Factors That May Influence the Purchasing Behavior of U. S. Consumers in Relation to Bioplastic Plant Containers

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Introduction

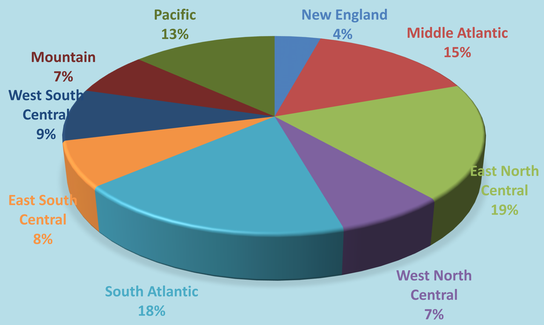
The horticulture industry is reliant on nonrenewable, petroleum-based containers for growing and selling plants. Although a limited infrastructure exists for recycling such containers, the reality is that over 95 percent of nonrenewable plant containers end up in landfills. Our team has been developing and testing biorenewable, bioplastic plant containers as alternatives to petroleum-based containers, and is interested in factors that may influence the market for different versions of these sustainable containers. We developed a survey tool that would help us answer the following questions: 1) are consumers likely to purchase plants in bioplastic containers; 2) for which container attributes are consumers more likely to pay extra; and 3) which factors may be predictors for likelihood to purchase and willingness to pay extra for plants in different bioplastic container types.

Methods

In April 2015, we used the web-based SurveyMonkey Audience™ tool to survey a subset of the U.S. adult population with an interest in gardening. We received 1524 usable surveys from all major U.S. geographic regions. The survey was approved by University of Nevada, Reno IRB as Project 746474.

Most respondents were between 25 and 64 years of age (91.5%; n=1394), white (81%; n=1234), and female (63%; n=960). Nearly all survey respondents could be described as either reluctant, beginning, or experienced gardeners (96.8%; n=1475).

Data were analyzed using SAS/STAT software (SAS Institute, Cary, NC). Hypothesis testing was conducted using independent samples t-tests at α=0.05. Pearson Chi-square was used to test the significance of differences where variables were categorical. Strength of data trends in which variables were ordinal was analyzed using Gamma's Ƴ.



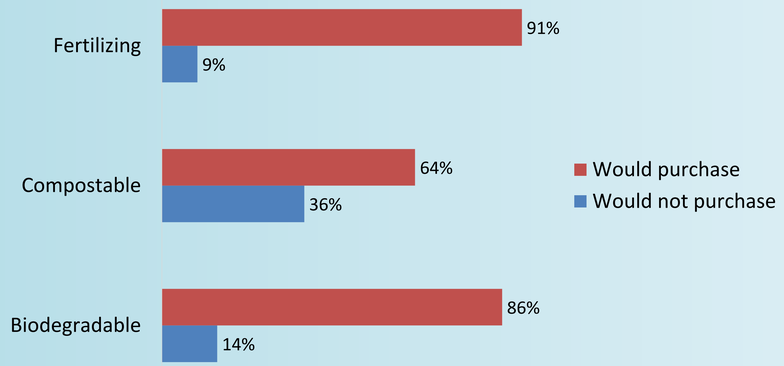
Bioplastic Container-Type Descriptions

Biodegradable: This type of bioplastic container can decompose in soil within six months.

Compostable: This type of bioplastic container will not decompose in soil within six months, but will decompose under normal composting (high-temperature) conditions.

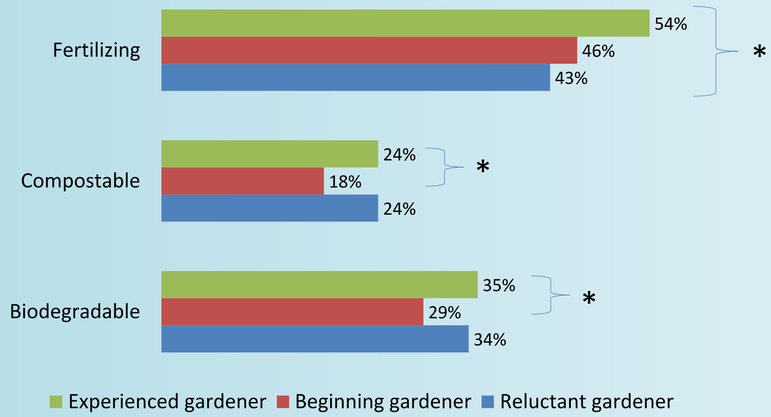
Fertilizing: This type of bioplastic container can decompose in soil within six months. It is made from plant-based materials that release nutrients as they decompose. It does not contain added fertilizers.

Willingness to Purchase Plants in Bioplastic Containers



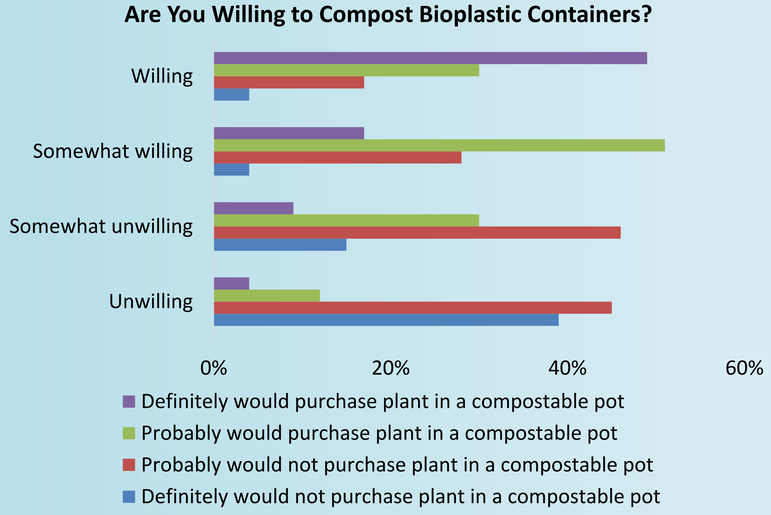
Experienced gardeners are likely to be an important and reliable early target for marketing bioplastic plant containers. Asterisks indicate significance at α=0.05.

Definitely Would Purchase by Gardening Interest



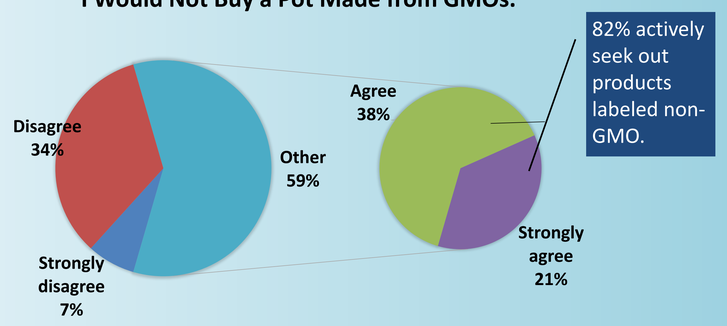
Willingness to compost bioplastic plant containers was associated with willingness to purchase plants in containers labeled "compostable."

Are You Willing to Compost Bioplastic Containers?



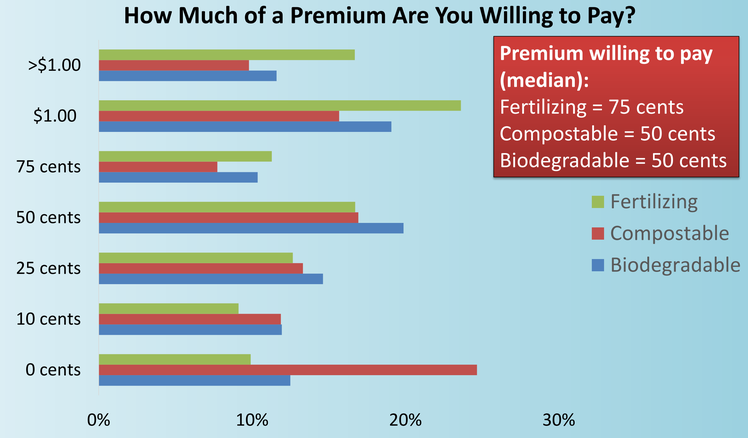
Concern about GMOs was associated with willingness to purchase plants in bioplastic containers of all types.

I Would Not Buy a Pot Made from GMOs.



Respondents were willing to pay the greatest premium for plants in fertilizing containers. Nearly 25 percent would not pay extra for plants in compostable containers.

How Much of a Premium Are You Willing to Pay?



Conclusions

- ❑ Greater than 90 percent of survey respondents were willing to purchase plants in bioplastic containers.
- ❑ The greatest numbers of respondents were willing to buy and pay extra for plants in biodegradable and fertilizing containers.
- ❑ Experienced gardeners are likely to be an important early target for marketing bioplastic containers.
- ❑ Bioplastic containers labeled "compostable" may fill a niche market comprised of consumers who take a more active role in gardening.

Acknowledgements

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