

Federal-State Marketing Improvement Program
Final Performance Report
For the Period of [September 30, 2013 – May 31, 2016]

Date: August 31, 2016
Recipient Name: Virginia State University
Project Title: Market Development for Locally Grown Foods to Benefit Disadvantaged Farmers
Grant Number: 12-25-G-1722
Project Location: Virginia
Amount Awarded: \$ 57,200
Match Amount: **\$80,666.77**

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An Outline of the Issue or Problem:

The problem of agricultural marketing appears to be that farmers, especially the small disadvantaged farmers, are unable to find markets for their products and therefore face diminishing incomes and even the loss of their farms while consumers are seeking high quality, healthy foods. Increased consumer interest in the locally grown food has been a recent trend that offers a partial solution to the marketing problem.

Goals and Objectives:

The project goals are a) identification of the deficiencies in the local food marketing system and potential markets for SDF and, b) development of marketing strategies to meet the needs of small farmers and consumers in Central and Eastern Virginia. The specific objectives are listed below.

Objective 1: To assess the awareness levels of small farmers, institutional customers and local marketing channel intermediaries regarding the availability and demand for local food and the structure of local food system.

Objective 2: To assess the awareness levels of minority and mainstream consumers regarding the availability and nutritional benefits of local food.

Objective 3: To identify existing and potential marketing opportunities for socially disadvantaged and minority farmers and develop appropriate marketing strategies for the successful functioning of the local food system.

Objective 4: To start a market development educational program focusing on local foods.

Contribution of Project Partners:

The project was conducted by Virginia State University (VSU) employees. VSU Extension Services (VSUES) agents played a significant role in conducting the workshops and educational seminars. Farmers' markets, Food Hubs and other entities collaborating with VSUES provided help in the data collection phase of the project.

Results, Conclusions, and Lessons Learned:

We used multiple methods for information gathering. Focus group sessions were held with farmers attending a conference sponsored by Virginia State University Extension Services (VSUES) to gauge their beliefs about the availability of marketing opportunities for selling produce and existing market structures in their regions. Data were obtained through surveys of farmers attending VSUES conferences over the duration (2014-16) of the project. All surveys were conducted in person, by trained research assistants and in a few cases, extension agents. The total sample size stands at 195. The collection of data at multiple conferences ensured that we have a more representative sample of farmers. Surveys of consumers were done at multiple locations/settings and employed multiple methods. Given the focus on minority consumers and the proximity of food deserts, it was decided that consumers living in food deserts should form a part of our sample. These consumers were surveyed in person, at medical facilities and food pantries in the Petersburg-Richmond area. The next group of consumers in our sample were those who attended cooking demonstrations/nutritional classes organized by VSUES. The aim was to see whether these classes would impact the awareness and knowledge levels of consumers. Consumers belonging to food hubs, farmers' markets, and "buy fresh buy local" chapters among others were invited to participate in an online survey conducted through a Qualtrics (a survey software) link. A total of 917 consumers responded to our surveys.

Data were analyzed using Qualtrics and SPSS packages available at Virginia State University. Results from these analyses are reported below.

Objective 1: To assess the awareness levels of small farmers, institutional customers and local marketing channel intermediaries regarding the availability and demand for local food and the structure of local food system.

Farmers were asked to indicate the percentage of their sales coming from various types of markets as well as their preferences for future sales. As seen from the results in the table, roadside stands, farmer's markets, school districts and regional distributors are the most popular outlets for the produce of the farmers participating in our surveys. While a third of the farmers report relying upon a single outlet, about 27% use two outlets and another 28

% sell through three outlets. Only 7 to 8 percent of the farmers sell through 4 or more outlets. When the farmers were asked to indicate their “desired” mix of outlets for their produce, nearly all indicated a preference for multiple outlets. The optimal strategy appears to be to spread the sales among three outlets. The desired level of sales for any outlet does not exceed 41 per cent. The most desirable outlets in the order of preference are roadside stands, farmers’ markets, CSAs and regional distributors, closely matching their current outlets. Farmers are aware of the available markets and outlets, probably as a result of the education programs they have attended and appear to prefer the same outlets for future sales, by and large.

Market/Outlet	% of Current Sales	Minimum	Maximum	% of Desired Sales
Farmers’ markets	59.2931	5	100	39.8246
Roadside stands	60.2000	5	100	40.3846
On-farm stores	35.6250	5	100	36.2222
CSA	35.4000	5	100	39.6774
School districts	50.0000	20	100	22.5000
Brokers	48.5700	5	100	39.2308
Regional distributors	40.9000	5	100	27.2500
Food co-ops	32.1290	1	100	33.2051
Grocers/retailers	47.5143	1	100	35.1667

Farmers were also asked to indicate the importance they attach to standing purchase arrangements with various types of outlets and market mechanisms, on a 5-point scale with 1 indicating extreme importance and 5 extreme unimportance. These results are presented in the table below. Consumer education and support from governmental agencies are considered to be most important of these factors.

	Minimum	Maximum	Mean	Std. Deviation
Standing Arrangements with grocers/retailers	1	5	2.79	1.453
Standing Arrangements with school districts	1	5	3.52	1.377
Standing Arrangements with hospitals/institutions	1	5	3.69	1.304
Consumer education on local produce	1	5	2.09	1.327
Access to food brokers/regional distributors	1	5	2.99	1.367
Membership in food co-ops	1	5	2.80	1.380
Convenient ordering/payment systems	1	5	2.98	1.656
Support from government/extension agencies	1	5	2.35	1.384
Transportation arrangements	1	5	2.46	1.444

To gauge farmers’ level of satisfaction with current marketing opportunities and market success, they were asked to assess recent trends in sales revenues, profits and profit margins on a 10-point scale, with 1 representing a significant decrease and 10 standing for a significant increase. The results in the following table indicate that the farmers are moderately satisfied with the outcomes. Their views indicate a lower level of satisfaction with profit margins, in comparison to sales revenues.

Minimum	Maximum	Mean	Std. Deviation
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Change in sales revenues	1	10	6.83	1.902
Change in profits	1	10	6.63	2.042
Change in profit margins	1	10	6.44	1.986

Objective 2: To assess the awareness levels of minority and mainstream consumers regarding the availability and nutritional benefits of local food.

We conducted extensive surveys with consumers regarding their views about consumption of vegetables and fruits as well as local produce. Our survey respondents fall into three categories. We surveyed 153 consumers living in the “food desert” areas of Petersburg and Richmond, Virginia and 134 persons who attended cooking demonstration-cum-nutritional education classes organized by staff members of Virginia State University Extension Services. Both surveys were conducted in-person, by trained researchers. The last category of participants participated in an online survey conducted through Qualtrics. The groups contacted for this survey included Virginia Cooperative Extension personnel, food hubs, Buy Fresh Buy Local chapters CSAs among others. The online survey generated a huge response, with the participation of 630 consumers. Thus, a total of 917 survey responses were received and used in the analyses reported here. The number of responses to individual questions vary since some consumers did not respond to all questions.

In response to the question regarding the definition of local, the survey respondents from the first two (food desert and nutritional class) groups concurred in their opinion. For them, fruits and vegetables are “local” when they are produced within a 100 mile radius, while the online respondents are willing to accept anything produced in the Commonwealth of Virginia as local. There are also differences among these three groups regarding the frequency with which they check labels for their local origins. The food desert group checks the labels “sometimes” whereas the online groups checks them more frequently, with the nutritional education group falling in between.

Concerning the benefit of consuming locally grown fruits and vegetables, six different questions were posed. The questions employed a 5-point Likert scale, with the lower numbers indicating a stronger agreement regarding the benefits. The results in the following table show that among our three groups, the online survey group holds the strongest beliefs regarding the benefits of local produce, and the nutritional class group is in the middle, with the food desert group’s beliefs being the least favorable, except in the case of the price of the produce.

ANOVA RESULTS: GROUP MEANS					
BENEFITS OF BUYING LOCAL	FOOD DESERT GROUP	NUTRITIONAL EDUCATION GROUP	ONLINE SURVEY GROUP	GROUP MEAN	STATISTICAL SIGNIFICANCE
Supports local business and my community	2.27	1.67	1.58	1.72	0.00
Food quality is better	2.38	1.76	1.73	1.85	0.00
Food is healthier	2.49	1.95	1.92	2.04	0.00
Better for the environment	2.47	1.85	1.82	1.93	0.00
Food is fresh	2.28	1.74	1.51	1.68	0.00

Products are expensive	2.98	2.52	2.98	2.90	0.00

From the study results shown in tables below, it is concluded that the majority of females and males typically travel less than 11 miles to purchase fresh produce in Virginia. It appears that the older consumers become, the less distance they travel to purchase fresh produce. Interestingly, the majority of respondents with earned income of \$100,000 or more, traveled less than 11 miles to purchase fresh produce. This relates perhaps, to the problem of food deserts and the non-availability of fresh produce in the neighborhood.

Table: Miles traveled to purchase fresh produce by gender

Gender	Miles traveled to purchase fresh produce					
	0-10	11-20	21-30	31-40	41-50	51 or more
Male	83	24	3	3	2	1
Female	294	82	24	16	4	4

Table: Miles traveled to purchase fresh produce by age

Age	Miles traveled to purchase fresh produce					
	0-10	11-20	21-30	31-40	41-50	51 or more
18-24	9	0	1	0	0	0
25-44	83	26	8	1	1	3
45-64	192	52	16	13	4	2
65 and above	90	27	5	5	0	0

Table: Miles traveled to purchase fresh produce by income

Income	Miles traveled to purchase fresh produce					
	0-10	11-20	21-30	31-40	41-50	51 or more
Less than \$20,000	14	4	2	1	0	1
\$20,000-\$39,999	42	11	3	2	1	2
\$40,000-\$59,999	66	16	7	1	0	0
\$60,000-\$79,999	40	19	8	5	1	2
\$80,000-\$99,999	62	16	3	4	0	0
\$100,000 or more	130	33	3	6	3	1

The survey respondents were asked to indicate how much more expensive local fruits and vegetables are, in comparison to non-local produce. The 7-point scale used to elicit their responses had the anchors of “same” price (1) and “double or higher” (7) and 2 indicated that the local produce is up to 10% higher whereas 3 indicated a price difference between 11 and 20 per cent. Consumers were also asked how much more they are “willing to pay” for local produce, using the same scale. Their responses presented in the following table indicate that perceptions of price differentials vary across the groups. The food desert group perceives them to be higher than the other groups, perhaps due to real price differences in the markets. The willingness of consumers to pay price premiums also indicate significant differences across the groups. The order is reversed here, with the food desert group showing less willingness to pay a premium. This is a significant barrier that affects the consumption of local produce, especially severe in the case of the food desert consumers. Lowering of prices through subsidies offered to SNAP beneficiaries might alleviate the problem to a certain extent.

ANOVA RESULTS: GROUP MEANS					
QUESTION	FOOD DESERT GROUP	NUTRITIONAL EDUCATION GROUP	ONLINE SURVEY GROUP	GROUP MEAN	STATISTICAL SIGNIFICANCE
Price difference between local and non-local produce	3.48	3.26	3.02	3.13	0.01
Willingness to pay a price premium	2.67	2.92	3.01	2.94	0.04

Consumers were asked to respond to a series of factors and indicate how limiting they are in regard to the purchase of locally-grown foods. The results in the following table place seasonality and unavailability at the top of the list.

Limiting Factors	Very Limiting	Moderately Limiting	Not Limiting	Don't Know
Unavailability or limited selection of local foods in your area	18%	51%	28%	4%
Seasonality (i.e. available only certain times of the year)	27%	58%	13%	2%
Not knowing whether food is truly local, as labeled	13%	31%	48%	9%
High price	17%	45%	36%	2%
Farmers market days and times are inconvenient	17%	42%	39%	2%
Congestion/Traffic/Parking at farmers market	11%	21%	63%	5%
Lacking transportation to market locations	3%	7%	87%	3%
Lacking storage capacity/refrigeration for large quantity purchases	11%	26%	61%	2%
Lack of knowledge to prepare local foods	4%	11%	83%	2%
Lack of transportation	3%	5%	90%	2%

Objective 3: To identify existing and potential marketing opportunities for socially disadvantaged and minority farmers and develop appropriate marketing strategies for the successful functioning of the local food system.

Virginia State University Extension Services identified and communicated several marketing opportunities for the disadvantaged and minority farmers that it serves. Food Hub opportunities and mobile market (food vans that would show up at a designated place and time) are among such opportunities. Further, farmers were also paired with a local grocery store that wants to source its produce locally on a consistent basis. Programs also included classes on basic accounting principles and costing methods aimed at helping farmers price their produce on a more scientific basis.

Labeling of produce would offer helpful information to consumers concerned about the local origins of produce as well their nutritional quality and food safety. This might be particularly important to consumers following dietary prescriptions for medical reasons. Consumers were asked to indicate the level of importance they attach to various types of labels in vogue at the present time. Pesticide-free label would be most helpful to consumers, followed by the “Virginia Grown” label. A recommendation coming out of this study for the Commonwealth of Virginia is to explore the possibility of implementing a “Virginia Grown” labeling program to help local farmers as well as consumers.

TYPE OF LABEL	Not at all important	A little important	Moderately important	Very important
Certified Organic	26.8%	30.5%	29.4%	13.1%
Grown in Virginia	11.9%	27.6%	39.5%	20.9%
Pesticide Free	14.2%	18.4%	30.5%	36.4%
Superfood	43.7%	32.4%	19.0%	4.7%

Note: Percentages do not add up to 100 due to missing responses.

Objective 4: To start a market development educational program focusing on local foods.

As seen from the results discussed above, consumer education is a key demand of the farmers. Our results from consumer surveys reveal that educational efforts focusing on nutrition and food preparation positively affect consumer beliefs and attitudes toward local produce as well as the willingness to pay a price premium. VSUES is engaged in educational programs in the region it serves, but the scope and intensity of these efforts need to be expanded for greater impact.

One of the big challenges faced by the PI was the departure of the Co-PI in the early stages of the project. As this co-PI was the link between the PI who belongs to the College of Business and VSUES which is a part of the College of Agriculture, planning and co-ordination of project activities posed several problems. The PI had to develop the necessary relationships with the VSUES personnel and assume responsibility for the co-ordination of activities.

The original project proposal included a fifth objective – development of an informational web site to provide information to farmers and consumers. When research revealed that several existing web sites already fulfill this purpose, this objective was dropped from the proposal. This has been a learning experience for the PI who is new to USDA sponsored research projects. The experiences and lessons learned from the current project will definitely help the PI to be more efficient and timely in the conduct of project activities in future projects.

Evaluation:

The primary aim of the FSMIP project was to conduct research and develop strategies for the marketing of vegetables and fruits in local markets. Educational efforts directed at farmers and consumers in this context were proposed. The results and outcomes described earlier show that these objectives have been met. VSUES conducted several workshops and demonstrations for farmers and consumers throughout the project duration. Hundreds of farmers and consumers were engaged through these efforts and many of them participated in our surveys. Research was conducted through multiple methods and involved substantial numbers of farmers (n= 195) and consumers (n=917) providing us large amount of data. The results from the online survey of consumers has been published by VSUES and communicated to over 300 agents in the Commonwealth of Virginia. This knowledge base is expected to be useful in the development of strategies and the design of future projects by VSUES.

Current or Future Benefits/Recommendations for Future Research:

In keeping with the original aims of the project, research conducted for the project has produced new information on the perceptions of farmers and consumers regarding the marketing of local produce and the existing marketing systems. The study focused on the consumers living in food deserts, among others and generated information on their perception about the availability of local produce and the constraints they face in purchasing these products. Results from the research project have been disseminated nationally at the Marketing and Public Policy Conference meetings as well as locally through the VSUES publication. We expect to publish research papers on the underlying theoretical concepts in the near future and further disseminate the study results.

Findings from current research reveal differences between the perspectives of farmers and consumers regarding crucial factors such as the benefits associated with the consumption of local produce and the price premium associated with it. Future educational efforts should focus on communicating to the consumers the full array of nutritional and environmental benefits associated with the consumption of locally grown produce. Development of a “Virginia Grown” (local) labeling program is recommended. Considering the constraints faced by consumers living in food deserts, and given the poverty levels prevailing in many food desert area, government should encourage the consumption of fresh produce by expanding benefits through SNAP program or other methods.

Project Beneficiaries:

The educational workshops described earlier benefitted hundreds of farmers and consumers by making them more knowledgeable about market opportunities and product displays at farmers’ markets and preparation of nutritional foods using fresh produce respectively. Extension Service agents can incorporate the survey results provided to them into their presentations and services to farmers for more effective outcomes.

Additional Information:

Venkatapparao Mummalaneni, Oluwarotimi Odeh and Theresa Nartea (2014), “Benefiting Consumers through Labelling of Locally Grown Foods”,

Poster Presentation at the American Marketing Association’s Marketing and Public Policy Conference. (June 2014)

Jessica Almay, Maria G. Corradini, Tracy Fox, Venkatapparao Mummalaneni, Theresa Nartea, Arturo E. Osorio and Jerome D. Williams (2015), "Outside Looking In on Food Wars", *Panel Presentation at the American Marketing Association's Marketing and Public Policy Conference*. (June 2015)

"Addressing Obesity through Establishment of Local Farm Markets in Virginia Food Deserts"

Nartea, T., and Mummalaneni, V. 2016. *Results from 2016 research survey on consumption of local produce in Virginia*. Virginia Cooperative Extension Publication number ANR-222NP.



Results from 2016 research survey on consumption of local produce in Virginia

Theresa Nartea, Assistant Professor, Marketing and Agribusiness, Virginia State University

Venkatapparao Mummalaneni, Professor, Management and Marketing, Virginia State University

Introduction

There appears to be a lack of published research study data on consumer motivations for purchasing local produce in Virginia. Additionally, the level of consumer awareness of labels such as “local,” “pesticide-free,” “certified organic,” “grown in Virginia,” or “superfood,” and the influence such labels have on purchasing decisions in Virginia has not been previously researched. The purpose of this extension information bulletin is provide Virginia Cooperative Extension educators with relevant study graphics and tables that can be used in posters, slide presentations, and written communications to inform Virginia food producers regarding local food data that may enhance local food sales through improved product labeling or market outlet placement in Virginia communities. The authors believe the data as presented permits the reader to draw logical conclusions regarding consumer motivations for purchasing local produce in Virginia.

Study Distribution

In order to assess the consumption of local produce in Virginia, an online survey was conducted from June 13, 2016 until June 30, 2016. To disseminate the survey statewide, an online survey web link and email request was sent to Virginia Cooperative Extension personnel utilizing the Virginia Cooperative Extension list serve. Within the email request, the study researchers requested assistance in distributing the survey to clientele of Virginia Cooperative Extension.

Study Response Results

A total of 655 responses were recorded. However, respondents were not required to answer each question in order to complete the survey. Respondents had the choice to answer all or some of the questions. The following survey results reflect the total number of responses recorded for each survey question asked.

Study Respondent Characteristics

Figure 1. Gender and age by response count

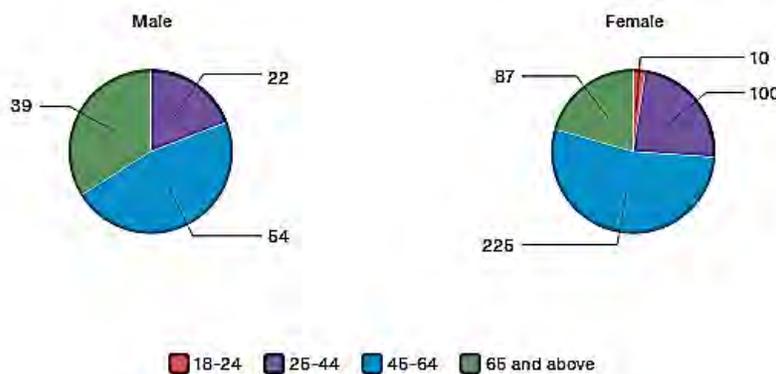


Figure 2. Gender and education by percentage

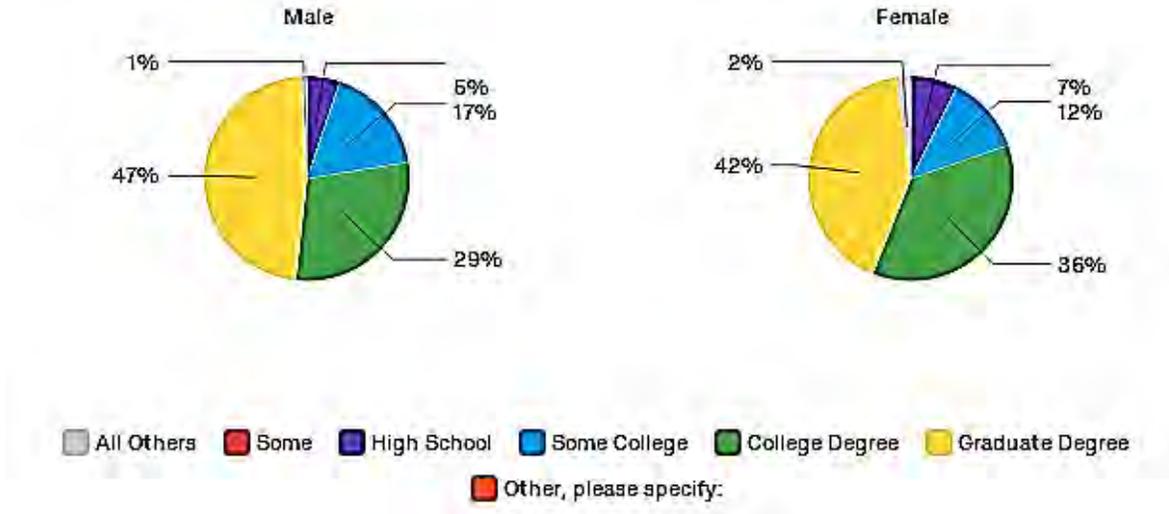


Figure 3. Cultural heritage by response count

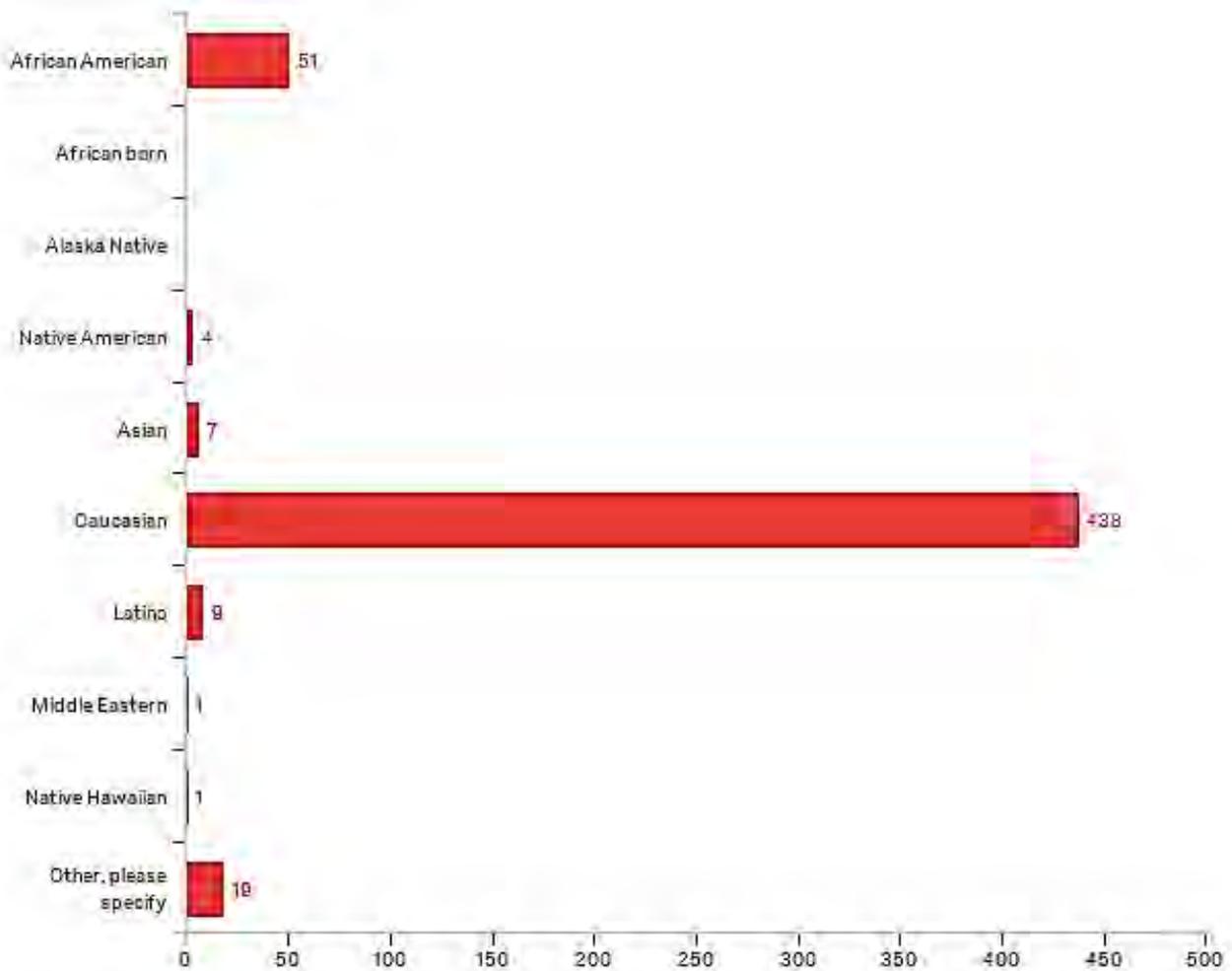


Table 1. Number of people residing in a household by cultural heritage (N=537)

Cultural Heritage	Number of people residing in household, including respondent					
	One	Two	Three	Four	Five	Six or more
African American	8	21	7	11	4	0
African born						
Alaska Native						
Native American	0	1	1	1	1	0
Asian	4	2	0	1	0	0
Caucasian	70	236	58	56	17	8
Latino	1	2	3	1	1	1
Middle Eastern	0	1	0	0	0	0
Native Hawaiian	0	0	0	0	0	1
Other	3	11	1	4	0	0

Table 2. Income and household size (N=507)

Income	Number of people residing in household, including respondent					
	One	Two	Three	Four	Five	Six or more
Less than \$20,000	9	10	1	1	0	1
\$20,000-\$39,999	28	18	6	6	1	1
\$40,000-\$59,999	28	39	11	6	3	3
\$60,000-\$79,999	6	40	17	6	3	2
\$80,000-\$99,999	4	50	10	15	6	0
\$100,000 or more	6	101	18	40	9	2

Travel distance related data

From the study findings, the majority of females and males typically travel less than 11 miles to purchase fresh produce in Virginia (Table 3a). It appears that the older consumers become, the less distance they travel to purchase fresh produce (Table 3b). Interestingly, the majority of respondents with earned income of \$100,000 or more, traveled less than 11 miles to purchase fresh produce (Table 3c). Various cultural backgrounds are depicted in Table 3d, revealing preferred travel distances less than 21 miles for the majority of Caucasian and African American respondents.

Table 3a. Miles traveled to purchase fresh produce by gender (N=540)

Gender	Miles traveled to purchase fresh produce					
	0-10	11-20	21-30	31-40	41-50	51 or more
Male	83	24	3	3	2	1
Female	294	82	24	16	4	4

Table 3b. Miles traveled to purchase fresh produce by age (N=538)

Age	Miles traveled to purchase fresh produce					
	0-10	11-20	21-30	31-40	41-50	51 or more
18-24	9	0	1	0	0	0
25-44	83	26	8	1	1	3
45-64	192	52	16	13	4	2
65 and above	90	27	5	5	0	0

Table 3c. Miles traveled to purchase fresh produce by income (N=509)

Income	Miles traveled to purchase fresh produce					
	0-10	11-20	21-30	31-40	41-50	51 or more
Less than \$20,000	14	4	2	1	0	1
\$20,000-\$39,999	42	11	3	2	1	2
\$40,000-\$59,999	66	16	7	1	0	0
\$60,000-\$79,999	40	19	8	5	1	2
\$80,000-\$99,999	62	16	3	4	0	0
\$100,000 or more	130	33	3	6	3	1

Table 3d. Miles traveled to purchase fresh produce by cultural heritage (N=531)

Cultural Heritage	Miles traveled to purchase fresh produce					
	0-10	11-20	21-30	31-40	41-50	51 or more
African American	39	11	0	0	0	1
African born	0	0	0	0	0	0
Alaska Native	0	0	0	0	0	0
Native American	4	0	0	0	0	0
Asian	5	1	1	0	0	0
Caucasian	303	88	23	17	4	3
Latino	6	1	2	1	0	0
Middle Eastern	1	0	0	0	0	0
Native Hawaiian	1	0	0	0	0	0
Other	11	3	3	1	0	1

Food dollars spent per month data

From the study findings in Table 4a, the majority of females spent \$101-300 per month on food (N = 145) and \$301-500 monthly (N = 162). The majority of male respondents spent \$101-300 per month on food (N = 48) and \$301-500 monthly (N = 39). Additional study findings related to food dollars spent monthly by income, age, and cultural income are depicted in this section.

Table 4a. Dollars spent per month on food by gender (N=536)

Gender	Dollars Spent per Month on Food					
	\$0-100	\$101-300	\$301-500	\$501-800	\$801-1000	\$1001-3000
Male	4	48	39	13	8	3
Female	14	145	162	72	22	6

Table 4b. Dollars spent per month on food by income (N=528)

Income	Dollars spent per month on food					
	\$0-100	\$101-300	\$301-500	\$501-800	\$801-1000	\$1001-3000
Less than \$20,000	3	11	6	2	0	0
\$20,000-\$39,999	3	38	15	3	0	0
\$40,000-\$59,999	7	40	34	6	2	0
\$60,000-\$79,999	1	26	31	13	3	0
\$80,000-\$99,999	1	24	40	14	6	0
\$100,000 or more	1	39	66	42	18	9

Table 4c. Dollars spent per month on food by age (N=534)

Age	Dollars Spent per Month on Food					
	\$0-100	\$101-300	\$301-500	\$501-800	\$801-1000	\$1001-3000
18-24	3	4	2	1	0	0
25-44	2	37	47	18	11	7
45-64	7	95	113	44	14	2
65 and above	7	56	38	21	5	0

Table 4d. Dollars spent per month on food by cultural heritage (N=526)

Cultural Heritage	Dollars Spent per Month on Food					
	\$0-100	\$101-300	\$301-500	\$501-800	\$801-1000	\$1001-3000
African American	2	23	21	4	1	0
African born	0	0	0	0	0	0
Alaska Native	0	0	0	0	0	0
Native American	0	1	2	1	0	0
Asian	0	3	3	1	0	0
Caucasian	16	150	157	75	27	9
Latino	1	3	5	0	0	0
Middle Eastern	0	0	1	0	0	0
Native Hawaiian	0	1	0	0	0	0
Other	0	9	8	1	1	0

Additional study graphics

In the sections to follow, additional study graphics are included that can be used by educators in posters, slide presentations, and written communications to inform Virginia food producers regarding local food data that may enhance local food sales through improved product labeling or market outlet placement in Virginia communities. The appendices section contains a list of tables (Appendix A) and list of figures (Appendix B).

Vegetable consumption demographics

Figure 4a. Vegetable consumption by gender (N=595)

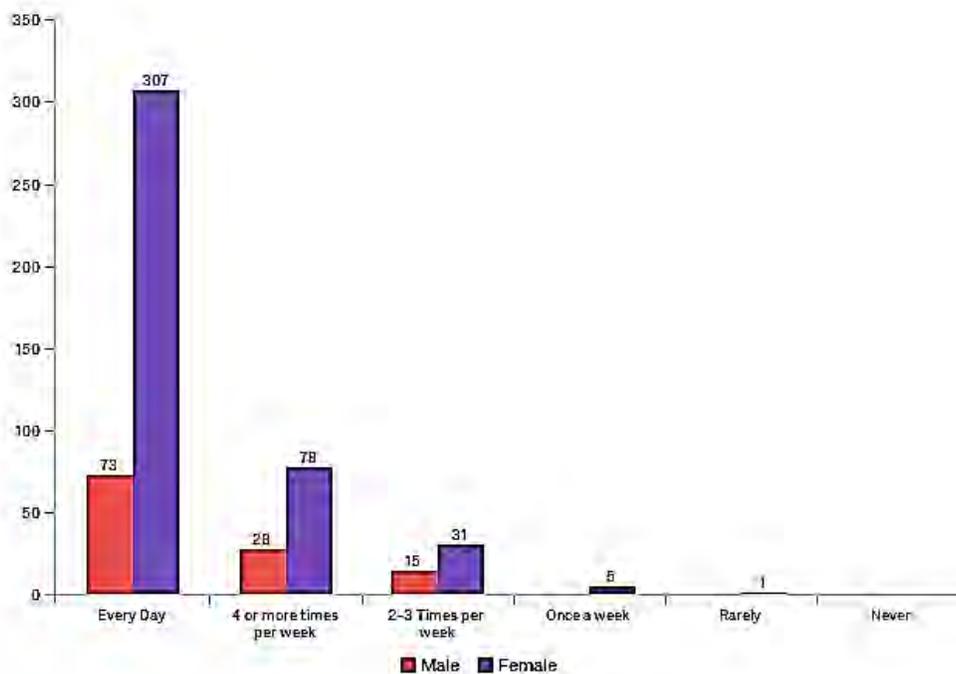


Figure 4b. Vegetable consumption by age (N=536)

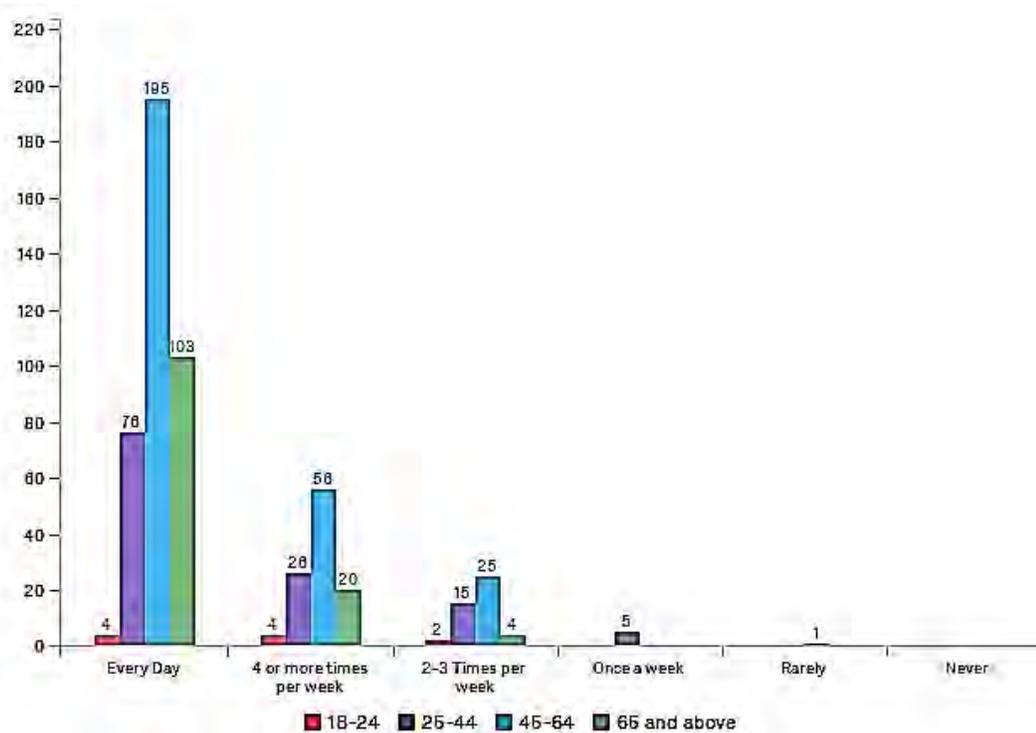
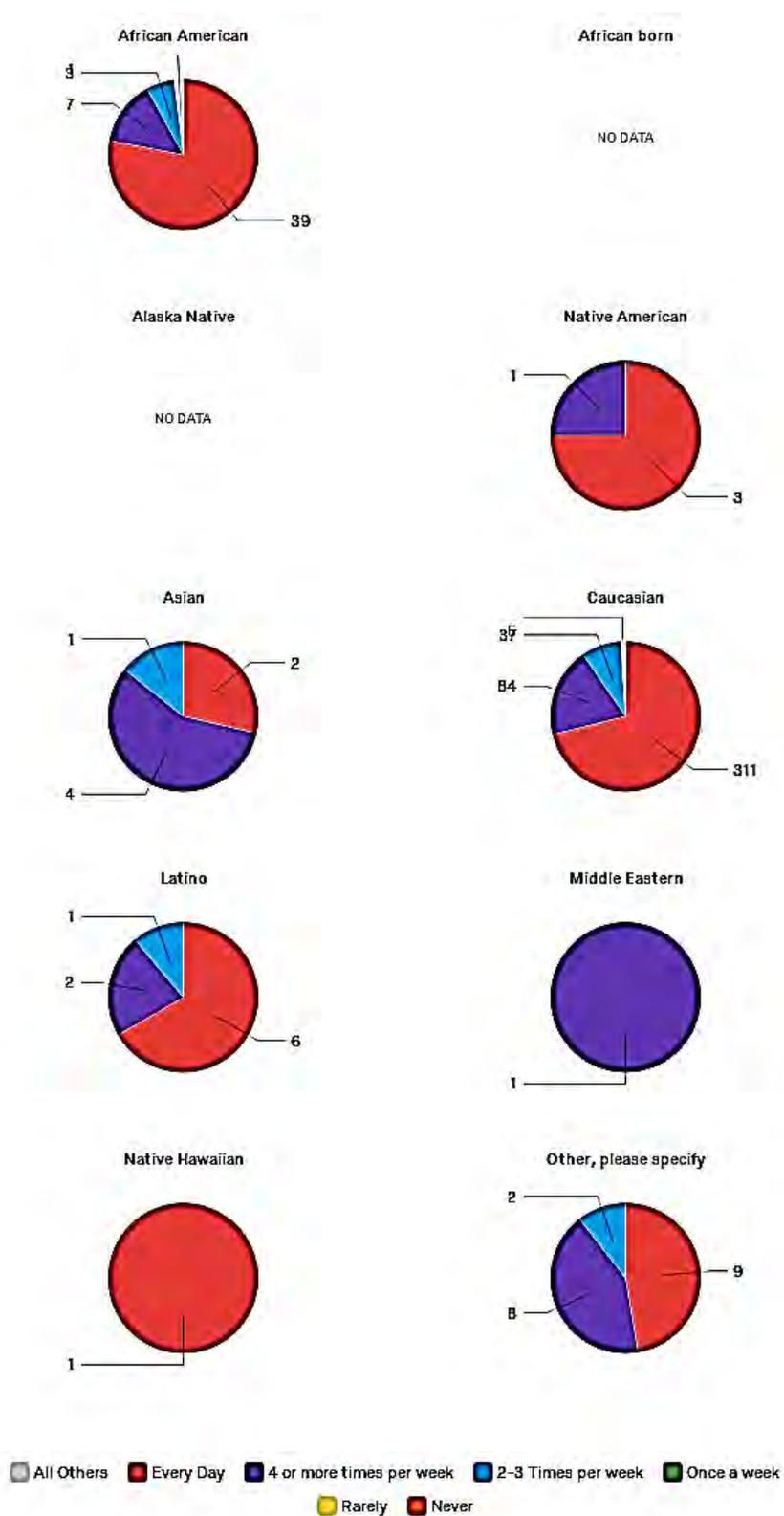


Figure 4c. Vegetable consumption by cultural heritage (N=528)



Fruit consumption demographics

Figure 5a. Fruit consumption by gender (N=538)

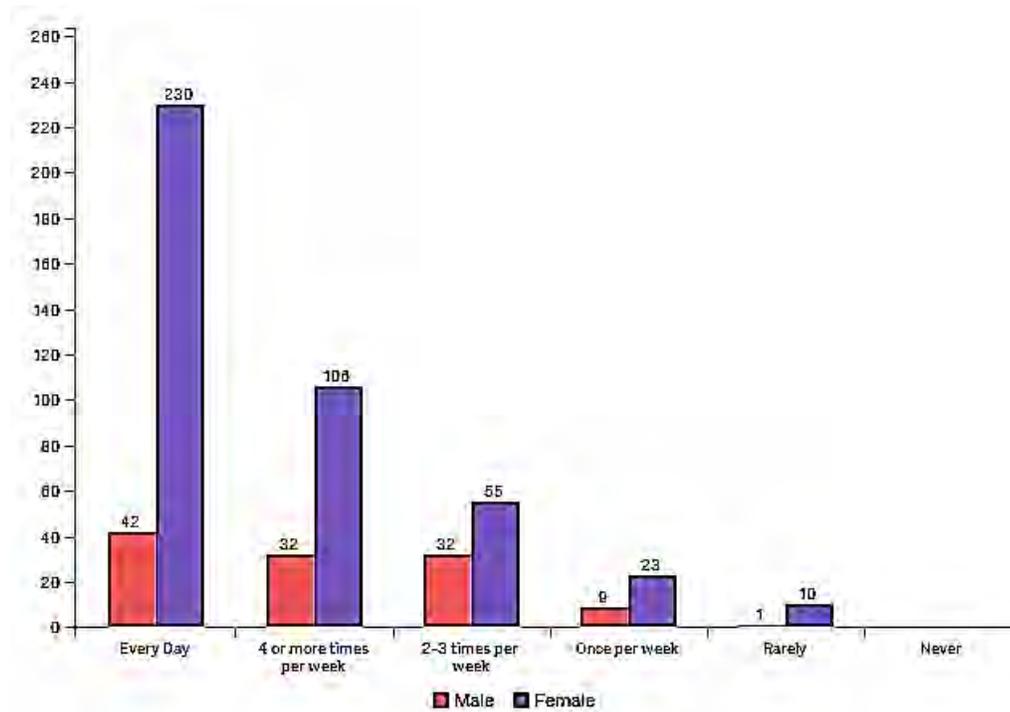


Figure 5b. Fruit consumption by age (N=538)

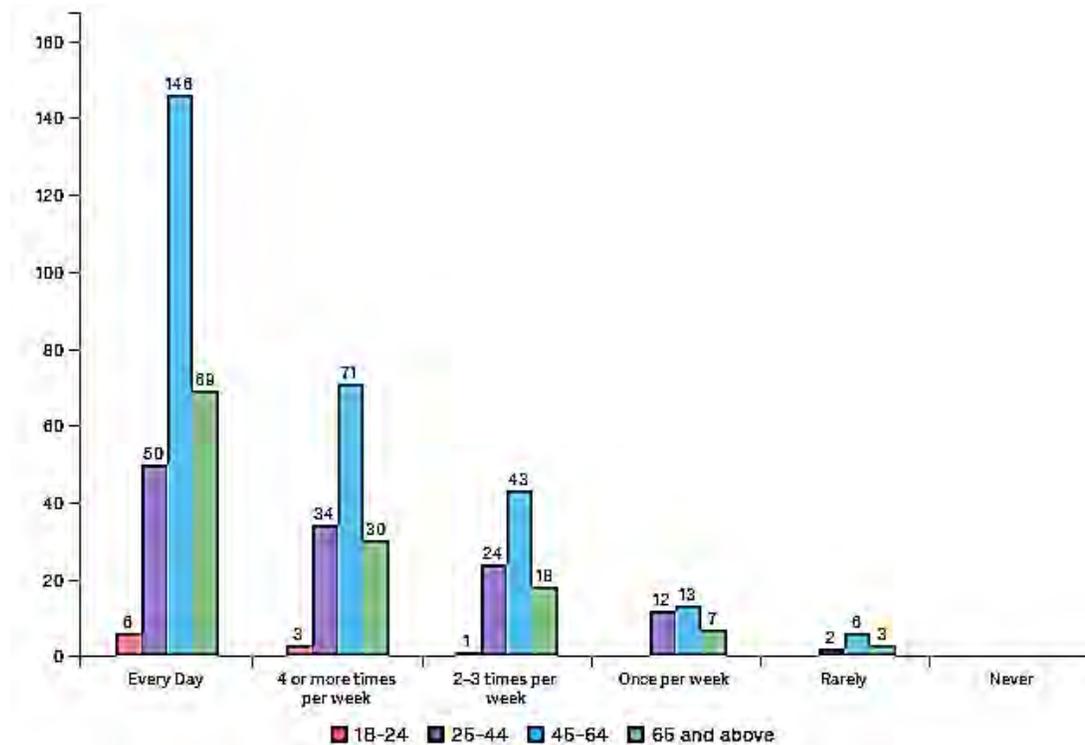
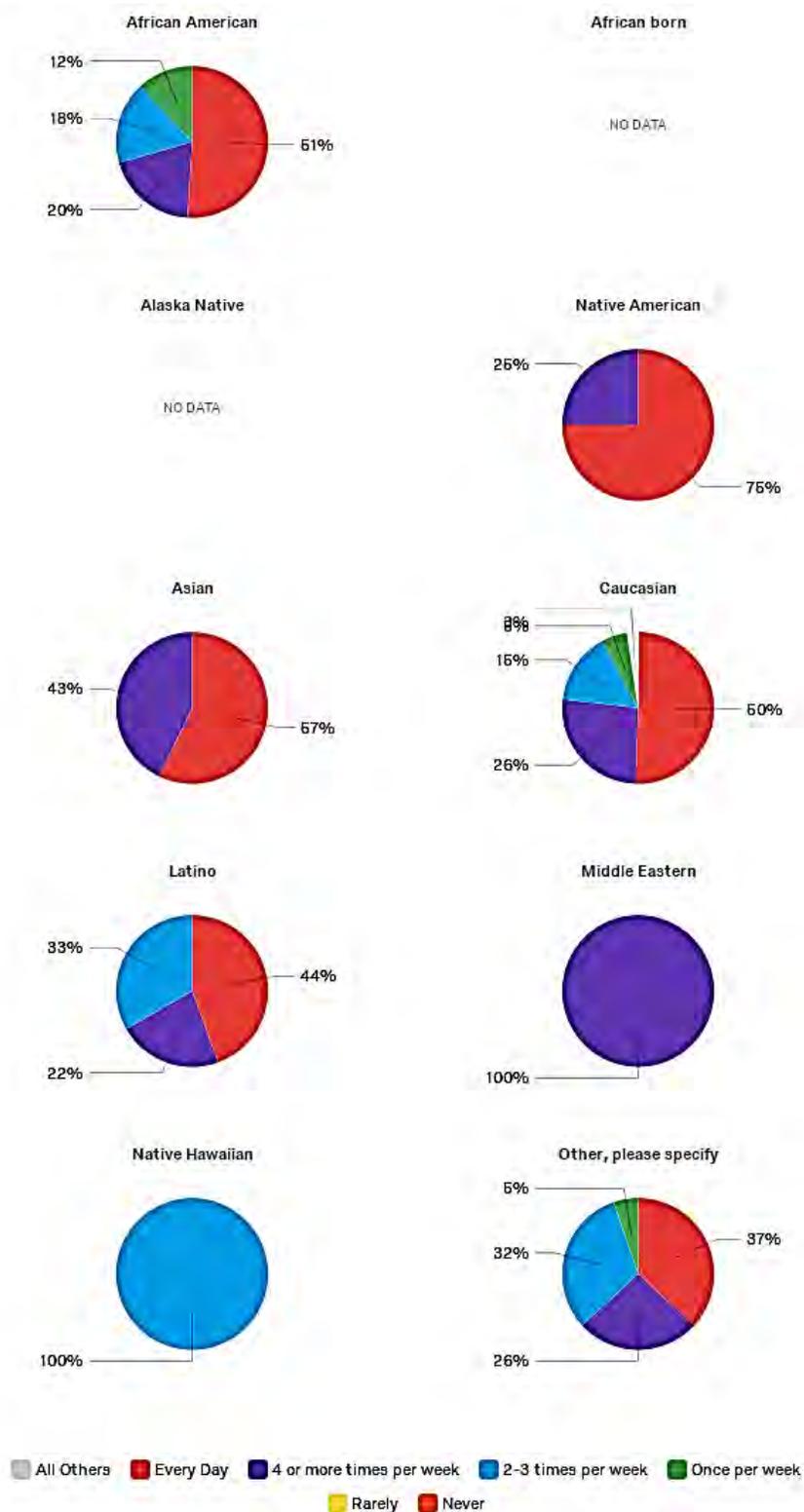


Figure 5c. Fruit consumption by cultural heritage (N=528)



Consumer motivation for eating food by demographic categories

Ease of preparation

Figure 6a. It is important that the food I eat each day is easy to prepare by gender

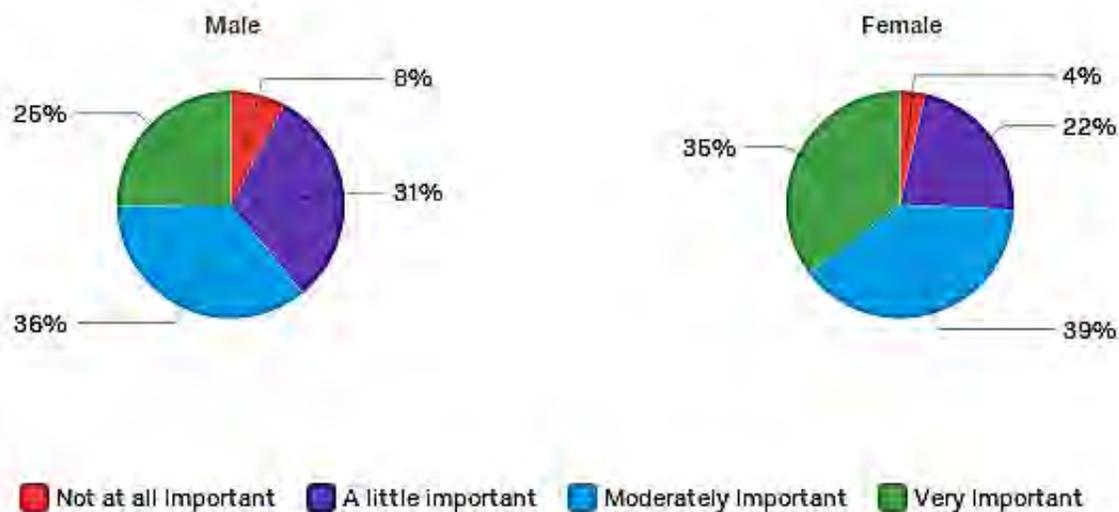


Figure 6b. It is important that the food I eat each day is easy to prepare by age

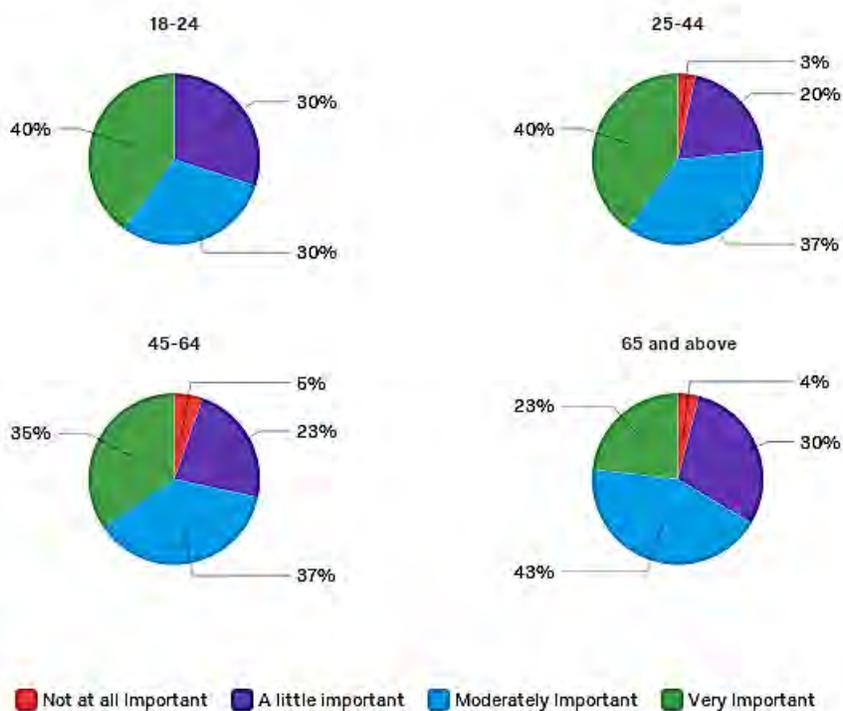


Figure 6c. It is important that the food I eat each day is easy to prepare by income



Figure 6d. It is important that the food I eat each day is easy to prepare by cultural heritage



Not expensive

Figure 7a. It is important that the food I eat each day is not expensive by gender

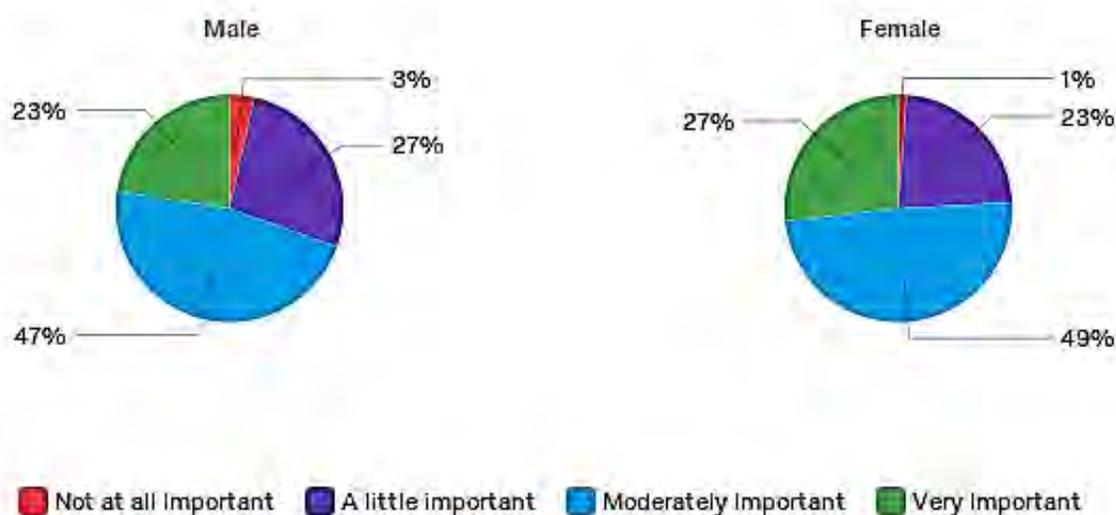


Figure 7b. It is important that the food I eat each day is not expensive by age

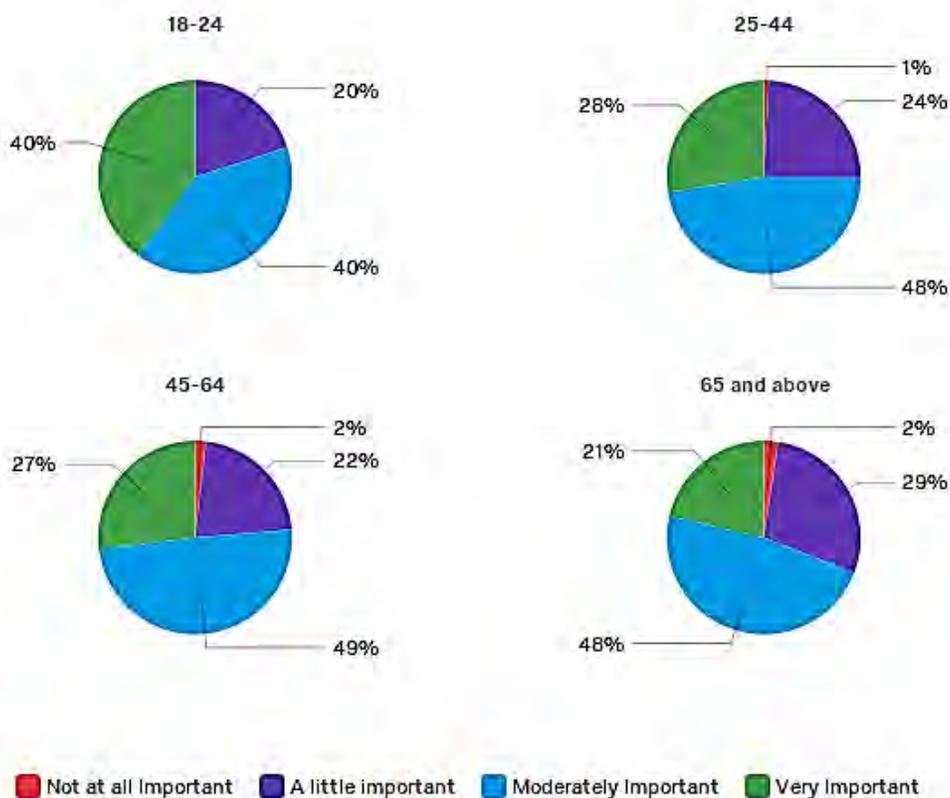


Figure 7c. It is important that the food I eat each day is not expensive by income

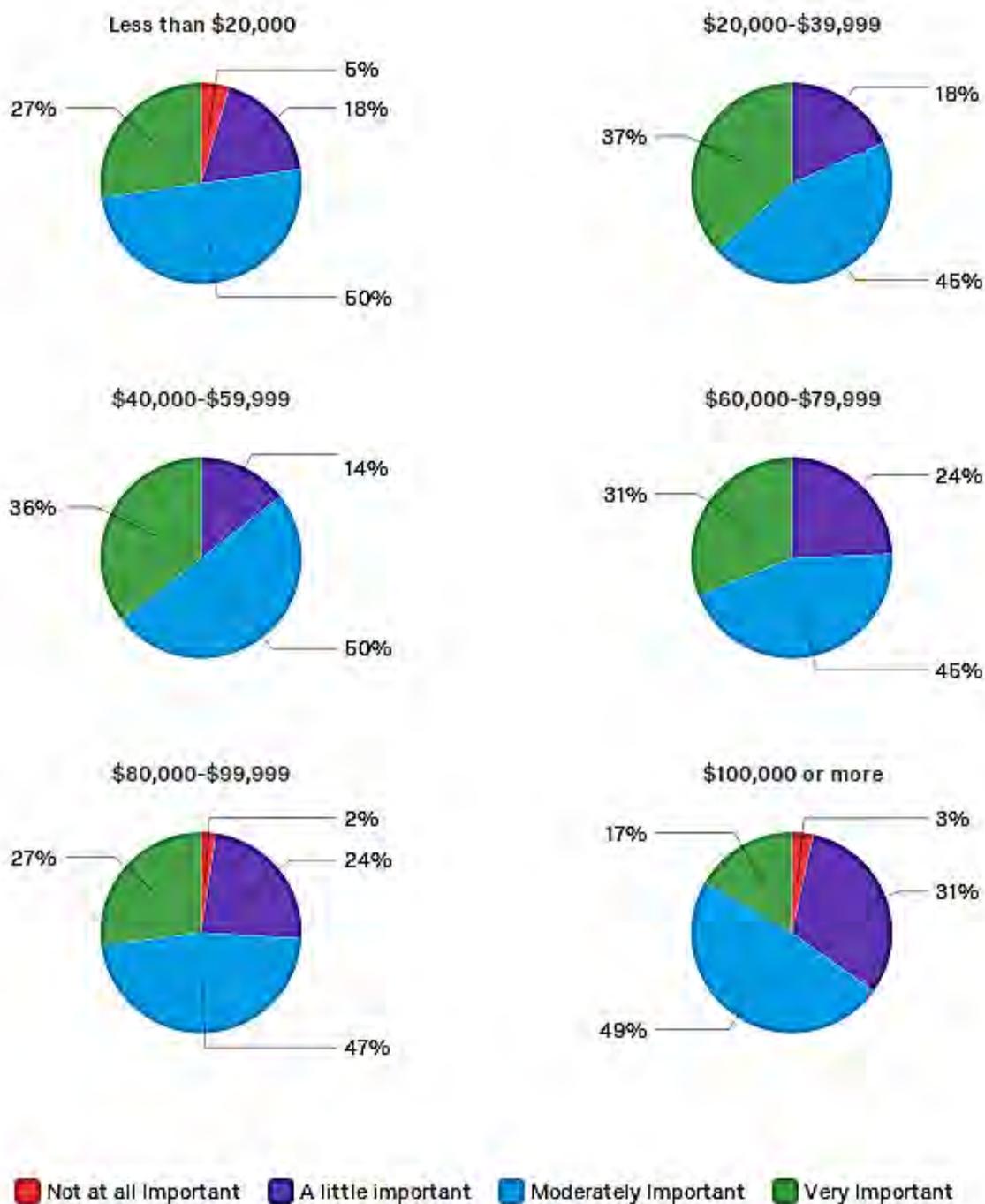
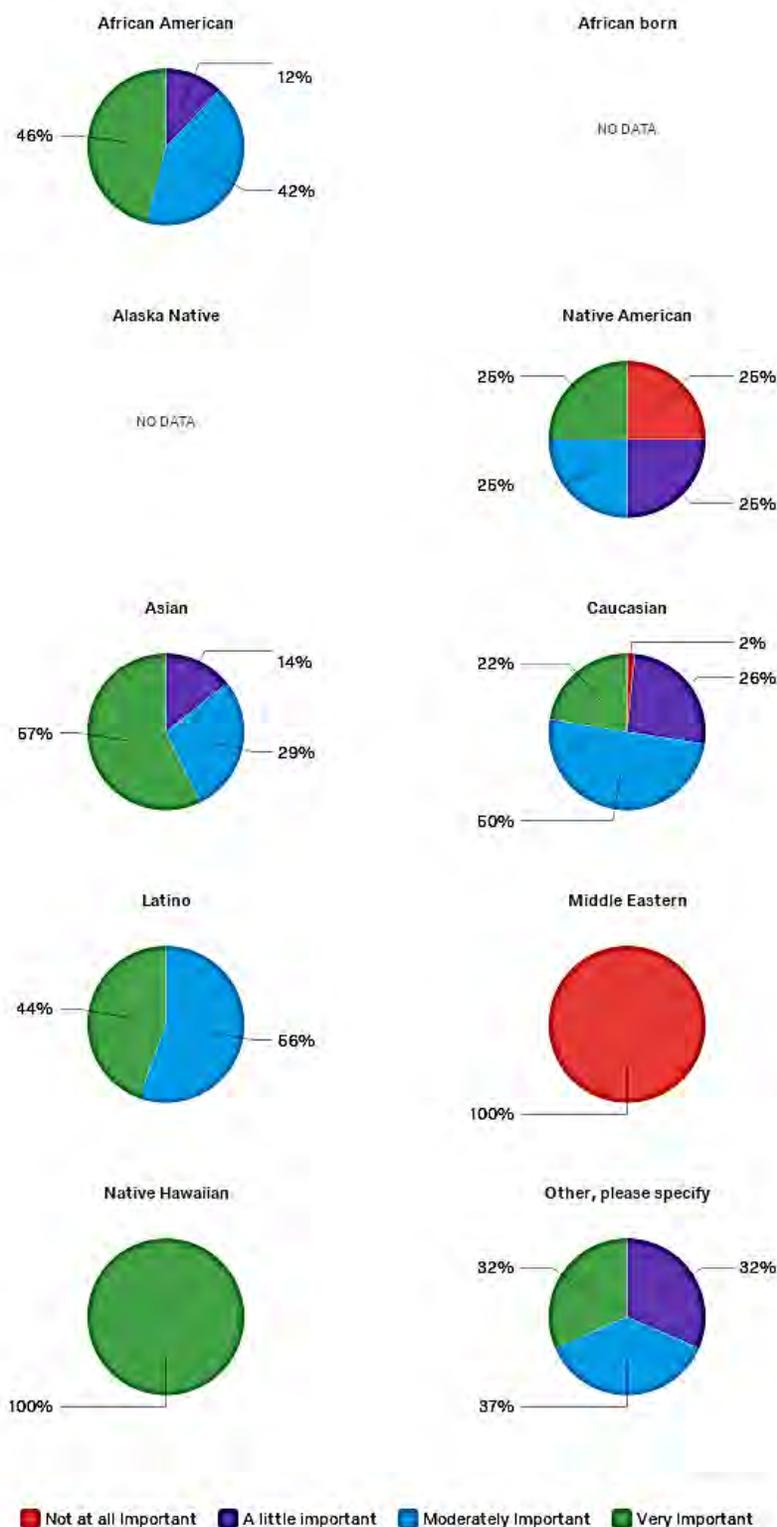


Figure 7d. It is important that the food I eat each day is not expensive by cultural heritage



Familiarity

Figure 8a. It is important that the food I eat each day is familiar by gender

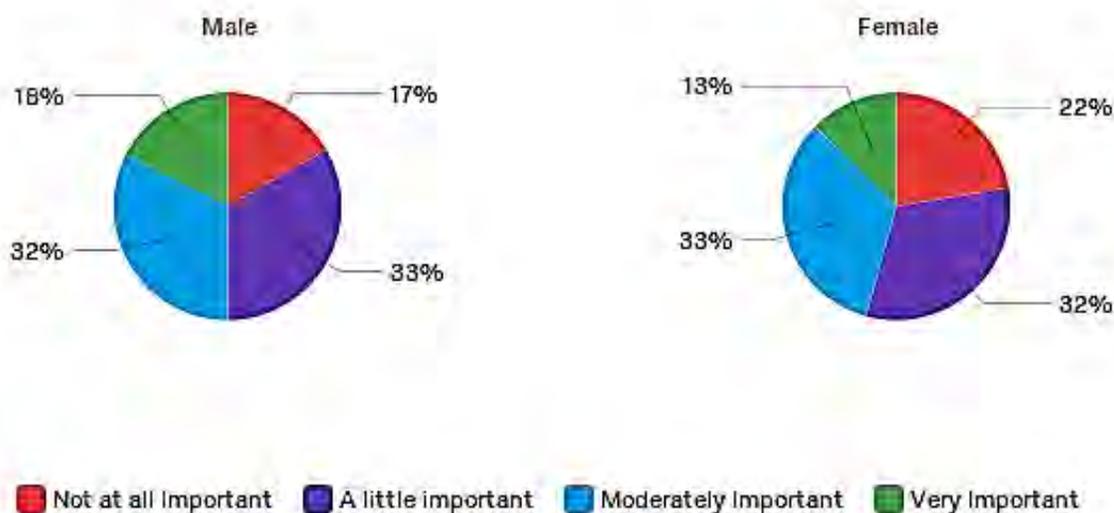


Figure 8b. It is important that the food I eat each day is familiar by age

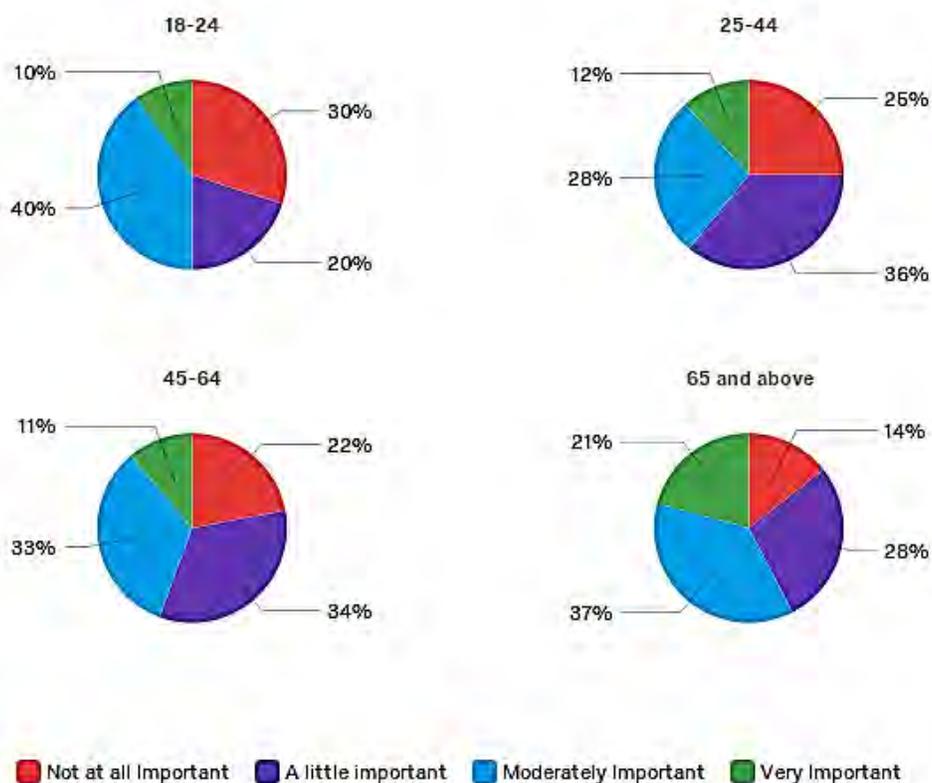


Figure 8c. It is important that the food I eat each day is familiar by income

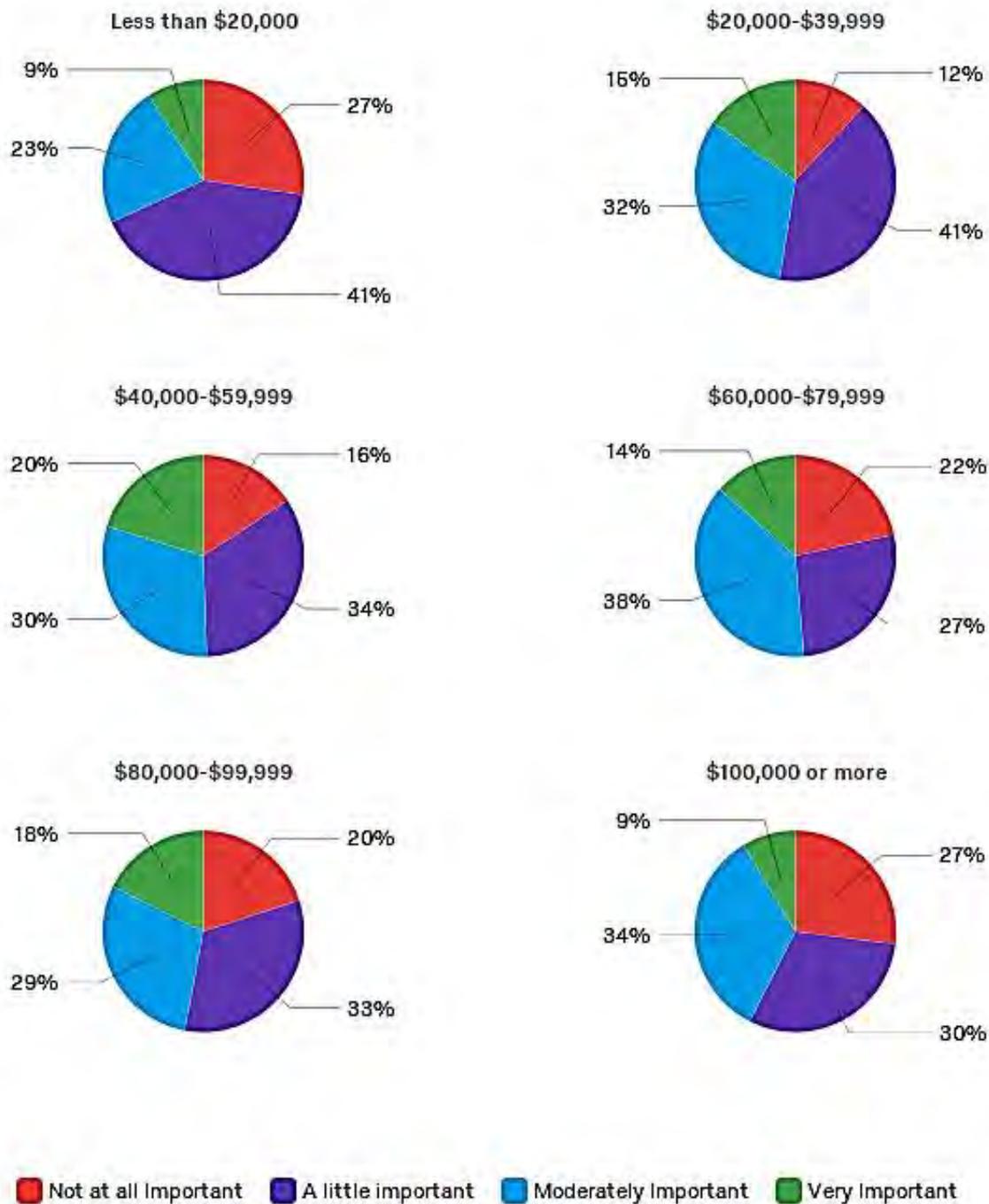


Figure 8d. It is important that the food I eat each day is not expensive by cultural heritage



No additives

Figure 9a. It is important that the food I eat each day contains no additives by gender

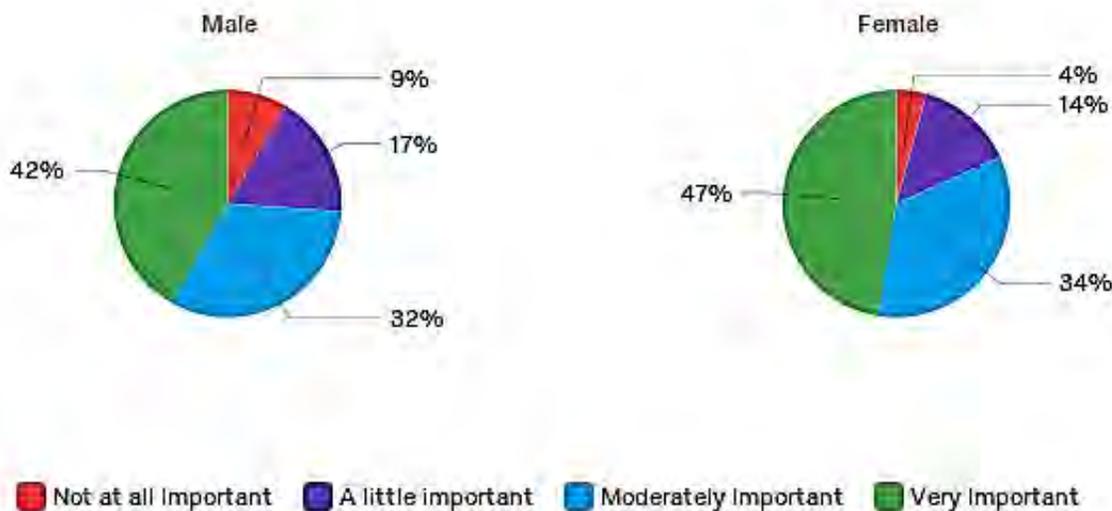


Figure 9b. It is important that the food I eat each day contains no additives by age

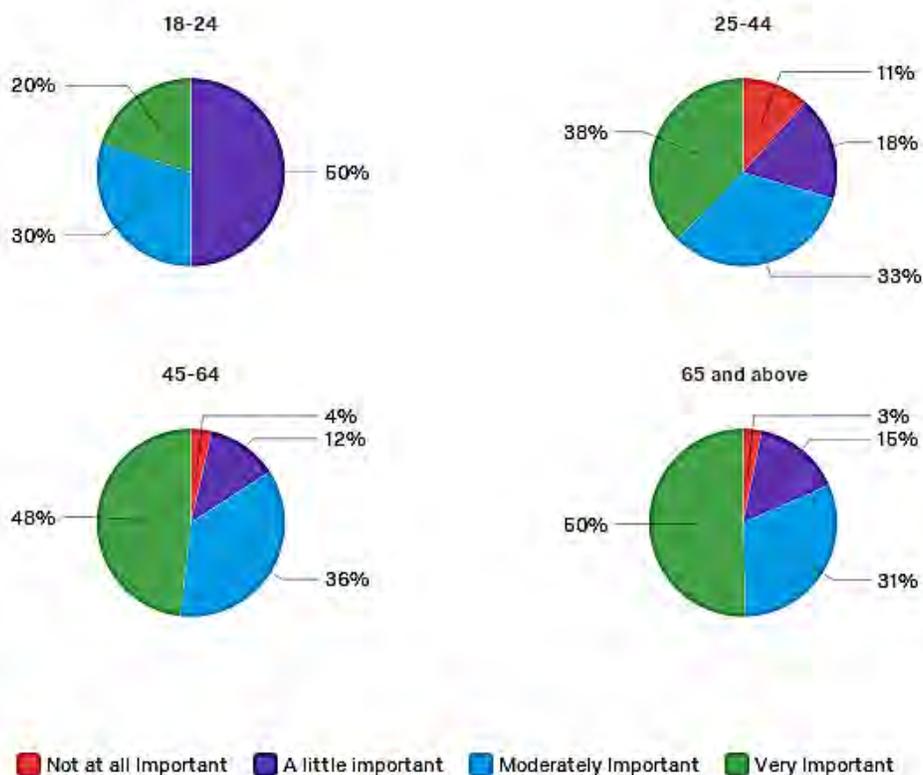
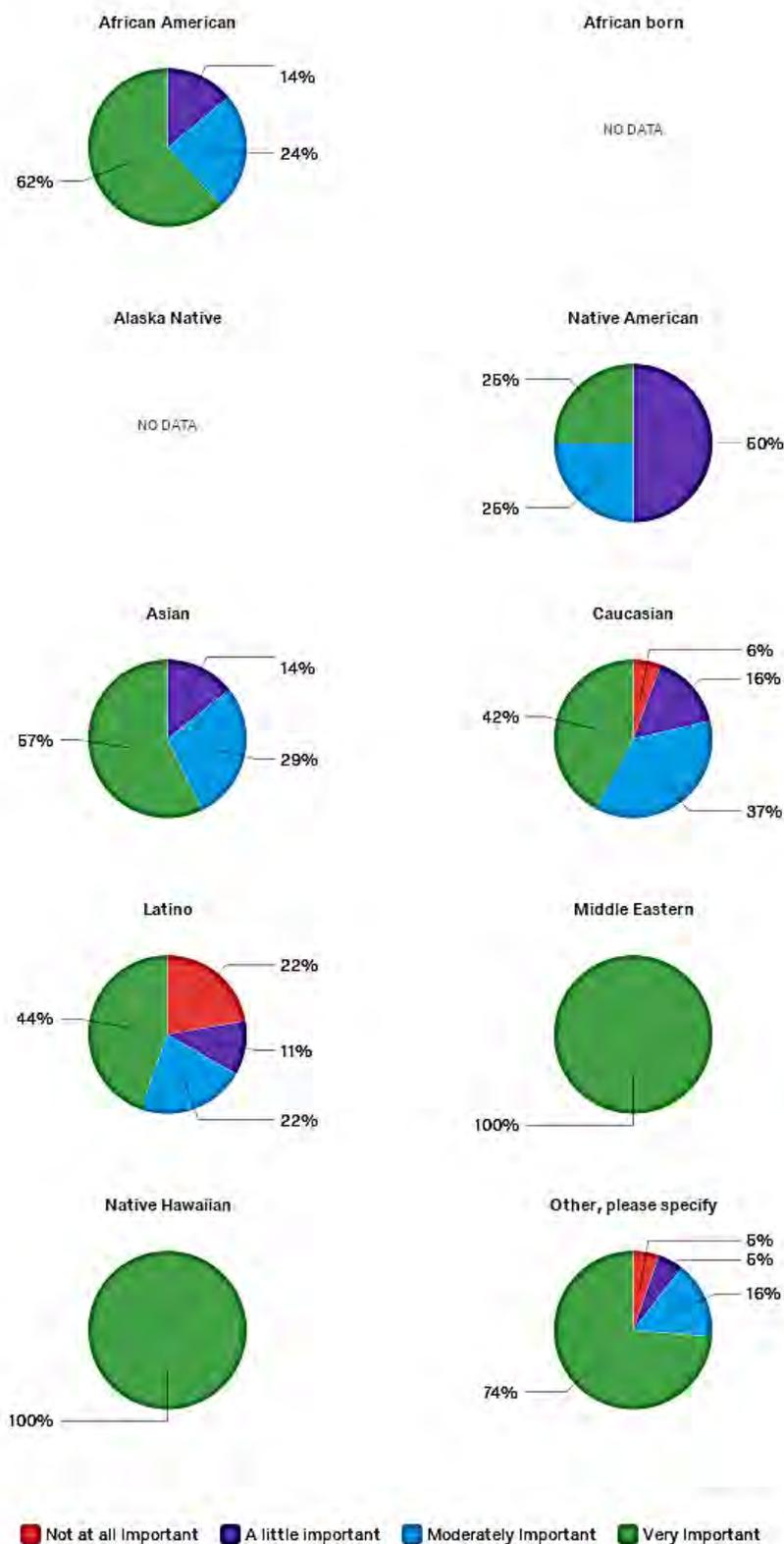


Figure 9c. It is important that the food I eat each day contains no additives by income



Figure 9d. It is important that the food I eat each day contains no additives by cultural heritage



Nutritious

Figure 10a. It is important that the food I eat each day is nutritious by gender

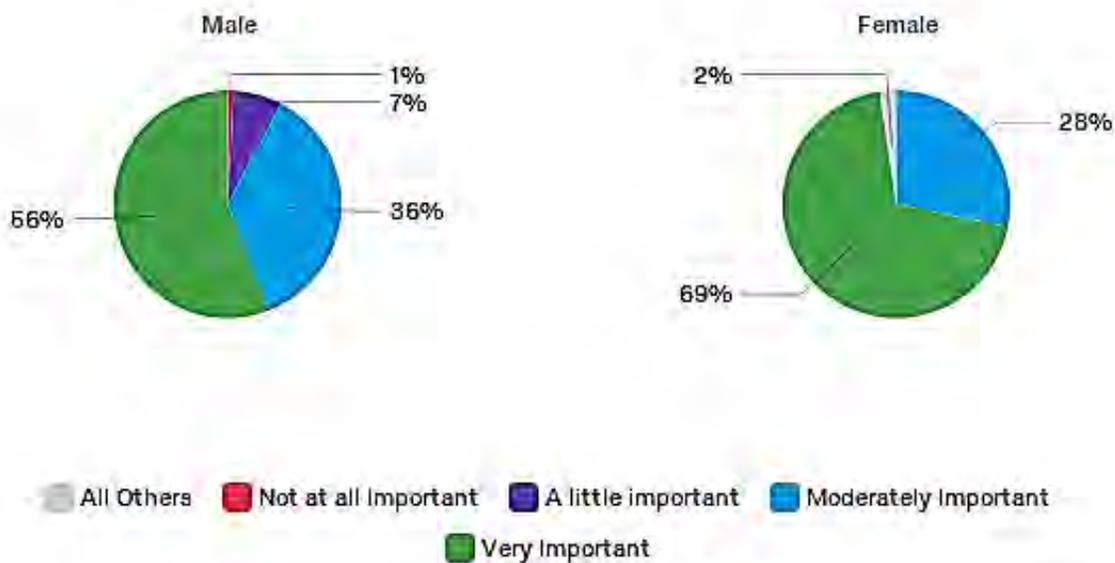


Figure 10b. It is important that the food I eat each day is nutritious by age

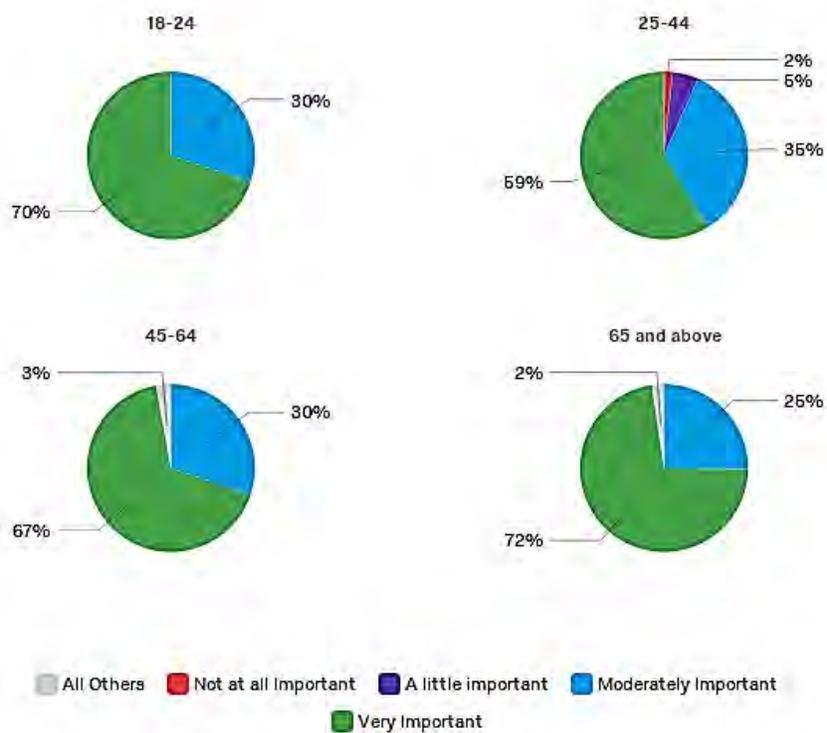
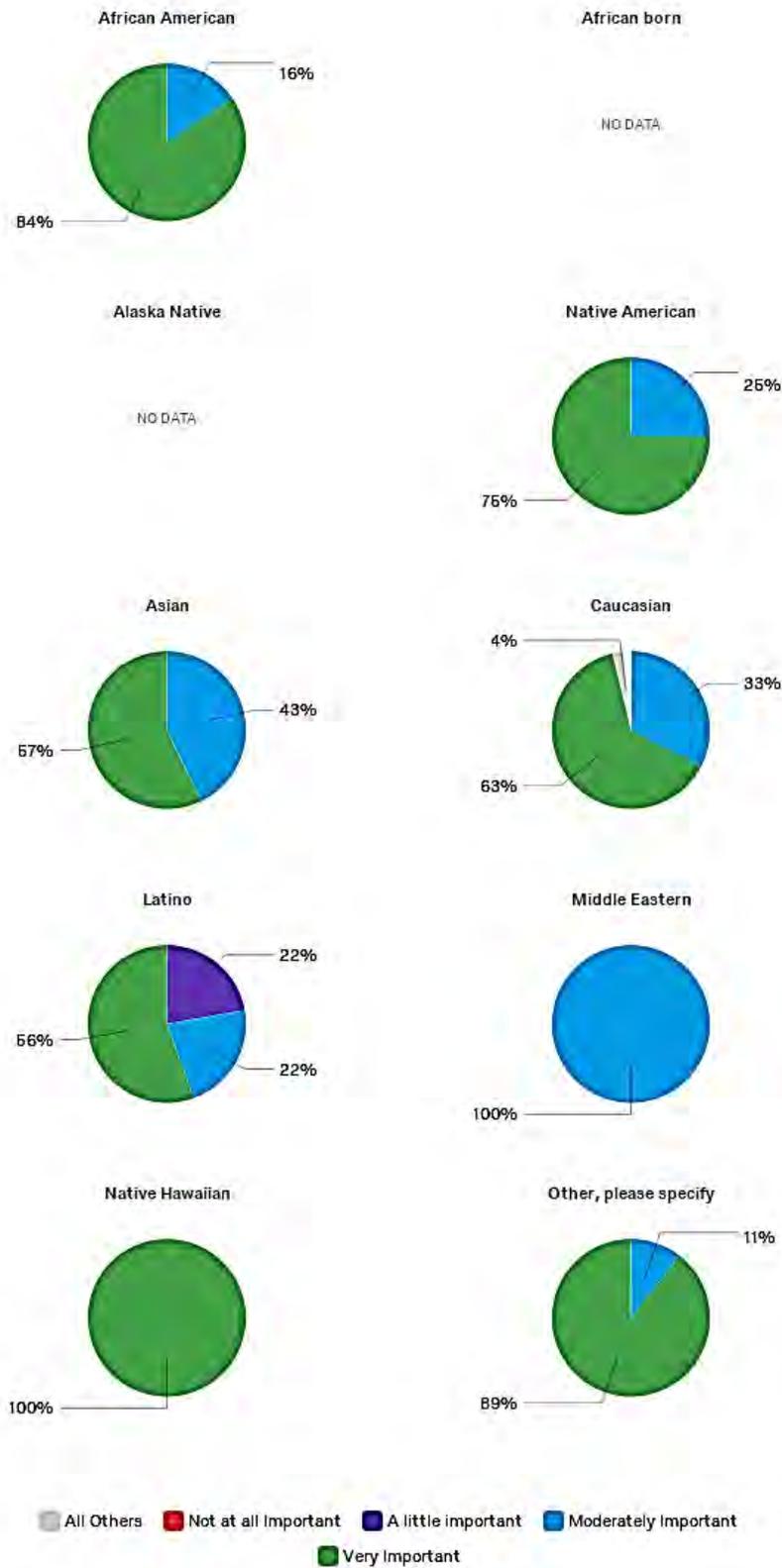


Figure 10c. It is important that the food I eat each day is nutritious by income



Figure 10d. It is important that the food I eat each day is nutritious by cultural heritage



Tastes good

Figure 11a. It is important that the food I eat each day tastes good by gender

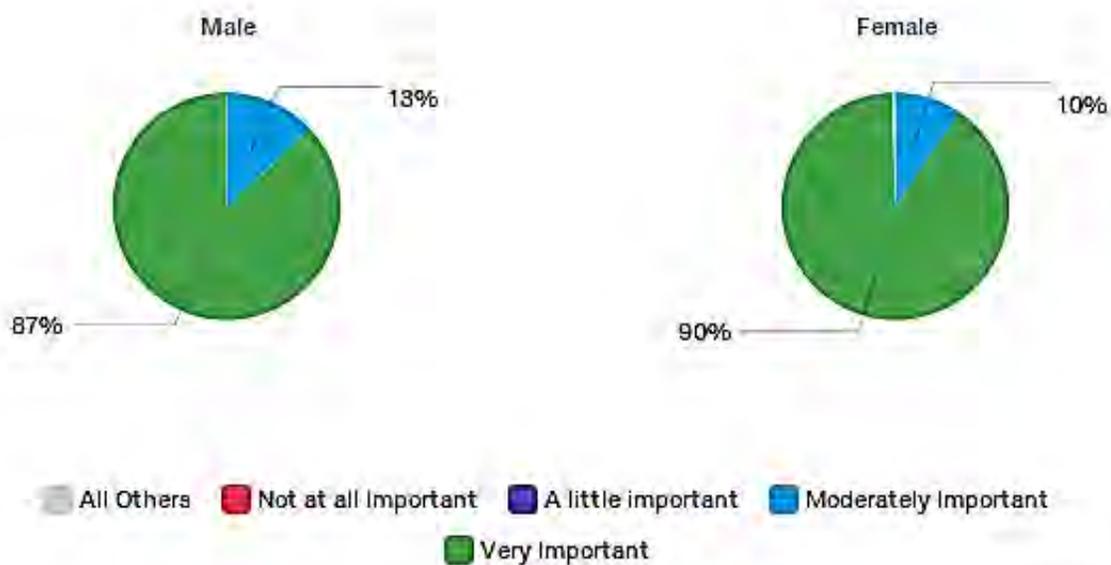


Figure 11b. It is important that the food I eat each day tastes good by age

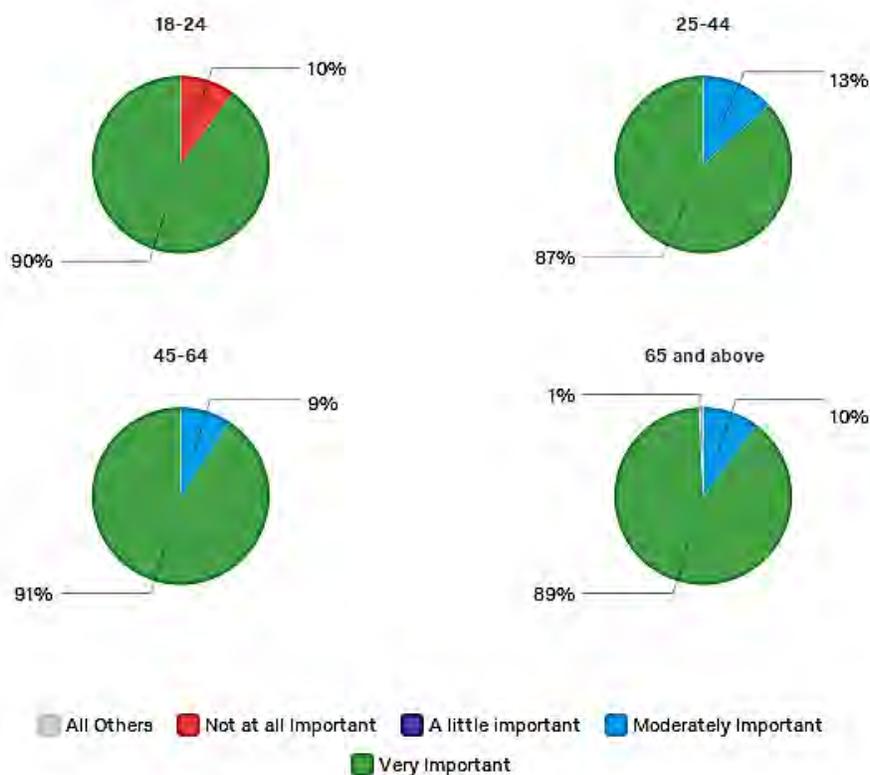


Figure 11c. It is important that the food I eat each day tastes good by income

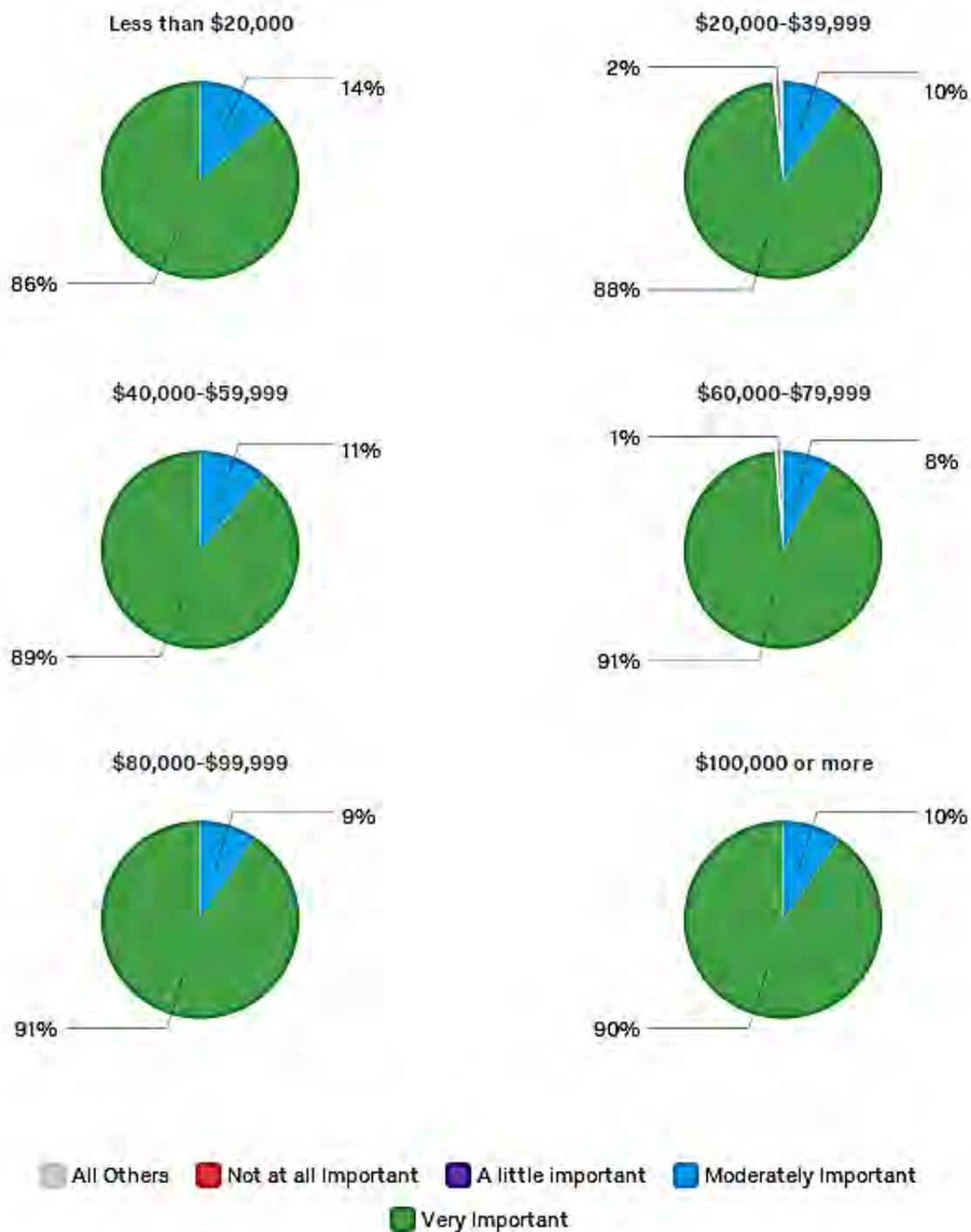
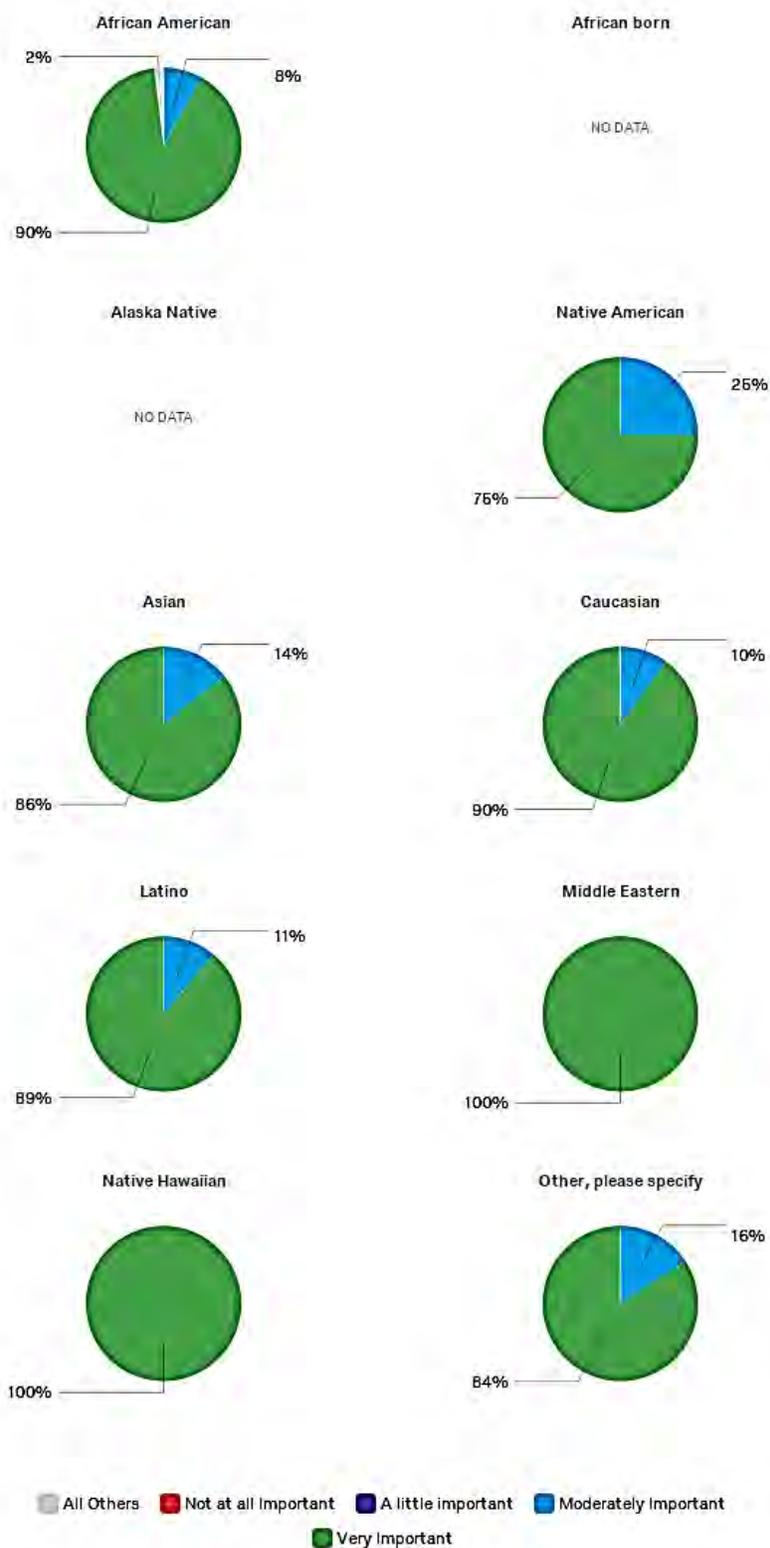


Figure 11d. It is important that the food I eat each day tastes good by cultural heritage



Ease of availability

Figure 12a. It is important that the food I eat each day is easily available in shops and supermarkets by gender

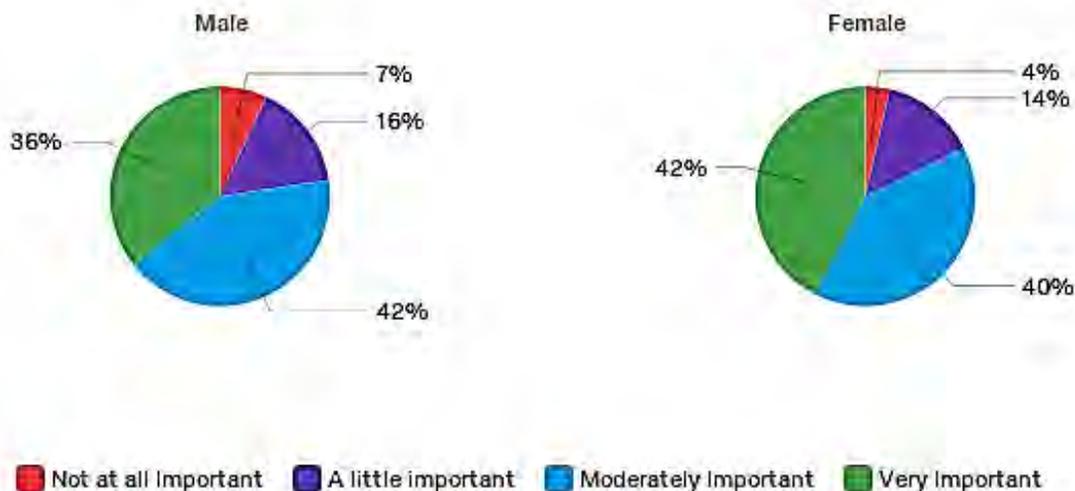


Figure 12b. It is important that the food I eat each day easily available in shops and supermarkets by age

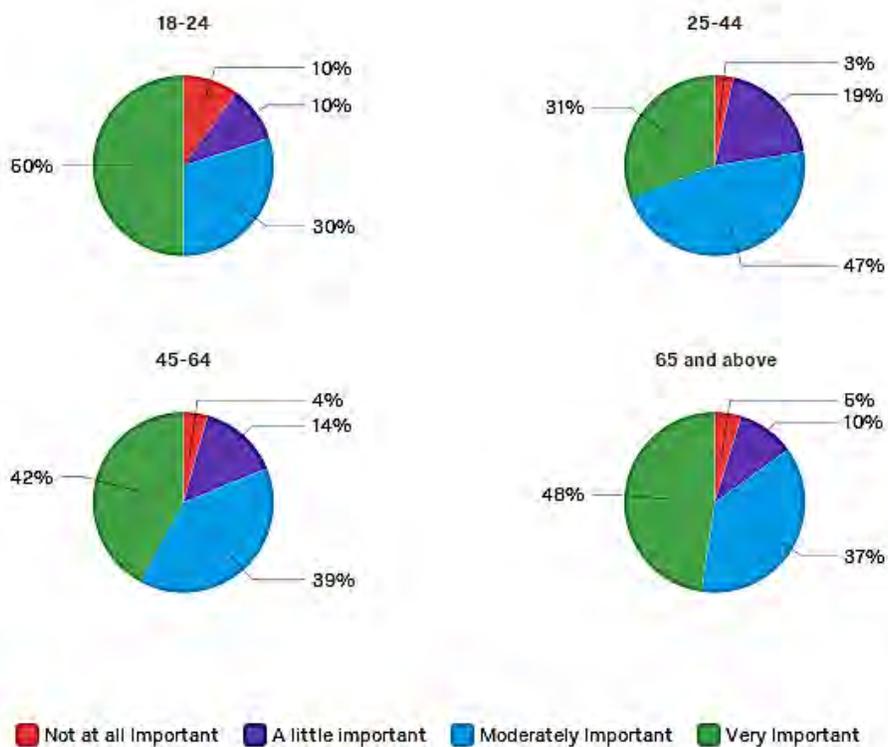


Figure 12c. It is important that the food I eat each day easily available in shops and supermarkets by income

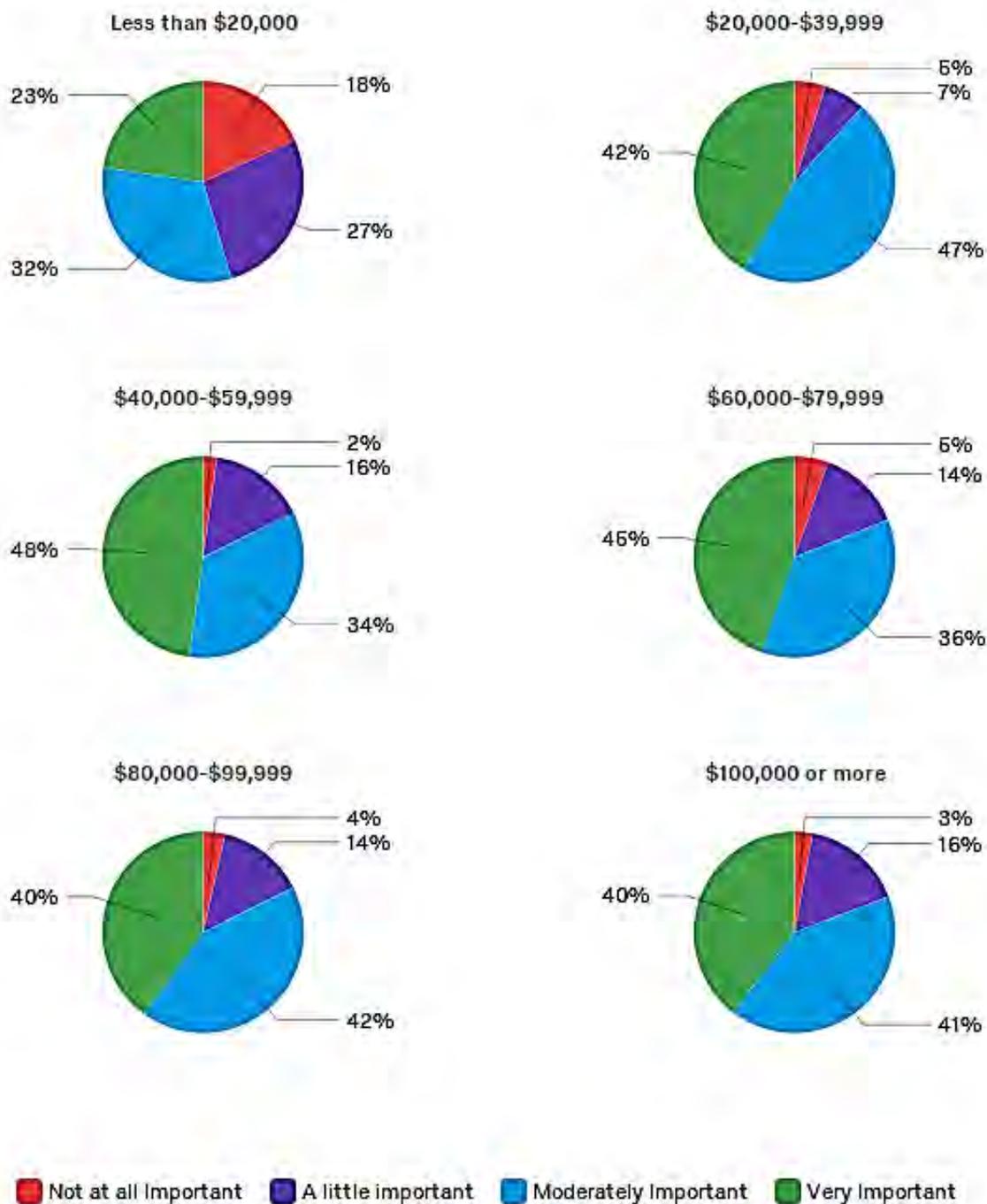
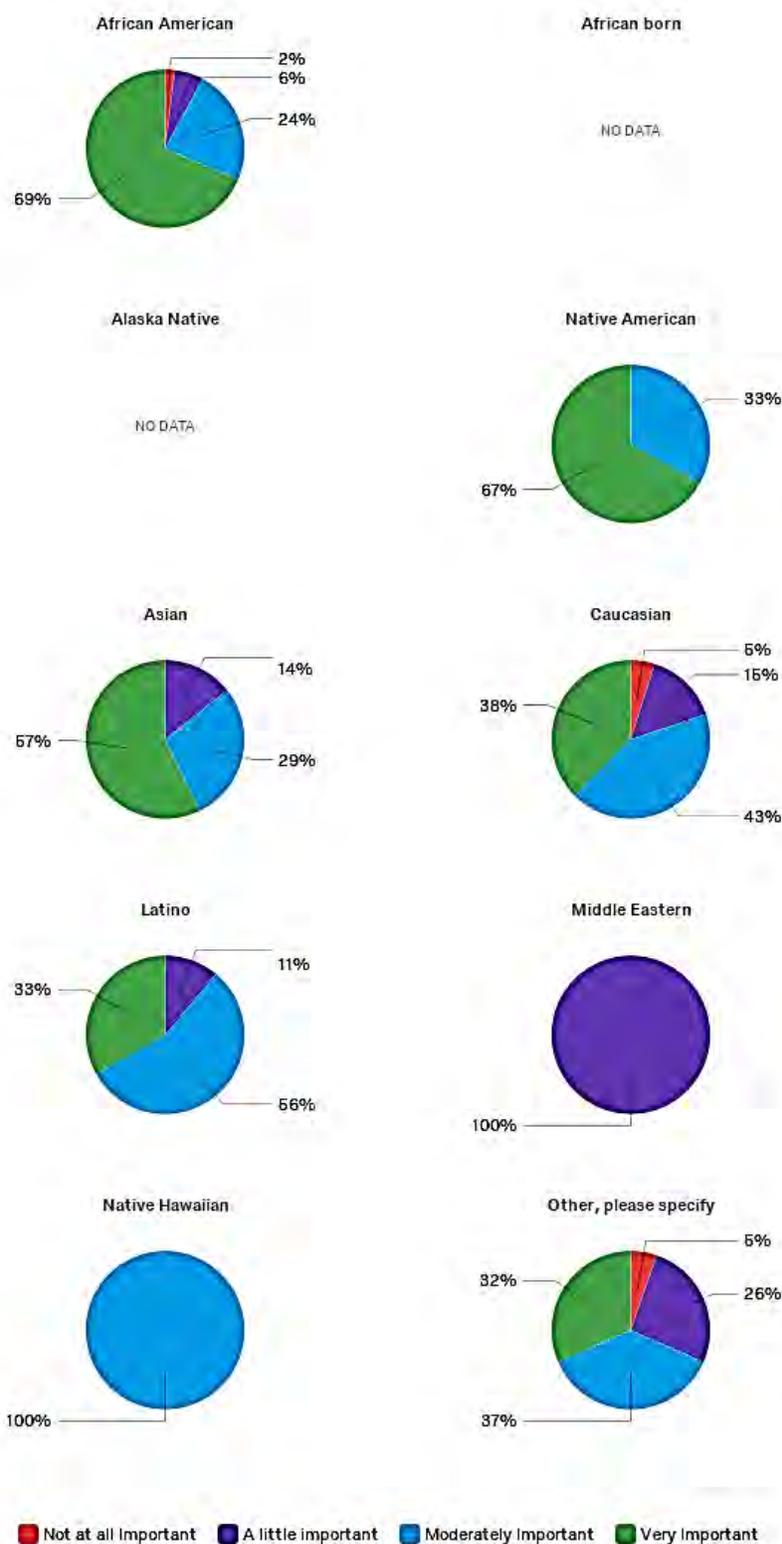


Figure 12d. It is important that the food I eat each day easily available in shops and supermarkets by cultural heritage



Good value

Figure 13a. It is important that the food I eat each day is a good value for the money by gender

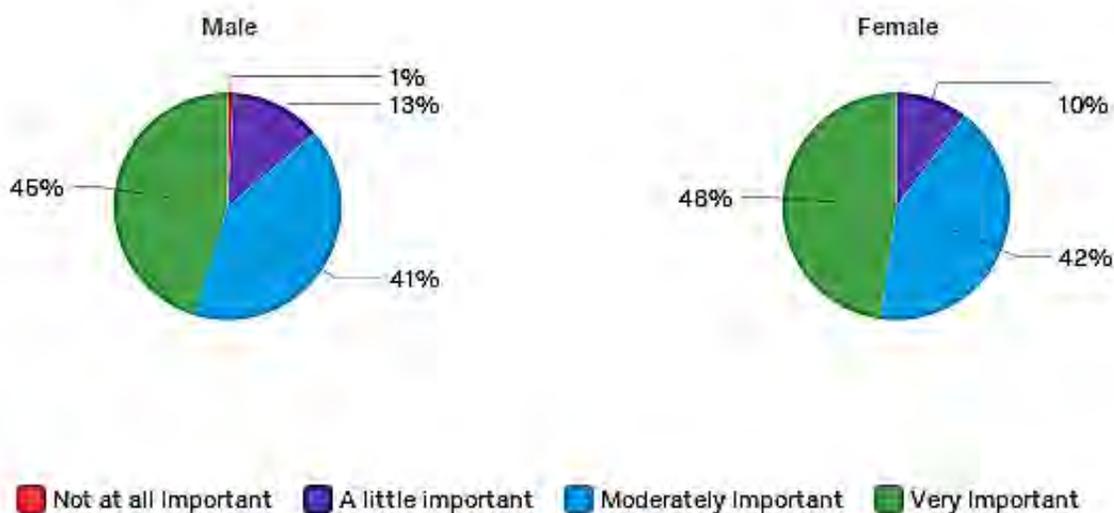


Figure 13b. It is important that the food I eat each day a good value for the money by age

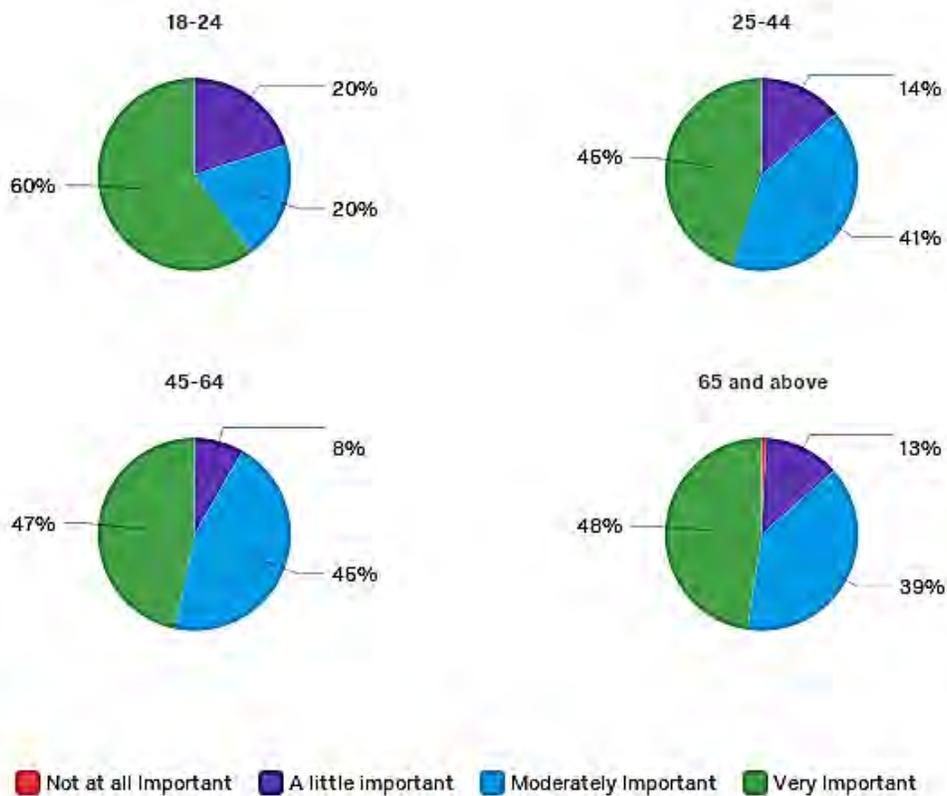


Figure 13c. It is important that the food I eat each day a good value for the money by income



Figure 13d. It is important that the food I eat each day a good value for the money by cultural heritage



Packaged in an environmentally friendly way

Figure 14a. It is important that the food I eat each day is packaged in an environmentally friendly way by gender

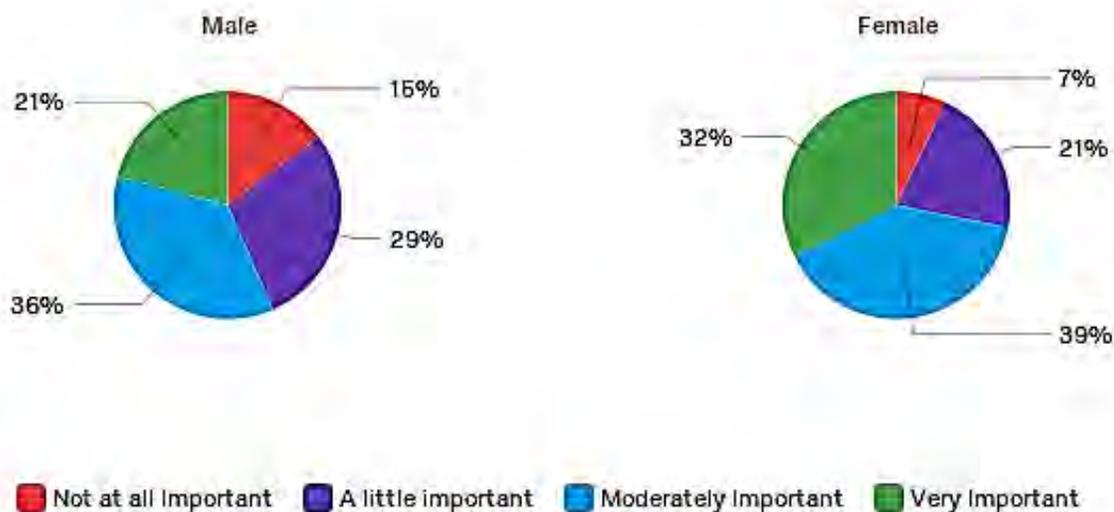


Figure 14b. It is important that the food I eat each day is packaged in an environmentally friendly way by age

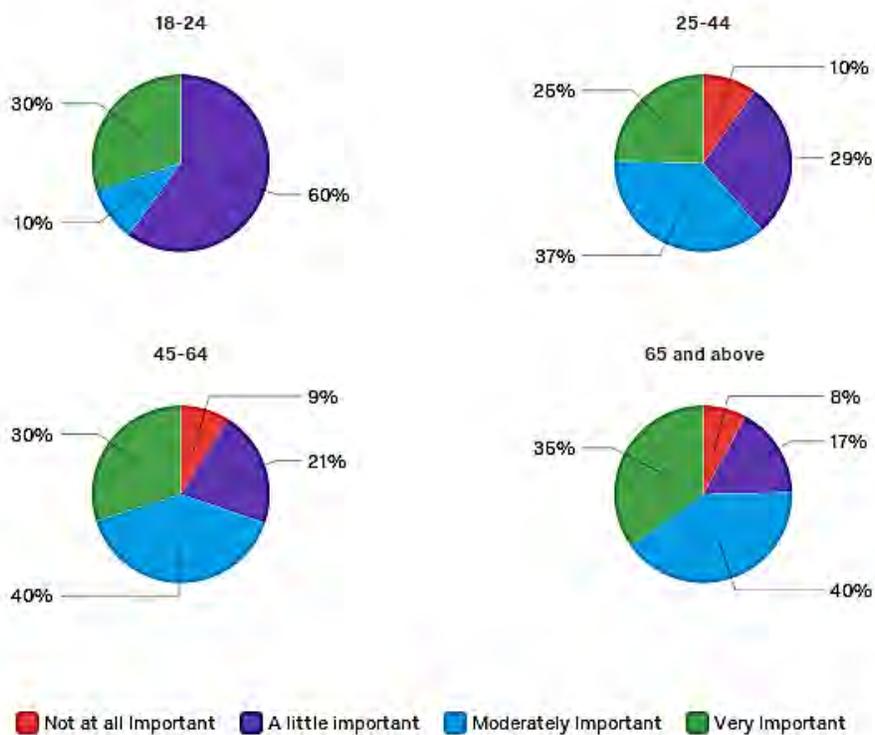
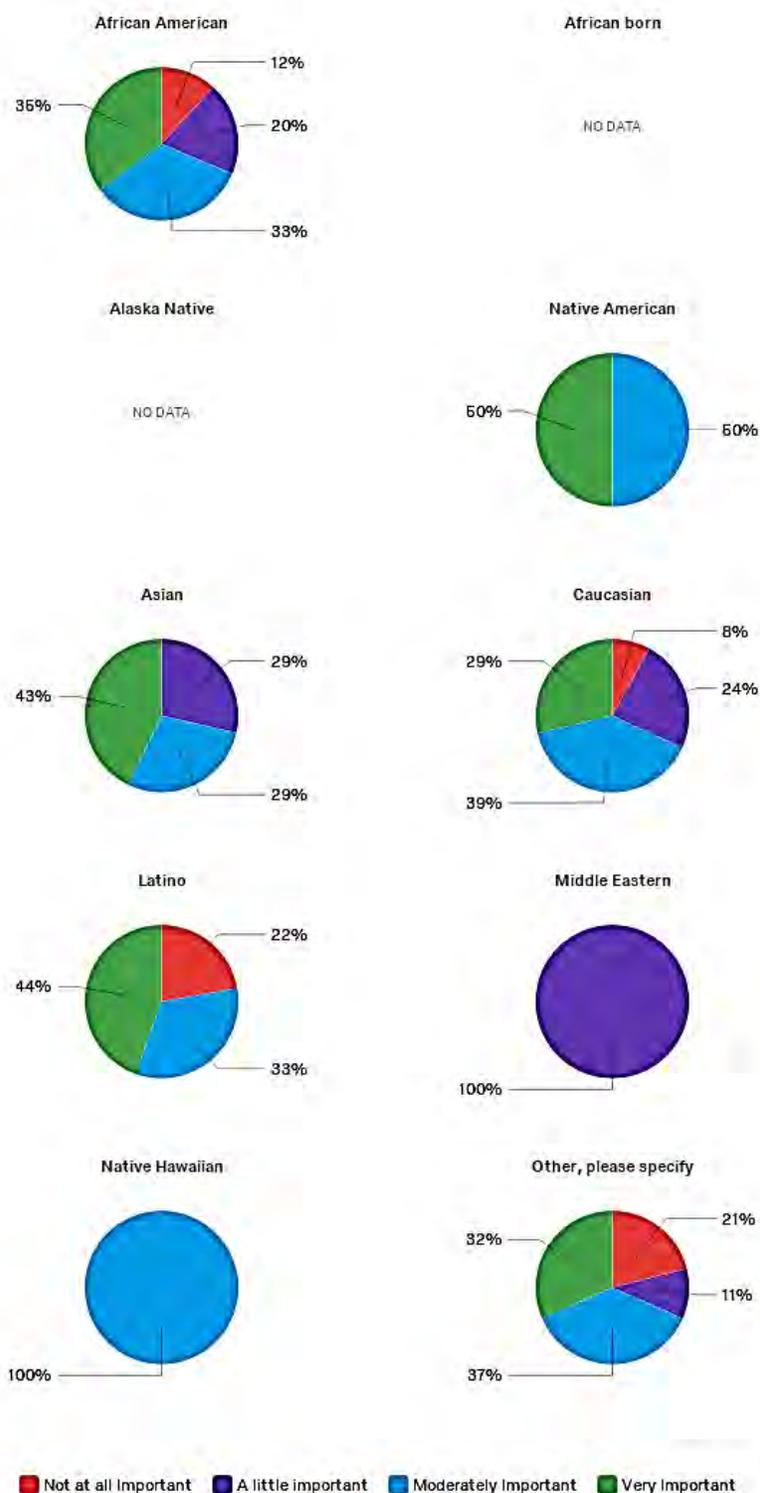


Figure 14c. It is important that the food I eat each day is packaged in an environmentally friendly way by income



Figure 14d. It is important that the food I eat each day is packaged in an environmentally friendly way by cultural heritage



From countries approved of politically

Figure 15a. It is important that the food I eat each day comes from countries I approve of politically by gender

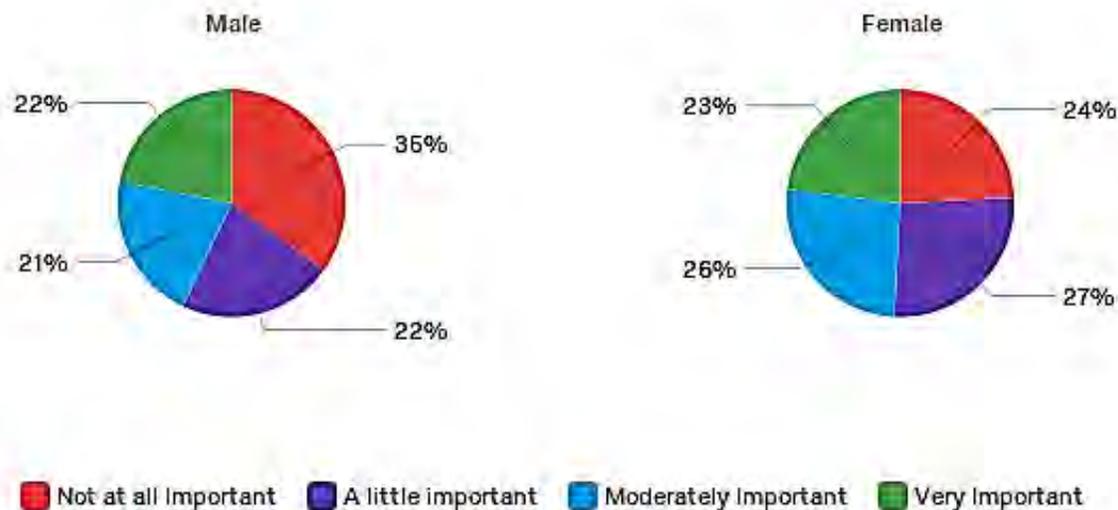


Figure 15b. It is important that the food I eat each day comes from countries I approve of politically by age

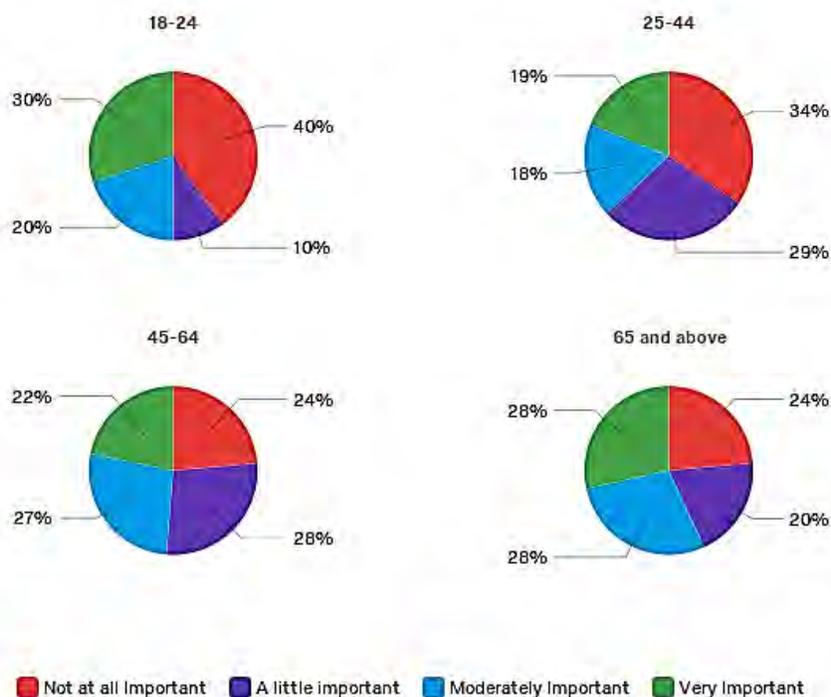


Figure 15c. It is important that the food I eat each day comes from countries I approve of politically by income

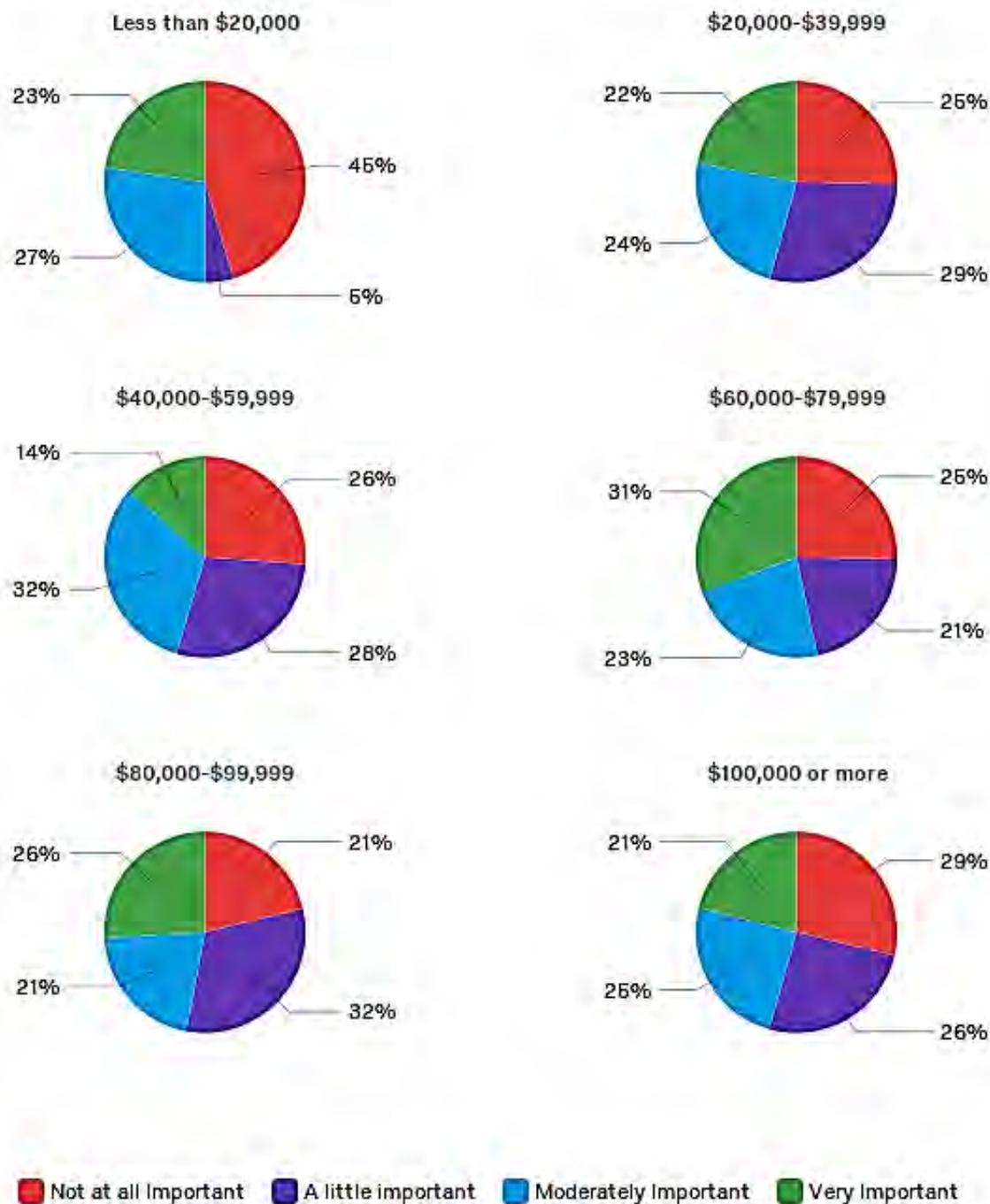
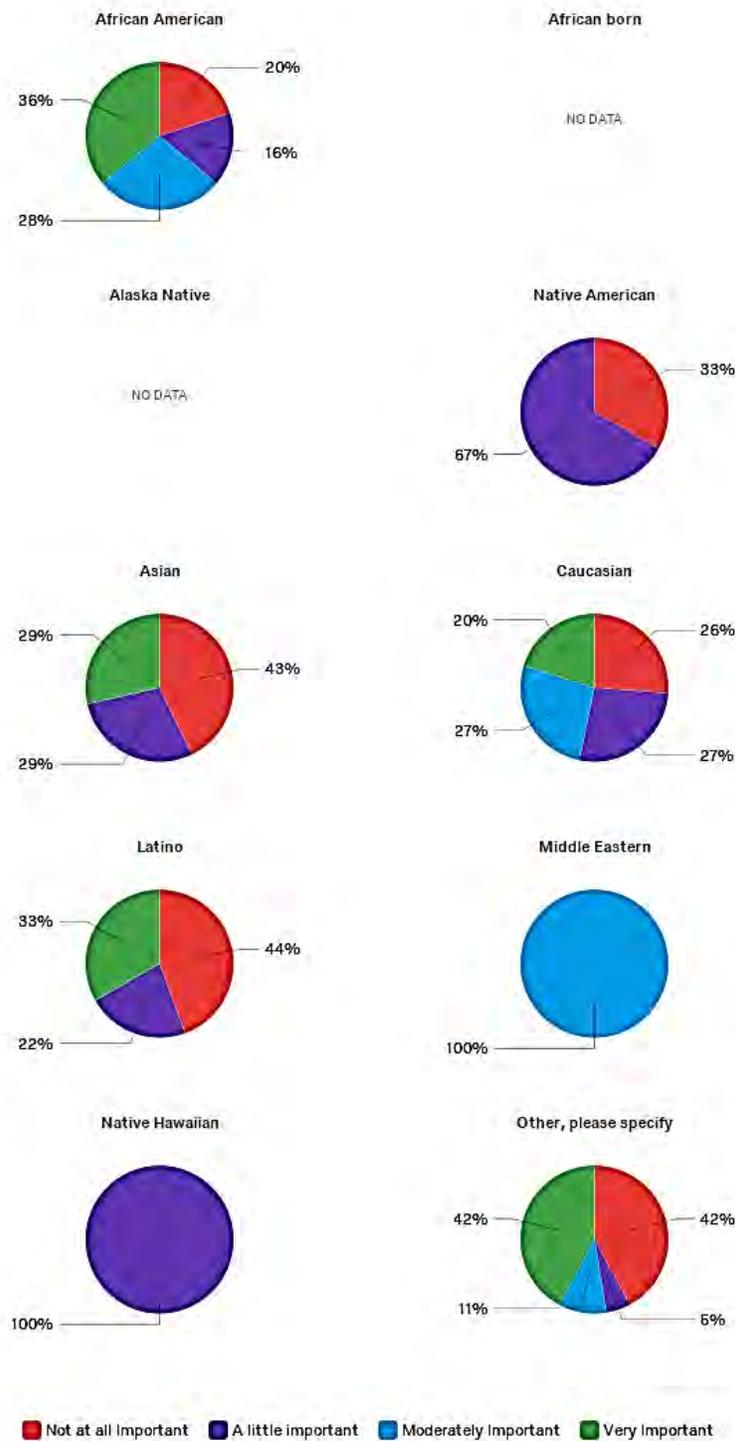


Figure 15d. It is important that the food I eat each day comes from countries I approve of politically by cultural heritage



Simple cooking

Figure 16a. It is important that the food I eat each day can be cooked very simply by gender

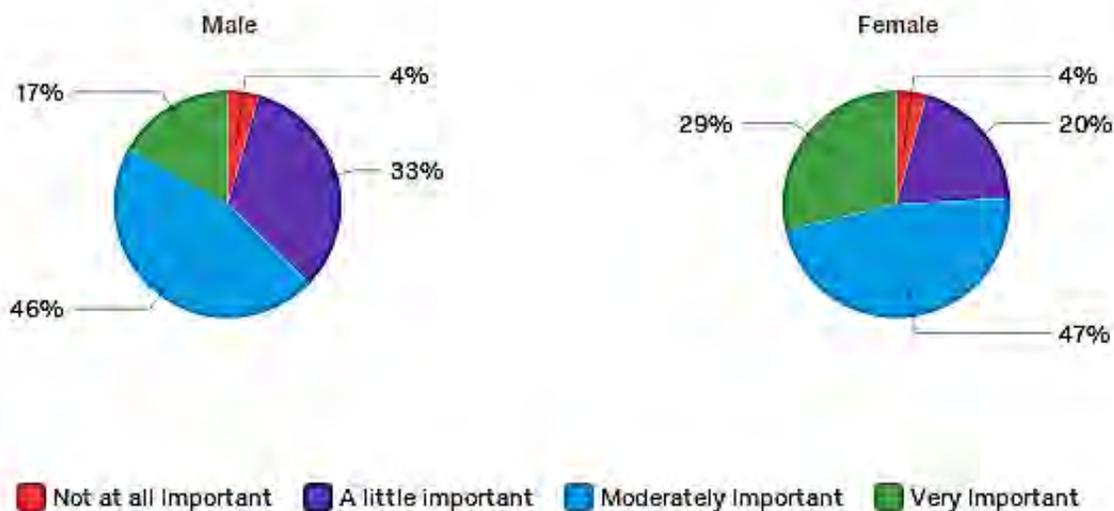


Figure 16b. It is important that the food I eat each day can be cooked very simply by age

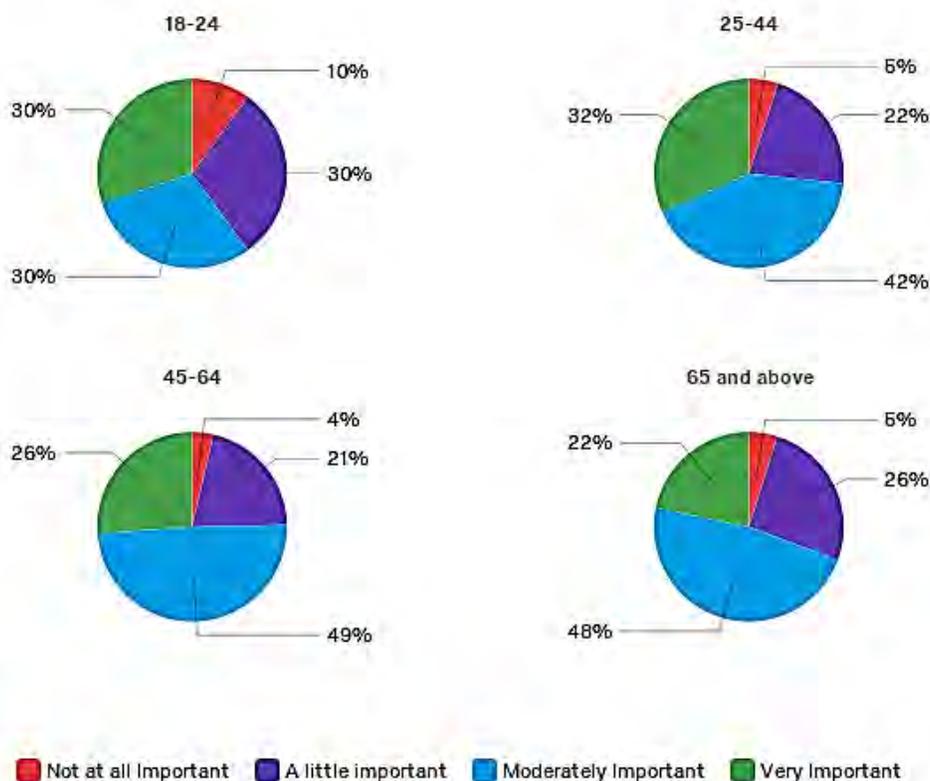


Figure 16c. It is important that the food I eat each day can be cooked very simply by income

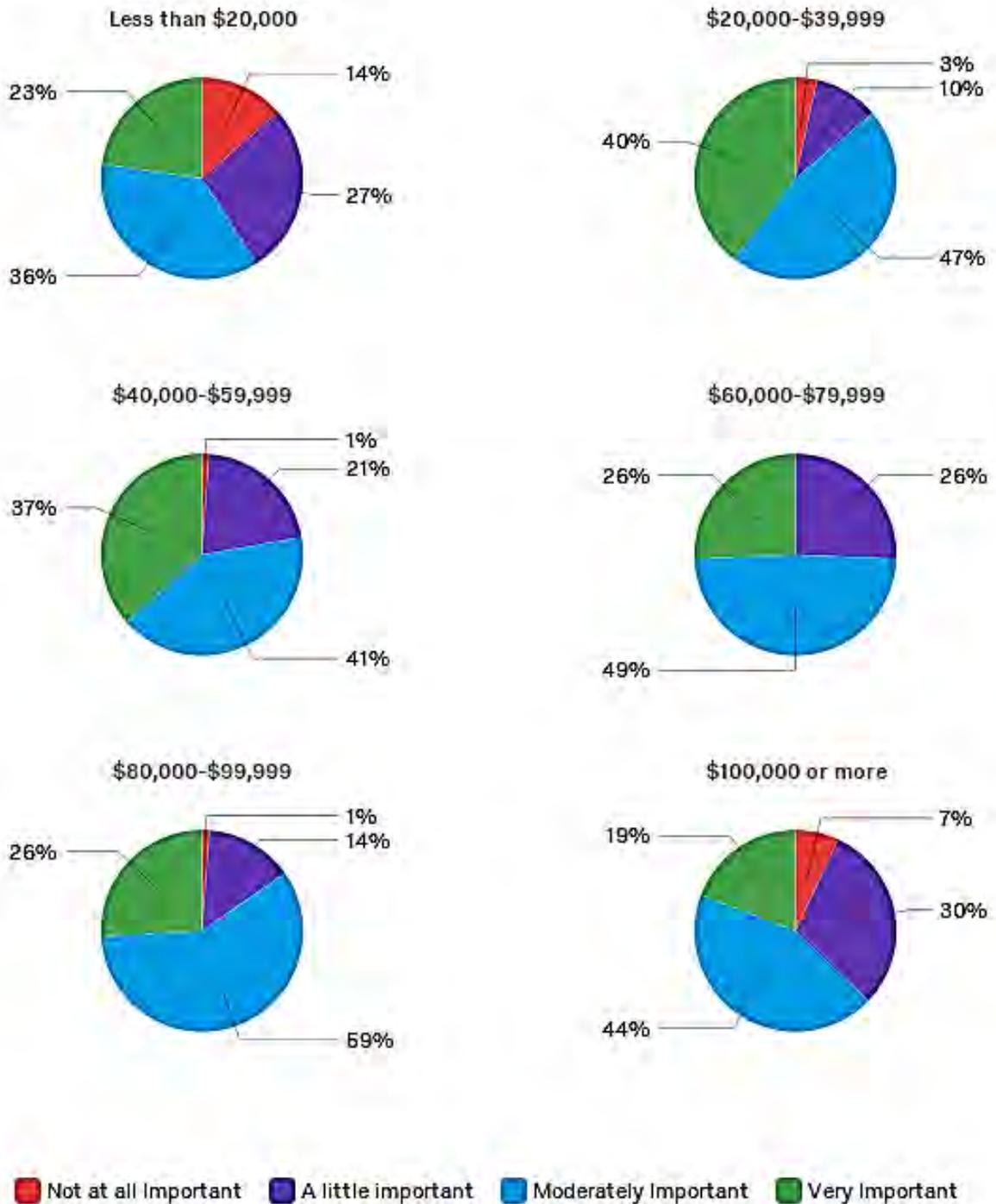
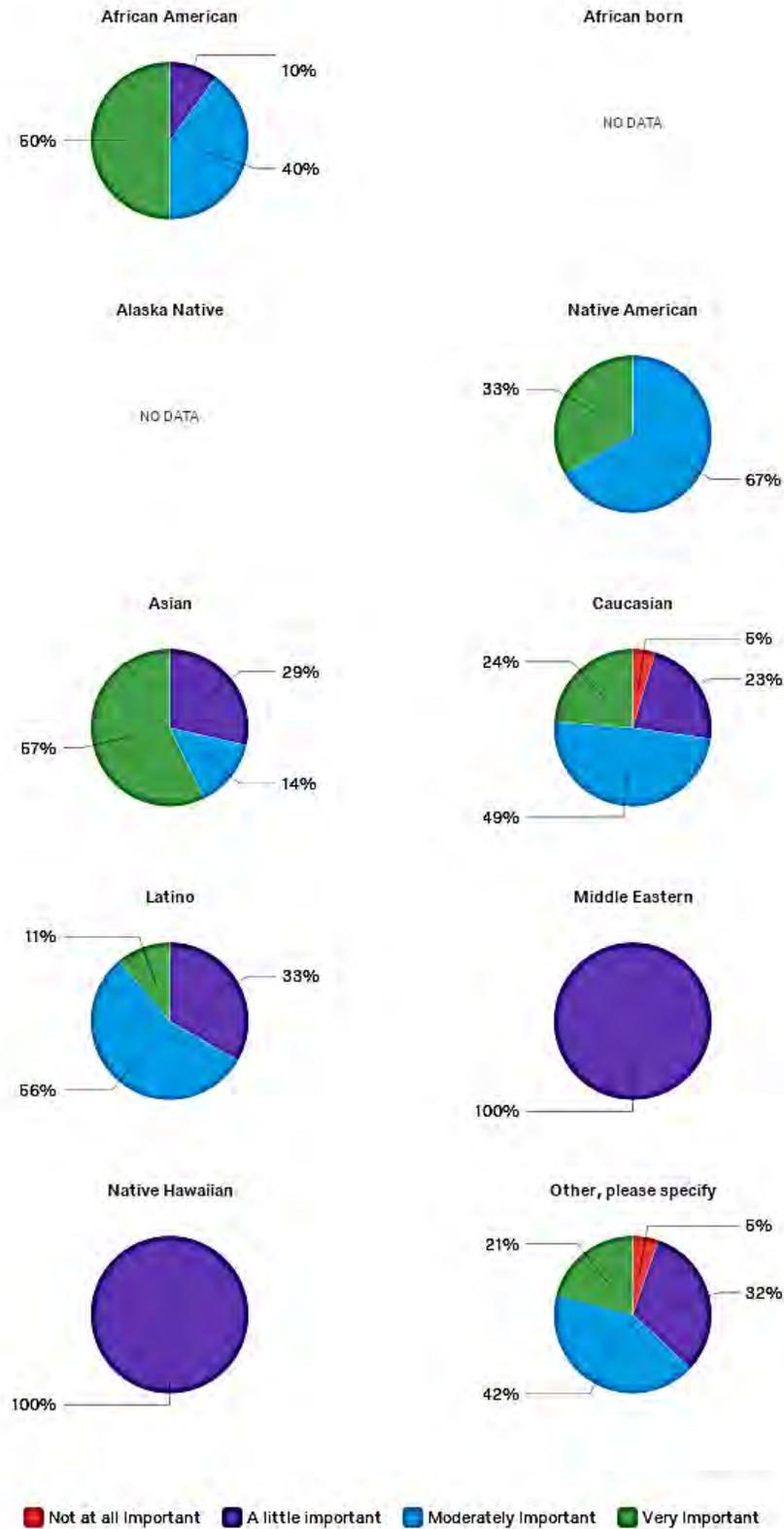


Figure 16d. It is important that the food I eat each day can be cooked very simply by cultural heritage



Weight control

Figure 17a. It is important that the food I eat each day helps me control my weight by gender

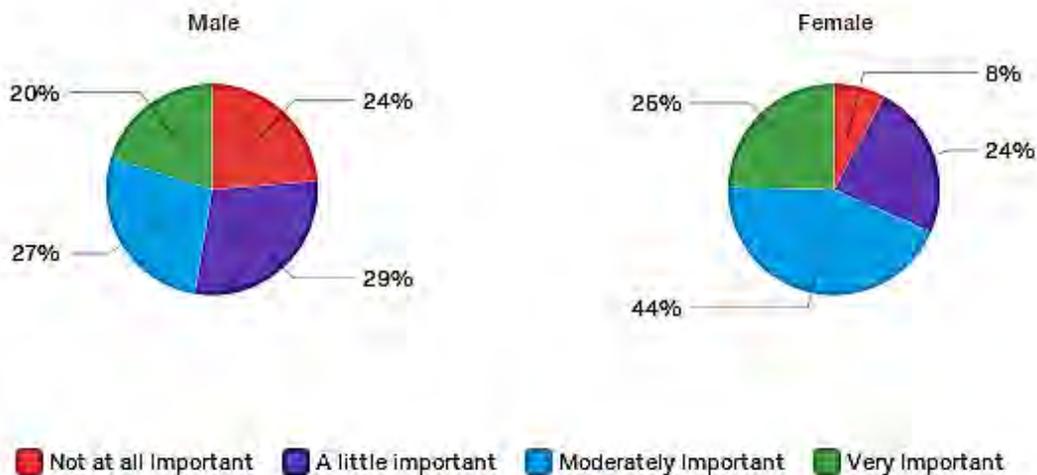


Figure 17b. It is important that the food I eat each day helps me control my weight by age

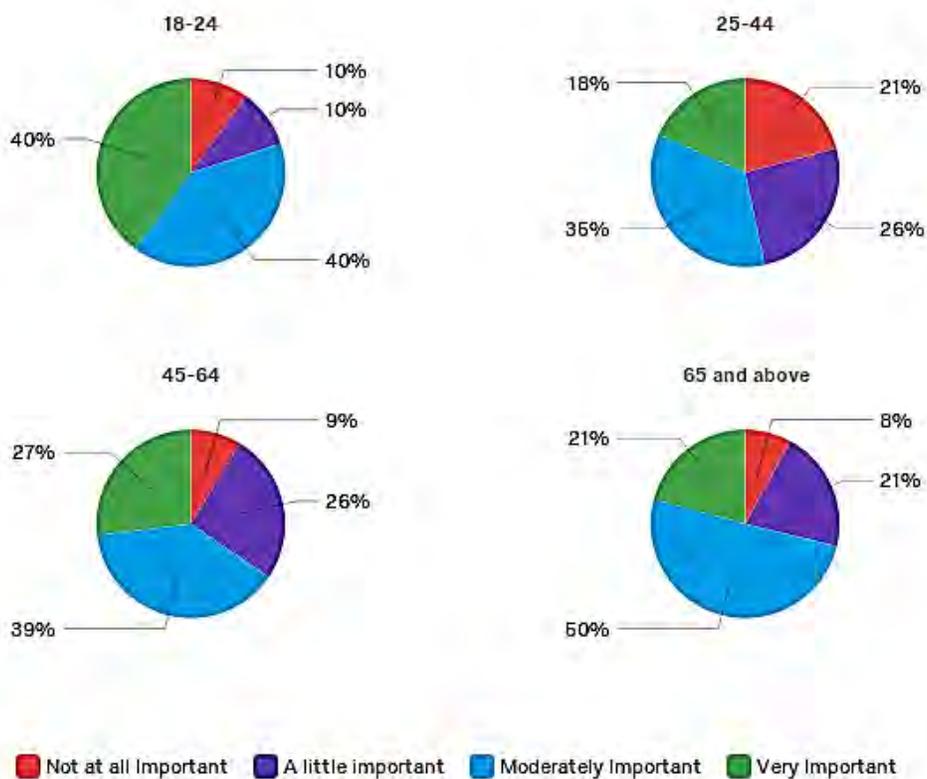


Figure 17c. It is important that the food I eat each day helps me control my weight by income

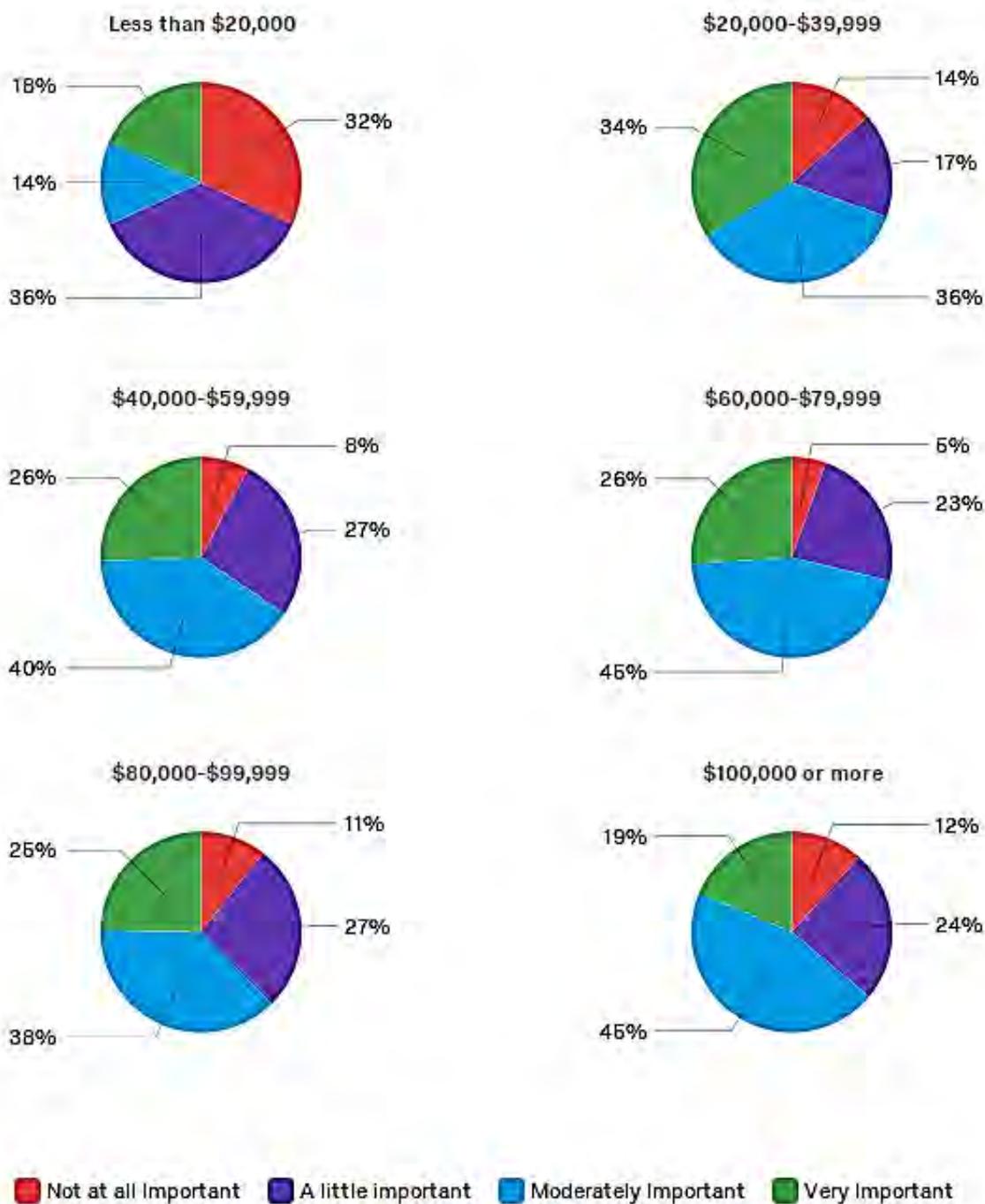
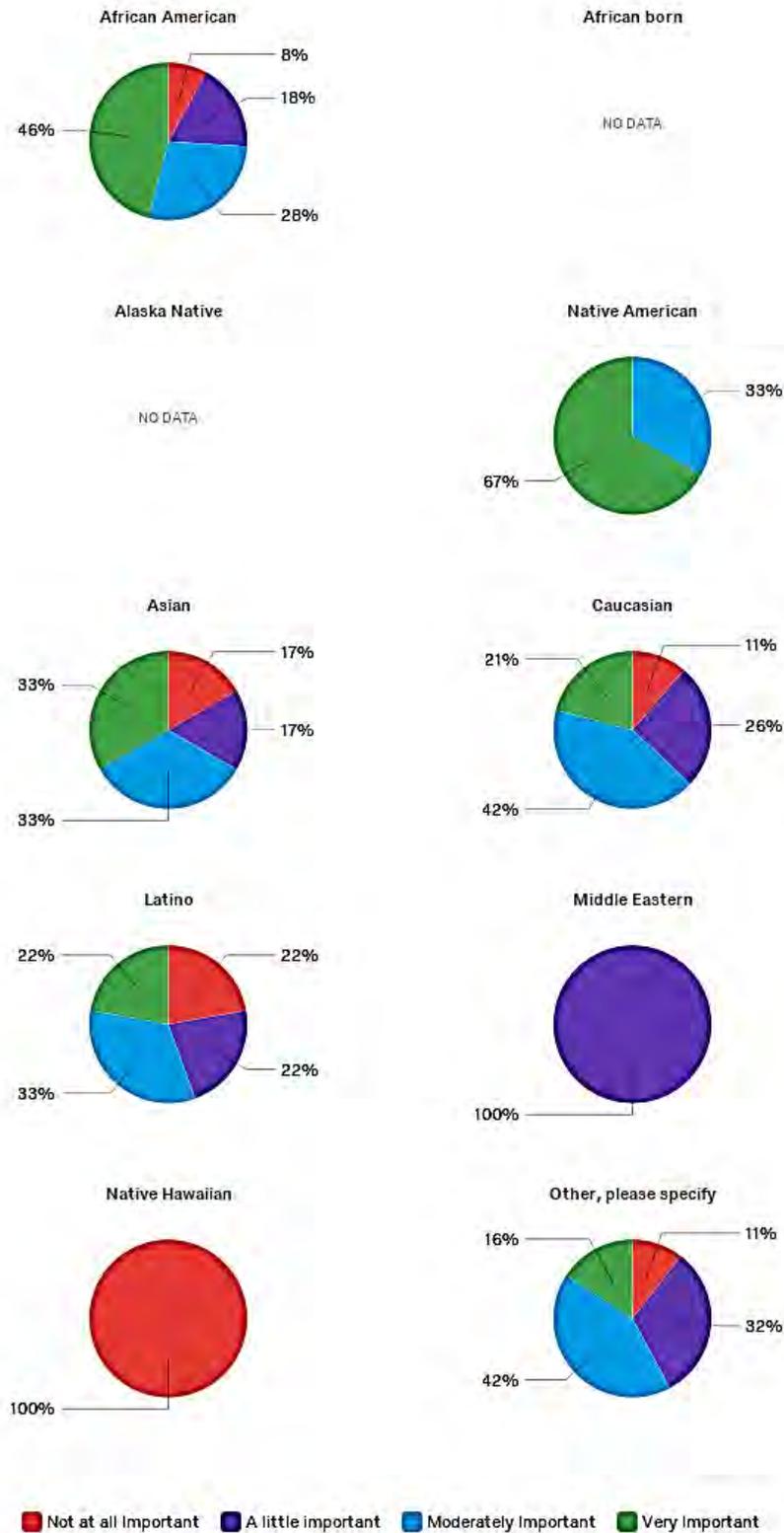


Figure 17d. It is important that the food I eat each day helps me control my weight by cultural heritage



Coping with stress

Figure 18a. It is important that the food I eat each day helps me cope with stress by gender

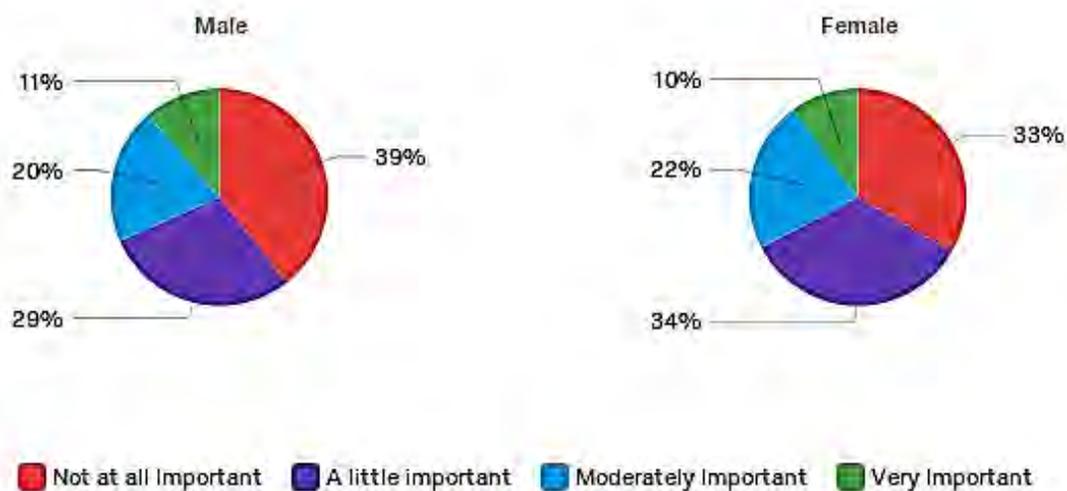


Figure 18b. It is important that the food I eat each day helps me cope with stress by age

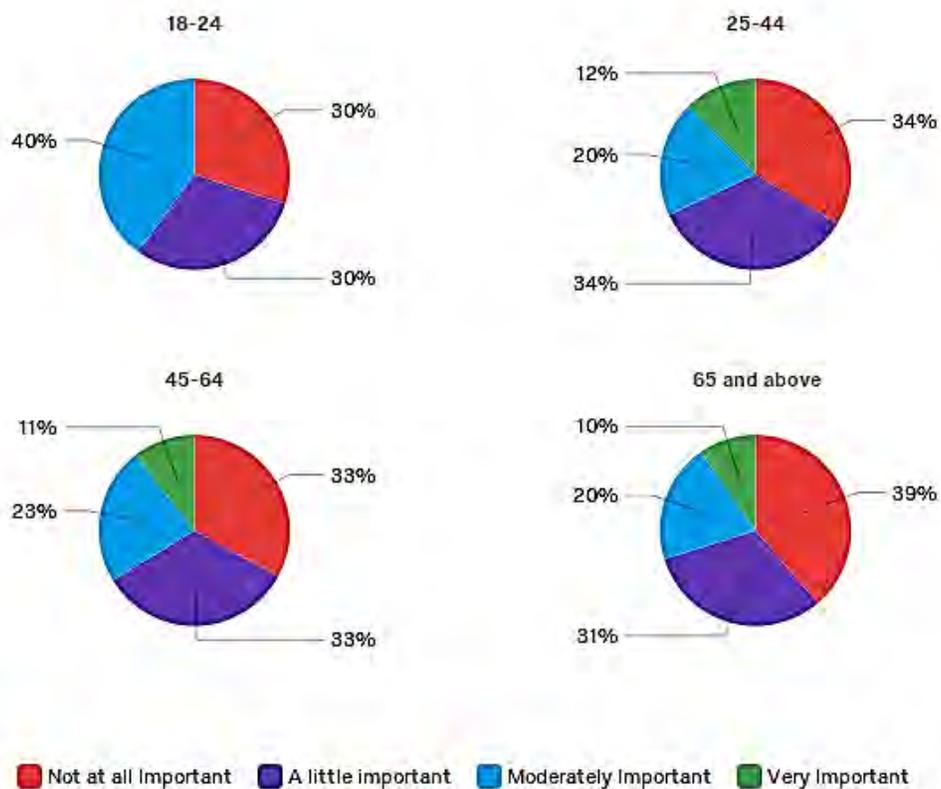
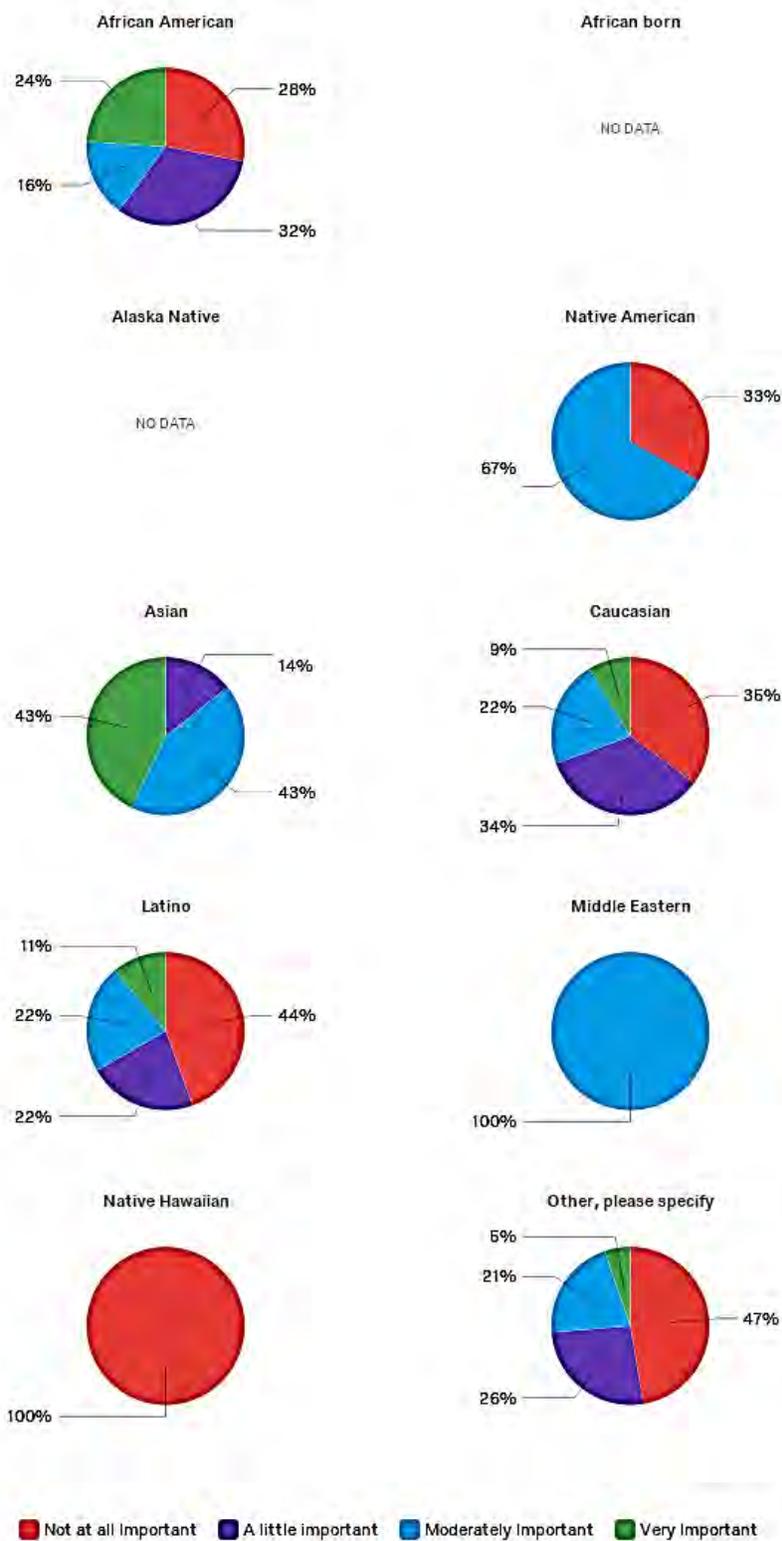


Figure 18c. It is important that the food I eat each day helps me cope with stress by income



Figure 18d. It is important that the food I eat each day helps me cope with stress by cultural heritage



Cheers up

Figure 19a. It is important that the food I eat each day cheers me up by gender

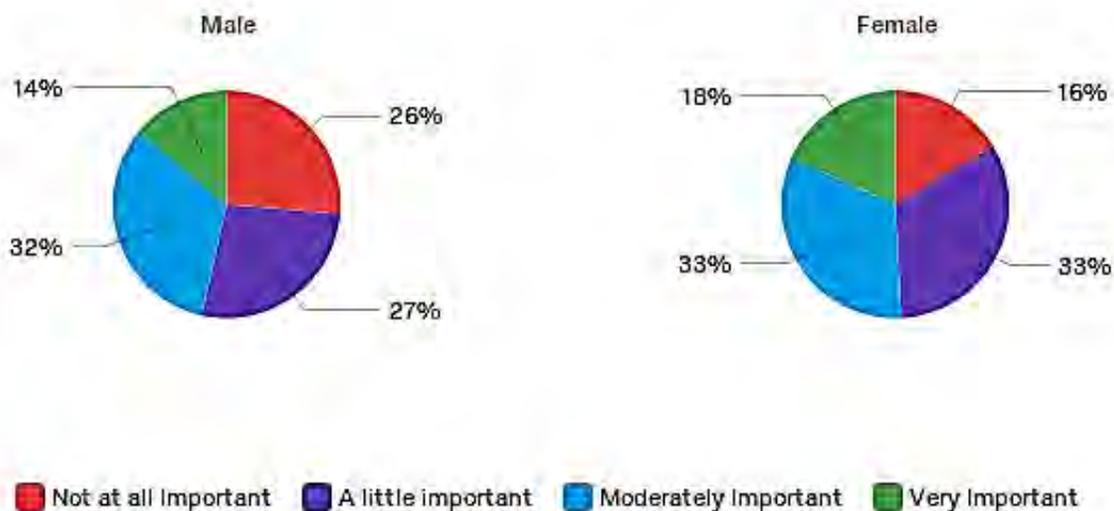


Figure 19b. It is important that the food I eat each day cheers me up by age

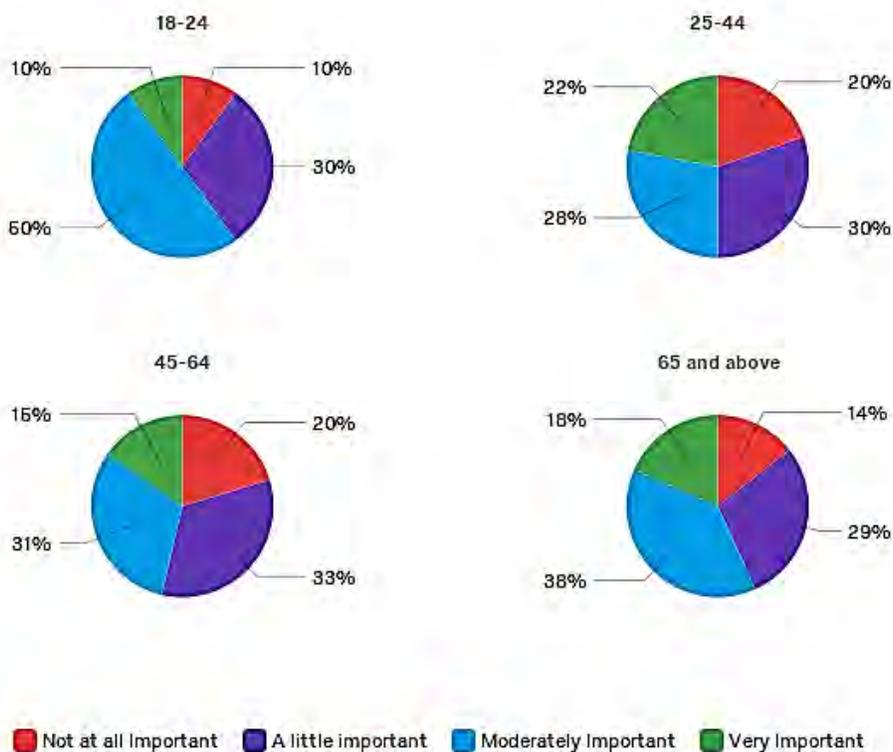
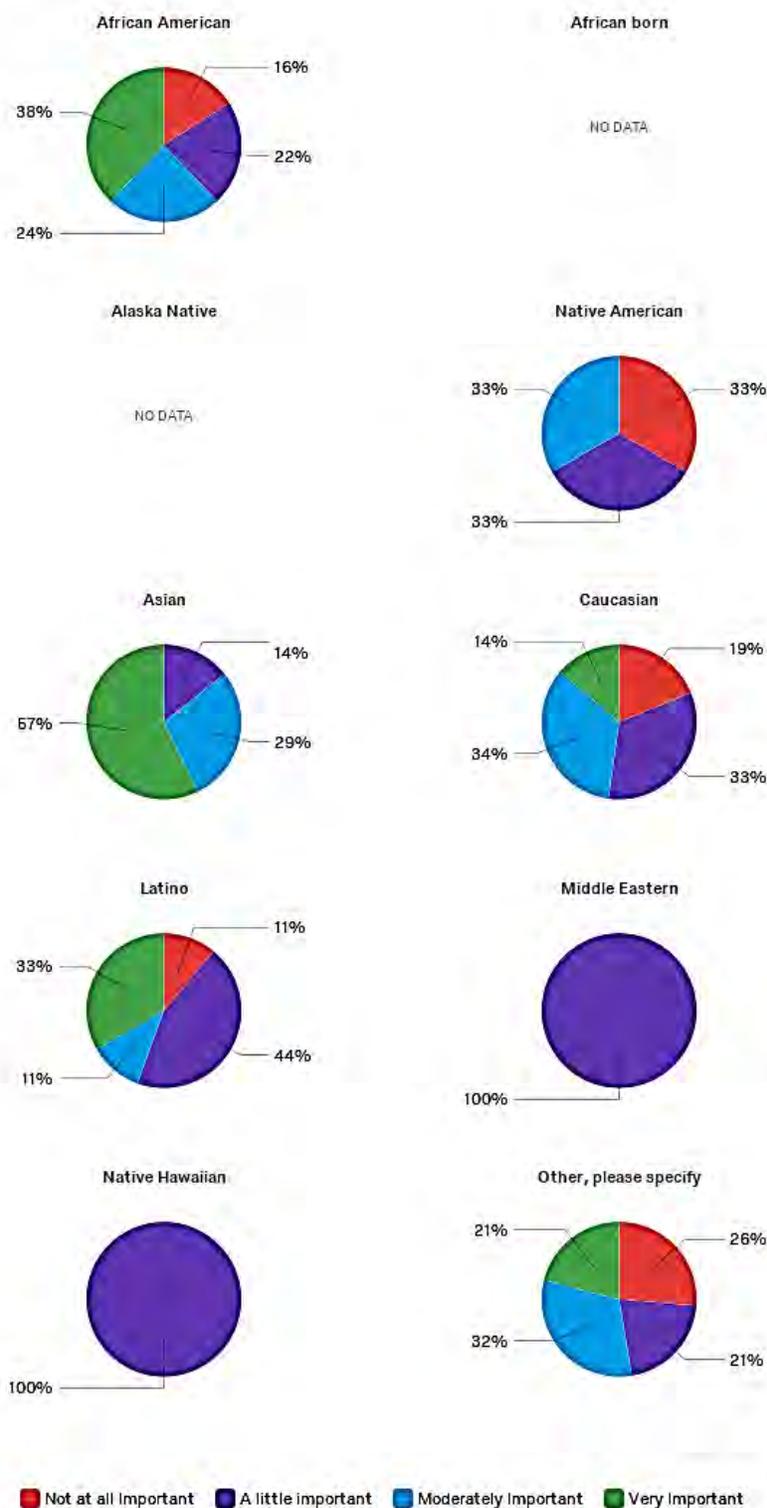


Figure 19c. It is important that the food I eat each day cheers me up by income



Figure 19d. It is important that the food I eat each day cheers me up by cultural heritage



No time to prepare

Figure 20a. It is important that the food I eat each day takes no time to prepare by gender

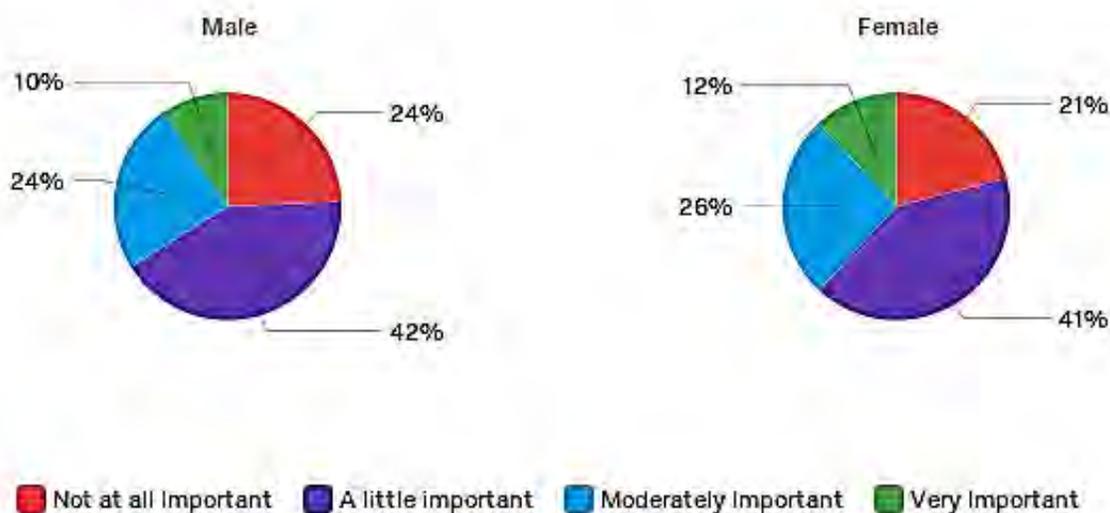


Figure 20b. It is important that the food I eat each day no time to prepare by age

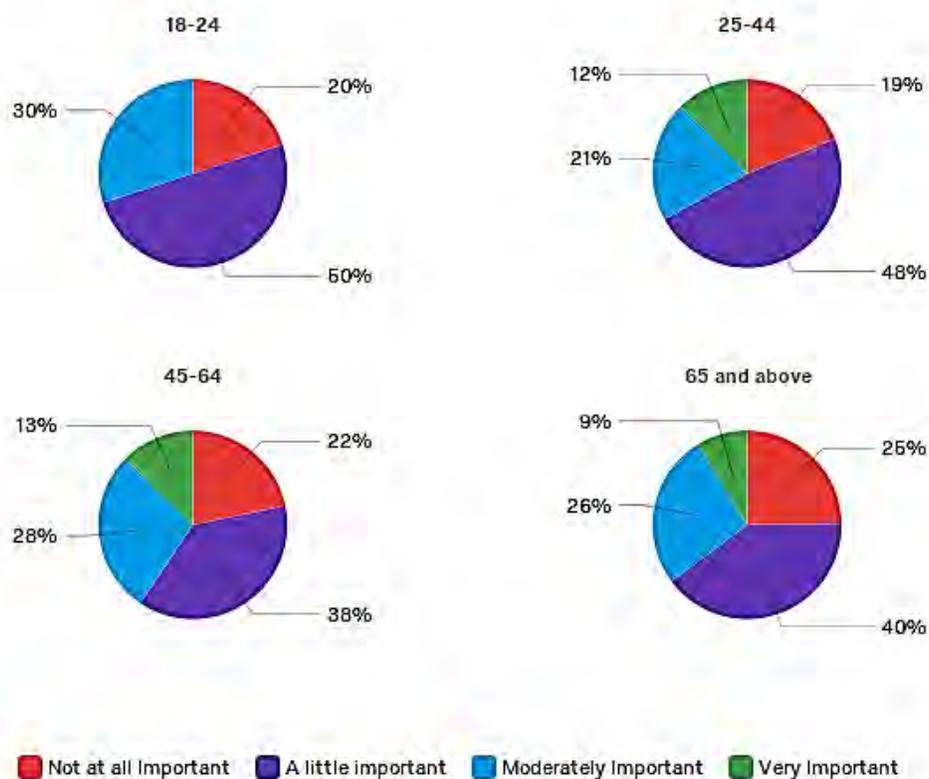


Figure 20c. It is important that the food I eat each day no time to prepare by income

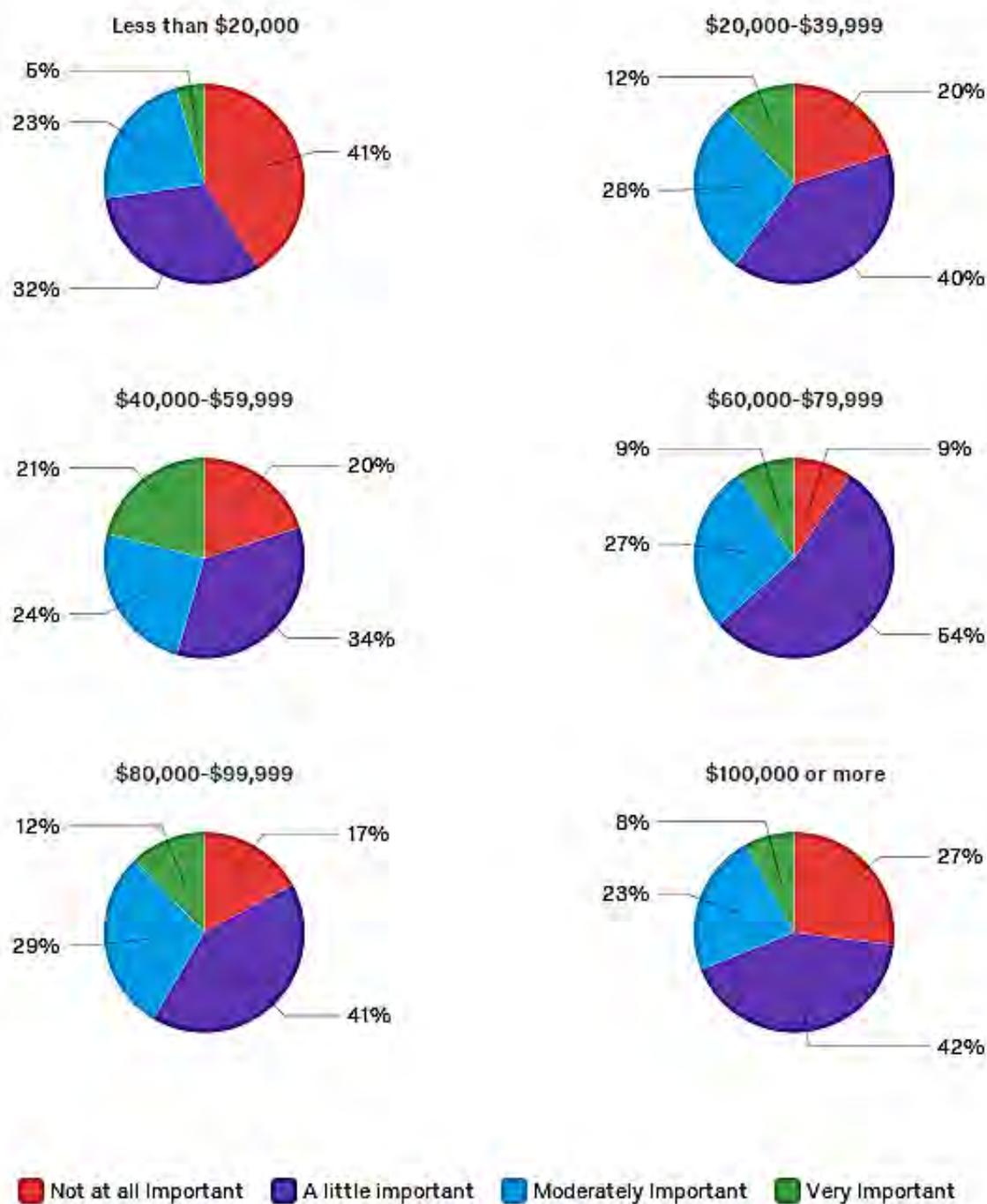
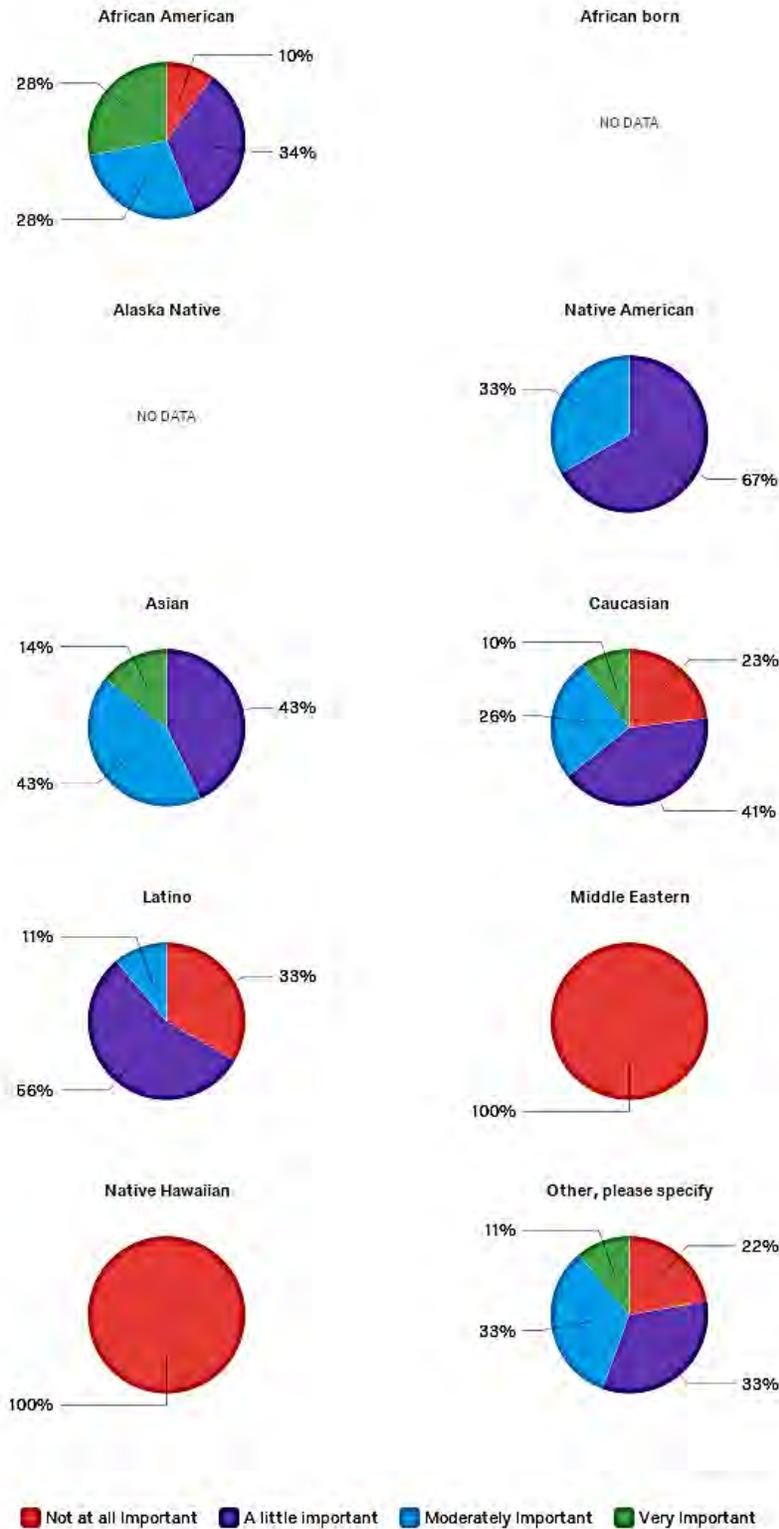


Figure 20d. It is important that the food I eat each day no time to prepare by cultural heritage



Makes me feel good

Figure 21a. It is important that the food I eat each day makes me feel good by gender

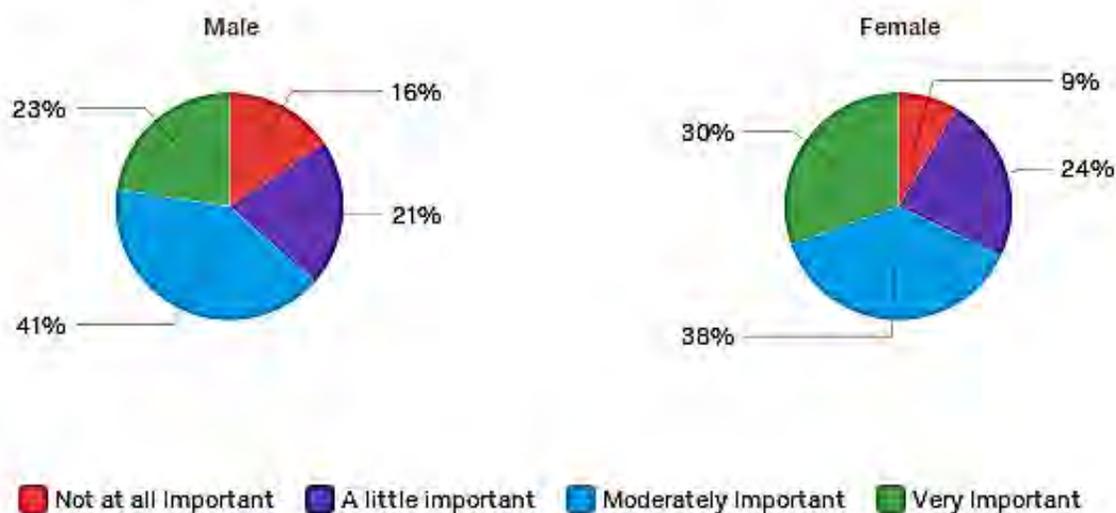


Figure 21b. It is important that the food I eat each day makes me feel good by age

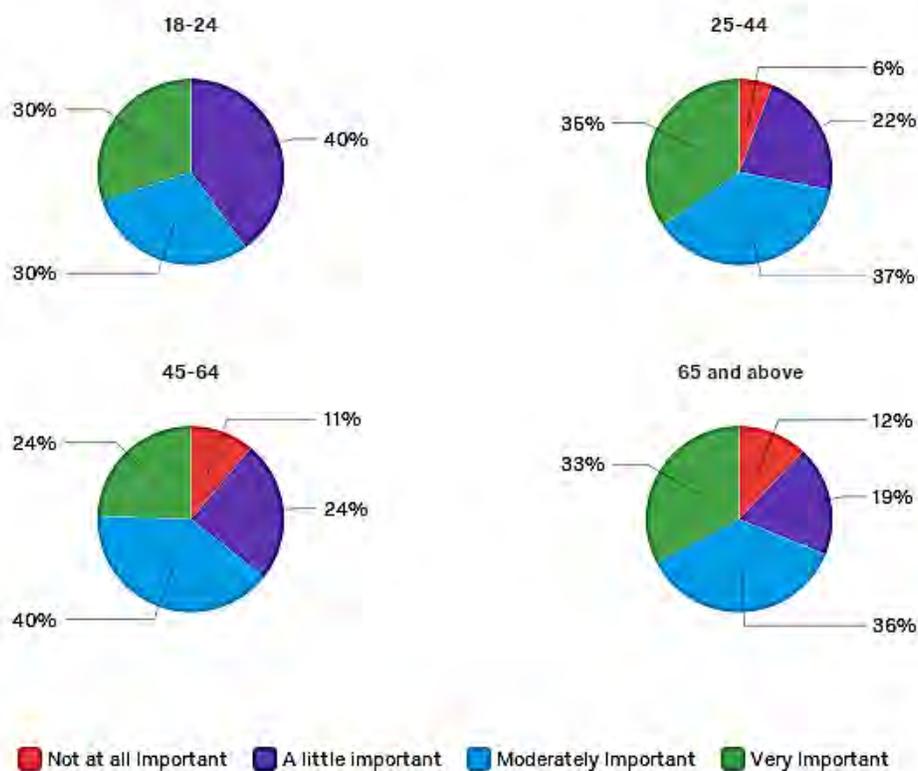


Figure 21c. It is important that the food I eat each day makes me feel good by income

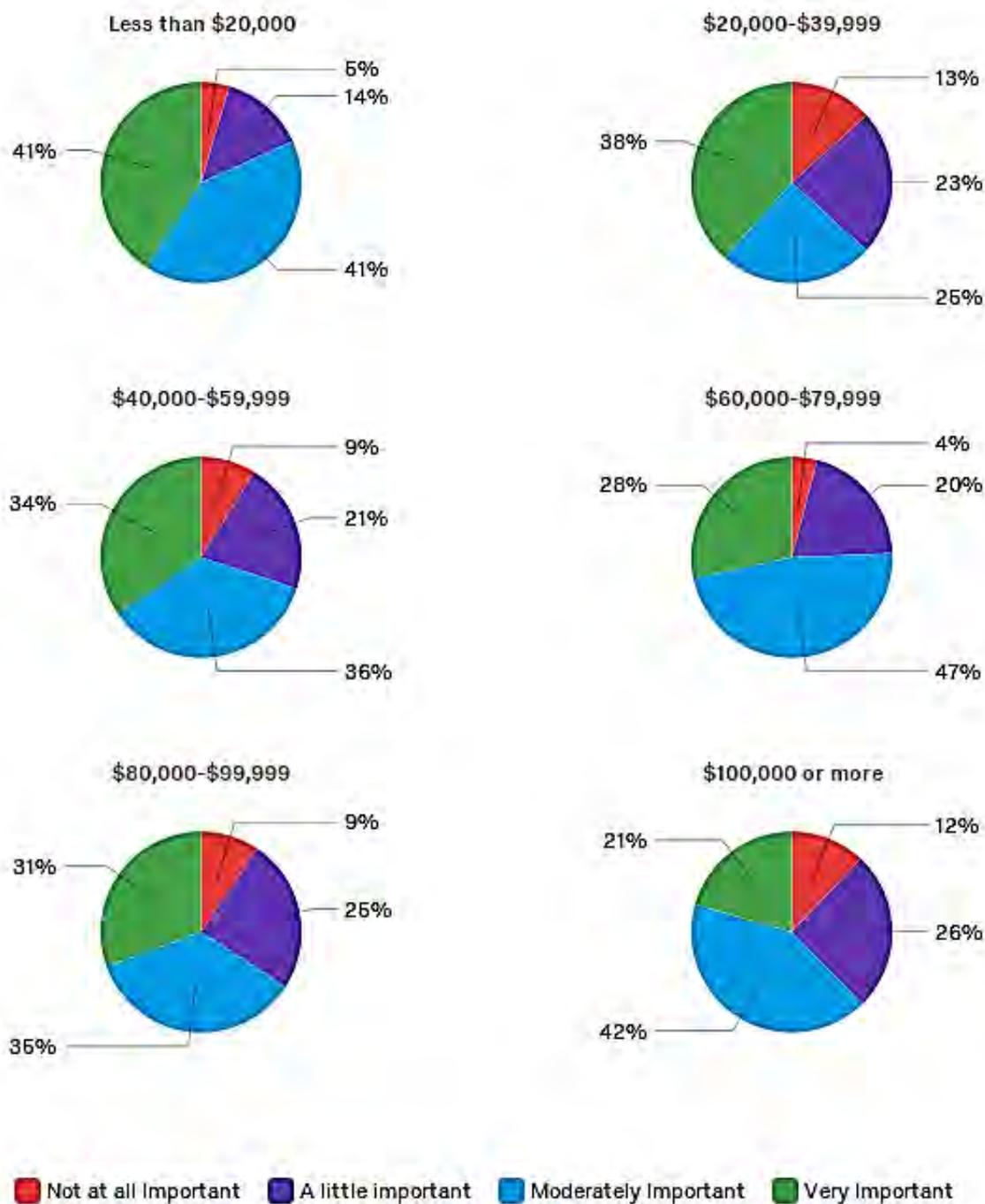
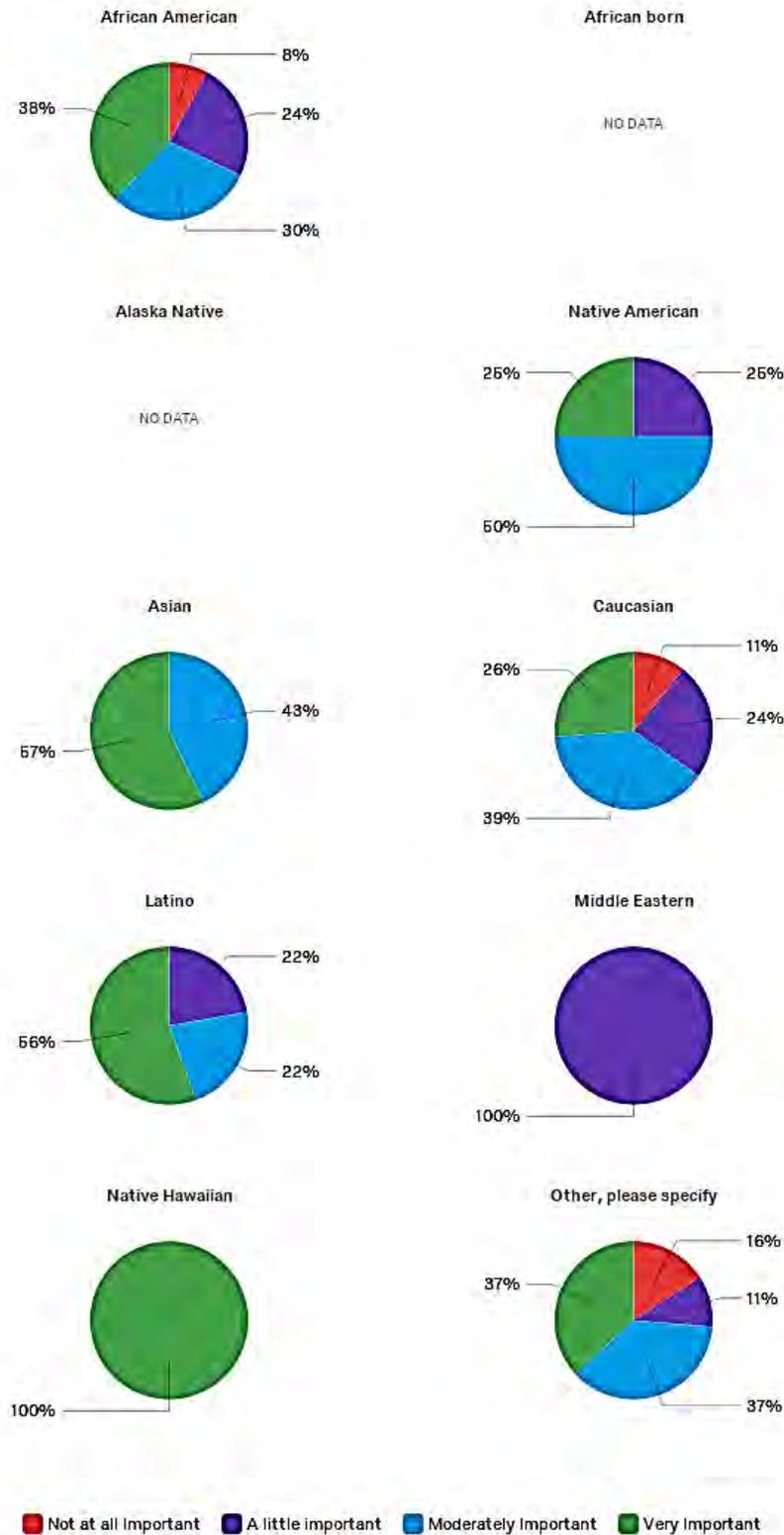


Figure 21d. It is important that the food I eat each day makes me feel good by cultural heritage



Country of origin label

Figure 22a. It is important that the food I eat each day has country of origin clearly labeled by gender

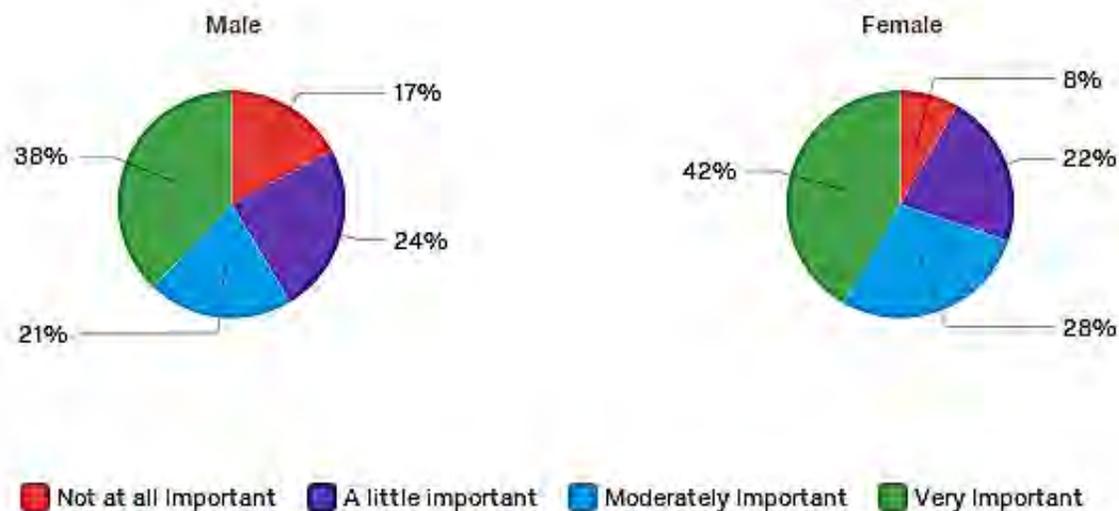


Figure 22b. It is important that the food I eat each day has country of origin clearly labeled by age

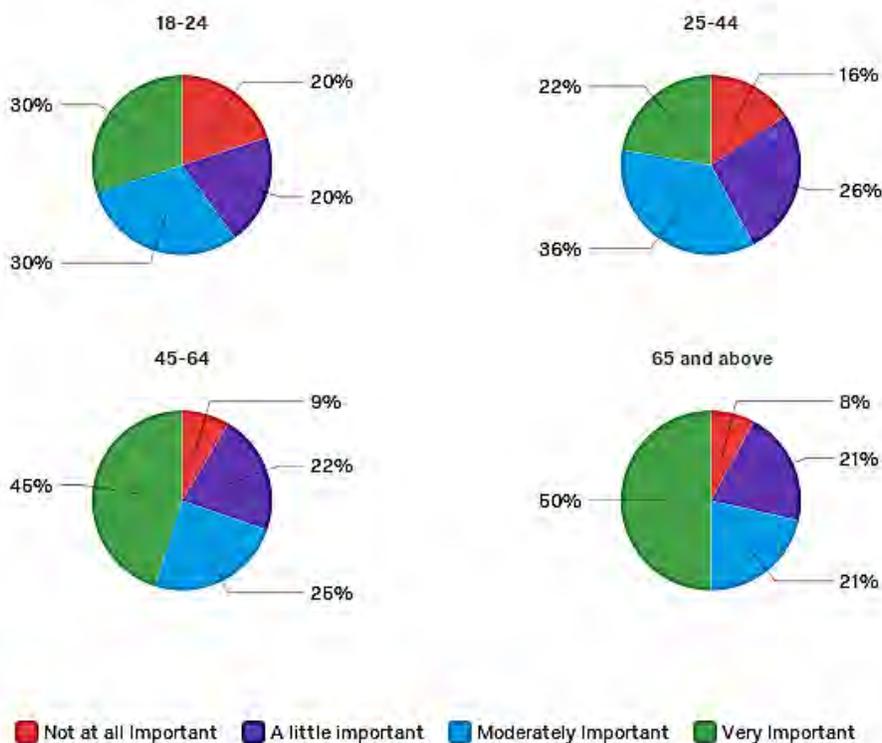


Figure 22c. It is important that the food I eat each day has country of origin clearly labeled by income

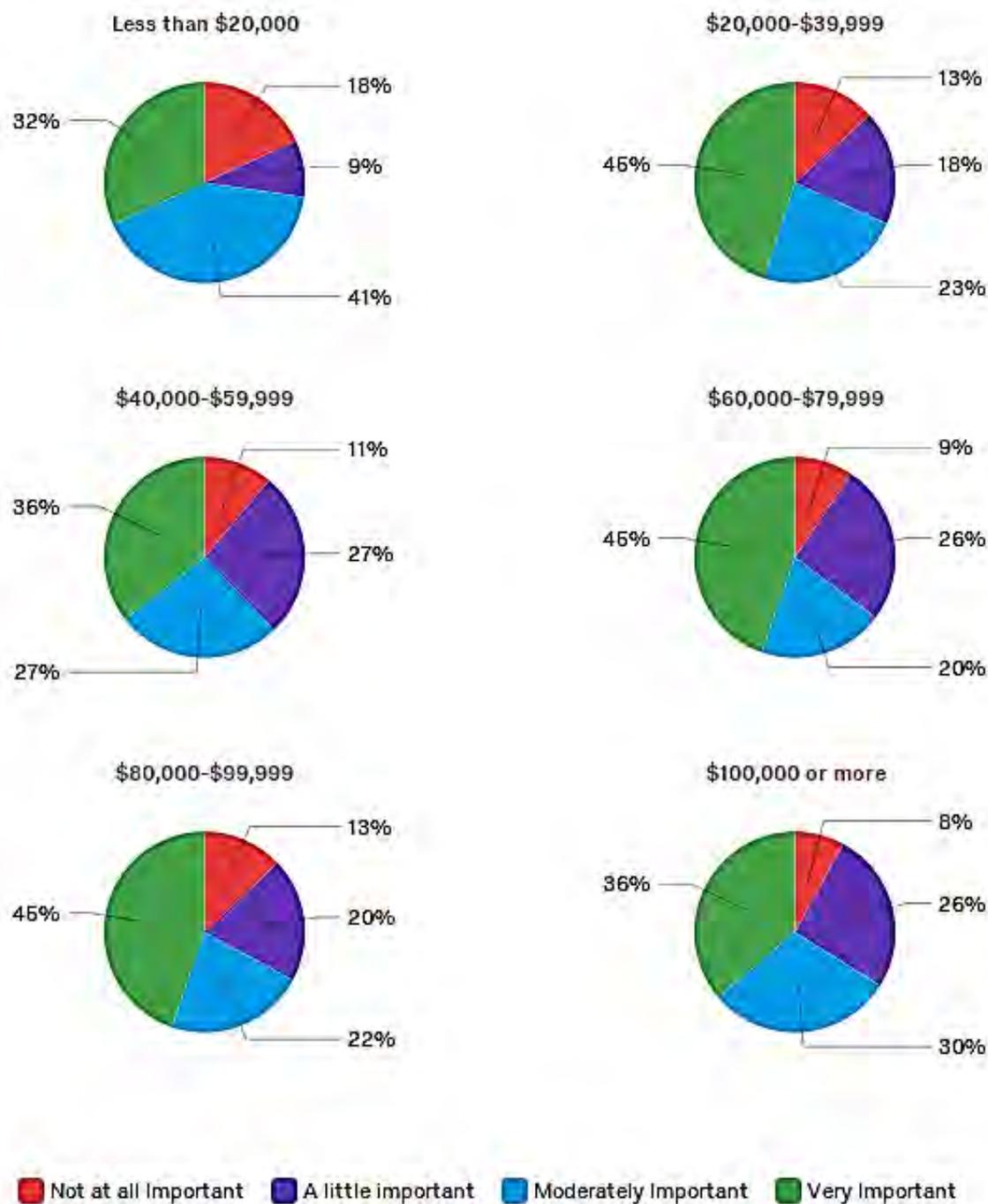


Figure 22d. It is important that the food I eat each day has country of origin clearly labeled by cultural heritage



What I usually eat

Figure 23a. It is important that the food I eat each day is what I usually eat by gender

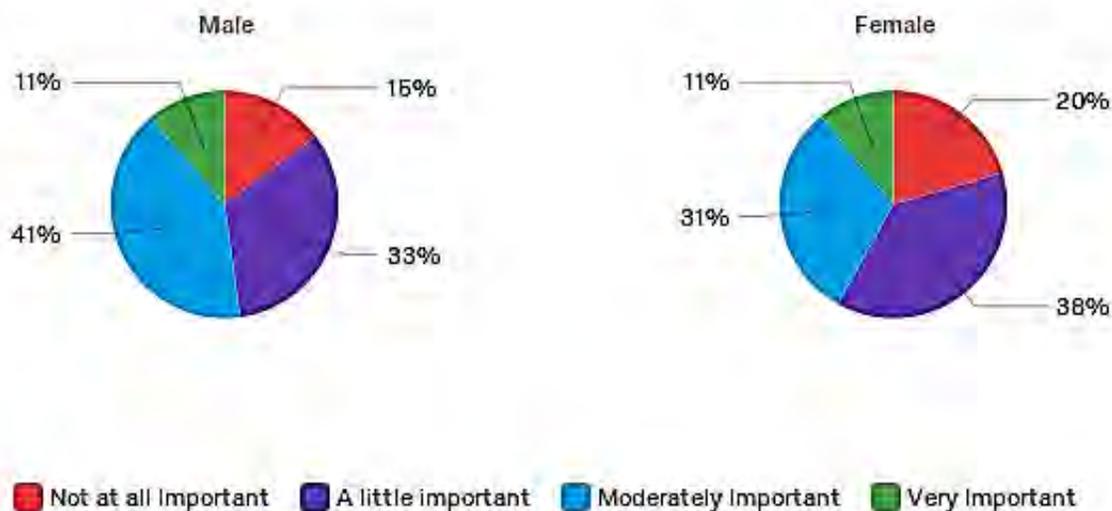


Figure 23b. It is important that the food I eat each day is what I usually eat by age

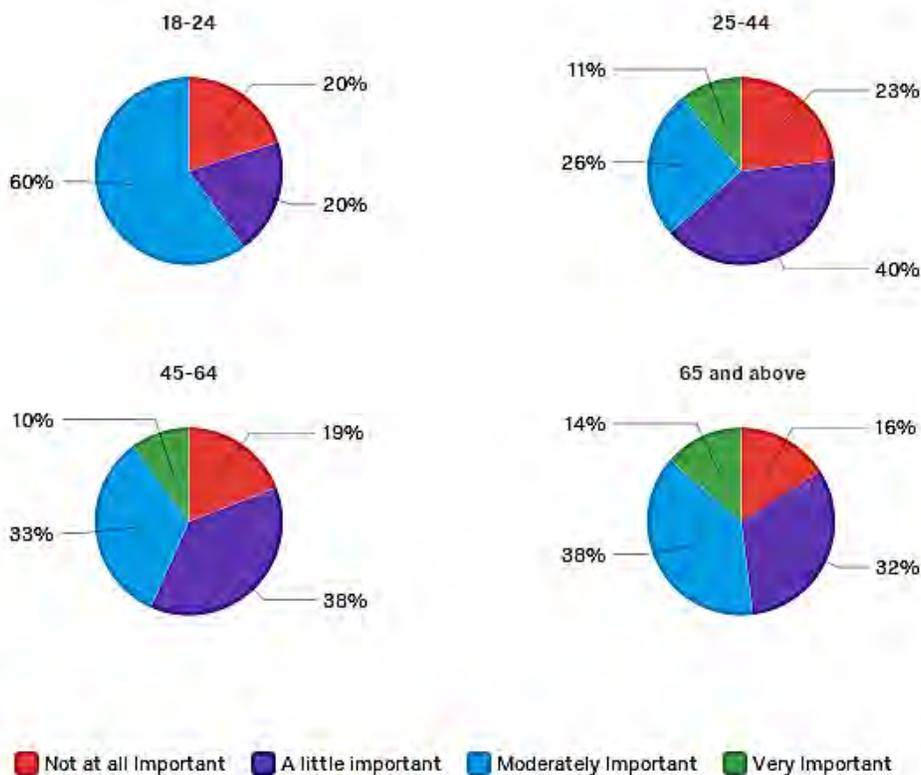


Figure 23c. It is important that the food I eat each day is what I usually eat by income

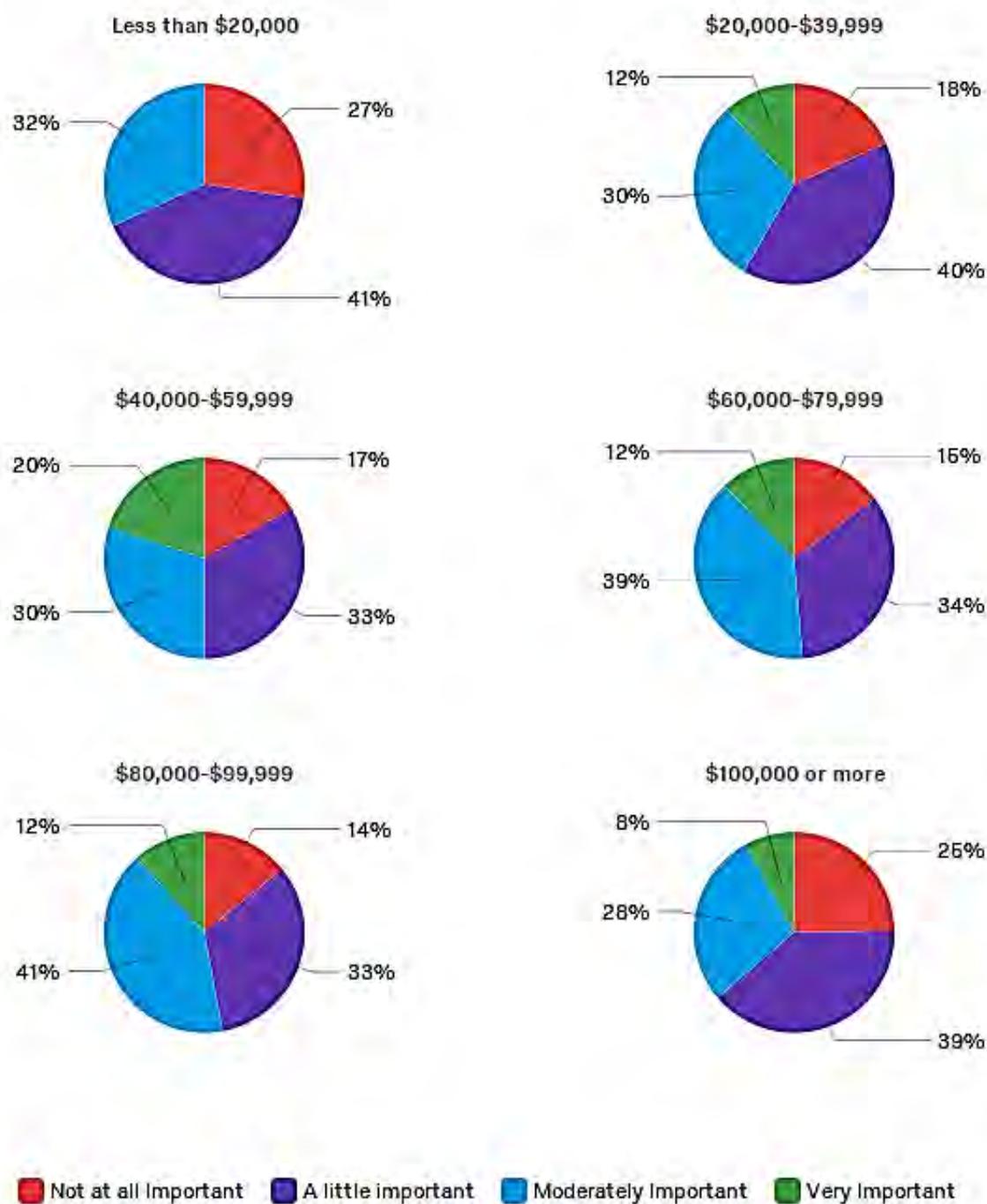


Figure 23d. It is important that the food I eat each day is what I usually eat by cultural heritage

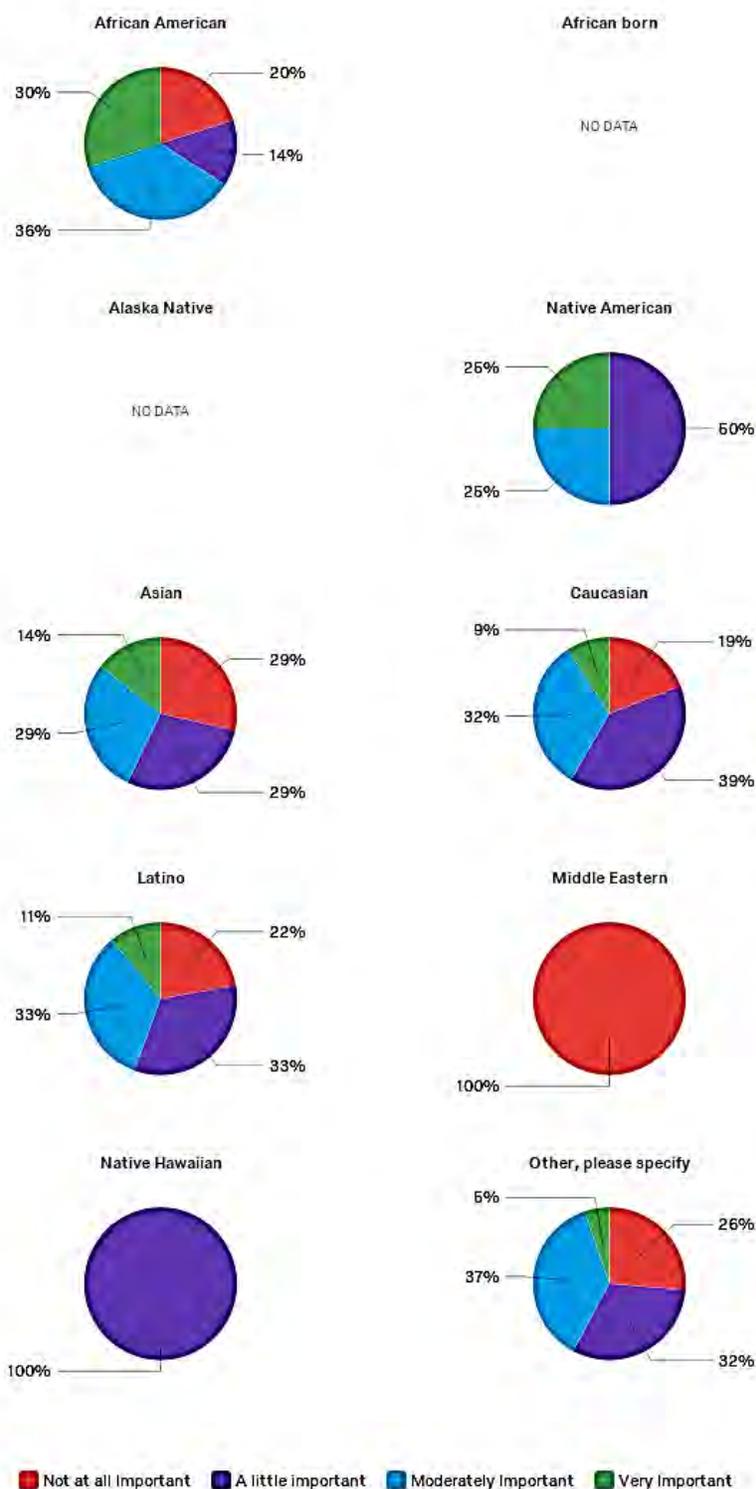
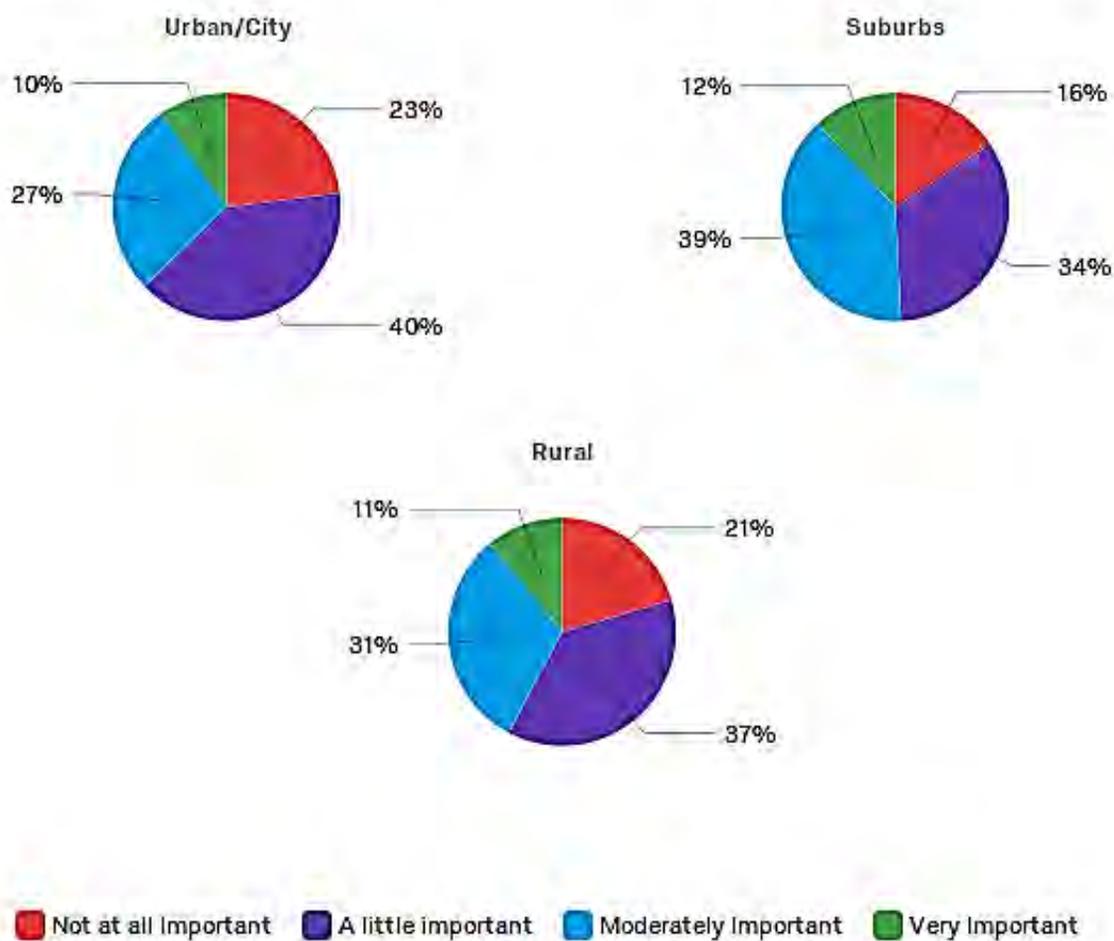


Figure 23e. It is important that the food I eat each day is what I usually eat by area type



Can be bought close by

Figure 24a. It is important that the food I eat each day can be bought in shops close to where I live or work by gender

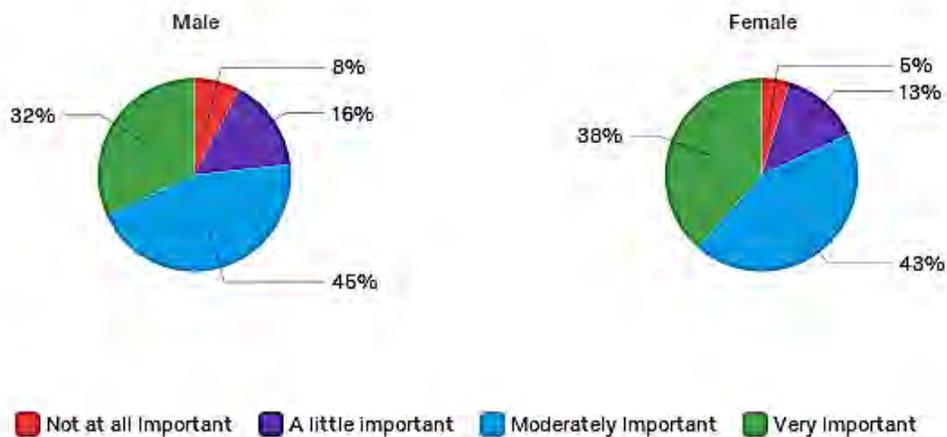


Figure 24b. It is important that the food I eat each day can be bought in shops close to where I work by age

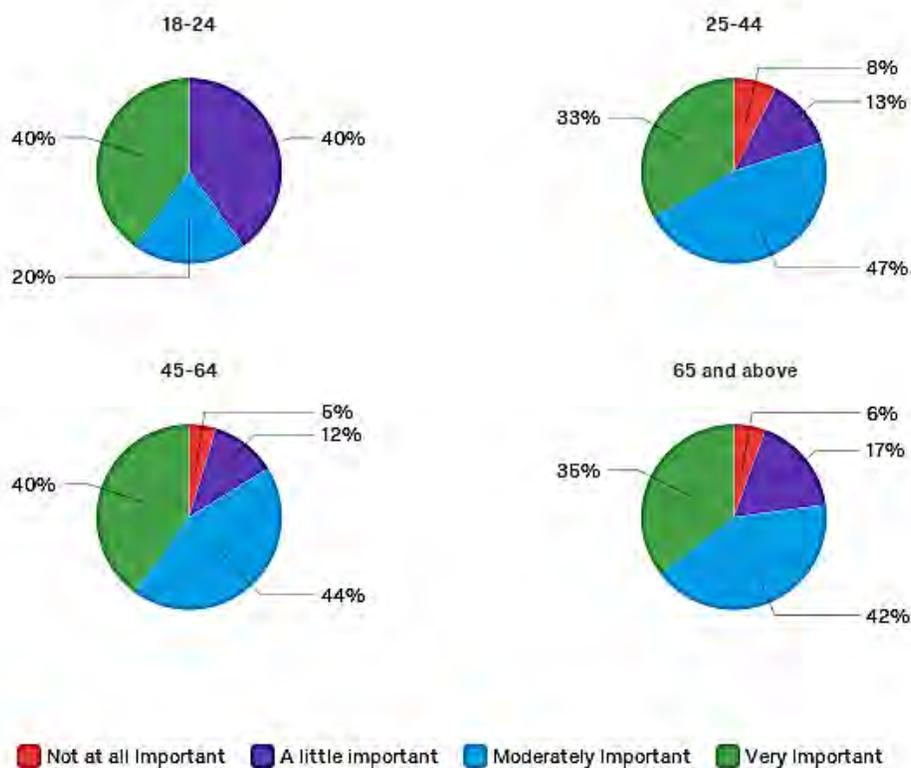


Figure 24c. It is important that the food I eat each day can be bought in shops close to where I live or work by income



Figure 24d. It is important that the food I eat each day can be bought in shops close to where I live or work by cultural heritage

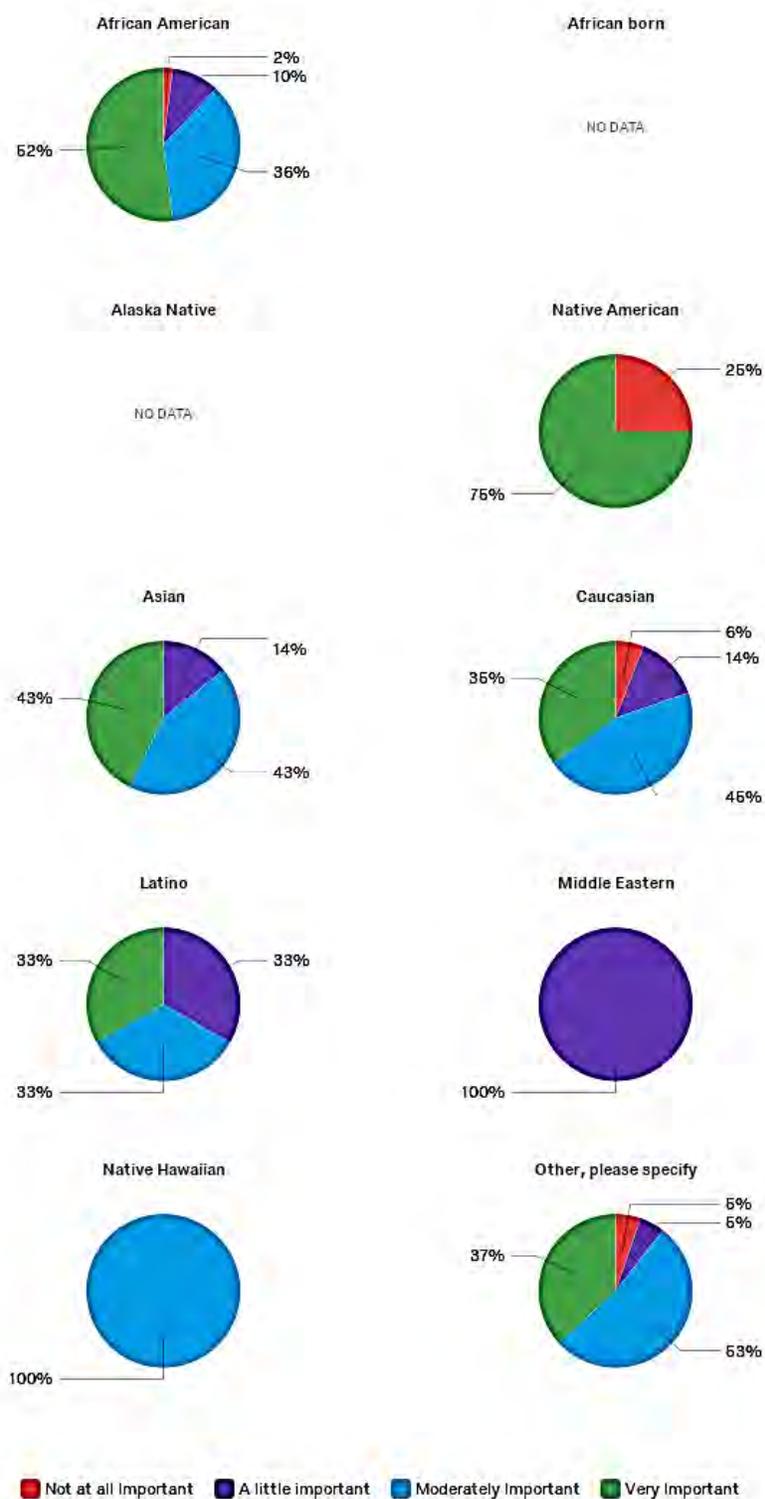
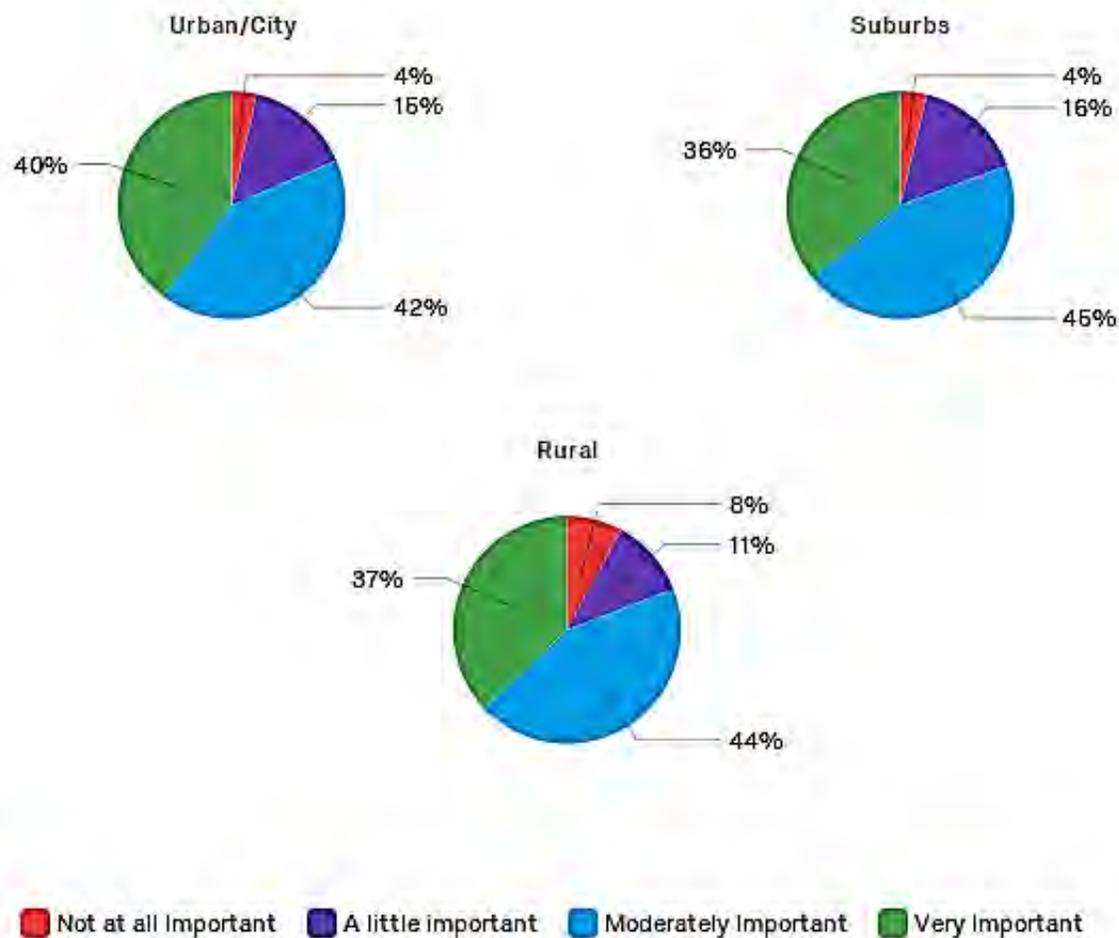


Figure 24e. It is important that the food I eat each day can be bought in shops close to where I live or work by area type



Is cheap

Figure 25a. It is important that the food I eat each day is cheap by gender

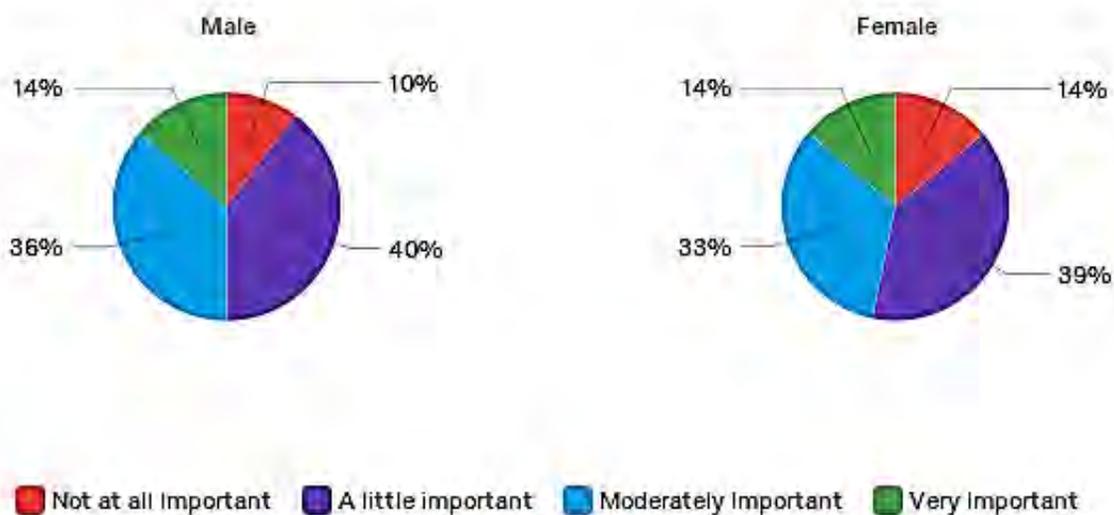


Figure 25b. It is important that the food I eat each day is cheap by age

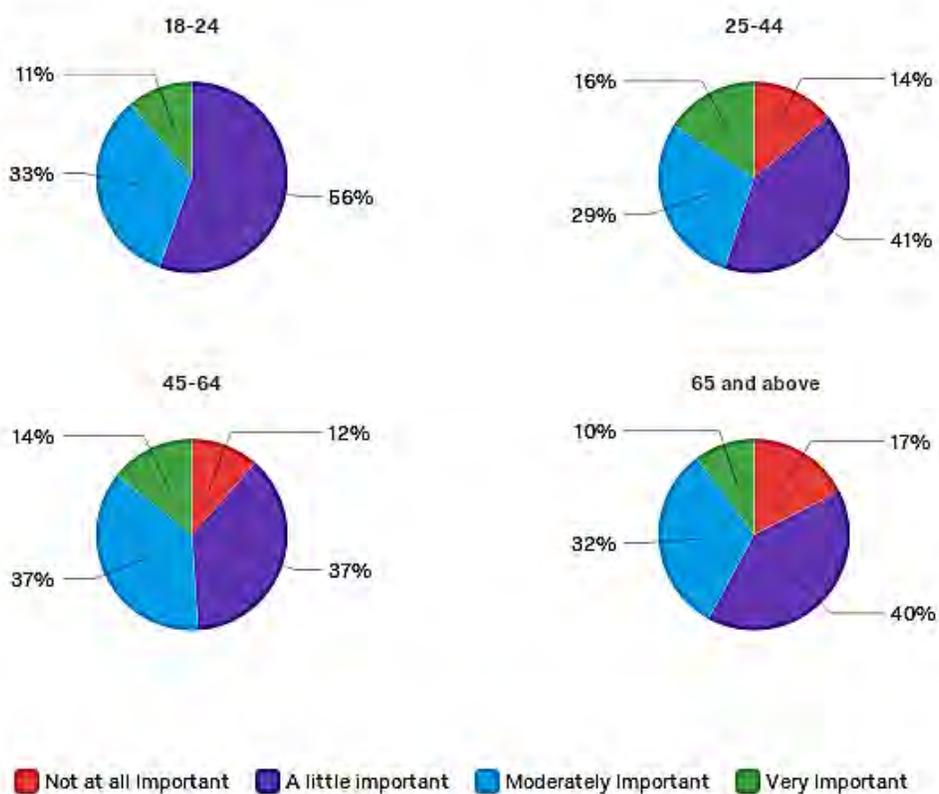


Figure 25c. It is important that the food I eat each day is cheap by income

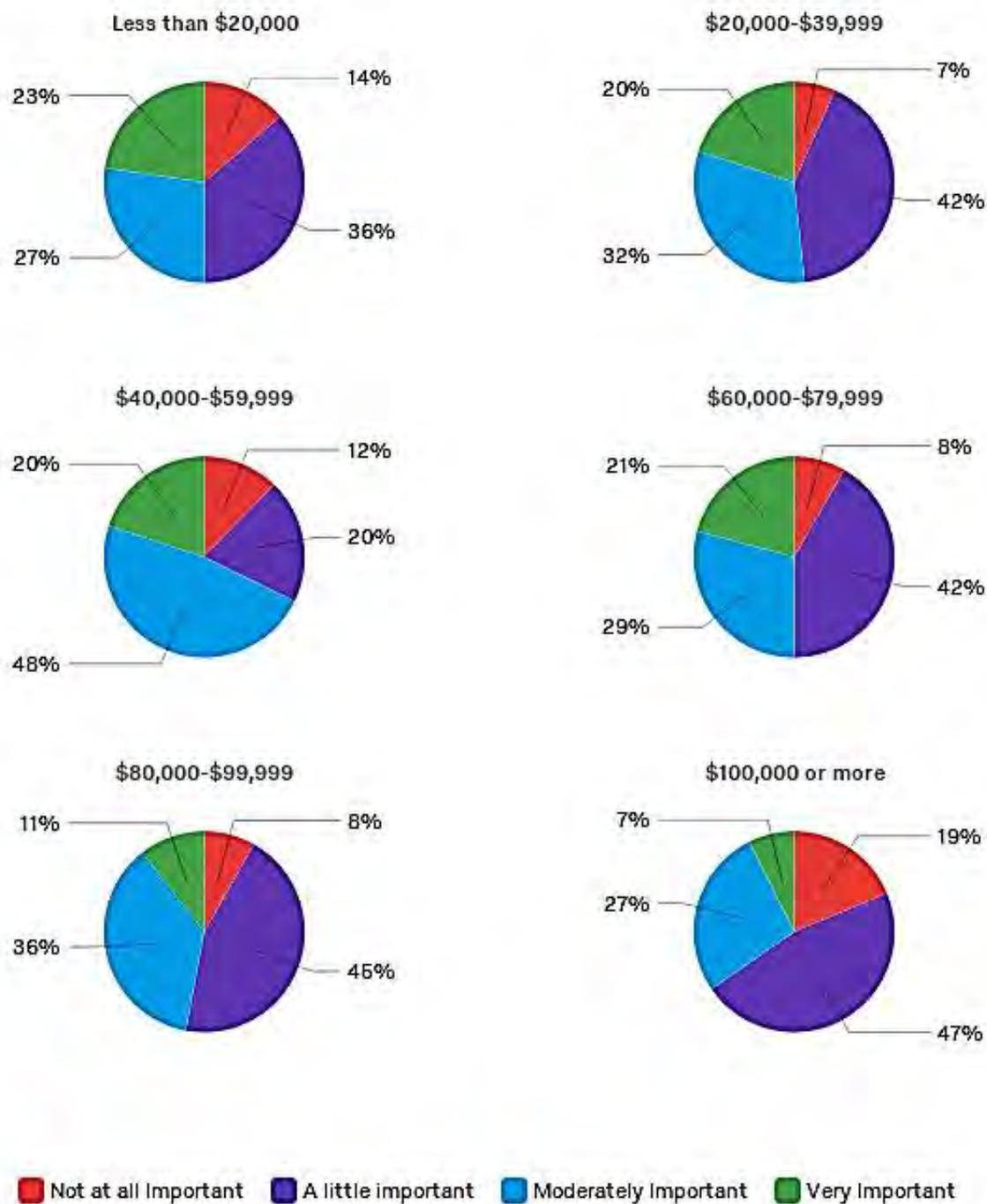
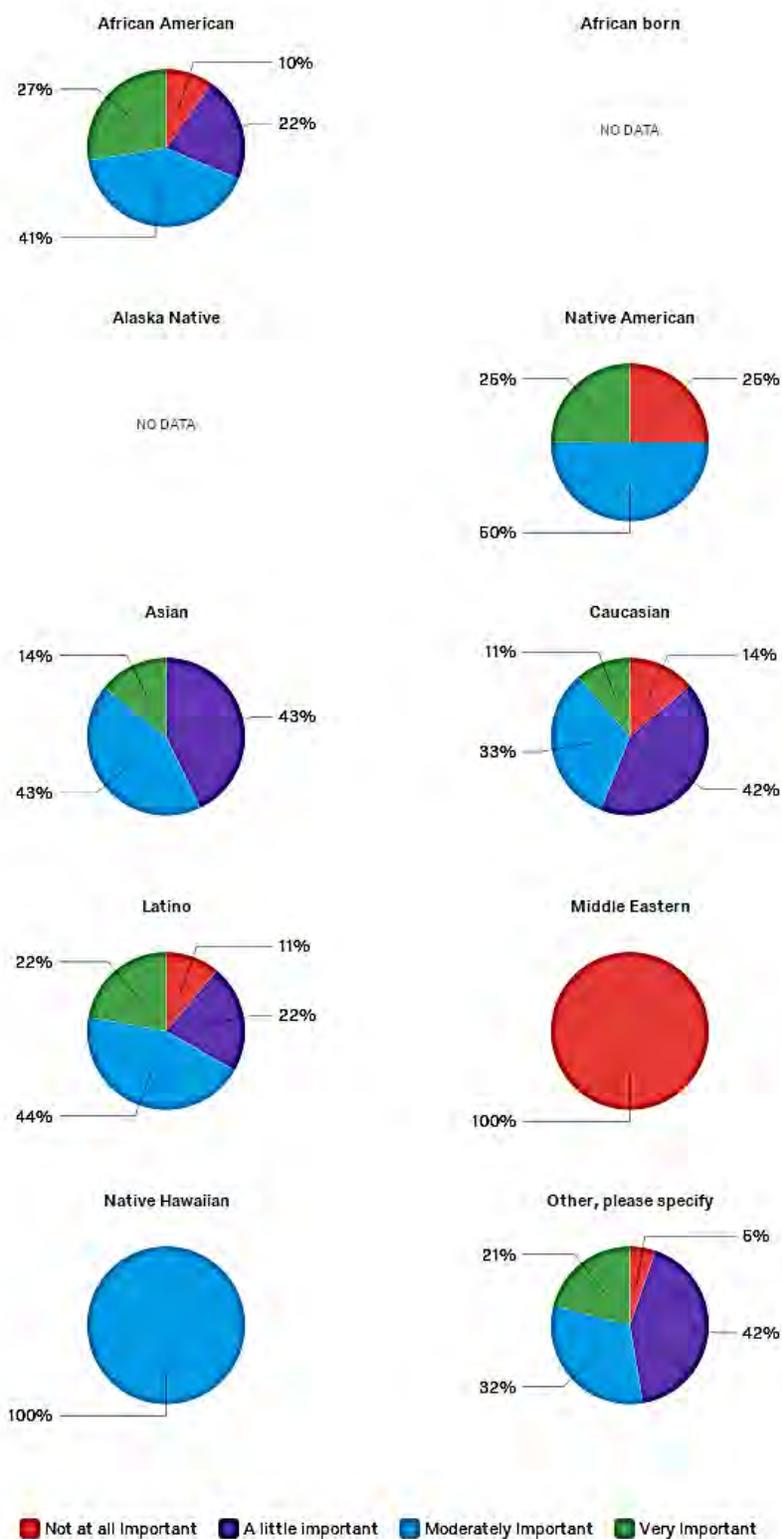


Figure 25d. It is important that the food I eat each day is cheap by cultural heritage



Labeled "certified organic"

Figure 26a. It is important that the food I eat each day is labeled "certified organic" by gender

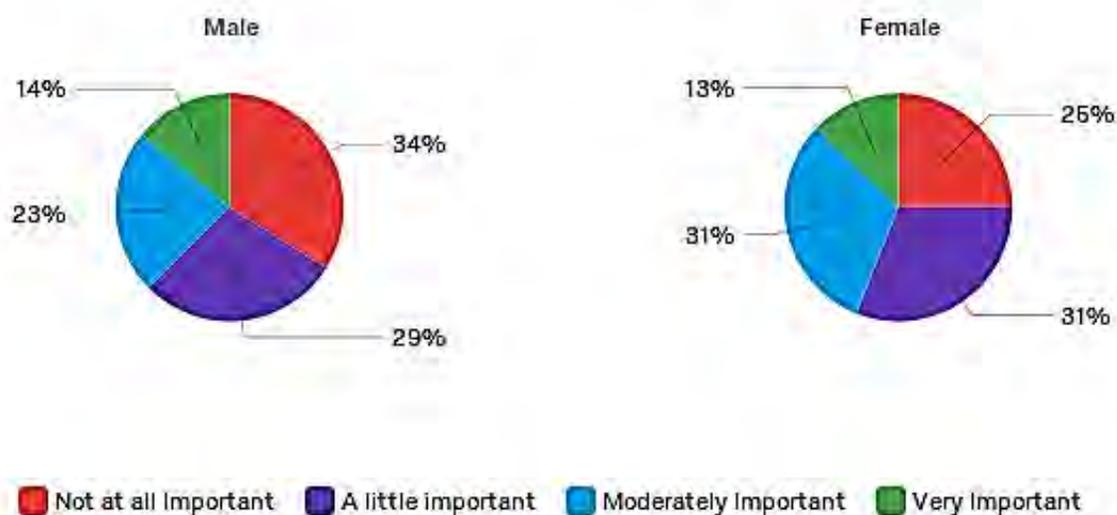


Figure 26b. It is important that the food I eat each day is labeled "certified organic" by age

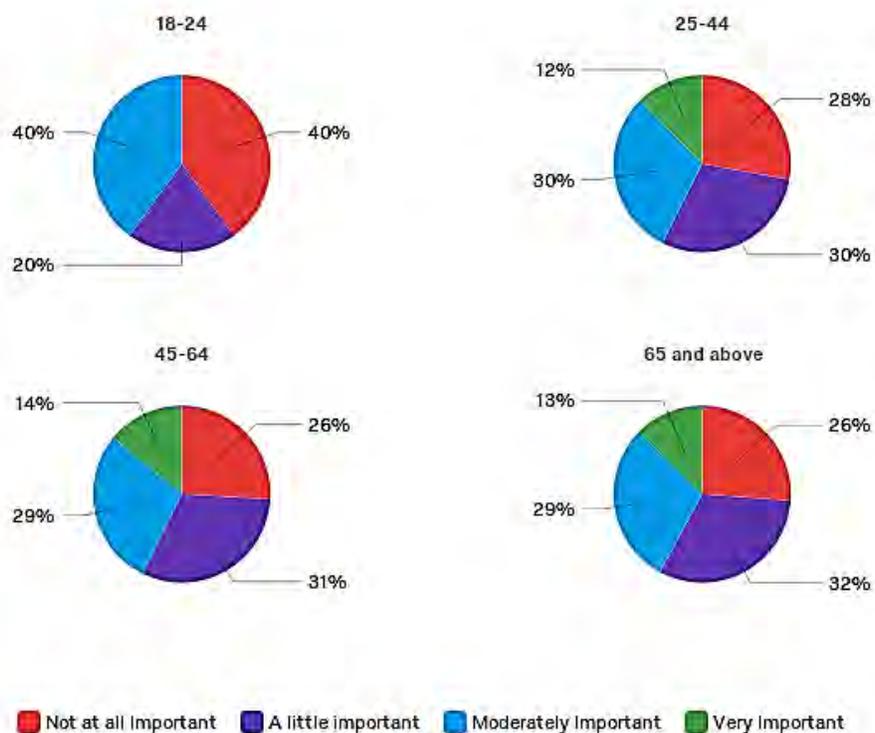


Figure 26c. It is important that the food I eat each day is labeled “certified organic” by income

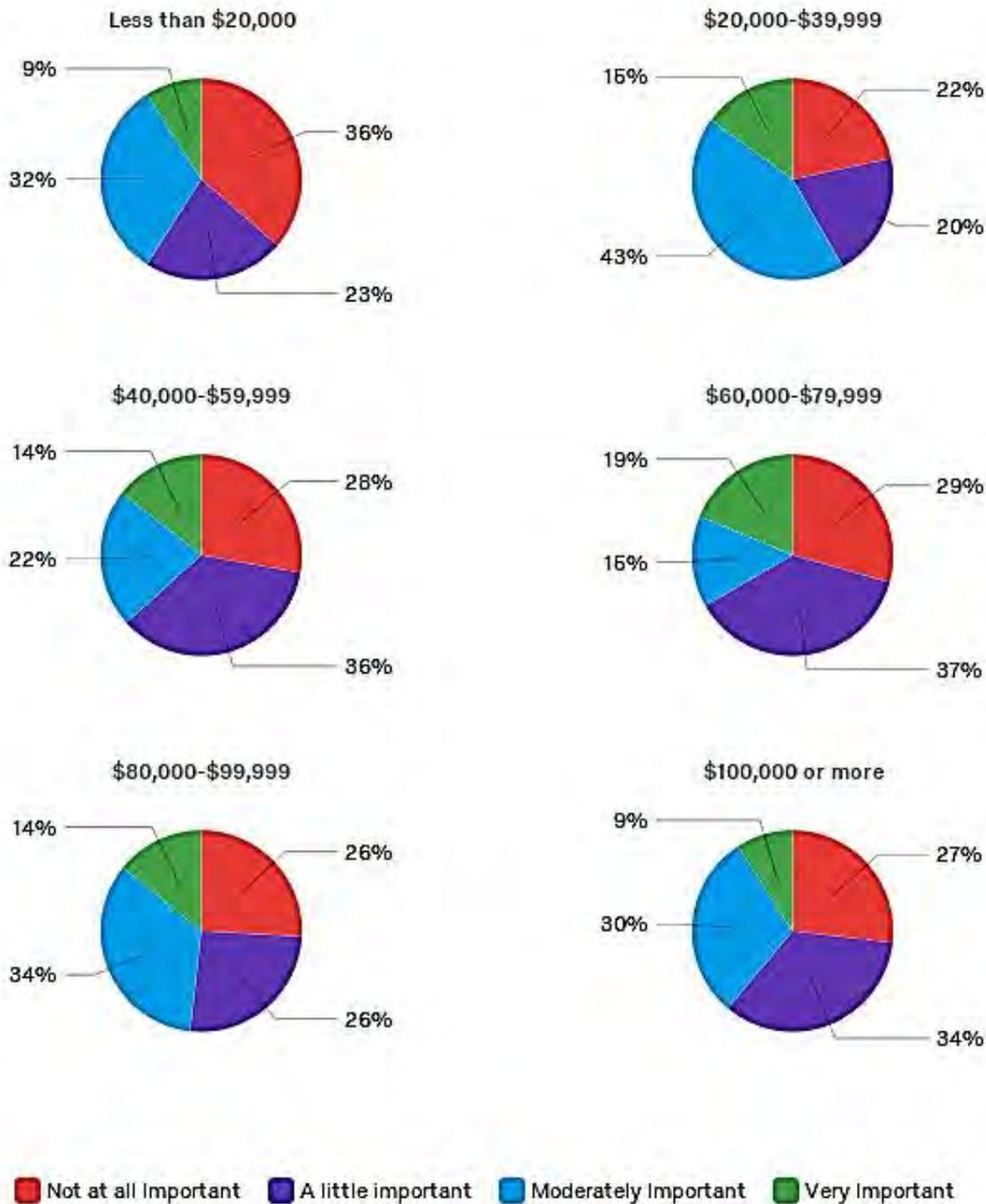


Figure 26d. It is important that the food I eat each day is labeled “certified organic” by cultural heritage

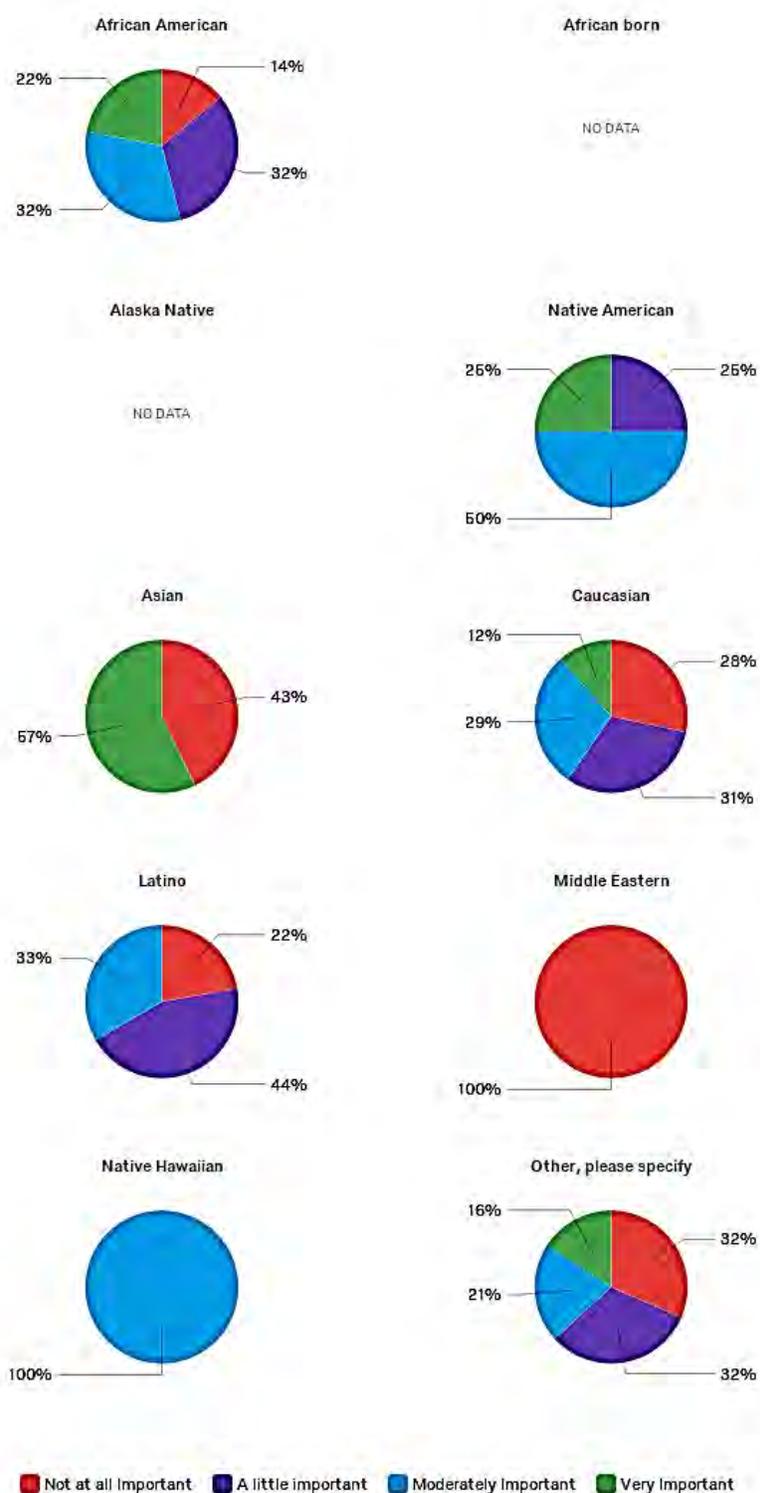


Figure 26e. It is important that the food I eat each day is labeled “certified organic” versus number of times I eat fruit each week

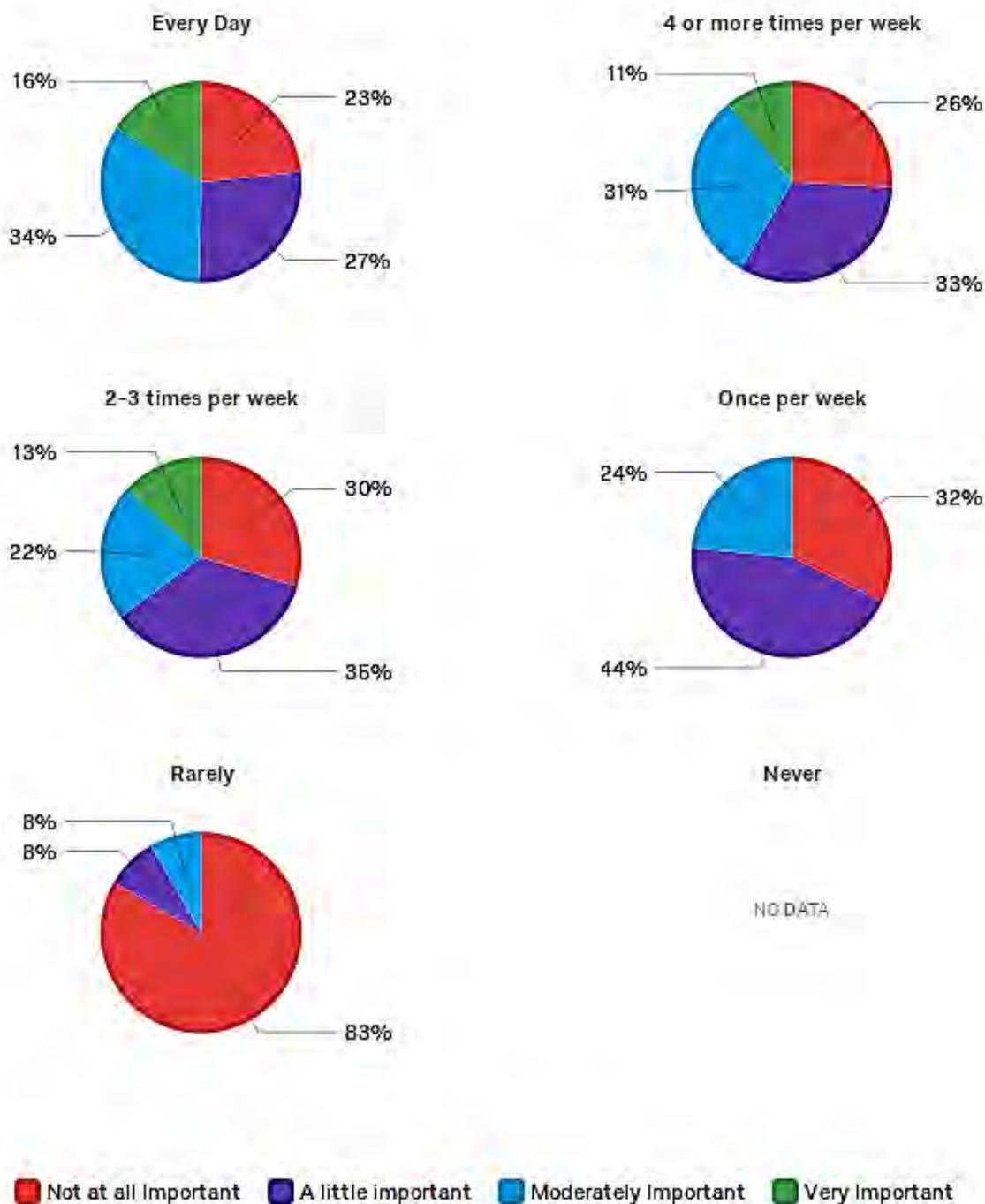


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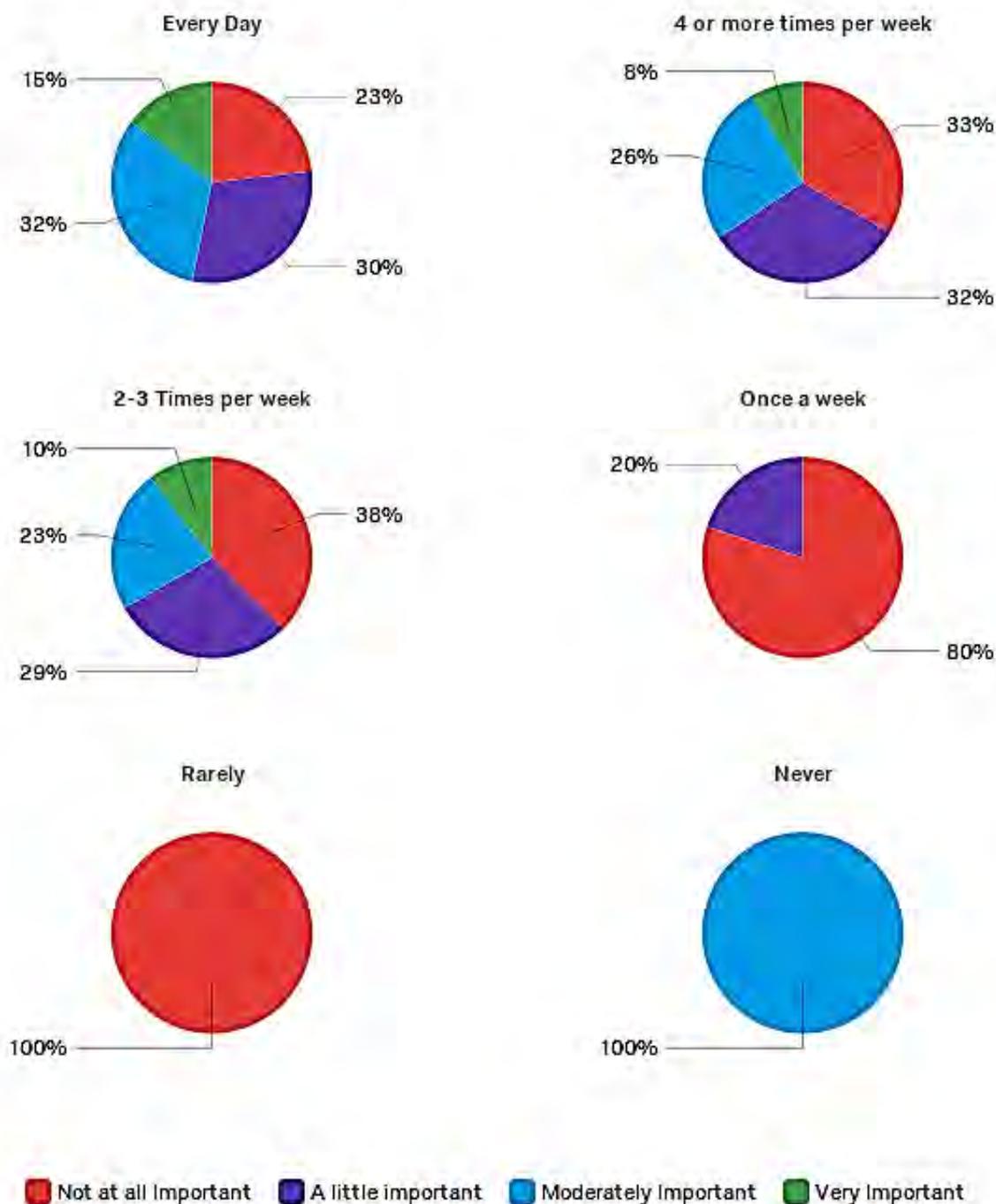
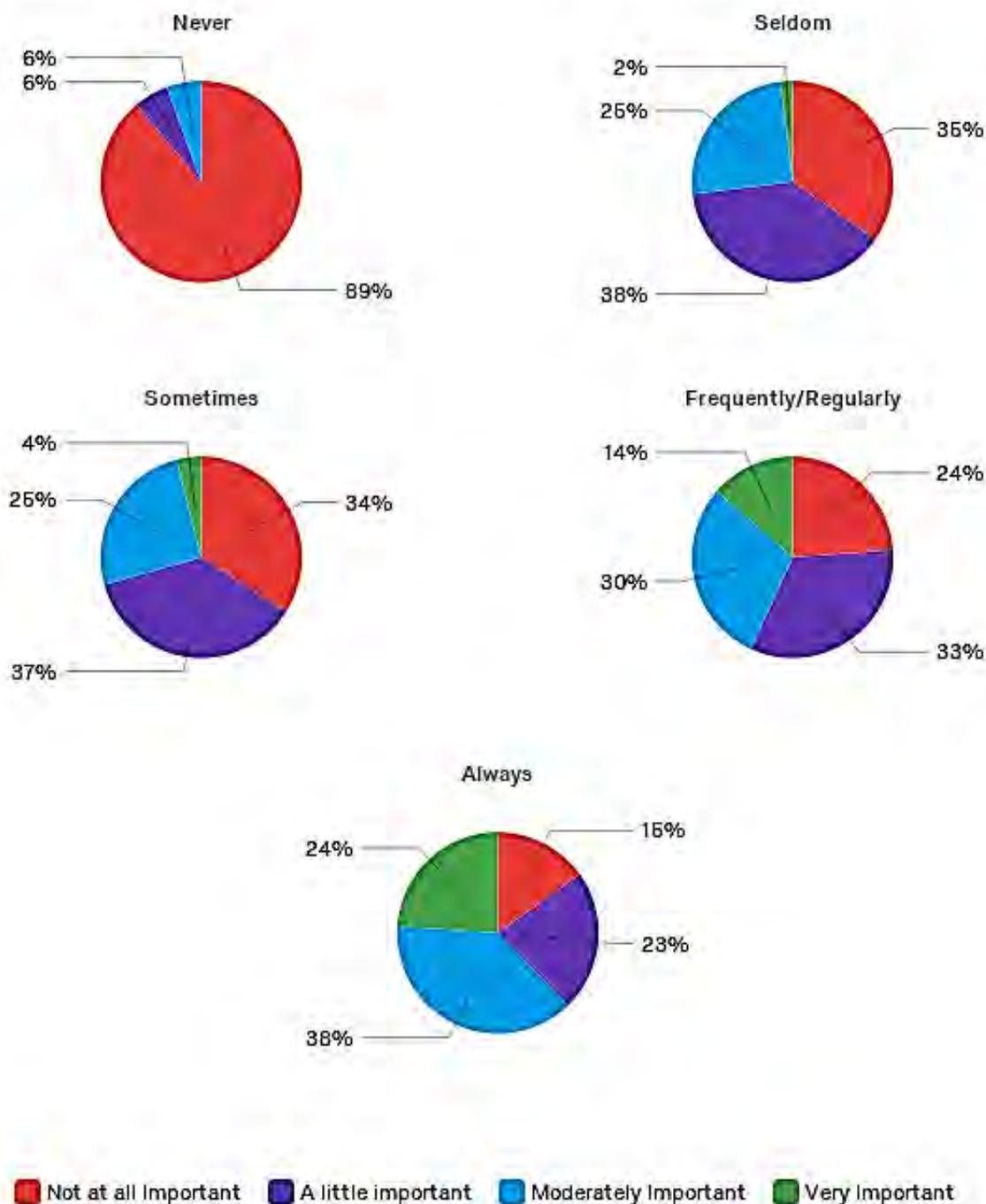


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Grown in Virginia

Figure 27a. It is important that the food I eat each day is grown in Virginia by gender

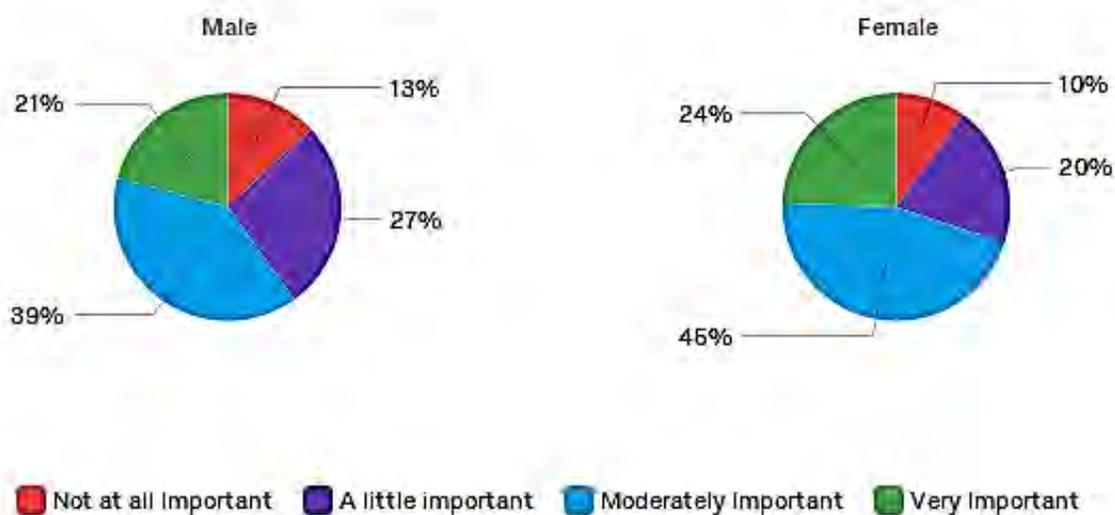


Figure 27b. It is important that the food I eat each day is grown in Virginia by age

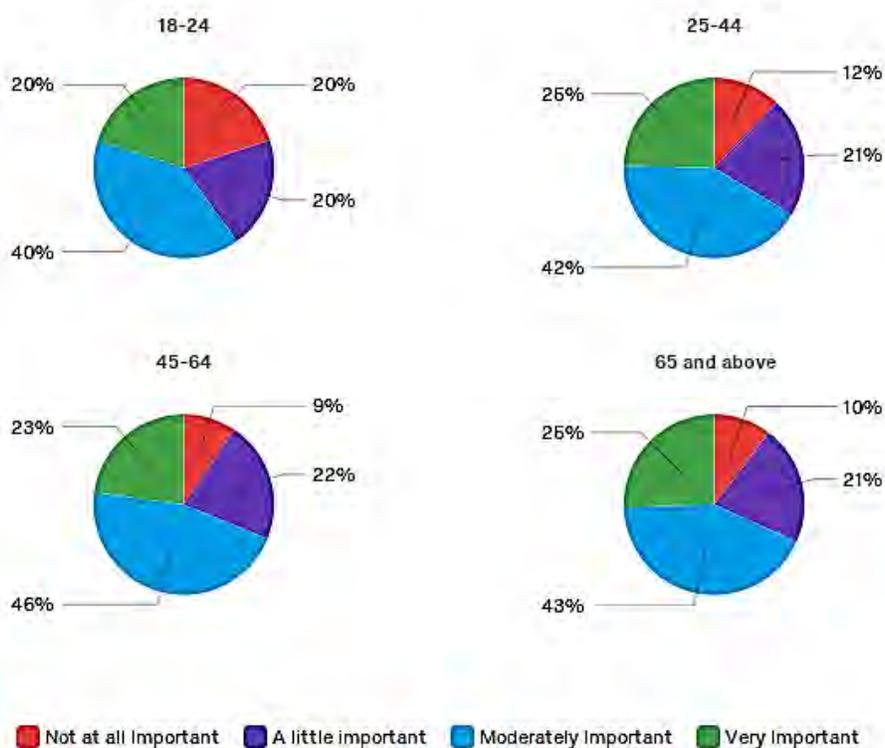


Figure 27c. It is important that the food I eat each day is grown in Virginia by income

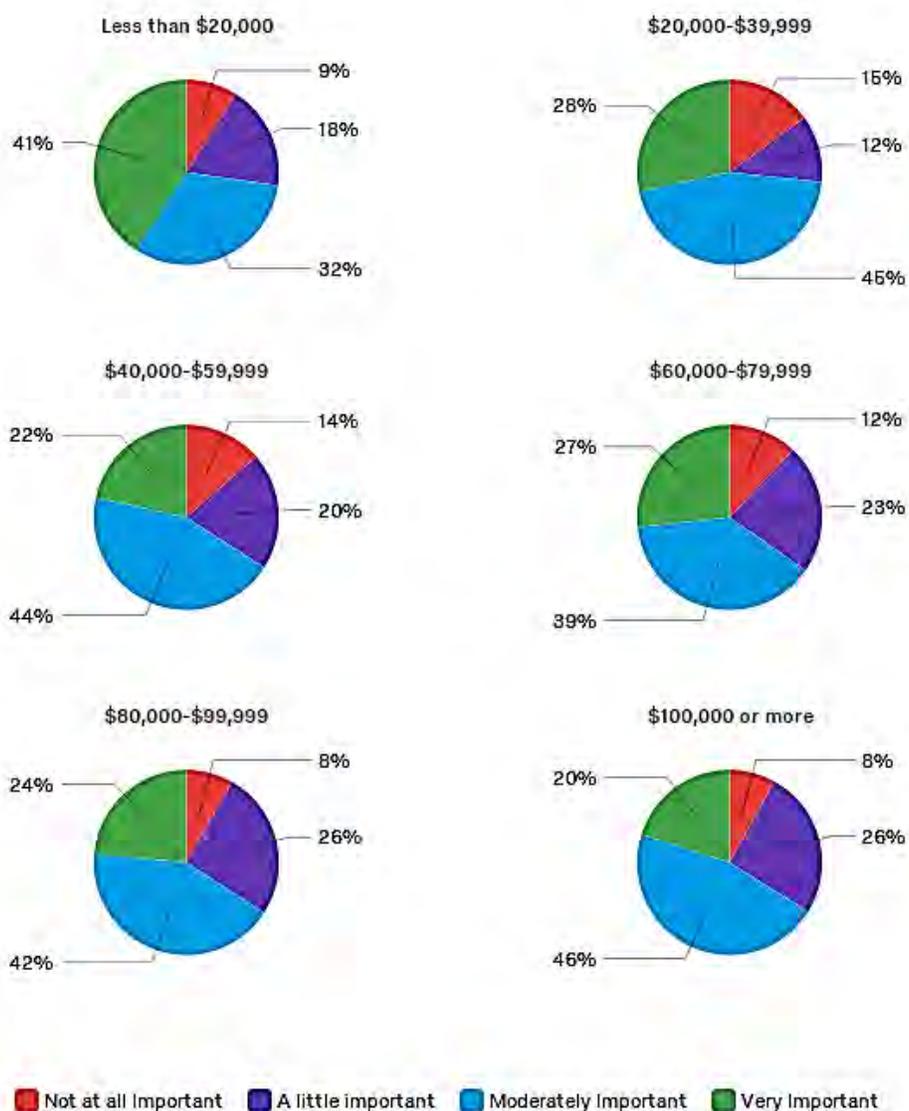


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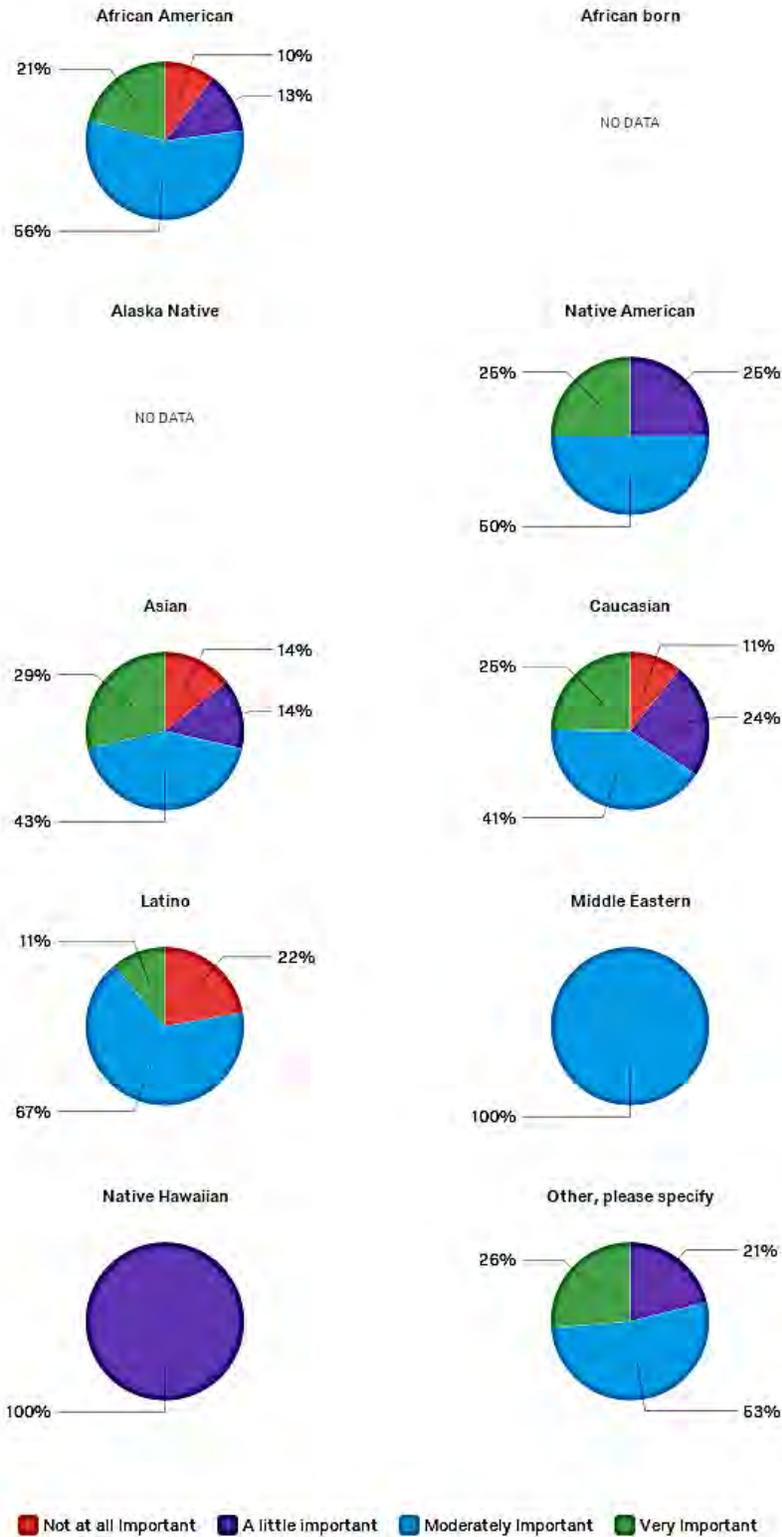
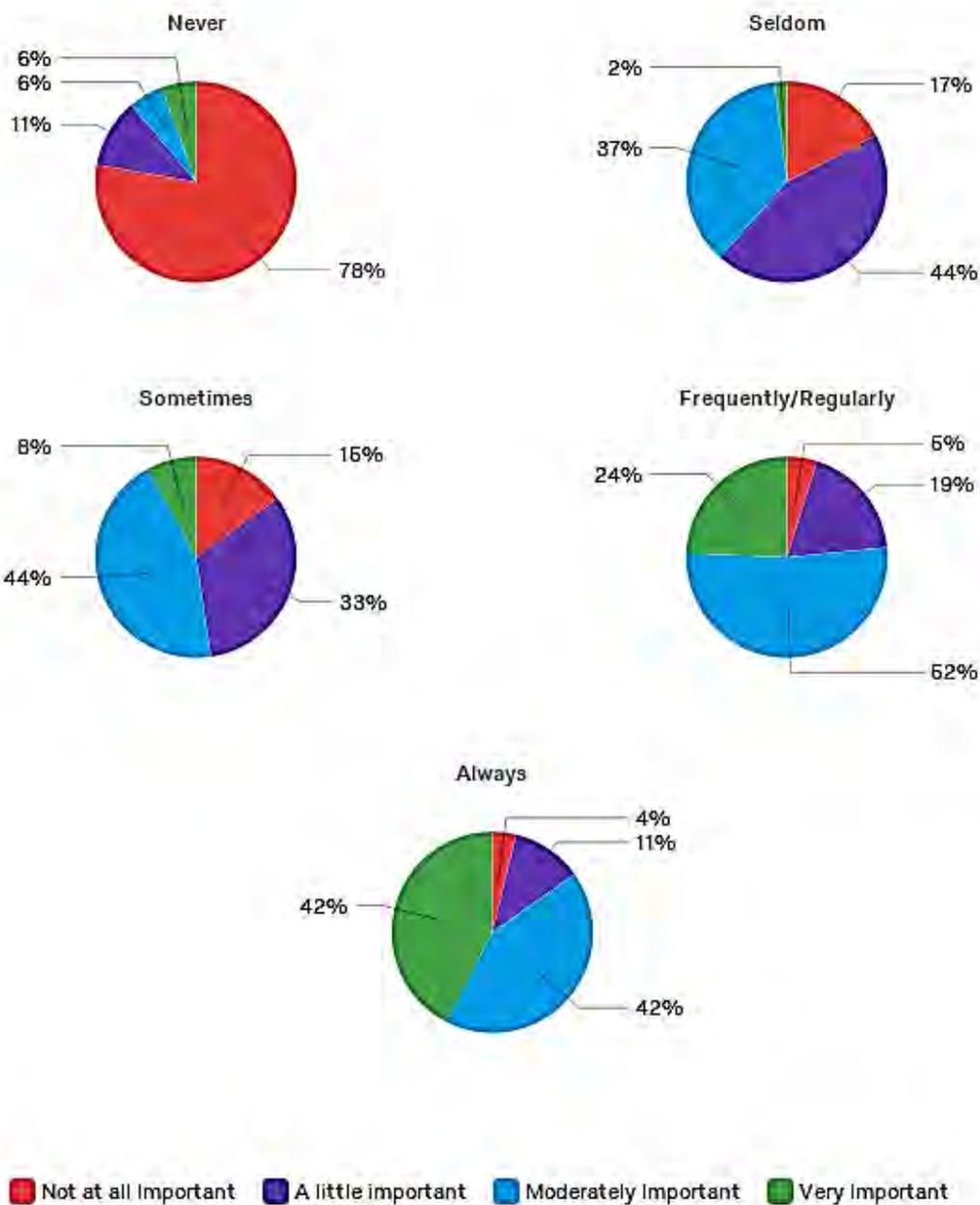


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Figure 28a. It is important that the food I eat each day is labeled “pesticide free” by gender

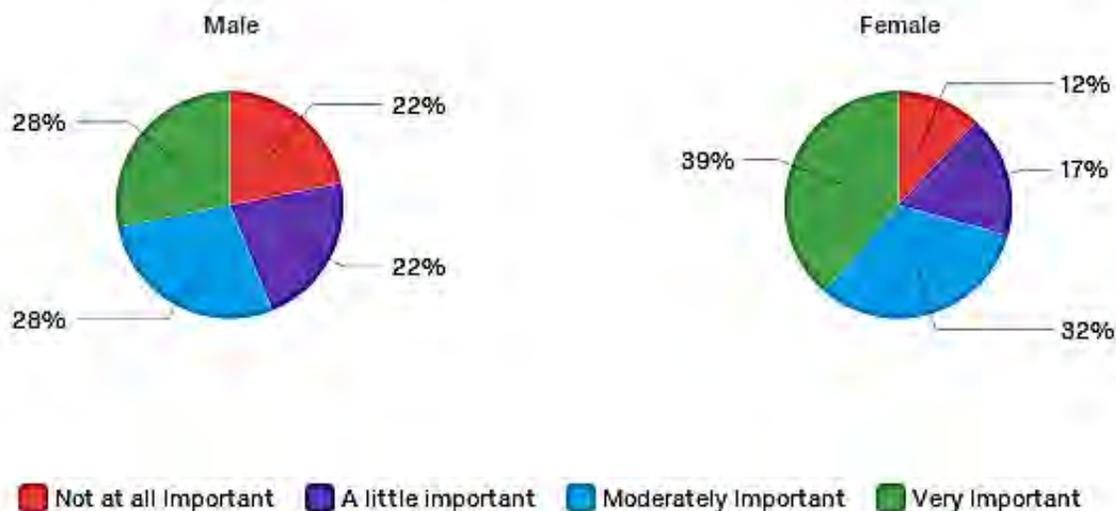


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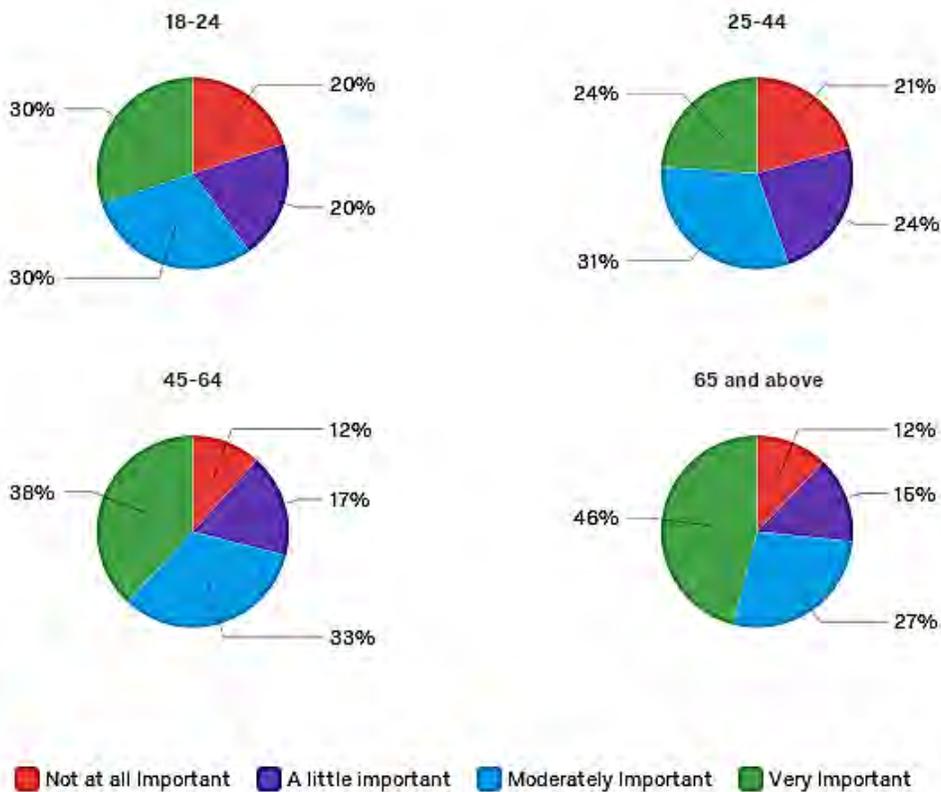


Figure 28c. It is important that the food I eat each day is labeled “pesticide free” by income

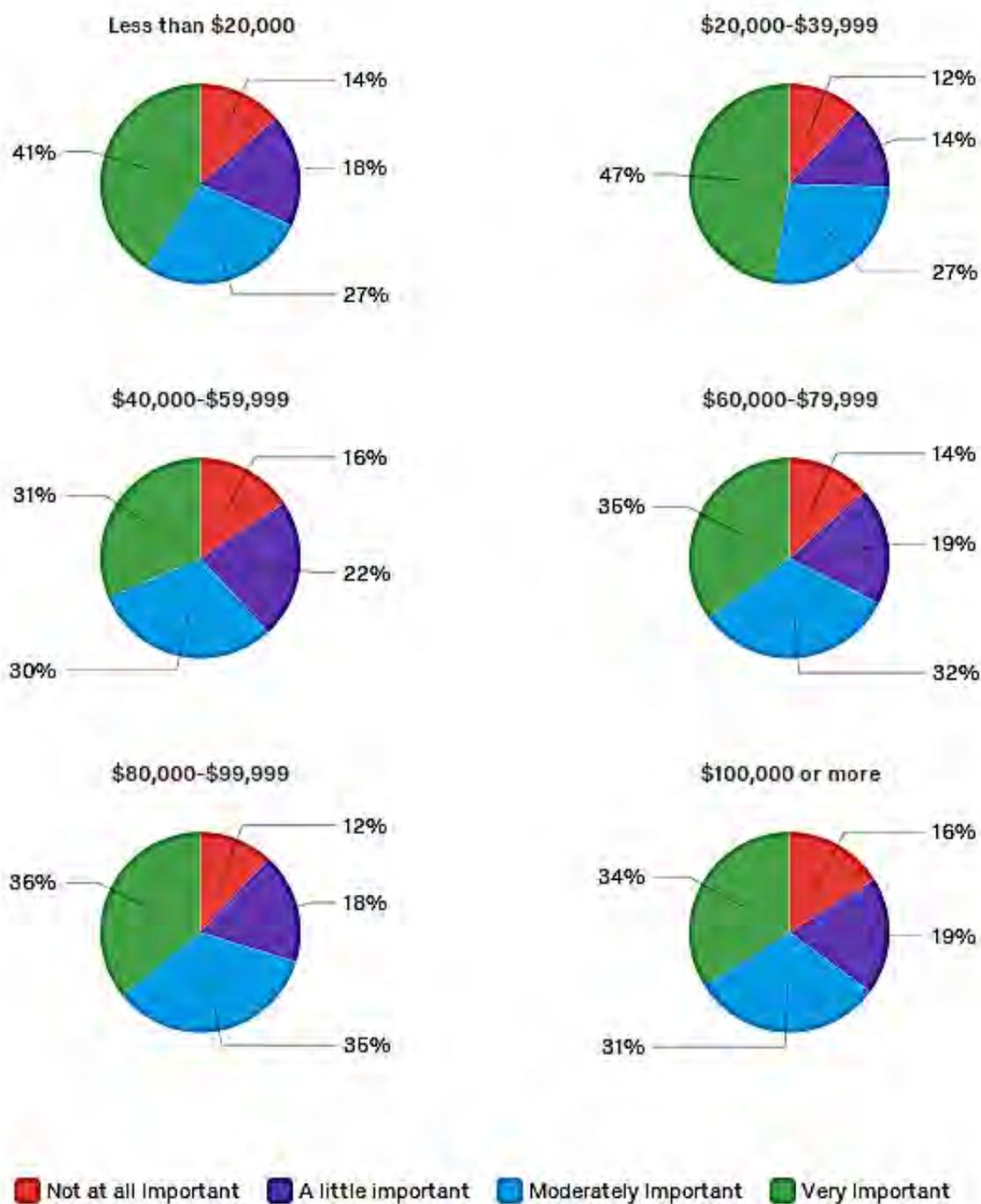


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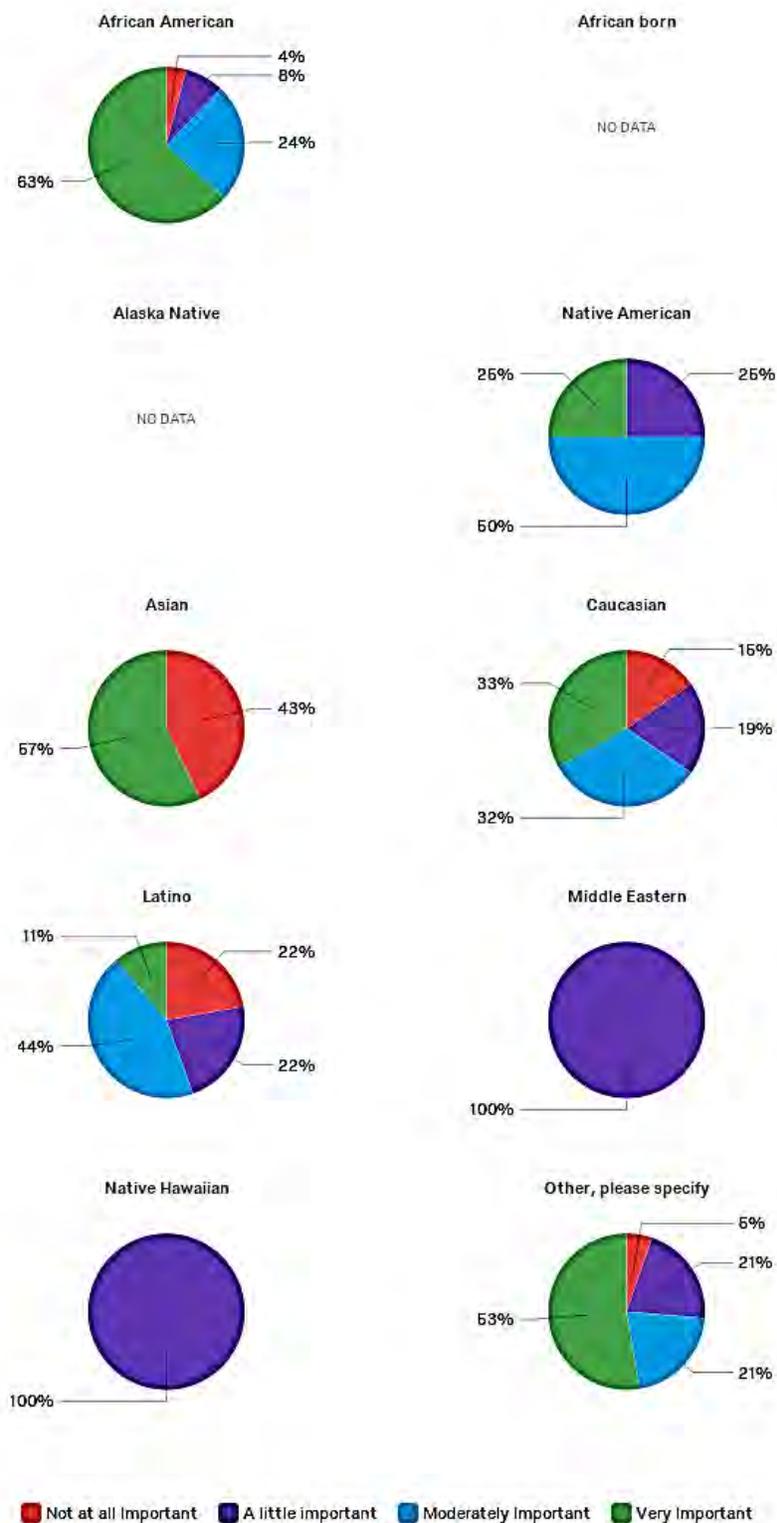


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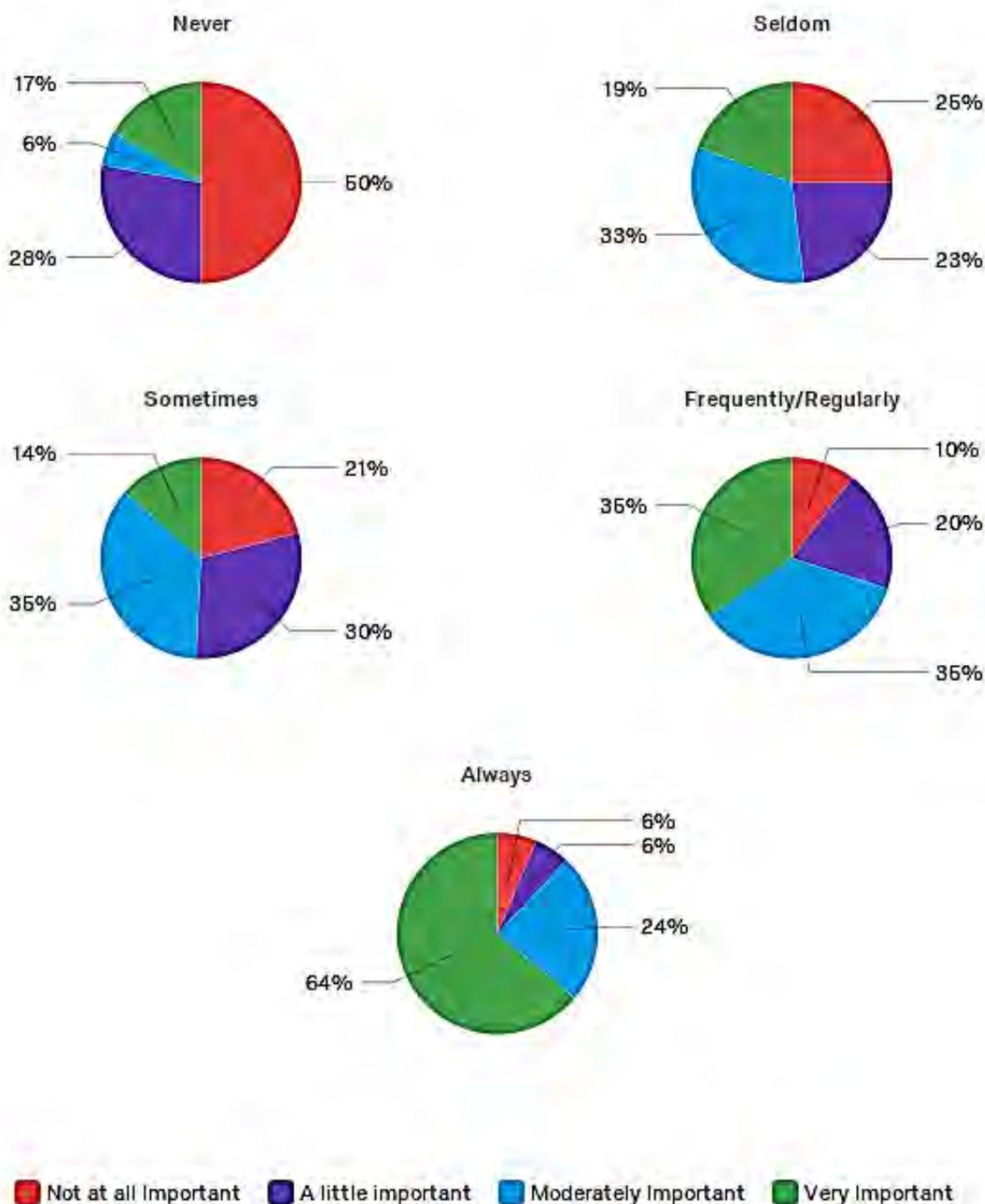


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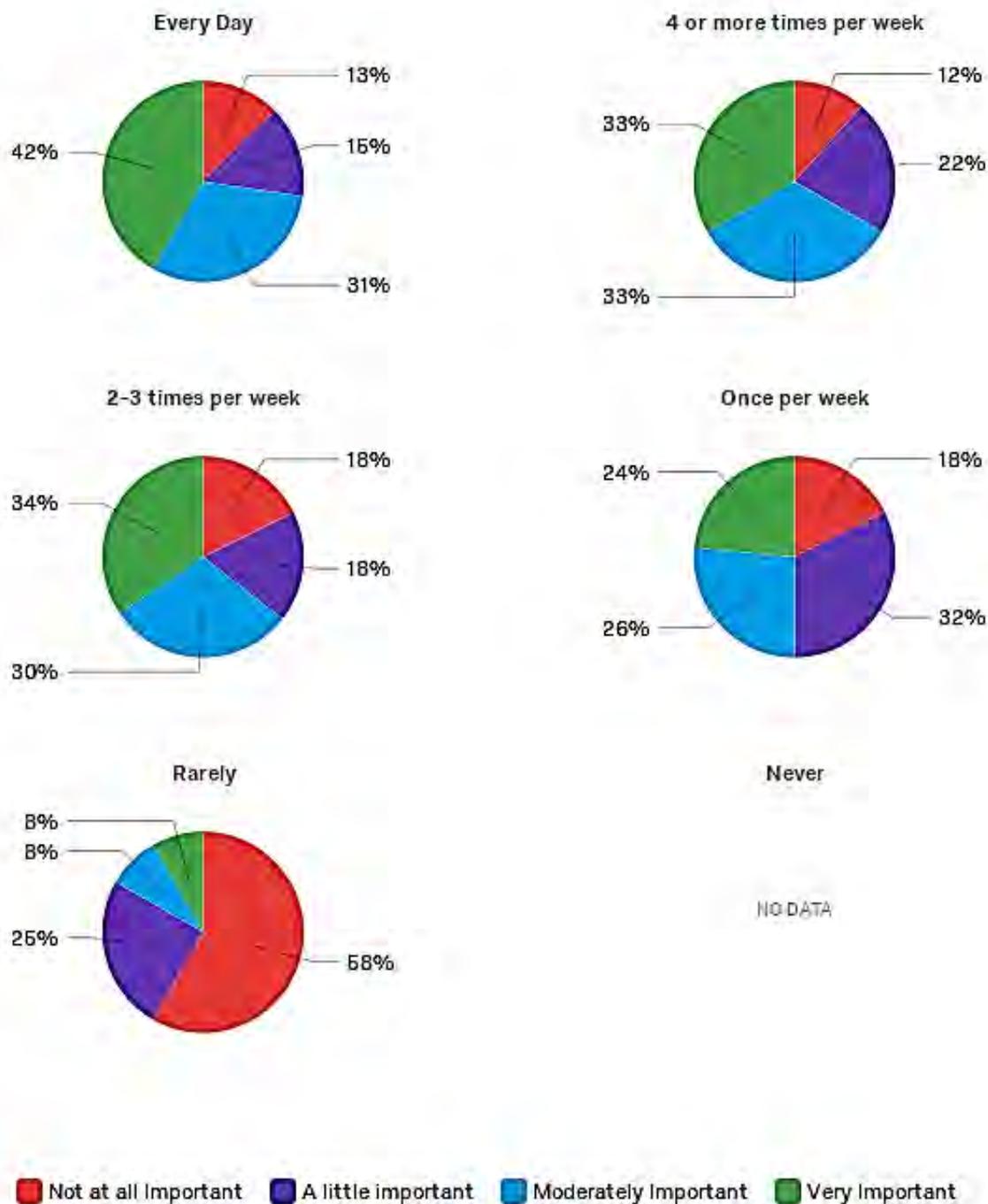
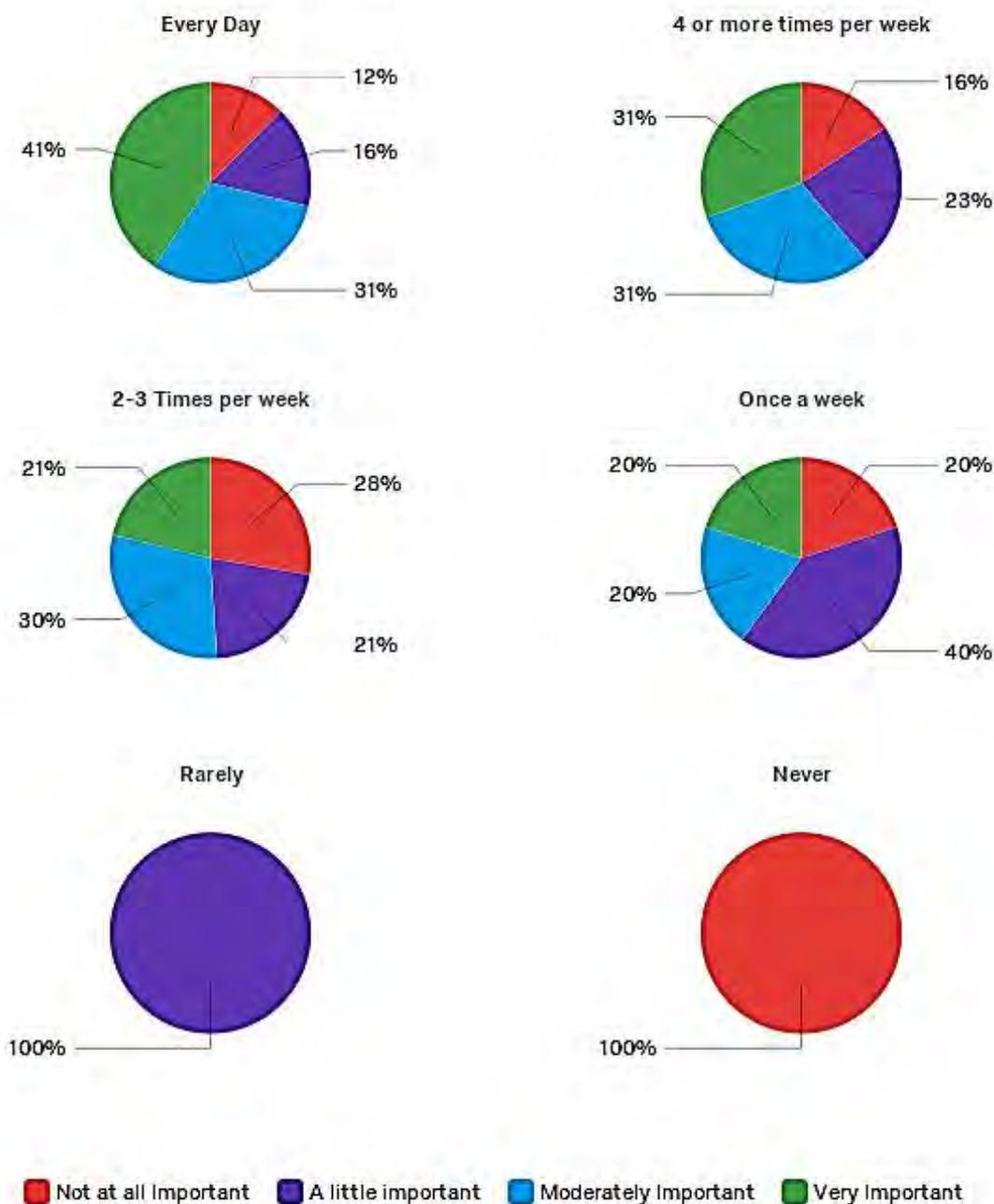


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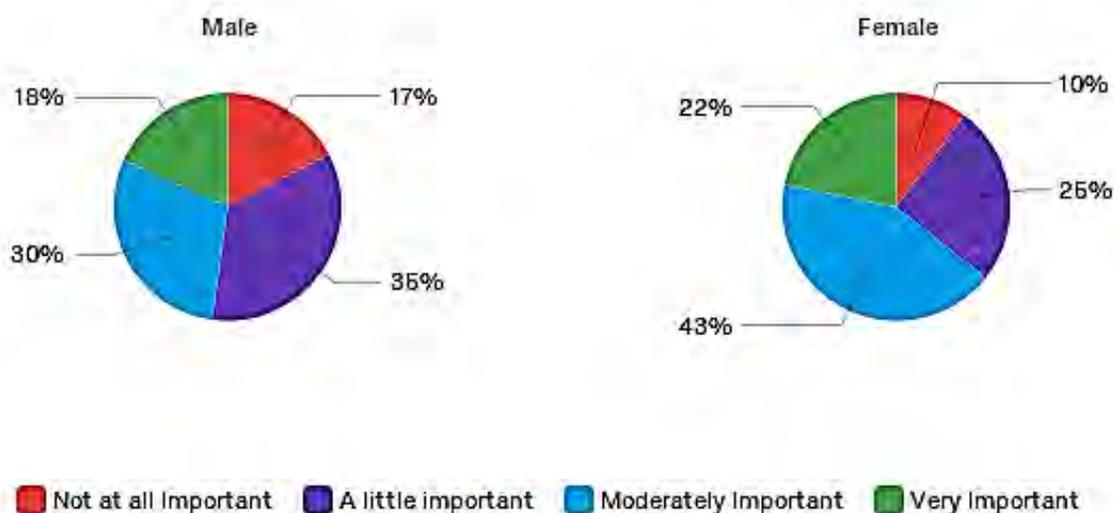


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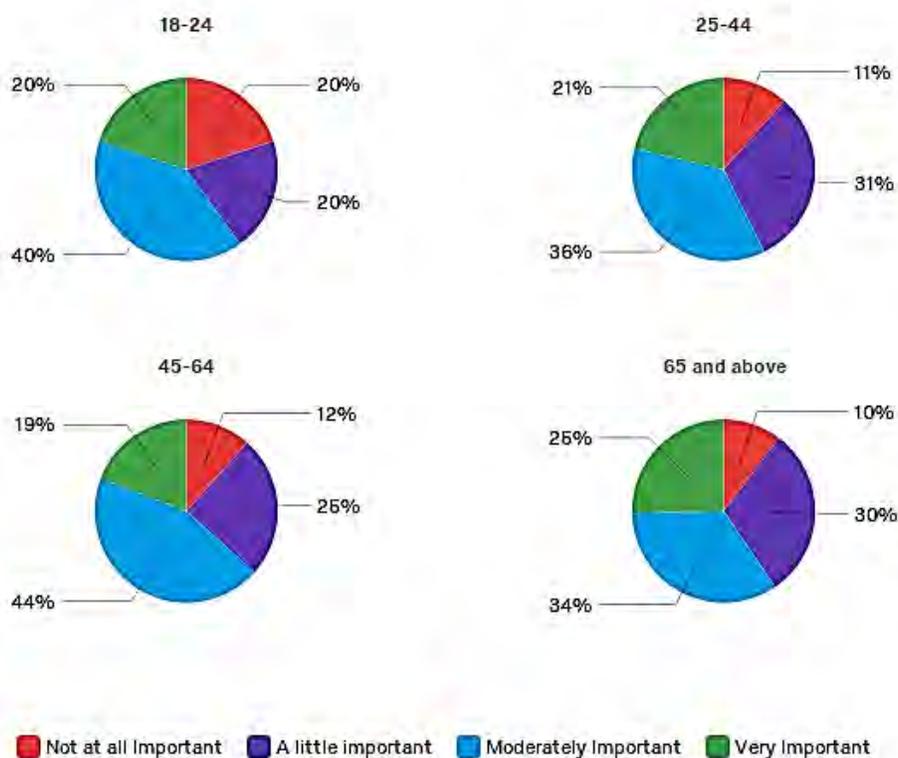


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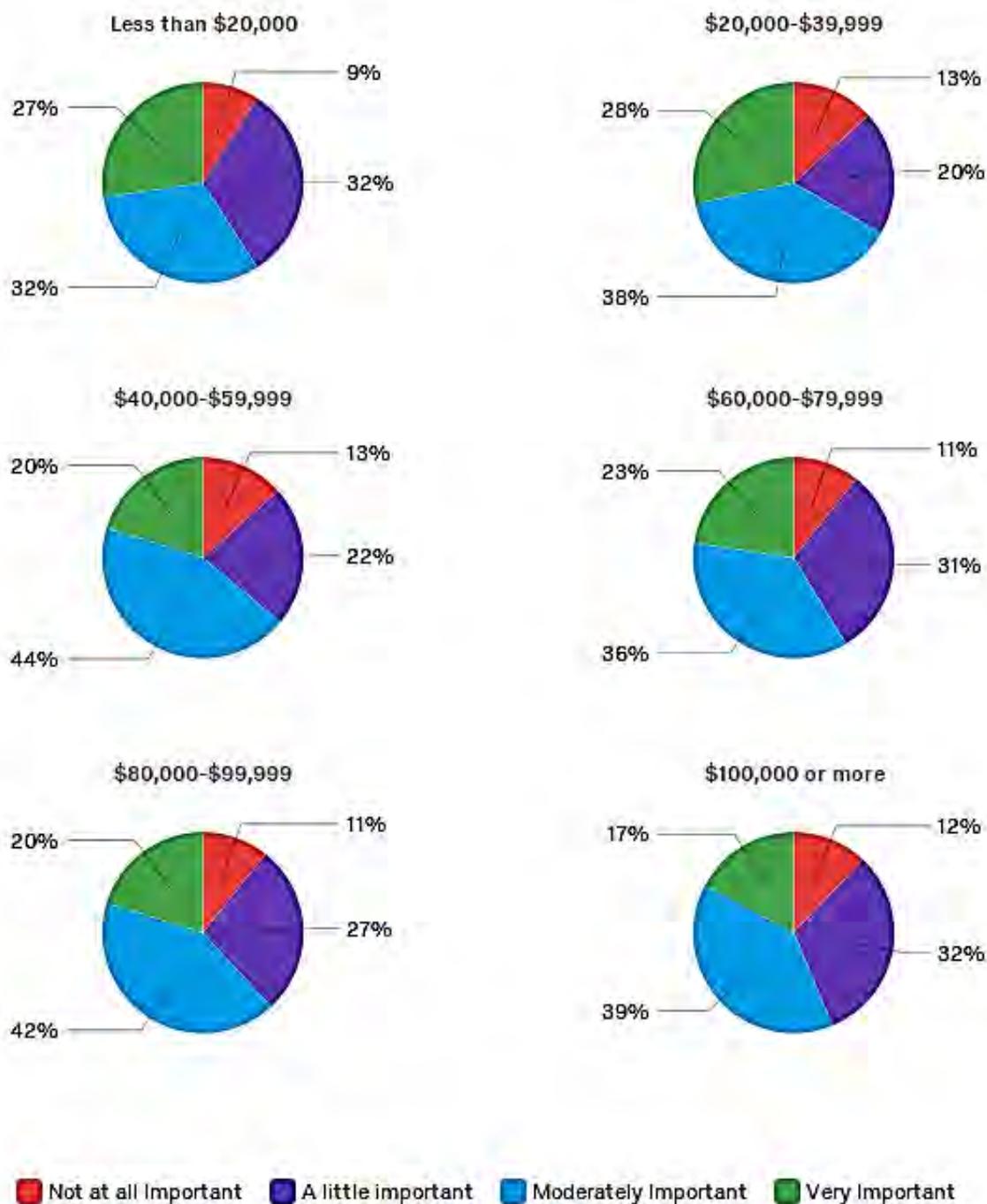


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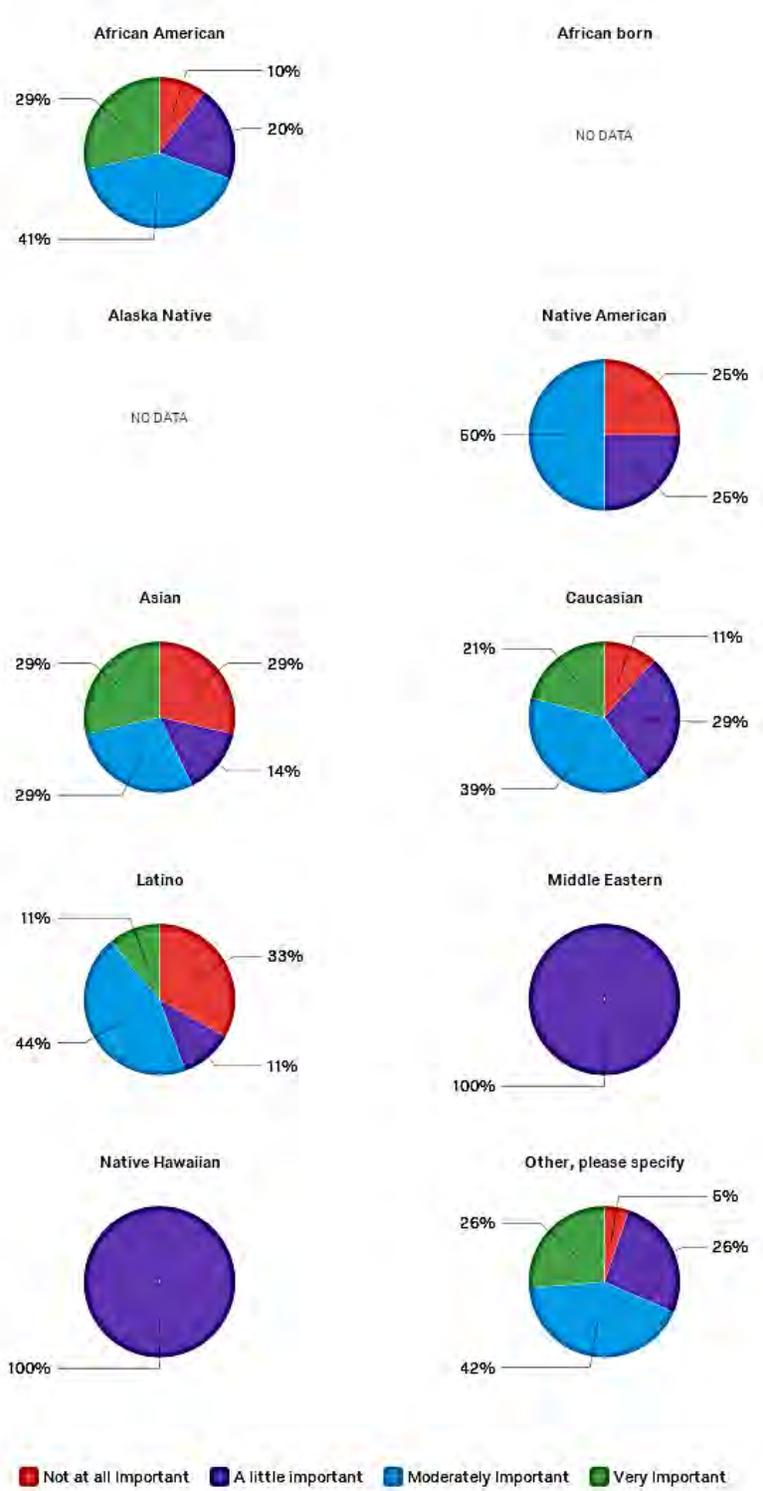


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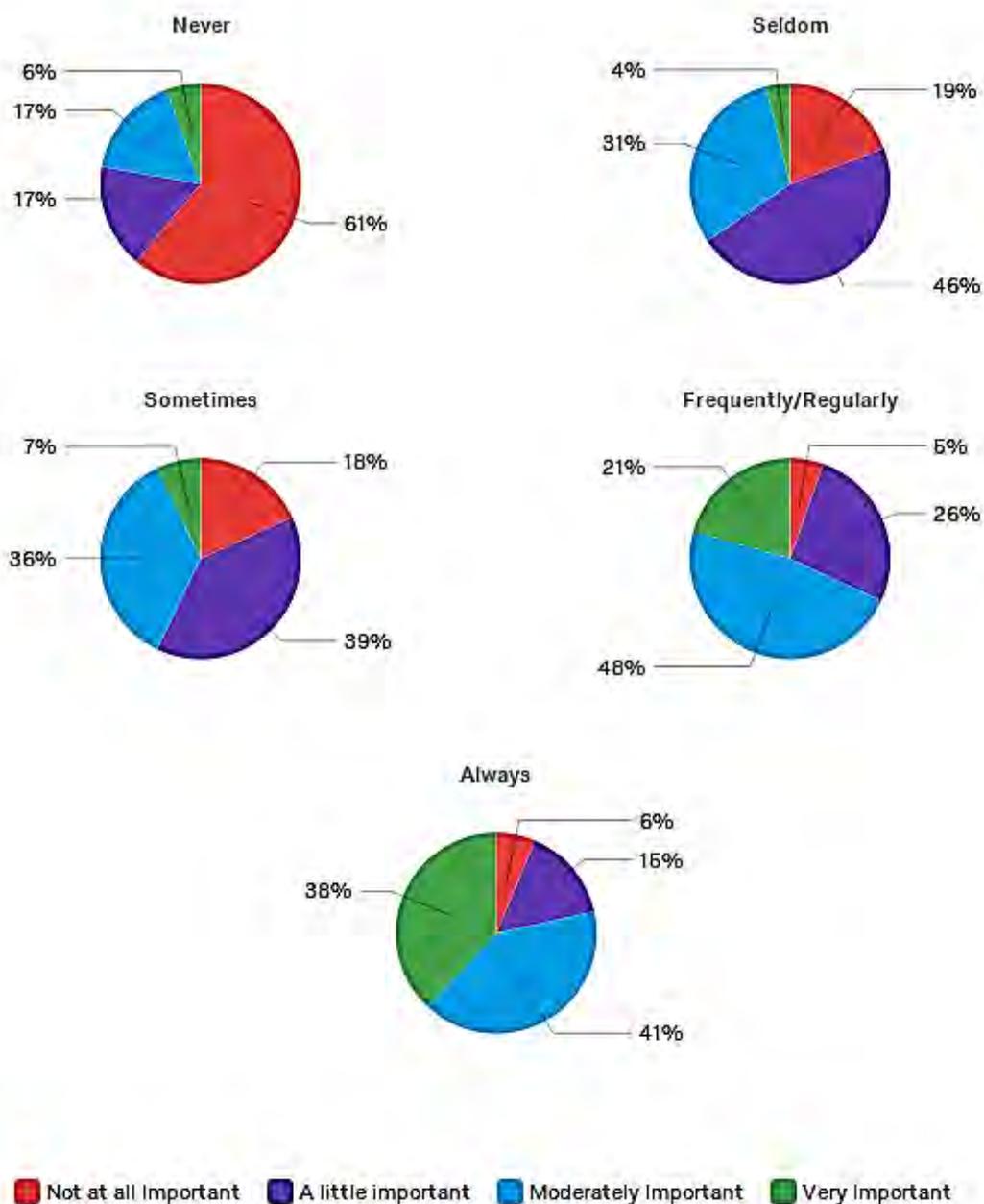


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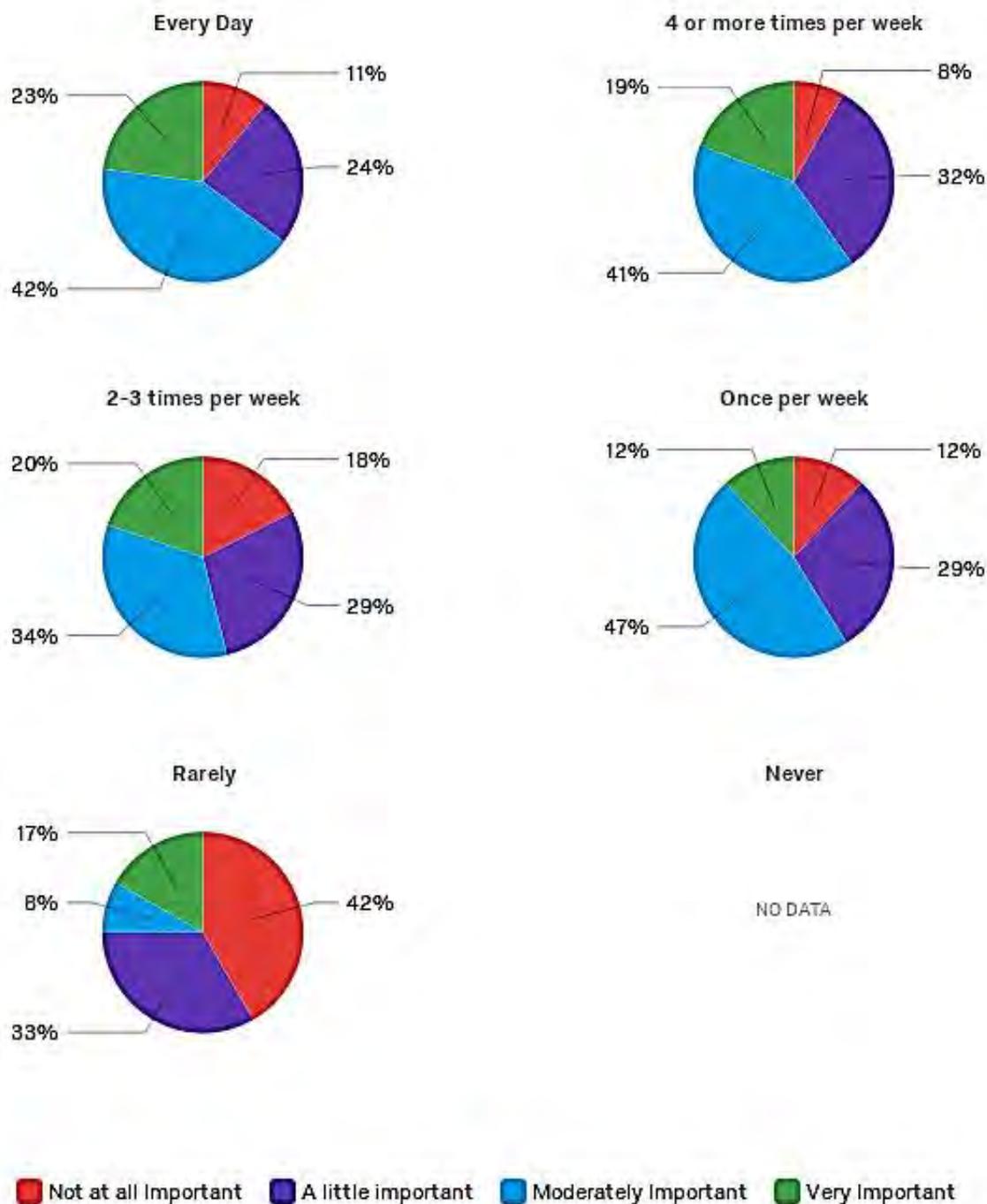
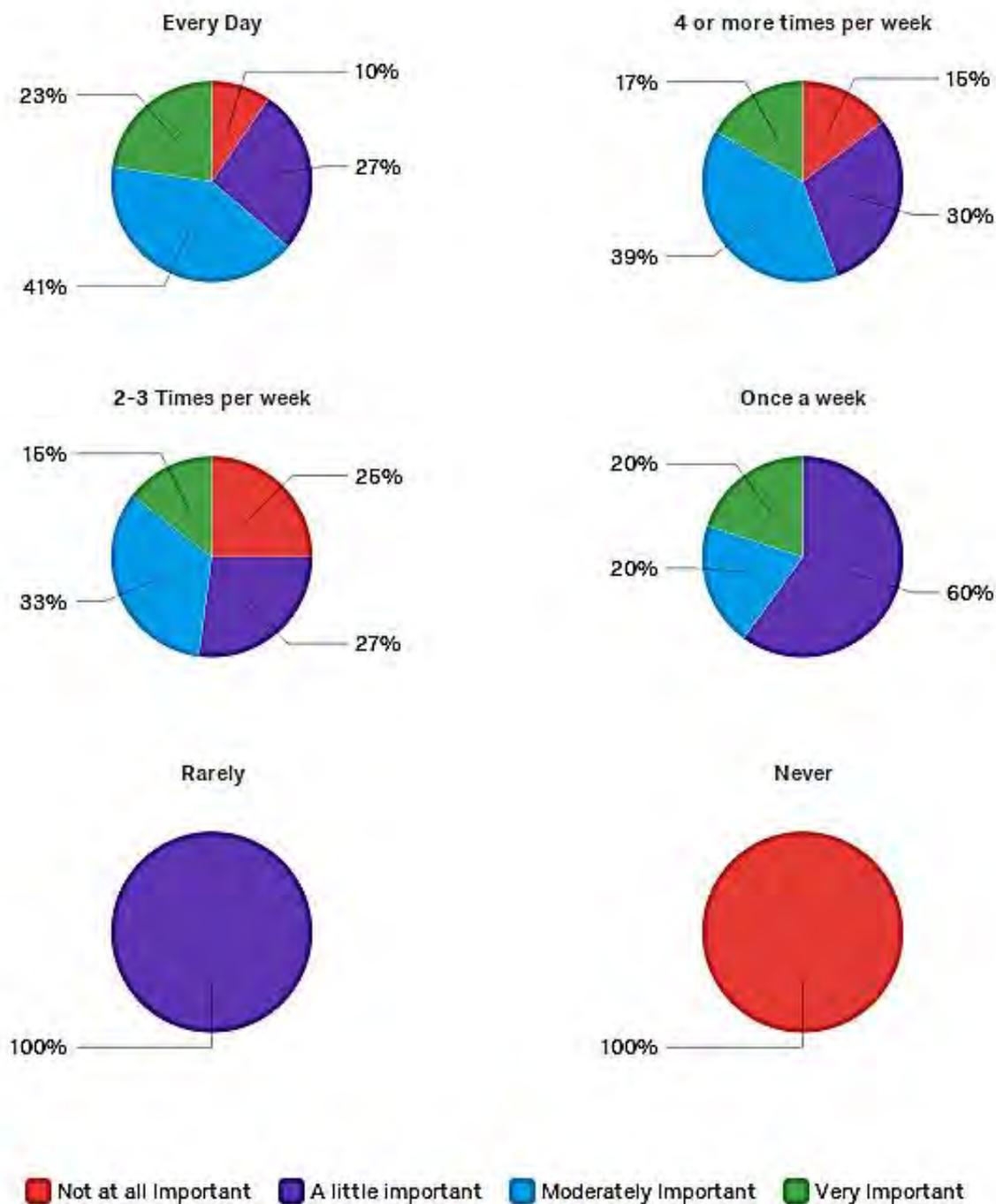


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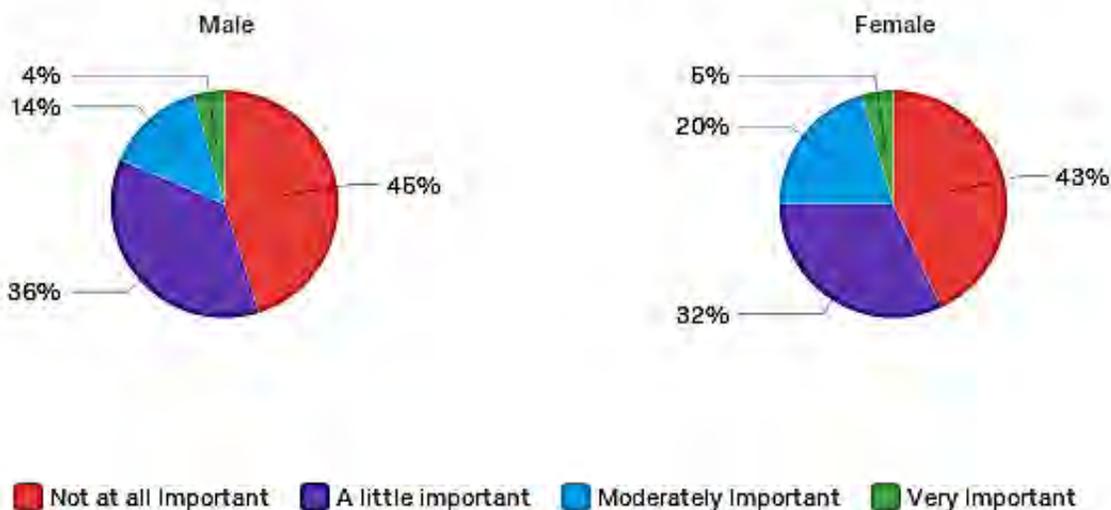


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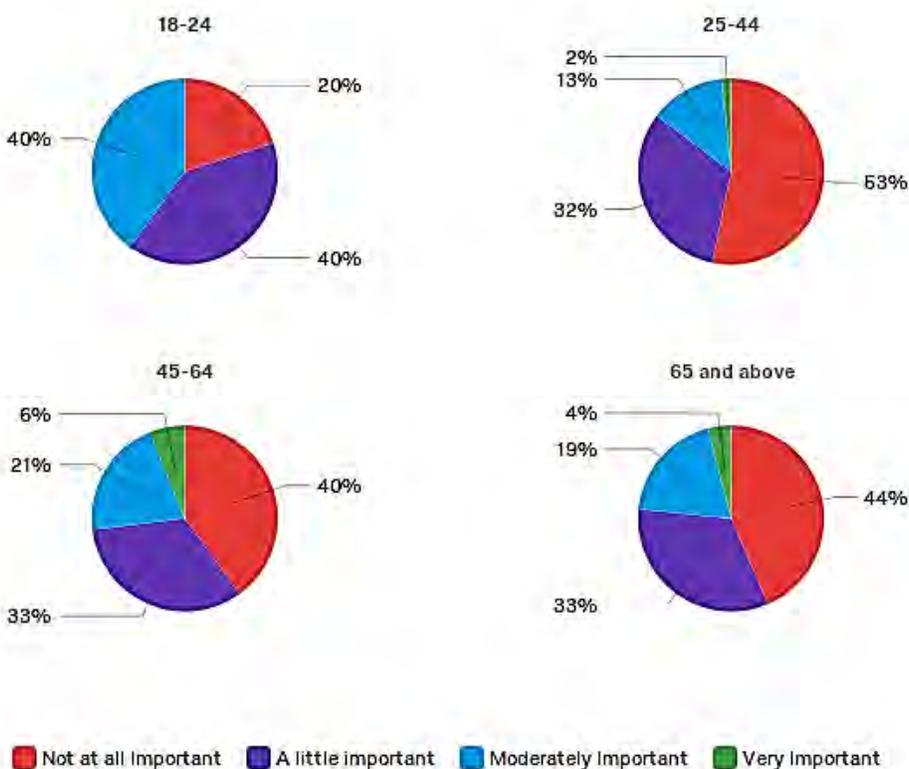


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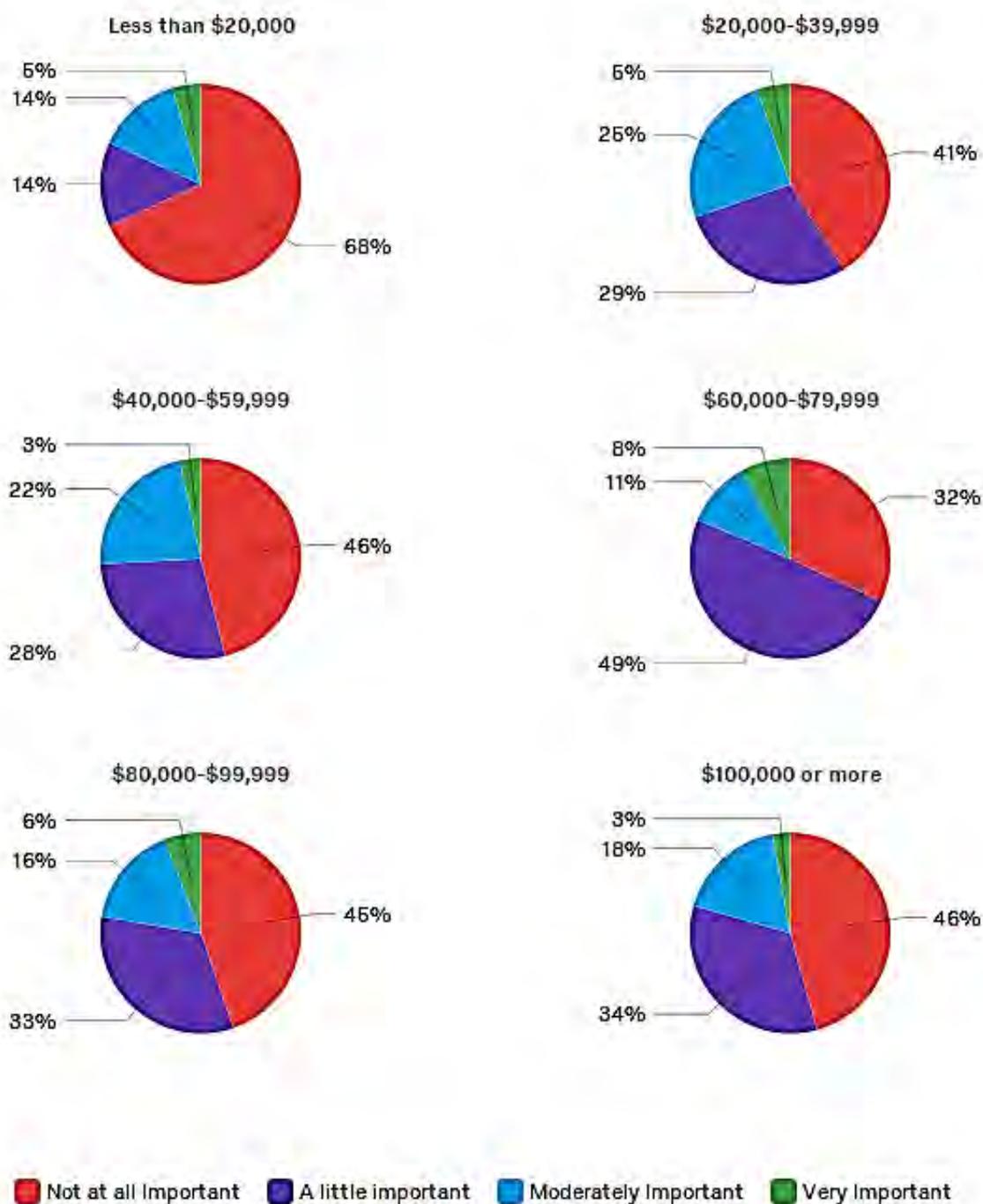


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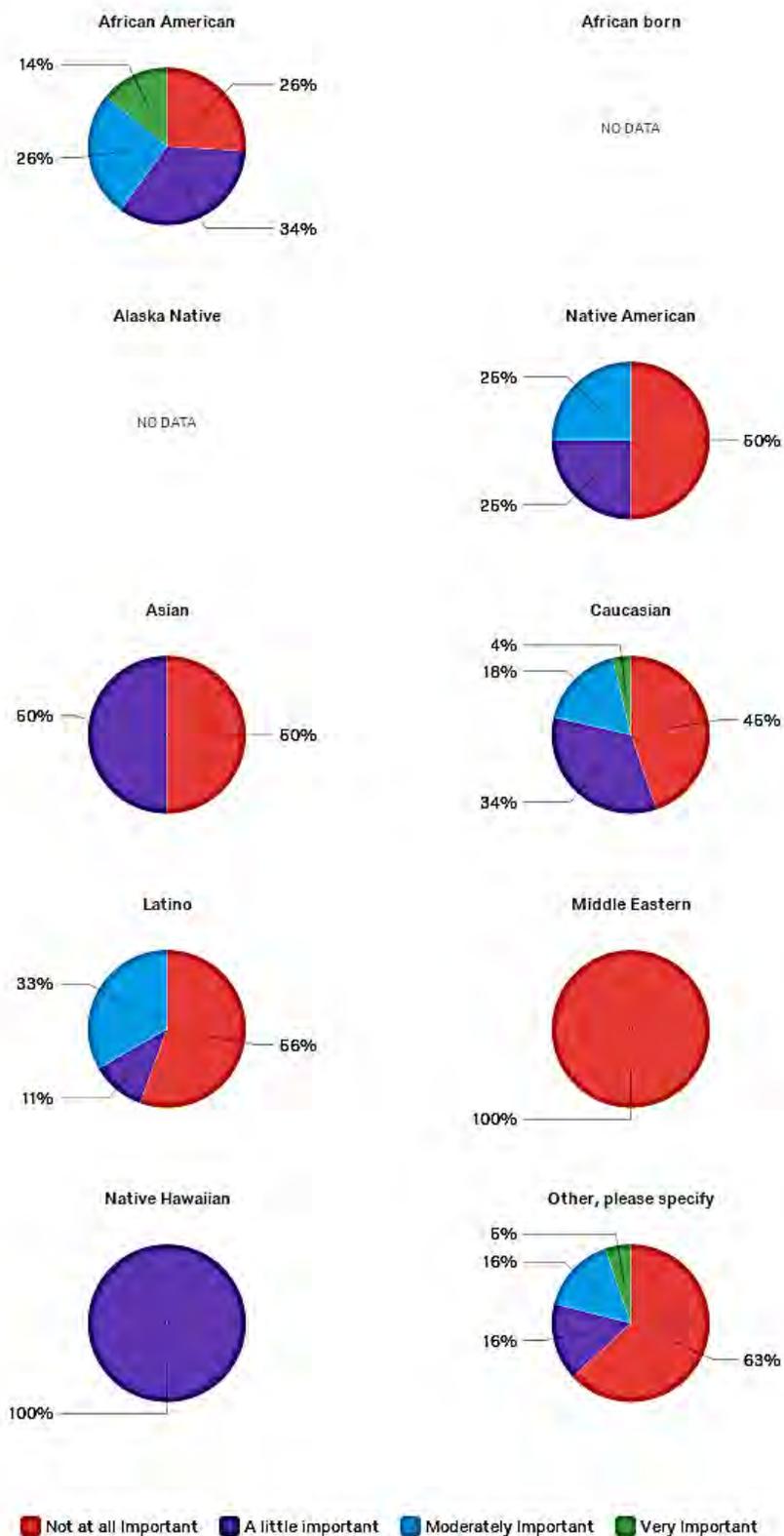


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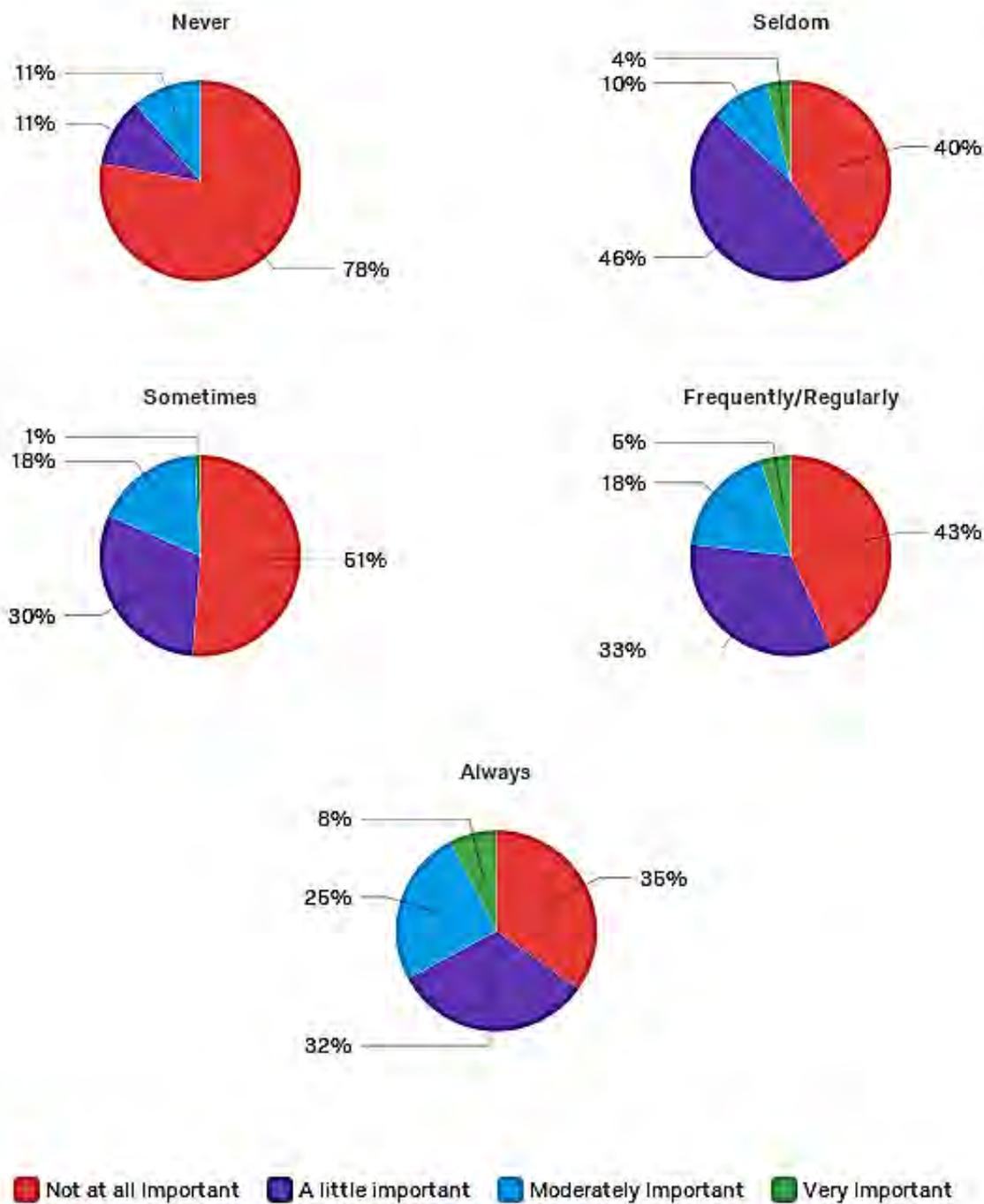


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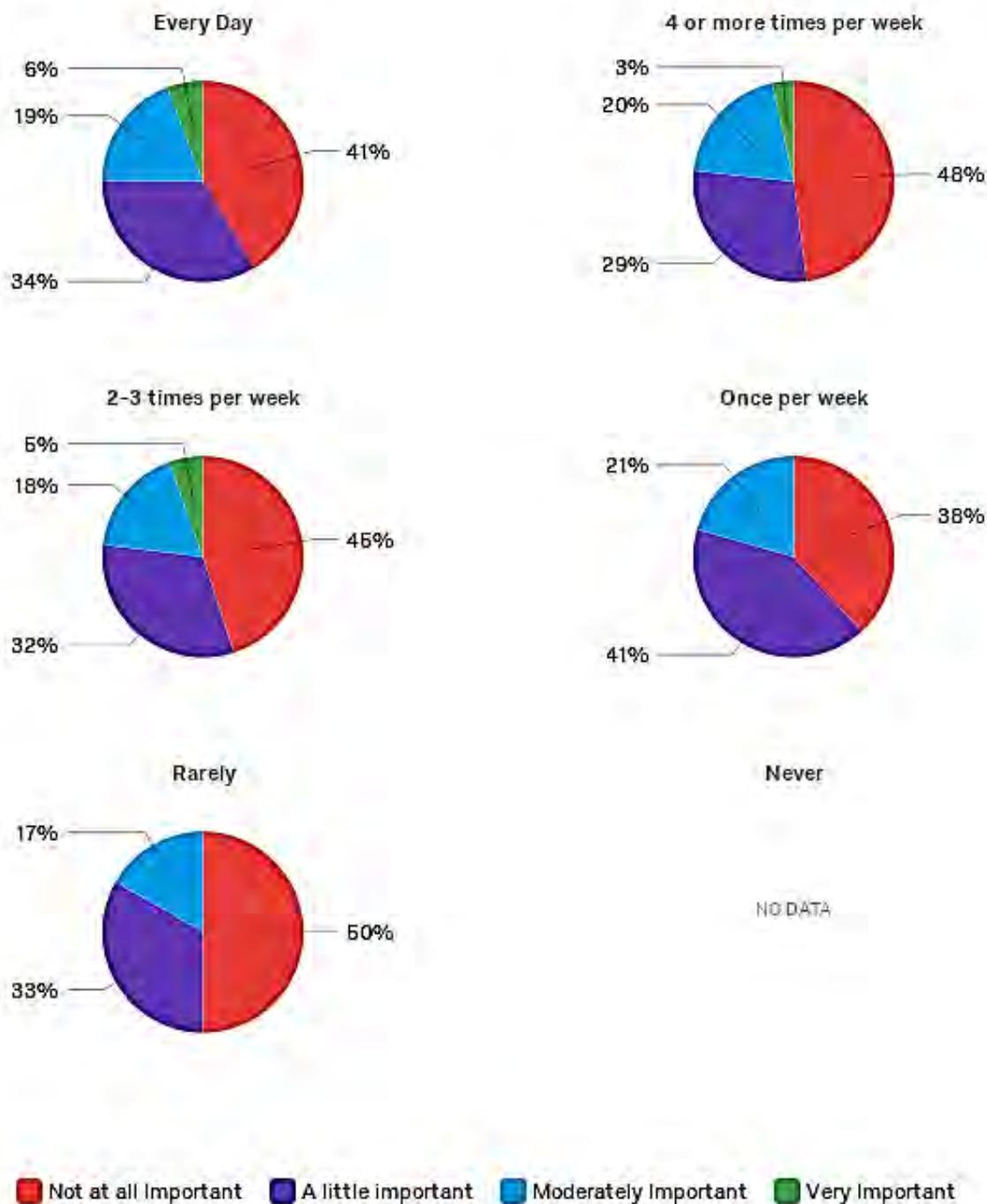
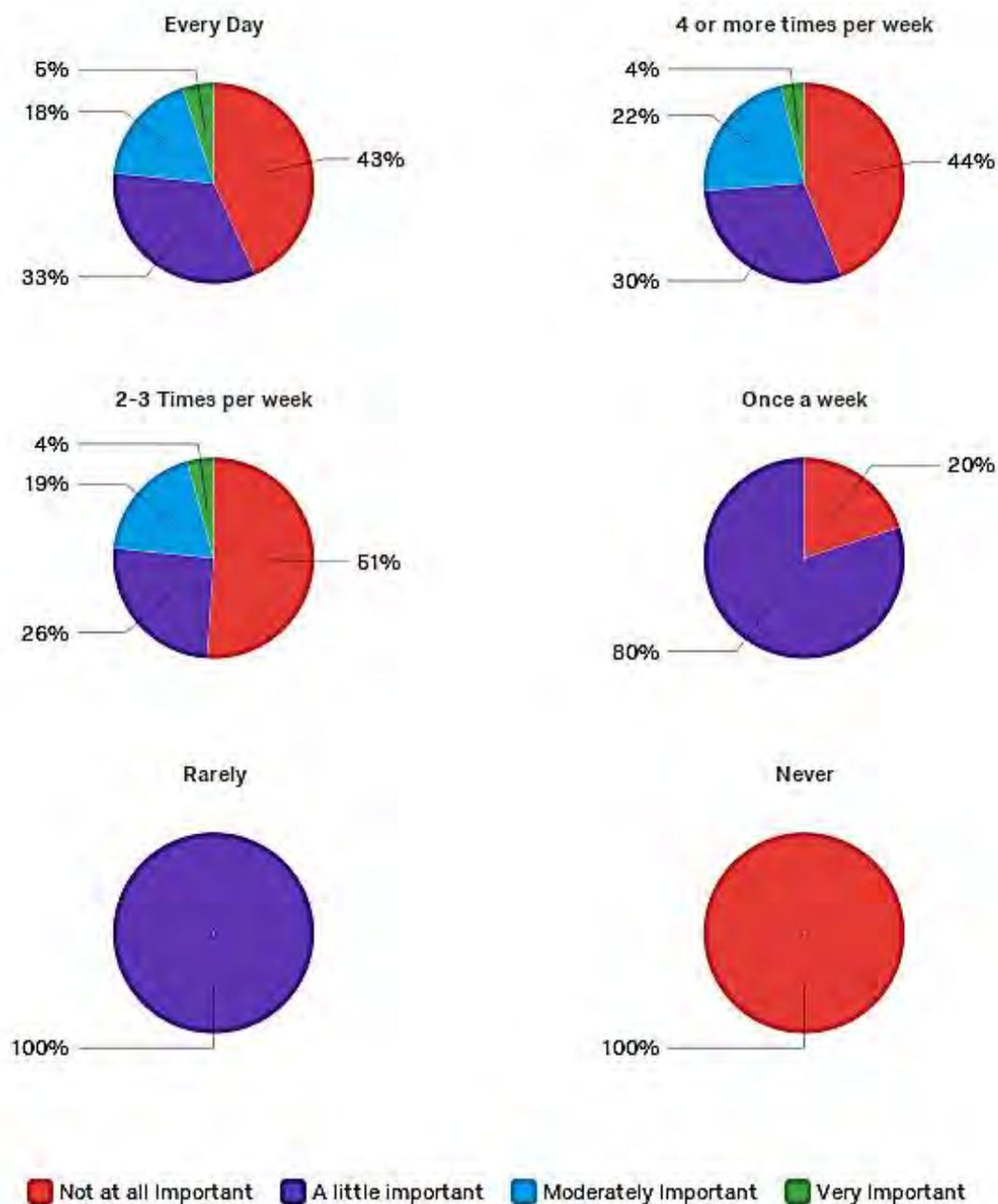


Figure 30g. It is important that the food I eat each day is labeled a “superfood” versus number of times I eat vegetables each week



Other Questions

Table 4. Where do you shop for fruits and vegetables?

	Never	Rarely	Sometimes	Frequently	Always
Chain grocery store (i.e. Wal-Mart, Kroger, Food Lion)	2%	8%	18%	55%	17%
Local grocery store (i.e. Ellwood Thompson's Local Market)	27%	29%	29%	14%	2%
Specialty food store (such as Tom Leonard's, Fresh Market)	26%	35%	28%	11%	1%
Health/Natural Food Store (i.e. Whole Foods)	27%	35%	24%	11%	2%
Convenience Store	69%	23%	6%	1%	0%
Food Co-op	60%	21%	11%	6%	2%
Farmers Market	6%	18%	36%	30%	10%
Community Supported Agriculture	46%	18%	14%	16%	6%
Direct from farm producers	24%	21%	25%	22%	8%

Figure 31. I consider fruits and vegetables to be local ONLY if they are produced this far from my home by response count.

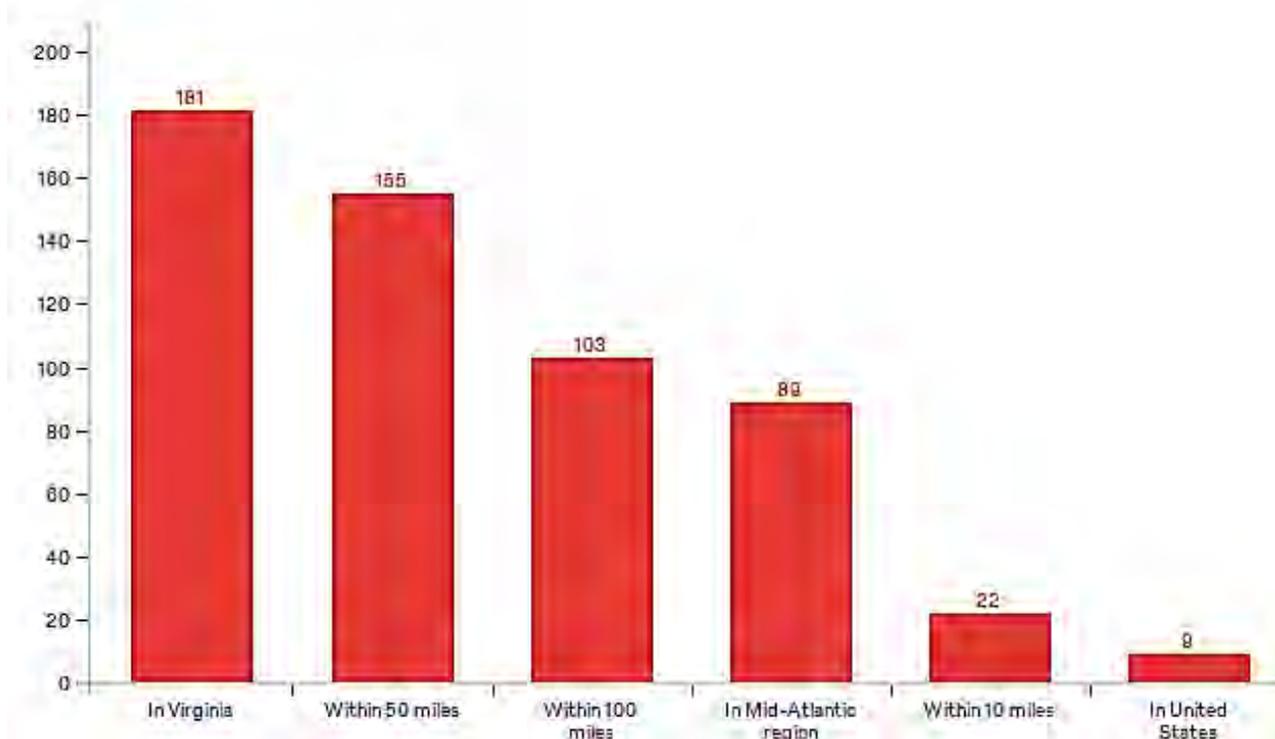


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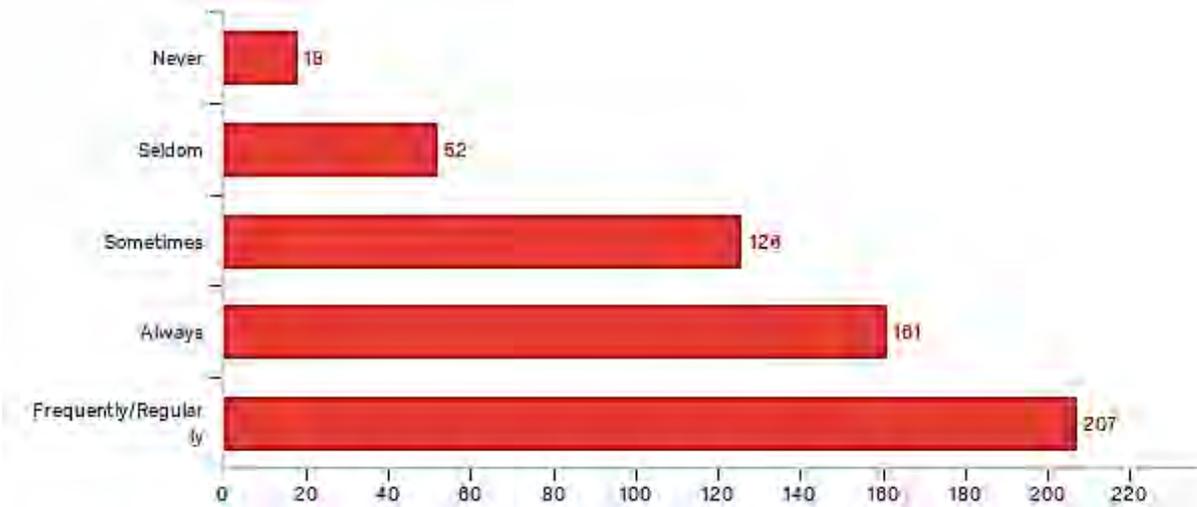


Figure 33. When purchasing food, I do not care where it is grown

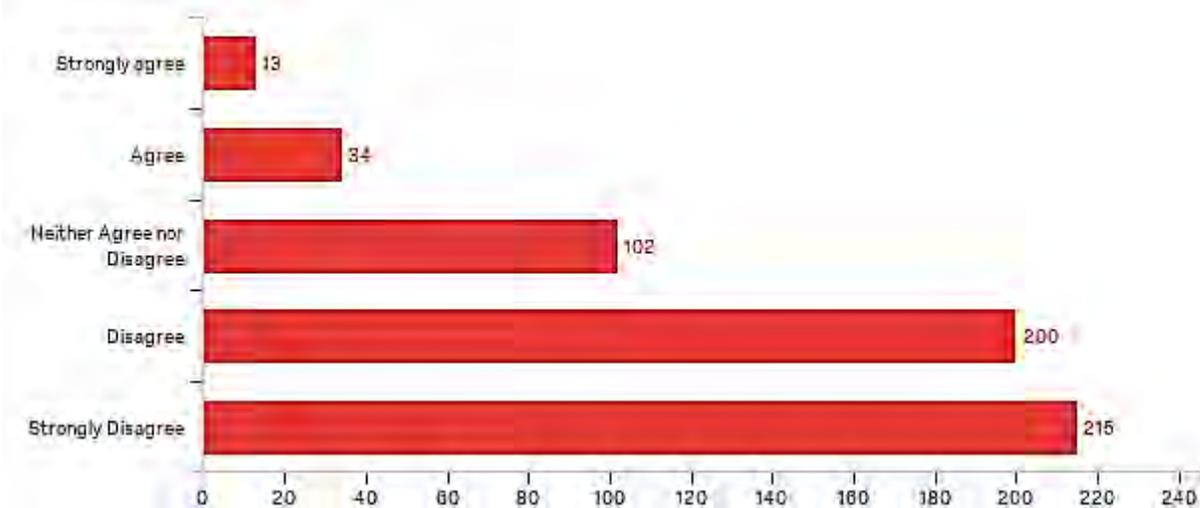


Figure 34. What % of the fruits and vegetables you purchased last year (2015) were produced locally?

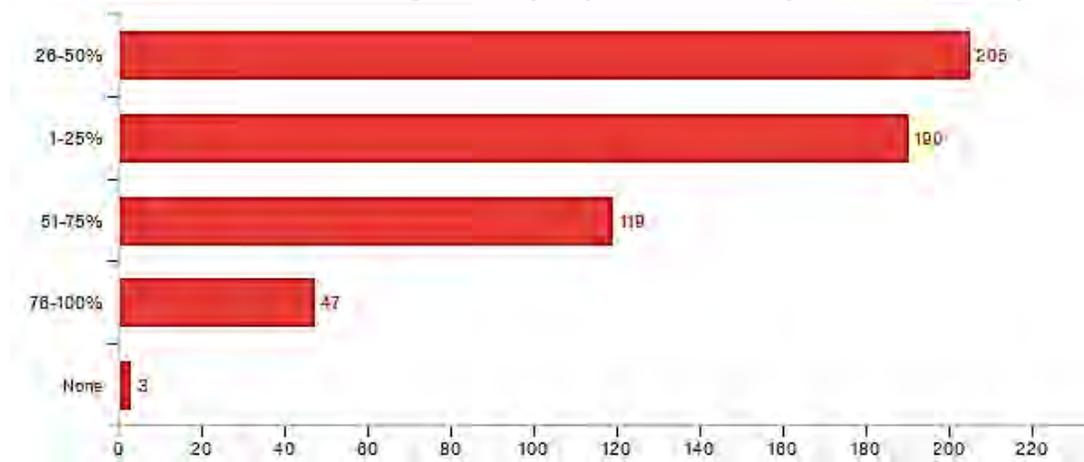


Figure 35. I buy and eat locally grown because...

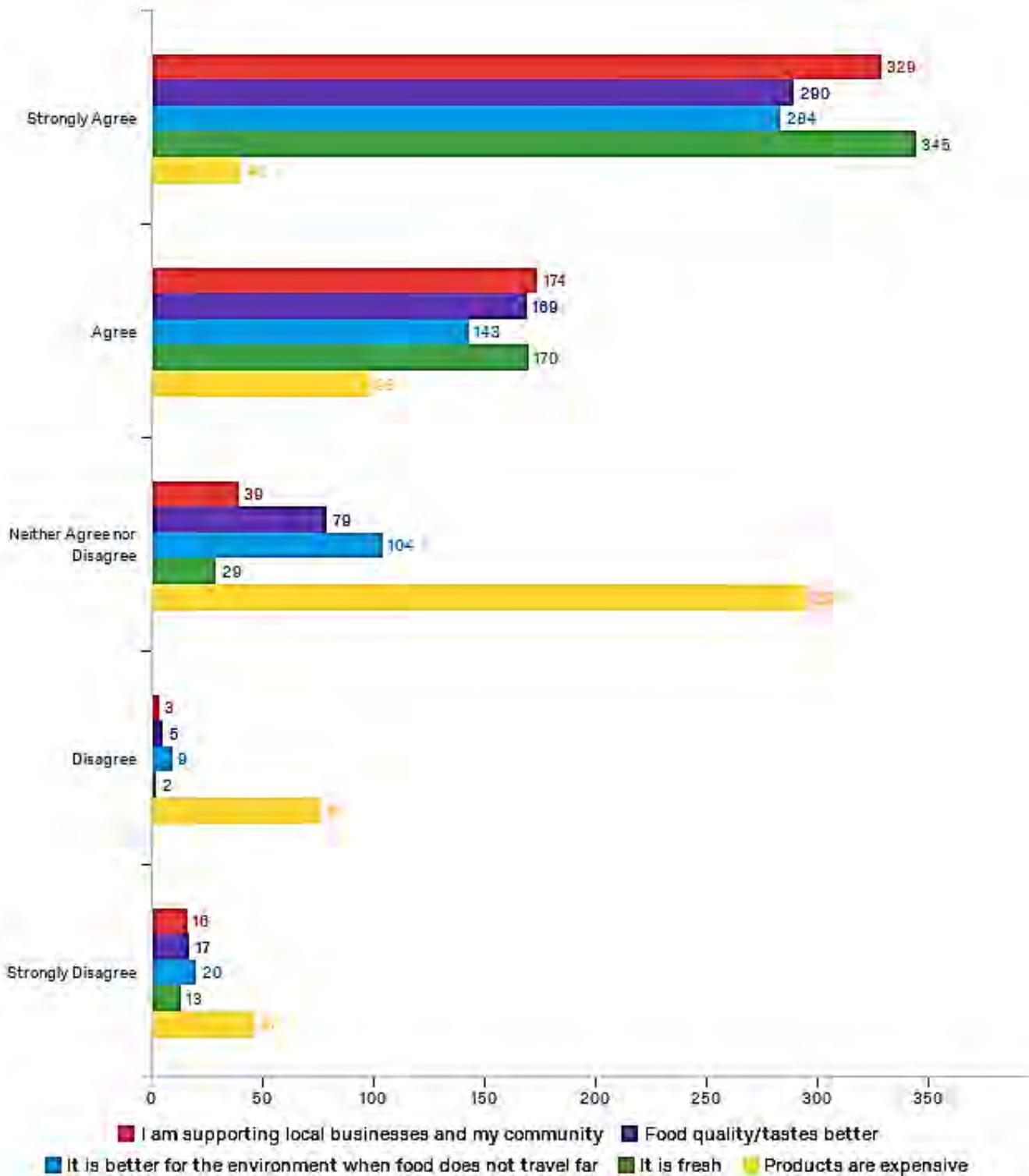


Table 5. Factors limiting the amount of locally grown foods purchased

Limiting Factors	Very Limiting	Moderately Limiting	Not Limiting	Don't Know	N
Unavailability or limited selection of local foods in your area	18%	51%	28%	4%	544
Seasonality (i.e. available only certain times of the year)	27%	58%	13%	2%	546
Not knowing whether food is truly local, as labeled	13%	31%	48%	9%	542
High price	17%	45%	36%	2%	543
Farmers market days and times are inconvenient	17%	42%	39%	2%	545
Congestion/Traffic/Parking at farmers market	11%	21%	63%	5%	543
Lacking transportation to market locations	3%	7%	87%	3%	540
Lacking storage capacity/refrigeration for large quantity purchases	11%	26%	61%	2%	544
Lack of knowledge to prepare local foods	4%	11%	83%	2%	541
Lack of transportation to market locations	3%	5%	90%	2%	540

Table 6. Reasons why an individual consumes locally grown fruits/vegetables

Reason	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	N
It is fun to create meals that are good	37%	37%	24%	2%	1%	543
Other people close to the individual nag her/him to consume local foods	3%	7%	41%	32%	17%	541
The individual likes to find new ways to create meals that are good	24%	45%	26%	4%	1%	541
Other people close to individual insist on local foods	4%	18%	43%	23%	12%	537
Individual takes pleasure in fixing healthy meals	38%	47%	11%	3%	0%	540
Other people close to individual will be upset if local foods are not consumed	2%	9%	45%	28%	16%	539
For the satisfaction of eating well	42%	44%	11%	2%	1%	543
It is expected of the individual	6%	12%	48%	20%	13%	537

Figure 36. In your experience, how much more do local fruits/vegetables cost over non-local products? (N=537)

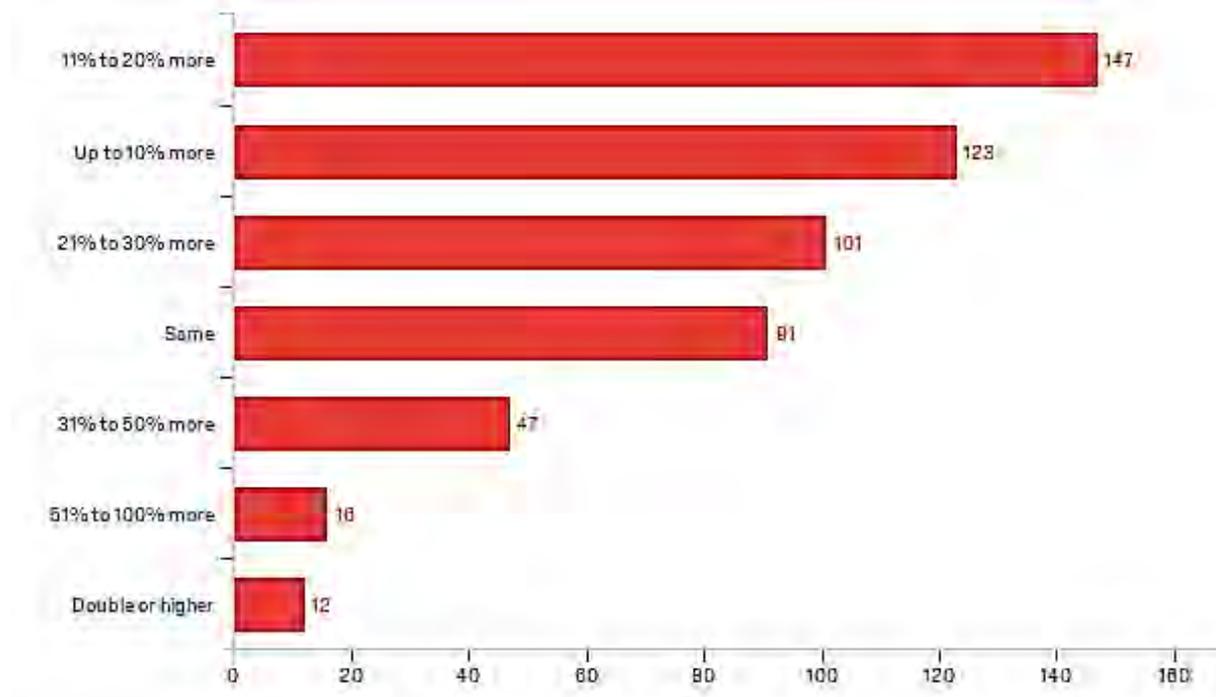


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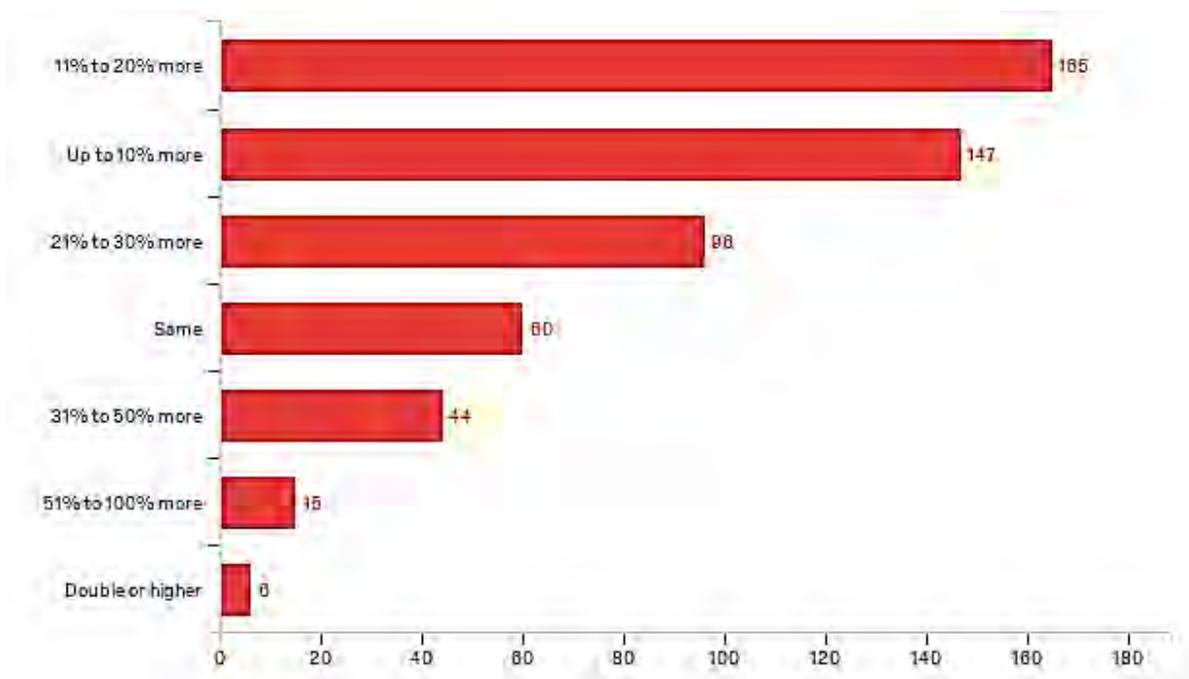
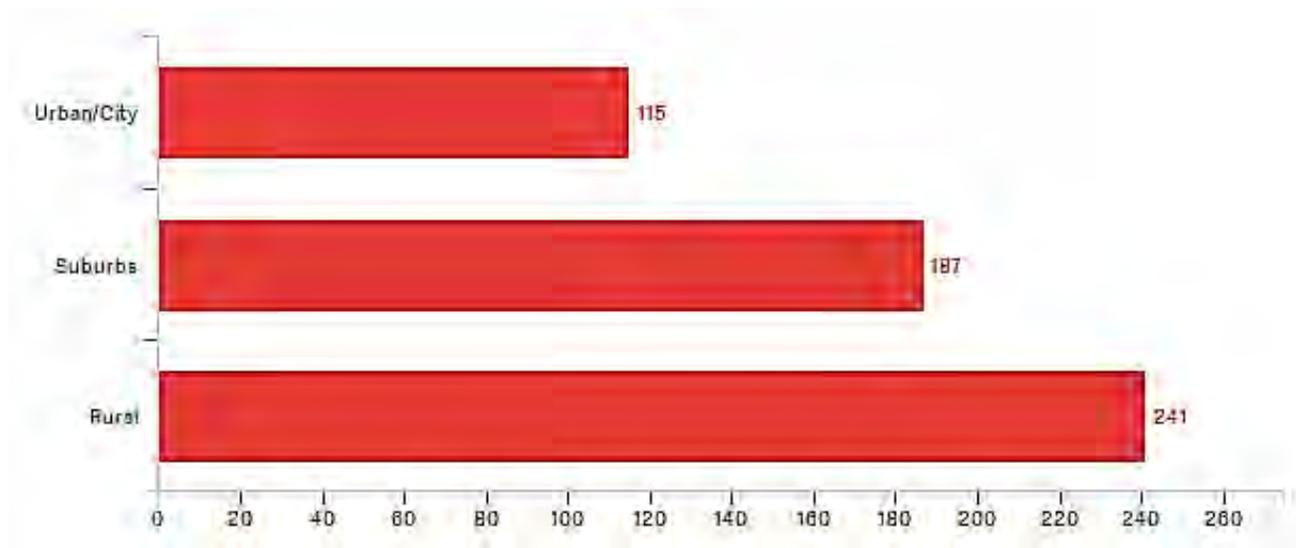


Figure 38. What type of area do you live in? (N=543)



For further information, contact Dr. Theresa Nartea at tnartea@vsu.edu or Dr. Venkatapparao Mummalaneni at vmummalaneni@vsu.edu. Funding for this study was provided through a USDA-FSMIP grant award.

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Figure 32. How often do you look at labels to see where fruits and vegetables are grown?

Figure 33. When purchasing food, I do not care where it is grown

Figure 34. What % of the fruits and vegetables you purchased last year (2015) were produced locally?

Figure 35. I buy and eat locally grown because...

Figure 36. In your experience, how much more do local fruits/vegetables cost over non-local products?

Figure 37. How much more are you willing to pay for local fruits/vegetables than you currently pay for non-local products?

Figure 38. What type of area do you live in?

BENEFITING CONSUMERS THROUGH LABELING OF LOCALLY GROWN FOODS

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INTRODUCTION

According to a recent study published in the British Medical Journal, researchers from Harvard calculated that the substitution of healthy foods including fruits and vegetables for unhealthy ones increases the cost by about \$1.50 a day per person. The benefits include the reduction of obesity and related diseases (CNN Health, December 5, 2013). While this modest increase might place such a diet beyond the means of low-income families, the associated health benefits make it a worthwhile investment. For those willing to choose healthy foods, barriers such as information asymmetries between producers and consumers stand in the way (Caswell and Mojduszka 1996). Since the attributes of food quality might involve experience and credence qualities rather than search qualities, signaling of food quality by producers becomes problematic. Caswell and Mojduszka (1996) suggest that producers might be able to convince consumers of the quality of the food products through labels that earn the trust of the consumers.

A recent survey by Context Marketing (2009) revealed that the more educated and affluent consumer paid close attention to quality claims focused on safety and health, and incorporated them into decision making. Among the claims rated very important or important by a majority of consumers in this survey are the ones related to the origination of food products, including the claims "produced in the USA", and "locally grown." Sales of local foods have been estimated to reach \$4.8 billion by 2008 and growing across the country (Low and Vogel, 2011). Commonwealth of Virginia is considered a "leader in the Nation's local food movement" with a 72% increase in farm-to-consumer direct sales during the 5-year period ending in 2007 (Bendfeldt et al. 2011). However, sales of local foods constitute a small portion of the overall food consumption (Low and Vogel, 2011).

Growing interest in local foods can be related to the concerns regarding the growing problem of obesity and preventable diet-related diseases (Volpe and Okrent, 2012). Two plausible pathways underlying the effects of local foods on health and nutrition have been identified by Martinez et al. (2010), one related to the nutritional quality and the other related to the marketplace. The market-based argument is that the availability of local foods allows consumers to make nutritionally superior choices. However, this argument holds only if the local food system is efficient in increasing the supplies of local foods to consumers.

The agriculture and food system of Virginia is diverse and sustainable (Bendfeldt et al. 2011). Since the annual food purchases of Virginia households are in excess of \$19 billion, Bendfeldt et al. (2011) argue that the allocation of \$10 a week by each household to the purchase of locally grown foods would generate a direct economic impact of \$1.65 billion per year and would benefit "every Virginia community." By introducing the labeling of "local" food products, the agriculture and food system can contribute to the economic well-being of Virginia's small farmers as well as superior consumer choices promoting healthier outcomes. The objectives of present research are to ascertain the views of consumers regarding the labeling of local agricultural/farm products and estimate the value placed by them on such labels.



Figure 1. Virginia Grown label.

REVIEW OF LITERATURE

That labels can facilitate consumer choice and contribute to customer satisfaction and repeat purchase has long been recognized (Payne 1947). Both producers and consumers can receive benefits from labels identifying organic or local food products. Recent studies have examined the consumer perceptions of organic foods in Thailand (Sangkumchalianga and Huang 2012), U.K. (Sirieix et al 2013), France (Bougherara and Combris 2009), U.S. (Shanahan et al 2008) and Japan (Kim et al 2008). Studies examining the influence of product origination labels have been conducted in Thailand (Seetisarn and Chiaravutthi 2011), Italy (Caputo et al 2013), and Greece (Tsakiridou et al 2011) indicating the worldwide attention paid to these matters.

A variety of methods have been employed in these studies, ranging from qualitative studies to surveys, price auctions and choice experiments. The results of these studies indicate that Geographical Indication (GI) positively affects That consumer perceptions of quality and through differentiation agricultural producers are able to charge a 20 to 30 per cent price premium. Similarly, consumers are willing to pay price premiums for organic food products as well in many countries. The broad consensus emerging from this literature is that the willingness to pay a price premium for organic or local/fresh produce is confined to certain segments (usually, the more educated, affluent) consumer segments. Further, when both organic and local labels of products were examined simultaneously, consumers exhibit a willingness to pay premiums for both attributes (Kim et al 2008) in an equal measure (Peterson and Li 2011).

Research conducted in the U.S. on the nutritional quality of local foods and the price differences between locally grown and other food products is briefly summarized here. American consumers do not follow dietary guidelines and consume lesser quantities of fruits, vegetables and whole grains (Volpe and Okrent, 2012). Demographic factors impacting this behavior include geography, income and race. Southerners, low income consumers and minorities purchase slightly less healthful foods compared to the others. Gregory et al. (2013) reported that in comparison to low-income non-participants, SNAP participants consume less fruits, vegetables and whole grains.

The role of price in influencing consumer purchase decisions is difficult to discern. According to Todd and Lin (2012), price is one of the many factors affecting consumer food choice decisions, but its effects are enlarged when combined with information. While the general perception is that fresh, locally grown fruits and vegetables are priced higher than processed foods, Frazao et al. (2012) suggest that they can be "swapped" with snack foods, without busting the household budget. Affluent consumers exhibit a willingness to pay a price premium for farm fresh local foods (Context Marketing, 2009).



Figure 2. Buy Fresh, Buy Local label.

EXPLORATORY RESEARCH

In order to investigate the potential benefits of local labels, focus group research was conducted with small farmers in Virginia. The results indicate that while consensus is lacking regarding the definition of "local" (50 miles, or 500 miles?), the value of such a label is recognized widely and desired. Secondary data furnished by a local food hub in Richmond Virginia indicates that the top three motives of consumers who purchase fresh local produce are providing help to local farmers, home delivery and freshness of produce.



Photos 1-3 (from left to right). Photo 1. Virginia farmer delivering local grown strawberries labeled as "Southside Berry Growers" to a Richmond, Virginia based local food hub. Photo 2. A Virginia specialty grocer display with only local grown produce represented. Photo 3. A Virginia farmers market display promoting local produce to interested consumers.

THEORY AND HYPOTHESES

From their review of multi-disciplinary research focusing on food marketing, Chandon and Wansink (2011) conclude that the benefits sought by most consumers are taste, lower price, variety, convenience and healthfulness in foods, in that order. Goal systems theory (Fishbach et al 2003) suggests that the influence of specific goals on others might be facilitative or inhibitory. Consumers try to balance contradictory goals (benefits sought) during every meal, across meals or over time periods in the food choice decisions they make.

H1: Consumers from different segments (based on socioeconomic characteristics) place different priorities on the benefits they seek from the produce they purchase. Raghunathan et al (2006) proposed the unhealthy = tasty intuition based on experimental evidence that unhealthy foods are inferred by consumers to be better tasting, and preferred in comparison healthier foods. Organic and local food consumers display environmental and community concerns and are more knowledgeable about food. Alphabet theory (Zapeda and Deal 2009) proposes that knowledge and information seeking behavior differentiate them from average consumers.

H2: Consumers who purchase local foods are more knowledgeable than others and less likely to hold the unhealthy = tasty belief. Chandon and Wansink (2011) noted that food and ingredient branding has greater effect on less experienced/knowledgeable consumers who engage in heuristic processing of information.

H3: Consumers who purchase local foods are more knowledgeable than others and less likely to rate these foods as extremely healthy in comparison their counterparts.

By reducing "search costs," brand awareness can create a preference for familiar food products in retail stores (Chandon and Wansink 2011).

H4: Consumer education and familiarity with local brands creates a preference for them and facilitates consumer choice decisions.

H5: Lack of access to local foods and the higher costs of these foods adversely affect the food choices of lower-income consumers.

PROPOSED STUDY

The proposed survey would include a conjoint study involving the organic, local, product category and price attributes of food products. Minority and low-income consumers will be included in the sample along with higher socioeconomic status consumers. Two surveys are planned, one following the delivery of educational information to consumers by Virginia Cooperative Extension field faculty. Appropriate statistical analyses of survey data would allow the testing of proposed hypotheses.

Table 1. Virginia specialty grocer description of local definitions, used with permission.

LOCAL Label Example	
Good	Local Good: This represents local farms, 100 miles or less from our store that use no or low spray and are family run or family operated.
Better	Local Better: Locally grown, 100 miles or less from our store - farms practices organic and/or sustainable growing, uses natural fertilizers and pest control.
Best	Local Best: Locally grown, 100 miles or less from our store - regularly grows using USDA standards or U.S.A.C.P. (University Accepted Organic Practices), or USDA certified organic or Certified Naturally Grown.



Photo 4. Fresh baby ginger displayed with local descriptive signage at a Virginia specialty grocer.

POLICY IMPLICATIONS

Results of the study are expected to lead to the formulation of policy regarding the following issues concerning the local labels:

Should the existing "Virginia Grown" label be tweaked to promote local agricultural products, or a local "place of origin" label should be developed to meet the needs of the farmers and consumers?

How could strategic alliances be developed between small farmers and traditional food chains through the use of local food labels?

How could SNAP beneficiaries be induced to purchase fresh, local produce at local stores and farmers' markets? What kind of incentives would allow low income consumers to substitute healthy food choices for unhealthy ones?

The current study is thus expected to contribute to the improvement of the food system in Virginia, thereby benefiting both small farmers and consumers, who currently lack information and the opportunity to purchase fresh, local produce.

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Addressing Obesity through development of Food Desert Farm Markets in Virginia



American Marketing Association Conference, June 2015, Washington DC

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Background



- Lack of access to fresh produce can increase obesity risk (McPhail, Chapman, & Beagan, 2013)
- Produce less expensive at farmers markets (Leone et al., 2012)
- Lower obesity associated with neighborhoods with farmers markets and nearby supermarkets (Payne et al., 2013)



Farm Market Models



**Veggie Van
Mobile Market**
www.grymca.org



**Farm Market Style
Food Bank Pantries**
www.foodbankformontereycounty.org/programs/family_market



**Food Subscription
System**
<http://thefarmbus.com>

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Community Based Solutions

- **Establish Community Partnership**
- **Develop Plan of Work or Logic Model**
- **Implement Practice in Demonstration**
- **Evaluate Community-Based Outcomes**
 - Number of Farmers, Food Desert Consumers participating
 - Increase in Farm Income
 - Increase in Produce Consumption



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City of Suffolk, Virginia Food Desert Initiative

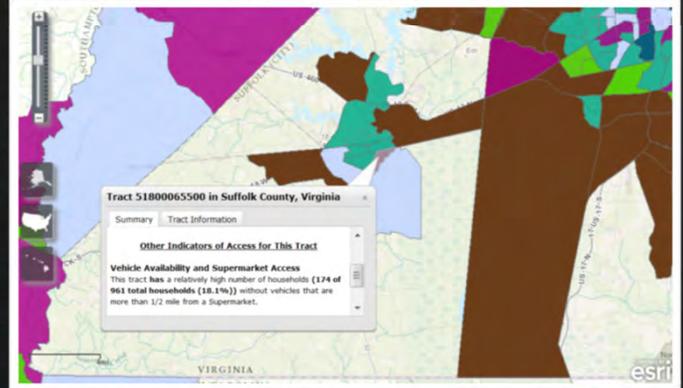


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Graphic Credit: <http://c368339.r39.cf1.rackcdn.com/316631-f-1348872004.jpg>



USDA-ERS Food Desert Data



Tract 51800065500 in Suffolk County, Virginia

Summary | Tract Information

Other Indicators of Access for This Tract

Vehicle Availability and Supermarket Access
This tract has a relatively high number of households (174 of 961 total households (18.1%)) without vehicles that are more than 1/2 mile from a Supermarket.

<http://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas.aspx>





2015 Work Plan



- VCE awarded planning grant
- Partner with Social Services to invite SNAP clientele
- VCE conducts 4 cook, eat, take home produce demonstrations with DHSS clientele (families, single parents, seniors) in May, June, July, August
- Determine interest in Veggie Van Market that drives to and sells in Food Desert Neighborhoods
- Collect data on local food preferences, educational needs, potential neighborhood sites



Preliminary Data (May 2015 event)

- 22 adults with total of 33 children (1-18 years)
- 63% feel overweight and unhealthy (N=22)
- 50% eat out 2-7+ times each week (N=22)
- 91% do not eat or feed their family 5 produce items a day (N=22)
- 100% want to include more produce in diet and would buy from Veggie Van (N=22)

Local Produce Desired

Sweet Corn	Mustard Greens
Watermelon	Grapes
Sweet Potatoes	Plums
Strawberries	String Beans
Cantaloupe	Lettuce
Collards	Peas
Kale	Butterbeans
Apples	Cabbage
Organic	Peaches
Broccoli	Peppers
Spinach	Tomatoes
Asparagus	Zucchini
Carrots	Nuts
Squash	Mushrooms
Onions	Blueberries
Beets	Brussel Sprouts



Future Plans for Veggie Van Concept



Existing Models to Replicate in your Community:
(Key is accepting & promoting SNAP, WIC & Senior food benefits)
<http://worldhungerrelief.org/veggie-van>
<http://cnpnc.org/index.php/veggie-van>
www.grymca.org/community-programs/community-based-programs/veggie-van

Photo Credit: http://www.mlive.com/news/muskegon/index.ssf/2014/06/year-round_ymca_veggie_van.html <https://localtwghp.files.wordpress.com/2015/05/1-copy84.jpg?w=770>



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2016-2018 Work Plan

- VCE/VSU writes implementation grant
- VCE invites farmers to participate in Veggie Van, SNAP acceptance training
- Virginia Garden Organic Grocery (VGOG) buys desired produce from local farmers
- Weekly mobile market sales in food deserts



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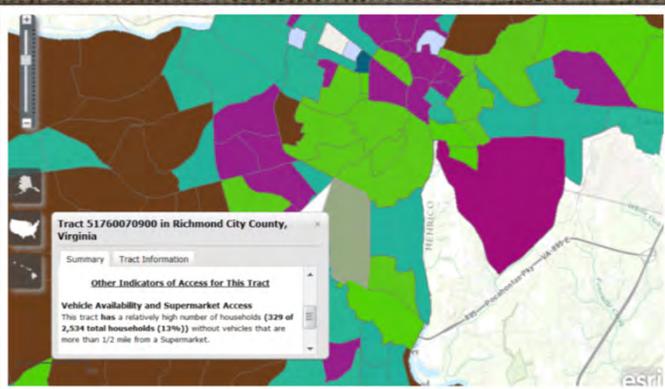
City of Richmond, Virginia Food Bank Farmers Market Plan



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USDA-ERS Food Desert Data



Tract 51760070900 in Richmond City County, Virginia

Summary | Tract Information

Other Indicators of Access for This Tract

Vehicle Availability and Supermarket Access
This tract has a relatively high number of households (329 of 2,534 total households [13%]) without vehicles that are more than 1/2 mile from a supermarket.

<http://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas.aspx>





Market Outlet for Farms

- FeedMore supplies over 300 food bank pantries with food in Central VA
- New entry food pantry organizations must include 25% produce in box
- FeedMore willing to set up future contract model with local farmers for a farmers market distribution at pantries

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Future Plan for FM Style Distribution



Photo Credit: http://www.foodbankforlancastercounty.org/programs/family_market

The **Family Farm Market Program** (*rebranding "food bank"*) operates like a Farmers' Market, but without charge. Families self-select foods they prefer and need. No pre-packed boxes. Each market will serve up to 300 families weekly and receive 10-15 pounds of fresh local produce with recipes alongside other health building food products.

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Summary

- Obesity trends warrant research and outreach efforts from University
- Marketing efforts in food deserts profitable
- Forging community partnerships key to meaningful project outcomes
- Training farmers to accept SNAP and establishment of food desert markets is needed
- Educating food desert communities on shopping for and cooking produce is needed



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