

# United States Consumers' Perceptions and Willingness to Pay for Sustainable Environmental Practices in a Retail Floral Provider's Business Model

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**KEYWORDS.** composting, environmental attitudes, fair trade, floral design, floriculture, green awards

**ABSTRACT.** Research suggests consumers are willing to pay a premium for goods from industries that design products using environmentally sound practices and that these practices lead to customer loyalty. Using environmentally friendly practices can differentiate a business from competitors through branding, which has been known to help increase profit margins and stimulate demand in a saturated market. The main purpose of this study was to gain an understanding of consumer perceptions and willingness to pay as they relate to retail floral providers' sustainable and environmentally friendly practices. A total of 2172 people responded to an online survey. The sample used in this study was a random selection of individuals 18 years and older living in the United States. Survey responses were collected from 21 Dec 2022 to 27 Jan 2023. Respondents indicated the use of locally sourced flowers followed by the recycling of flower waste through composting as the two sustainable attributes that would increase their willingness to make purchases the most. Respondents indicated the strongest willingness to pay 10% or more for locally sourced flowers (61.7%), followed by flower providers composting their floral waste (59.5%). In addition, 50% or more of all respondents indicated a willingness to pay 10% or more for all the sustainable attributes for which they were asked. The methods in which retail floral providers source floral material, create floral designs, and market and brand their company are important considerations when promoting their services toward environmentally conscious consumers and in creating a valuable repeat customer base.

As consumers have become increasingly concerned about the environmental standards of industries from which they purchase

products, industries have begun to restructure their business model to one that is more environmentally sustainable (Ouvrard et al. 2020). Studies have found that pressures from consumers can bolster a company's move toward investing in environmentally sustainable practices. For example, studies in the United States and Spain identified three variables—public concern, governmental regulatory pressures, and competitive advantage—to be significant in influencing corporate environmentalism (Banerjee 2002; Saleem et al. 2020). With consumers becoming increasingly aware of health risks and environmental degradation related to the overuse of pesticides, there has been an increase in organic, sustainable, and fair-trade-branded horticulture and floriculture products being sold in the United States and around the world (Lernoud and Willer 2017; Toumi et al. 2016). These brands are related to certifications that

help to ensure growing conditions meet or exceed legal government mandates and industry norms as they relate to environmental sustainability (Lernoud and Willer 2017; Raynolds 2012). There is increasing evidence that environmentally sustainable business practices lead to an increase in customer loyalty (Jayaraman et al. 2012). Furthermore, research suggests consumers are willing to pay a premium for products from industries that design products using environmentally sound practices (Behe et al. 2013; Laroche et al. 2001).

In a recent study investigating consumers' reasons for purchasing more ecofriendly products, it was discovered that the main reasons consumers purchase sustainable products are for plants/species, soil, and water protection; conservation of resources; greenhouse gas emission reduction; and encouragement of recyclability (Isaak and Lentz 2020). In addition, a study investigating consumers' perceptions of luxury and utilitarian products with environmental claims found these claims enhanced consumers' perceptions of products, especially when the content of the claim emphasized global environmental benefits (Steinhart et al. 2013). Environmental assertions may also improve consumers' perceptions of luxury items, thus giving them a justification to indulge in such products (Steinhart et al. 2013).

In a study investigating US consumers' cut-flower purchasing choices, it was found the percentage of floral transactions occurring at traditional free-standing retail floral shops was decreasing whereas the percentage of floral purchases at big-box stores and general retailers was increasing (Yue and Behe 2008). Determining how to compete and gain market shares is an important challenge all retail venues face (Yue and Behe 2008). One method a company can use to differentiate itself from the rest and remain competitive is through branding. Branding has been shown to increase profit margins and help to stimulate demand in a saturated market (Collart et al. 2010). Behe et al. (2013) concluded, "environmentally and socially responsible business differentiation strategies have become important components for the green industry's competitive landscape (p 206)," after studying consumer preferences for local, sustainable plant production

Received for publication 25 Sep 2023. Accepted for publication 30 Oct 2023.

Published online 27 Dec 2023.

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This study was facilitated and funded by the Floral Marketing Fund, in cooperation with the American Floral Endowment; and cosponsored by BloomNet<sup>®</sup>, a floral services company serving more than 5000 local florists across the country, and Syndicate Sales, a leading manufacturer and supplier of floral hardgoods for retail florists.

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<https://doi.org/10.21273/HORTTECH05324-23>

characteristics. Increasingly, there have been efforts to establish brands as “environmentally friendly” or “green” in an effort to appeal to the growing number of environmentally conscious consumers (Campbell et al. 2020).

Green awards and certifications were originally created to help improve a company’s environmental practices by establishing performance goals and implementing systems that help businesses better manage their environmental activities (Darnall and Sides 2008; Lee et al. 2019). Green awards and certifications improve relations among businesses, the public, governments, trading partners, and employees, while also spurring environmental improvements such as saving water and energy, using ecofriendly purchasing policies, reducing waste, and/or managing waste better (Font and Tribe 2001; Lee et al. 2019). One study investigating sustainable, organic, and local certifications within the food production industry found consumers preferred certified food products over products that had no certification, which was linked positively to a willingness to pay a premium (Sackett et al. 2016). In addition, research investigating consumers’ perceptions of sustainably sourced ornamental plants has shown that consumers indicate having more concern that plants are sourced locally over being grown organically, because consumers’ health concerns associated with the use of synthetic pesticides on food products are not as big an issue with ornamental plants (Yue et al. 2011).

Studies indicate that differences in consumer actions and motivations vary by demographics (Laroche et al. 2001; Patel et al. 2017; Society of American Florists 2016). Consumers who are typically willing to pay more for environmentally friendly products are female, married, and have at least one child who lives at home (Laroche et al. 2001). In addition, it has been found consumers 36 to 50 years of age are the most likely group to purchase products proactively from environmentally friendly companies (Patel et al. 2017).

In an analysis of European consumers’ purchasing preferences for flowers and plants, increasing evidence shows consumers value a product’s origin, and prefer locally grown and seasonal flowers (Gabellini and Scaramuzzi 2022). It was also noted

that sustainability and transparency are playing increasingly important roles in consumer choice, especially among young, educated consumers (Gabellini and Scaramuzzi 2022).

A recent study (Etheredge and Waliczek 2020) investigated retail flower shop owners’ perceptions of environmentalism and their willingness to compost fresh-cut floral waste produced at their retail floral establishments. Most of the floral shop owners who participated in the study had a high level of environmental concern and were willing to collaborate with local community programs, such as community gardens and master gardeners, if it meant the waste produced at their shops could be composted. This indicates a willingness among floral shop owners to structure their business to one that is more environmentally sustainable if desired by consumers. However, little research has been conducted to understand consumers’ perceptions of the introduction of sustainable attributes into a retail floral providers’ business models and/or whether consumers would be willing to pay a premium for flowers from a more sustainable floral provider. The main purpose of our study was to gain an understanding of consumer perceptions and willingness to pay as they relate to retail floral providers’ use of environmentally sustainable practices.

## Materials and methods

**SAMPLE.** Institutional review board (IRB) exemption approval was obtained for this research (IRB Protocol 21-211, May 2021). Survey responses were collected from 21 Dec 2022 to 27 Jan 2023. Respondents were drawn from an online survey created using Qualtrics (Provo, UT, USA), posted on social media websites, and spread through post sharing. To gain a robust sample, we also contracted Momentive Inc. (San Mateo, CA, USA), which maintains a panel of more than 50 million people globally. Control mechanisms in place by the contracted provider eliminated duplicate responses. We specified within the survey consent form and summary that individuals needed to be  $\geq 18$  years old and reside within the United States.

**INSTRUMENTATION.** The instrument developed for the study consisted of 31 questions within four different sections. An initial search for test instruments measuring consumers’ perceptions

of environmental, sustainable business practices was conducted, and sample questions from each instrument were selected and adapted to fit the topic of our study. After questions were selected and adapted to fit the area of environmental sustainability for our study, the questionnaire was reviewed by a panel of experts. The expert panel consisted of eight individuals working within the educational, wholesale, and retail sectors of the floriculture industry. Members of the expert panel were chosen based on their experience in the floriculture industry and their willingness to participate on the panel. The questionnaire was then pilot-tested to identify problems with the questionnaire’s instructions and specific questions within the survey.

The first section of the survey determined the environmentally sustainable attributes consumers consider to be the most important based on how much more they are willing to pay for varying environmentally sustainable business attributes. This section included 14 questions relating to respondents’ perceptions of environmentally sustainable attributes and their willingness to pay a premium from a floral provider who was more environmentally sustainable compared with those who were not. For the purpose of our study, retail floral providers were defined as florists, wedding/event planners, grocery, and other consumer-facing outlets, and were separate from nurseries/greenhouses. Respondents answered questions in a variety of manners including 5-point Likert scale (Likert 1932) questions, multiple choice, and ranking. Likert answers included strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. Examples of questions included the following: Overall, I would be more willing to make purchases from a retail floral provider that is environmentally friendly than from a retail floral provider that is not environmentally friendly. And: All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells flowers sourced from local farmers and nurseries (farms and nurseries within 100 miles of the retail floral provider) (Lee et al. 2019). Additional multiple-choice questions asked respondents to answer questions from a given set of answers. An example of multiple-choice questions included the following: Please indicate how much more, if any, you would be

willing to pay for a flower arrangement made using locally grown flowers (grown within 100 miles of the retail floral provider). Examples of multiple-choice answers included 0%, 5%, 10%, 15%, 20%, and  $\geq 25\%$ .

The second section of the survey determined consumers' perceptions of green awards and certifications (Lee et al. 2019). This section consisted of three questions, including two questions that used a Likert scale and one multiple-choice question. Likert scale (Likert 1932) questions were answered with either strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. The multiple-choice answers included percentages from which consumers chose a relevant assessment. Example of questions included 1) If an environmentally friendly certification existed for retail floral providers, I would be more willing to make purchases from a certified, environmentally friendly retail floral provider than from a retail floral provider not certified and 2) Please indicate how much more, if any, you would be willing to pay for flowers and floral designs from an environmentally friendly-certified retail floral provider if such a certification existed.

The third section of the survey collected information regarding consumers' cut-flower shopping habits and consisted of five questions that asked respondents to identify the frequency with which they purchase flowers from a retail flower shop and the way they most often make purchases from a retail flower shop: online, face-to-face, or over the phone. Questions were drawn from previously tested, reliable, valid studies (Huang and Yeh 2009; Yue and Behr 2008).

The final section of the survey consisted of six demographic questions that asked respondents to provide their age, education level, annual household income, gender, ethnicity, and state in which they live. These questions were modeled on a reliable, valid instrument used in a previous similar study (Short et al. 2017).

**DATA ANALYSIS.** Data from the survey were entered into IBM SPSS Statistics (version 28; IBM Corp., Armonk, NY, USA). Descriptive statistics were used to discern the frequency with

which respondents selected answers for each question.

## Results and discussion

**SURVEY RESPONSE.** A total of 2172 people responded to the survey. Overall, the respondent population did skew slightly more toward women ( $n = 1229$ , 56.6%), whites ( $n = 1514$ , 69.7%), and college-educated people ( $n = 1221$ , 56.2%). Response rates for certain demographic groups were low, making generalizations of some demographic groups to the demographics population as a whole not possible. The survey was completed successfully by respondents living within all 50 states and Washington, DC. Overall, a majority of respondents indicated they purchase flowers three to four times a year ( $n = 761$ , 35.0%) to once or twice a year ( $n = 479$ , 22.1%), choosing to make floral purchases in person ( $n = 1418$ , 65.3%) either from a floral department in a grocery store or supermarket ( $n = 1247$ , 57.4%) or from a local florist ( $n = 1110$ , 51.1%), and/or as a gift for others ( $n = 1523$ , 70.1%).

**OVERALL PERCEPTIONS OF PURCHASING FROM FLORAL PROVIDERS WITH ENVIRONMENTALLY SUSTAINABLE CHARACTERISTICS.** Respondents were asked to rate how environmentally correct it is to make purchases based on the floral providers' environmental practices based on a 5-point Likert scale, with 1 point indicating strong agreement and 5 points indicating strong disagreement. Overall, 1269 (58.43%) participants agreed or strongly agreed that it is the environmentally right choice to make purchases from a floral provider who is environmentally sound when compared with one who is not. In addition, respondents were asked to rate their overall willingness to make purchases from floral providers that have incorporated sustainable attributes into their business over floral providers that have not, using the previously mentioned Likert scale. Overall, 1334 participants (61.42%) agreed or strongly agreed they would be more willing to make purchases from an environmentally friendly floral provider when compared with one who is not. Past research had found consumers with pro environmental attitudes were more likely to purchase products branded as being more environmentally sustainable (Popovic et al. 2019). This indicates the majority of respondents in

our study would be more willing to make purchases from retail floral providers that have branded their businesses as being more environmentally sustainable.

**OVERALL WILLINGNESS TO PAY.** Five statements asked respondents to indicate how willing they would be to make purchases from a retail floral provider based on environmentally sustainable attributes that could be added to a floral provider's establishment. Of the five statements, participants indicated the greatest amount of agreement with the statement regarding floral providers using locally sourced flowers, with 1415 (65.1%) agreeing or strongly agreeing, followed closely by floral providers recycling their flower waste through composting ( $n = 1387$ , 63.9%) agreeing or strongly agreeing. The ranking of these responses indicate that locally sourced flowers and composting are the most important environmentally sustainable attributes retail floral providers could offer to increase willingness to purchase based on respondents' answers. The use of sustainable, recycled, upcycled, and/or reusable materials instead of single-use products was a close third, where 1314 (60.5%) agreed or strongly agreed (Table 1). In an analysis of European consumers' purchasing preferences for flowers and plants, increasing evidence shows consumers value a product's origin, and prefer locally grown and seasonal flowers (Gabellini and Scaramuzzi 2022).

An additional five statements asked respondents to reply to how much more, if any, they would be willing to pay for flowers from a floral provider based on environmentally sustainable attributes. Although 50% or more of the participants indicated a willingness to pay 10% or more for all the environmentally sustainable attributes about which they were asked, respondents indicated a strongest willingness to pay of 10% or more for locally sourced flowers ( $n = 1342$ , 61.7%), followed by flower providers composting their floral waste ( $n = 1294$ , 59.5%). Consumers were least willing to pay additional charges for organically grown flowers and fair-trade-sourced flowers, with 1138 (52.4%) and 1093 (50.3%) of total respondents, respectively, indicating they would be willing to pay 10% or more

**Table 1.** Frequency statistics for respondents' responses to five questions on a 5-point scale (1 point = strongly agree, 2 points = agree, 3 points = neither agree nor disagree, 4 points = disagree, and 5 points = strongly disagree) indicating how willing they are to make purchases from floral providers based on specific environmentally sustainable attributes.

Survey question	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree	
	n	%	n	%	n	%	n	%	n	%
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that recycles their flower waste through composting than a retail floral provider that disposes of floral waste in municipal landfills.	144	6.6	208	9.6	433	19.9	723	33.3	664	30.6
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells flowers sourced from local farmers and nurseries (farms and nurseries within 100 miles of the retail floral provider).	145	6.7	205	9.4	407	18.7	848	39.0	567	26.1
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells organically grown flowers (flowers grown and processed using no synthetic fertilizers or pesticides).	113	5.2	212	9.8	724	33.3	732	33.7	391	18.0
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells fair-trade-sourced flowers (fair trade can be defined as trade between companies in developed countries and producers in developing countries).	97	4.5	222	10.2	678	31.2	789	36.3	386	17.8
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that uses sustainable, recycled, upcycled, and/or reusable materials instead of single-use products. Single-use plastic products can be defined as items that are used once, or for a short period of time, before being thrown away.	133	6.1	234	10.8	491	22.6	784	36.1	530	24.4

for these attributes (Table 2). This supports past research that also found consumers were willing to pay a premium for products from industries that design products using environmentally sound practices, such as sourcing products locally, using recyclable or compostable materials, and incorporating energy-saving practices (Behe et al. 2013; Khachatryan et al. 2014; Laroche et al. 2001). Past research has indicated the premium a consumer is willing to pay varies depending on the specific environmental attribute (Khachatryan et al. 2014).

**RESPONDENTS' ANSWERS TO RANKING IMPORTANCE OF ENVIRONMENTAL ATTRIBUTES.** In a follow-up question further investigating respondents' perceptions on deciding where to make floral purchases based on environmentally sustainable aspects of the flower provider, survey participants were asked to select the single environmentally sustainable aspect they considered to be the most important factor. Respondents indicated the most important aspect to be, "Materials (other than flowers) used in floral design, are environmentally sustainable, recyclable,

'upcyclable,' reusable" (n = 690, 31.8%) (Table 3). The findings do not align with the findings of questions regarding respondents' willingness to pay for certain sustainable attributes. In previous questions in which participants were asked to select for which sustainable environmental attribute they would be most willing to pay a premium when selecting a flower provider, respondents indicated the use of locally grown flowers as the attribute for which they were most willing to pay a premium. In the answer choices, the phrase "locally sourced

**Table 2. Descriptive statistics for respondents' responses to five questions pertaining to how much more they would be willing to pay for flowers from a floral provider based on environmentally sustainable attributes.**

Survey question	Percentage respondents are willing to pay											
	0		≥ 5		≥ 10		≥ 15		≥ 20		≥ 25	
	n	%	n	%	n	%	n	%	n	%	n	%
Willing to pay for a flower arrangement made by retail floral providers that recycle their flower waste through composting rather than disposing of floral waste in a municipal landfill.	436	20.1	1736	79.9	1294	59.5	675	31.0	384	17.6	173	8.0
Willing to pay for a flower arrangement made using locally grown flowers.	370	17.0	1802	89.9	1342	61.7	712	31.7	395	18.1	169	7.8
Willing to pay for a flower arrangement made using organically grown flowers.	598	27.5	1574	72.4	1138	52.3	609	28.0	326	15.0	131	6.0
Willing to pay for a flower arrangement made using fair-trade-sourced flowers.	581	26.7	1591	73.2	1093	50.3	548	25.5	266	12.2	100	4.6
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using sustainable, recycled, upcycled, and/or reusable materials instead of single-use products.	484	22.3	1688	77.7	1207	55.5	616	28.3	332	15.2	133	6.1

flowers” was not used; rather, a more general answer choice, “Flowers used in floral designs are sustainably grown and sourced,” was supplied and ranked as the second more important sustainable attribute (Table 3). Trigger words are words or phrases used in marketing that help to persuade a customer and inspire a consumer to act (Troncoso 2023). The fact that the respondents’ answers differed in this question indicates that the phrase “locally sourced” is potentially an important trigger word for consumers when making purchasing decisions. Past research has found that consumers prefer a generic label indicating a product is local when marketing locally sourced products (Meyerding et al. 2019).

**RESPONDENTS’ PERCEPTIONS OF ENVIRONMENTALLY FRIENDLY CERTIFICATION.** Respondents were asked two questions pertaining to their perceptions on the creation of an environmentally friendly certification for floral providers. Participants indicated not only are they more

willing to shop at a certified floral provider, but they would trust a certified floral provider’s environmental standards based on the certification. The results showed that 1210 respondents (55.7%) agreed or strongly agreed that they would be willing to shop at a certified floral provider over other floral providers based on the certification. In addition, 1210 participants (55.7%) indicated they would trust a certified flower provider’s environmental standards based on the certification (Table 4). A majority, 1190 respondents (54.7%), indicated they would be willing to pay at least 10% more for flowers from a certified, environmentally friendly floral provider, which is consistent with findings from previous questions regarding participants’ willingness to pay for environmentally sustainable floral attributes (Table 5). Our support past research investigating environmentally sustainable certifications on food labels, which concluded certificates had a positive effect on

consumers’ preferences when making purchases and were linked positively to willingness to pay a premium for certified products (Sackett et al. 2016).

## Conclusion

The methods in which retail floral providers source floral material, create floral designs, and market and brand their company are important considerations when promoting their services to environmentally conscious consumers, and in creating a valuable, repeat customer base. Based on the findings in our study, floral providers who incorporate any environmentally sustainable attributes into their business models should communicate this in their promotions and advertisements to set themselves apart from the competition and make consumers aware of their environmental efforts. From the list of environmentally sustainable attributes covered in our study, respondents indicated the use of locally sourced flowers, the composting of

**Table 3. Frequency statistics indicating percent of total respondents’ responses to the question: When deciding where to make a floral purchase, which of the following aspects of sustainability do you consider to be the most important for a retail floral provider to practice?**

Answer choices	n	%
Flowers used in floral designs are sustainably grown and sourced.	616	28.4
Materials (other than flowers) used in floral design are sustainable, recyclable, “upcyclable,” and reusable.	690	31.8
Floral provider is as energy efficient as possible (uses energy-efficient light bulbs, coolers, electric vehicles, etc.).	304	14.0
None of the above are important to me when making a floral purchase.	387	17.8
I do not make floral purchases.	175	8.1

**Table 4. Frequency statistics indicating respondents' responses pertaining to their overall trust and willingness to purchase flowers from a floral provider who is environmentally friendly certified compared with floral providers without a certification.**

Survey question	Strongly agree		Agree		Neither agree nor disagree		Disagree		Strongly disagree	
	n	%	n	%	n	%	n	%	n	%
If an environmentally friendly certification existed for retail flower providers, I would be more willing to make purchases from a certified environmentally friendly retail flower provider than from a retail flower provider not certified.	384	17.7	826	38.0	646	29.7	220	10.1	96	4.4
If an environmentally friendly certification existed for retail flower providers, I would trust a retail flower provider's environmental quality standards when purchasing from an environmentally friendly-certified retail flower provider.	342	15.7	868	40.0	636	29.3	236	10.9	90	4.1

floral waste, and the use of sustainable, recycled, upcycled, and/or reusable materials instead of single-use products as being the three environmentally sustainable attributes that have the most perceived value.

The fact that participants placed the most value on the use of locally sourced flowers indicates a need to research further what “locally sourced flowers” means more fully to the US population, as well as the possible need to expand the local cut flower-growing industry into smaller regional pockets. In addition, research investigating the incorporation of composting methods into a floral provider's business model is suggested. Because of the importance placed on the use of materials that are more environmentally friendly when constructing floral designs, educationally programs focused on floral mechanics that can be used to create floral designs using sustainable products should be offered by education programs within the floriculture industry.

**Table 5. Frequency statistics for the question: Please indicate how much more, if any, you would be willing to pay for flowers and floral designs from an environmentally friendly-certified retail flower provider if such a certification existed.**

Answer choice	n	%
0%	488	22.5
5%	494	22.7
10%	584	26.9
15%	314	14.5
20%	192	8.8
≥ 25%	100	4.6

Participants reported a willingness to pay a premium to floral providers that have environmentally sustainable certifications, indicating a need within the floriculture industry to create certification programs in which floral providers can obtain certifications for using environmentally sustainable practices, which they can then use to promote their environmental efforts to the public. Past research has found consumers are willing to pay a premium for certified products (Sackett et al. 2016).

Because this was a preliminary study into consumers' stated preferences for hypothetical environmentally sustainable attributes that could be incorporated into a retail floral provider's business, future studies investigating this topic using revealed preferences methods are suggested to determine whether participants' real-world purchasing decisions indeed reflect survey findings.

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