other factors such as mites, fungi, viruses, poor nutrition, and queen failure are more detrimental to insect pollinators (Fairbrother et al. 2014). Additional studies have shown that neonic pesticides have minimal risks to pollinator insects (Pilling et al. 2013). Despite these inconsistencies, several governments (i.e., the European Commission and Dutch Parliament) and retail outlets (e.g., Home Depot) have called for "neonic-free" labeling and that neonics not be

used in plant production (US EPA 2013). This is concerning for nursery and greenhouse growers because many of them use neonic-based pesticide control measures since they are effective, inexpensive, and cause less environmental damage than other insecticides (Goulson 2013; Zalom et al. 2005).



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The increased publicity around neonic insecticides may influence consumer behavior (i.e., demand and preferences), product availability, production costs, competition, and profits (Bonroy and Constantoatos 2014). Currently, very few studies have investigated consumer responses to neonic-free labels, but evidence suggests that many consumers are not knowledgeable about and do not understand neonic insecticides (Wollaeger et al. 2015).

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Considering the increased negative publicity around neonic insecticides and consumers' low awareness and knowledge, the objectives of the present study were twofold. First, the study investigated how consumers' awareness of neonic insecticides influenced their preferences and purchasing behavior for plants. Second, the study explored the marketing potential of using other pollinator promotions (besides neonic-free) in garden center retail outlets.

Methods

An online survey was completed by 1,243 respondents. Survey questions addressed past purchasing behavior, awareness of neonics, pollinator promotion phrasing, and socio-demographic characteristics. Past purchasing behavior questions asked about plant purchases and insecticide purchases/use in the past year. To identify consumer awareness of neonics, consumers were asked if they had heard of pesticides containing neonicotinoids or neonics (yes/no). Next, participants were presented with a list of pollinator-related terms (e.g., pollinator friendly, bee friendly, butterfly friendly, etc.) and asked to select the best three labels for indicating that the plant aids pollinator insects. Finally, they were asked whether specific pollinator labels would change their purchasing preferences (1=not at all likely; 7=very likely). The socio-demographic questions included state of residence, gender, and age. Overall, respondents were from all 50 US states. Forty-two percent were male and the average age was 52 years old. Respondents had purchased plants (74%) or used insecticides (63%) within the past year. Respondents were divided into neonic aware and unaware groups for the analysis.

Results

Twenty-one percent of participants were aware of neonic insecticides while 79 percent were unaware of neonic insecticides (Figure 1). Aware consumers tended to be younger, male, and more educated than unaware consumers, and they purchased plants and insecticides more frequently than unaware consumers.

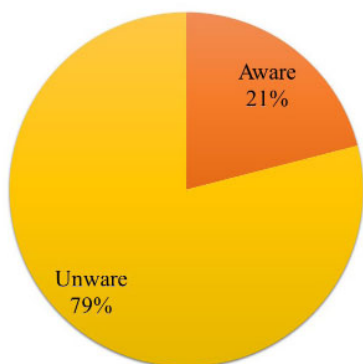


Figure 1. Consumers' awareness of neonicotinoid (neonic) insecticides

Regarding the phrasing of pollinator promotions, the "pollinator friendly" phrasing was preferred most frequently (15%) by respondents, followed by "pollinator safe" (12%), "bee friendly" (11%), "plants for pollinators" (11%), "bee safe" (9%), "butterfly friendly" (9%), "pollinator attractive" (8%), "bee attractive" (7%), "butterfly attractive" (6%), and bee/butterfly images or logos (5%; Figure 2). Only two percent of respondents indicated they preferred "neonic-free" promotions. Both the neonic aware and unaware groups preferred the "pollinator friendly" phrasing the most. As expected, the neonic aware group preferred the "neonic-free" phrasing more (6% of respondents) than the unaware group (1%).

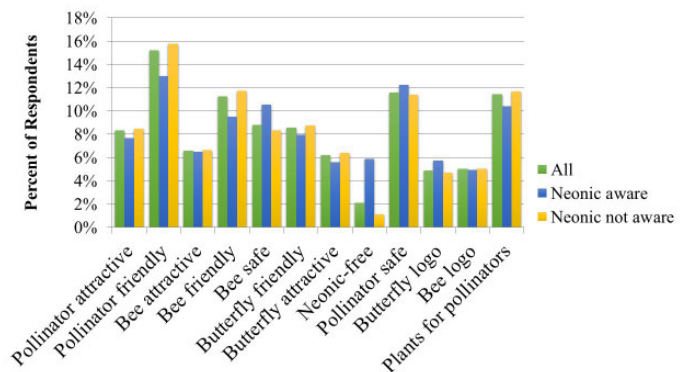


Figure 2. Consumers' preferences for pollinator-related phrases/signs used on plant labels

The purchase likelihood results were similar, with many of the pollinator phrases having positive effects (Figure 3). "Butterfly friendly," "butterfly attractive," "pollinator friendly," and "pollinator safe" had the most positive influence on purchase likelihood while the "neonic-free" phrasing had the lowest impact (likely due to low awareness). When viewed separately, the neonic aware group's purchase likelihood was greater for all of the pollinator phrases (except "butterfly attractive") than the unaware group.

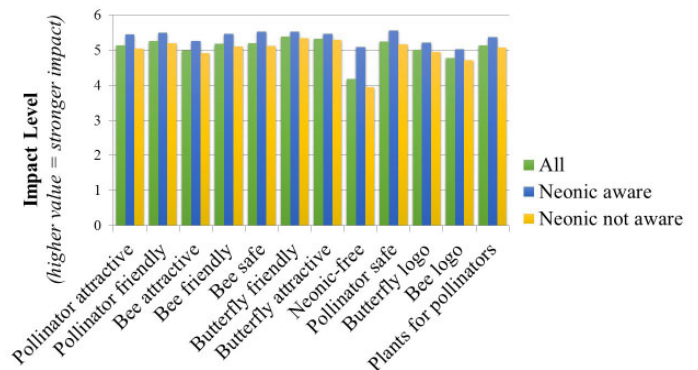


Figure 3. The impact of pollinator-related plant labels on consumers' purchasing preferences

Summary

The results indicate that pollinator promotions (especially “pollinator friendly” and “pollinator safe” phrases) positively affect consumers’ purchasing behavior toward greenhouse and nursery plants. However, consumers’ awareness of neonic insecticides is fairly low. Not surprisingly, pollinator-related promotions have a stronger impact on the purchasing behavior of the neonic aware group than the unaware group. Furthermore, awareness increases the effect of “neonic-free” promotions on consumer preferences and purchasing behavior.

Results imply that greenhouse and nursery plant producers could benefit from growing plants that are beneficial to pollinator insects. Garden centers and other plant retailers could benefit from promoting plants that benefit pollinator insects or are grown using production methods that aid pollinator insects. These benefits could also extend to other supply chain members through improved plant sales.

The impact of neonic awareness on consumer behavior has important implications. Although “neonic-free” promotions had minimal effects on consumer purchasing behavior, if neonic insecticides continue to be discussed in the mass media, more consumers will be aware of them, which could influence their preferences and purchasing behavior for plants. Consequently, nursery and greenhouse industry stakeholders (especially those using neonic insecticides) need to be aware of consumers’ perceptions of neonic insecticides and carefully consider alternative pest control measures should “neonic-free” become more mainstream.

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