

Research Highlights

Unlocking Consumer Preferences: Willingness to Pay for Integrated Pest Management Practices

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Overview

Reducing reliance on chemical pesticides is a central challenge in modern agriculture due to environmental, health, and climate-related concerns. Integrated Pest Management (IPM) offers a comprehensive framework that combines biological, technological, and postharvest approaches to control pests while limiting chemical inputs. This study examines U.S. consumers' willingness to pay for fresh fruits labeled with IPM-related practices and evaluates how increased awareness of climate change influences consumer preferences.

Data and Methods

The analysis is based on a nationwide online survey conducted in 2024 with 3,175 respondents who purchase fresh blueberries or sweet cherries. Participants completed a discrete choice experiment grounded in demand theory, where they selected among fruit options differentiated by price and pest management labels. The labels represented four approaches: reliance on chemical control, biocontrol, gene editing of insect pests, and postharvest irradiation. Respondents evaluated these options before and after receiving information explaining the links between pesticide use and climate change. Consumer preferences were estimated using generalized multinomial logit models in willingness-to-pay space, allowing for rich heterogeneity in responses.

Key Findings

Across both fruits, consumers exhibited the highest willingness to pay for products labeled with biocontrol, followed by gene editing of insect pests and postharvest irradiation. All IPM-related approaches were preferred over reliance on chemical pest control alone. After exposure to climate change information, willingness to pay increased for nearly all IPM labels, indicating that climate awareness strengthens consumer support for alternative pest management strategies.

Latent class analysis revealed three distinct consumer segments: a pro-biocontrol group, a price-conscious group, and a pro-gene-editing group. These segments differ systematically in their price sensitivity, attitudes toward emerging technologies, and perceptions of climate change and agricultural practices. Importantly, the results show substantial heterogeneity, underscoring that no single labeling strategy will resonate uniformly across consumers.

Implications

The findings demonstrate that consumers are willing to pay premiums for IPM-labeled fruits, particularly when pest management practices are communicated as part of broader climate change mitigation efforts. The study provides actionable insights for growers, marketers, and policymakers by highlighting the value of transparent labeling and targeted communication strategies. More broadly, the results support the role of IPM as an economically viable and socially acceptable pathway for reducing chemical pesticide use while maintaining productivity in specialty crop systems.