



FLORAL MARKETING FUND
Growing Our Industry Together

U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry

Final Report

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The study is facilitated by the Floral Marketing Fund, in cooperation with the American Floral Endowment (AFE) and co-sponsored by leading floral industry companies, BloomNet®, a floral services provider, and Syndicate Sales, a floral hardgoods supplier.

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Project Objective

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.

Survey results will aid in helping thousands of floral providers make decisions regarding how to structure their businesses to become more environmentally friendly.



Our personal consumer choices have ecological, social, and spiritual consequences. It is time to re-examine some of our deeply held notions that underlie our lifestyles.

David Suzuki
Canadian academic, science broadcaster,
and environmental activist

Background

As consumers have become increasingly concerned about the environmental standards of industries they purchase products from, companies have begun to restructure their business model to one that is more environmentally sustainable (Ouvrard 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," "Local," "Sustainable," and "Fair Trade" branded horticulture/floriculture products being sold in the U.S 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; Raynold 2012).

There is increasing evidence environmentally sustainable practices lead to an increase in customer loyalty (Jayaraman et al. 2012). Research suggests consumers are willing to pay a premium, up to 40% more, for products from industries that design products using environmentally sound practices that have been shown to be "green" (Behe et al. 2013; Laroche et al. 2016).

Consumers who are typically willing to pay more for environmentally friendly products are female, married, and with at least one child living at home (Laroche et al. 2016). Additionally, it has been found consumers 36–50 years of age are the most likely group to be proactively purchasing products from environmentally friendly companies (Patel et al. 2017).

Background (cont.)

These findings were reaffirmed in a study conducted by the University of Tennessee which explored consumers preferences for gardening products with environmentally friendly attributes. The study found older females who are in garden clubs or environmental organizations to be the most willing to purchase ecofriendly products (Tomas 2019). Additionally, it was found that age may play a role in preferences for certain environmental attributes with younger people preferring certain ecofriendly products and older adults others (Thomas 2019). Income has also been found to be positively correlated with consumers' willingness to pay for ecofriendly products. Consumers who earn higher incomes have been found to be more willing to purchase organic plants, compost and recycle (Rihn et al. 2016).

In a recent study investigating consumers' reasons for purchasing more ecofriendly products, it was found that the main reasons consumers purchase sustainable products are for environmental sustainability reasons such as plant protection, soil-protecting production, and water protection, as well as conservation of resources, greenhouse gas (GHG) emission reduction, and recyclability (Isaak and Lentz 2020). In an analysis of European consumers' purchasing preferences for flowers and plants, increasing evidence shows consumers value a products origin and prefer locally grown and seasonal flowers (Gabellini and Scaramuzzi 2022). It was also noted that sustainability and transparency are playing an increasingly important role in consumer choice, especially among young, educated consumers (Gabellini and Scaramuzzi, 2022).

2023 Study Participant Population

A total of 2,172 people participated in this new 2023 survey. The sample population used in this study was a random selection of individuals 18 years of age and older living in the U.S. Survey responses were collected from 21 Dec. 2022 to 27 Jan. 2023. Participants were drawn from an online survey that was created using Qualtrics (Provo, UT) and shared publicly for five weeks to consumer-focused communications. To gain the most randomized sample possible, the researchers also contracted Momentive Inc. (San Mateo, CA), which maintains an "Audience" of over 50 million people globally. Control mechanisms set in place by the contracted provider eliminate duplicate responses. The researchers specified within the survey consent form/summary that individuals had to be at least 18 years old and must reside within the United States.





2023 Survey Instrument & Data Analysis

The survey instrument consisted of 31 questions within four different sections and was assembled using past surveys which explored consumers' preferences and purchasing habits for floral products and views toward environmental certifications and awards. (Huang and Yeh 2009; Lee et al. 2019; Short et al. 2017; Yue and Behe 2009). The questions were reviewed, and feedback was given by a panel of industry experts through the project co-sponsors and the Floral Marketing Fund.

Data from the survey were analyzed using Kendall's Coefficient of Concordance (Kendall's W) tests, as well as descriptive, and frequency statistics. Demographic comparisons were also made between groups using analysis of variance (ANOVA) tests and post hoc (LDS) tests.

Definition of Terms

Degrees of Freedom (df)

The number of independent values that can vary in an analysis without breaking any constraints.

Standard Deviation (SD)

A measure of how dispersed the data is in relation to the mean.

F Value (F)

The value can be used to determine whether the test is statistically significant. The F value is calculated by dividing two mean squares. This calculation determines the ratio of explained variance to unexplained variance.

P Value (P)

If the p-value is less than 0.05, then researchers have evidence of a statistically significant main effect between the independent groups. If the p-value is more than 0.05, then researchers have evidence that there is not a statistically significant main effect between the independent groups.

Statistically significant

The result obtained is statistically significant and acceptable. Statistically significant at 0.05 indicates there is less than a 5% chance of the results varying upon retesting.

Key Findings

- The majority of participants (58.43%) agreed or strongly agreed that it's the environmentally right choice to make purchases from a floral provider that is environmentally friendly when compared to one that is not.
- The majority of participants (61.42%) agreed or strongly agreed they would be more willing to make purchases from an environmentally friendly floral provider when compared to one that is not.
- Participants indicated they were most willing to make purchases from a floral provider that uses locally sourced flowers when compared to floral providers that do not, followed closely by floral providers that recycle their floral waste through composting.
- 50% or more of the participants indicated a willingness to pay 10% or more for all the sustainable attributes they were asked about.
- Participants indicated the strongest willingness to pay 10% or more for locally sourced flowers (61.7% of all participants), followed by floral providers composting their floral waste (59.5% of all participants).
- Of the total survey population, 31.7% indicated a willingness to pay 15% or more for locally sourced flowers as well as for floral providers that compost floral waste (31.0%). While consumers ranked organic flowers as the third most preferred attribute, they appear less willing to pay 10% or more for these flowers when compared to other environmentally friendly attributes.
- Consumers were least willing to pay additional charges for organically grown flowers and fair-trade sourced flowers, with 27.5% and 26.7% of total participants, respectively, indicating they would not pay any additional increase in price for these attributes.
- Overall, participants found reasonable prices to be the most important aspect when deciding when to make a floral purchase.
- The phrase "locally sourced" is potentially an important trigger word for consumers when deciding where to make a floral purchase.
- When the phrasing "locally sourced" is removed from answer options, participants indicate the most important sustainable aspect to be "Materials (other than flowers) used in floral design, are sustainable, recyclable, upcyclable, reusable."
- Participants indicated not only are they more willing to shop at a certified environmentally friendly floral provider when compared to a floral provider that has no certification, but they would trust a certified floral provider's environmental standards based on the certification.



Key Findings

- Of the total participant population, 40% of consumers indicated an interest level of 6 (on a scale of 0–10) or higher in gaining more information about sustainable floral practices.
- Male participants indicated more agreement towards making purchases from floral providers that use locally sourced flowers when compared to other genders.
- Male participants indicated more agreement toward making purchases from floral providers that use sustainable, recyclable, and reusable material when compared to other genders.
- While males indicated being more willing to make floral purchases based on several of the environmental attributes, overall, females were more willing to pay 10% or more for all environmental attributes when compared to males.
- Male participants indicated making more purchases within a year when compared to other genders.
- Participants 55 years of age and older expressed the least willingness to pay a premium for sustainable attributes.
- Participants 34 years of age and younger were the most interested in and willing to pay a premium for all sustainable attributes they were asked about.
- Participants with a post graduate degree expressed the most interest in purchasing fair trade flowers when compared to other education groups. However, they did not indicate a greater willingness to pay for fair trade flowers when compared to other education groups.
- Regardless of race, participants appear the most willing to pay a premium of 10% or more for flowers from a floral provider that uses locally sourced flowers and composts their floral waste.
- Although participants that made \$200,000 or more indicated less agreement with several of the environmentally friendly attribute questions, they were still willing to pay the same premiums as the other income levels.
- In general, with several exceptions for certain income levels' responses to specific environmentally friendly attributes, all income groups were willing to pay at least 10% or more for sustainable attributes.





Demographic Breakdown

Overall, the demographics of the participants align closely with the overall demographics of the U.S. However, the participant population did skew slightly more towards females, Caucasians, and college-educated people.

Overall response rates for certain demographic groups were low, making generalizations of some demographic groups to the demographics population as a whole not possible.

Table 1 & Figure 1. Frequency statistics comparing demographics of participants to the most current U.S. census data. n = 2,172 people

Gender	Sample Population (n)	Sample Population (%)	2020 U.S. Consensus (%)
Female	1229	56.6%	50.5%
Male	921	42.4%	49.5%
Non-binary/Third Gender	22	1%	Not Collected

Sample Population (%)

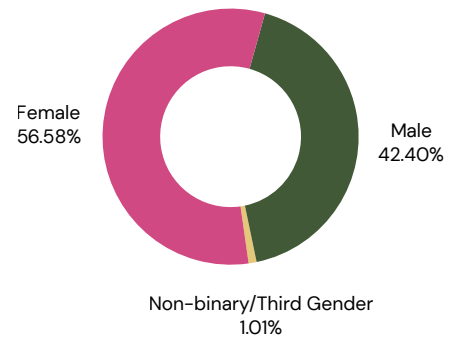
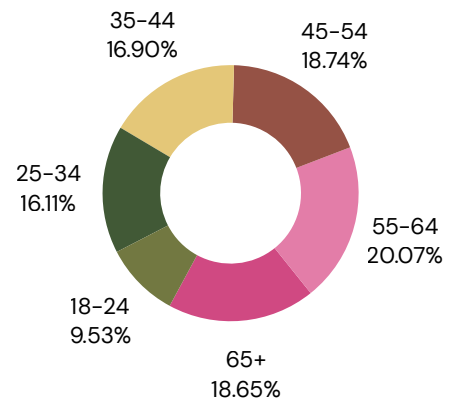


Table 2 & Figure 2. Frequency statistics comparing demographics of participants to the most current U.S. census data. n = 2,172 people

Age	Sample Population (n)	Sample Population (%)	2020 U.S. Consensus (%)
18-24	207	9.5%	9%
25-34	350	16.1%	13.7%
35-44	367	16.9%	12.9%
45-54	407	18.7%	12.4%
55-64	436	20.1%	13%
65+	405	18.6%	16.3%



Demographic Breakdown

Table 3 & Figure 3. Frequency statistics comparing demographics of participants to the most current U.S. census data. n = 2,172 people

Ethnicity	Sample Population (n)	Sample Population (%)	2020 U.S. Consensus (%)
Black or African American	164	7.6%	12.4%
Asian or Asian American	196	9.0%	5.9%
Hispanic or Latino	185	8.5%	18.7%
Native American or Alaskan Native	27	1.2%	1.1%
Native Hawaiian or other Pacific Islander	9	0.4%	0.4%
White or Caucasian	1514	69.7%	61.6%
Another race	77	3.5%	8.4%

Sample Population (%)

- Black or African American
- Asian or Asian American
- Hispanic or Latino
- Native American or Alaskan Native
- Native Hawaiian or other Pacific Islander
- White or Caucasian
- Another race

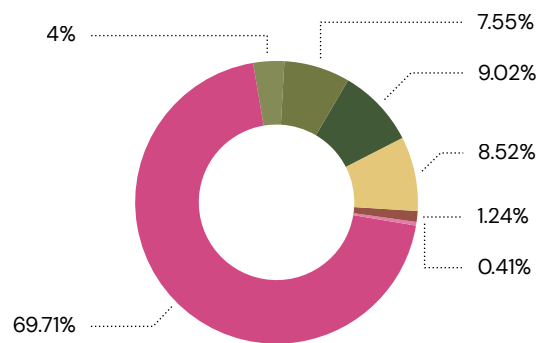
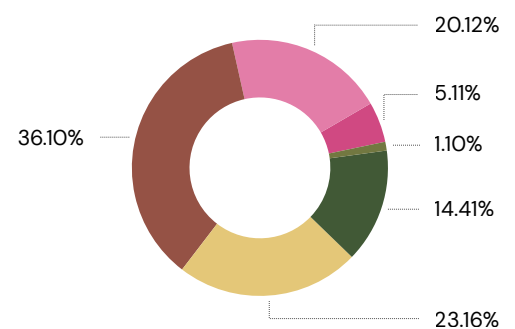


Table 4 & Figure 4. Frequency statistics comparing demographics of participants to the most current U.S. census data. n = 2,172 people

Education	Sample Population (n)	Sample Population (%)	2020 U.S. Consensus (%)
K-11	24	1.1%	8.9%
GED/high school diploma	313	14.4%	27.9%
Some college	503	23.2%	14.9%
College degree	784	36.1%	23.5%
Postgraduate degree	437	20.1%	14.4%
Associate/Trade School degree	111	5.1%	10.5%

Sample Population (%)

- K-11
- GED/high school diploma
- Some college
- College degree
- Postgraduate degree
- Associate/Trade School degree



Demographic Breakdown

Table 5 & Figure 5. Frequency statistics comparing demographics of participants to the most current U.S. census data. n = 2,172 people

Household Income	Sample Population (n)	Sample Population (%)	2020 U.S. Consensus (%)
Under \$15,000	162	7.5%	9.4%
Between \$15,000-\$29,000	252	11.6%	12.7%
Between \$30,000-\$49,999	354	16.3%	15.6%
Between \$50,000-\$74,999	454	20.9%	16.5%
Between \$75,000-\$99,999	335	15.4%	12.2%
Between \$100,000-\$149,999	360	16.6%	15.3%
Between \$150,000-\$199,999	128	5.9%	8.0%
\$200,000 or more	127	5.8%	10.3%

- Under \$15,000
- Between \$15,000-\$29,000
- Between \$30,000-\$49,999
- Between \$50,000-\$74,999
- Between \$75,000-\$99,999
- Between \$100,000-\$149,999
- Between \$150,000-\$199,999
- \$200,000 or more

Sample Population (%)

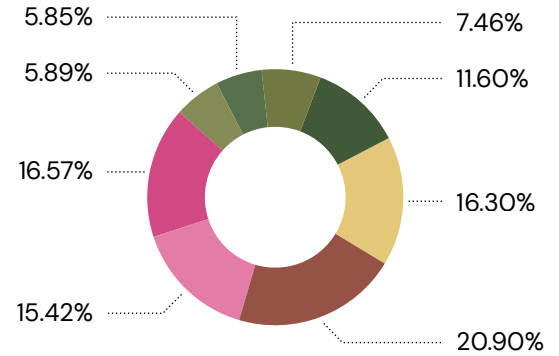


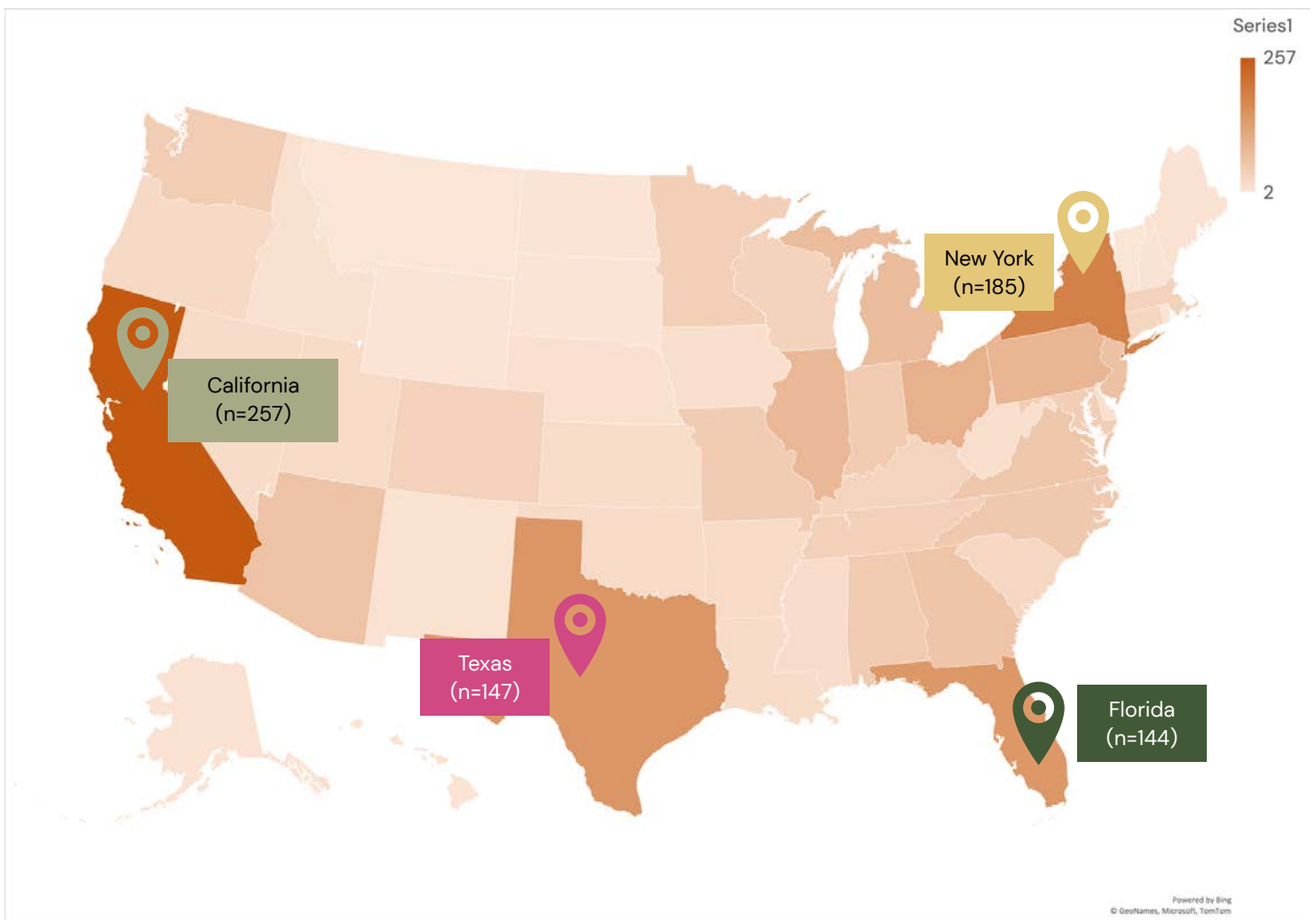
Table 6 & Figure 6. Frequency statistics comparing demographics of participants to the most current U.S. census data. n = 2,172 people

Location	(n)	(%)	2020 Census (%)
Alabama	50	2.3%	1.52%
Alaska	7	0.3%	0.22%
Arizona	64	2.9%	2.19%
Arkansas	20	0.9%	0.91%
California	257	11.8%	11.82%
Colorado	36	1.7%	1.75%
Connecticut	30	1.4%	1.09%
Delaware	9	0.4%	0.30%
District of Columbia (DC)	4	0.2%	0.20%
Florida	144	6.6%	6.56%
Georgia	61	2.8%	3.25%
Hawaii	4	0.2%	0.43%
Idaho	10	0.5%	0.57%
Illinois	84	3.9%	3.82%
Indiana	50	2.3%	2.05%
Iowa	13	0.6%	0.96%
Kansas	17	0.8%	0.88%
Kentucky	33	1.5%	1.36%
Louisiana	19	0.9%	1.39%
Maine	7	0.3%	0.41%
Maryland	44	2.0%	1.86%
Massachusetts	36	1.7%	2.10%
Michigan	77	3.6%	3.03%
Minnesota	42	1.9%	1.72%
Mississippi	18	0.8%	0.89%
Missouri	47	2.2%	1.86%
Montana	2	0.1%	0.33%
Nebraska	11	0.5%	0.59%
Nevada	19	0.9%	0.95%
New Hampshire	5	0.2%	0.42%
New Jersey	67	3.1%	2.79%
New Mexico	8	0.4%	0.64%
New York	185	8.5%	5.98%

Demographic Breakdown

Table 6 & Figure 6. Frequency statistics comparing demographics of participants to the most current U.S. census data. n = 2,172 people

North Carolina	54	2.5%	3.18%	Texas	147	6.8%	8.90%
North Dakota	3	0.1%	0.23%	Utah	21	1.0%	1.01%
Ohio	97	4.5%	3.55%	Vermont	2	0.1%	0.19%
Oklahoma	20	0.9%	1.20%	Virginia	57	2.6%	2.60%
Oregon	23	1.1%	1.28%	Washington	46	2.1%	2.33%
Pennsylvania	89	4.1%	3.91%	West Virginia	13	0.6%	0.54%
Rhode Island	3	0.1%	0.33%	Wisconsin	35	1.6%	1.78%
South Carolina	27	1.2%	1.56%	Wyoming	3	0.1%	0.17%
South Dakota	4	0.2%	0.27%	(blank)	6	0.3%	0.00%
Tennessee	40	1.8%	2.10%	I don't reside in the U.S.	2	0.1%	0.00%



Participants' Floral Purchasing Preferences



Overall, a majority of participants purchase flowers three to four times a year (35.0%) to once or twice a year (22.1%), choosing to make floral purchases in person (65.3%) either from a floral department in a grocery store or supermarket (57.4%) or from a local florist (51.1%) as a gift for others (70.1%).

Figure 7.1. Frequency statistics for the question "How often do you make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases."

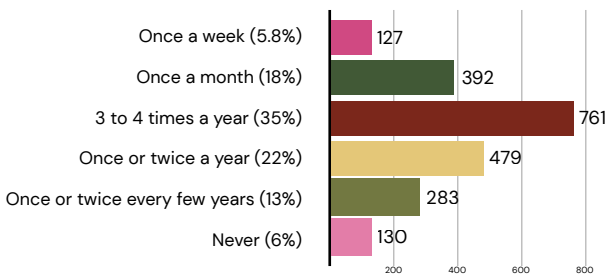


Figure 7.2. Frequency statistics for the questions "In what manner do you most often make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases."

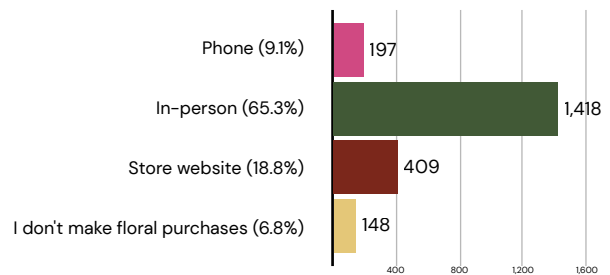


Figure 7.3. Frequency statistics for the question "For what reason do you most often make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases."

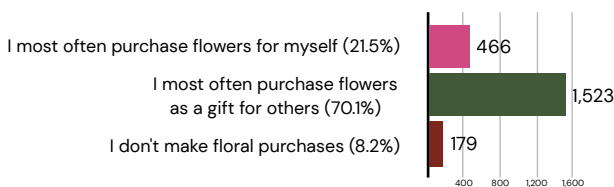
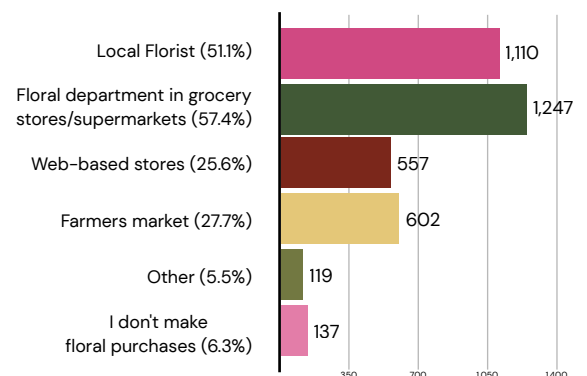


Figure 7.4. Frequency statistics for the questions "Where do you make floral purchases? Flower purchases can be defined as plants purchased at retail flower providers and nursery/greenhouse purchases."





Participants' Overall Perceptions on Purchasing from Floral Providers with Sustainable Characteristics

Participants were asked their perceptions on how environmentally right it is to make purchases based on the floral providers' environmental practices (mean score 2.50) and their overall willingness to make purchases from a sustainably run floral provider over other floral providers (mean score 2.33).

The closer the mean score for each choice is to the number one indicates an overall higher agreement with the statement, while the closer the mean score is to the number five indicates more disagreement with the statement.

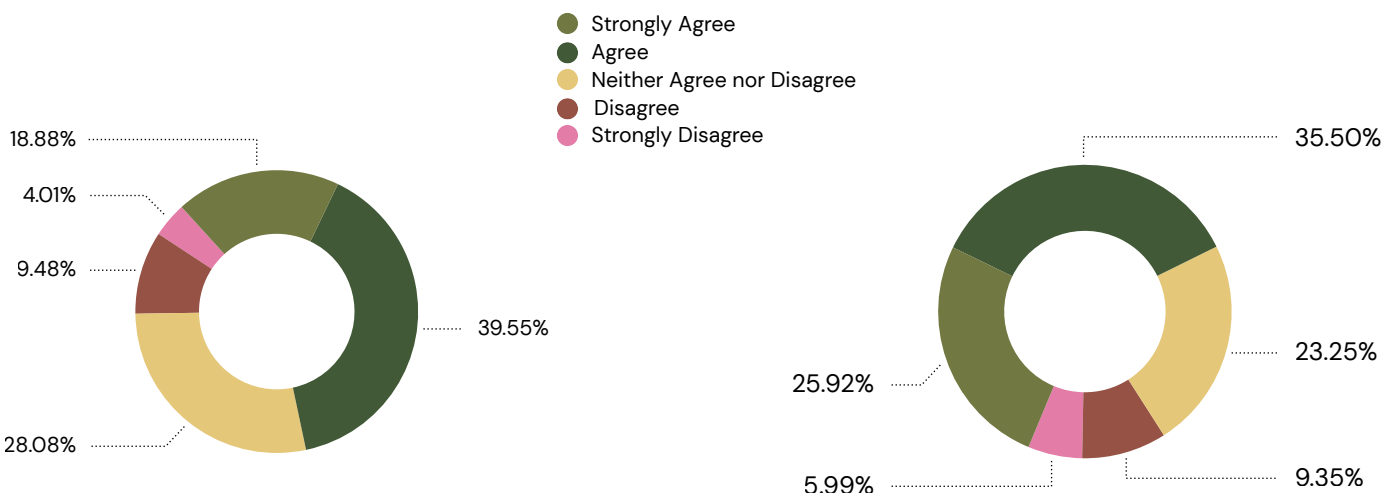
The majority of participants (58.43%) agreed or strongly agreed that it's the environmentally right choice to make purchases from a floral provider that is environmentally friendly when compared to one that is not.

The majority of participants (61.42%) agreed or strongly agreed they would be more willing to make purchases from an environmentally friendly floral provider when compared to one that is not.

Table 8. Descriptive Statistics for participants' overall perceptions toward making floral purchases from a floral provided based on the environmental practices. Responses were scored on a 5-point scale in which 1 indicates "strongly agree", 2 indicates "agree", 3 indicates "neither agree nor disagree", 4 indicates "disagree", and 5 indicates "strongly disagree".

	N	Minimum	Maximum	Mean	SD
I think it's the environmentally right choice to make purchases from a retail floral provider based on their environmental practices.	2172	1.00	5.00	2.50	1.023
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.	2172	1.00	5.00	2.33	1.135

Figures 8.1 & 8.2. Likert scale for participants' overall perceptions toward making floral purchases from a floral provided based on the environmental practices. Responses were scored on a 5-point scale in which 1 indicates "strongly agree", 2 indicates "agree", 3 indicates "neither agree nor disagree", 4 indicates "disagree", and 5 indicates "strongly disagree".



Overall Takeaways for Willingness to Pay Statements

Five statements asked participants to indicate how willing they would be to make purchases from a retail floral provider based on sustainable attributes that could be added to the provider's establishment. Of the five statements, participants indicated the most agreement with for floral providers to using locally sourced flowers (65.1% agreed or strongly agreed), followed closely by recycle their flower waste through composting (63.9% agreed or strongly agreed).

This indicates these two features are the two most important sustainable attributes a retail floral provider could offer to increase willingness to purchase. The use of sustainable, recycled, upcycled, and/or reusable materials instead of single-use products was a close third (60.5% agreed or strongly agreed).

Table 9. . Frequency statistics for participants' responses to five questions on a 5-point scale in which 1 indicates "strongly agree", 2 indicates "agree", 3 indicates "neither agree nor disagree", 4 indicates "disagree", and 5 indicates "strongly disagree".

	N	Strongly disagree (%)	Disagree (%)	Neither agree nor disagree (%)	Agree (%)	Strongly agree (%)
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	2172	6.6%	9.6%	19.9%	33.3%	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).	2172	6.7%	9.4%	18.7%	39%	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).	2172	5.2%	9.8%	33.3%	33.7%	18%
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 2172 trade between companies in developed countries and producers in developing countries).	2172	4.5%	10.2%	31.2%	36.3%	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	2172	6.1%	10.8%	22.6%	36.1%	24.4%

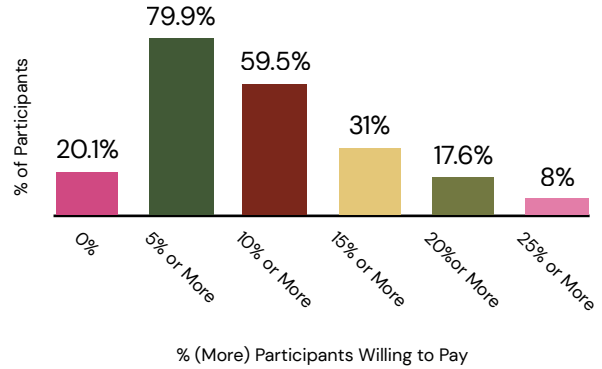
Overall Takeaways for Willingness to Pay Statements

An additional five statements asked participants to respond to how much more they would be willing to pay for flowers from a floral provider based on sustainable attributes. While 50% or more of the participants indicated a willingness to pay 10% or more for all the sustainable attributes they were asked about, participants 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%). Of the total survey population, 31.7% indicated a willingness to pay 15% or more for locally sourced flowers as well as for flower providers that compost floral waste (31.0%).

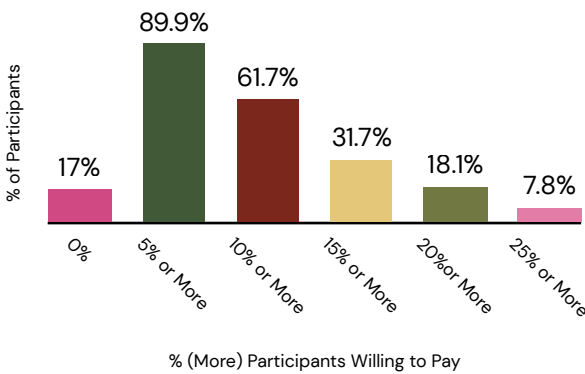
Consumers were least willing to pay additional charges for organically grown flowers and fair-trade sourced flowers, with 52.4% and 50.3% of total participants, respectively, indicating they would be willing to pay 10% or more for these attributes.

Figures 10.1 - 10.5. Participants' responses to five questions pertaining to how much more they would be willing to pay for flowers from a floral provider based on sustainable attributes.

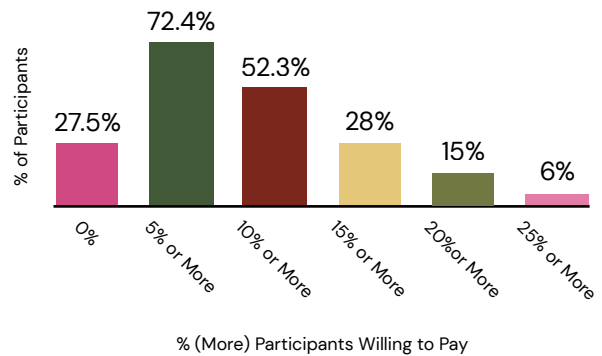
Willing to pay for a flower arrangement made by a retail floral provider that recycles their flower waste through composting rather than disposing of floral waste in a municipal landfill



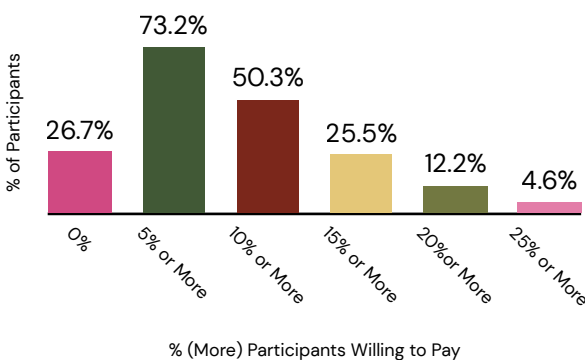
Willing to pay for a flower arrangement made using locally grown flowers



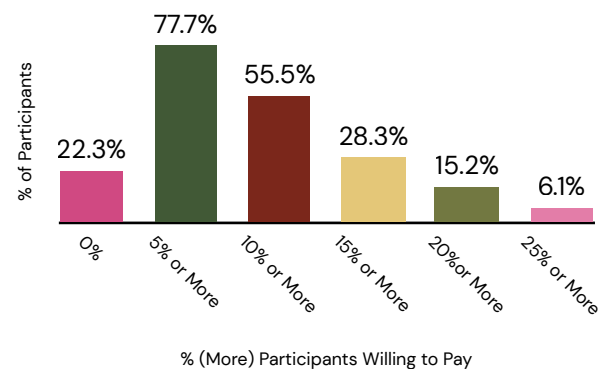
Willing to pay for a flower arrangement made using organically grown flowers



Willing to pay for a flower arrangement made using fair-trade sourced flowers

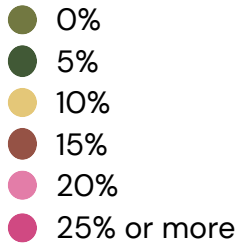


Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using sustainable, recycled, upcycled, and/or reusable materials instead of single-use products.

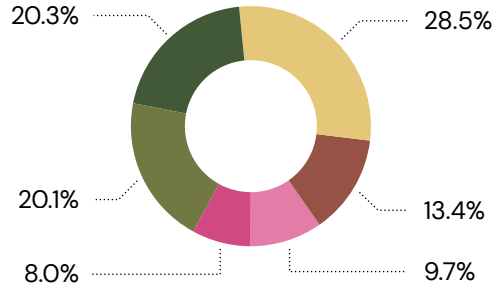


Overall Takeaways for Willingness to Pay Statements

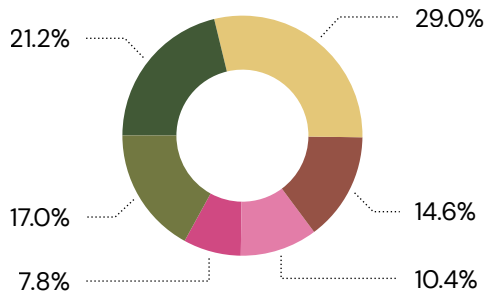
Figures 10.6 – 10.10. Frequency statistics for participants' responses to five questions pertaining to how much more they would be willing to pay for flowers from a floral provider based on sustainable attributes for each individual question.



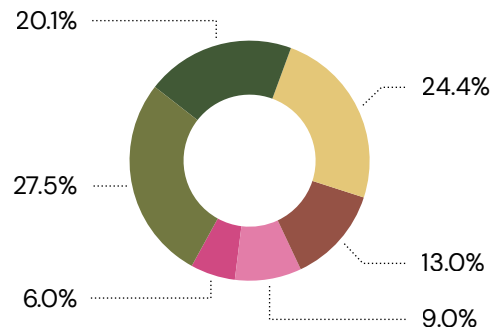
Willing to pay for a flower arrangement made by a retail floral provider that recycles their flower waste through composting rather than disposing of floral waste in a municipal landfill



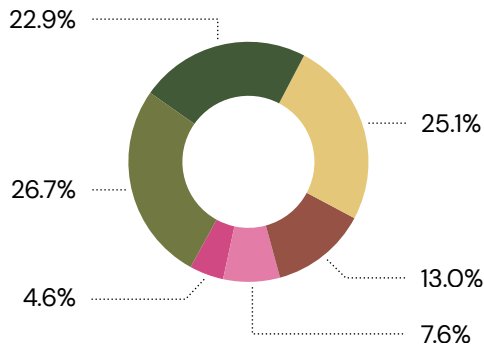
Willing to pay for a flower arrangement made using locally grown flowers



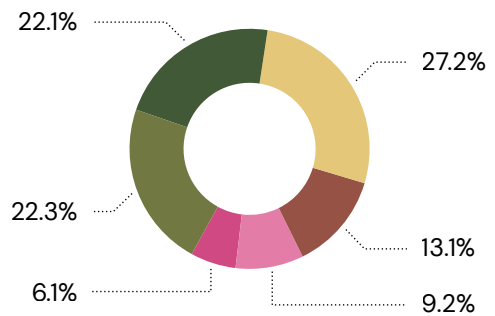
Willing to pay for a flower arrangement made using organically grown flowers



Willing to pay for a flower arrangement made using fair-trade sourced flowers



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.



Participants' Responses to Ranking Importance of Environmental Attributes

Participants were asked to rank a list of environmental attributes as well as the option of reasonable prices from most important to least important when deciding where to make flower purchases. The closer the mean score for each choice is to the number one indicates overall higher importance, while the closer the mean score is to the number six indicates less importance to the consumer when deciding where to make floral purchases. In the table below, the answer choices have been listed in the overall order in which the total participant population ranked the answers from most important to least important.

Overall, the participants indicated reasonable prices (mean score of 2.30) as being the most important, followed by using locally sourced flowers (mean score of 2.74), with the use of fair-trade flowers being least important (mean score of 4.17). While consumers ranked organic flowers as the third most preferred attribute, they appear unwilling to pay as much of a premium for this flower attribute when compared to others.

A Kendall's Coefficient of Concordance (Kendall's W) was run to determine how much participants agreed on the order in which choices were ranked, the closer the finding is to one indicates more agreement amongst participants on the order in which the answer choices should be ranked. The analysis returned a **score of 0.175 for the Kendall's W analysis which indicates there was a high level of disagreement amongst participants on the order in which the choices should be ranked.**



Reasonable prices is the most important with a Mean score of 2.30.

Table 10. Kendall's W analysis indicating responses for total participant population for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Question Choices	N	Mean	SD
Reasonable Prices	1905	2.30	1.735
Use of locally sourced flowers	1905	2.74	1.431
Use of organically grown flowers	1905	3.82	1.563
Use of multiuse products* instead of single-use products *(sustainable, recycled, upcycled, and/or reusable materials)	1905	3.87	1.679
Use of energy-saving practices such as energy-efficient light bulbs, coolers, and electric vehicles	1905	4.10	1.429
Use of fair-trade flowers	1905	4.17	1.442



Participants' Responses to Ranking Importance of Environmental Attributes

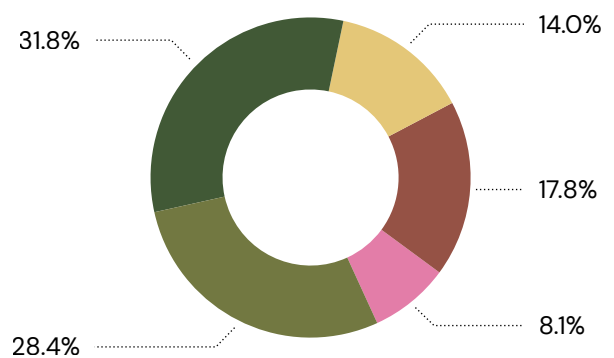
In a follow-up question further investigating participants' perceptions on deciding where to make a floral purchase based on sustainable aspects of the flower provider, they were asked to select the single sustainable aspect they considered to be the most important. Participants indicated the most important aspect to be "Materials (other than flowers) used in floral design, are sustainable, recyclable, upcyclable, reusable" (31.8%).

The findings do not align with the findings of other questions asked regarding the importance of sustainable attributes. In all other questions in which participants are asked to select which environmental attribute is most important when selecting a flower provider, they indicate the use of locally grown flowers. In the phrasing of the answer choices, the phrase locally sourced flowers is not used; rather, a more general answer choice, "Flowers used in floral designs are sustainably grown and sourced," is given. The fact that the participants' responses differed in this question indicates that the phrase "locally sourced" is potentially an important trigger word for consumers when making purchasing decisions.

Table 11 & Figure 11. Frequency statistics indicating percent of total participants' responses to the questions "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?"

Question Choices	(n)	%
Materials (other than flowers) used in floral design, are sustainable, recyclable, upcyclable, reusable	690	31.8%
Flowers used in floral designs are sustainably grown and sourced	616	28.4%
None of the above are important to me when making a floral purchase	387	17.8%
Floral provider is as energy efficient as possible (uses energy-efficient light bulbs, coolers, electric vehicles, etc.)	304	14%
I do not make floral purchases	175	8.1%

Legend

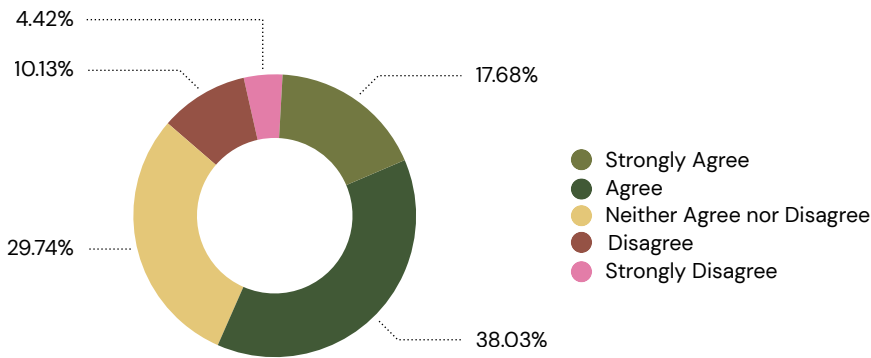


Participants' Perceptions on Environmentally Friendly Certification



Participants 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 show that 55.7% of the participants agreed or strongly agreed that they would be willing to shop at a certified floral provider over other floral providers based on the certification. Additionally, 55.7% of the participants indicated that they would trust a certified flower provider's environmental standards based on the certification.

Figure 12. Frequency statistics for the questions "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."



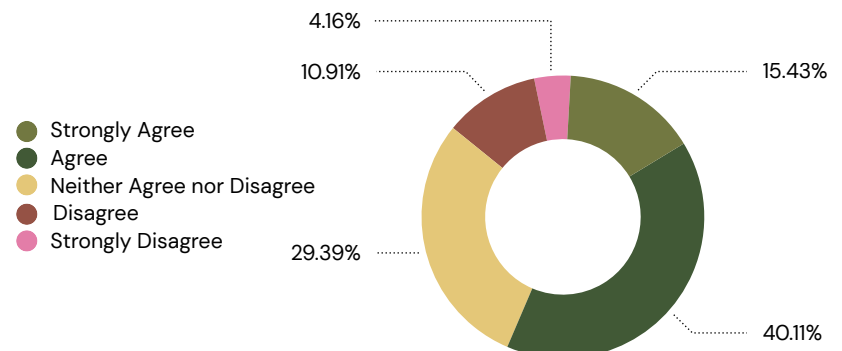
55.7%

of participants agreed or strongly agreed that they would be *willing to shop at a certified floral provider over other floral providers based on the certification*

Figure 13. Frequency statistics for the question "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."

55.7%

of the participants indicated that they would trust a certified flower provider's environmental standards based on the certification





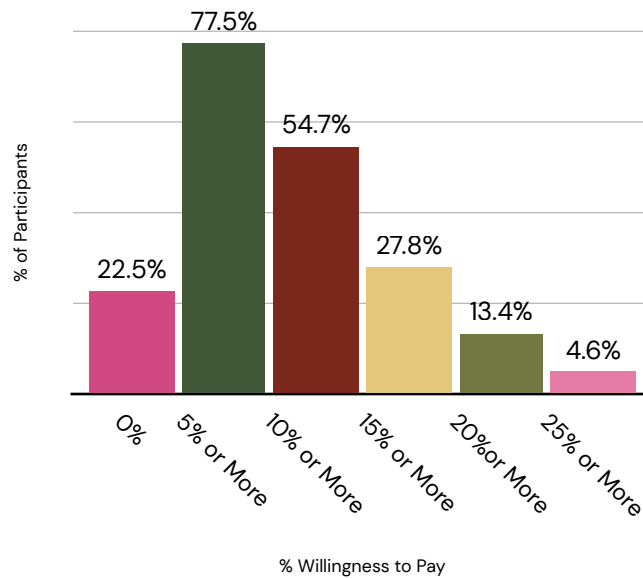
Participants' Perceptions on Environmentally Friendly Certification

A majority (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 sustainable floral attributes.

Figure 14. Participants' responses to 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."

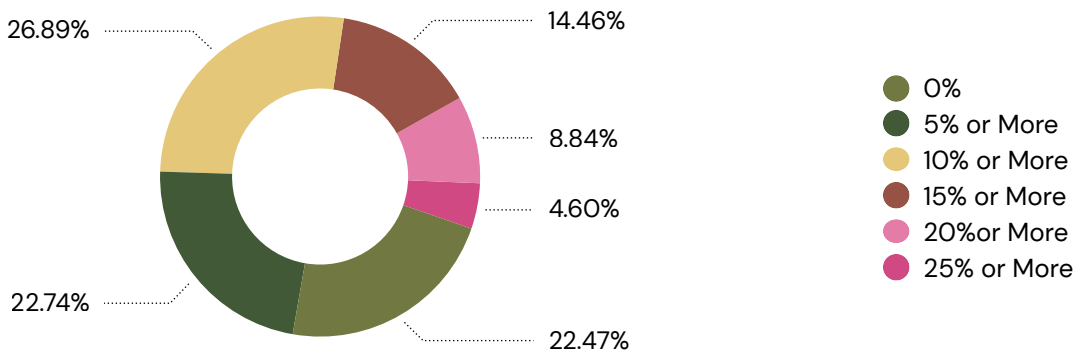
54.7%

of the participants indicated they would be willing to pay at least 10% more for flowers from a *certified environmentally friendly floral provider*



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.

Figure 15. Participants' responses to 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."

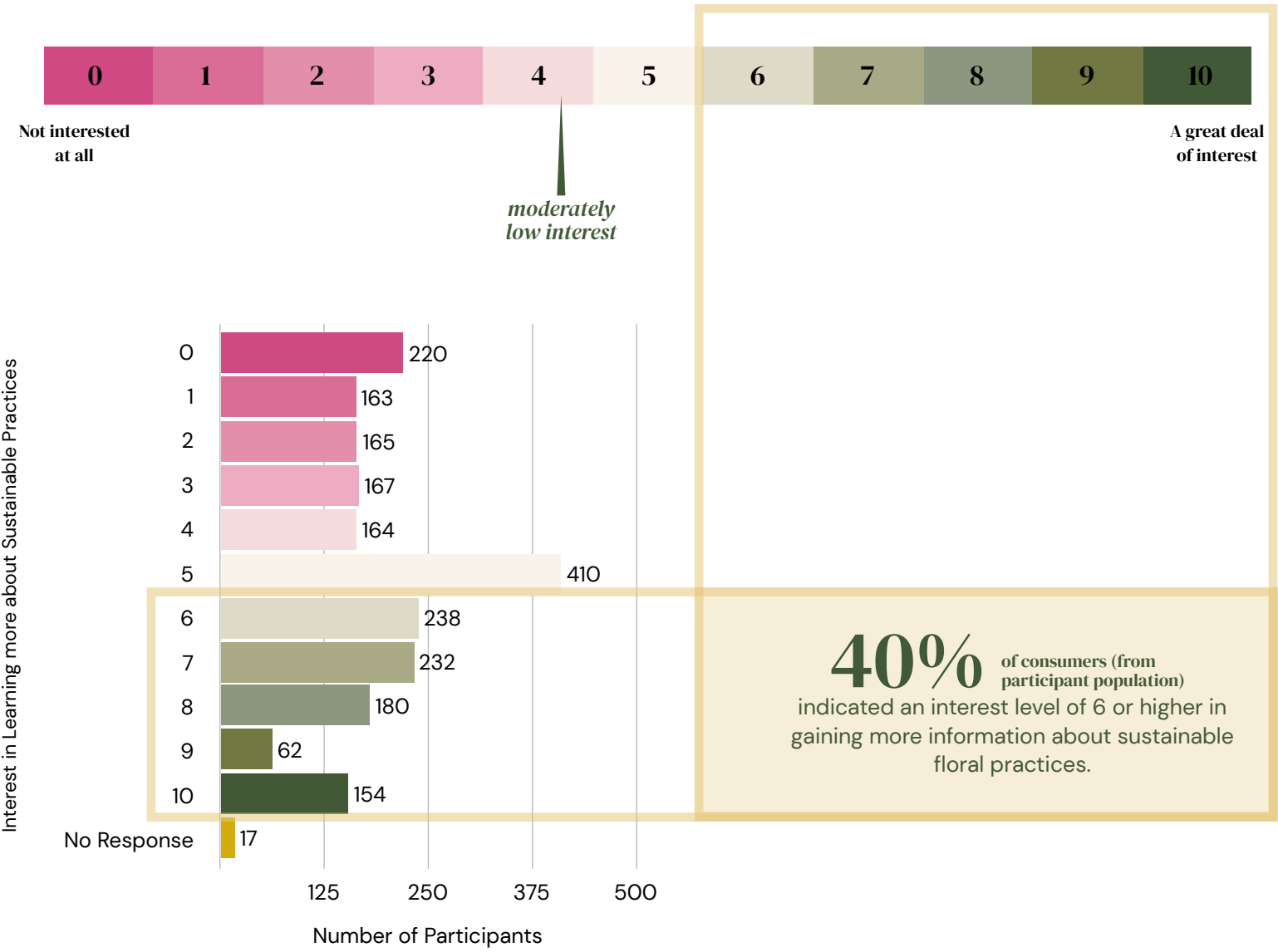


Participants' Interest in Learning More About Sustainable Floral Practices

Participants were asked to rate their interest in learning more about sustainable floral practices on a scale of 0-10, with 0 indicating no interest and 10 indicating a great deal of interest. The overall mean score of 4.77 for the question indicates participants had a moderately low interest in learning more about sustainable floral practices. Of the total participant population, 40% of consumers indicated an interest level of 6 or higher in gaining more information about sustainable floral practices.

Overall mean score of 4.77
 indicates participants had a moderately low interest in learning more about sustainable floral practices

Figures 16.1 – 16.2. How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local flower provider? Please indicate your answer by selecting a number between 0-10, with 0 indicating 'not interested at all'

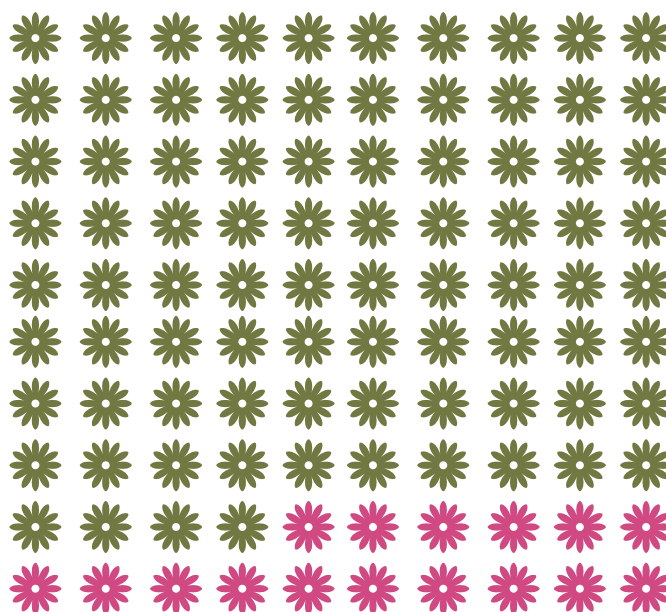


Participants' Involvement in the Floral Industry

Participants were asked to identify how closely they are involved in the floral industry. A majority of participants (84.0%) indicated they were not closely involved in the floral industry.

84% Of the participants are not closely involved in the floral industry

Figure 17. Are you in any way closely involved with the floral industry? i.e., works/ed in the floral industry or has a close family member that works/ed in the floral industry.



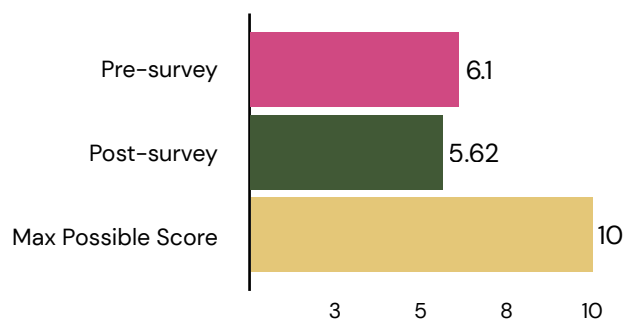
16% of the participants are closely involved in the floral industry



Participants' Perceptions on the Currently Sustainability Level of the Floral Industry Pre and Post Survey

Participants were asked to rate on a scale of 0–10 how sustainable they thought the floral industry currently is both before and after taking the survey, with 0 indicating not sustainable at all and 10 representing completely sustainable. The overall mean score for the study was 5.86, indicating participants thought the floral industry was moderately sustainable. Overall, there was a **drop of 0.48 points from the pre-survey to the post-survey**. While not a significant drop, this could indicate that through the course of the survey, consumers may have begun to think more in-depth about sustainability in the floral industry.

Figure 18. Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0–10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable'. Pre and Post.



Comparison of Participants' Responses Based on Gender

Participants' responses were compared based on gender. Analysis of variance (ANOVA) test were used to determine if there were significant differences in the way participants answered the survey questions based on their gender. Significant differences were found in the way participants answered seven of the survey questions based on their gender.

When asked "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)," post hoc analysis (LSD) indicated there was a difference in the way male participants responded to the question when compared to the other gender options. Males (68.2%) agreed or strongly agreed with the statement when compared to females (63.2%) and non-binary/third gender (45.5%) participants, indicating males had stronger agreement with the statement when compared to females and no-binary/third gender participants.

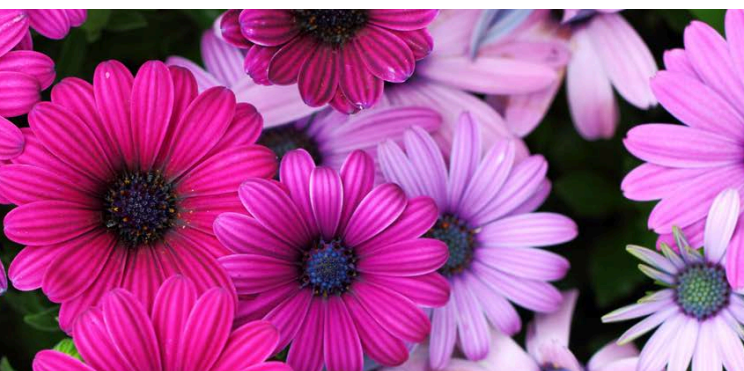
When asked "All other considerations held the same, I would be more willing to make purchases from a retail floral provider that uses sustainable, recycled, upcycled, and/or reusable materials instead of single use products. Single-use plastic products can be defined as items that are used once, or for a short period of time, before being thrown away," post hoc analysis (LSD) indicated there was a difference in the way male participants responded to the question when compared to female participants. Male participants (62.5%) agreed or strongly agreed with the statement more when compared to females (58.5%) indicating males had stronger agreement with the statement than females.

When asked "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," post hoc analysis (LSD) indicated there was a difference in the way male participants responded to the question when compared to female participants. Male participants (58.9%) agreed or strongly agreed with the statement when compared to females (53.4%) indicating males had stronger agreement with the statement than females.

When asked "If an environmentally friendly certification existed for retail floral providers, I would trust a retail floral providers' environmental quality standards when purchasing from an environmentally-friendly-certified retail floral provider," post hoc analysis (LSD) indicated there was a difference in the way male participants responded to the question when compared to the other gender options. It was found that male participants (57.9%) agreed or strongly agreed with the statement when compared to females (54.4%) and non-binary/third gender (36.4%) indicating males had stronger agreement with the statement than other genders.

When reviewing how much more participants were willing to pay for environmentally friendly attributes based on gender it was found that while males indicated stronger willingness to make purchases for some floral attributes more than other genders, overall, females were more willing to pay at least 10% or more for environmentally friendly floral attributes when compared to males.

When asked "How often do you make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases," post hoc analysis (LSD) indicated there was a slight difference in the way male participants answered the questions when compared to the other gender options. It was found that males participants (25.1%) purchase flowers at least once a month or more often when compared to females (23.2%) and non-binary/third gender (9.0%) participants.



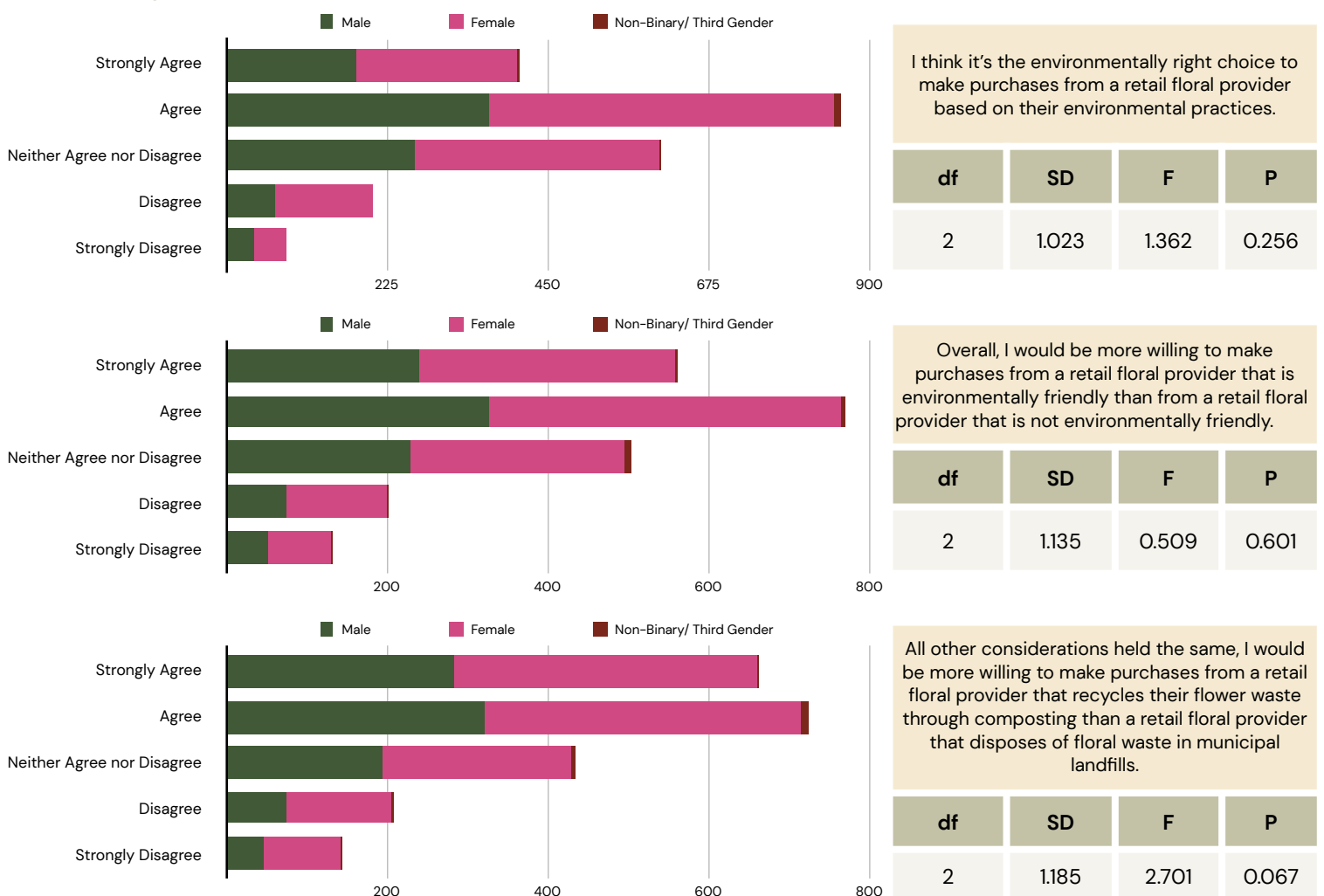
Comparison of Participants' Responses Based on Gender



When asked “In what manner do you most often make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases,” post hoc analysis (LSD) indicated there was a difference in the way participants responded to the question. Overall, the most frequent way floral purchases were made, regardless of gender, was in person [males (65.1%), females (65.5%) and non-binary/third gender (59.1%)]. However, males (10.5%) were slightly more likely to make purchases over the phone when compared to females (8.1%) and non-binary/third gender (0.0%) participants. Females (19.0%) were slightly more likely to make purchases over a store website when compared to males (18.7%) and non-binary/third gender (18.2%) participants.

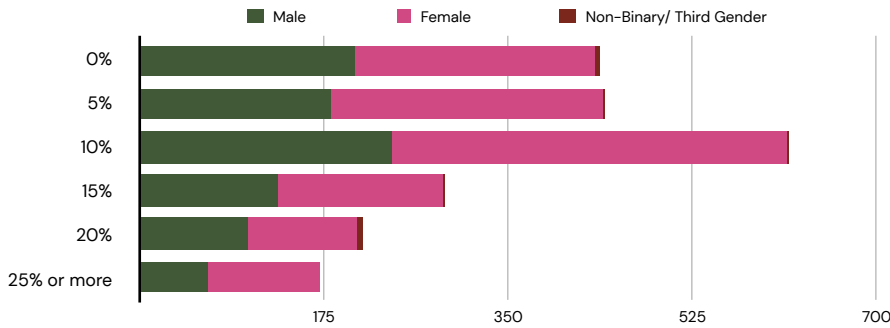
When asked “For what reason do you most often make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases,” post hoc analysis (LSD) indicated there was a difference in the way participants responded to the question. Overall, the most common reason for purchasing flowers was as a gift for others. It was found that males (78.8%) made purchases for other people at a higher rate when compared to females (63.7%) and non-binary/third gender (63.6%) participants. Females (27.7%) made floral purchase for themselves at a higher rate when compared to males (13.4%) and non-binary/third gender (9.1%) participants. Non-binary/third gender (27.3%) participants were the least likely to make floral purchases when compared to males (7.8%) and females (8.5%). However, because the sample size for non-binary/third gender participation is so small, results regarding this demographic group cannot be generalized to this demographic’s population as a whole.

Figures & Tables 19.1 – 19.3. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on gender for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. *Statistically significant at (P<0.05)



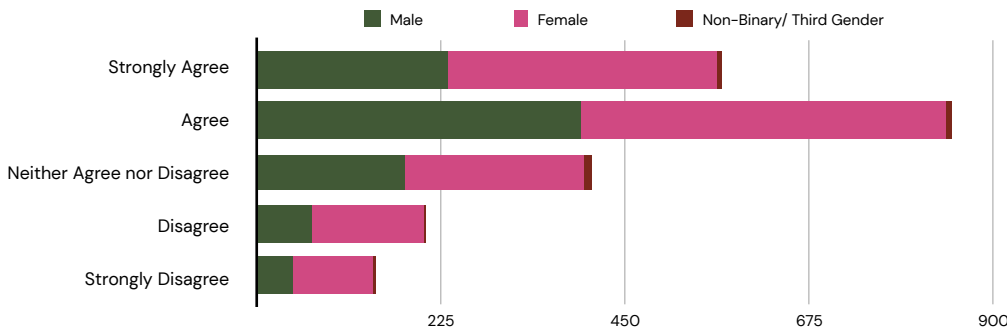
Comparison of Participants' Responses Based on Gender

Figures & Tables 19.4 – 19.7. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on gender for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. *Statistically significant at (P<0.05)



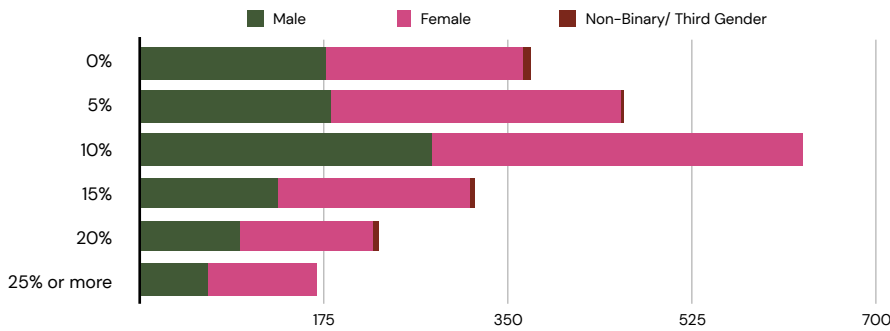
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made by a retail floral provider that recycles their flower waste through composting rather than disposing of floral waste in a municipal landfills.

df	SD	F	P
2	1.498	0.394	0.675



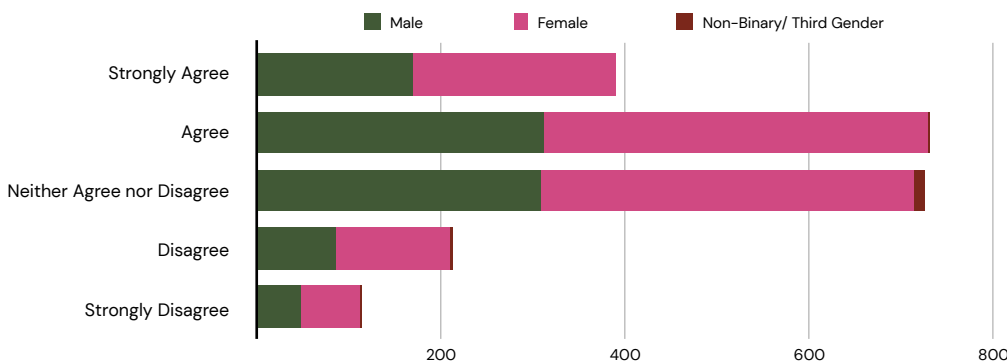
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells flowers sourced from local farmers and nurseries (farms and nurseries within 100 miles of the retail floral provider).

df	SD	F	P
2	1.152	4.800	0.008*



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).

df	SD	F	P
2	1.468	1.224	0.294

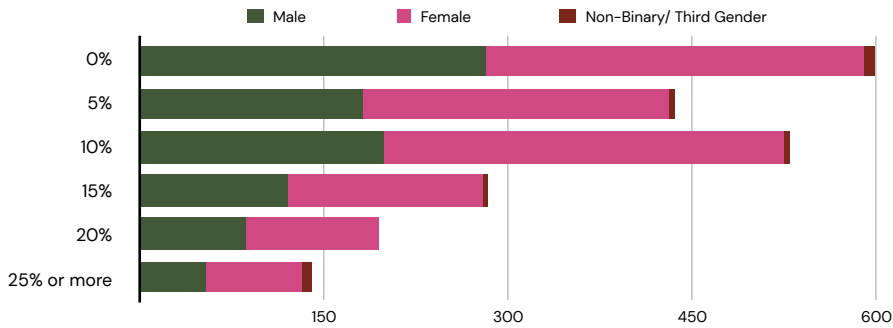


All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells organically grown flowers (flowers grown and processed using no synthetic fertilizers or pesticides).

df	SD	F	P
2	1.057	2.465	0.085

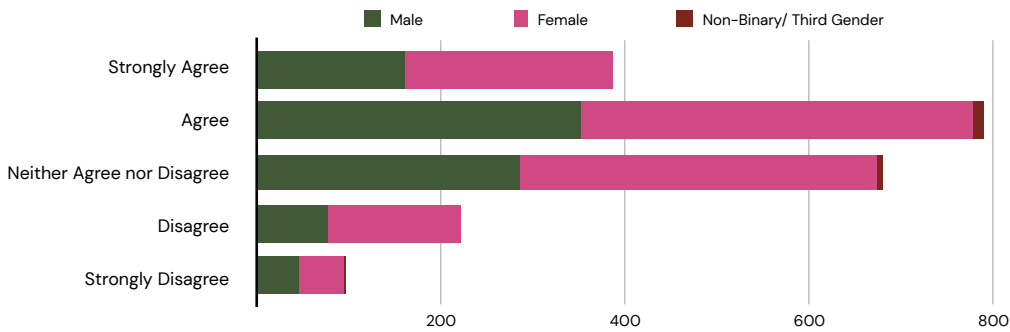
Comparison of Participants' Responses Based on Gender

Figures & Tables 19.8 – 19.11. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on gender for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. *Statistically significant at (P<0.05)



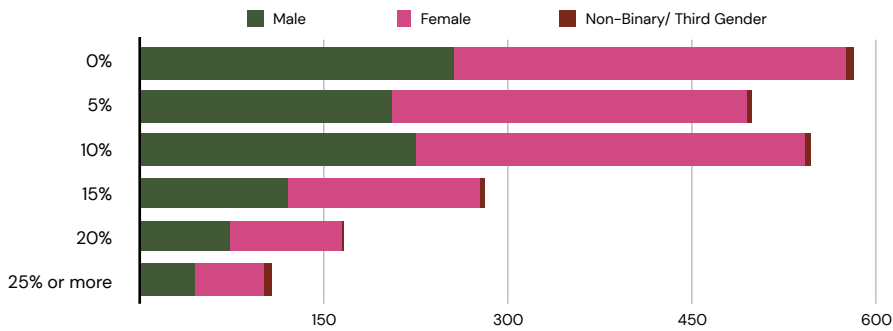
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using organically grown flowers (flowers grown and processed using no synthetic fertilizers or pesticides).

df	SD	F	P
2	1.505	1.673	0.188



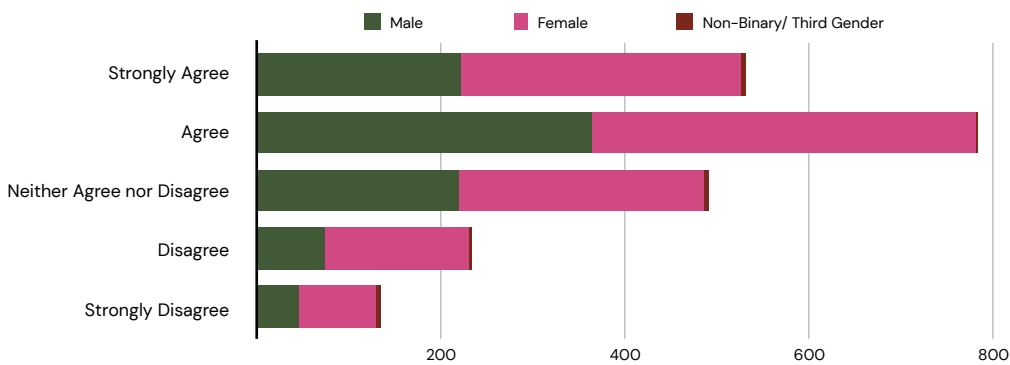
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells fair-trade sourced flowers (fair-trade can be defined as trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers).

df	SD	F	P
2	1.038	1.268	0.282



Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using fair-trade sourced flowers (fair-trade can be defined as trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers).

df	SD	F	P
2	1.425	0.056	0.973

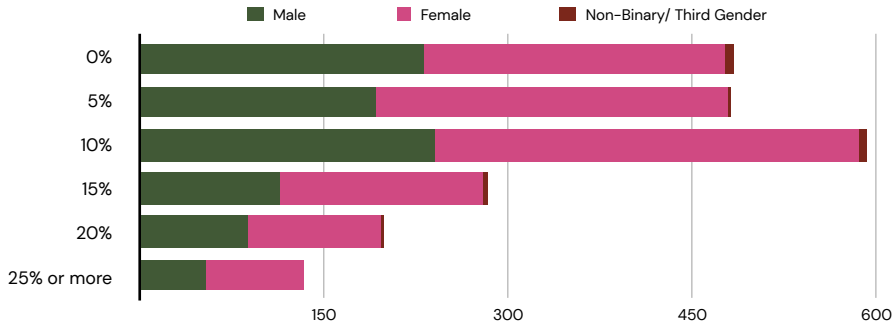


All other considerations held the same, I would be more willing to make purchases from a retail floral provider that uses sustainable, recycled, upcycled, and/or reusable materials instead of single use products. Single-use plastic products can be defined as items that are used once, or for a short period of time, before being thrown away.

df	SD	F	P
2	1.143	4.474	0.012*

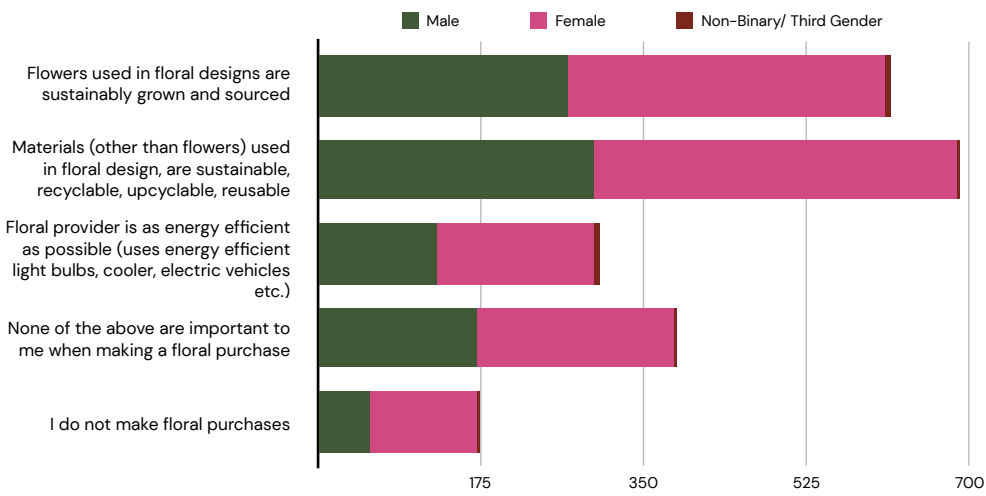
Comparison of Participants' Responses Based on Gender

Figures & Tables 19.12 – 19.15. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on gender for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. *Statistically significant at (P<0.05)



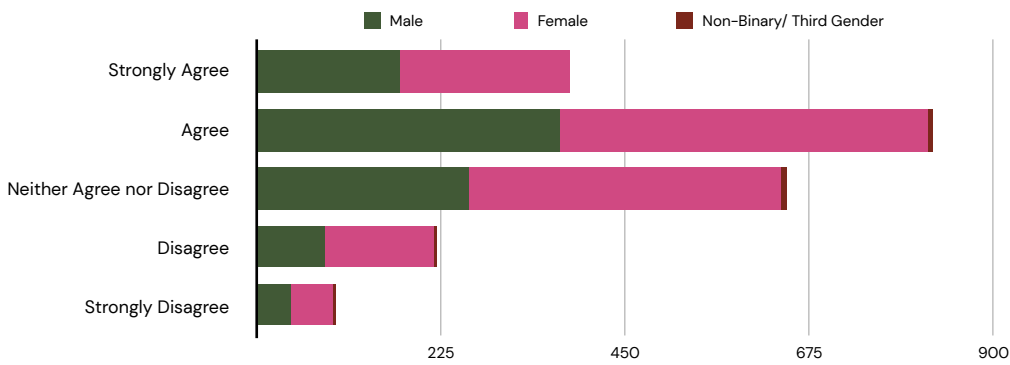
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using sustainable, recycled, upcycled, and/or reusable materials instead of single use products.

df	SD	F	P
2	1.460	1.345	0.261



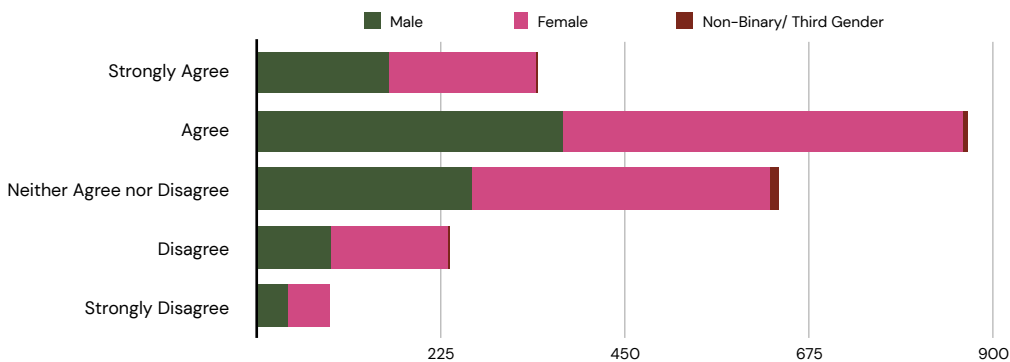
When deciding where to make a floral purchase, which of the following aspects of sustainability do you consider to be the most important for a retail floral provider to practice?

df	SD	F	P
2	1.268	1.529	0.217



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.

df	SD	F	P
2	1.034	3.342	0.036*

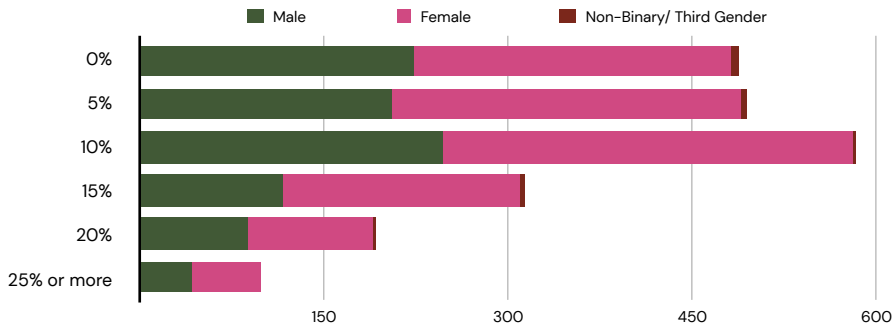


If an environmentally friendly certification existed for retail floral providers, I would trust a retail floral providers' environmental quality standards when purchasing from an environmentally-friendly-certified retail floral provider.

df	SD	F	P
2	1.015	3.540	0.029*

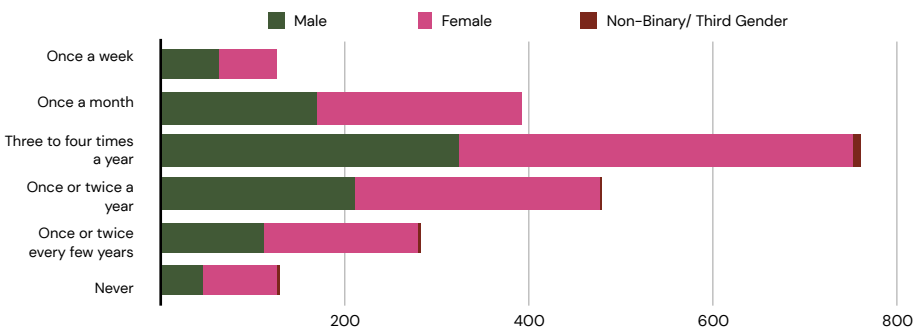
Comparison of Participants' Responses Based on Gender

Figures & Tables 19.16 – 19.19. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on gender for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. *Statistically significant at (P<0.05)



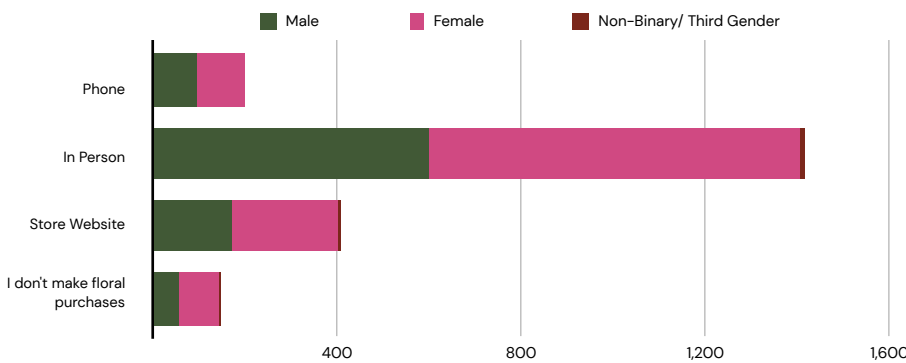
Please indicate how much more, if any, you would be willing to pay for flowers and floral designs from an environmentally-friendly certified retail floral provider if such a certification existed.

df	SD	F	P
2	1.434	0.428	0.652



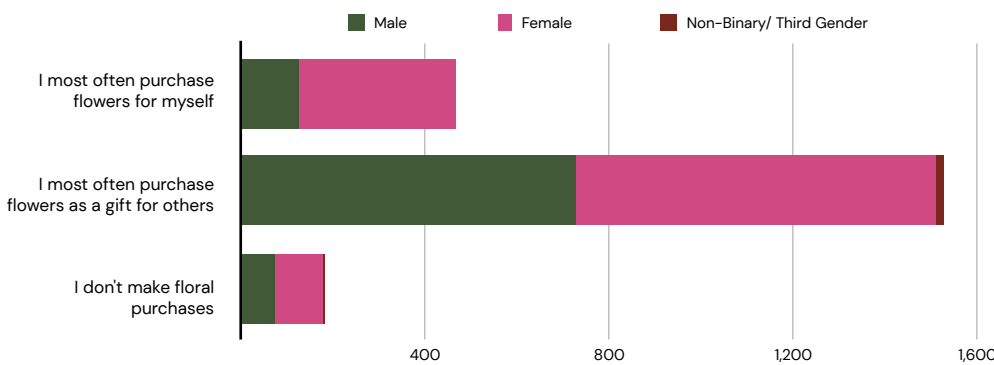
How often do you make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases.

df	SD	F	P
2	1.250	3.082	0.046*



In what manner do you most often make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases.

df	SD	F	P
2	0.705	5.678	0.003*



For what reason do you most often make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases.

df	SD	F	P
2	0.531	19.753	0.001

Comparison of Participants’ Responses Based on Gender

When asked “Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next,” it was found that reasonable prices were the number one consideration when making floral purchases regardless of gender identity, followed by the use of locally sourced flowers.

It was found that both males and females were the most willing to pay a premium for the use of locally sourced flowers when compared to other environmentally friendly attributes (61.3% of males willing to pay 10% or more for the use of locally sourced flowers, 62.4% of female willing to pay 10% or more for the use of locally sourced flowers). A Significant difference was found in the way participants ranked two of the answer choices based on their gender.

Table 19. Analysis of variance test for participants response to the survey question “Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question and move onto the next.” based on gender for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry.

*Statistically significant at (P<0.05)

Considerations	df	SD	F	P
Reasonable prices	2	1.749	1.371	0.254
Use of locally sourced flowers	2	1.437	3.406	0.033*
Use of organically grown flowers	2	1.560	0.525	0.592
Use of fair-trade flowers	2	1.441	1.074	0.342
Use of energy saving practices such as energy efficient light bulbs, coolers, and electric vehicles	2	1.434	1.028	0.358
Use of multiuse products (sustainable, recycled, upcycled, and/or reusable materials) instead of single use products	2	1.683	3.393	0.034*

Post hoc analysis (LSD) indicated there was a significant difference in the way males and females ranked “use of locally sourced flowers.” A Kendall’s W analysis was used to determine how males and females ranked the answer choices for the question. When comparing how the groups ranked the choice it was found the mean score for females when ranking locally sourced flowers was 2.68 while males scored 2.84, on average. This indicates females were more concerned about the use of locally sourced flowers when compared to males. Males on average were slightly more concerned about reasonable prices (2.22 mean score) when compared to females (2.36 mean score).

Additionally, post hoc analysis (LSD) indicated there was a significant difference in the way males and females ranked the answer choices “use of organically grown flowers” and “Use of multiuse products (sustainable, recycled, upcycled, and/or reusable materials) instead of single use products.” Males ranked the use of organically grown flowers as the third most important factor while females indicated the use of multiuse products as being the third most important environmentally friendly attribute.

Comparison of Participants' Responses Based on Gender

When reviewing participants' willingness to pay based on gender it was found that in actuality males were least willing to pay a premium for the use of organically grown flowers (49.8% of males willing to pay 10% or more for the use of organically grown flowers). Females were least willing to pay a premium for the use of fair-trade sourced flowers, though a majority were still willing to pay at least 10% or more for the use of fair-trade sourced flowers (50.4% of females willing to pay at least 10% or more for the use of fair-trade sourced flowers).

Because of the low number of non-binary/third gender participants no conclusions were made based on the way in which these participants ranked the choices.



Table 20. Kendall's W analysis indicating responses of female participants for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Female	N	Mean score	SD
1 Reasonable prices	1041	2.36	1.773
2 Use of locally sourced flowers	1041	2.68	1.415
3 Use of multi-use products	1041	3.78	1.672
4 Use of organically grown flowers	1041	3.83	1.564
5 Use of energy saving practices	1041	4.13	1.419
6 Use of fair-trade	1041	4.22	1.444

Table 21. Kendall's W analysis indicating responses of male participants for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Male	N	Mean score	SD
1 Reasonable prices	844	2.22	1.716
2 Use of locally sourced flowers	844	2.84	1.464
3 Use of organically grown flowers	844	3.80	1.557
4 Use of multi-use products	844	3.97	1.688
5 Use of energy saving practices	844	4.05	1.448
6 Use of fair-trade flowers	844	4.12	1.440

Table 22. Kendall's W analysis indicating responses of non-binary-third gender participants for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Non-Binary / Third Gender	N	Mean score	SD
1 Use of locally sourced flowers	20	2.40	1.231
2 Reasonable prices	20	2.50	1.820
3 Use of fair-trade flowers	20	3.95	1.276
4 Use of multi-use products	20	4.00	1.863
5 Use of energy saving practices	20	4.05	1.637
6 Use of organically grown flowers	20	4.10	1.518

Comparison of Participants' Responses Based on Gender

Frequency statistics were used to determine where participants make floral purchases the most often based on gender. It was found that overall, regardless of gender, most participants made purchases from floral departments in grocery stores and supermarkets the most (males 55.2%, females 59.4% and non-binary/third gender 40.9%) followed by local florists (males 53.4%, females 49.6%, and nonbinary/third gender 40.9%).



Figure & Table 23. Frequency statistics indicating response bases on gender for the question "Where do you make your floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases. Please check all that apply."

Categories	Male		Female		Non-Binary/ Third Gender	
	(n)	(%)	(n)	(%)	(n)	(%)
Local florist	492	53.4%	609	49.6%	9	40.9%
Floral department in grocery stores/supermarkets	508	55.2%	730	59.4%	9	40.9%
Web-based stores	250	27.1%	304	24.7%	3	13.6%
Farmers markets	227	24.6%	369	30%	6	27.3%
Other	49	5.3%	66	5.4%	4	18.2%
I don't make floral purchases	46	5%	88	7.2%	3	13.6%



Participants were asked both pre- and post-survey, "Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable.'" ANOVA tests were used to determine if there were significant differences in the way participants answered the survey question based on their gender. Significant differences were found in the way participants answered the question both pre- and post-survey. Post hoc analysis (LSD) indicated there was a difference in the way non-binary/third gender participants responded to the question pre-survey when compared to males and females. Overall non-binary/third gender participants viewed the floral industry as being less sustainable in the pre-survey question when compared to other gender groups.

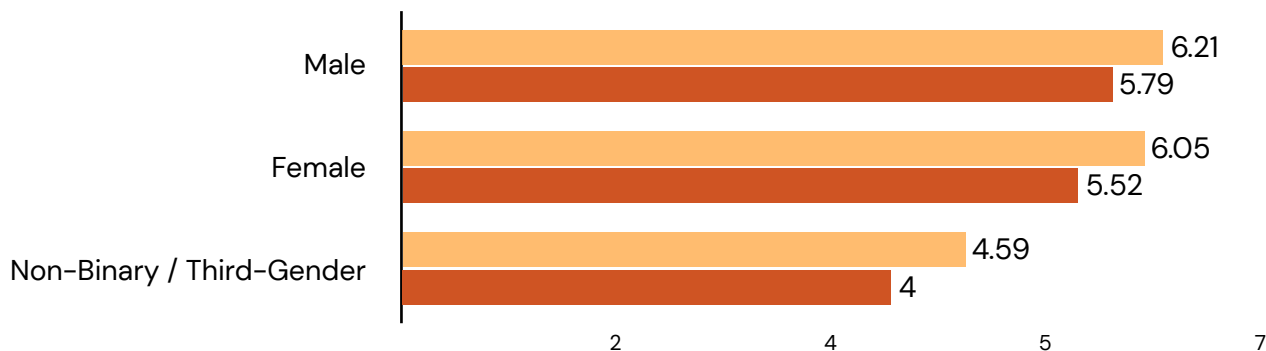
Post hoc analysis (LSD) indicated there was a difference in the way all genders answered the post-survey floral industry sustainability question when compared to each other. Overall, all genders' perceptions of how sustainable the floral industry is declined slightly. Overall, non-binary/third gender participants viewed the floral industry as being less sustainable in the post question when compared to other gender groups and had the greatest decline in how sustainable the floral industry is. However, because the sample size for non-binary/third gender participation is so small results regarding this demographic group cannot be generalized to the demographic population as whole.

Comparison of Participants' Responses Based on Gender

Table 24. Analysis of variance (ANOVA) and descriptive statistics indicating response bases on gender for the question "Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable.'" * Statistically significant at (P ≤ 0.05)

Based on your current knowledge, overall, how sustainable do you think the floral industry is currently?

Pre - Survey
Post - Survey



	Pre - Survey	Post - Survey
df	2	2
SD	2.182	2.242
F	6.726	9.601
P	0.001*	0.001*

* Statistically significant at (P ≤ 0.05)



Participants were asked "How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not interested at all' and 10 indicating 'very interested.'" Analysis of variance (ANOVA) test were used to determine if there were significant differences in the way participants answered the survey question based on their gender. No differences were found in the way participants answered the question based on gender. The mean scores for each gender group were added together and averaged to form an overall mean score of 4.67 for participants based on gender indicating a moderately low interest in learning more about sustainable floral practices based on gender.

Table 25. Analysis of variance (ANOVA) and descriptive statistics indicating response bases on gender for the question "How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not interested at all' and 10 indicating 'very interested'."

How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider?	N	Mean	df	SD	F	P
Male	916	4.76	2	2.886	0.145	0.865
Female	218	4.79				
Non-Binary/Third Gender	21	4.48				

* Statistically significant at (P ≤ 0.05)

Comparison of Participants' Responses Based on Age

Participants responses were compared based on age groups. ANOVA tests were used to determine if there were significant differences in the way participants answered the survey questions based on their age. Significant differences were found in the way participants answered sixteen of the survey questions based on their age.

When asked "I think it's the environmentally right choice to make purchases from a retail floral provider based on their environmental practices," post hoc analysis (LSD) indicated there was a difference in the way participants 54 years of age and younger responded to the question when compared to those 55 years of age and older. Participants 54 years of age and younger agreed or strongly agreed with the statement more when compared to participants older than 55, with participants 34 years of age and younger agreeing the most with the statement. This indicates younger participants had stronger agreement with the statement when compared to other age groups (mean score of ages 18-24 that agree or strongly agree 69.5%, mean score of ages 25-34 that agree or strongly agree 70.3%, mean score of ages 35-44 that agree or strongly agree 59.1%, mean score of ages 45-54 that agree or strongly agree 60.4%, mean score of ages 55-64 that agree or strongly agree 51.9%, mean score of ages 65+ that agree or strongly agree 46.9%).

When asked "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," a majority of participants in each age group agreed or strongly agreed with the statement. Post hoc analysis (LSD) indicated there was a difference in the way participants 54 years of age and younger responded to the question when compared to those 55 years of age and older. Participants 54 years of age and younger agreed or strongly agreed with the statement more when compared to participants older than 55, with participants 18-24 years of age and younger agreeing the most with the statement.

This indicates younger participants had stronger agreement with the statement when compared to other age groups (mean score of 18-24 that agree or strongly agree 73.4%, mean score of 25-34 that agree or strongly agree 60.8%, mean score of 35-44 that agree or strongly agree 65.4%, mean score of 45-54 that agree or strongly agree 64.1%, mean score of 55-64 that agree or strongly agree 52.7%, mean score of 65+ that agree or strongly agree 52.6%).

When asked "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," overall, a majority of participants in each age group agreed or strongly agreed with the statement. Post hoc analysis (LSD) indicated there was a difference in the way participants 54 years of age and younger responded to the question when compared to those 55 years of age and older. Participants 54 years of age and younger agreed or strongly agreed with the statement more when compared to participants older than 55, with participants 34 years of age and younger agreeing the most with the statement. This indicates younger participants had stronger agreement with the statement when compared to other age groups (mean score of 18-24 that agree or strongly agree 71.1%, mean score of 25-34 that agree or strongly agree 70.0%, mean score of 35-44 that agree or strongly agree 65.4%, mean score of 45-54 that agree or strongly agree 65.3%, mean score of 55-64 that agree or strongly agree 56.9%, mean score of 65+ that agree or strongly agree 59.5%).

When asked "Please indicate how much more, if any, you would be willing to pay for a flower arrangement made by a retail floral provider that recycles their flower waste through composting rather than disposing of floral waste in a municipal landfill," it was found that a majority in all age groups, except for those 65 years of age and older, indicated a willingness to pay 10% or more for flowers from a floral provider that composts their floral waste. Post hoc analysis (LSD) indicated there was a difference in the way participants 54 years of age and younger responded to the question when compared to those 55 years of age and older.



Comparison of Participants' Responses Based on Age

When asked "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)," overall, a majority of participants in each age group agreed or strongly agreed with the statement. Post hoc analysis (LSD) indicated there was a difference in the way participants 54 years of age and younger responded to the question when compared to those 55 years of age and older. Participants 54 years of age and younger agreed or strongly agreed with the statement more when compared to participants older than 55, with participants 18–24 years of age agreeing the most (mean score of 18–24 that agree or strongly agree 71.0%, mean score of 25–34 that agree or strongly agree 68.2%, mean score of 35–44 that agree or strongly agree 67.3%, mean score of 45–54 that agree or strongly agree 69.6%, mean score of 55–64 that agree or strongly agree 58.4%, mean score of 65+ that agree or strongly agree 60.3%).

When asked "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)," it was found that a majority in all age groups indicated a willingness to pay 10% or more for flowers from a floral provider that sourced their flowers locally. Post hoc analysis (LSD) indicated there was a difference in the way participants 44 years of age and younger responded to the question when compared to those 45 years of age and older. Participants 44 years of age and younger indicated more willingness to pay a premium for flowers purchased from a floral provider that sources their flowers locally when compared to participants older than 45, with participants 65 years of age and older the least willing to pay a premium, (mean score of 18–24 willing to pay 10% or more 69.6%, mean score of 25–34 willing to pay 10% or more 69.8%, mean score of 35–44 willing to pay 10% or more 67.1%, mean score of 45–54 willing to pay 10% or more 60.9%, mean score of 55–64 willing to pay 10% or more 58.4%, mean score of 65+ willing to pay 10% or more 50.5%). These findings indicate that not only are younger people more interested in making floral purchases from floral providers that use locally sourced flowers, but they are more willing to pay a premium for this environmentally friendly attribute as well.

When asked "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)," post hoc analysis (LSD) indicated there was a difference in the way participants 54 years of age and younger responded to the question when compared to those 55 years of age and older. A majority of participants 54 years of age and younger agreed or strongly agreed with the statement while a minority of participants 55 years of age and older agreed or strongly agreed with the statement (mean score of 18–24 that agree or strongly agree 58.9%, mean score of 25–34 that agree or strongly agree 56.2%, mean score of 35–44 that agree or strongly agree 52.8%, mean score of 45–54 that agree or strongly agree 55.5%, mean score of 55–64 that agree or strongly agree 48.4%, mean score of 65+ that agree or strongly agree 42.7%).

When asked "Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using organically grown flowers (flowers grown and processed using no synthetic fertilizers or pesticides)," it was found that a majority in all age groups, except for those 65 years of age and older, indicated a willingness to pay 10% or more for flowers from a floral provider that uses organically grown flowers. Post hoc analysis (LSD) indicated there was a difference in the way participants 65 years of age and older responded to the question when compared to all other age groups. Participants 65 years of age and older indicated the least willingness to pay a premium for flowers purchased from a floral provider that uses organically grown flowers when compared all other age groups. Participants between the ages of 25–34 indicated the most willingness to pay a premium, (mean score of 18–24 willing to pay 10% or more 58.4%, mean score of 25–34 willing to pay 10% or more 60.5%, mean score of 35–44 willing to pay 10% or more 56.1%, mean score of 45–54 willing to pay 10% or more 54.3%, mean score of 55–64 willing to pay 10% or more 50.8%, mean score of 65+ willing to pay 10% or more 38.8%). These findings indicate that not only are younger people more interested in making floral purchases from floral providers that use organically grown flowers, but they are more willing to pay a premium for this environmentally friendly attribute as well.

Comparison of Participants' Responses Based on Age

When asked "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 in which fair prices are paid to the producers)," post hoc analysis (LSD) indicated there was a difference in the way participants 54 years of age and younger responded to the question when compared to those 55 years of age and older. A majority of participants 54 years of age and younger agreed or strongly agreed with the statement while a minority of participants 55 years of age and older agreed or strongly agreed with the statement (mean score of 18–24 that agree or strongly agree 60.4%, mean score of 25–34 that agree or strongly agree 63.5%, mean score of 35–44 that agree or strongly agree 55.8%, mean score of 45–54 that agree or strongly agree 55.6%, mean score of 55–64 that agree or strongly agree 46.3%, mean score of 65+ that agree or strongly agree 48.2%).

When asked "Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using fair-trade sourced flowers (fair-trade can be defined as trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers)," post hoc analysis (LSD) indicated there was a difference in the way participants 54 years of age and younger responded to the question when compared to those 55 years of age and older. Participants 54 years of age and younger indicated more willingness to pay a premium for flowers purchased from a floral provider that uses fair trade sourced flowers when compared to participants older than 55. Participants between the ages of 25–34 indicated the most willingness to pay a premium (mean score of 18–24 willing to pay 10% or more 56.0%, mean score of 25–34 willing to pay 10% or more 58.8%, mean score of 35–44 willing to pay 10% or more 54.7%, mean score of 45–54 willing to pay 10% or more 52.3%, mean score of 55–64 willing to pay 10% or more 46.1%, mean score of 65+ willing to pay 10% or more 38.5%). These findings indicate that not only are younger people more interested in making floral purchases from floral providers that use fair-trade sourced flowers, but they are more willing to pay a premium for this environmentally friendly attribute as well.

When asked "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," post hoc analysis (LSD) indicated there was a difference in the way participants 54 years of age and younger responded to the question when compared to those 55 years of age and older. While a majority of participants in each age group agreed or strongly agreed with the statement, participants 54 years of age and younger agreed or strongly agreed with the statement more when compared to participants 55 years of age and older (mean score of 18–24 that agree or strongly agree 66.2%, mean score of 25–34 that agree or strongly agree 76.9%, mean score of 35–44 that agree or strongly agree 61.4%, mean score of 45–54 that agree or strongly agree 63.2%, mean score of 55–64 that agree or strongly agree 55.7%, mean score of 65+ that agree or strongly agree 53.8%).

When asked "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," it was found that a majority in all age groups, except for those 65 years of age and older, indicated a willingness to pay 10% or more for flowers from a floral provider that uses sustainable, recyclable, and reusable materials. Post hoc analysis (LSD) indicated there was a difference in the way participants 65 years of age and older responded to the question when compared to all other age groups. Participants 65 years of age and older indicated the least willingness to pay a premium for flowers purchased from a floral provider that uses sustainable, recycled, upcycled, and/or reusable materials when compared all other age groups. Participants between the ages of 25–34 indicated the most willingness to pay a premium, (mean score of 18–24 willing to pay 10% or more 63.2%, mean score of 25–34 willing to pay 10% or more 65.2%, mean score of 35–44 willing to pay 10% or more 58.4%, mean score of 45–54 willing to pay 10% or more 56.2%, mean score of 55–64 willing to pay 10% or more 51.9%, mean score of 65+ willing to pay 10% or more 44.2%). These findings indicate that not only are younger people more interested in making floral purchases from floral providers that use sustainable, recycled, upcycled, and/or reusable materials, but they are more willing to pay a premium for this environmentally friendly attribute as well.

Comparison of Participants' Responses Based on Age

When asked "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", post hoc analysis (LSD) indicated there was a difference in the way participants 54 years of age and younger responded to the question when compared to those 55 years of age and older. Apart from those 65 years of age and older, a majority of participants in each age group agreed or strongly agreed with the statement. Participants 54 years of age and younger agreed or strongly agreed with the statement more when compared to participants 55 years of age and older. Participants 34 years of age and younger agree or strongly agree with the statements more when compared to other age groups (mean score of 18-24 that agree or strongly agree 66.6%, mean score of 25-34 that agree or strongly agree 62.0%, mean score of 35-44 that agree or strongly agree 58.6%, mean score of 45-54 that agree or strongly agree 56.1%, mean score of 55-64 that agree or strongly agree 50.0%, mean score of 65+ that agree or strongly agree 47.9%).

When asked "If an environmentally friendly certification existed for retail floral providers, I would trust a retail floral providers' environmental quality standards when purchasing from an environmentally-friendly-certified retail floral provider," post hoc analysis (LSD) indicated there was a difference in the way participants 54 years of age and younger responded to the question when compared to those 55 years of age and older. Apart from those 65 years of age and older, a majority of participants in each age group agreed or strongly agreed with the statement. Participants 54 years of age and younger agreed or strongly agreed with the statement more when compared to participants 55 years of age and older. Participants 34 years of age and younger agree or strongly agree with the statements more when compared to other age groups (mean score of 18-24 that agree or strongly agree 64.3%, mean score of 25-34 that agree or strongly agree 63.1%, mean score of 35-44 that agree or strongly agree 59.4%, mean score of 45-54 that agree or strongly agree 54.5%, mean score of 55-64 that agree or strongly agree 50.0%, mean score of 65+ that agree or strongly agree 48.9%).

When asked "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," it was found that a majority in all age groups, except for those 65 years of age and older, indicated a willingness to pay 10% or more for flowers from a floral provider that possessed an environmentally friendly certification. Post hoc analysis (LSD) indicated there was a difference in the way participants 65 years of age and older responded to the question when compared to all other age groups. Participants 65 years of age and older indicated the least willingness to pay a premium for flowers purchased from a floral provider that possessed an environmentally friendly certification when compared all other age groups. Participants 34 years of age and younger indicated the most willingness to pay a premium, (mean score of 18-24 willing to pay 10% or more 63.3%, mean score of 25-34 willing to pay 10% or more 62.0%, mean score of 35-44 willing to pay 10% or more 58.0%, mean score of 45- 54 willing to pay 10% or more 54.2%, mean score of 55-64 willing to pay 10% or more 51.4%, mean score of 65+ willing to pay 10% or more 45.2%). These findings indicate that not only are younger people more interested in making floral purchases from floral providers that possess an environmentally friendly certification, but they are more willing to pay a premium for this environmentally friendly attribute as well.

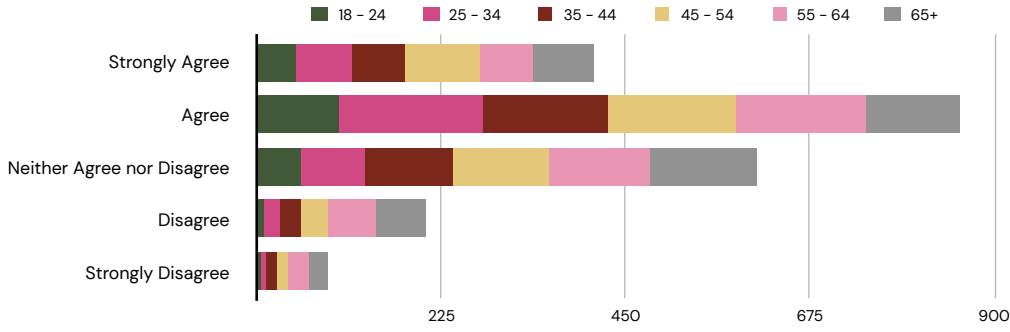
Participants were asked "How often do you make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/ greenhouse purchases." While a majority of all participants in each age group purchases flowers three to four times a year or more, post hoc analysis (LSD) indicated there was a difference in the way participants 65 years of age and older responded to the question when compared to all other age groups. Participants 65 years of age and older made fewer floral purchases within a year when compared to all other age groups (mean score of 18-24 that make three to four or more floral purchases a year 57.4%, mean score of 25-34 that make three to four or more floral purchases a year 60.0%, mean score of 35-44 that make three to four or more floral purchases a year 57.5%, mean score of 45-54 that make three to four or more floral purchases a year 62.6%, mean score of 55-64 that make three to four or more floral purchases a year 62.4%, mean score of 65+ that make three to four or more floral purchases a year 52.6%).



Comparison of Participants' Responses Based on Age

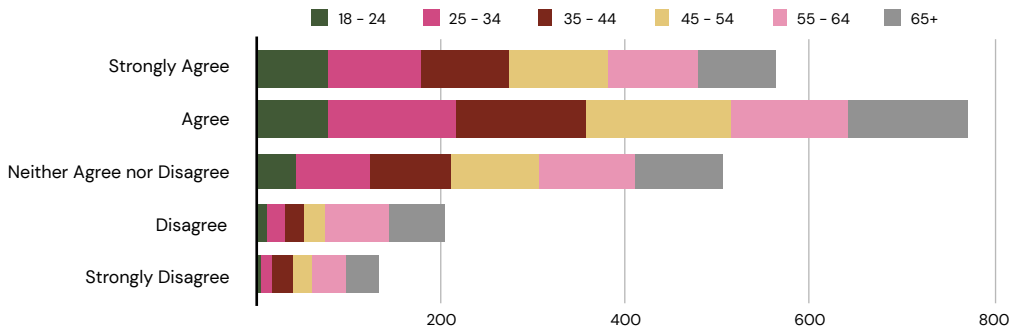
Figures & Tables 26.1 – 26.5. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on age for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry.

* Statistically significant at (P < 0.05)



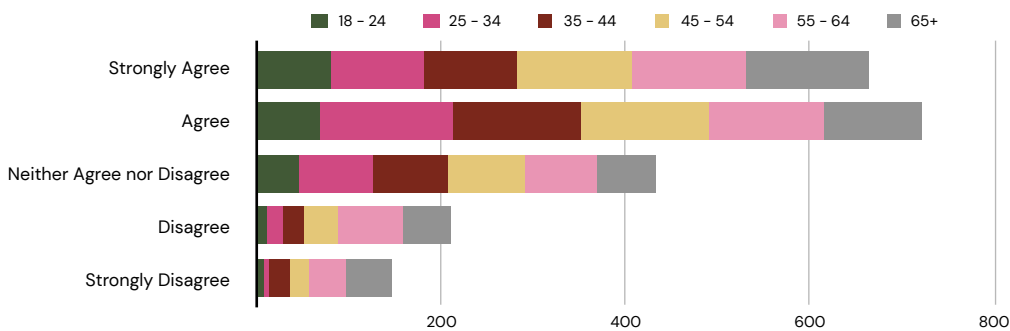
I think it's the environmentally right choice to make purchases from a retail floral provider based on their environmental practices.

df	SD	F	P
5	1.023	13.074	0.001*



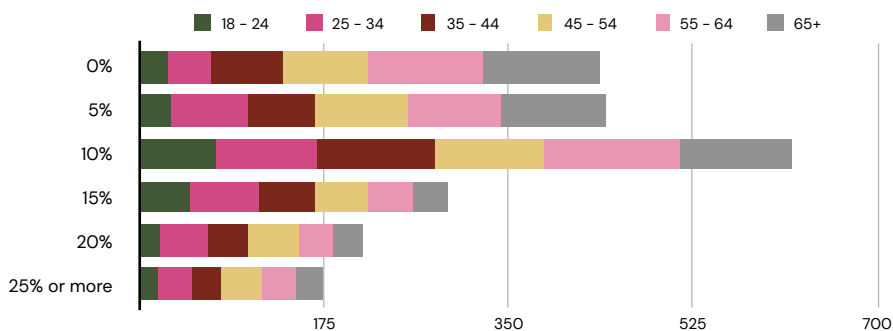
Overall, I would be more willing to make purchases from a retail floral provider that is environmentally friendly than from a retail floral provider that is not environmentally friendly.

df	SD	F	P
5	1.135	14.209	0.001*



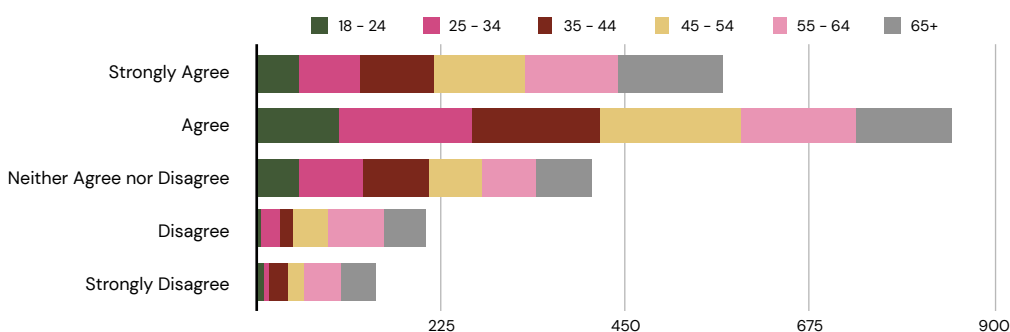
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that recycles their flower waste through composting than a retail floral provider that disposes of floral waste in municipal landfills.

df	SD	F	P
5	1.185	8.213	0.001*



Please indicate how much more, if any, you would be willing to pay for a flower arrangement made by a retail floral provider that recycles their flower waste through composting rather than disposing of floral waste in a municipal landfill.

df	SD	F	P
5	1.498	10.941	0.001*



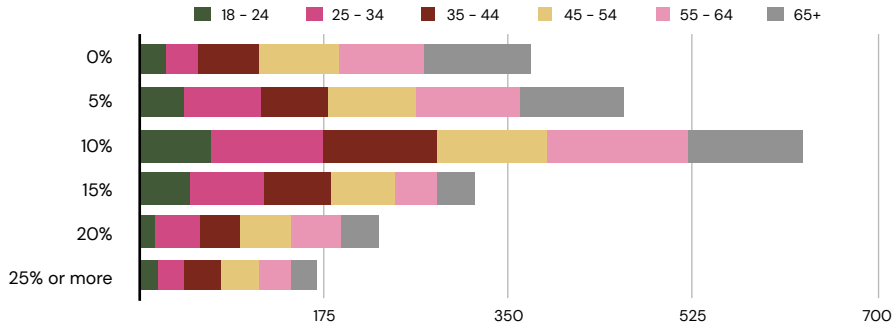
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells flowers sourced from local farmers and nurseries (farms and nurseries within 100 miles of the retail floral provider.)

df	SD	F	P
5	1.152	5.848	0.001*

Comparison of Participants' Responses Based on Age

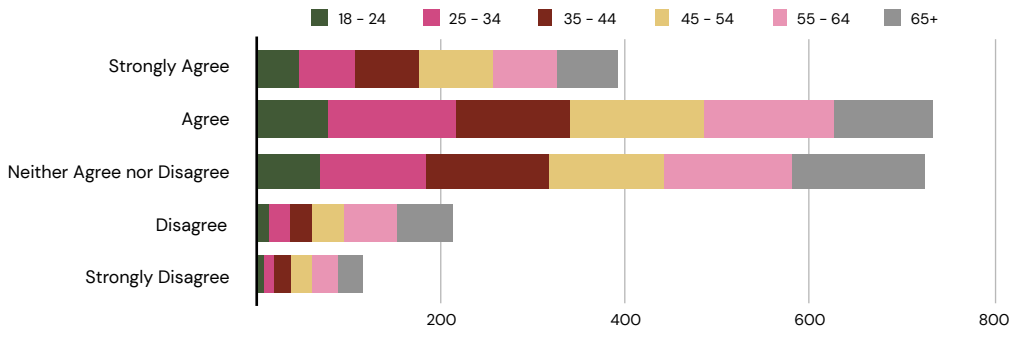
Figures & Tables 26.6 – 26.10. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on age for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry.

* Statistically significant at (P < 0.05)



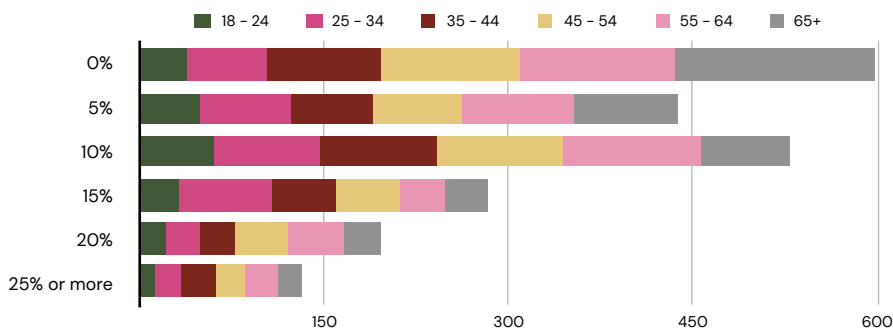
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using locally grown (grown within 100 miles or the retail floral provider)

df	SD	F	P
5	1.468	7.404	0.001*



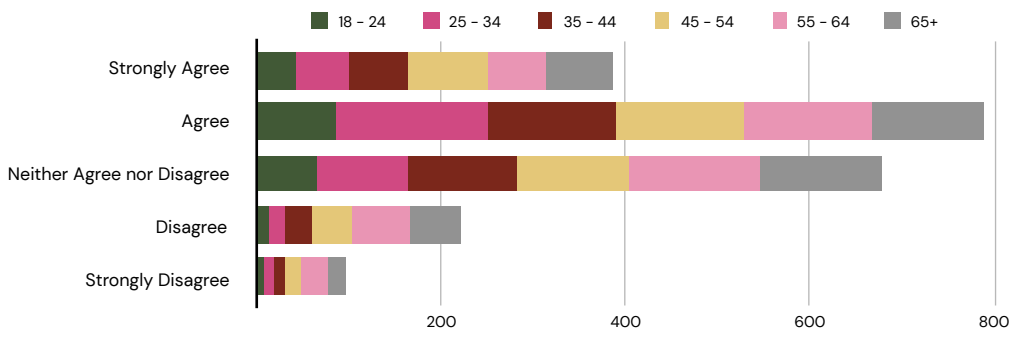
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells organically grown flowers (flowers grown and processed using no synthetic fertilizers or pesticides).

df	SD	F	P
5	1.057	6.14	0.001*



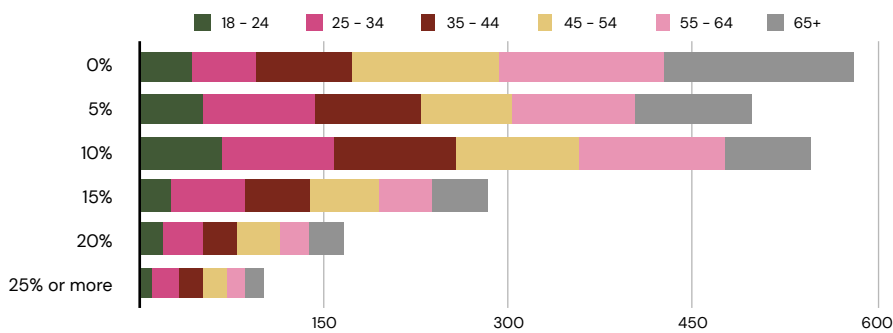
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using organically grown flowers (flowers grown and processed using no synthetic fertilizers or pesticides).

df	SD	F	P
5	1.505	8.117	0.001*



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 in which fair prices are paid to the producers).

df	SD	F	P
5	1.038	7.19	0.001*



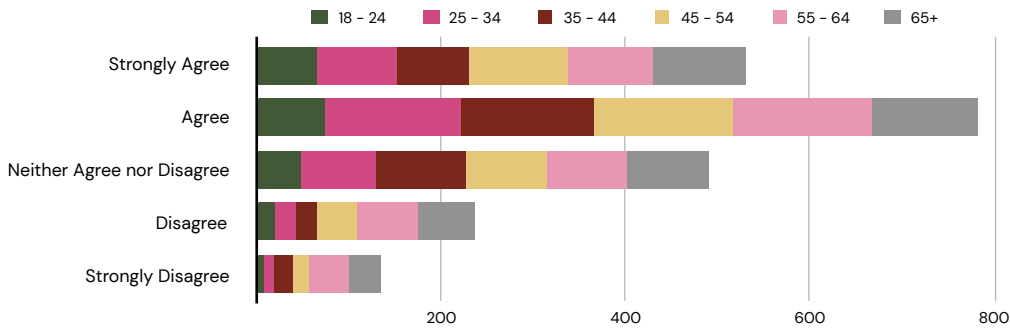
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using fair-trade sourced flowers (fair-trade can be defined as trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers).

df	SD	F	P
5	1.425	10.201	0.001*

Comparison of Participants' Responses Based on Age

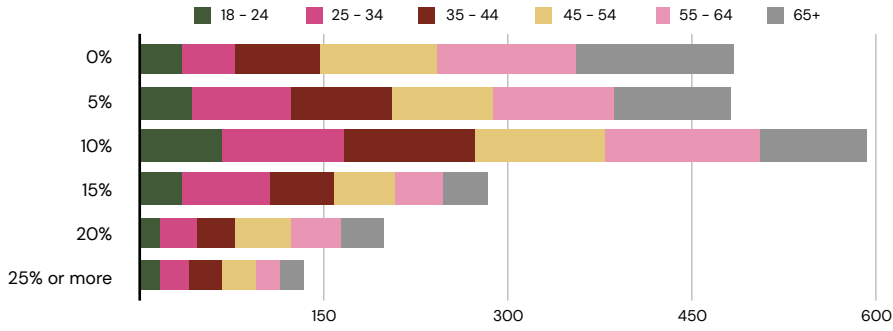
Figures & Tables 26.11 – 26.15. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on age for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry.

* Statistically significant at (P < 0.05)



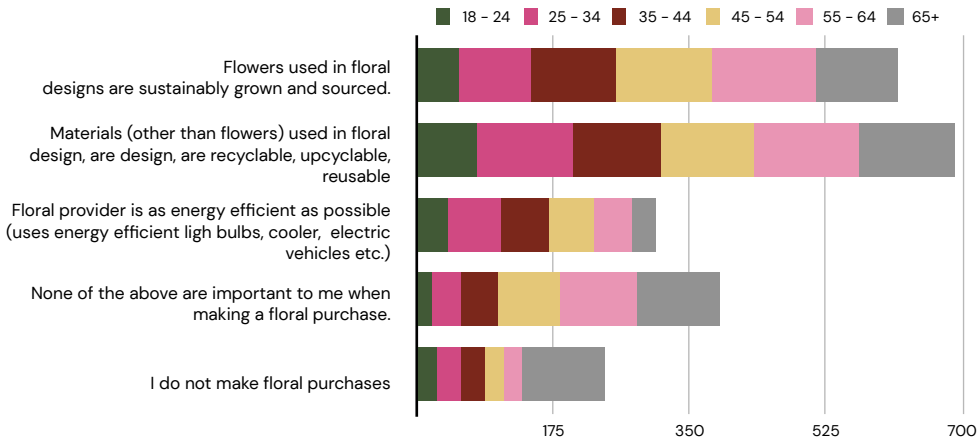
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that uses sustainable, recycled, upcycled, and/or reusable materials instead of single use products. Single-use plastic products can be defined as items that are used once, or for a short period of time, before being thrown away.

df	SD	F	P
5	1.143	7.197	0.001*



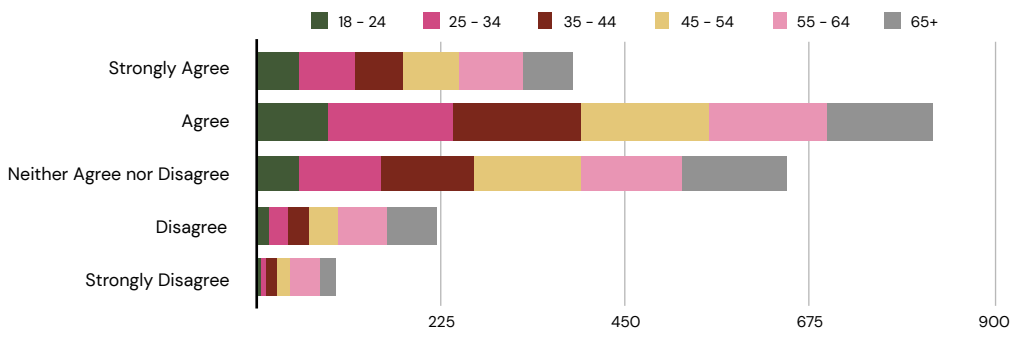
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using sustainable, recycled, upcycled, and/or reusable materials instead of single use products.

df	SD	F	P
5	1.46	8.394	0.001*



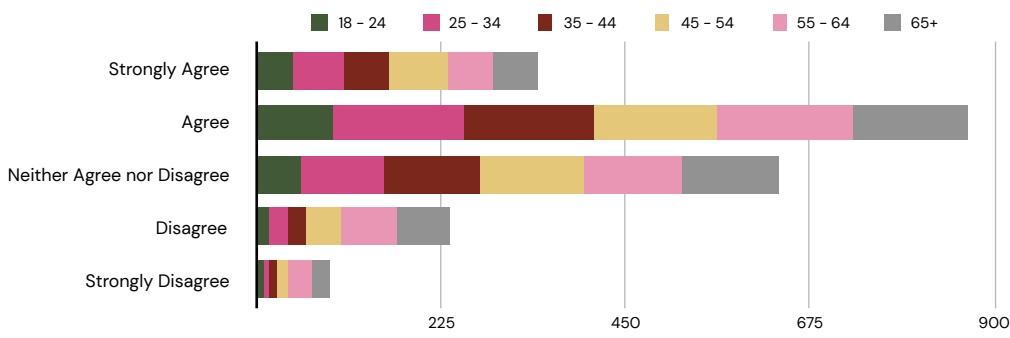
When deciding where to make a floral purchase, which of the following aspects of sustainability do you consider to be the most important for a retail floral provider to practice?

df	SD	F	P
5	1.286	2.082	0.065



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.

df	SD	F	P
5	1.034	8.831	0.001*

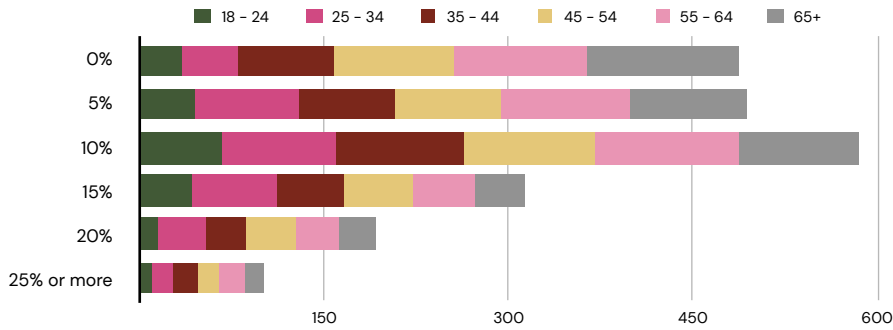


All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells flowers sourced from local farmers and nurseries (farms and nurseries within 100 miles of the retail floral provider.)

df	SD	F	P
5	1.015	10.391	0.001*

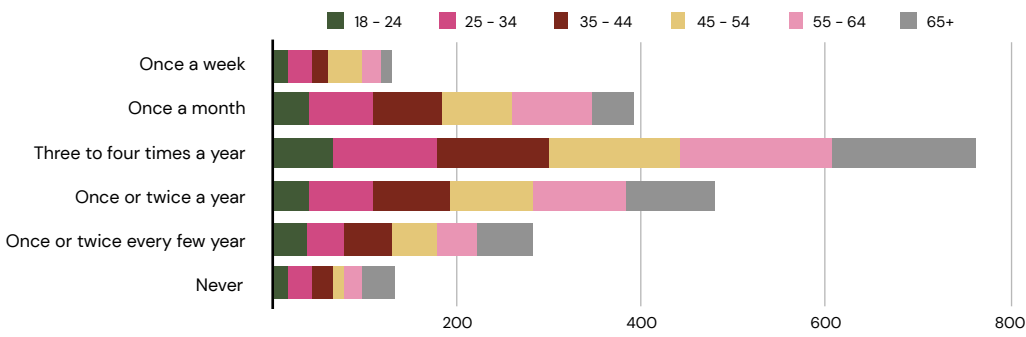
Comparison of Participants' Responses Based on Age

Figures & Tables 26.16 – 26.19. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on age for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



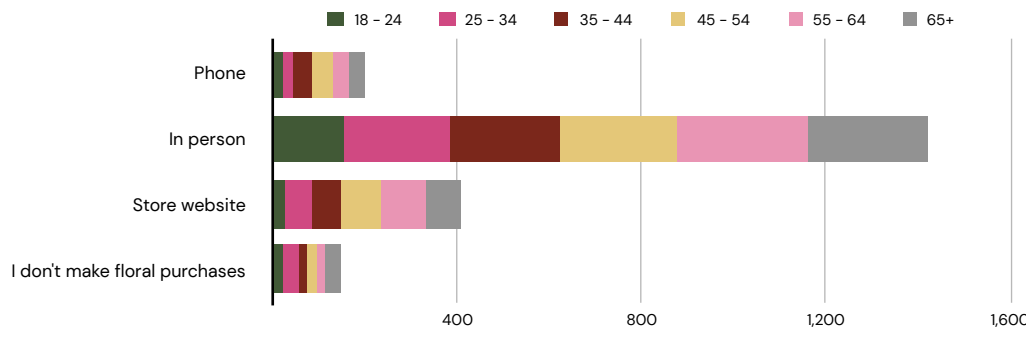
Please indicate how much more, if any, you would be willing to pay for flowers and floral designs from an environmentally-friendly-certified retail floral provider if such a certification existed.

df	SD	F	P
5	1.411	6.997	0.001*



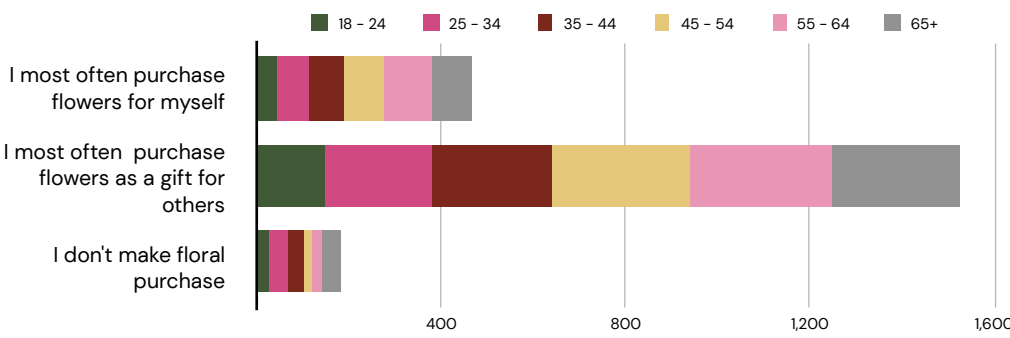
How often do you make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases.

df	SD	F	P
5	1.25	5.606	0.001*



In what manner do you most often make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases.

df	SD	F	P
5	0.705	1.631	0.148



For what reason do you most often make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases.

df	SD	F	P
5	0.531	2.055	0.068

Comparison of Participants’ Responses Based on Age

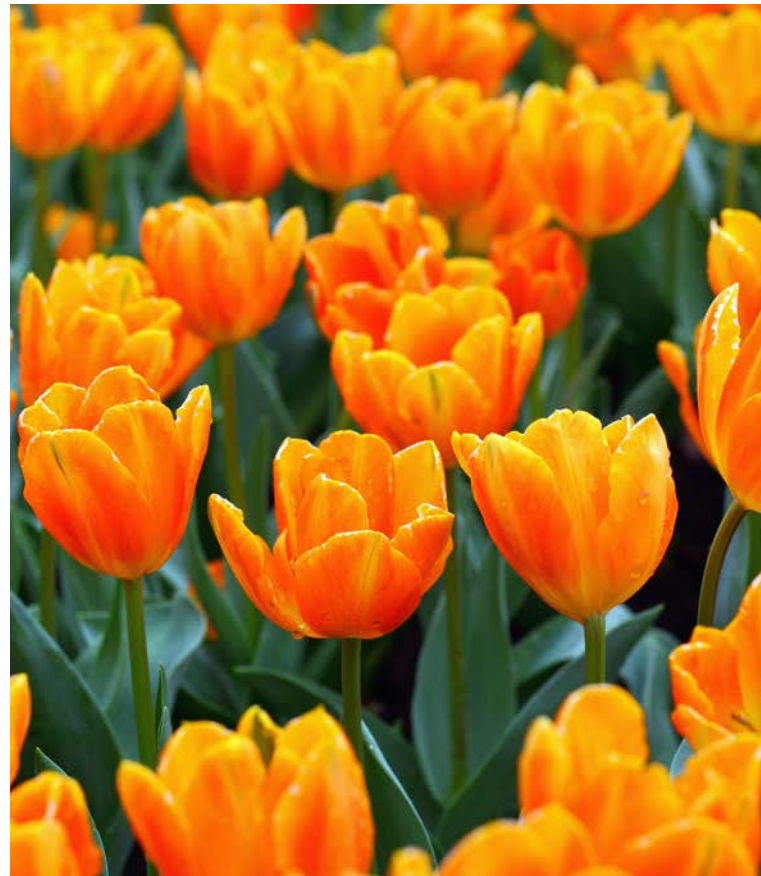
Participants were asked to “Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next.”

An ANOVA test was used to determine if there were differences in the way participants ranked the answer choices based on age groups. A Significant difference was found in the way participants ranked five of the answer choices based on their age.

Table 27. Analysis of variance test for participants response to the survey question “Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question and move onto the next.” based on age for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at ($P \leq 0.05$)

Considerations	df	SD	F	P
Reasonable prices	5	1.749	1.908	0.09
Use of locally sourced flowers	5	1.437	4.827	0.001*
Use of organically grown flowers	5	1.56	7.824	0.001*
Use of fair-trade flowers	5	1.441	2.779	0.017*
Use of energy saving practices such as energy efficient light bulbs, coolers, and electric vehicles	5	1.434	2.325	0.041*
Use of multiuse products (sustainable, recycled, upcycled, and/or reusable materials) instead of single use products	5	1.683	3.02	0.010*

A Kendall’s W analysis was used to determine how the different age groups ranked the answer choices for the question. When comparing how the age groups ranked the choices it was found all age groups were in agreement for the ranking of the first two most important aspects, ranking reasonable prices first and use of locally sourced flowers second. The use of organically grown flowers was ranked third by all age groups except for those 65 and older, which ranked use of multi-use products as third. The use of multi-use products was ranked fourth by all age groups apart from those 65 and older, which ranked use of energy saving practices as fourth. The fifth and sixth ranking varied depending on the age group. Overall, People 35 and older were slightly more concerned about reasonable prices when compared to those younger than 35, with those 65 and older (mean score 2.14) being the most concerned about prices. Those between the age of 45–55 (mean score 2.58) indicated locally sources flowers as being the second most important aspect.



Comparison of Participants' Responses Based on Age

Table 28. Kendall's W analysis indicating responses for participants between the age of 18-24 for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

18-24 Years of Age	N	Mean score	SD
1 Reasonable prices	195	2.41	1.65
2 Use of locally sourced flowers	195	3.16	1.646
3 Use of organically grown flowers	195	3.64	1.593
4 Use of multi-use products	195	3.77	1.717
5 Use of energy saving practices	195	3.94	1.514
6 Use of fair-trade	195	4.08	1.553

25-34 Years of Age	N	Mean score	SD
1 Reasonable prices	336	2.45	1.784
2 Use of locally sourced flowers	336	2.72	1.449
3 Use of organically grown flowers	336	3.63	1.619
4 Use of multi-use products	336	3.99	1.699
5 Use of fair-trade	336	4.08	1.459
6 Use of energy saving practices	336	4.13	1.403

Table 29. Kendall's W analysis indicating responses for participants between the age of 25-34 for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Table 30. Kendall's W analysis indicating responses for participants between the age of 35-44 for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

35-44 Years of Age	N	Mean score	SD
1 Reasonable prices	343	2.38	1.771
2 Use of locally sourced flowers	343	2.86	1.498
3 Use of organically grown flowers	343	3.88	1.618
4 Use of multi-use products	343	3.9	1.695
5 Use of fair-trade	343	3.97	1.446
6 Use of energy saving practices	343	4.01	1.474

45-54 Years of Age	N	Mean score	SD
1 Reasonable prices	367	2.16	1.707
2 Use of locally sourced flowers	367	2.68	1.366
3 Use of organically grown flowers	367	3.72	1.463
4 Use of multi-use products	367	3.98	1.685
5 Use of energy saving practices	367	4.17	1.463
6 Use of fair-trade	367	4.29	1.39

Table 31. Kendall's W analysis indicating responses for participants between the age of 45-54 for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Comparison of Participants' Responses Based on Age

Table 32. Kendall's W analysis indicating responses for participants between the age of 55-64 for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

55-64 Years of Age	N	Mean score	SD
1 Reasonable prices	351	2.3	1.813
2 Use of locally sourced flowers	351	2.58	1.355
3 Use of organically grown flowers	351	3.73	1.525
4 Use of multi-use products	351	3.83	1.668
5 Use of energy saving practices	351	4.25	1.344
6 Use of fair-trade	351	4.31	1.432

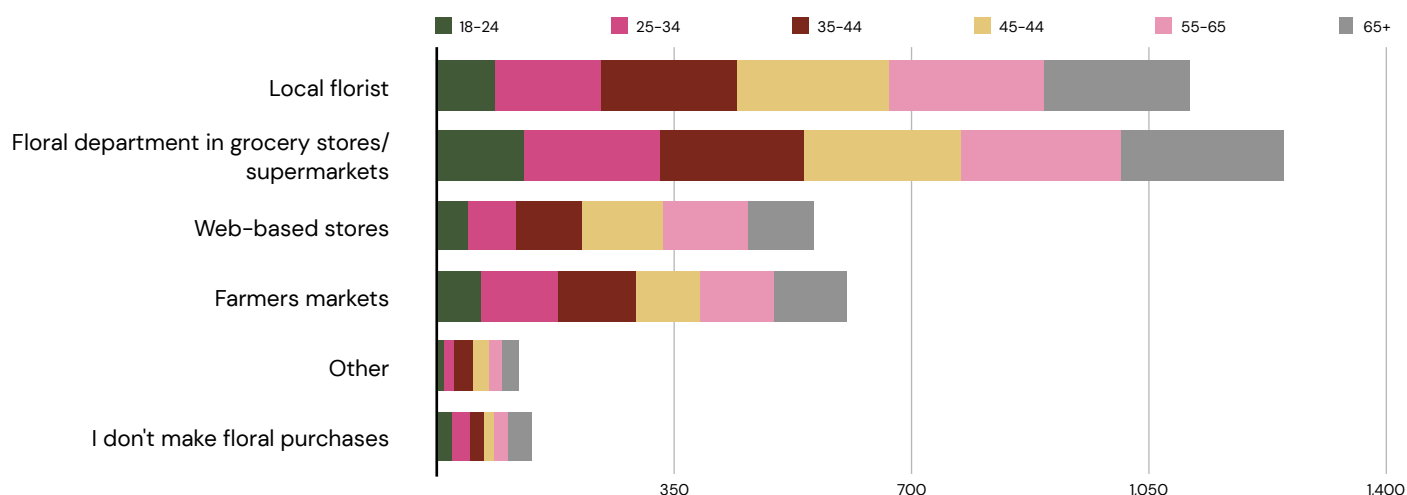
65+ Years of Age	N	Mean score	SD
1 Reasonable prices	313	2.14	1.708
2 Use of locally sourced flowers	313	2.65	1.35
3 Use of multi-use products	313	3.66	1.628
4 Use of energy saving practices	313	4.00	1.426
5 Use of fair-trade	313	4.26	1.396
6 Use of organically grown flowers	313	4.29	1.485

Table 33. Kendall's W analysis indicating responses for participants between the age of 65+ for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Frequency statistics were used to determine where participants make floral purchases the most often based on age. It was found that overall, regardless of age, participants made purchases from floral departments in grocery stores and supermarkets the most followed by local florists.

Those between the ages of 18-24 (60.9%) and those 65 years of age and older (59.3%) were the age groups that indicated making most of their floral purchases from floral departments in grocery stores/supermarkets.

Figure & Table 34. Frequency statistics indicating response bases on age for the question "Where do you make your floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases. Please check all that apply."



Comparison of Participants' Responses Based on Age

Table 34. Frequency statistics indicating response bases on age for the question "Where do you make your floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases. Please check all that apply."

Categories	18-24		25-34		35-44		45-44		55-65		65	
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
Local florist	85	41.1%	158	54.1%	197	53.7%	228	56%	227	52.1%	215	53.1%
Floral department in grocery stores/ supermarkets	126	60.9%	200	57.1%	213	58%	232	57%	236	54.1%	240	59.3%
Web-based stores	46	22.2%	69	19.7%	99	27%	118	29%	125	28.7%	100	24.7%
Farmers markets	65	31.4%	114	32.6%	114	31.1%	93	22.9%	112	25.7%	104	25.7%
Other	10	4.8%	16	4.6%	25	6.8%	24	5.9%	22	5%	22	5.4%
I don't make floral purchases	19	9.2%	28	8%	22	6%	15	3.7%	19	4.4%	34	8.4%

Participants were asked both pre- and post-survey "Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable.'" ANOVA tests were used to determine if there were significant differences in the way participants answered the survey question based on their age. Significant differences were found in the way participants answered the question both pre- and post-survey. Post hoc analysis (LSD) indicated there was a difference in the way participants 44 years of age and younger responded to the question pre-survey when compared to those 45 years of age and older. Overall participants 44 years of age and older viewed the floral industry as being less sustainable in the pre-survey question when compared to those 45 years of age and older. The mean scores for each age group were added together and averaged to form an overall mean score of 6.02 for participants on the pre-survey sustainable industry survey question based on age.

Post hoc analysis (LSD) indicated there was a difference in the way all genders answered the post-survey floral industry sustainability question when compared to each other. Overall, all perceptions of how sustainable the floral industry is declined slightly in every age group. The mean scores for each age group were added together and averaged to form an overall mean score of 5.58 for participants on the post-survey sustainable industry survey question based on age (mean loss of 0.44 pre to post survey).

Overall participants 44 years of age and younger viewed the floral industry as being less sustainable in the post question when compared to participants 45 years of age and older.

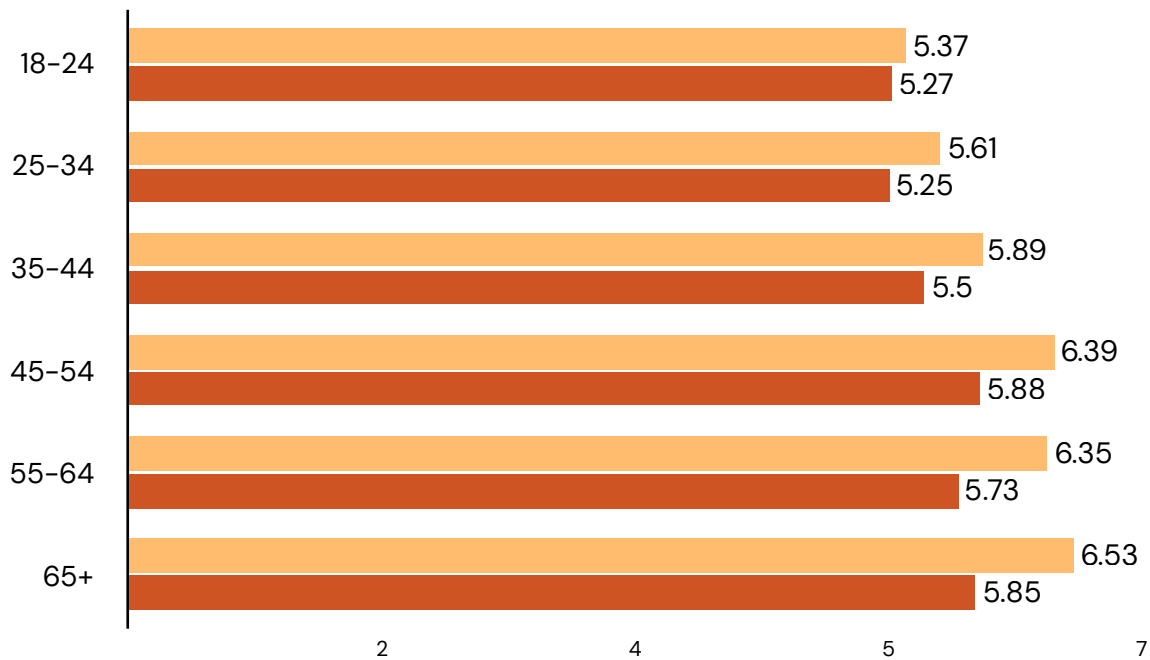


Comparison of Participants' Responses Based on Age

Figure & Table 35. Analysis of variance (ANOVA) and descriptive statistics indicating response bases on age for the question "Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable'."

Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable'.

■ Pre – Survey
■ Post – Survey



	Pre – Survey	Post – Survey
df	5.000	5.000
SD	2.182	2.242
F	14.977	5.394
P	0.001*	0.001*

* Statistically significant at (P ≤ 0.05)

Participants were asked "How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not interested at all' and 10 indicating 'very interested.'" Analysis of variance (ANOVA) tests were used to determine if there were significant differences in the way participants answered the survey question based on their age. Significant differences were found in the way participants answered the question. Post hoc analysis (LSD) indicated there was a difference in the way participants 65 years of age and older answered the questions in relation to all other age groups.

When compared to the other age groups those 65 years of age and older were less interested in learning more about sustainable floral practices. The mean scores for each age group were added together and averaged to form an overall mean score of 4.78 for participants based on age indicating a moderately low interest in learning more about sustainable floral practices based on age.



Comparison of Participants' Responses Based on Age

Table 36. Analysis of variance (ANOVA) and descriptive statistics indicating response bases on age for the question "How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not interested at all' and 10 indicating 'very interested'."

How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider?	N	Mean	df	SD	F	P
18-24	207	4.95	5	2.886	5.977	0.001*
25-34	350	5.03				
35-44	365	5.04				
45-54	404	5.00				
55-64	430	4.63				
65	399	4.14				

* Statistically significant at ($P \leq 0.05$)



Comparison of Participants' Responses Based on Highest Level of Education Received

Participant responses were compared based on education. ANOVA tests were used to determine if there were significant differences in the way participants answered the survey questions based on their education. Significant differences were found in the way participants answered four of the survey questions based on their education.

When asked "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 in which fair prices are paid to the producers)," post hoc analysis (LSD) indicated there was a difference in the way participants with varying levels of college education responded to the questions.

Overall, participants with at least some college education agreed or strongly agreed with the statement when compared to other educational groups. Those with a post graduate degree responded the most positive to the question, indicating participants with higher education levels were more concerned about the use of fair-trade flowers when compared to other educational groups (K-11 41.6% agree or strongly agree, GED/High school diploma 49.8% agree or strongly agree, some college 54.7% agree or strongly agree, college degree 51.8% agree or strongly agree, post graduate degree 63.1% agree or strongly agree, associate degree/trade school 46.0% agree or strongly agree).

Comparison of Participants' Responses Based on Highest Level of Education Received

When reviewing participants' answers to questions about their willingness to pay a premium for fair-trade flowers it was found that participants with a post graduate degree were also the most willing to pay a premium for fair-trade flowers, after those with a K-11 education who are excluded due to low participation rate making their results not generalizable to the population as a whole (K-11 58.3% willing to pay 10% or more, GED/High school diploma 50.5% willing to pay 10% or more, some college 46.9% willing to pay 10% or more, college degree 50.9% willing to pay 10% or more, post graduate degree 52.8% willing to pay 10% or more, associates/trade school degree 49.5% willing to pay 10% or more).

When asked "If an environmentally friendly certification existed for retail floral providers, I would trust a retail floral providers' environmental quality standards when purchasing from an environmentally-friendly-certified retail floral provider," post hoc analysis (LSD) indicated there was a difference in the way participants with a K-11 education answered the question when compared to all other education groups. A majority in all other education groups agreed or strongly agreed with the statement while only 29.1% of K-11 education participants agreed or strongly agreed with the statement. However, because the sample size for K-11 educated participation is so small, results regarding this demographic group cannot be generalized to the demographic as a whole.



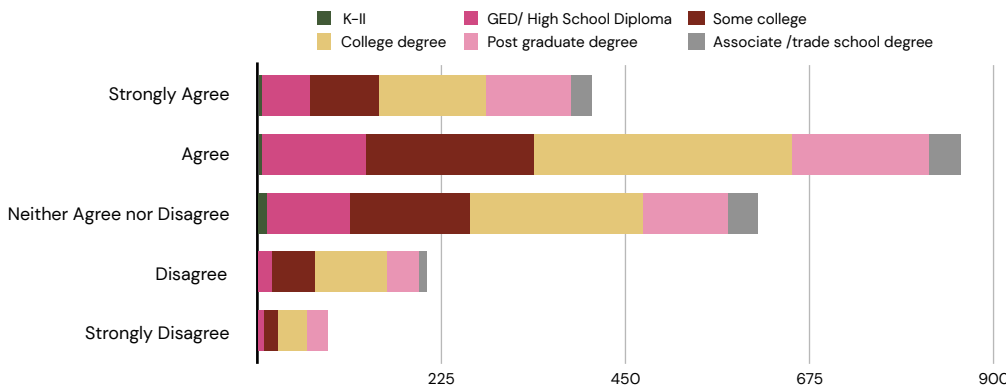
When asked "How often do you make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases," post hoc analysis (LSD) indicated there was a difference in the way participants with a post graduate degree answered the question when compared to all other education groups. With the exception of those with a K-11 education, a majority of all education groups make at least three to four floral purchases a year or more (K-11 49.9% three to four floral purchases a year or more, GED/High school diploma 54.9% three to four floral purchases a year or more, some college 56.5% three to four floral purchases a year or more, college degree 59.2% three to four floral purchases a year or more, post graduate degree 66.4% three to four floral purchases a year or more, associate degree/trade school 52.2% three to four floral purchases a year or more). It was found those with a post graduate education purchase flowers at a higher rate when compared to the other education groups.

When asked "For what reason do you most often make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases," post hoc analysis (LSD) indicated there was a difference in the way participants with a GED/High school diploma answered the question when compared to all other groups. A majority of all groups indicated the reason they most often purchase flowers is as a gift for others. However, it was found that those with a GED/High school diploma make fewer purchases overall when compared to the other education groups (K-11 12.5% don't make floral purchases, GED/High school diploma 16.3% don't make floral purchases, some college 9.7% don't make floral purchases, college degree 5.6% don't make floral purchases, post graduate degree 5.7% don't make floral purchases, associate/trade school degree 9.9% don't make floral purchases).

No differences were found in the way participants answered questions regarding their willingness to pay a premium for environmentally friendly practices based on education. In general, a majority of participants were willing to pay 10% or more for sustainable attributes based on their education.

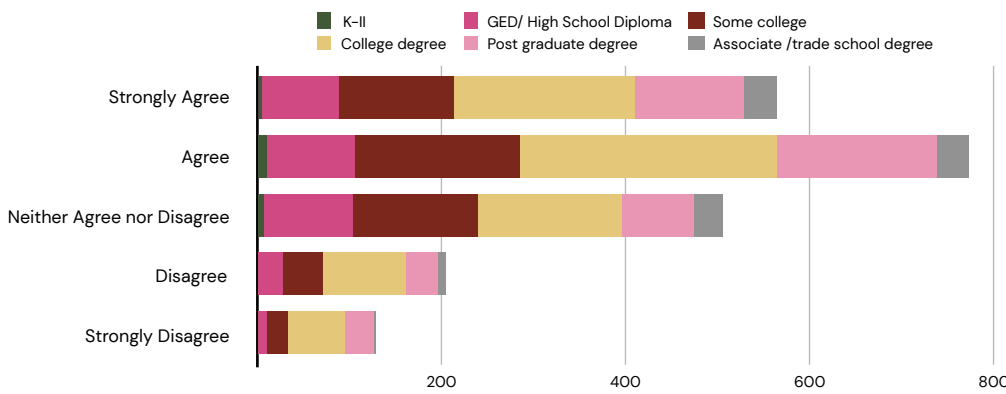
Comparison of Participants' Responses Based on Highest Level of Education Received

Figures & Tables 37.1-37.4. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on highest level of education received for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



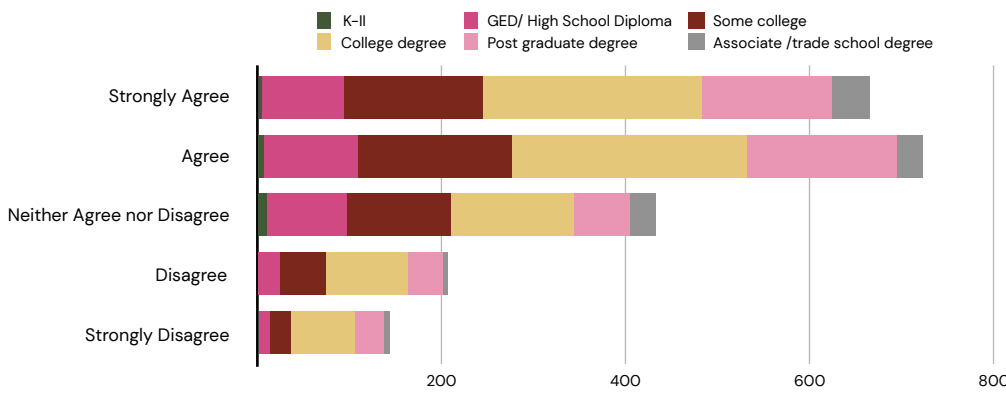
I think it's the environmentally right choice to make purchases from a retail floral provider based on their environmental practices.

df	SD	F	P
5	1.023	1.438	0.207*



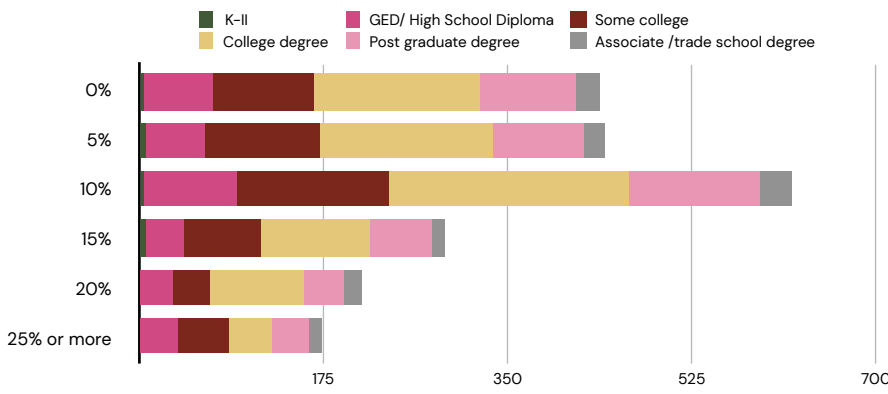
Overall, I would be more willing to make purchases from a retail floral provider that is environmentally friendly than from a retail floral provider that is not environmentally friendly.

df	SD	F	P
5	1.135	1.271	0.273*



All other considerations held the same, I would be more willing to make purchase from a retail floral provider that recycles their flower waste through composting than a retail floral provider that dispose of floral waste in municipal landfills.

df	SD	F	P
5	1.185	1.618	0.152*

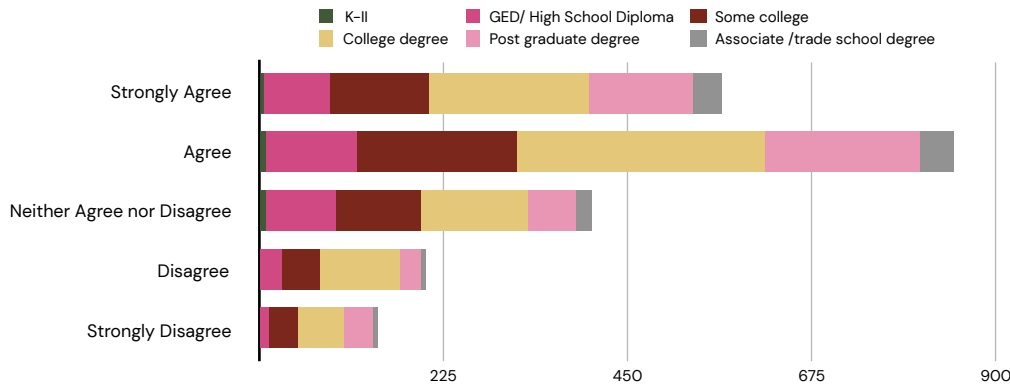


Please indicate how much more, if any, you would be willing to pay for a flower arrangement made by a retail floral provider that recycles their flower waste through composting rather than disposing of floral waste in a municipal landfill.

df	SD	F	P
5	1.498	0.946	0.45

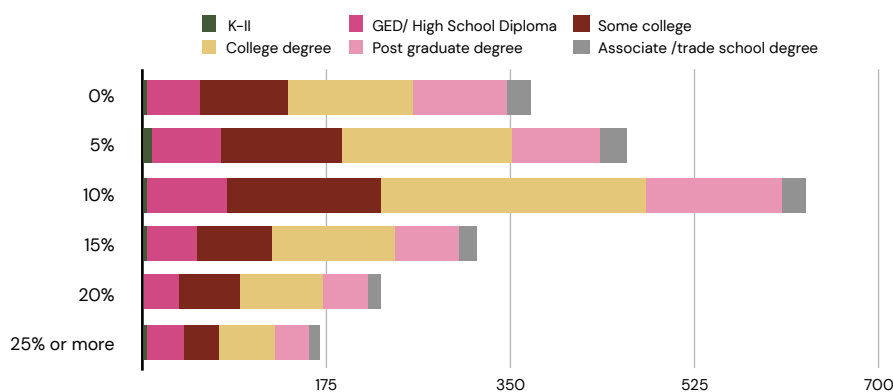
Comparison of Participants' Responses Based on Highest Level of Education Received

Figures & Tables 37.5–37.8. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on highest level of education received for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



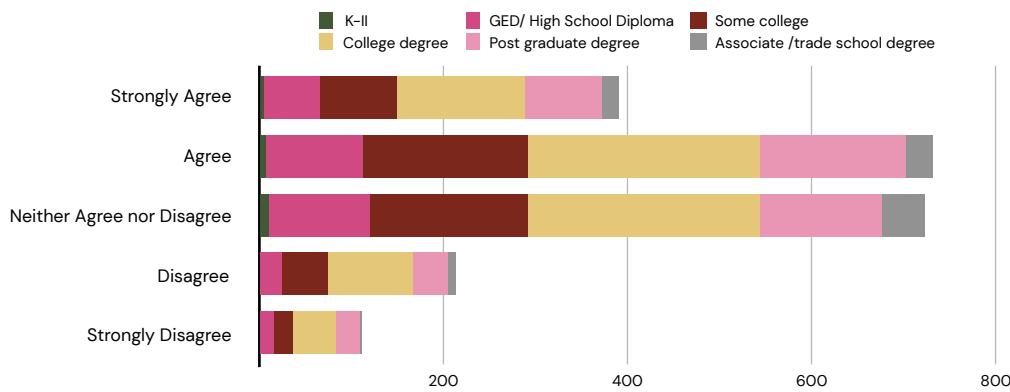
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells flowers sourced from local farmers and nurseries (farms and nurseries within 100 miles of the retail floral provider).

df	SD	F	P
5	1.152	1.761	0.118



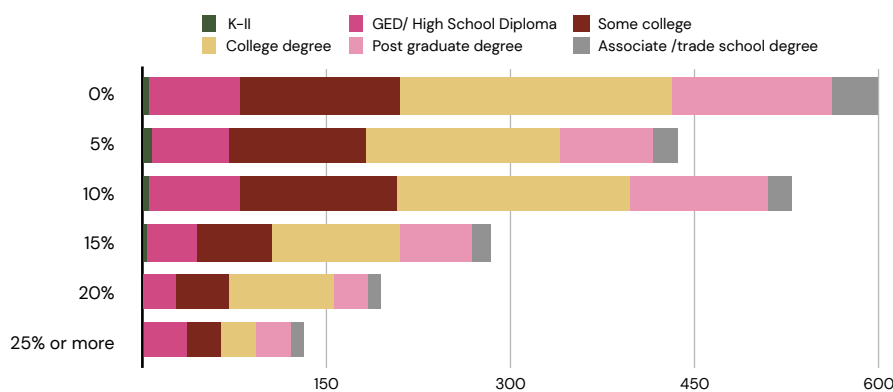
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using locally grown flowers (grown within 100 miles of the retail floral provider).

df	SD	F	P
5	1.468	0.948	0.449



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).

df	SD	F	P
5	1.057	1.208	0.303

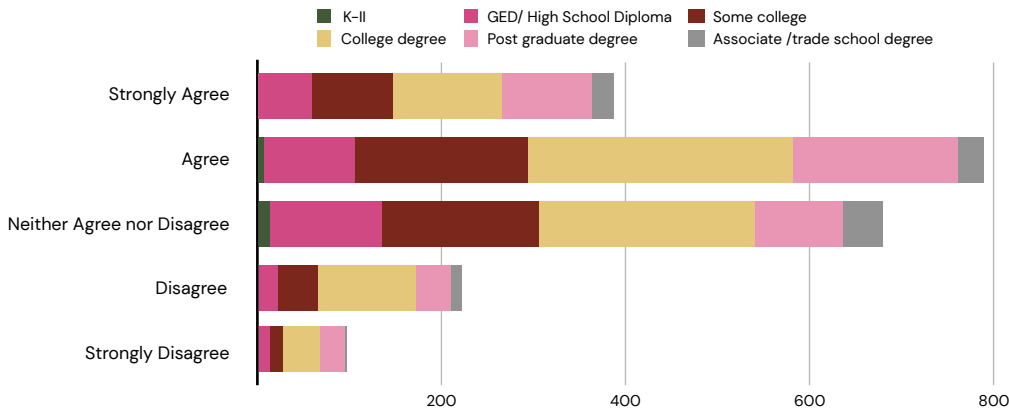


Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using organically grown flowers (flowers grown and processed using no synthetic fertilizers or pesticides).

df	SD	F	P
5	1.505	1.698	0.132

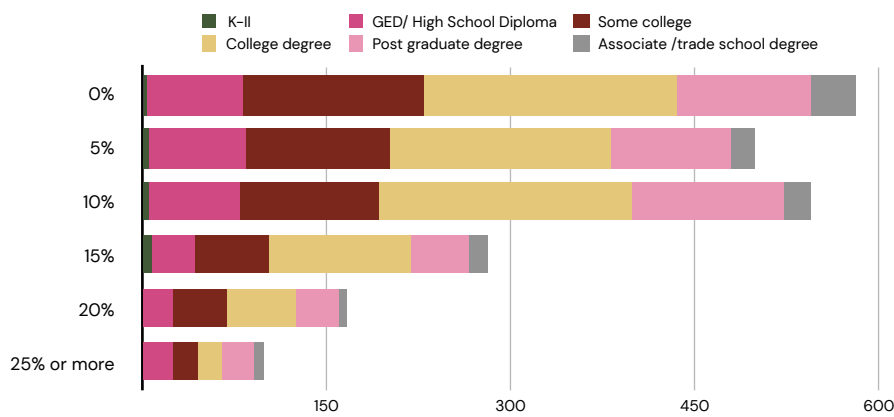
Comparison of Participants' Responses Based on Highest Level of Education Received

Figures & Tables 37.9–37.12. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on highest level of education received for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



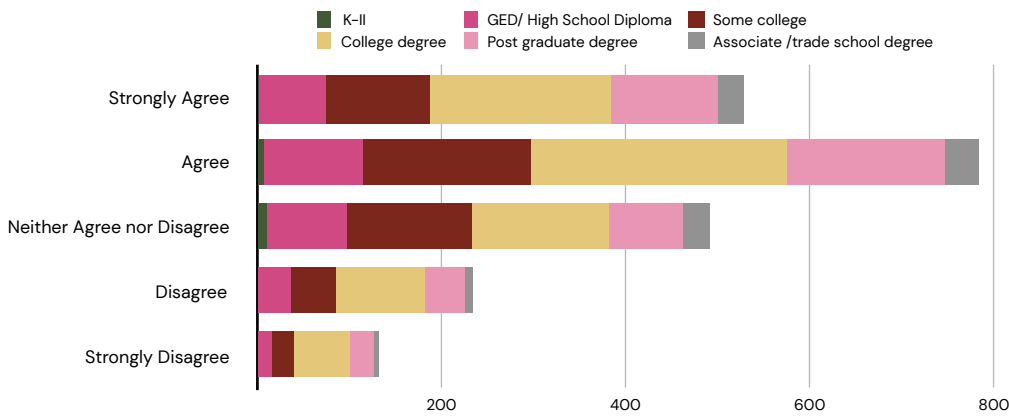
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells fair-trade sourced flowers (fair-trade can be defined as trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers).

df	SD	F	P
5	1.038	2.783	0.016*



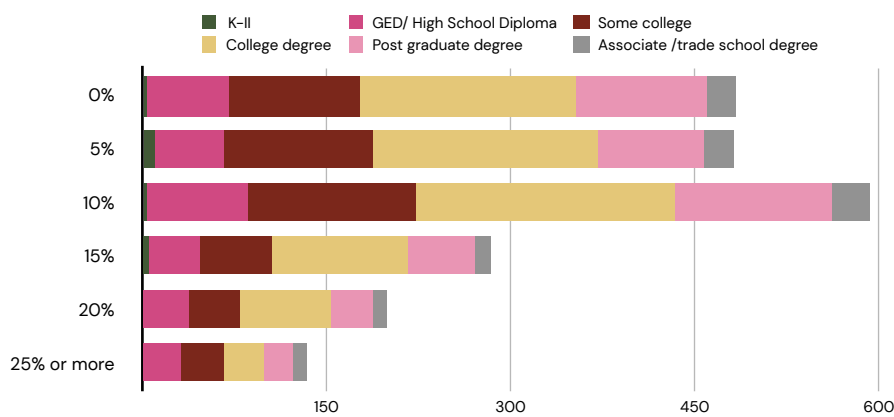
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using fair-trade sourced flowers (fair-trade can be defined as trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers).

df	SD	F	P
5	1.425	0.992	0.421



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.

df	SD	F	P
5	1.143	1.596	0.158



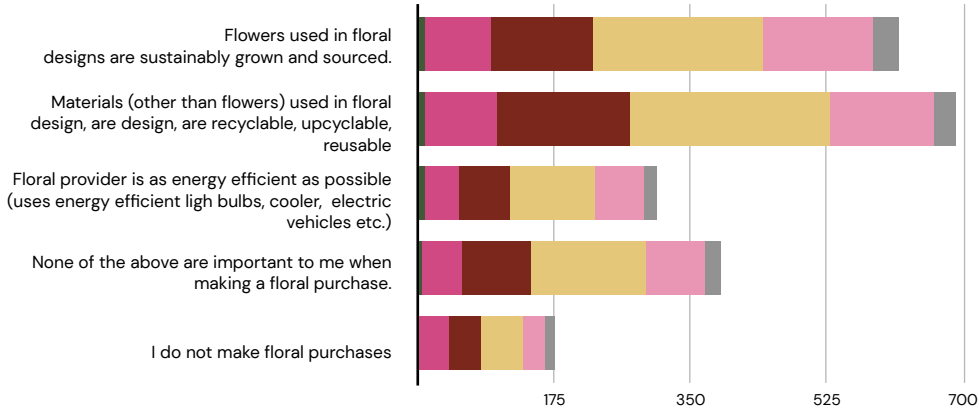
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using sustainable, recycled, upcycled, and/or reusable materials instead of single use products.

df	SD	F	P
5	1.46	2.04	0.07

Comparison of Participants' Responses Based on Highest Level of Education Received

Figures & Tables 37.13–37.16. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on highest level of education received for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)

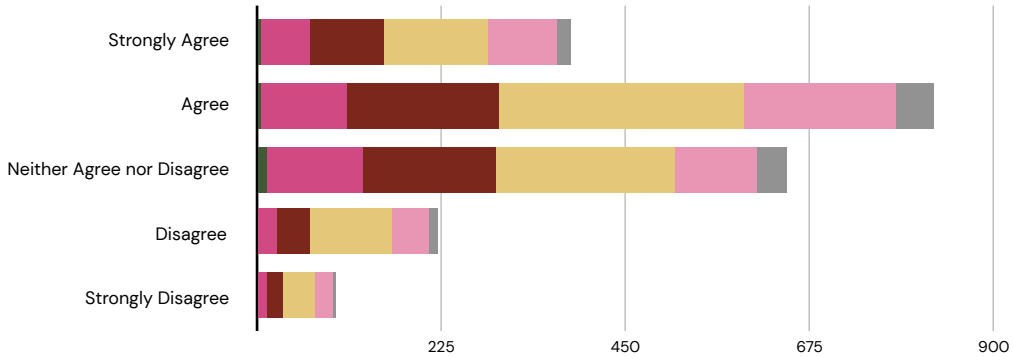
■ K-II ■ GED/ High School Diploma ■ Some college
■ College degree ■ Post graduate degree ■ Associate /trade school degree



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?

df	SD	F	P
5	1.286	1.136	0.339

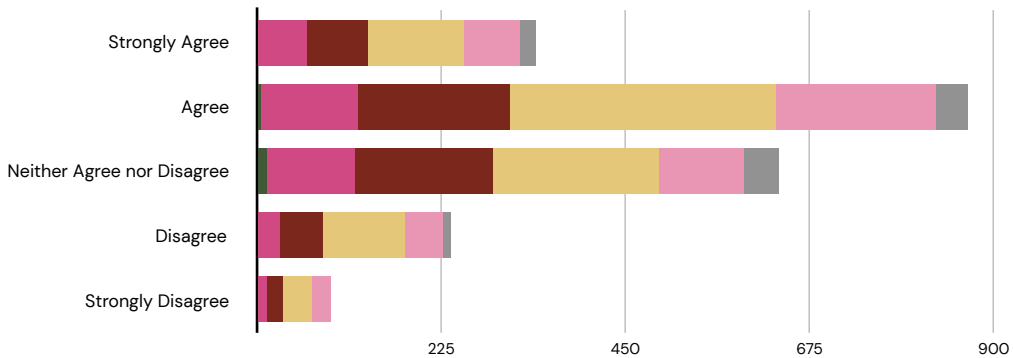
■ K-II ■ GED/ High School Diploma ■ Some college
■ College degree ■ Post graduate degree ■ Associate /trade school degree



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.

df	SD	F	P
5	1.034	1.273	0.273

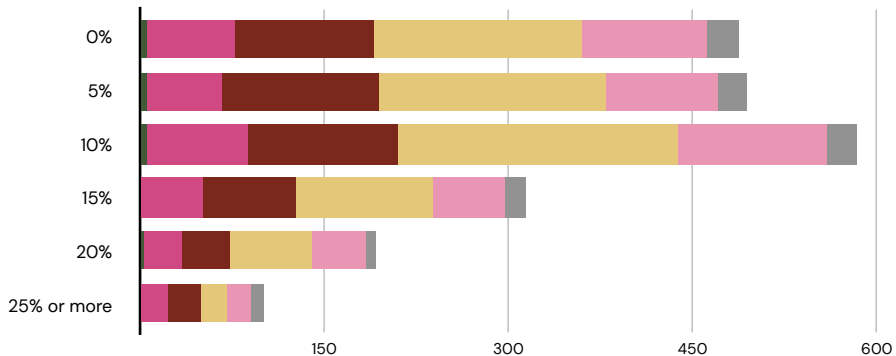
■ K-II ■ GED/ High School Diploma ■ Some college
■ College degree ■ Post graduate degree ■ Associate /trade school degree



If an environmentally friendly certification existed for retail floral providers, I purchasing from an environmentally friendly-certified retail floral provider.

df	SD	F	P
5	1.015	2.506	0.029*

■ K-II ■ GED/ High School Diploma ■ Some college
■ College degree ■ Post graduate degree ■ Associate /trade school degree

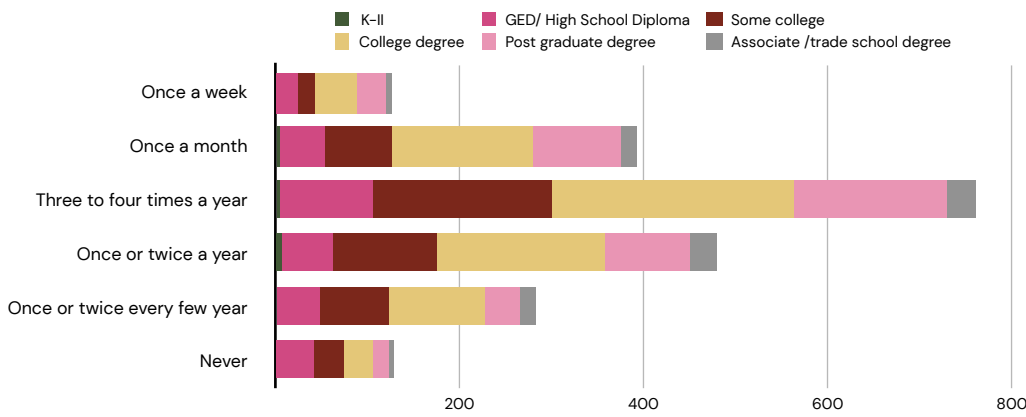


Please indicate how much more, if any, you would be willing to pay for flowers and floral designs from an environmentally-friendly-certified retail floral provider if such a certification existed.

df	SD	F	P
5	1.411	0.777	0.566

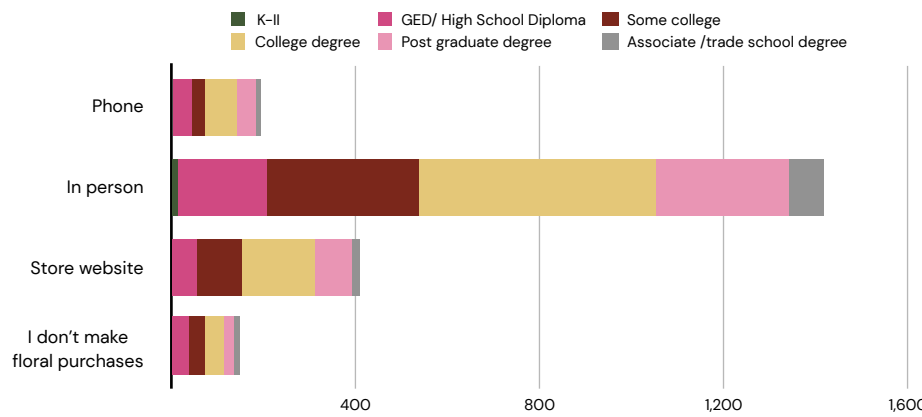
Comparison of Participants' Responses Based on Highest Level of Education Received

Figures & Tables 37.17–37.19. Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on highest level of education received for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



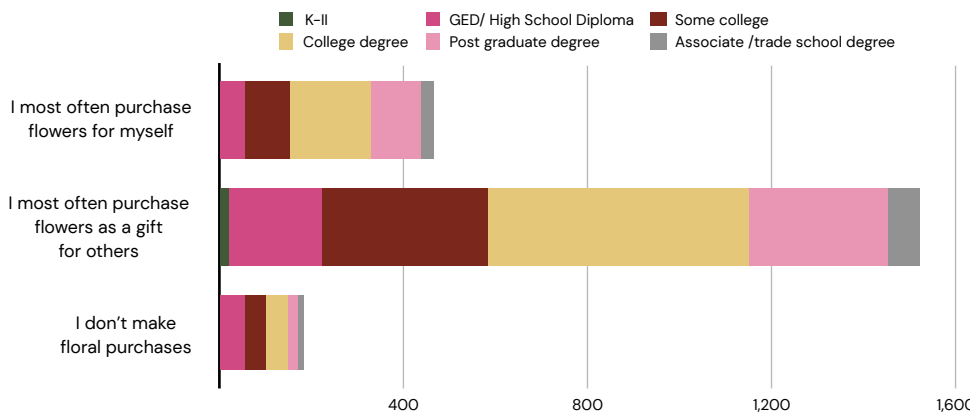
How often do you make floral purchases? Flower purchases can be defined as separate from nursery/greenhouse purchases, cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases.

df	SD	F	P
5	1.25	5.844	0.001*



In what manner do you most often make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery greenhouse purchases.

df	SD	F	P
5	0.705	1.607	0.155



For what reason do you most often make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases.

df	SD	F	P
5	0.531	5.972	0.001*

Participants were asked to “Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next.”. An ANOVA test was used to determine if there was a difference in the way participants ranked the answer choices based on their education level. A Significant difference was found in the way participants ranked three of the answer choices based on their education.



Comparison of Participants' Responses Based on Highest Level of Education Received

Table 38. Analysis of variance test for participants response to the survey question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question and move onto the next." based on education level for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry.

Considerations	df	SD	F	P
Reasonable prices	5	1.749	0.242	0.944
Use of locally sourced flowers	5	1.437	0.317	0.903
Use of organically grown flowers	5	1.560	6.217	0.001*
Use of fair-trade flowers	5	1.441	1.289	0.266
Use of energy saving practices such as energy efficient light bulbs, coolers, and electric vehicles	5	1.434	2.331	0.040*
Use of multiuse products (sustainable, recycled, upcycled, and/or reusable materials) instead of single use products	5	1.683	4.090	0.001*

* Statistically significant at (P ≤ 0.05)

A Kendall's W analysis was used to determine how the different education groups ranked the answer choices for the question. When comparing how the education groups ranked the choice it was found all education groups were in agreement for the ranking of the first two most important aspects ranking reasonable prices first and use of locally sourced flowers second. There was disagreement amongst the education groups on how to rank the remaining environmentally friendly practices indicating that certain environmentally friendly practices were viewed as more important to some education groups and less important to others.

Overall, no differences were found in how much participants were willing to pay for each environmentally sustainable practice based on education. This indicates that regardless of how each group ordered the environmentally friendly practices they were generally willing to pay the same amount for each attribute based on their education.



Table 39. Kendall's W analysis indicating responses for participants with a K-11 education for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

K-11	N	Mean score	SD
1 Reasonable prices	21	2.24	1.64
2 Use of locally sourced flowers	21	2.48	1.289
3 Use of organically grown flowers	21	3.43	1.567
4 Use of fair-trade	21	3.81	1.209
5 Use of energy saving practices	21	4.05	1.596
6 Use of multi-use products	21	5.00	1.414

Comparison of Participants' Responses Based on Highest Level of Education Received

Table 40. Kendall's W analysis indicating responses for participants with a GED/high school diploma for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

GED/high school diploma	N	Mean score	SD
1 Reasonable prices	279	2.28	1.68168
2 Use of locally sourced flowers	279	2.75	1.45054
3 Use of organically grown flowers	279	3.41	1.50968
4 Use of fair-trade	279	4.12	1.41815
5 Use of multi-use products	279	4.14	1.72667
6 Use of energy saving practices	279	4.31	1.35643

Some College	N	Mean score	SD
1 Reasonable prices	436	2.26	1.714
2 Use of locally sourced flowers	436	2.77	1.432
3 Use of organically grown flowers	436	3.81	1.547
4 Use of multi-use products	436	3.85	1.642
5 Use of energy saving practices	436	4.15	1.45
6 Use of fair-trade	436	4.16	1.476

Table 41. Kendall's W analysis indicating responses for participants with some college for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Table 42. Kendall's W analysis indicating responses for participants with a college degree for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

College Degree	N	Mean score	SD
1 Reasonable prices	684	2.30	1.731
2 Use of locally sourced flowers	684	2.75	1.400
3 Use of multi-use products	684	3.79	1.673
4 Use of organically grown flowers	684	3.88	1.589
5 Use of energy saving practices	684	4.05	1.427
6 Use of fair-trade	684	4.22	1.465

Post Graduate Degree	N	Mean score	SD
1 Reasonable prices	386	2.39	1.840
2 Use of locally sourced flowers	386	2.70	1.455
3 Use of multi-use products	386	3.83	1.676
4 Use of energy saving practices	386	3.94	1.442
5 Use of organically grown flowers	386	4.05	1.516
6 Use of fair-trade	386	4.10	1.415

Table 43. Kendall's W analysis indicating responses for participants with a post graduate degree for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Comparison of Participants' Responses Based on Highest Level of Education Received

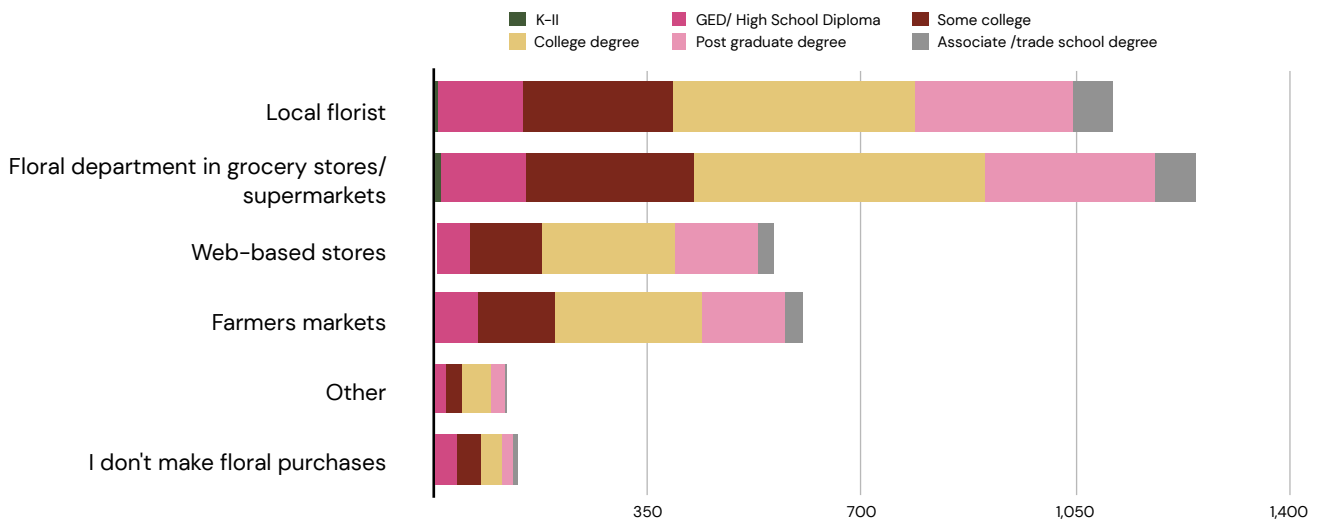
Table 44. Kendall's W analysis indicating responses for participants with an associate/trade school degree for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

GED/high school diploma	N	Mean score	SD
1 Reasonable prices	99	2.17	1.622
2 Use of locally sourced flowers	99	2.85	1.534
3 Use of multi-use products	99	3.59	1.666
4 Use of organically grown flowers	99	3.80	1.590
5 Use of energy saving practices	99	4.18	1.409
6 Use of fair-trade	99	4.41	1.332

Frequency statistics were used to determine where participants make floral purchases the most often based on education level. It was found that overall, regardless of education level, participants made purchases from floral departments in grocery stores and supermarkets the most, followed by local florists.

Those with college degrees (60.5%) and those with post graduate degrees (64.1%) were the groups that indicated making most of their floral purchases from the floral department in grocery stores/supermarkets when compared to the other education groups.

Table 45. Frequency statistics indicating response bases on age for the question "Where do you make your floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases. Please check all that apply."



Categories	K-11		GED/High school diploma		Some College		College degree		Post graduate degree		Associate/Trade school degree	
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
Local florist	7	29.2%	137	43.8%	247	49.1%	397	50.6%	259	59.3%	63	56.8%
Floral department in grocery stores/supermarkets	10	41.7%	141	45.0%	276	54.9%	474	60.5%	280	64.1%	66	59.5%
Web-based stores	4	16.7%	54	17.3%	119	23.7%	217	27.7%	138	31.6%	25	22.5%
Farmers markets	3	12.5%	70	22.4%	125	24.9%	241	30.7%	136	31.1%	27	24.3%
Other	3	12.5%	16	5.1%	26	5.2%	48	6.1%	21	4.8%	5	4.5%
I don't make floral purchases	2	8.3%	36	11.5%	39	7.8%	34	4.3%	17	3.9%	9	8.1%

Comparison of Participants' Responses Based on Highest Level of Education Received

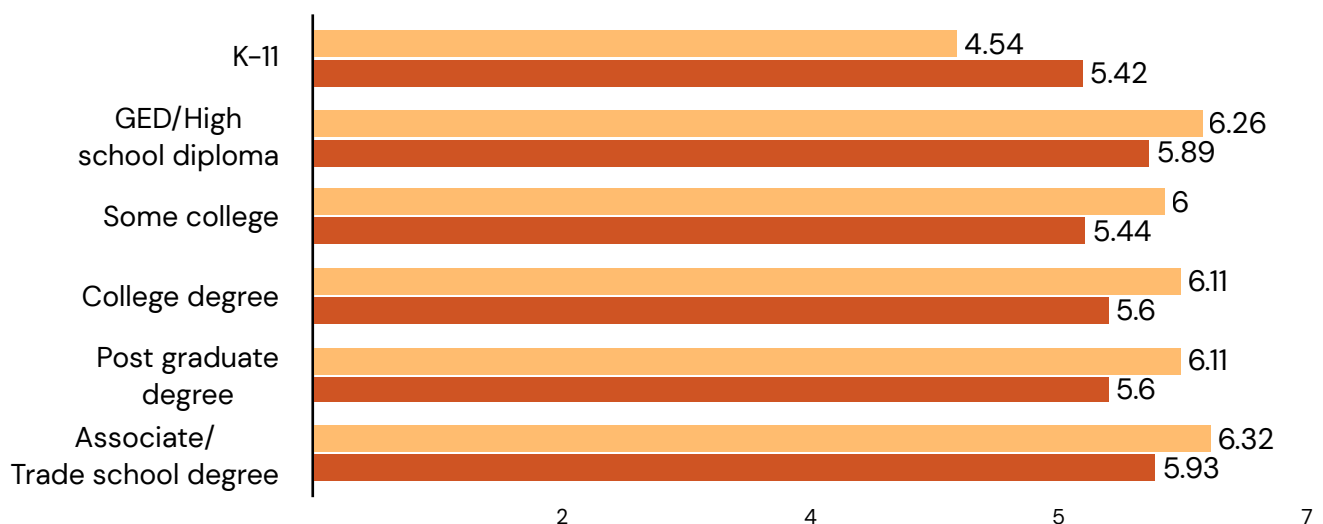
Participants were asked both pre- and post-survey "Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable.'" ANOVA tests were used to determine if there were significant differences in the way participants answered the survey question based on their education. Significant differences were found in the way participants answered the question in the pre-survey but not in the post-survey. This indicates the education groups were more in agreement in the post-survey question about sustainability in the floral industry. Post hoc analysis (LSD) indicated there was a difference in the way participants with a K-11 education responded to the question pre-survey when compared to all other groups.

Overall, participants with a K-11 education viewed the floral industry as being less sustainable in the pre-survey question when compared to all other education groups. The mean scores for each education group were added together and averaged to form an overall mean score of 5.89 for participants on the pre-survey sustainable industry survey question based on education. In the post-survey, participants' scores with a K-11 education increased slightly while all other education groups decreased slightly bringing the overall scores in closer alignment with each other. The mean scores for each education group were added together and averaged to form an overall mean score of 5.64 for participants on the post-survey sustainable industry survey question based on education.

Table 46. Analysis of variance (ANOVA) and descriptive statistics indicating response bases on education for the question "Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable.'"

Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable'.

Pre - Survey
Post - Survey



	Pre - Survey	Post - Survey
df	5	5
SD	2.182	2.242
F	3.256	2.031
P	0.006*	0.071

* Statistically significant at (P ≤ 0.05)

Comparison of Participants' Responses Based on Highest Level of Education Received

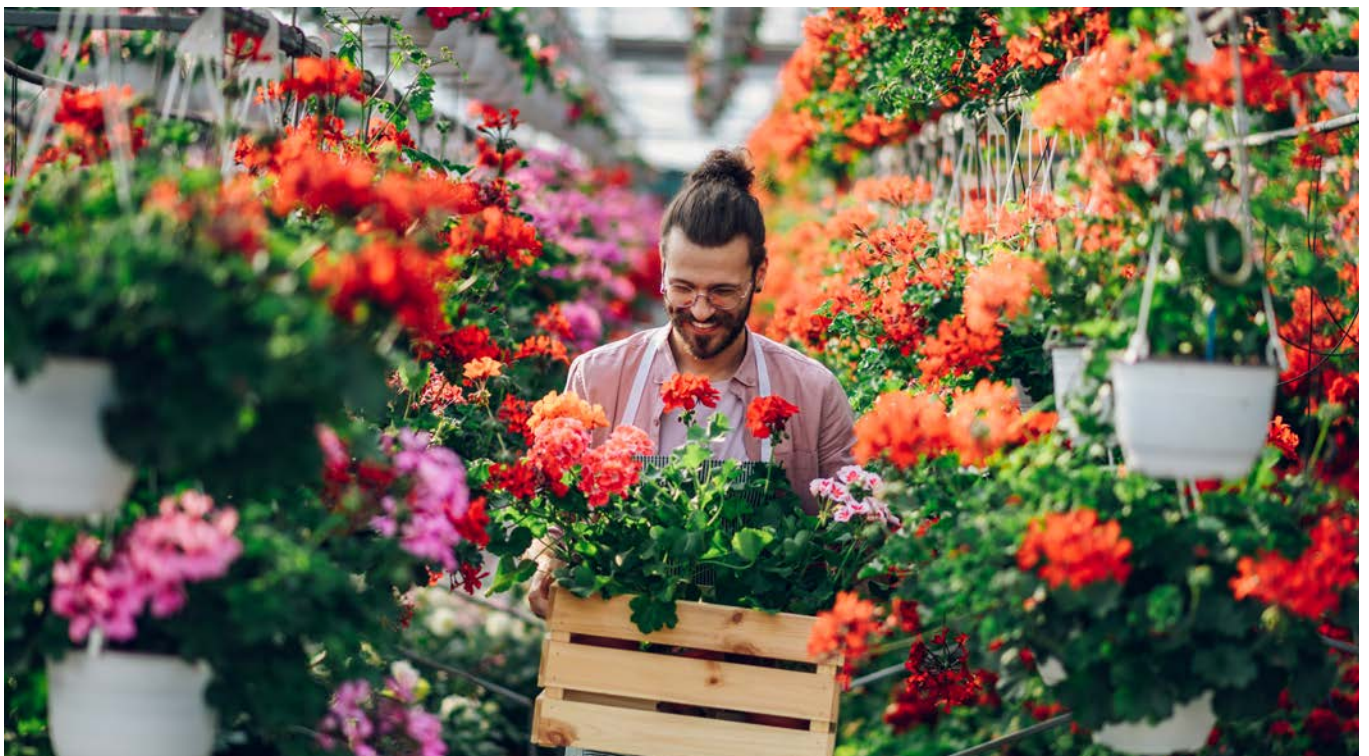
Participants were asked "How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not interested at all' and 10 indicating 'very interested.'" An ANOVA test was used to determine if there were significant differences in the way participants answered the survey question based on their education level.

No significant differences were found in the way participants answered the question based on education. The mean scores for each education group were added together and averaged to form an overall mean score of 4.80 for participants based on education, indicating a moderately low interest in learning more about sustainable floral practices based on education.

Table 47. Analysis of variance (ANOVA) and descriptive statistics indicating response bases on education for the question "How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not interested at all' and 10 indicating 'very interested'."

How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider?	N	Mean	df	SD	F	P
K-11	24	4.75	5	2.886	0.484	0.788
GED/High school diploma	311	4.99				
Some college	497	4.71				
College degree	777	4.73				
Post graduate degree	435	4.76				
Associate /Trade school degree	111	4.87				

* Statistically significant at (P ≤ 0.05)



Comparison of Participants' Responses Based on Race

Participant responses were compared based on race. A majority of all the participants (69.7%) were white/Caucasian, and because the sample size for other racial groups were small, results regarding some racial groups other than white/Caucasians cannot be generalized to the population as a whole and could vary upon testing of a larger, more racially diverse sample.

ANOVA tests were used to determine if there were significant differences in the way participants answered the survey question based on their race. Significant differences were found in the way participants answered fourteen of the survey questions based on their race.

Participants were asked "I think it's the environmentally right choice to make purchases from a retail floral provider based on their environmental practices." Except for Native Hawaiian/Pacific Islanders, of which there were only 9 total participants, a majority of all racial groups agreed or strongly agreed with the statement. Post hoc analysis (LSD) indicated there was a difference in the way Hispanic/Latino and Asian/Asian American participants answered the question when compared to other racial groups. It was found that Hispanic/Latino and Asian/Asian American participants had the highest level of agreement for the statement and the least amount of disagreement when compared to the other groups (mean score of white/Caucasian that agree or strongly agree 55.6%, mean score of black/African American that agree or strongly agree 60.9%, mean score of Hispanic/Latino that agree or strongly agree 66.0%, mean score of Asian/Asian American that agree or strongly agree 74.0%, mean score of American Indian/Alaskan Native that agree or strongly agree 62.9%, mean score of Hawaiian/Pacific Islander that agree or strongly agree 44.4%, mean score of another race that agree or strongly agree 50.7%).

When asked "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," a majority of all racial groups agreed or strongly agreed with the statement. Post hoc analysis (LSD) indicated there was a difference in the way Asian/Asian American participants answered the question when compared to other racial groups. It was found that Asian/Asian American participants agreed or strongly agreed with the statement at a higher rate when compared to other racial groups (mean score of white/Caucasian that agree or strongly agree 60.5%, mean score of black/African American that agree or strongly agree 59.2%, mean score of Hispanic/Latino that agree or strongly agree 63.8%, mean score of Asian/Asian American that agree or strongly agree 71.4%, mean score of American Indian/Alaskan Native that agree or strongly agree 62.9%, mean score of Hawaiian/Pacific Islander that agree or strongly agree 55.5%, mean score of another race that agree or strongly agree 53.3%).

Participants were asked "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." With the exception of Native Hawaiian/Pacific Islander, a majority of all racial groups agreed or strongly agreed with the statement. Post hoc analysis (LSD) indicated there was a difference in the way Asian/Asian American participants answered the questions when compared to other racial groups. It was found that Asian/Asian American participants agreed or strongly agreed with the statement at a higher rate when compared to other racial groups (mean score of white/Caucasian that agree or strongly agree 62.9%, mean score of black/African American that agree or strongly agree 65.2%, mean score of Hispanic/Latino that agree or strongly agree 63.2%, mean score of Asian/Asian American that agree or strongly agree 73.0%, mean score of American Indian/Alaskan Native that agree or strongly agree 59.2%, mean score of Hawaiian/Pacific Islander that agree or strongly agree 33.3%, mean score of another race that agree or strongly agree 54.6%).



Comparison of Participants' Responses Based on Race

Participants were asked to "Please indicate how much more, if any, you would be willing to pay for a flower arrangement made by a retail floral provider that recycles their flower waste through composting rather than disposing of floral waste in a municipal landfill." Except for participants categorized as another race, of which there were only 77 total participants, a majority of all other racial groups indicated a willingness to pay 10 percent or more from a floral provider that compost their floral waste. Post hoc analysis (LSD) indicated there was a difference in the way white/Caucasian and another race participants answered the question when compared to all other racial groups. It was found that white/Caucasian and another race participants were less willing to pay a premium for flowers from a floral provider that composts their floral waste when compared to the other racial groups (mean score of white/Caucasian willing to pay 10% or more 56.7%, mean score of black/African American willing to pay 10% or more 64.6%, mean score of Hispanic/Latino willing to pay 10% or more 72.4%, mean score of Asian/Asian American willing to pay 10% or more 67.8%, mean score of American Indian/Alaskan Native willing to pay 10% or more 85.1%, mean score of Hawaiian/Pacific Islander willing to pay 10% or more 66.6%, mean score of another race willing to pay 10% or more 42.9%).

When asked "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)," post hoc analysis (LSD) indicated there was a difference in the way another race participants answered the question when compared to all other racial groups. Due to the overall low number of total participants in the another race category, generalizations about this group cannot be made to the population as a whole. It was found that a majority of all groups agreed or strongly agreed with the statement except for the another race group (mean score of white/Caucasian that agree or strongly agree 67%, mean score of black/African American that agree or strongly agree 58.5%, mean score of Hispanic/Latino that agree or strongly agree 60.0%, mean score of Asian/Asian American that agree or strongly agree 68.3%, mean score of American Indian/Alaskan Native that agree or strongly agree 55.5%, mean score of Hawaiian/Pacific Islander that agree or strongly agree 77.8%, mean score of another race that agree or strongly agree 49.4%).

Participants were asked to "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)." Except for participants categorized as another race, a majority of all other racial groups indicated a willingness to pay 10 percent or more from a floral provider that uses locally sourced flowers. Post hoc analysis (LSD) indicated there was a difference in the way another race participants answered the question when compared to all other racial groups. It was found that another race participants were less willing to pay a premium for flowers from a floral provider that uses locally sourced flowers when compared to the other racial groups (mean score of white/Caucasian willing to pay 10% or more 59.9%, mean score of black/African American willing to pay 10% or more 66.5%, mean score of Hispanic/Latino willing to pay 10% or more 73.6%, mean score of Asian/Asian American willing to pay 10% or more 63.8%, mean score of American Indian/Alaskan Native willing to pay 10% or more 74.0%, mean score of Hawaiian/Pacific Islander willing to pay 10% or more 77.7%, mean score of another race willing to pay 10% or more 47.1%).

When asked to "Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using organically grown flowers (flowers grown and processed using no synthetic fertilizers or pesticides)," post hoc analysis (LSD) indicated there was a difference in the way white/Caucasian and another race participants answered the question when compared to all other racial groups. It was found that white/Caucasian and another race participants were less willing to pay a premium for flowers from a floral provider that uses organically grown flowers when compared to the other racial groups (mean score of white/Caucasian willing to pay 10% or more 47.7%, mean score of black/African American willing to pay 10% or more 57.1%, mean score of Hispanic/Latino willing to pay 10% or more 70.4%, mean score of Asian/Asian American willing to pay 10% or more 58.1%, mean score of American Indian/Alaskan Native willing to pay 10% or more 77.7%, mean score of Hawaiian/Pacific Islander willing to pay 10% or more 66.6%, mean score of another race willing to pay 10% or more 45.5%).



Comparison of Participants' Responses Based on Race

When asked "Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using fair-trade sourced flowers (fair-trade can be defined as trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers)," post hoc analysis (LSD) indicated there was a difference in the way white/Caucasian and another race participants answered the question when compared to all other racial groups. It was found that white/Caucasian and another race participants were less willing to pay a premium for flowers from a floral provider that uses fair-trade sourced flowers when compared to the other racial groups (mean score of white/Caucasian willing to pay 10% or more 45.9%, mean score of black/African American willing to pay 10% or more 62.2%, mean score of Hispanic/Latino willing to pay 10% or more 64.8%, mean score of Asian/Asian American willing to pay 10% or more 57.7%, mean score of American Indian/Alaskan Native willing to pay 10% or more 81.4%, mean score of Hawaiian/Pacific Islander willing to pay 10% or more 88.8%, mean score of another race willing to pay 10% or more 42.9%).

When asked to "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," post hoc analysis (LSD) indicated there was a difference in the way white/Caucasian and another race participants answered the question when compared to all other racial groups. It was found that white/Caucasian and another race participants were less willing to pay a premium for flowers from a floral provider that uses sustainable, recycled, and reusable materials when compared to the other racial groups (mean score of white/Caucasian willing to pay 10% or more 51.9%, mean score of black/African American willing to pay 10% or more 62.8%, mean score of Hispanic/Latino willing to pay 10% or more 70.8%, mean score of Asian/Asian American willing to pay 10% or more 64.4%, mean score of American Indian/Alaskan Native willing to pay 10% or more 77.7%, mean score of Hawaiian/Pacific Islander willing to pay 10% or more 77.7%, mean score of another race willing to pay 10% or more 42.9%).

When asked "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?" post hoc analysis (LSD) indicated there was a difference in the way another race participants answered the question when compared to all other racial groups. The most frequently selected answer choice for the question for all racial groups, except for another race participants, was "Materials (other than flowers) used in floral design, are sustainable, recyclable, upcyclable, reusable." The most frequently selected answer choice for another race participants was "None of the above are important to me when making floral purchases."

When asked "If an environmentally friendly certification existed for retail floral providers, I would trust a retail floral providers' environmental quality standards when purchasing from an environmentally-friendly-certified retail floral provider," post hoc analysis (LSD) indicated there was a difference in the way another race participants answered the question when compared to all other racial groups. It was found that a majority of all groups agreed or strongly agreed with the statement except for the another race group (mean score of white/Caucasian that agree or strongly agree 54.6%, mean score of black/African American that agree or strongly agree 56.7%, mean score of Hispanic/Latino that agree or strongly agree 62.7%, mean score of Asian/Asian American that agree or strongly agree 61.7%, mean score of American Indian/Alaskan Native that agree or strongly agree 59.3%, mean score of Hawaiian/Pacific Islander that agree or strongly agree 55.5%, mean score of another race that agree or strongly agree 42.9%).



Comparison of Participants’ Responses Based on Race

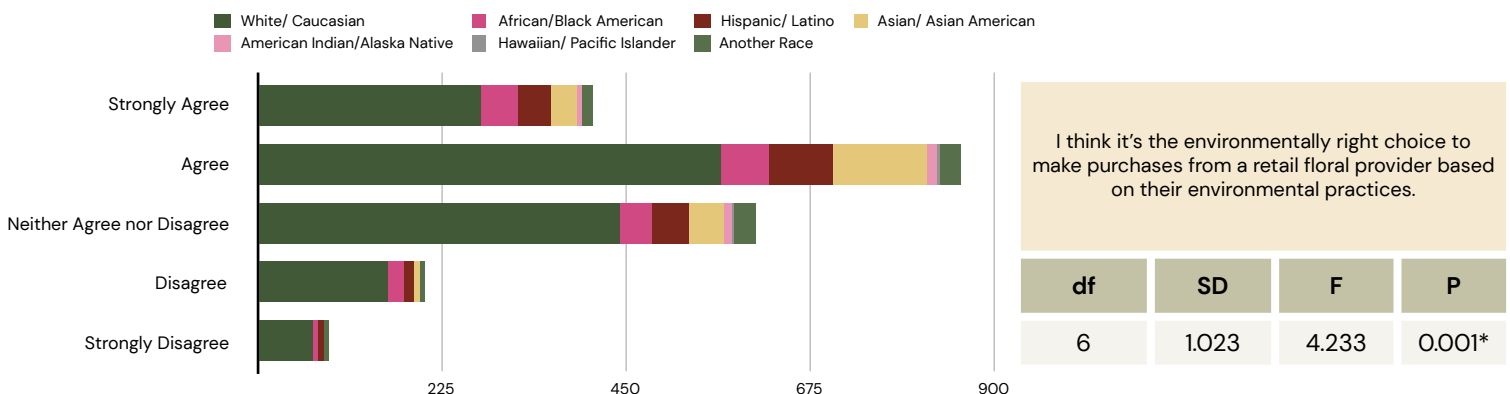
Participants were asked to “Please indicate how much more, if any, you would be willing to pay for flowers and floral designs from an environmentally–friendly–certified retail floral provider if such a certification existed.” Except for another race participants, a majority of participants in all other racial groups indicated a willingness to pay 10% or more for flowers from a certified environmentally friendly floral provider. Post hoc analysis (LSD) indicated there was a difference in the way white/Caucasian and another race participants answered the question when compared to all other racial groups. It was found that white/Caucasian and another race participants were less willing to pay a premium for flowers from a certified environmentally friendly floral provider when compared to the other racial groups (mean score of white/Caucasian willing to pay 10% or more 51.5%, mean score of black/African American willing to pay 10% or more 63.4%, mean score of Hispanic/Latino willing to pay 10% or more 69.7%, mean score of Asian/Asian American willing to pay 19% or more 61.3%, mean score of American Indian/Alaskan Native willing to pay 10% or more 77.7%, mean score of Hawaiian/ Pacific Islander willing to pay 10% or more 88.8%, mean score of another race willing to pay 10% or more 37.7%).

When asked “How often do you make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/ greenhouse purchases,” it was found that a majority of all racial groups make three to four floral purchases a year or more. Post hoc analysis (LSD) indicated there was a difference in the way Hispanic/Latino and American Indian/Native Alaskan answered the question when compared to all other racial groups.

It was found that Hispanic/Latino and American Indian/Native Alaskan participants indicated making purchases more frequently than all other racial groups (mean score of white/Caucasian that make three to four floral purchases a year or more 56.3%, mean score of black/African American that make three to four floral purchase a year or more 62.2%, mean score of Hispanic/Latino that make three to four floral purchases a year or more 74.0%, mean score of Asian/Asian American that make three to four floral purchases a year or more 63.2%, mean score of American Indian/Alaskan Native that make three to four floral purchases a year or more 70.3%, mean score of Hawaiian/ Pacific Islander that make three to four floral purchases a year or more 44.4%, mean score of another race that make three to four floral purchases a year or more 52.0%).

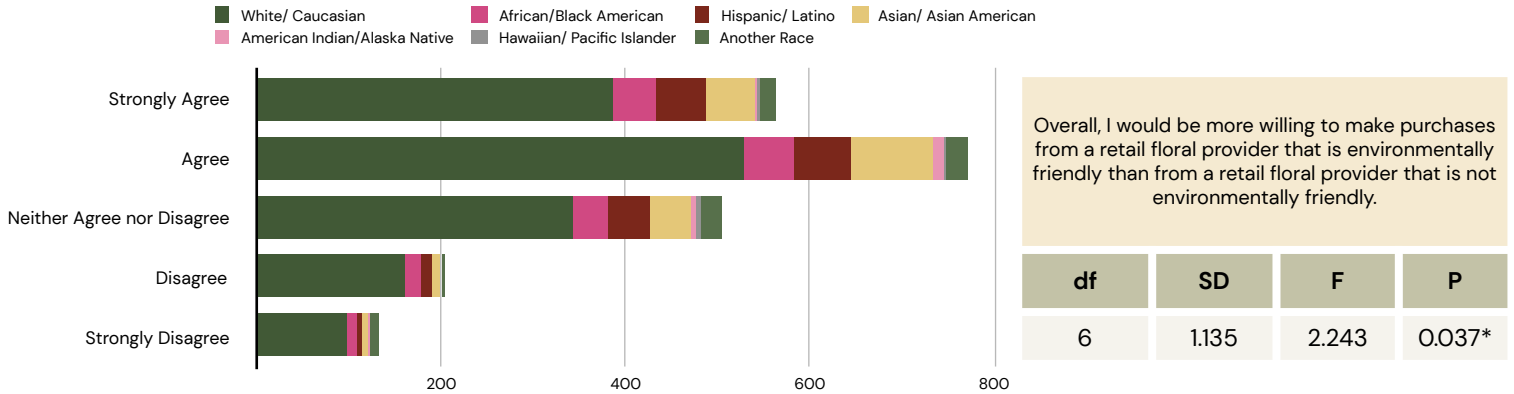
When asked “For what reason do you most often make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases,” it was found that a majority in all racial groups indicated purchasing flowers as a gift for others as the main reason for purchasing flowers. Post hoc analysis (LSD) indicated there was a difference in the way white/Caucasian, black/African America, and Hispanic/Latino participants answered the question when compared to the other racial groups. It was found that white/Caucasian, black/African America, and Hispanic/Latino participants indicated making floral purchases for themselves at a higher rate when compared to the other racial groups.

Figure & Table 48.1 Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on race for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)

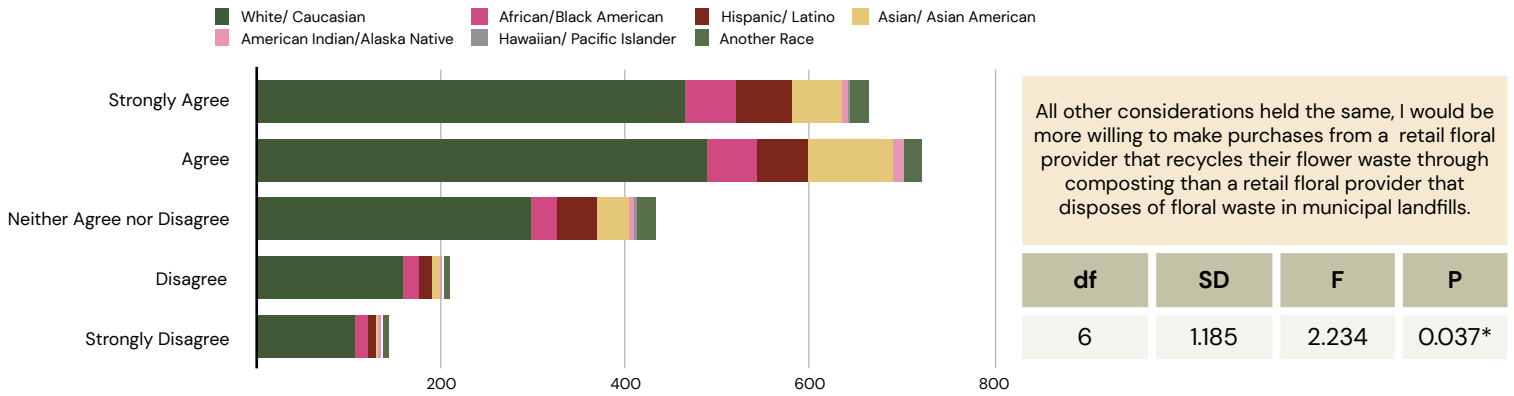


Comparison of Participants' Responses Based on Race

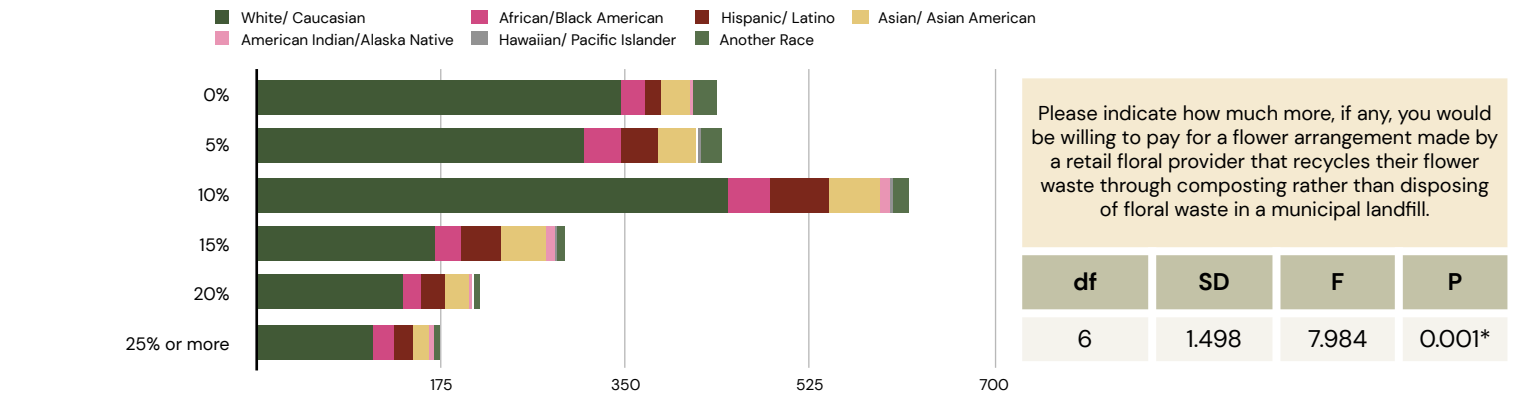
Figures & Tables 48.2 – 48.5 Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on race for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



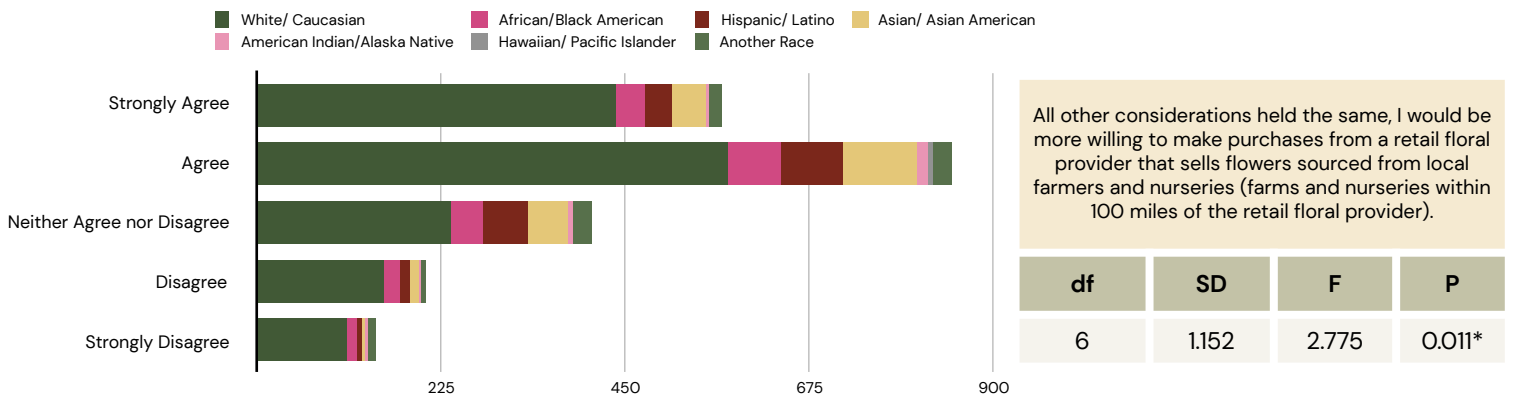
Overall, I would be more willing to make purchases from a retail floral provider that is environmentally friendly than from a retail floral provider that is not environmentally friendly.



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.



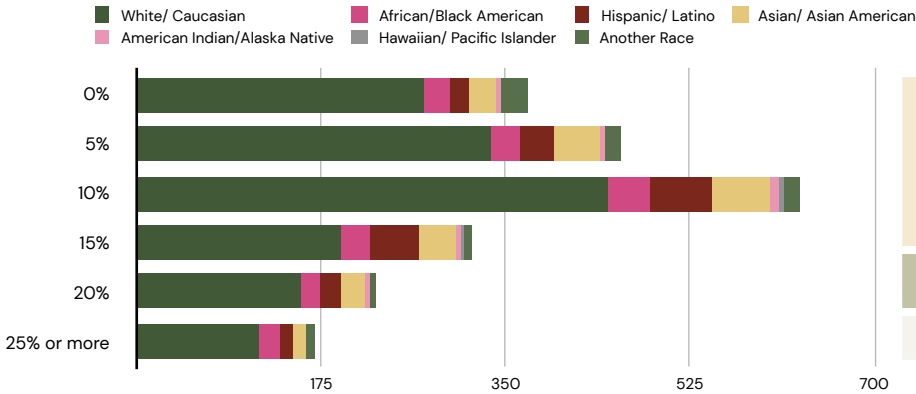
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made by a retail floral provider that recycles their flower waste through composting rather than disposing of floral waste in a municipal landfill.



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).

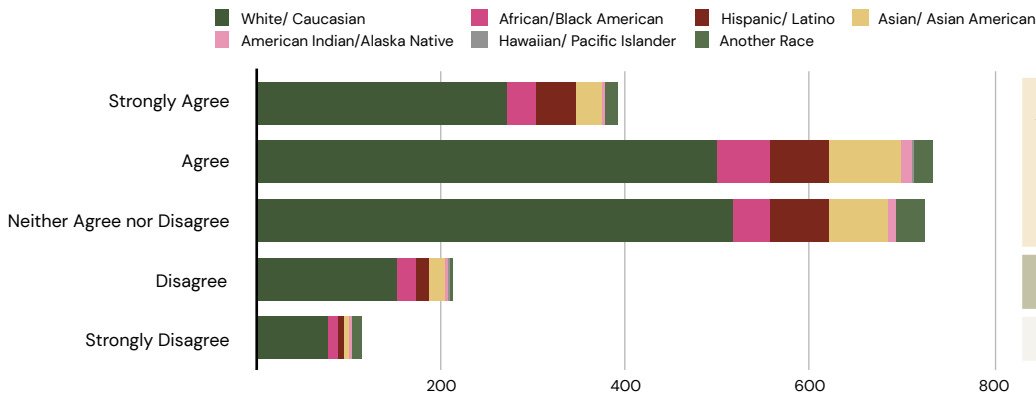
Comparison of Participants' Responses Based on Race

Figures & Tables 48.6 – 48.9 Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on race for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



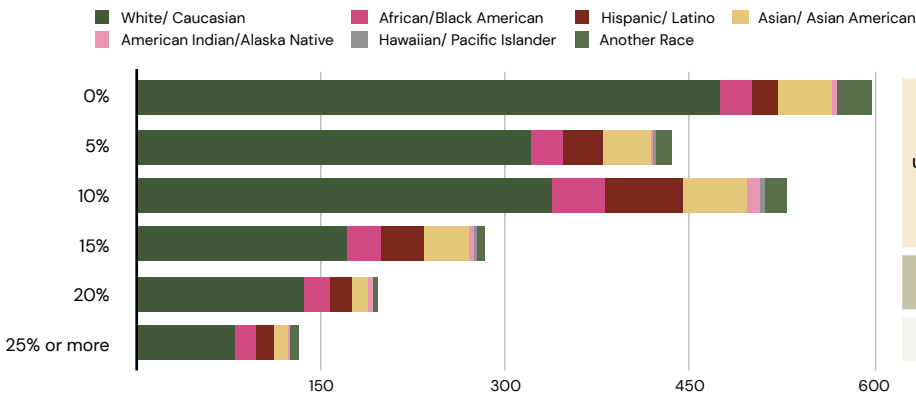
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using locally grown flowers (grown within 100 miles of the retail floral provider).

df	SD	F	P
6	1.468	3.19	0.004*



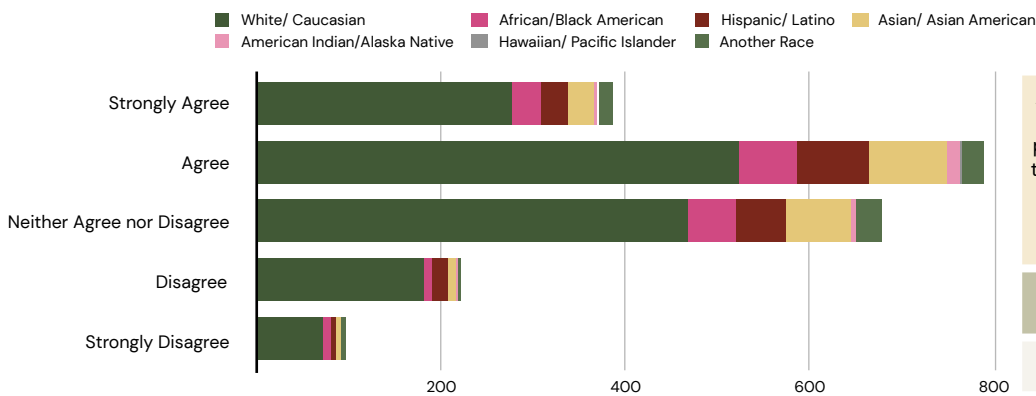
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells organically grown flowers (flowers grown and processed using no synthetic fertilizers or pesticides).

df	SD	F	P
6	1.057	1.336	0.238



Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using organically grown flowers (flowers grown and processed using no synthetic fertilizers or pesticides).

df	SD	F	P
6	1.505	9.221	0.001*

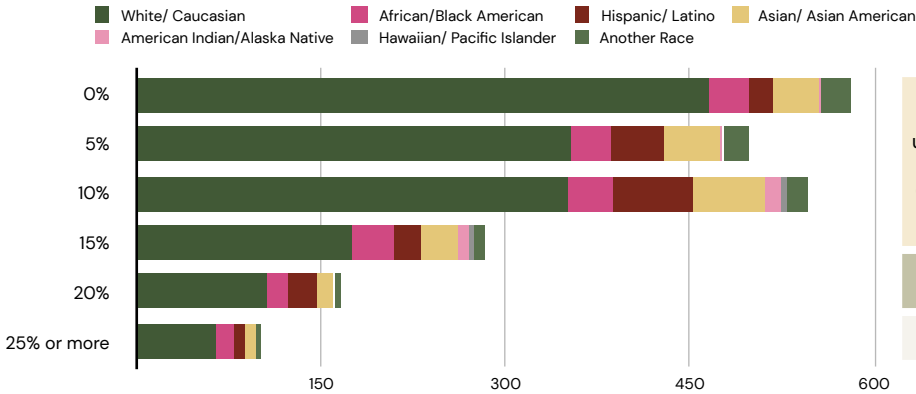


All other considerations held the same, I would be more willing to make purchases from a retail floral provider that sells fair-trade sourced flowers (fair-trade can be defined as trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers).

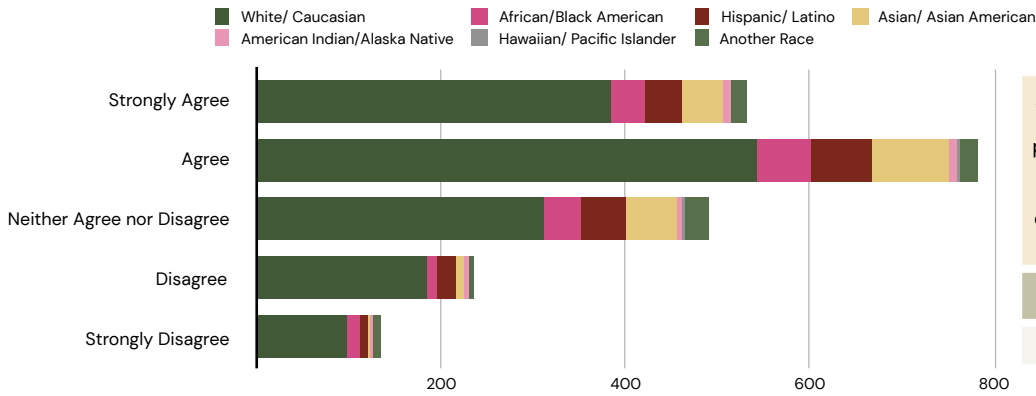
df	SD	F	P
6	1.038	0.968	0.445

Comparison of Participants' Responses Based on Race

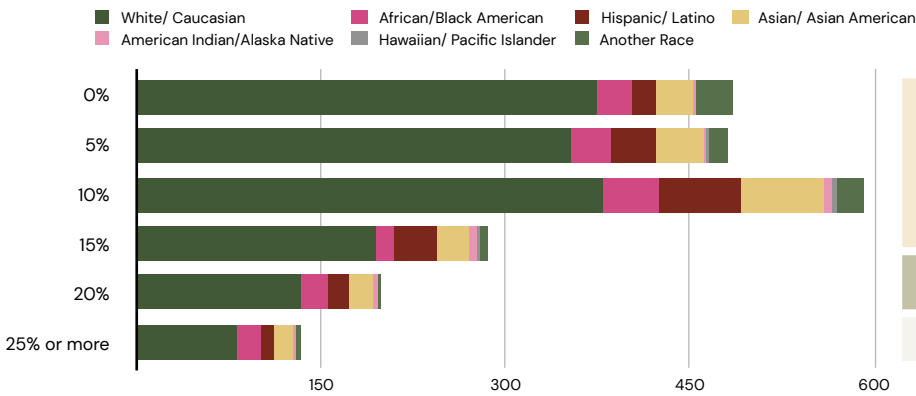
Figures & Tables 48.10 – 48.13 Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on race for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



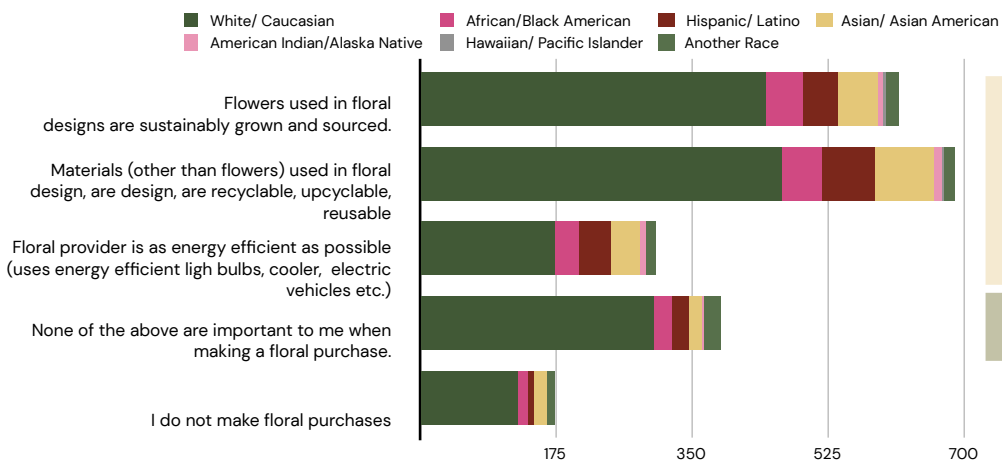
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using fair-trade sourced flowers (fair-trade can be defined as trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers).



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.



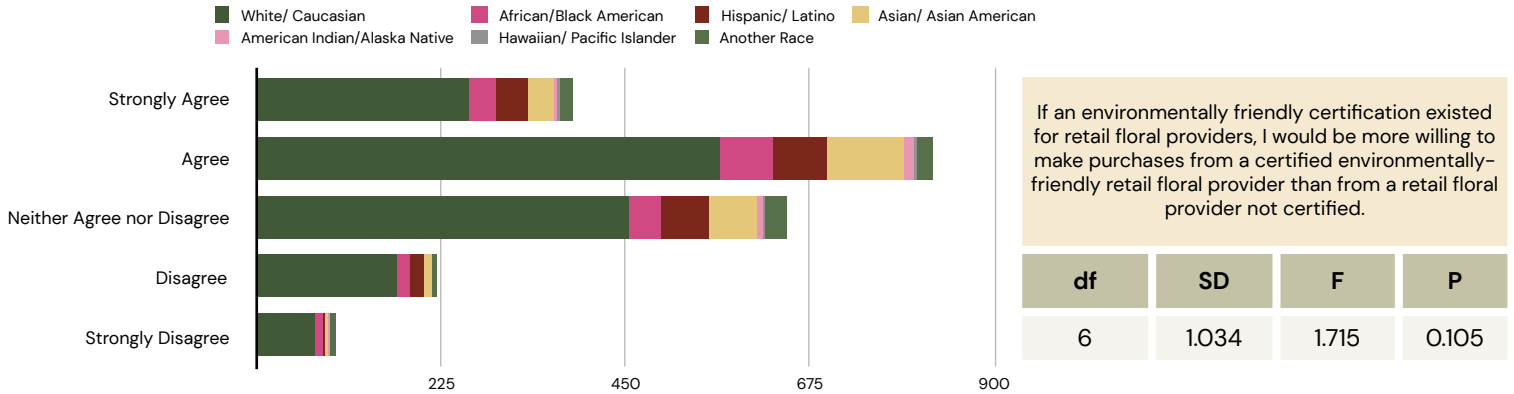
Please indicate how much more, if any, you would be willing to pay for a flower arrangement made using sustainable, recycled, upcycled, and/or reusable materials instead of single use products.



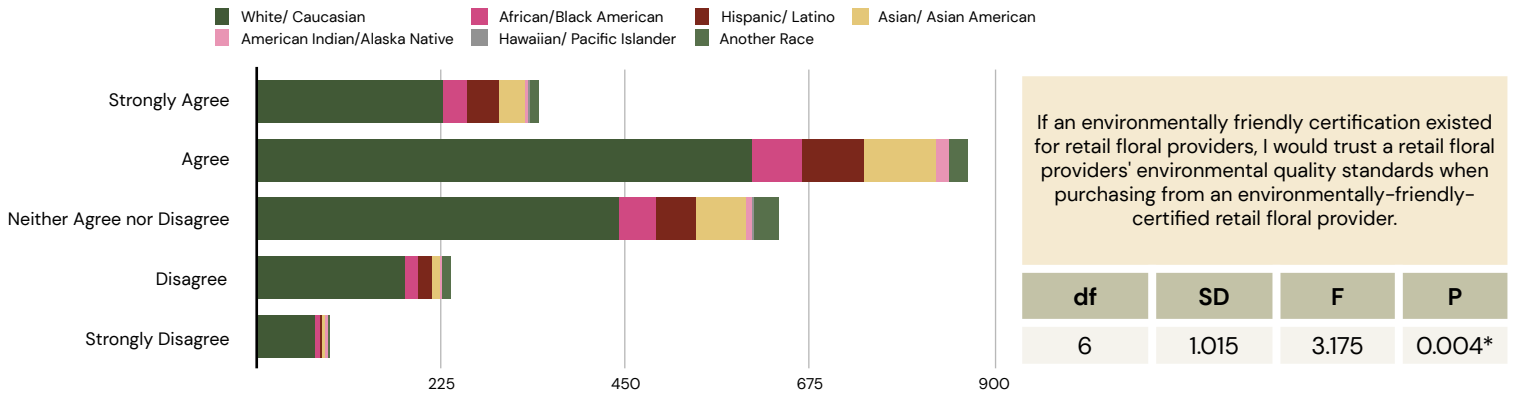
When deciding where to make a floral purchase, which of the following aspects of sustainability do you consider to be the most important for a retail floral provider to practice?

Comparison of Participants' Responses Based on Race

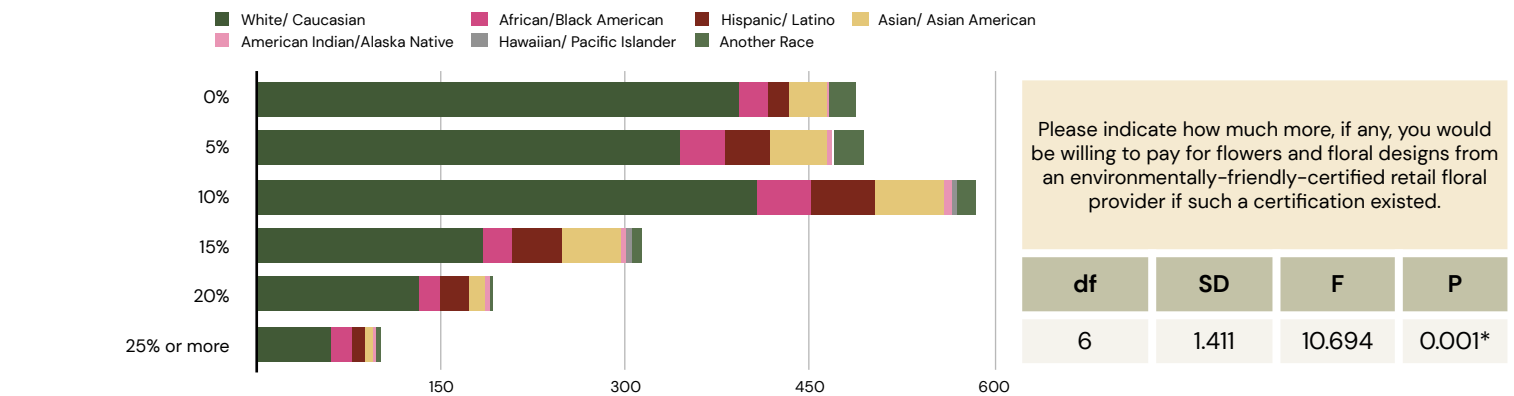
Figures & Tables 48.14 – 48.17 Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on race for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



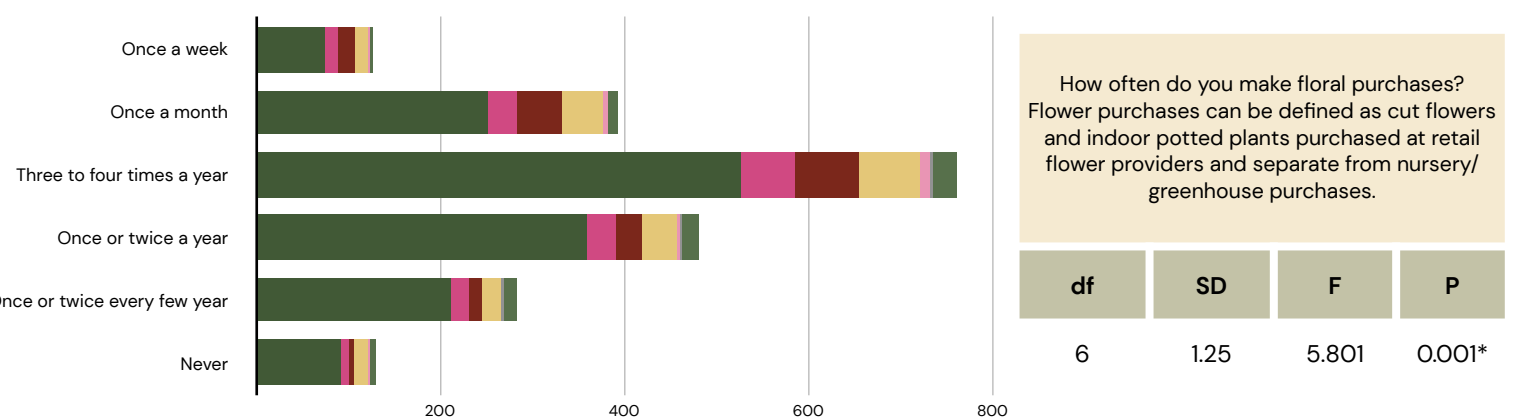
If an environmentally friendly certification existed for retail floral providers, I would be more willing to make purchases from a certified environmentally-friendly retail floral provider than from a retail floral provider not certified.



If an environmentally friendly certification existed for retail floral providers, I would trust a retail floral providers' environmental quality standards when purchasing from an environmentally-friendly-certified retail floral provider.



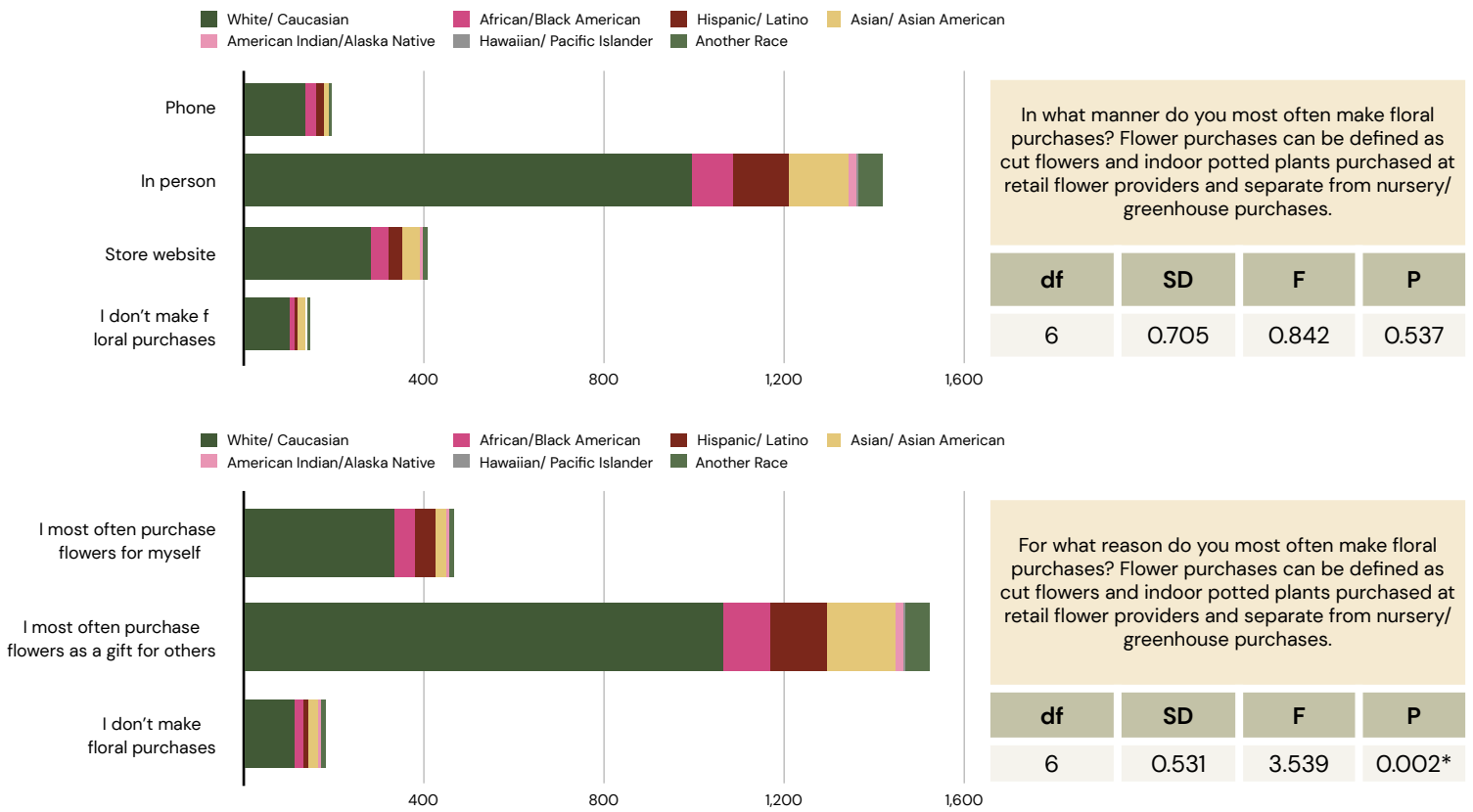
Please indicate how much more, if any, you would be willing to pay for flowers and floral designs from an environmentally-friendly-certified retail floral provider if such a certification existed.



How often do you make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/ greenhouse purchases.

Comparison of Participants' Responses Based on Race

Figures & Tables 48.18 – 48.19 Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on race for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



Participants were asked to “Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next.”

An ANOVA test was used to determine if there were differences in the way participants ranked the answer choices based on race groups. A Significant difference was found in the way participants ranked three of the answer choices based on their gender.

Table 49. Analysis of variance test (ANOVA) for participants response to the survey question “Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question and move onto the next.” based on race for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry.

Considerations	df	SD	F	P
Reasonable prices	6	1.749	1.916	0.075
Use of locally sourced flowers	6	1.437	4.491	0.001*
Use of organically grown flowers	6	1.56	7.698	0.001*
Use of fair-trade flowers	6	1.441	2.143	0.046*
Use of energy saving practices such as energy efficient light bulbs, coolers, and electric vehicles	6	1.434	0.475	0.827
Use of multiuse products (sustainable, recycled, upcycled, and/or reusable materials) instead of single use products	6	1.683	1.657	0.128

* Statistically significant at (P ≤ 0.05)

Comparison of Participants' Responses Based on Race

A Kendall's W analysis was used to determine how the different racial groups ranked the answer choices for the question. When comparing how the racial groups ranked the choice it was found all groups were in agreement for the ranking of the first two most important aspects, ranking reasonable prices first and use of locally sourced flowers second. Following the ranking of the first two aspects there is much disagreement among the different racial groups on the order in which the remaining sustainable aspect should be ranked. a



White/Caucasian	N	Mean score	SD
1 Reasonable prices	1312	2.24	1.726
2 Use of locally sourced flowers	1312	2.63	1.370
3 Use of multi-use products	1312	3.81	1.643
4 Use of organically grown flowers	1312	3.95	1.542
5 Use of energy saving practices	1312	4.10	1.416
6 Use of fair-trade	1312	4.24	1.419

Table 50. Kendall's W analysis indicating responses for white/Caucasian participants for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Table 51. Kendall's W analysis indicating responses for black/African American participants for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Black/African American	N	Mean score	SD
1 Reasonable prices	148	2.31	1.76
2 Use of locally sourced flowers	148	2.78	1.54
3 Use of organically grown flowers	148	3.49	1.56
4 Use of fair-trade	148	3.97	1.37
5 Use of energy saving practices	148	4.20	1.34
6 Use of multi-use products	148	4.24	1.69

Hispanic/Latino	N	Mean score	SD
1 Reasonable prices	167	2.59	1.76
2 Use of locally sourced flowers	167	3.07	1.52
3 Use of organically grown flowers	167	3.44	1.54
4 Use of fair-trade	167	3.89	1.56
5 Use of multi-use products	167	3.91	1.78
6 Use of energy saving practices	167	4.08	1.56

Table 52. Kendall's W analysis indicating responses for Hispanic/Latino participants for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Comparison of Participants' Responses Based on Race

Table 53. Kendall's W analysis indicating responses for Asian/Asian American participants for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Asian/Asian American	N	Mean score	SD
1 Reasonable prices	187	2.42	1.72
2 Use of locally sourced flowers	187	3.09	1.54
3 Use of organically grown flowers	187	3.49	1.57
4 Use of multi-use products	187	3.82	1.78
5 Use of energy saving practices	187	3.95	1.47
6 Use of fair-trade	187	4.21	1.51

American Indian/Alaskan Native	N	Mean score	SD
1 Reasonable prices	25	2.76	2.01
2 Use of locally sourced flowers	25	2.84	1.72
3 Use of organically grown flowers	25	3.04	1.54
4 Use of fair-trade	25	400.00	1.22
5 Use of multi-use products	25	4.12	1.83
6 Use of energy saving practices	25	4.24	1.23

Table 54. Kendall's W analysis indicating responses for American Indian/Alaskan Native participants for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Table 55. Kendall's W analysis indicating responses for Native Hawaiian/Pacific Islander participants for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Native Hawaiian/Pacific Islander	N	Mean score	SD
1 Reasonable prices	8	1.62	0.74
2 Use of locally sourced flowers	8	2.50	1.41
3 Use of multi-use products	8	3.87	1.81
4 Use of energy saving practices	8	4.12	1.55
5 Use of fair-trade	8	4.25	1.49
6 Use of organically grown flowers	8	4.62	1.30

Another Race	N	Mean score	SD
1 Reasonable prices	58	2.17	1.73
2 Use of locally sourced flowers	58	3.00	1.47
3 Use of fair-trade	58	3.79	1.52
4 Use of energy saving practices	58	3.96	1.41
5 Use of multi-use products	58	4.00	1.66
6 Use of organically grown flowers	58	4.06	1.62

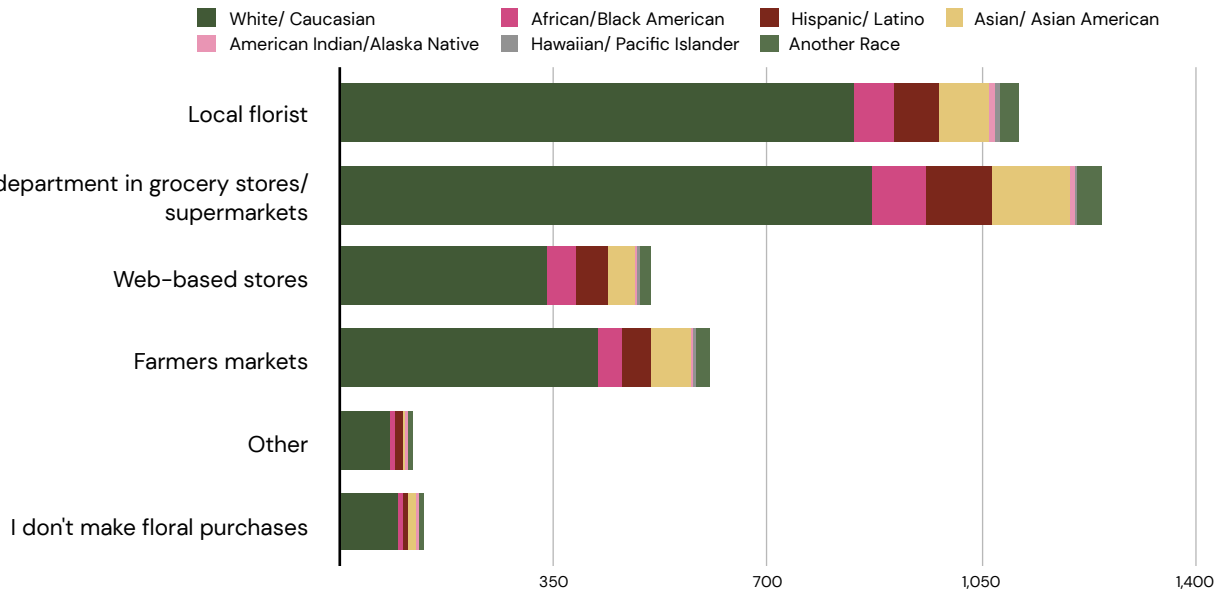
Table 56. Kendall's W analysis indicating responses for participants of a race other than the ones listed for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Comparison of Participants' Responses Based on Race



Frequency statistics were used to determine where participants make floral purchases the most often based on race. It was found that overall, regardless of race participants made purchases from floral departments in grocery stores and supermarkets the most followed by local florists.

Table 57. Frequency statistics indicating response bases on race for the question "Where do you make your floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases. Please check all that apply."



Answer Choices	White/Caucasian		African/Black American		Hispanic/Latino		Asian/Asian American		American Indian/Alaska Native		Hawaiian/Pacific Islander		Another Race	
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
Local florist	840	55.5%	67	40.9%	73	39.5%	83	42.3%	10	37.0%	5	55.6%	32	41.6%
Floral department in grocery stores/supermarkets	870	57.5%	89	54.3%	108	58.4%	126	64.3%	8	29.6%	7	77.8%	39	50.6%
Web-based stores	338	25.6%	48	29.3%	53	28.6%	41	20.9%	7	25.9%	3	33.3%	17	22.1%
Farmers markets	419	27.7%	41	25.0%	47	25.4%	66	33.7%	6	22.2%	5	55.6%	18	23.4%
Other	81	5.4%	9	5.5%	10	5.4%	6	3.1%	4	14.8%	1	11.1%	8	10.4%
I don't make floral purchases	92	6.1%	11	6.7%	7	3.8%	14	7.1%	3	11.1%	0	0%	10	13.0%

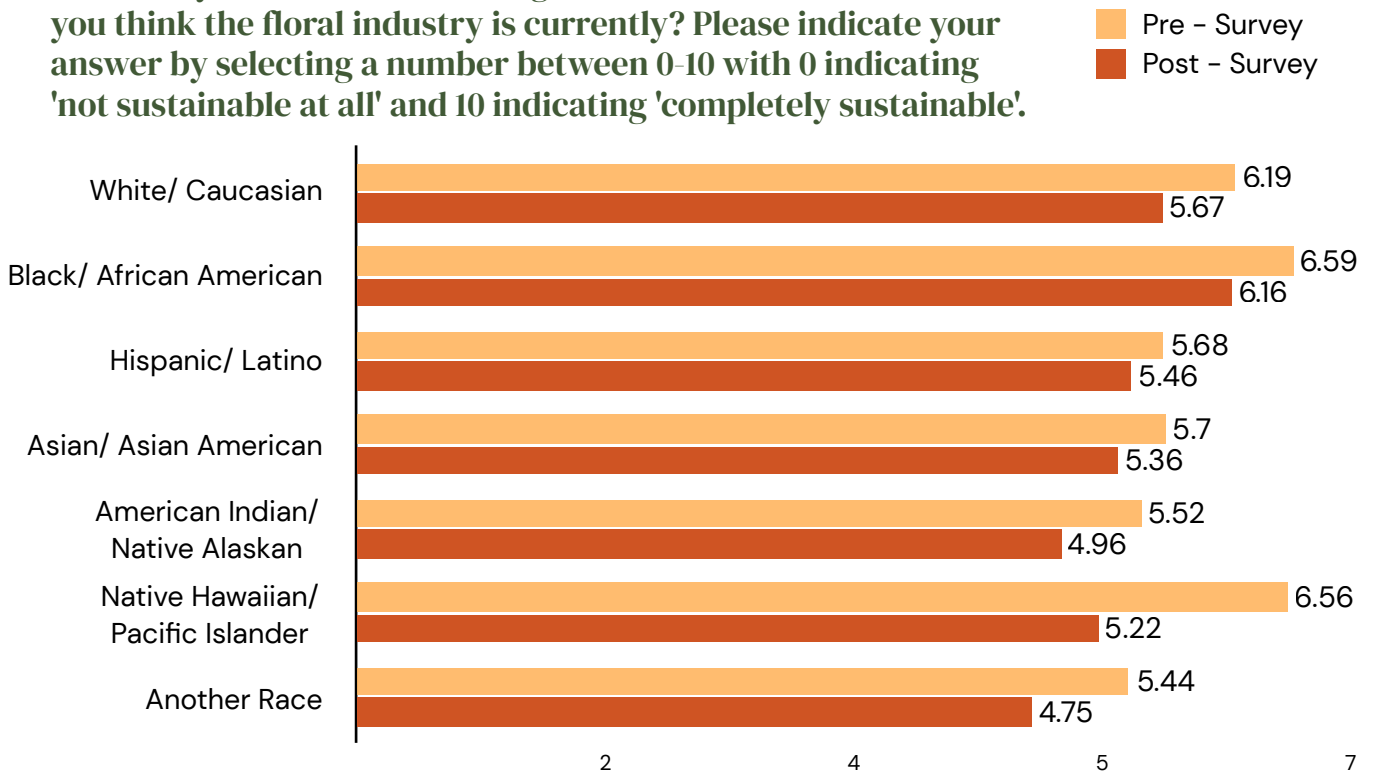
Comparison of Participants' Responses Based on Race

Participants were asked both pre- and post-survey "Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable.'" ANOVA tests were used to determine if there were significant differences in the way participants answered the survey question based on their race. Significant differences were found in the way participants answered the question in both the pre- and post-survey. Post hoc analysis (LSD) indicated there was a difference in the way black/African American and Native Hawaiian/Pacific Islander participants responded to the question pre-survey when compared to all other racial groups. Overall black/African American and Native Hawaiian/Pacific Islander viewed the floral industry as being more sustainable in the pre-survey question when compared to all other racial groups.

The mean scores for each education group were added together and averaged to form an overall mean score of 5.95 for participants on the pre-survey sustainable industry survey question based on race. While all scores decreased slightly in the post-survey. In the post-survey, Native Hawaiian/pacific Islander participants scores decreased enough to align with the other racial groups while, overall, black/African American participants scores remained the highest. The mean scores for each education group were added together and averaged to form an overall mean score of 5.36 for participants on the post-survey sustainable industry survey question based on race.

Table 58. Analysis of variance (ANOVA) and descriptive statistics indicating response bases on race for the question "Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable.'" (Pre & Post Survey)

Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable'.



	Pre - Survey	Post - Survey
df	6	6
SD	2.182	2.242
F	5.720	4.722
P	0.001*	0.001*

* Statistically significant at (P ≤ 0.05)

Comparison of Participants' Responses Based on Race

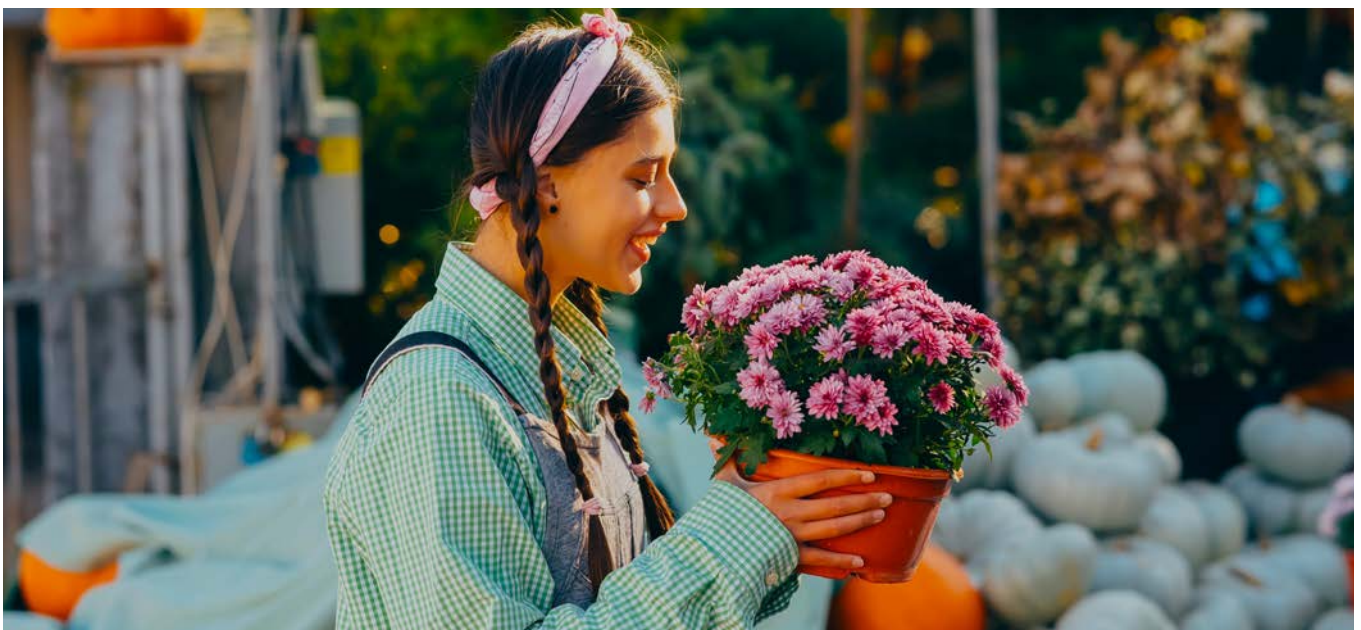
Participants were asked "How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not interested at all' and 10 indicating 'very interested.'" ANOVA tests were used to determine if there were significant differences in the way participants answered the survey question based on their race. A significant difference was found in the way participants answered the question based on race. Post hoc analysis (LSD) indicated there was a difference in the way white/Caucasian and another race participants responded to the question when compared to other racial groups.

It was found that white/Caucasian and another race participants had less interest in learning more about sustainable floral practices when compared to all other racial groups. The mean scores for each racial group were added together and averaged to form an overall mean score of 5.20 for participants based on race, indicating a moderate interest in learning more about sustainable floral practices based on race.

Table 59. Analysis of variance (ANOVA) and descriptive statistics indicating response bases on race for the question "How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not interested at all' and 10 indicating 'very interested'."

How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider?	N	Mean	df	SD	F	P
White/ Caucasian	1501	4.51	6	2.886	9.484	0.001*
Black/ African American	163	5.87				
Hispanic/ Latino	184	5.52				
Asian/ Asian American	196	5.22				
American Indian/ Native Alaskan	26	5.42				
Native Hawaiian/ Pacific Islander	9	5.44				
Another Race	76	4.42				

* Statistically significant at ($P \leq 0.05$)



Comparison of Participants' Responses Based on Annual Household Income

Participant responses were compared based on annual household income. ANOVA tests were used to determine if there were significant differences in the way participants answered the survey question based on their annual household income. Significant differences were found in the way participants answered eight of the survey questions based on their annual household income.

When asked "I think it's the environmentally right choice to make purchases from a retail floral provider based on their environmental practices," post hoc analysis (LSD) indicated there was a difference in the way participants who make \$200,000 or more answered the question when compared to all other income groups. It was found that a majority in all income groups agreed or strongly agreed with the statement except for those who make \$200,000 or more (mean score of under \$15,000 that agree or strongly agree 60.5%, mean score of between \$15,000-\$29,999 that agree or strongly agree 57.6%, mean score of between \$30,000-\$49,999 that agree or strongly agree 59.9%, mean score of between \$50,000-\$74,999 that agree or strongly agree 61.0%, mean score of between \$75,000-\$99,999 that agree or strongly agree 58.5%, mean score of between \$100,000-149,999 that agree or strongly agree 58.3%, mean score of between \$150,000-\$199,000 that agree or strongly agree 57.8%, mean score of \$200,000 or more that agree or strongly agree 44.9%). Because the sample size for participants who make \$200,000 or more is overall small (127 total participants that make \$200,000 or more) results regarding this demographic group cannot be generalized to the population as a whole and results could change upon testing a large sample size.

When asked "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," post hoc analysis (LSD) indicated there was a difference in the way participants who make \$200,000 or more answered the question when compared to all other income groups. It was found that a majority in all income groups agreed or strongly agreed with the statement, with those making \$200,000 or more disagreeing slightly more with the statement when compared to other income groups (mean score of under \$15,000 that agree or strongly agree 54.9%, mean score of between \$15,000-\$29,999 that agree or strongly agree 63.5%, mean score of between \$30,000-\$49,999 that agree or strongly agree 62.9%, mean score of between \$50,000-\$74,999 that agree or strongly agree 64.5%, mean score of between \$75,000-\$99,999 that agree or strongly agree 60.6%, mean score of between \$100,000-149,999 that agree or strongly agree 61.7%, mean score of between \$150,000-\$199,000 that agree or strongly agree 59.4%, mean score of \$200,000 or more that agree or strongly agree 53.5%).

When asked "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," post hoc analysis (LSD) indicated there was a difference in the way participants who make \$200,000 or more answered the question when compared to all other income groups. It was found that a majority in all income groups agreed or strongly agreed with the statement, with those making \$200,000 or more disagreeing more with the statement when compared to other income groups (mean score of under \$15,000 that agree or strongly agree 56.8%, mean score of between \$15,000-\$29,999 that agree or strongly agree 63.0%, mean score of between \$30,000-\$49,999 that agree or strongly agree 69.2%, mean score of between \$50,000-\$74,999 that agree or strongly agree 65.0%, mean score of between \$75,000-\$99,999 that agree or strongly agree 65.1%, mean score of between \$100,000-149,999 that agree or strongly agree 63.4%, mean score of between \$150,000-\$199,000 that agree or strongly agree 67.2%, mean score of \$200,000 or more that agree or strongly agree 50.4%).

Comparison of Participants' Responses Based on Annual Household Income

Though there was no significant difference in the way the different income groups indicated how much more they would be willing to pay for flowers from a floral provider that composts their floral waste, a review of the question found that even though those who made over \$200,000 indicated less agreement toward the willingness to make purchases from a retail floral provider that composts their floral waste question, they were still willing to pay more from a floral provider that composts their floral waste than those that made less than \$29,999 in annual household income (mean score of participants that make under \$15,000 willing to pay 10% or more 48.8%, mean score of participants that make between \$15,000–29,999 willing to pay 10% or more 46.4, mean score of participants that make between \$30,000–49,999 willing to pay 10% or more 65.9%, mean score of participants that make between \$50,000–74,999 willing to pay 10% or more 59.7%, mean score of participants that make between \$75,000–99,999 willing to pay 10% or more 61.3, mean score of participants that make between \$100,000–149,999 willing to pay 10% or more 57.2, mean score of participant that make between \$150,000–199,999 willing to pay 10% or more 56.2%, mean score of participants that make more than \$200,000 willing to pay 10% or more 55.9).

When asked “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),” post hoc analysis (LSD) indicated there was a difference in the way participants who make under \$15,000 and those who make \$200,000 or more answered the question when compared to all other income groups. It was found that a majority in all income groups agreed or strongly agreed with the statement, with those making under \$15,000 and those making \$200,000 or more disagreeing more with the statement when compared to other income groups (mean score of under \$15,000 that agree or strongly agree 55.6%, mean score of between \$15,000–\$29,999 that agree or strongly agree 62.7%, mean score of between \$30,000–\$49,999 that agree or strongly agree 68.7%, mean score of between \$50,000–\$74,999 that agree or strongly agree 68.5%, mean score of between \$75,000–\$99,999 that agree or strongly agree 65.1%, mean score of between \$100,000–149,999 that agree or strongly agree 68.6%, mean score of between \$150,000–\$199,000 that agree or strongly agree 64.8%, mean score of \$200,000 or more that agree or strongly agree 51.1%).

Though there was no significant difference in the way the different income groups indicated how much more they would be willing to pay for flowers from a floral provider that uses locally grown flowers, a review of the question found that even though those who made under \$15,000 and those who made over \$200,000 indicated less agreement toward the willingness to make purchases from a retail floral provider that uses locally grown flowers question, they were still willing to pay as much or slightly more for flowers from a floral provider that uses locally grown flowers when compared to the other income groups (mean score of participants that make under \$15,000 willing to pay 10% or more 54.4%, mean score of participants that make between \$15,000–29,999 willing to pay 10% or more 59.9, mean score of participants that make between \$30,000–49,999 willing to pay 10% or more 65.0%, mean score of participants that make between \$50,000–74,999 willing to pay 10% or more 60.5%, mean score of participants that make between \$75,000–99,999 willing to pay 10% or more 65.3, mean score of participants that make between \$100,000–149,999 willing to pay 10% or more 62.4, mean score of participant that make between \$150,000–199,999 willing to pay 10% or more 57.1%, mean score of participants that make more than \$200,000 willing to pay 10% or more 59.9).

When asked “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),” post hoc analysis (LSD) indicated there was a difference in the way participants that who under \$15,000 and those who make \$200,000 or more answered the question when compared to all other income groups. It was found that a majority in all income groups agreed or strongly agreed with the statement except for those making under \$15,000 and those making \$200,000 (mean score of under \$15,000 that agree or strongly agree 47.5%, mean score of between \$15,000–\$29,999 that agree or strongly agree 50.8%, mean score of between \$30,000–\$49,999 that agree or strongly agree 55.4%, mean score of between \$50,000–\$74,999 that agree or strongly agree 51.5%, mean score of between \$75,000–\$99,999 that agree or strongly agree 51.6%, mean score of between \$100,000–149,999 that agree or strongly agree 52.5%, mean score of between \$150,000–\$199,000 that agree or strongly agree 56.3%, mean score of \$200,000 or more that agree or strongly agree 42.5%).

Comparison of Participants' Responses Based on Annual Household Income

Though there was no significant difference in the way the different income groups indicated how much more they would be willing to pay for flowers from a floral provider that uses organically grown flowers, a review of the question found that even though those who made under \$15,000 and those who made over \$200,000 indicated less agreement toward the willingness to make purchases from a retail floral provider that uses organically grown flowers question, they were still willing to pay as much or slightly more for flowers from a floral provider that uses organically grown flowers when compared to the other income groups (mean score of participants that make under \$15,000 willing to pay 10% or more 56.8%, mean score of participants that make between \$15,000–29,999 willing to pay 10% or more 49.1, mean score of participants that make between \$30,000–49,999 willing to pay 10% or more 54.8%, mean score of participants that make between \$50,000–74,999 willing to pay 10% or more 52.8%, mean score of participants that make between \$75,000–99,999 willing to pay 10% or more 54.4, mean score of participants that make between \$100,000–149,999 willing to pay 10% or more 49.7, mean score of participant that make between \$150,000–199,999 willing to pay 10% or more 49.3%, mean score of participants that make more than \$200,000 willing to pay 10% or more 51.1).

When asked “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 in which fair prices are paid to the producers),” post hoc analysis (LSD) indicated there was a difference in the way participants who make \$200,000 or more answered the question when compared to all other income groups. It was found that a majority in all income groups agreed or strongly agreed with the statement except for those making \$200,000 or more (mean score of under \$15,000 that agree or strongly agree 51.8%, mean score of between \$15,000–\$29,999 that agree or strongly agree 50.0%, mean score of between \$30,000–\$49,999 that agree or strongly agree 55.3%, mean score of between \$50,000–\$74,999 that agree or strongly agree 54.1%, mean score of between \$75,000–\$99,999 that agree or strongly agree 52.2%, mean score of between \$100,000–149,999 that agree or strongly agree 60.3%, mean score of between \$150,000–\$199,000 that agree or strongly agree 59.4%, mean score of \$200,000 or more that agree or strongly agree 42.5%).

Though there was no significant difference in the way the different income groups indicated how much more they would be willing to pay for flowers from a floral provider that uses fair-trade sourced flowers, a review of the question found that even though those who made over \$200,000 indicated less agreement toward the willingness to make purchases from a retail floral provider that uses fair-trade flowers question, they were still willing to pay as much or slightly more for flowers from a floral provider that uses fair-trade flowers when compared to the other income groups (mean score of participants that make under \$15,000 willing to pay 10% or more 54.3%, mean score of participants that make between \$15,000–29,999 willing to pay 10% or more 47.3, mean score of participants that make between \$30,000–49,999 willing to pay 10% or more 54.2%, mean score of participants that make between \$50,000–74,999 willing to pay 10% or more 49.5%, mean score of participants that make between \$75,000–99,999 willing to pay 10% or more 48.7, mean score of participants that make between \$100,000–149,999 willing to pay 10% or more 50.3, mean score of participant that make between \$150,000–199,999 willing to pay 10% or more 47.7%, mean score of participants that make more than \$200,000 willing to pay 10% or more 50.3).

When asked “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,” post hoc analysis (LSD) indicated there was a difference in the way participants who make \$200,000 or more answered the question when compared to all other income groups. It was found that a majority in all income groups agreed or strongly agreed with the statement except for those making \$200,000 or more (mean score of under \$15,000 that agree or strongly agree 52.4%, mean score of between \$15,000–\$29,999 that agree or strongly agree 57.5%, mean score of between \$30,000–\$49,999 that agree or strongly agree 64.1%, mean score of between \$50,000–\$74,999 that agree or strongly agree 65.2%, mean score of between \$75,000–\$99,999 that agree or strongly agree 57.9%, mean score of between \$100,000–149,999 that agree or strongly agree 63.0%, mean score of between \$150,000–\$199,000 that agree or strongly agree 61.7%, mean score of \$200,000 or more that agree or strongly agree 48.0%).

Comparison of Participants' Responses Based on Annual Household Income



Though there was no significant difference in the way the different income groups indicated how much more they would be willing to pay for flowers from a floral provider that uses sustainable, recycled, upcycled, and/or reusable materials, a review of the question found that even though those who made over \$200,000 indicated less agreement toward the willingness to make purchases from a retail floral provider that uses sustainable, recycled, upcycled, and/or reusable materials question, they were still willing to pay as much or slightly more for flowers from a floral provider that uses sustainable, recycled, upcycled, and/or reusable materials when compared to the other income groups (mean score of participants that make under \$15,000 willing to pay 10% or more 59.2%, mean score of participants that make between \$15,000–29,999 willing to pay 10% or more 52.0, mean score of participants that make between \$30,000–49,999 willing to pay 10% or more 60.4%, mean score of participants that make between \$50,000–74,999 willing to pay 10% or more 54.8%, mean score of participants that make between \$75,000–99,999 willing to pay 10% or more 56.5, mean score of participants that make between \$100,000–149,999 willing to pay 10% or more 54.8, mean score of participant that make between \$150,000–199,999 willing to pay 10% or more 46.9%, mean score of participants that make more than \$200,000 willing to pay 10% or more 55.9).

When asked “How often do you make floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases,” post hoc analysis (LSD) indicated there was a difference in the way participants who make \$75,000 or more answered the question when compared to those who make under \$75,000.

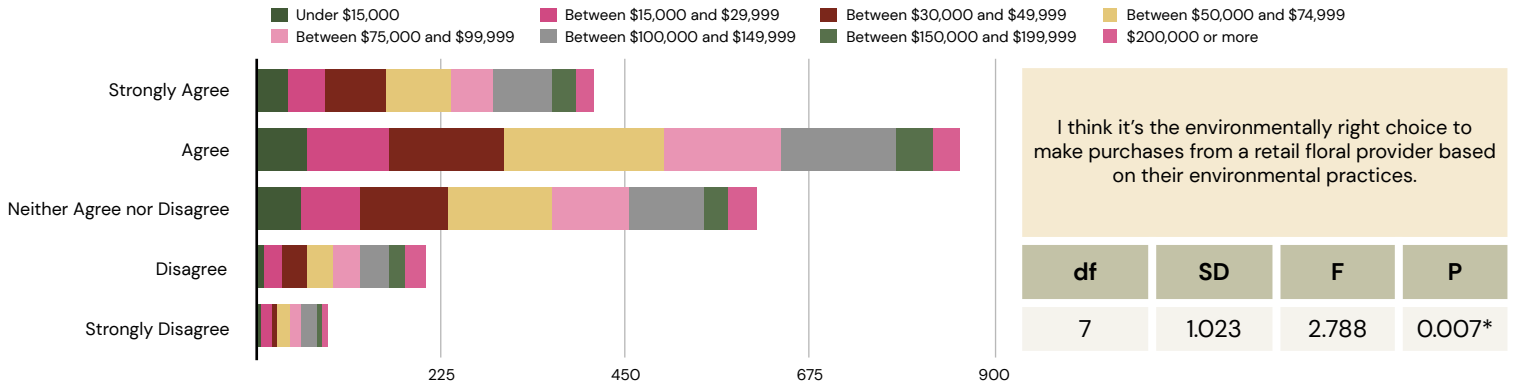
It was found those who make more than \$75,000 make floral purchases more frequently when compared to those who make under \$75,000 (mean score of under \$15,000 that make three to four floral purchases a year or more 50.0%, mean score of between \$15,000–\$29,999 that make three or four floral purchases a year or more 46.1%, mean score of between \$30,000–\$49,999 make three or four floral purchases per year or more 51.1%, mean score of between \$50,000–\$74,999 that make three or four floral purchases per year or more 57.9%, mean score of between \$75,000–\$99,999 that make three or four floral purchases per year or more 65.7%, mean score of between \$100,000–149,999 that make three or four floral purchases per year or more 66.4%, mean score of between \$150,000–\$199,000 that makes three or four floral purchases per year or more 71.2%, mean score of \$200,000 or more that make three or four floral purchases per year or more 70.2%).

While there was some variation in the way income groups answered questions about how much they agreed or disagreed with varying sustainable attributes no differences were found in the way income groups answered for how much more they would be willing to pay for varying sustainable attributes. Overall, income groups were generally willing to pay 10% or more for most sustainable attributes regardless of annual household income.

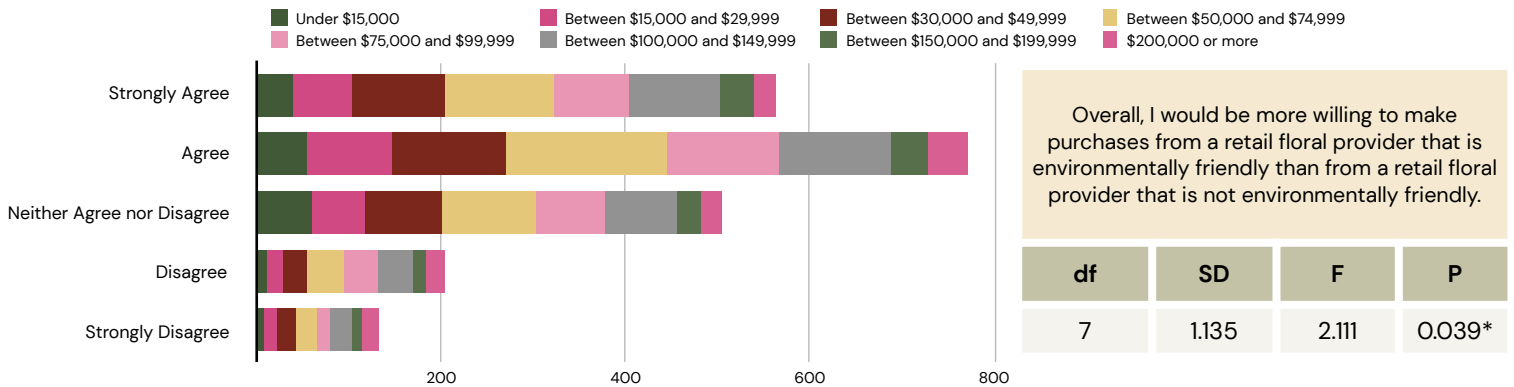


Comparison of Participants' Responses Based on Annual Household Income

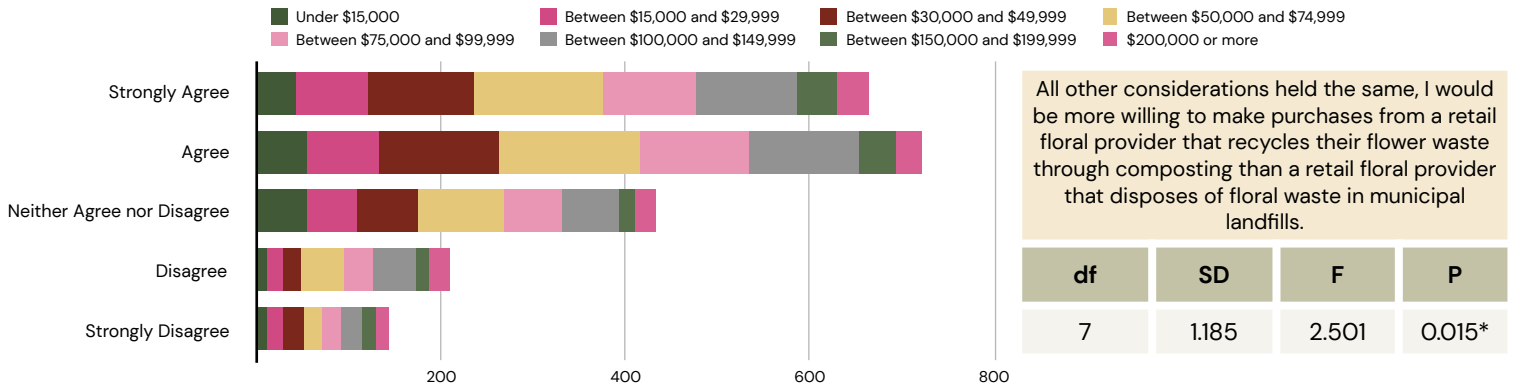
Figures & Tables 60.1 – 60.4 Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on annual household income for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



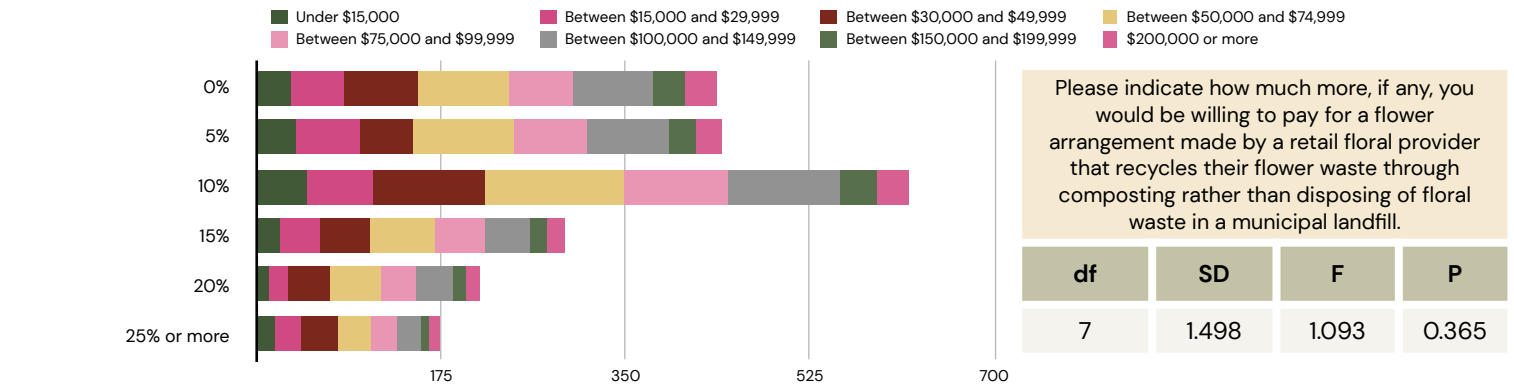
I think it's the environmentally right choice to make purchases from a retail floral provider based on their environmental practices.



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.



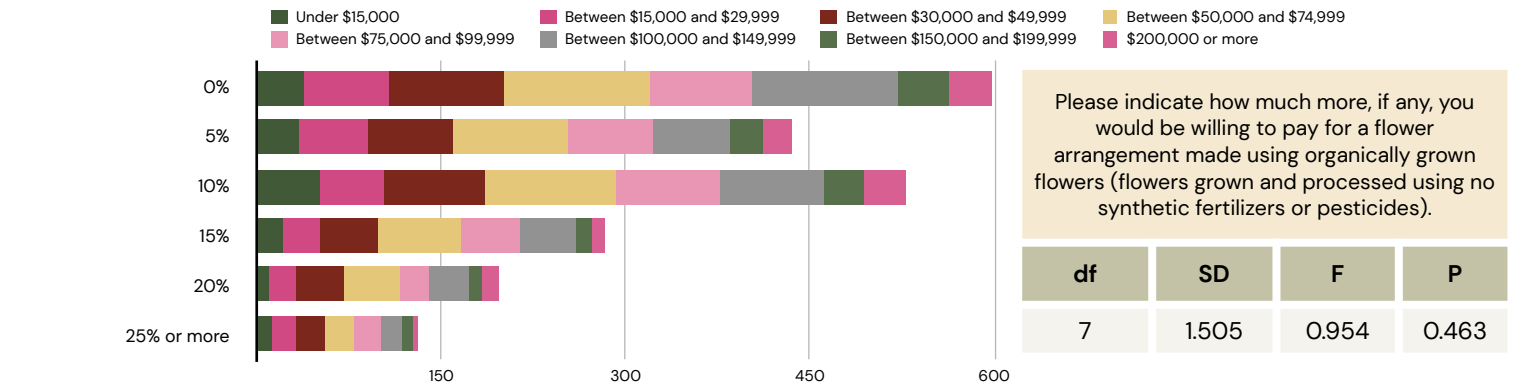
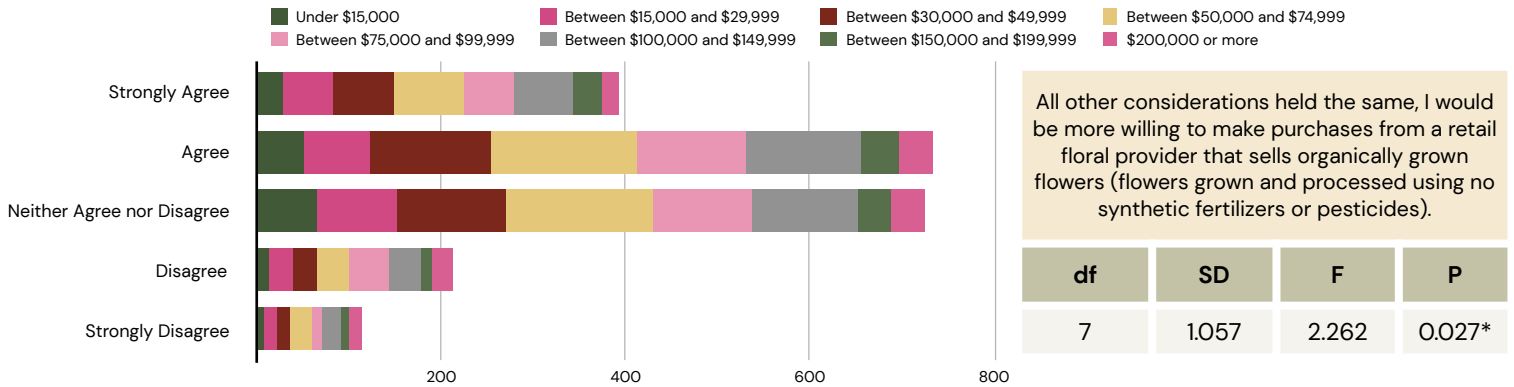
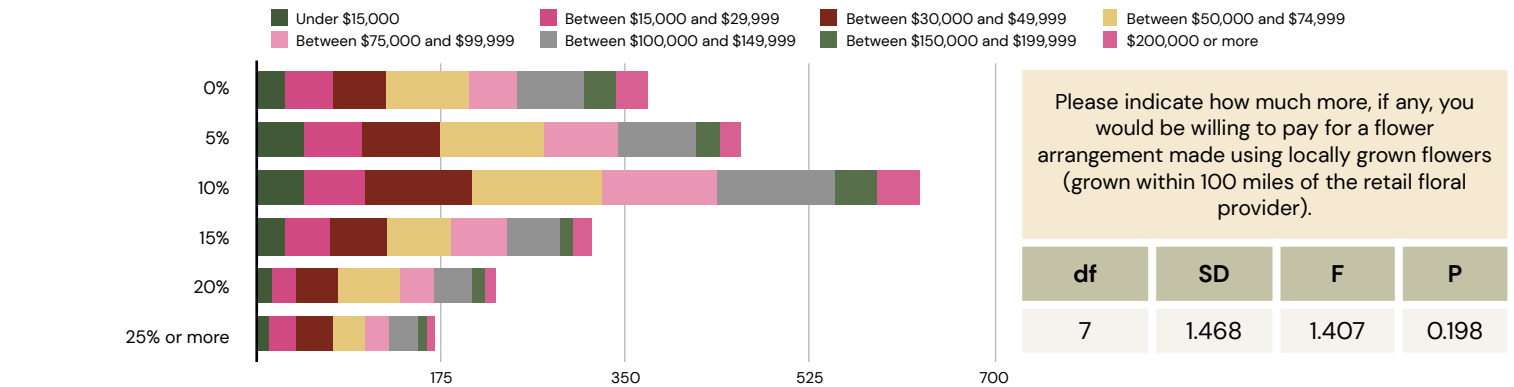
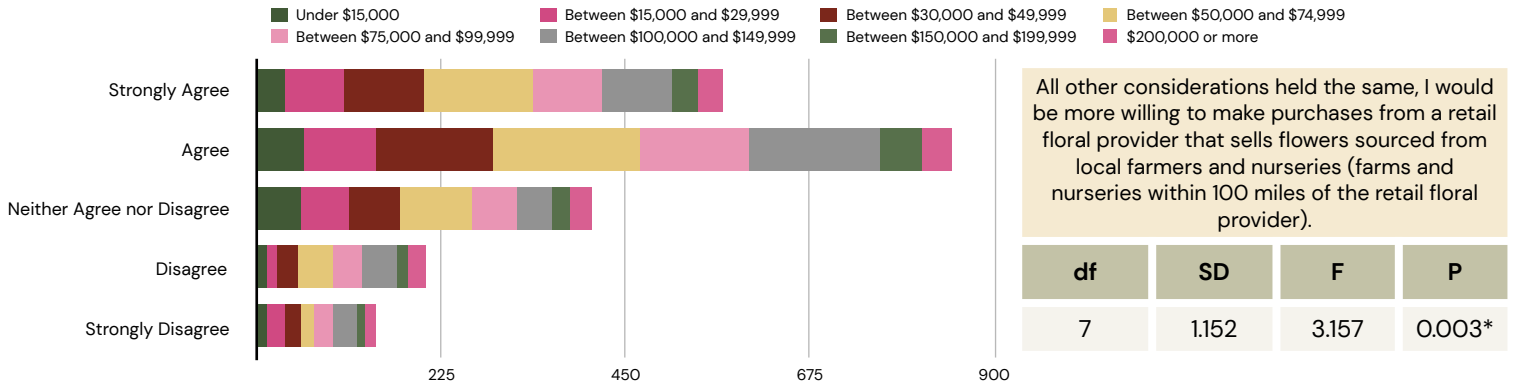
All other considerations held the same, I would be more willing to make purchases from a retail floral provider that recycles their flower waste through composting than a retail floral provider that disposes of floral waste in municipal landfills.



Please indicate how much more, if any, you would be willing to pay for a flower arrangement made by a retail floral provider that recycles their flower waste through composting rather than disposing of floral waste in a municipal landfill.

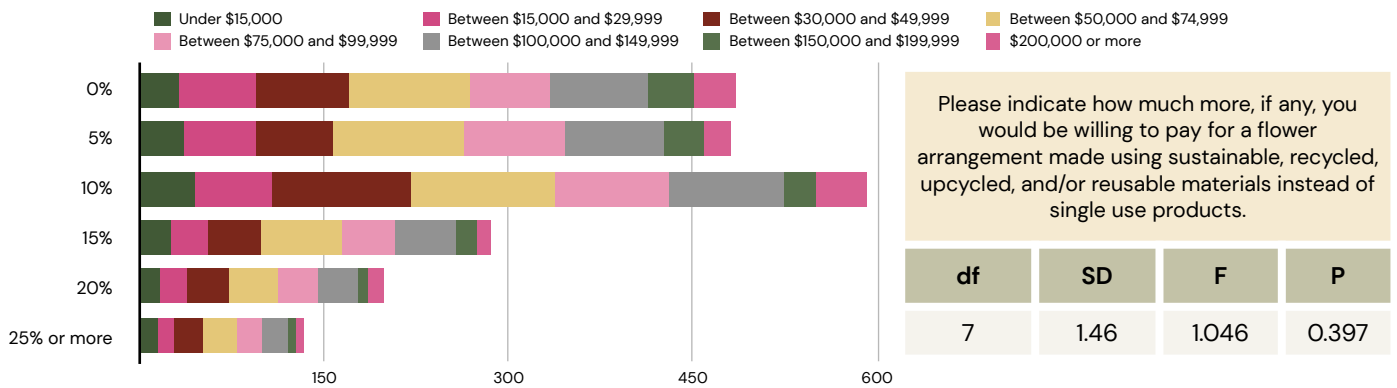
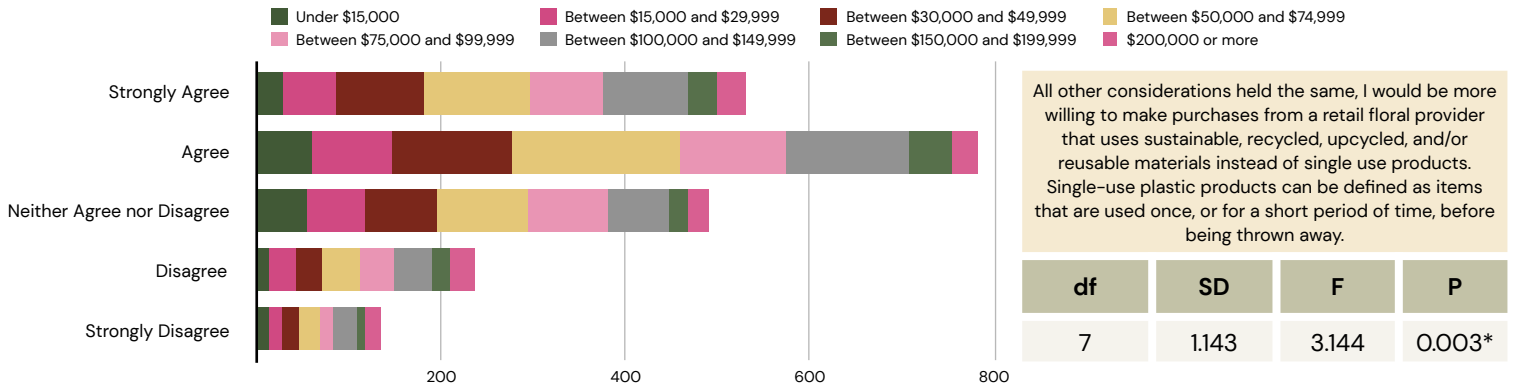
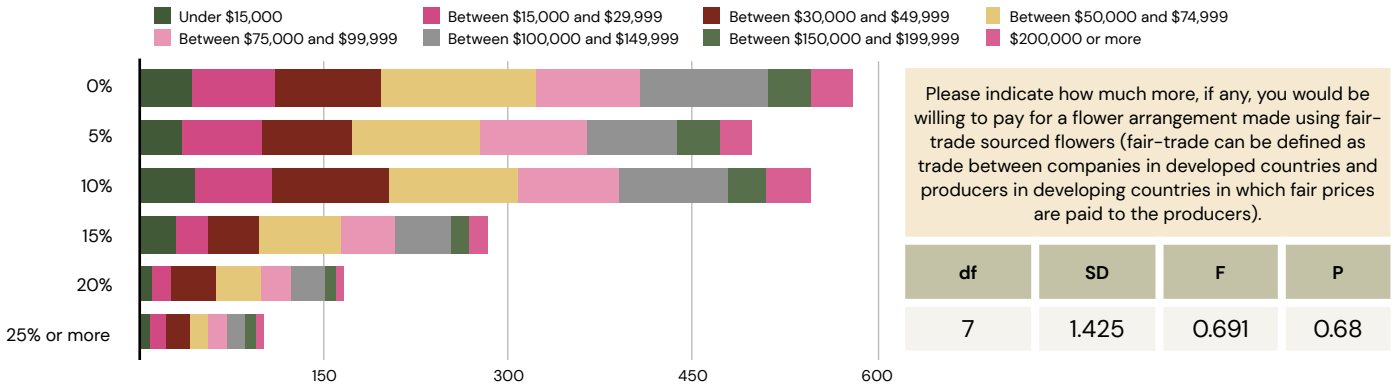
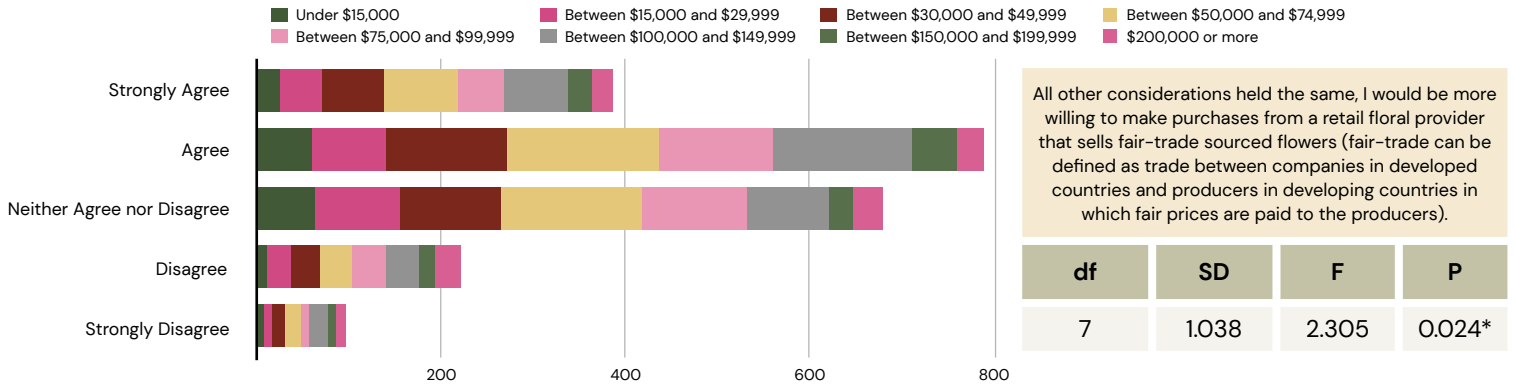
Comparison of Participants' Responses Based on Annual Household Income

Figures & Tables 60.5 – 60.8 Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on annual household income for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



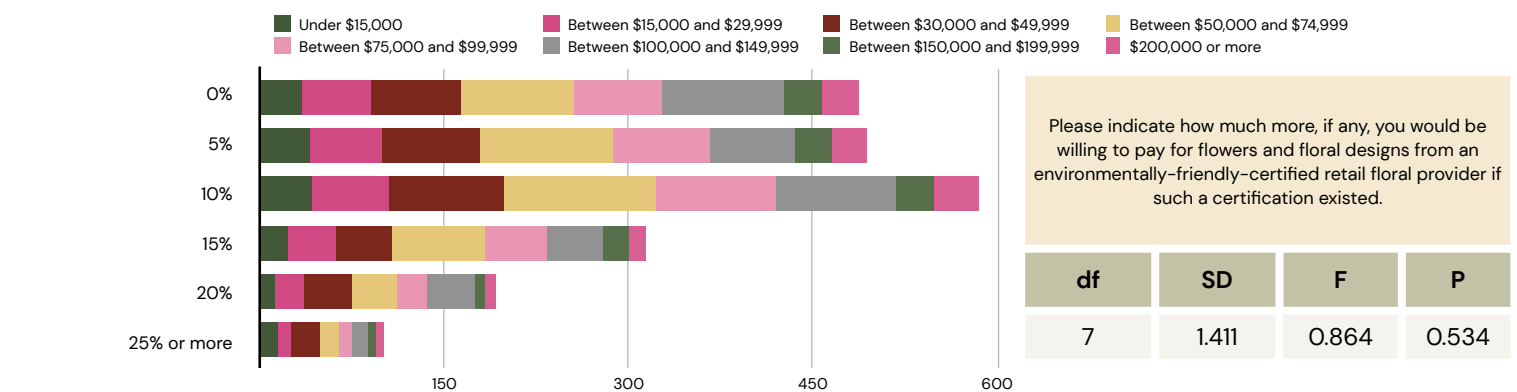
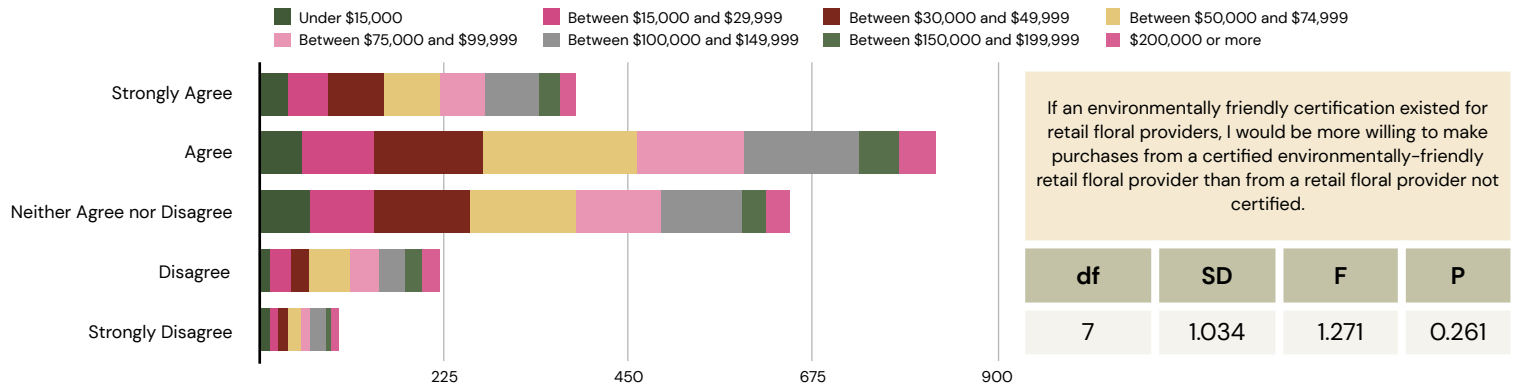
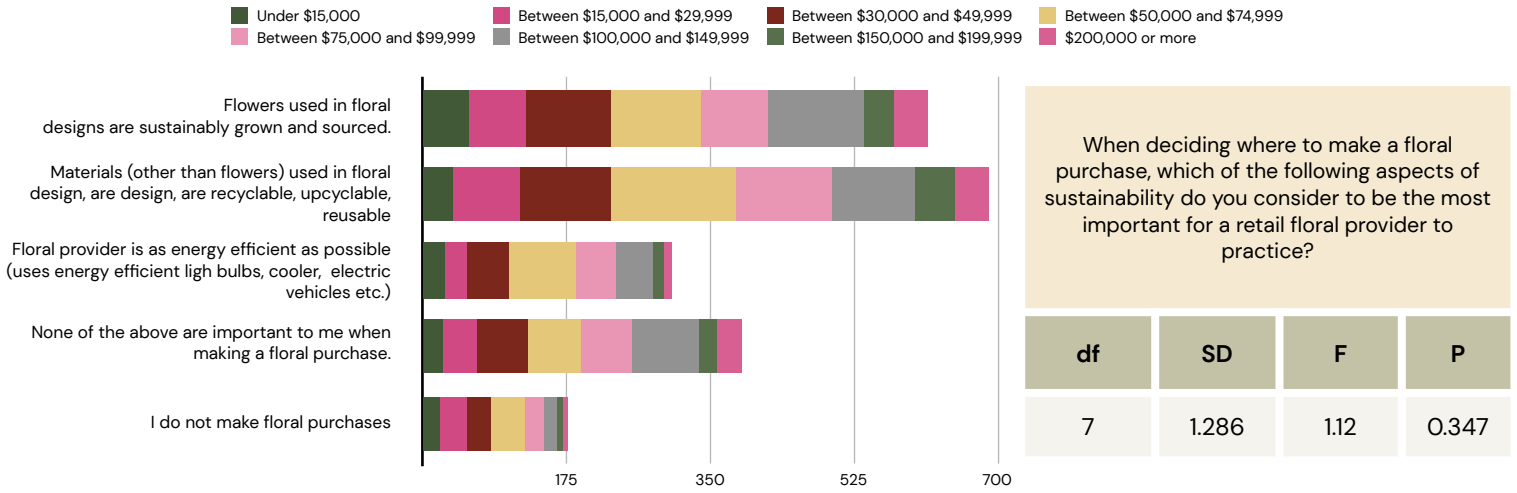
Comparison of Participants' Responses Based on Annual Household Income

Figures & Tables 60.9 – 60.12 Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on annual household income for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



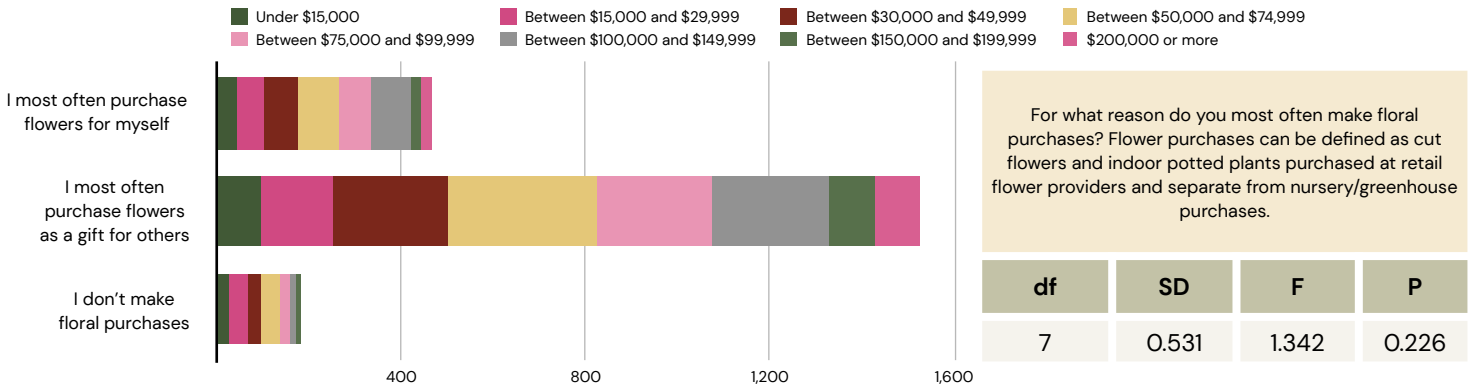
Comparison of Participants' Responses Based on Annual Household Income

Figures & Tables 60.13 – 60.16 Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on annual household income for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



Comparison of Participants' Responses Based on Annual Household Income

Figures & Tables 60.17 – 60.19 Analysis of variance and frequency statistics indicating significant differences in the way participants response to survey questions based on annual household income for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. * Statistically significant at (P < 0.05)



Comparison of Participants' Responses Based on Annual Household Income

Participants were asked to “Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next.”

An ANOVA test was used to determine if there were differences in the way participants ranked the answer choices based on annual household income. A Significant difference was found in the way participants ranked two of the answer choices based on their annual household income.

Table 61. Analysis of variance test for participants response to the survey question “Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question and move onto the next.” based on annual household income for the study U.S. Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry.

Considerations	df	SD	F	P
Reasonable prices	7	1.749	0.392	0.908
Use of locally sourced flowers	7	1.437	1.368	0.215
Use of organically grown flowers	7	1.56	2.226	0.030*
Use of fair-trade flowers	7	1.441	0.486	0.845
Use of energy saving practices such as energy efficient light bulbs, coolers, and electric vehicles	7	1.434	1.074	0.378
Use of multiuse products (sustainable, recycled, upcycled, and/or reusable materials) instead of single use products	7	1.683	2.843	0.006*

* Statistically significant at (P ≤ 0.05)

A Kendall’s W analysis was used to determine how the different annual household income groups ranked the answer choices for the question. When comparing how the income groups ranked the choice it was found all income groups were in agreement for the ranking of the first two most important aspects ranking reasonable prices first and use of locally sourced flowers second.

There was a divide among the groups on the ranking of the third choice with half ranking the use of organically grown flowers as third and the other half ranking the use of multi-use products as third. Following the third ranking there is disagreement among the groups on how the remaining answer choices should be ranked.

Table 62. Kendall’s W analysis indicating responses for participants that make under \$15,000 for the question “Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next.”

Under \$15,000	N	Mean score	SD
1 Reasonable prices	133	2.28	1.738
2 Use of locally sourced flowers	133	2.49	1.312
3 Use of organically grown flowers	133	3.54	1.489
4 Use of fair-trade	133	4.08	1.37
5 Use of energy saving practices	133	4.26	1.397
6 Use of multi-use products	133	4.33	1.645

Comparison of Participants' Responses Based on Annual Household Income

Between \$15,000 and \$29,999	N	Mean score	SD
1 Reasonable prices	217	2.1935	1.734
2 Use of locally sourced flowers	217	2.6452	1.387
3 Use of organically grown flowers	217	3.7373	1.557
4 Use of multi-use products	217	3.9816	1.635
5 Use of energy saving practices	217	4.1797	1.381
6 Use of fair-trade	217	4.262	1.36

Table 63. Kendall's W analysis indicating responses participants that make between \$15,000 and \$29,999 for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Table 64. Kendall's W analysis indicating responses for participants that make between \$30,000 and \$49,999 for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Between \$30,000 and \$49,999	N	Mean score	SD
1 Reasonable prices	307	2.43	1.846
2 Use of locally sourced flowers	307	2.89	1.521
3 Use of organically grown flowers	307	3.65	1.561
4 Use of multi-use products	307	3.94	1.667
5 Use of energy saving practices	307	4.01	1.433
6 Use of fair-trade	307	4.04	1.561

Between \$50,000 and \$74,999	N	Mean score	SD
1 Reasonable prices	413	2.28	1.655
2 Use of locally sourced flowers	413	2.78	1.45
3 Use of multi-use products	413	3.18	1.727
4 Use of organically grown flowers	413	3.87	1.569
5 Use of energy saving practices	413	4.07	1.469
6 Use of fair-trade	413	4.16	1.438

Table 65. Kendall's W analysis indicating responses for participants that make between \$50,000 and \$74,999 for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Table 66. Kendall's W analysis indicating responses for participants that make between \$75,000 and \$99,999 for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Between \$75,000 and \$99,999	N	Mean score	SD
1 Reasonable prices	291	2.29	1.696
2 Use of locally sourced flowers	291	2.65	1.386
3 Use of multi-use products	291	3.74	1.684
4 Use of organically grown flowers	291	3.95	1.550
5 Use of fair-trade	291	4.15	1.458
6 Use of energy saving practices	291	4.18	1.433



Comparison of Participants' Responses Based on Annual Household Income

Between \$100,000 and \$149,999	N	Mean score	SD
1 Reasonable prices	323	2.29	1.734
2 Use of locally sourced flowers	323	2.69	1.433
3 Use of multi-use products	323	3.69	1.648
4 Use of organically grown flowers	323	3.95	1.615
5 Use of energy saving practices	323	4.1	1.376
6 Use of fair-trade	323	4.24	1.41

Table 67. Kendall's W analysis indicating responses for participants that make between \$100,000 and \$149,999 for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Table 68. Kendall's W analysis indicating responses for participants that make between \$150,000-\$199,999 for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Between \$150,000-\$199,999	N	Mean score	SD
1 Reasonable prices	115	2.3	1.831
2 Use of locally sourced flowers	115	2.89	1.378
3 Use of multi-use products	115	3.86	1.667
4 Use of energy saving practices	115	3.84	1.478
5 Use of organically grown flowers	115	3.89	1.569
6 Use of fair-trade	115	4.19	1.503

\$200,000 or more	N	Mean score	SD
1 Reasonable prices	106	2.2	1.738
2 Use of locally sourced flowers	106	2.87	1.445
3 Use of organically grown flowers	106	3.76	1.464
4 Use of multi-use products	106	3.83	1.662
5 Use of energy saving practices	106	4.06	1.475
6 Use of fair-trade	106	4.24	1.523

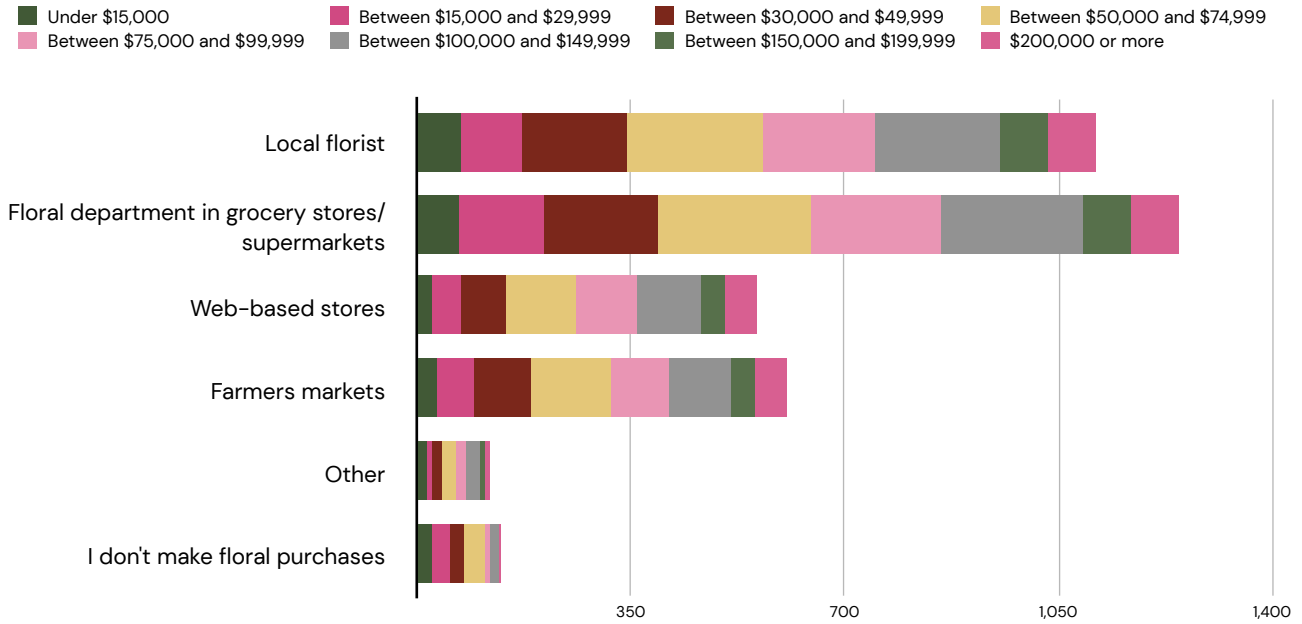
Table 69. Kendall's W analysis indicating responses for participants that make \$200,000 or more for the question "Please rank the importance of the listed considerations when deciding where to make floral purchases. With 1 being the most important consideration and 6 being the least important. If you do not make floral purchases, please skip this question, and move onto the next."

Comparison of Participants' Responses Based on Annual Household Income

Frequency statistics were used to determine where participants make floral purchases the most often based on annual household income. It was found that overall, regardless of annual household income, participants made purchases from floral departments in grocery stores and supermarkets the most frequent, except for those making

between \$150,000 and \$199,999 who indicated making floral purchases from local florists more frequently than floral departments in grocery stores and supermarkets. For all other income groups local florist was ranked second most frequent.

Table 70. Frequency statistics indicating response bases on annual household income for the question "Where do you make your floral purchases? Flower purchases can be defined as cut flowers and indoor potted plants purchased at retail flower providers and separate from nursery/greenhouse purchases. Please check all that apply."



Answer Choices	Under \$15,000		Between \$15,000 and \$29,999		Between \$30,000 and \$49,999		Between \$50,000 and \$74,999		Between \$75,000 and \$99,999		Between \$100,000 and \$149,999		Between \$150,000 and \$199,999		\$200,000 or more	
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
Local florist	71	43.8%	103	40.9%	168	47.5%	224	49.3%	182	54.3%	204	56.7%	80	62.5%	78	61.4%
Floral department in grocery stores/super markets	69	42.6%	139	55.2%	187	52.8%	250	55.1%	211	63%	232	64.4%	78	60.9%	81	63.8%
Web-based stores	23	14.2%	47	18.7%	74	20.9%	114	25.1%	100	29.9%	107	29.7%	38	29.7%	54	42.5%
Farmers markets	31	19.1%	63	25%	89	25.1%	133	29.3%	96	28.7%	100	27.8%	41	32%	49	38.6%
Other	13	8%	12	4.8%	18	5.1%	20	4.4%	16	4.8%	24	6.7%	8	6.3%	8	6.3%
I don't make floral purchases	22	13.6%	31	12.3%	22	6.2%	34	7.5%	12	3.6%	12	3.3%	1	0.8%	3	2.4%

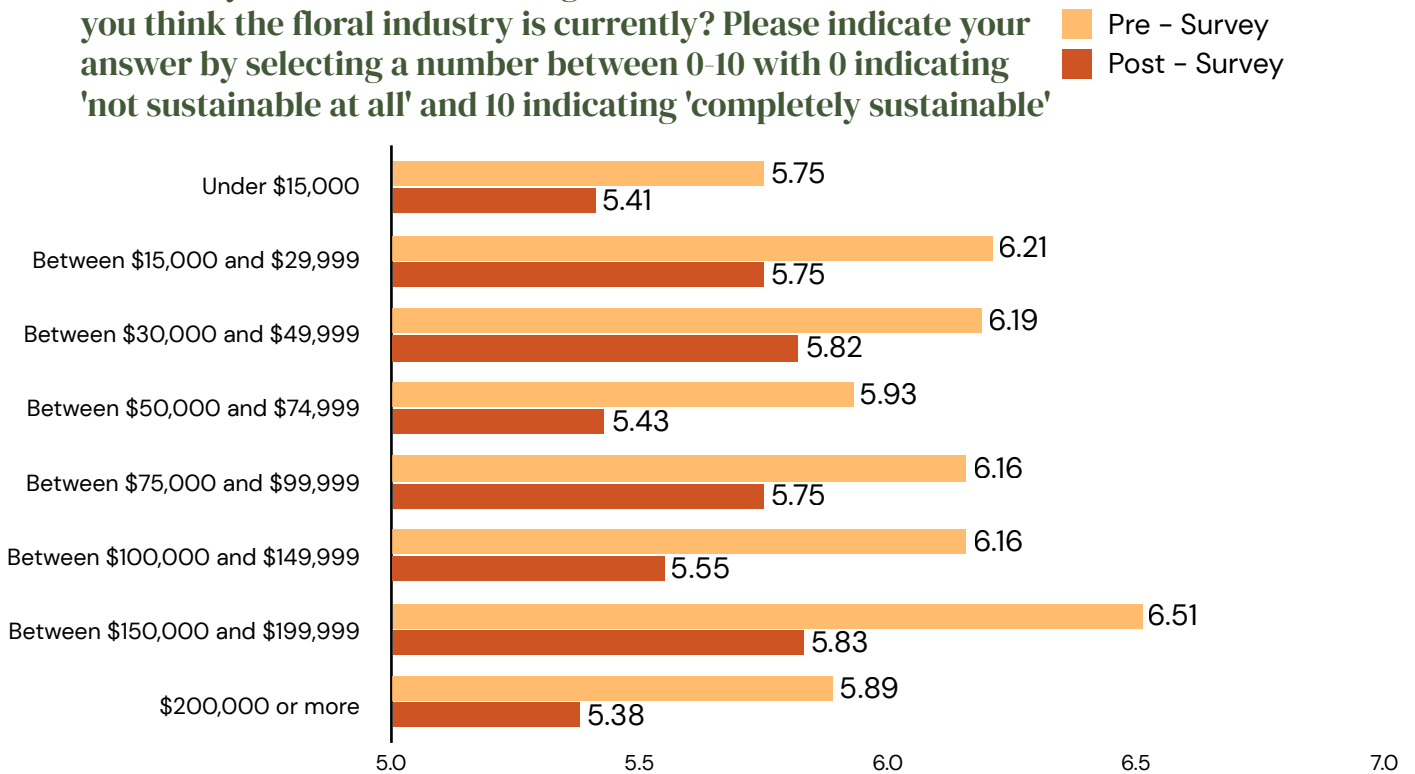
Comparison of Participants' Responses Based on Annual Household Income

Participants were asked both pre- and post-survey "Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable.'" ANOVA tests were used to determine if there were significant differences in the way participants answered the survey question based on their annual household income. Significant differences were found in the way participants answered the question in the pre-survey but not in the post-survey. This indicates the income groups were in more agreement in the post-survey question about sustainability in the floral industry. Post hoc analysis (LSD) indicated there was a difference in the way participants who make under \$15,000 responded to the question pre survey when compared to all other groups.

Overall, participants who make under \$15,000 viewed the floral industry as being less sustainable in the pre-survey question when compared to all other education groups. The mean scores for each education group were added together and averaged to form an overall mean score of 6.1 for participants on the pre-survey sustainable industry survey question based on annual household income. In the post-survey all income groups mean score decreased slightly bringing the overall scores in closer alignment with each other. The mean scores for each education group were added together and averaged to form an overall mean score of 5.61 for participants on the post-survey sustainable industry survey question based on education.

Table 71. Analysis of variance (ANOVA) and descriptive statistics indicating response bases on annual household income for the question "Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable.'"

Based on your current knowledge, overall, how sustainable do you think the floral industry is currently? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not sustainable at all' and 10 indicating 'completely sustainable'



	Pre - Survey	Post - Survey
df	7	7
SD	2.182	2.242
F	2.045	1.779
P	0.046*	0.087

* Statistically significant at (P < 0.05)

Comparison of Participants' Responses Based on Annual Household Income

Participants were asked "How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not interested at all' and 10 indicating 'very interested.'" ANOVA tests were used to determine if there were significant differences in the way participants answered the survey question based on their annual household income. No significant differences were found in the way participants answered the question based on annual household income.

The mean scores for each education group were added together and averaged to form an overall mean score of 4.77 for participants based on annual household income, indicating a moderately low interest in learning more about sustainable floral practices based on education.

Table 72. Analysis of variance (ANOVA) and descriptive statistics indicating response bases on annual household income for the question "How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider? Please indicate your answer by selecting a number between 0-10 with 0 indicating 'not interested at all' and 10 indicating 'very interested.'"

How interested are you in learning more about sustainable floral practices with materials, information or workshops hosted by your local floral provider?	N	Mean	df	SD	F	P
Under \$15,000	160	4.82	8	2.886	0.724	0.652
Between \$15,000 and \$29,999	251	4.88				
Between \$30,000 and \$49,999	351	4.99				
Between \$50,000 and \$74,999	451	4.74				
Between \$75,000 and \$99,999	333	4.78				
Between \$100,000 and \$149,999	358	4.55				
Between \$150,000 and \$199,999	127	4.8				
\$200,000 or more	124	4.62				

* Statistically significant at ($P \leq 0.05$)





Conclusion

Based on the 2,172 participants that responded to the survey, it was found, overall, that participants mostly agreed they think it's the environmentally right choice (overall mean score 2.50) to make purchases from a floral provider that is environmentally friendly when compared to one that is not. Also, participants mostly agreed they would be more willing to make purchases from an environmentally friendly certified floral provider when compared to one that is not certified (overall mean score 2.33). From the environmentally friendly practices given, participants indicated they were most willing to make purchases from a floral provider that recycles their floral waste, followed closely by floral providers that use locally sourced flowers when compared to floral providers that do not. Participants also indicated the strongest willingness to pay 10% or more for locally sourced flowers (61.7% of all participants), followed by floral providers that compost their floral waste (59.5% of all participants) with 31.7% indicated a willingness to pay 15% or more for locally sourced flowers as well as for floral providers that compost floral waste (31.0%), further indicating these two practices are considered the most valuable to consumers. However, 50% or more of the participants indicated a willingness to pay 10% or more for all the sustainable attributes they were asked about. When analyzing survey question responses based on the demographics of participants, it was found that while males indicated stronger agreement toward several of the environmental statements, females were more willing to pay 10% or more for all the sustainable attributes they were asked about. Additionally, while males make more purchases as gifts, it was found that females purchase more flowers for themselves. These findings support past research which also found females to be more willing to purchase environmentally sustainable products (Laroche et al. 2016; Tomas 2019).

Participants 34 years of age and younger were the most interested in and willing to pay a premium for all sustainable attributes they were asked about. As participants' age increased, their overall willingness to pay for environmentally friendly practices tended to decrease. Participants 55 years of age and older expressed the least willingness to pay a premium for sustainable attributes, with participants 65 years of age and older being the least willing to pay a premium for all environmentally friendly attributes asked about. Participant 65 years of age and older also indicated they made fewer floral purchases within a year when compared to all other age groups. This supports past research which also found that younger consumers have a greater interest in purchasing environmentally friendly products (Gabellini and Scaramuzzi, 2022).

There was little disagreement among participants when comparing survey question answers based on education. Participants with a post graduate degree expressed the most interest in purchasing fair-trade flowers when compared to other education groups, and while there was no significant difference in the way participants responded to how much more they would be willing to pay for fair-trade flowers, it was found that those with a postgraduate degree were slightly more willing to pay 10% or more for fair-trade flowers when compared to other education groups.

Because of the small sample size for several of the racial demographic groups, generalizations about racial groups could change with a larger, more racially diverse sample. Overall, regardless of race, participants appear the most willing to pay a premium of 10% or more for flowers from a floral provider that uses locally sourced flowers and composts their floral waste.

When analyzing responses based on annual household income level, it was found that participants who made \$200,000 or more indicated less agreement with several of the environmentally friendly attribute questions. However, participants who made \$200,000 or more were still willing to pay the same premium levels for environmentally friendly attributes as the other income levels and even slightly more in some instances. In general, all income groups were willing to pay at least 10% or more for sustainable attributes. Because of the overall small sample size for several of the annual household income levels demographic groups, generalizations about income groups could change with a larger, more diverse sample.

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