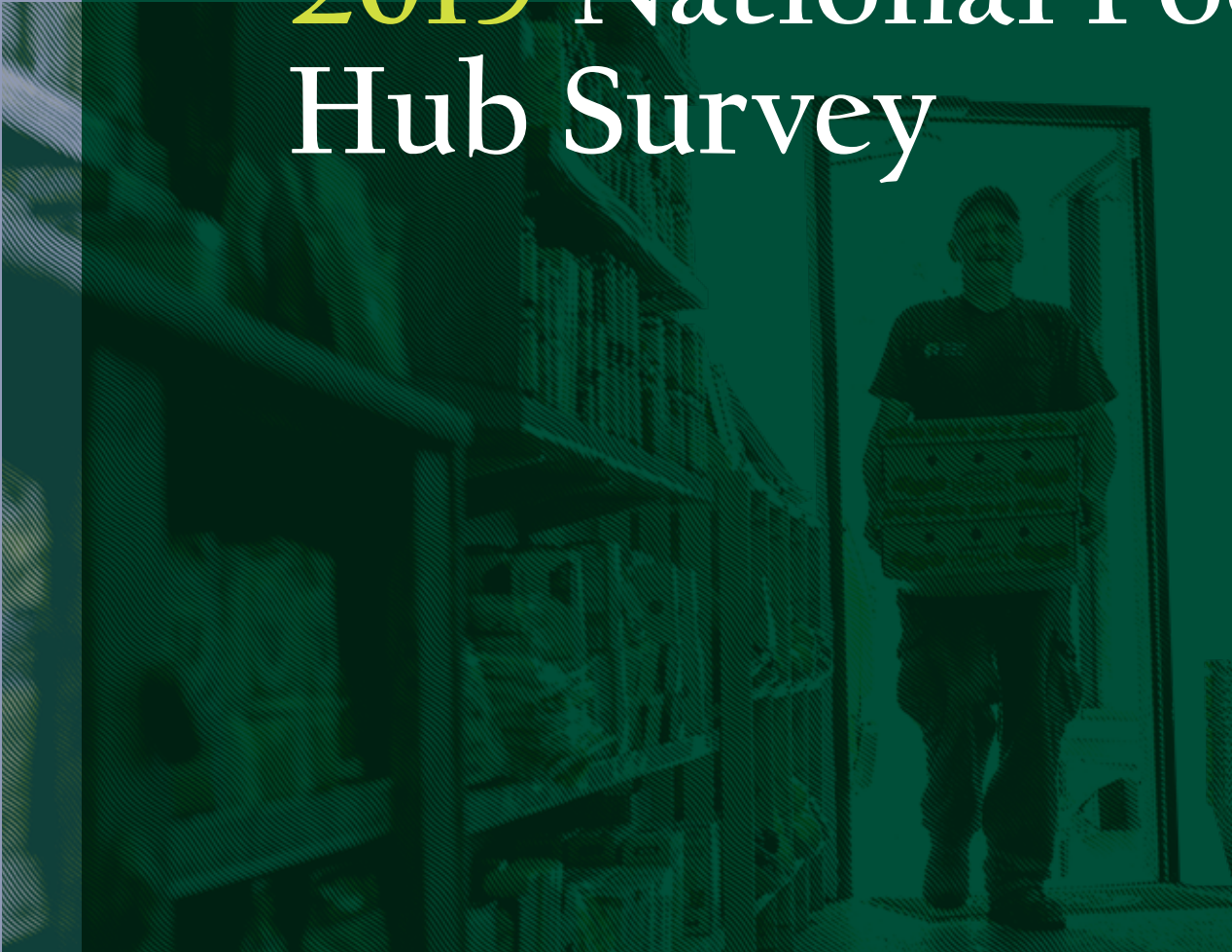


DECEMBER

2020

# Findings of the 2019 National Food Hub Survey



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# Executive Summary

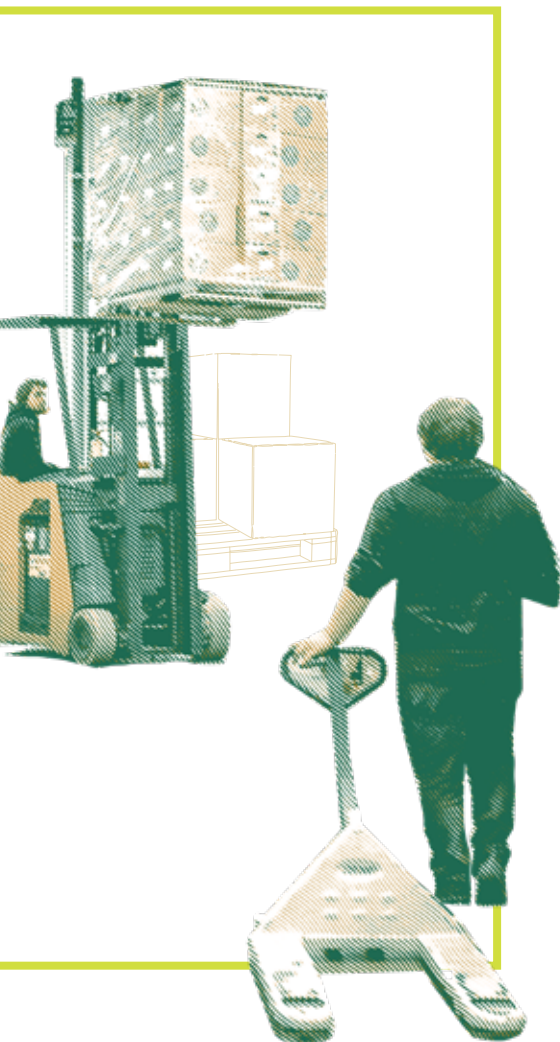


# Executive Summary

The 2019 National Food Hub Survey is the fourth biennial survey of food hubs in the United States and the primary source for longitudinal data on this business sector.

This report was nearing completion in March 2020 and therefore does not address the impacts of the COVID-19 crisis in detail. Please see the epilogue, on page 44, for the authors' reflections on the role food hubs have played in supporting and enhancing the resiliency of local and regional food systems throughout the pandemic. We encourage readers to consider this context as they read the report, which offers a unique snapshot of pre-COVID food hub operations.

This executive summary distills the top-level findings and themes from the 2019 National Food Hub Survey report.



1

The food hub sector continues to thrive and mature.

2

Hubs are pursuing social and environmental goals.

3

Supporting farm and supplier viability is important to hubs.

4

Hubs see room for growth, but challenges remain.

# 1

## The food hub sector continues to thrive and mature.

- + **The proportion of hubs over 5 years old** has increased since 2013 (*Figure 1*).
- + **Established hubs employ more people** (*Figure 5*) and total paid, full-time employees have increased overall (*Figure 6*).
- + **Two thirds of hubs** were breaking even or better (*Page 29*).
- + **Virtually no hubs reported being denied loans** or short-term lines of credit, although more than half of respondents did not apply for either type of debt capital (*Figure 21*).
- + **Of the one third of hubs** that are highly dependent on grant funding to carry out their core functions, about two thirds are nonprofits (*Figure 16*).



# 2

## Hubs are pursuing social and environmental goals.

- + **Nearly half of hubs track metrics** on their social and environmental impact (*Page 25*).
- + **50% of hubs have some sales to lower-income customers** or businesses in lower-income areas (*Figure 23*).
- + **Hubs are actively engaging their communities** in decision making and making regenerative investments (*Figure 26*).
- + **54% of food hub management positions were held by women**, and 14% were held by people of color (*Page 20*).



# 3

## Supporting farm and supplier viability is important to hubs.

- + **Surveyed food hubs collectively purchased** or procured products from 2,861 farms and ranches *(Page 22)*.
- + **Hubs reported \$31.8 million in purchases** in 2018 from small and midsized farms *(Figure 11)*.
- + **92% of hubs said at least half** of their farm and ranch suppliers were small or midsized *(Figure 10)*.
- + **Hubs are focused on the following** *(Figure 9)*:
  - 1 Product quality
  - 2 Product consistency
  - 3 Sustainable production methods
  - 4 Price





# 4

## Hubs see room for growth, but challenges remain.

- + **82% of hubs say demand for their products and services has grown** in the past two years (*Figure 29*).
- + **Sales to colleges/universities and K-12 food service were up** compared to previous survey data, but direct-to-consumer sales and sales to large supermarkets were down sharply (*Figure 14*).
- + **Most hubs expected competition to grow**, particularly from traditional wholesale distributors (*Figure 31*).
- + **Meeting buyer pricing requirements is the largest challenge** to expanding sales in institutional markets (*Figures 32–34*).





# Trends + Takeaways

Overall, we see several trends and takeaways emerging from the 2019 National Food Hub Survey data. We hope these insights are useful for food hub managers and practitioners and help inform future research.



**Sales to institutional markets continue to show great promise, but growth is uneven across institution type (Figure 14), despite many common barriers (Figures 32–34).**

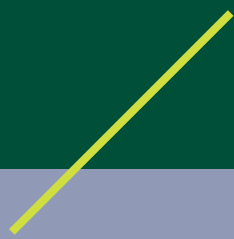
With mounting interest and investment in hospitals and early care and education (ECE) centers, we expect to see hubs adapting lessons and successful practices from other institutional markets, such as universities and K–12 school food service.

**Many hubs are focused primarily on selling fresh produce and herbs, which account for half of all sales (Figure 13).**

At the same time, seasonality of fruits and vegetables is one of the top three barriers to entering institutional markets (Figures 32–34), indicating a rising demand for lightly processed produce.

**Food hubs have ranked “balancing supply and demand” as their top challenge across all four surveys (Figure 30).**

However, balancing supply and demand is the essential function of a food hub and encompasses a wide range of activities and factors. Unpacking the deeper meaning of this phrase is necessary to better understand specific operational limitations hubs are facing.



# Full Report





# Introduction

**Since 2012, Michigan State University’s Center for Regional Food Systems and the Wallace Center at Winrock International have conducted the National Food Hub Survey, the primary source for national longitudinal data about food hubs.**

The 2019 survey builds on results from 2013, 2015, and 2017 to identify trends in food hub operations, economic growth and viability, social mission, and opportunities and challenges faced by food hubs nationwide (*Colasanti et al., 2018; Fischer et al., 2013; Hardy et al., 2016*).

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The 2019 survey contains several significant revisions, including new questions on the role that food hubs play (or do not play) in addressing racial equity in their communities and barriers to new institutional market opportunities. Overall, the number of questions in the 2019 survey was cut by two thirds, greatly reducing the time it took food hubs to complete the survey questionnaire.

The resulting survey report is proportionally shorter than previous reports and focuses primarily on highlighting new findings and reconfirming noteworthy trends from previous surveys. Additional figures have been provided in Appendix A for readers wishing to further explore the survey data. Our goal was to create a more streamlined report format that is useful and accessible to a wider range of current and future food hub operators, partner organizations, policy makers, funders, and community members.



## BACKGROUND

The food hub sector is characterized by great diversity in business models, operational structures, markets, and motives. For the purposes of this survey, we have focused on hubs that fit a narrower definition; that is, “businesses or organizations that actively manage the aggregation, distribution and marketing of source-identified food products, primarily from local and regional producers, to strengthen their ability to satisfy wholesale, retail and institutional demand” (Barham et al., 2012, p. 4). We recognize that this approach may not describe the full range of food hubs in operation but believe it captures the core function that the majority of hubs share in common.

This report presents the findings of the fourth National Food Hub Survey. We estimate that the survey responses account for approximately a fifth of all active food hubs in the United States (Wallace Center at Winrock International, 2019). Despite a small overlap in respondents across the four surveys, we continue to see stability in the data and findings. The combined surveys show many food hubs successfully adapting to meet marketing opportunities while facing many of the same operational challenges and limitations. Although hubs have demonstrated longevity and financial viability, there are still many questions remaining about the potential impact of food hubs on community health, economic opportunity, and racial equity.

## CHANGES TO THE 2019 SURVEY

As with past surveys, we have adjusted the 2019 survey tool to improve data collection. Although changes to the 2013, 2015, and 2017 surveys were made sparingly to ensure robust comparisons across longitudinal data, this year we have taken a more sweeping approach to revisions based on input from survey participants, food hub managers, and other experts in the field. This section will explain these new changes to the survey and provide our rationale.

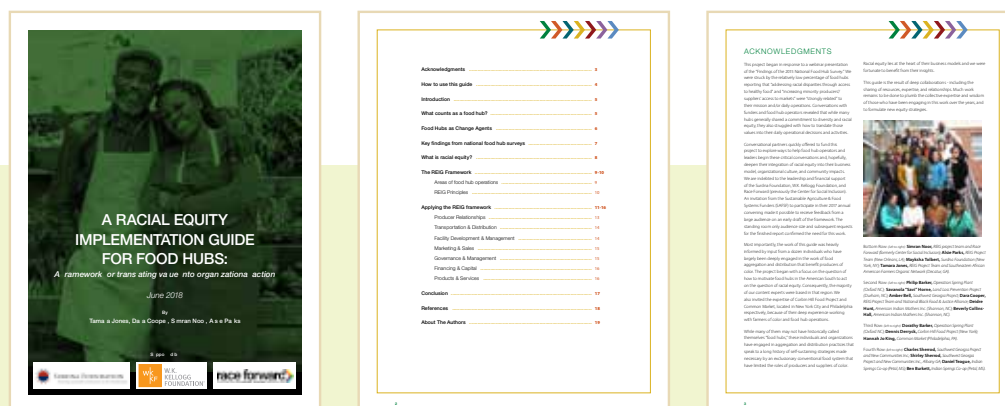
*The survey questionnaire was reduced from 118 questions in 2017 to less than 40 questions in 2019.*

The most noticeable change to the 2019 survey is that it is significantly shorter than previous iterations. In fact, the 2019 survey questionnaire was reduced from 118 questions in 2017 to less than 40 questions in 2019. This reduced the time it takes hubs to complete the survey from two or three hours to less than an hour. We accomplished this by first eliminating questions that showed very little change across the previous three surveys. We then simplified and streamlined the financial section, noting that the Wallace Center’s (2019) food hub financial benchmarking study is available for those interested in taking a deeper dive on food hub financials. Finally, we removed

any questions that were seen as nonessential to understanding the core activities of food hubs. The shortened survey is designed to alleviate widespread survey fatigue and encourage participation, particularly among smaller, newly established food hubs that may have limited capacity.

Despite concerted efforts to reduce the survey size, several additions were made to the 2019 survey to follow current interests and trends: new questions related to institutional markets, the inclusion of ECE settings in previously asked questions, and a question that asks hubs about the criteria used to evaluate vendors and suppliers. Four new questions that ask how food hubs measure social and environmental impact were also added through a partnership with Cornell University’s Small Farms Program. A more detailed analysis of those questions will be reported in a separate publication by Cornell University in 2020.

Other substantial changes to the 2019 survey were strongly influenced by the *Racial Equity Implementation Guide for Food Hubs* by Jones and colleagues (2018). In a series of conversations with that publication’s authors, the survey team was challenged to rethink the National Food Hub Survey through an equity lens and leverage this important research tool to drive new learning and leading-edge practices in the food hub field. Acknowledging that the 2019 survey team was composed of four white men, we convened a diverse virtual listening session with food hub practitioners and academics from across the country in November 2018 to inform new approaches to the survey. Nine food hub experts, including hub managers, food system academics, and advocates, participated in the 90-minute session. Our conversation yielded many important insights and observations about the limitations and potential opportunities to improve the National Food Hub Survey.



[View the \*Racial Equity Implementation Guide for Food Hubs\* >](#)

This feedback led us to make significant changes to both the content and format of the 2019 survey:

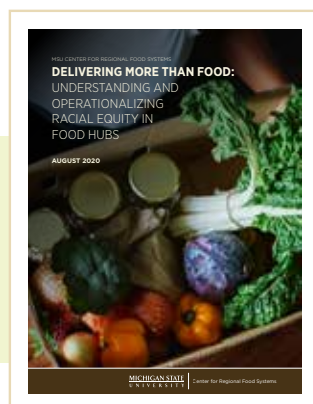
**+ Eliminating questions that focused on food hub mission statements and hubs' alignment with “triple bottom line” business principles.**

These questions were seen as superficial and missing many tangible actions hubs may be taking. Participants also commented that the triple bottom line framework is perceived by some communities as a product of white-centered academic institutions.

**+ Adding new questions that ask about food hub ownership, governance, and community engagement in decision-making processes.** These questions are directly informed by the *Racial Equity Implementation Guide for Food Hubs*.

**+ Exploring the potential of spatial analysis** to see if hubs are truly located in and serving communities of color.

The listening session also highlighted the challenge of using a quantitative survey tool to try to answer questions related to a food hub’s role in addressing racial equity. In response to this feedback, the survey team proposed developing a separate, companion study that uses qualitative interviews with a smaller sample of food hub practitioners and scholars to dig deeper on this topic. We encourage interested readers to seek out the report of this project, *Delivering More Than Food: Understanding and Operationalizing Racial Equity in Food Hubs*, published in August 2020 (Rodman-Alvarez et al., 2020).



**View the *Delivering More Than Food: Understanding and Operationalizing Racial Equity in Food Hubs* Report**

These changes to the 2019 survey represent a necessary evolution of this research that reflects current food hub interests and priorities while striving to maintain the value and integrity of the longitudinal data set. Additionally, the concurrent qualitative study will allow a deeper investigation into the role hubs play in advancing racial equity with more sensitivity than this quantitative survey would permit. In future surveys, the survey team will fully represent women and people of color who work in the food hub space. We feel these changes are a meaningful step and needed refresh to ensure this long-term study uses a pluralistic lens in its treatment of food hubs and partners and the manner in which data is collected and analyzed.

## **METHODOLOGY**

The 2019 survey tool was prepared in Qualtrics by the Lansing-based group Public Sector Consultants (PSC), using the 2017 survey as a template. The Wallace Center compiled the survey distribution list of United States food hubs using contacts from the USDA Agricultural Marketing Service Food Hub Directory, and the updated survey was distributed by email to more than 650 contacts at around 400 food hubs across the country. The survey remained open for 13 weeks, from July 1 through Sept. 20, 2019. To foster a greater response rate, two free registrations to the 2020 National Good Food Network Conference in New Orleans, Louisiana, were also offered after the survey had been in the field a few weeks. Slightly fewer survey responses were recorded in 2019 (109 responses) than in 2017 (131 responses), with a response rate of 22%. Of the 109 responses, 98 were complete and 11 were partial.

After the survey was closed, data was downloaded as a Microsoft Excel file and PSC performed routine quality control checks, cleaning the data of any errors or omissions. CRFS provided PSC with data files containing 2017, 2015, and 2013 survey results for comparison across years. PSC then performed analysis of current and past data using Tableau and Microsoft Excel. The 2019 survey report refers to results from all four survey years where available. Data from 2013 may not be included in all tables due to changes in the survey questionnaire over time.

**The 2019 survey asked respondents to provide the year their food hub was established, the hub's legal status, and its business model. The operational characteristics of responding hubs show many similarities to previous years' data.**



# Operational Characteristics

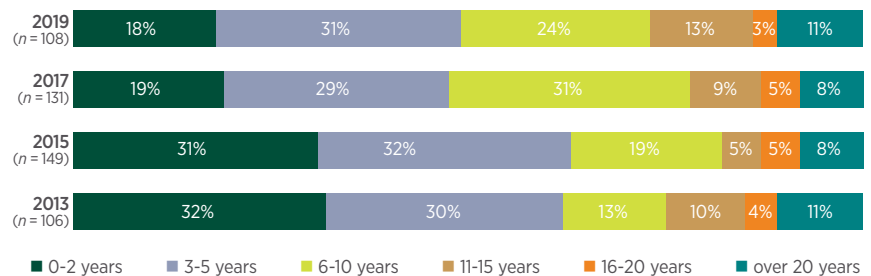
To reduce data outliers and narrow the scope of the survey, the first question of the 2019 survey asked respondents if their primary function was the aggregation, distribution, and marketing of source-identified food products. Nine respondents (7.6%) answered “no” to this question, which took them out of the survey.

## YEARS IN OPERATION

Food hubs responding to the 2019 survey reflected a similar age range (82 years) and distribution as previous surveys and continue to show a maturing sector (see Figure 1). In 2019, 49% of responses came from hubs that had been in business for 0–5 years and 51% from hubs in business for 6 years or more. We observed a similar response in 2017 but a larger 0–5 year class in both 2015 (63%) and 2013 (62%). In 2019, the average length of time in business was 9.6 years, with a median of 6 years. This is similar to 2017 and slightly higher than 2015.

*The food hub sector continues to mature.*

**Figure 1. Food Hubs by Years in Operation**

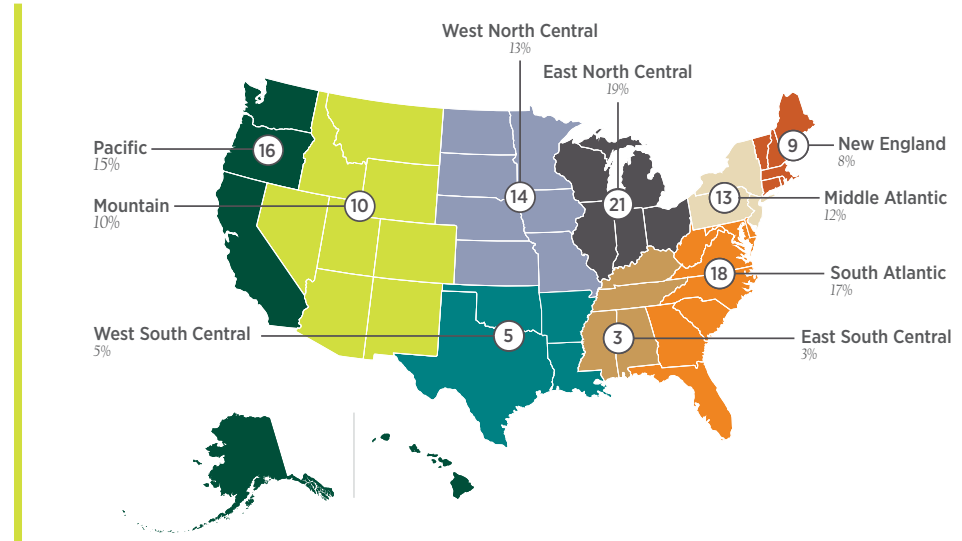


## GEOGRAPHIC LOCATION

Figure 2 shows the number and percentage of responding hubs by region. We saw a very similar geographic distribution of responding hubs in the previous survey, with the exception of the East South Central region (Kentucky, Tennessee, Alabama, and Mississippi), which had more than twice as many respondents in 2017.

**Figure 2. Geographic Location of Survey Respondents**

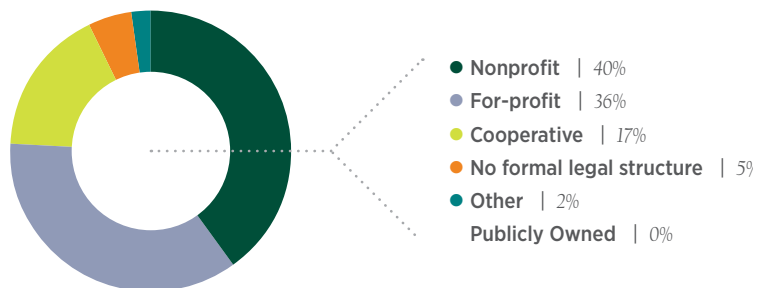
*As in previous surveys, most food hub respondents are located in coastal regions and the Midwest.*



## LEGAL STRUCTURE AND BUSINESS MODELS

In 2019, the breakdown of the legal structures of responding food hubs (see Figure 3) was similar to those from the 2017 and 2015 surveys. Types of for-profit legal structures included limited liability companies (more than half) and S, B, and C corporations. Cooperative types included producer cooperatives—which accounted for 12 of the 19 responses in this category—and producer-consumer types. In 2019, no responding hubs were publicly owned, compared to 3% in 2017.

**Figure 3. Food Hubs by Legal Structure**

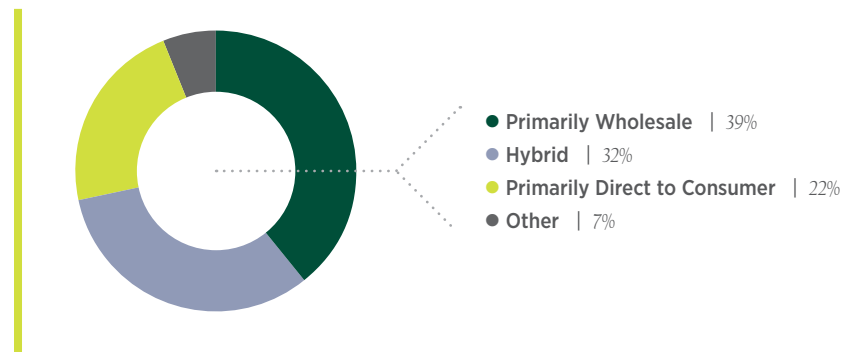


Note:  $n = 109$ .

As indicated in Figure 4, 39% of 2019 hubs had a business model that was primarily wholesale; nearly one third had a hybrid model, meaning the hub distributed food both wholesale and direct to consumer; and 22% were primarily direct to consumer. These findings differ from prior surveys, in which the majority of respondents had a hybrid business model and around one third had wholesale models. The percentage of hubs with a direct-to-consumer model has remained fairly stable.

**Figure 4. Food Hubs by Business Model**

*The food hub sector is characterized by a diversity of business models and legal structures.*



Note: n = 109.

## EMPLOYEES AND VOLUNTEERS

In 2019, 88 food hubs indicated that they had at least one paid employee, with one hub reporting 295 employees. The mean and median number of employees remained largely consistent across all four surveys (see Figure 5). Food hubs that have been in business for more than two years had a higher average number of employees than hubs younger than two years in all of the national food hub surveys.

*Older, more established hubs employ more people.*

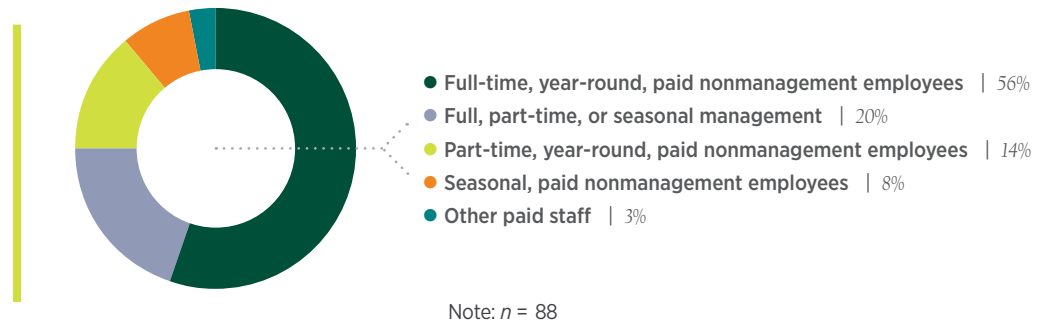
**Figure 5. Number of Food Hub Employees**

	All Hubs				Hubs in Business More Than Two Years			
	2013	2015	2017	2019	2013	2015	2017	2019
<b>Paid employees</b>	n = 77	n = 130	n = 119	n = 88	n = 53	n = 86	n = 94	n = 73
<b>Total number</b>	1,184	2,187	1,887	1,464	1,058	1,675	1,700	1,384
<b>Mean</b>	15	17	16	17	20	19	18	19

Food hubs continue to employ a mix of full-time, part-time, and seasonal employees in both managerial and nonmanagerial roles. Figure 6 shows that more than half of paid employees at food hubs responding to the 2019 survey were full-time, year-round nonmanagement staff. This was an increase from the 2017 and 2015 surveys, in which these employees accounted for 47% and 41% of staff, respectively.

**Figure 6. Food Hub Employees by Type**

*Paid, full-time, year-round nonmanagement staff at responding hubs have increased in each of the last three surveys.*



Most of the 2019 responding food hubs had women working in paid positions (see Figure 7). However, the percentage of female employees reported in 2019 was less than in 2017 and 2015. The percentage of responding hubs that had people of color working in paid positions in 2019 also decreased slightly from the 2017 and 2015 surveys. In 2019, 54% of management positions were held by women, and 14% were held by people of color.

**Figure 7. Demographic of Food Hub Employees**

	Female Employees			Employees of Color		
	2015 (n = 127)	2017 (n = 108)	2019 (n = 88)	2017 (n = 59)	2019 (n = 47)	2017 (n = 88)
<b>Percentage of hubs reporting employees in this demographic</b>	99%	96%	90%	46%	42%	39%
<b>Proportion of employees among reporting hubs</b>	8 of 10	6 of 10	4.6 of 10	4 of 10	4 of 10	4 of 10

*54% of management positions were held by women, and 14% were held by people of color.*

In 2019, thirty nine food hubs reported unpaid interns, apprentices, and volunteers, accounting for around 35% of the total reported labor force. Refer to Figure A1 in Appendix A for total, mean, median, and range for the number of interns and volunteers at responding food hubs.

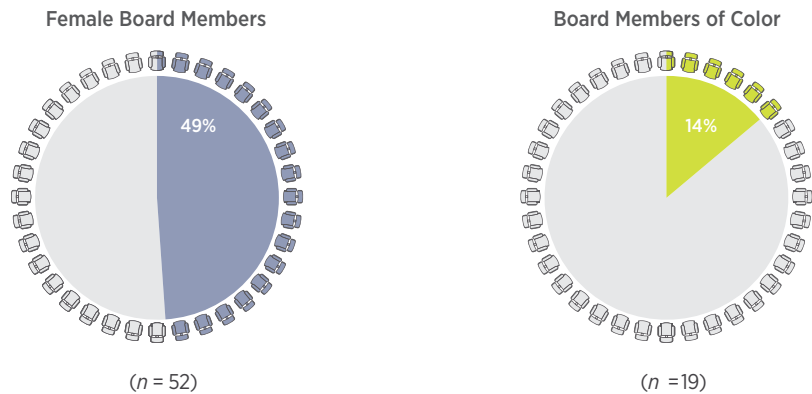


## BOARDS, OWNERS, AND SHAREHOLDERS

The 2019 survey included new questions about the presence and composition of boards of directors and owners and/or shareholders at food hubs, as shown in Figure 8 (a&b). About half of the 109 responding hubs said they had members on a board of directors, represented mostly by nonprofit food hubs. Of the reported 517 board members, 49% were women and 14% were people of color. Similarly, about half of responding hubs said they had owners and/or shareholders, represented mostly by for-profits and co-ops. Of the reported 1,477 owners/shareholders, 12% were women and just 4% were people of color. Ownership and governance of food hubs are important strategies toward greater gender and racial equity, supporting future research on this topic.

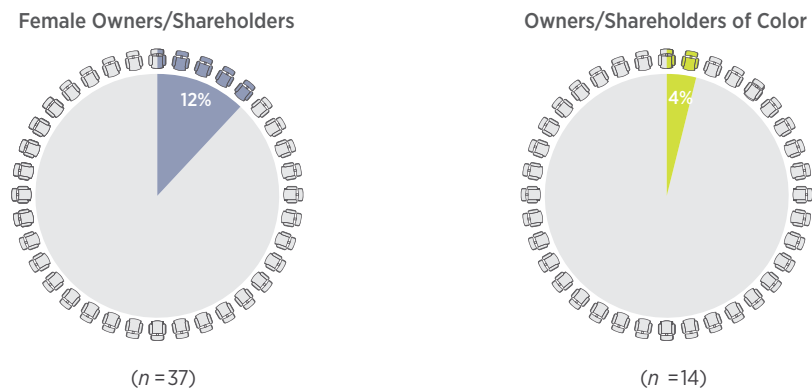
*The 2019 survey included new questions about the presence and composition of boards of directors and owners and/or shareholders at food hubs*

**Figure 8a. Composition of Board Members**



Note: Total respondents that have a board of directors (n = 59)

**Figure 8b. Composition of Owners/Shareholders**



Note: Total respondents that have owners/ shareholders (n = 53)

## PRODUCERS AND SUPPLIERS

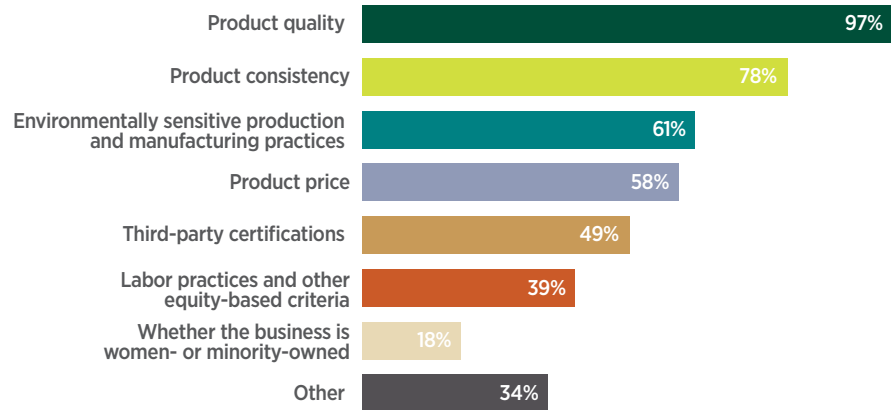
In 2019, the average percentage of food hubs' producers and suppliers that were owned or operated by women was 36%, and the average percentage owned or operated by people of color was 18%. These figures are consistent with 2017 and 2015 findings. As in previous surveys, about half of a hub's producers and suppliers had been in business less than 10 years.

*New in the 2019 survey, hubs were asked to describe their approach to vetting new producers and suppliers or evaluating existing ones (Figure 9).*

Nearly all respondents (97%) vetted producers based on product quality, and more than three quarters (78%) did so based on product consistency. Sixty-one percent vetted suppliers based on environmentally sensitive practices, and just under 60% did so based on product price. One third said they use other approaches; of those, nearly half said that producer location was a factor.

**Figure 9. Approach to Vetting Producers and Suppliers**

*Hubs are focused on product quality, consistency, sustainable production, and price.*



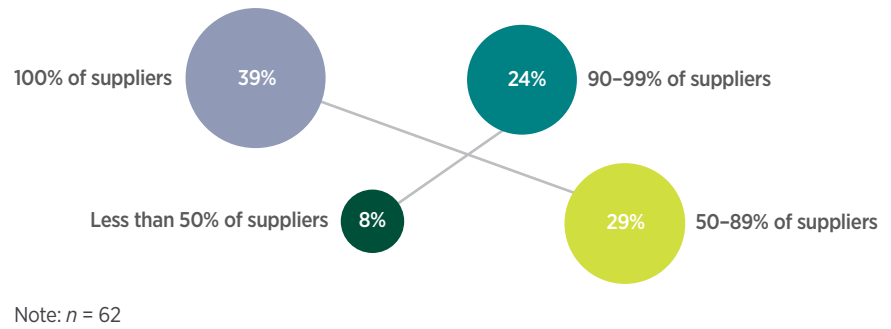
Note:  $n = 67$

## FARMS AND RANCHES

In 2019, surveyed food hubs directly purchased or procured products from 2,861 farms and ranches, with numbers ranging from three to 190 farms and ranches per food hub. The average number of farms and ranches from which hubs purchased or procured products was 48, and the median was 38. Of the 62 respondents, 92% said that at least half of their farm and ranch suppliers are small or midsized (that is, farms having gross annual sales less than \$500,000). Nearly 40% said that all of their farm and ranch suppliers are small or midsized (see Figure 10).

**Figure 10. Small or Midsized Farm and Ranch Suppliers**

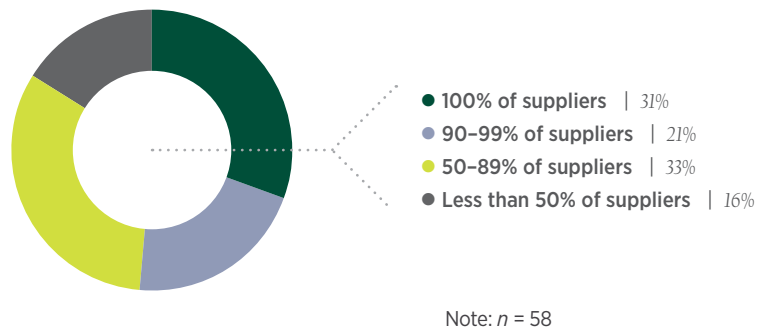
Nearly 40% said that all of their farm and ranch suppliers are small or midsized.



When respondents were asked to estimate the percentage of total sales that were from food or products from small or midsized farms, responses were similar, with 84% saying these sales accounted for more than half of their total sales and 31% saying they accounted for all of them (see Figure 11).

**Figure 11. Total Sales of Food/Products from Small or Midsized Farms**

56 food hubs spent more than \$31.8 million on purchases from small and midsized farms.



In total, 56 food hubs spent more than \$31.8 million on purchases from small and midsized farms and ranches, with individual hub purchases ranging from \$100 to \$6.5 million. The average amount purchased from small and midsized farms and ranches in 2018 was \$567,908, and the median was \$172,732.

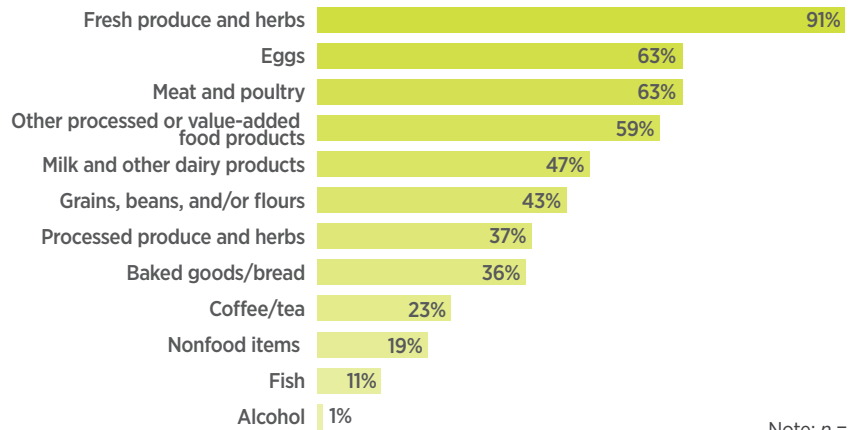


## TYPES OF PRODUCTS SOLD

In 2019, food hubs carried an average of five product categories. As shown in Figure 12, the most commonly carried category was fresh produce and herbs, with 91% of hubs carrying these items. Eggs, meat and poultry, and other processed or value-added food products were carried by approximately 60% of the hubs.

*Most hubs supply fresh produce and herbs.*

**Figure 12. Percentage of Food Hubs Carrying Products, by Category**



Note: n = 70

Fresh produce accounts for a large proportion of sales revenue on average. For hubs selling fresh produce, 53% of average sales revenue comes from that product type. Additionally, for those selling meat, poultry, and fish, 17% of average sales revenue comes from those products. See Figure A3 in Appendix A for additional details.

Figure 13 compares sales by product category as their proportion of a dollar in sales. In 2019, hubs reported a 7% decrease in the proportion of sales of fresh produce and herbs sold between 2015 and 2019 and an 8% increase in the amount of processed produce and herbs sold during that same time frame.

**Figure 13. Total Food Hub Sales as Percentage of a Dollar, by Product Category**

*Processed produce is increasing as a percentage of sales.*



Note: Percents expressed as cents in a dollar.

# Finances

For the 2019 survey, respondents were asked to provide financial information for calendar year 2018 and to estimate that information if actual dollar amounts were unknown. The financial information provided included gross revenue and operating expenses. Hubs were also asked about their accounting practices and loan readiness. The general financial picture for responding food hubs in 2019 is similar to previous national surveys.

## GROSS REVENUE

In 2019, 73 hubs reported more than \$207 million in combined total revenue, with an average revenue of \$2.8 million (ranging from -\$3,000 to \$100 million). The 2019 median revenue of \$495,000 was higher than in both 2017 (\$489,000) and 2015 (\$351,000). Total combined revenue has decreased from \$235 million in 2017 and \$371 million in 2015. Complete data for revenue by category for these three survey years can be found in Figure A4 in Appendix A.

When broken down into dollar amount categories, gross revenue reported by responding food hubs in all four years of the survey remained fairly consistent. In 2019, 19% of food hubs reported total revenue less than \$100,000, 23% reported between \$200,001 and \$500,000, 26% reported between \$500,001 and \$2 million, 15% reported between \$2,000,001 and \$7 million, and less than 10% reported revenue of more than \$7 million each year. Across all years of the survey, a large percentage (34% in 2019) of hubs reported sales greater than \$1 million; however, the majority (66% in 2019) reported sales of \$1 million or less. This data is provided in Figure A5 in Appendix A.



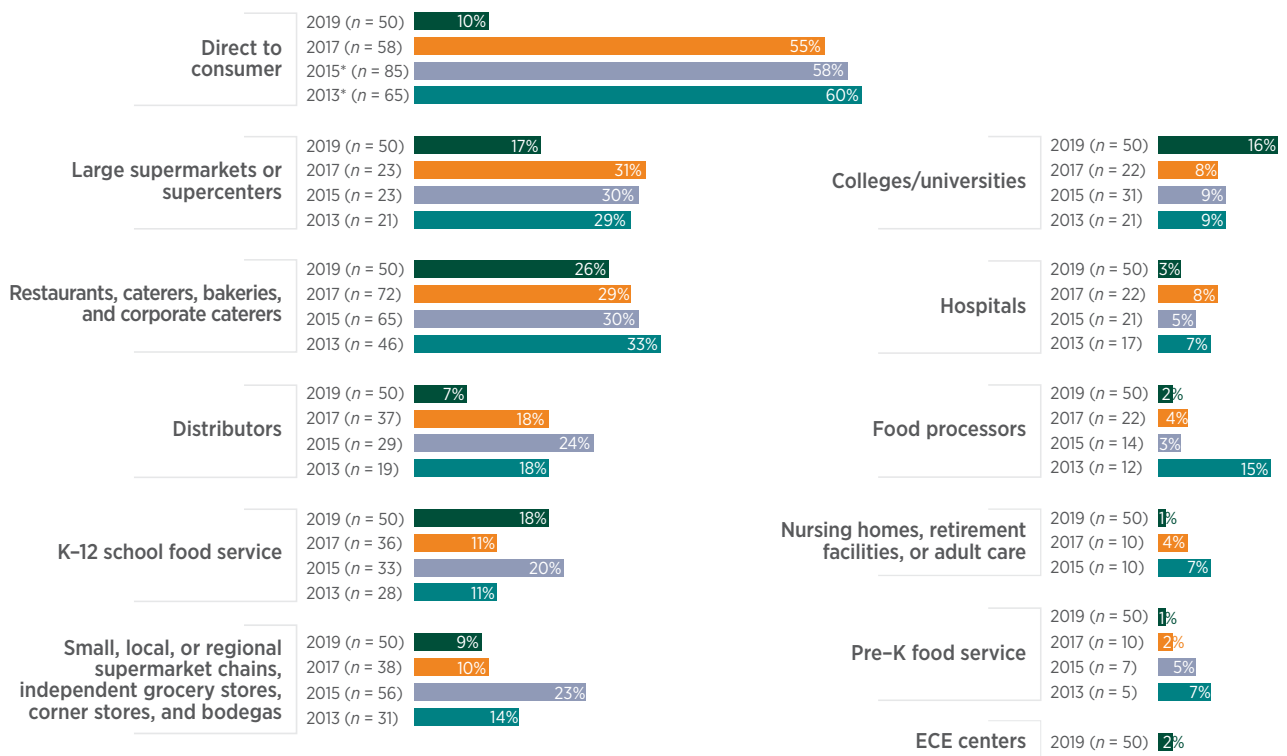


## SALES REVENUE

In 2019, 74 hubs reported more than \$174 million in combined revenue from product sales, an average of \$2.4 million per hub. Median sales were \$300,000. In 2017, the average gross sales revenue reported was \$2.3 million; in 2015, it was \$3.1 million.

After reporting total sales revenue, food hubs were asked to break down this information by customer category. The average percentage of total gross sales by customer type was significantly lower in the direct-to-consumer, large supermarket or supercenter, and distributor categories than in past years, though the percentages had remained fairly consistent across time (see Figure 14). Of particular note was the 45% decrease in average percentage of total gross direct-to-consumer sales revenue from 2017 to 2019. The customer category showing the largest increase in 2019 over past years was colleges and universities. Only sales to restaurants, caterers, bakeries, and corporate caterers remained fairly consistent across all four years, although that category shows a slight annual decrease since 2013. ECE centers were added as a new customer type on the 2019 survey, and 2% of responding hubs' total gross sales were to these centers.

**Figure 14. Average Percentage of Total Gross Sales by Customer Type by Year**



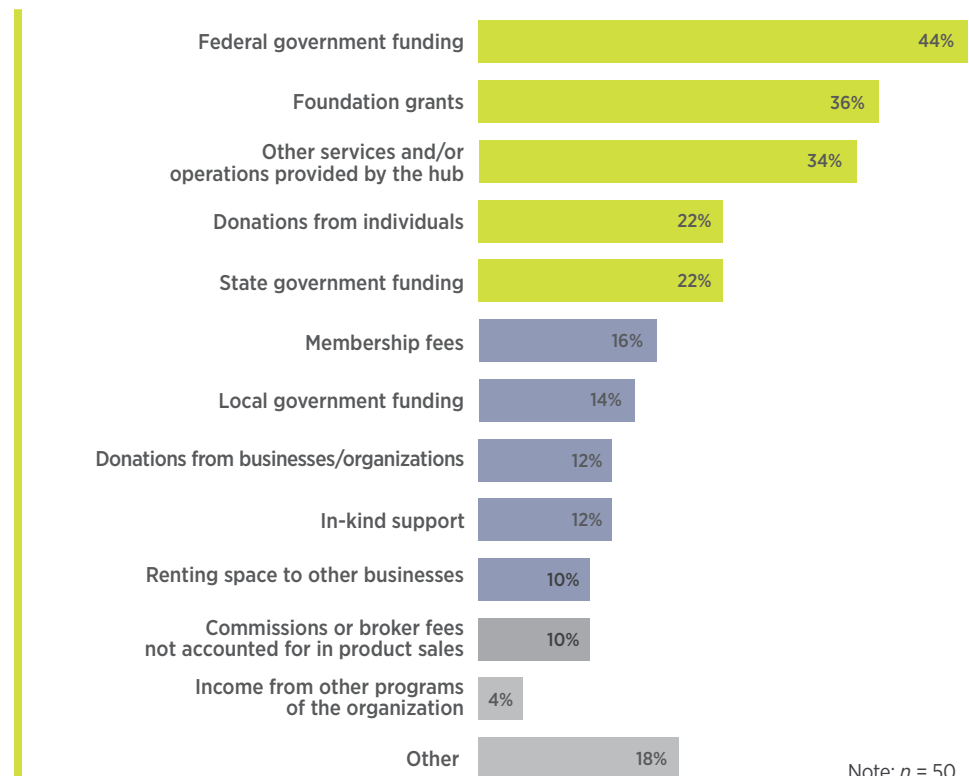
*Direct-to-consumer sales have decreased, and sales to colleges and universities show growth.*

## NON-SALES REVENUE

About half of responding hubs (46%) reported non-sales revenue of some kind, shown in Figure 15. Of the hubs reporting this type of revenue, 44% received it from federal government funding, 36% from foundation grants, and 34% from other services and/or operations provided by the hub. Nearly 20% reported revenue from a source not listed, including a distribution contract, mobile market funding, a private funder, delivery fees and fuel surcharges, residential property rental, events, and equipment sales.

**Figure 15. Non-sales Revenue Sources**

*Federal funding and foundation grants remain the largest source of non-sales revenue for food hub respondents.*

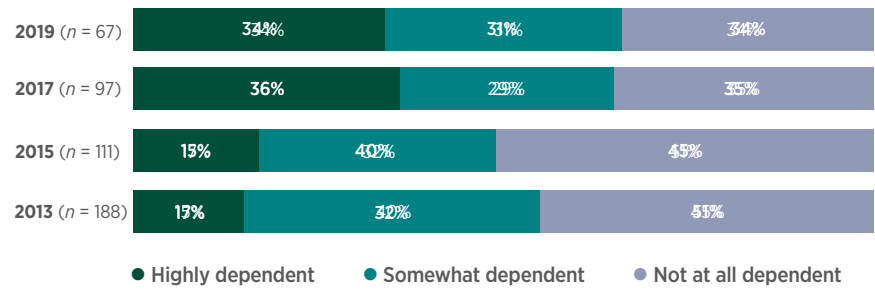


Of the food hubs reporting non-sales revenue, 62% received foundation, federal, or state funding. This percentage has increased slightly from 59% in 2017 and 54% in 2015. Figure A6 shows this percentage broken down by the hubs' legal structures in Appendix A.

Food hubs were asked how dependent they were on public and/or private grant funding to carry out their core functions. In 2019, responses were split fairly evenly—34% said they were highly dependent, 31% said somewhat dependent, and 34% said not at all dependent on grant funding. These results were similar to 2017 (see Figure 16).

*One third of hubs are highly dependent on grant funding; 62% of them are nonprofits.*

**Figure 16. Food Hub Dependence on Grant Funding by Year**



Of the food hubs that reported being highly dependent on grant funding, 62% were nonprofits. Responses demonstrate that as hubs of all business models become more established, they may become less dependent on grant funding. Of the 12 responding food hubs that had been in business for less than two years, half were highly dependent on grant funding and one quarter were somewhat dependent. However, more than a third (36%) of hubs in operation for more than two years said they were not at all dependent on grant funding. This seems to confirm the benefit of early-stage capital investment in the form of grants to help establish and stabilize hubs. See Figure A7 in Appendix A for complete findings.

New in the 2019 survey, respondents were asked whether they anticipated their dependence on grant funding to increase, decrease, or stay the same over the next two years. More than half (54%) expected their dependency on grant funding to stay the same, 16% expected it to increase, and 30% expected it to decrease (see Figure 17).

**Figure 17. Anticipated Change in Grant Funding Dependency**

*Only 16% of respondents anticipate an increase dependence on grant funding.*



## OPERATING EXPENSES

Food hubs responding to the 2019 survey reported an average of approximately \$1.5 million in operating expenses for calendar year 2018 (see Figure A8 in Appendix A). These expenses ranged from \$2,390 to \$11.7 million and had a median cost of \$522,241. Average expenses were higher than 2017 but down from 2013 and 2015. Median expenses are higher in 2019 than in all three previous survey years.

*Nearly all responding foods hubs' expenses fall into two categories:*

- 1. food and/or product purchases from producers and suppliers*
- 2. employee salary and benefits.*

In 2019, product purchases accounted for 60% of total expenses for hubs reporting expenses in that category, and payroll expenses accounted for 24% of total expenses for hubs reporting expenses in that category. These percentages have remained fairly consistent across the years. The survey asked about 13 other categories of expenses, which ranged from 0% to 2%. (See Figure A9 in Appendix A.)

## OPERATING EFFICIENCY

An operating expense ratio (OER) is a common measure of a business's financial health. It is calculated by dividing total operating expenses by total gross revenue. When a business is covering all of its expenses with total gross revenue, the OER will be equal to 1.00. If the OER is greater than 1.00, the business has expenses in excess of revenue and, therefore, a negative profit margin. Conversely, if the OER is less than 1.00, the business has a positive profit margin. In 2019, about two thirds of hubs were breaking even or better, which is very similar to the 2017 survey.

As shown in Figure 18, food hubs responding to the 2019 survey had OERs ranging from 0.02 to 9.76. The 2019 average OER was 1.10 and the median was 0.96. Figures 19 and 20 provide this information by legal structure, business model, and years in operation.

For further reading, the 2019 food hub benchmarking study (Wallace Center at Winrock International, 2019) offers deeper analysis of food hub financials that provide additional insights into the factors that influence OER.

In 2019, about two thirds of hubs were breaking even or better, which is very similar to the 2017 survey.

**Figure 18. OER by Year**

	2013	2015	2017	2019
<b>n</b>	77	86	78	59
<b>Mean</b>	1.09	0.88	1.13	1.10
<b>Median</b>	1.00	0.94	0.97	0.96
<b>Range</b>	0.04–6.79	0.01–3.10	0.06–7.18	0.02–9.76

**Figure 19. OER by Legal Structure and Business Model**

	2015				2017				2019			
	n	Mean	Median	Range	n	Mean	Median	Range	n	Mean	Median	Range
<b>Legal Structure</b>												
Nonprofit	29	1.00	0.90	0.17–3.10	34	1.26	1.01	0.15–7.18	17	0.93	1.00	0.51–1.21
Cooperative	22	0.74	0.88	0.04–1.21	14	0.61	0.45	0.15–1.18	8	0.67	0.74	0.02–1.09
For-profit	32	0.92	0.98	0.01–1.53	27	1.29	0.97	0.19–6.67	31	0.97	0.93	0.37–1.50
No formal legal structure	-	-	-	-	-	-	-	-	2	5.56	5.56	1.35–9.76
<b>Business Model</b>												
Wholesale	28	0.82	0.94	0.01–1.53	26	1.13	0.93	0.15–7.18	28	1.25	0.93	0.12–9.76
Hybrid	43	0.92	0.92	0.04–3.10	41	1.21	0.99	0.06–6.67	16	0.94	1.00	0.02–1.43
Direct to consumer	15	0.89	0.92	0.18–2.66	11	0.82	0.92	0.15–1.31	11	1.01	0.96	0.61–1.50

**Figure 20. OER by Years in Operation**

	2015				2017				2019			
	n	Mean	Median	Range	n	Mean	Median	Range	n	Mean	Median	Range
<b>0</b>	27	0.99	0.82	0.27–3.10	17	1.44	0.97	0.15–7.18	7	0.82	1.00	0.02–1.35
<b>3–5 years</b>	25	0.89	0.98	0.18–1.53	23	1.16	0.99	0.16–5.41	20	1.52	0.95	0.61–9.76
<b>6–10 years</b>	17	0.83	0.94	0.01–1.50	25	1.03	0.92	0.15–6.67	15	0.85	0.92	0.12–1.04
<b>11–15 years</b>	4	1.00	0.99	0.96–1.06	5	1.14	0.99	0.84–1.57	11	0.94	0.96	0.31–1.19
<b>16–20 years</b>	4	0.77	0.95	0.17–0.99	2	0.57	0.57	Not reported	3	1.10	1.09	0.99–1.21
<b>More than 20 years</b>	9	0.66	0.83	0.04–1.00	6	0.71	0.77	0.06–1.01	3	0.80	0.85	0.48–1.06

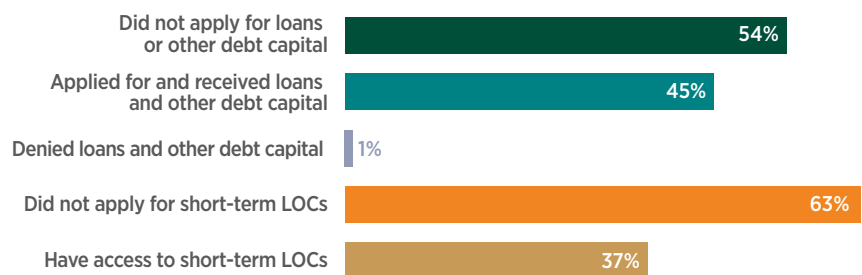


## ACCOUNTING PRACTICES AND LOAN READINESS

Nearly one third (32%) of responding hubs identified access to capital as one of their top three challenges in 2019. This is up from 27% in 2017 and 29% in 2015. Figure 21 shows that in 2019, more than half (54%) of hubs did not apply for long-term debt capital or loans and 45% applied for and received them. Only one responding hub applied for but did not receive long-term debt capital or loans. In addition to asking about these items, the 2019 survey also asked if hubs had used short-term lines of credit (LOCs) in the past two years. Nearly two thirds (63%) had not applied for short-term LOCs, and more than one third were approved for and had access to them. None of the food hubs surveyed were denied short-term LOCs.

**Figure 21. Access to Debt Capital**

*Among hubs that applied for loans or short-term lines of credit, virtually none were denied.*



Note:  $n = 67$  for long-term debt capital or loans;  $n = 65$  for short-term LOCs.

## VALUES AND MISSION

To allow for comparison of results across time, the majority of the 2019 survey questions were consistent with past iterations. However, some new questions were added regarding equity, environment, and the community. This section of the 2019 survey examined food hubs' social and environmental missions and roles in creating healthier, more equitable communities.

## LOCATION OF SUPPLYING FARMS AND RANCHES

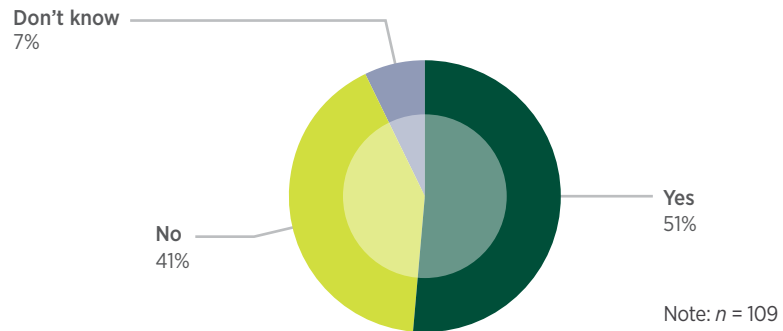
In 2019, responding food hubs purchased or procured nearly 40% of their products solely from rural farms and ranches. Many reported that none of the farms and ranches from which they obtained product were located within the borders of a large metropolitan city (69%), in other urban areas (84%), or in suburban areas (63%). Figure A10 in Appendix A shows that the average percentage of farms and ranches located in rural areas supplying food hubs was 73%, down from 86% in 2017.

## LOW-INCOME AND LOW-ACCESS COMMUNITIES

The USDA Economic Research Service created a food access research atlas that shows areas of low income and low food access. Using that map, food hubs were asked to indicate whether they were located in a low-income and low-access community. More than half (51%) were located in such a community (see Figure 22).

**Figure 22. Food Hubs Located in Low-Income and Low-Access Communities**

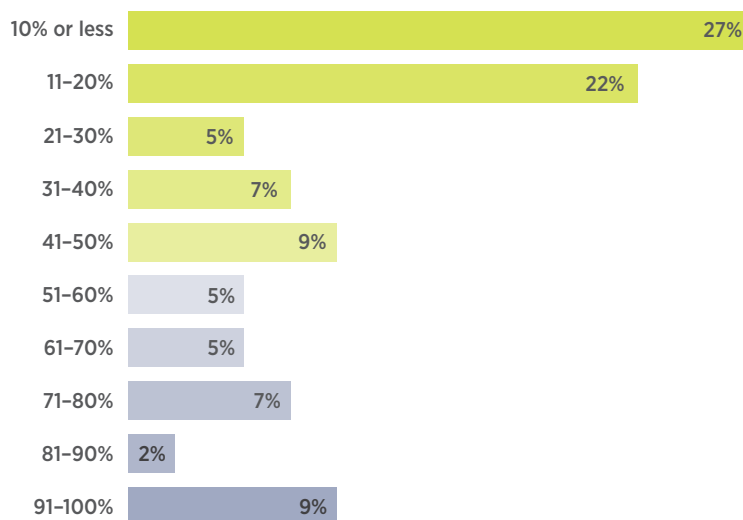
*More than half of responding food hubs are located in low-income, low-access communities.*



Food hubs were also asked to estimate the percentage of total sales that were to low-income customers or businesses in low-income areas. Among the 55 food hubs that said at least some percentage of total sales were to these customers and businesses, the percentage of these sales ranged from 1% to 100%, with an average of 37%. Figure 23 shows that the percentage of sales to these customers and businesses is 20% or less for almost half (49%) of the food hubs.

**FIGURE 23. Percentage of Sales to Low-Income Customers or Businesses in Low-Income Areas**

*Percent of sales to low-income consumers or businesses in low-income communities varies widely.*

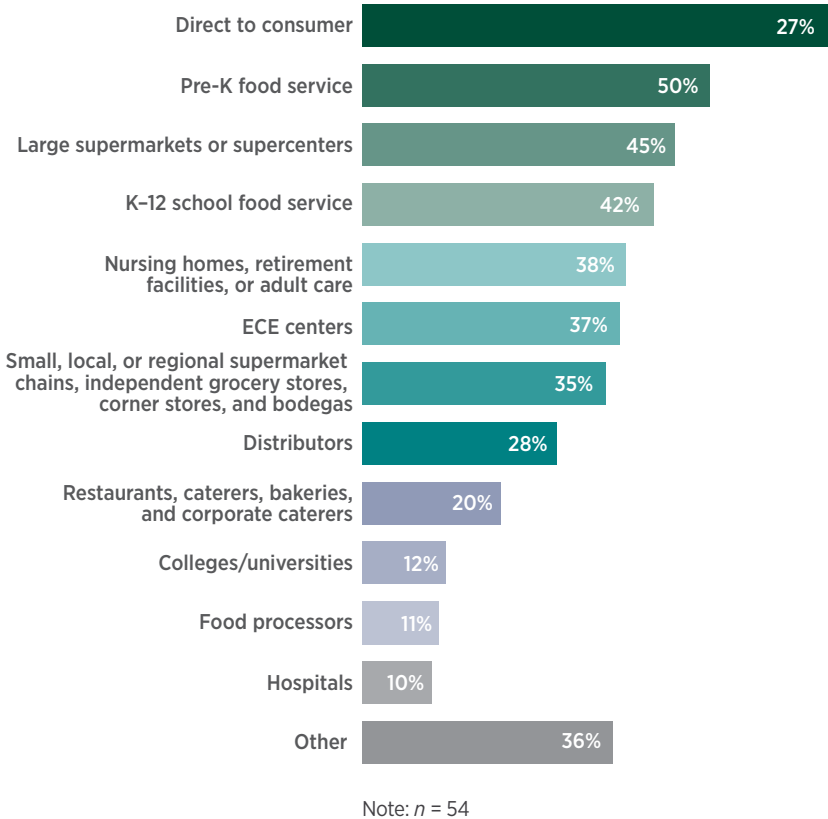


Note: n = 55

Food hubs were then asked what percentage of their low-income sales was made to specific markets. As indicated in Figure 24, two thirds make these sales directly to consumers, and half make these sales to the pre-K food service market.

**Figure 24. Sales to Low-Income Customers or Businesses in Low-Income Areas by Market**

*Pre-K food service is the second largest market for hubs to reach low-income customers.*



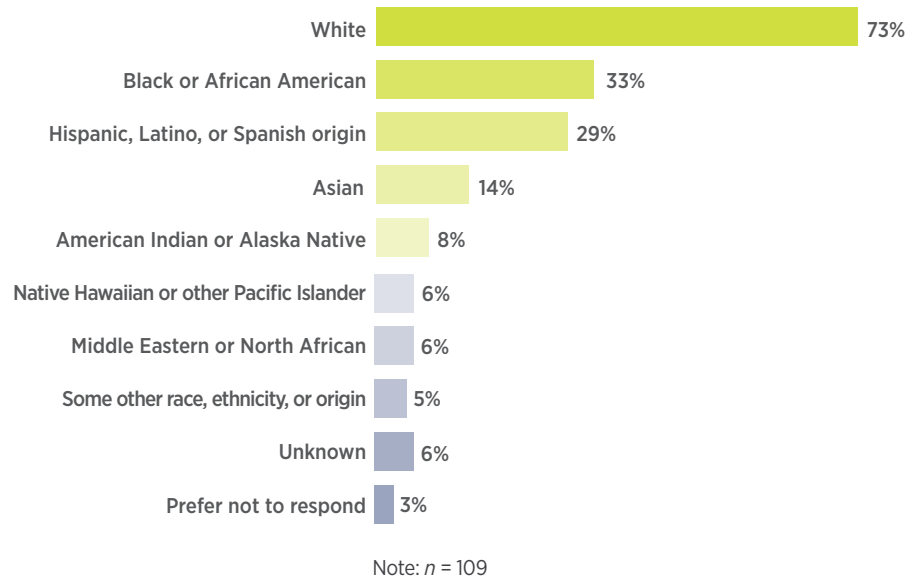
Another indication that food hubs are serving low-income customers is the acceptance of Supplemental Nutrition Assistance Program (SNAP) benefits. Of the responding food hubs (109), 13 hubs redeemed \$97,855 in SNAP benefits in amounts ranging from \$205 to \$40,000. The average benefit redeemed was \$7,527, with a median of \$2,963.

**COMMUNITY RACE AND ETHNICITY**

New in the 2019 survey, respondents were asked what best described the racial or ethnic makeup of the community in which their food hub was located. Food hubs could select multiple responses to this question to obtain the most accurate picture of their community. Figure 25 shows that nearly three quarters of these communities include white people, one third includes Black or African American people, and 29% describe the racial or ethical makeup of their community as Hispanic, Latino, or of Spanish origin.

**Figure 25. Race and Ethnicity of Communities Where Food Hubs Are Located**

Respondents were asked what best described the racial or ethnic makeup of the community in which their food hub was located

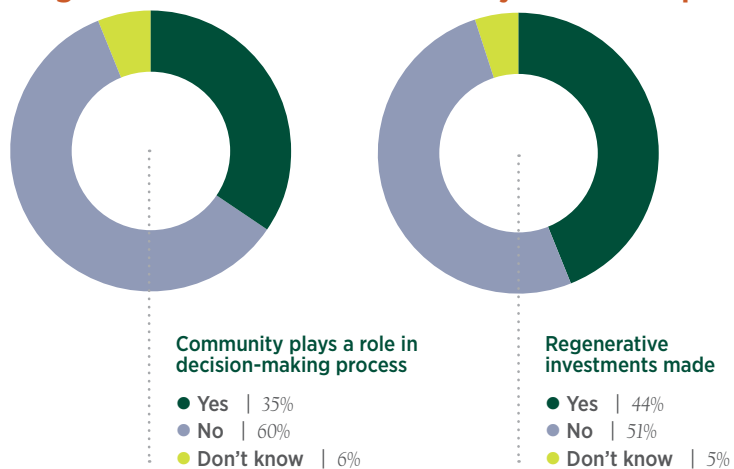


**COMMUNITY RELATIONSHIPS**

Also new in the 2019 survey, food hubs were asked if their community plays some active role in their decision-making process or governance and whether the hub makes regenerative investments in the community. Both questions are directly informed by proposed strategies in the Racial Equity Implementation Guide for Food Hubs (Jones et al., 2018). More than a third (35%) of responding hubs said the surrounding community plays an active role in the food hub’s decision-making process, and 44% make regenerative investments in their community to contribute to its economic, social, political, and/or cultural betterment (see Figure 26).

**Figure 26. Food Hubs’ Community Relationships**

These strategies are described in the Racial Equity Implementation Guide for Food Hubs.



## MEASUREMENT OF NONFINANCIAL MISSION GOALS

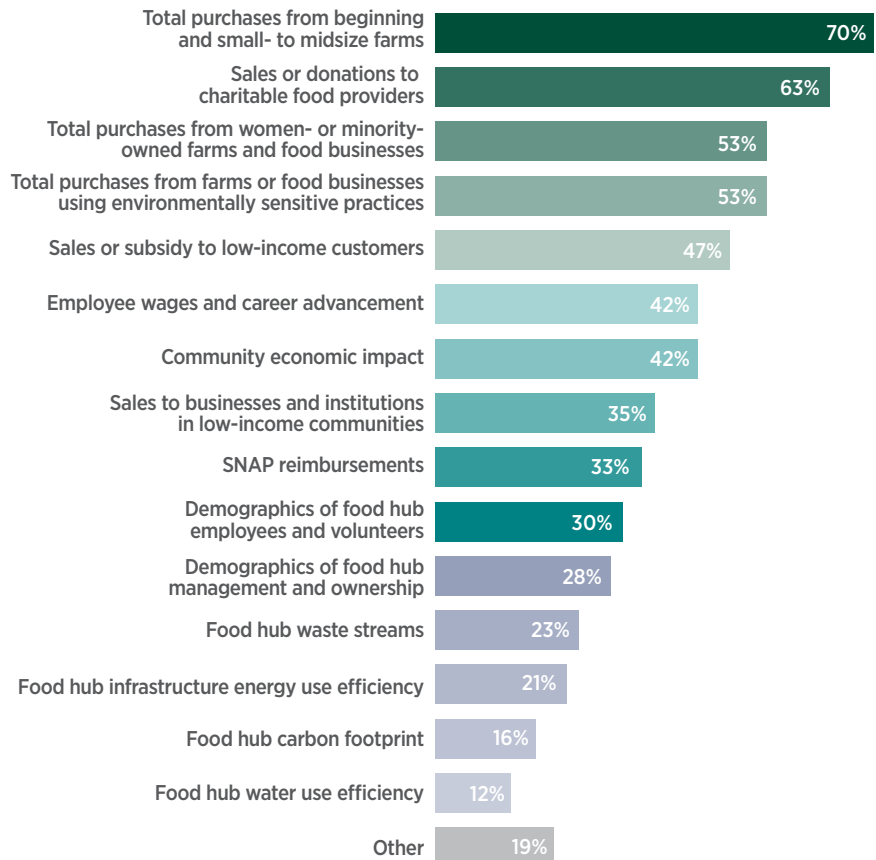
The 2019 survey added four new questions on measuring nonfinancial mission goals through a research partnership with Cornell University’s Small Farms Programs. In 2019, 42% of responding hubs said they track progress toward nonfinancial mission goals, 46% said they do not, and 12% said they do not have these goals. These responses differed from the 2017 survey, in which 54% said they recorded social and environmental metrics and 37% did not.

*Nearly half of hubs use metrics to track progress toward social and environmental goals.*

A total of 43 food hubs provided information on what metrics they track. Of those, 70% track purchases from beginning and small- to midsize farms, 63% track sales or donations to charitable food providers, and 53% track total purchases from women- or minority-owned farms and food businesses, as well as farms and food businesses using environmentally sensitive practices. Between 12% and 47% track other metrics (see Figure 27).

**Figure 27. Metrics Collected by Food Hubs to Evaluate Nonfinancial Mission Goals**

*Farm metrics and charitable food sales and donations are the most common nonfinancial metrics.*



Note: n = 43



Responding food hubs then chose the eight metrics they would prioritize over the next three years if they had the necessary time, tools, and resources. The metric ranked highest by approximately one third (34%) of the food hubs was total purchases from beginning and small- to mid-sized farms, followed by total purchases from women- or minority-owned farms and food businesses (21%), and then total purchases from farms or food businesses using environmentally sensitive practices (11%) and community economic impact (11%; see Figure A11 in Appendix A). These four metrics also received the most overall responses in the top eight rankings, with 87%, 84%, 76%, and 84%, respectively. Other metrics receiving more than half of overall responses in the top eight included sales to business and institutions in low-income communities (71%), sales or subsidy to low-income customers (55%), and sales or donations to charitable food providers (53%).

The survey also asked food hubs about the tools, software, and/or platforms they use to track and assess nonfinancial mission goal metrics; most used Excel and/or QuickBooks. Other tools mentioned included Google Drive and Local Food Marketplace, along with a variety of other accounting and enterprise resource planning software. The full list of responses is available in Appendix B. A deeper analysis of these questions will be reported in detail in a separate publication by Cornell University in 2020.



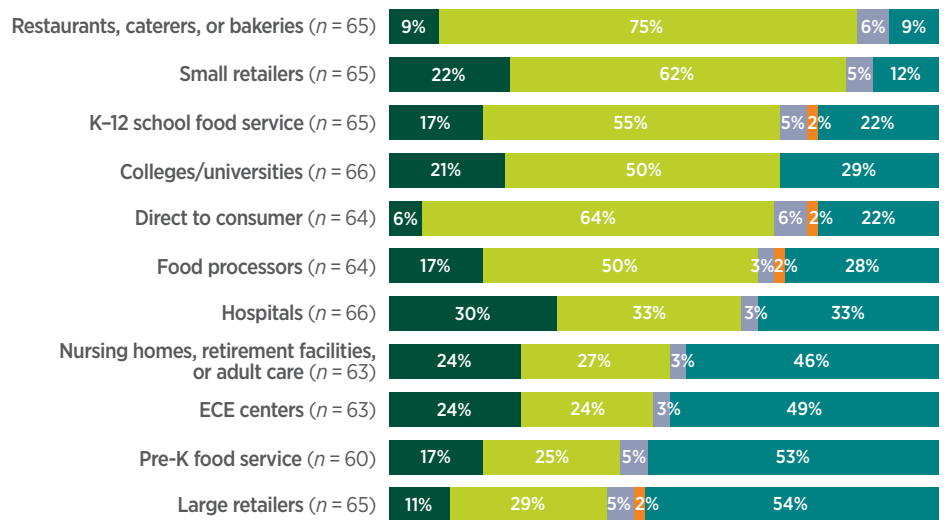
# Growth Opportunities, Challenges, and Barriers

## OPPORTUNITIES FOR GROWTH

Outlook for market growth was generally optimistic in 2019. Between 40% and 84% of food hubs said they would be entering or increasing their share in a variety of markets over the next two years. As illustrated in Figure 28, the markets with the largest predicted increase are restaurants, caterers, or bakeries and small retailers, with 84% of responding hubs saying they planned to enter or increase their share in each of these markets. More than 70% planned to enter or expand their share in the K-12 school food service and college and university markets. Very few food hubs were planning to exit or decrease shares in any of the markets. Note, however, that the responses in the following sections reflect the pre-COVID-19 market landscape for food hubs.

*Most respondents have intentions to expand their markets.*

**Figure 28. Two-Year Market Intentions**



- Enter this market
- Increase share in this market
- Decrease share in this market
- Exit this market
- Not serving this market now or in the next two years

Note: n varies by market; each category may equal more than 100% due to rounding within categories.

When only responses by hybrid hubs are considered, the markets with the largest predicted increase are K-12 school food service (90%), direct to consumer (85%), and restaurants, caterers, or bakeries (80%).

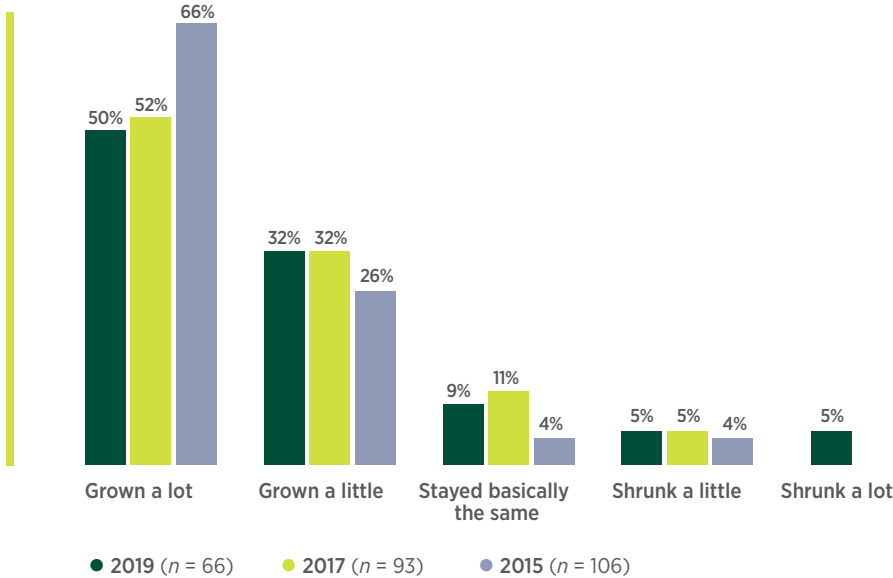
When only responses by wholesale hubs are considered, the markets with the largest predicted increase are small retailers (96%), colleges/universities (93%), and restaurants, caterers, or bakeries (92%). See Figures A12 and A13 in Appendix A for a full breakdown of these responses by hub type.

**PERCEIVED CURRENT AND FUTURE GROWTH**

In 2019, 82% of responding hubs said demand for their products and services had grown in the past two years. This is down slightly from 84% in 2017 and 92% in 2015. Of hubs that experienced growth, half said demand had grown a lot and one third said it had grown a little. Again, these numbers are similar to but slightly lower than numbers from 2015 and 2017, as shown in Figure 29. In 2019, 5% of responding hubs said that demand for products or services had shrunk significantly in the past two years, whereas no food hubs responded that way in 2015 or 2017.

**Figure 29. Perceived Change in Demand for Products and Services over Two-Year Period**

*Outlook for market growth was generally optimistic in 2019.*

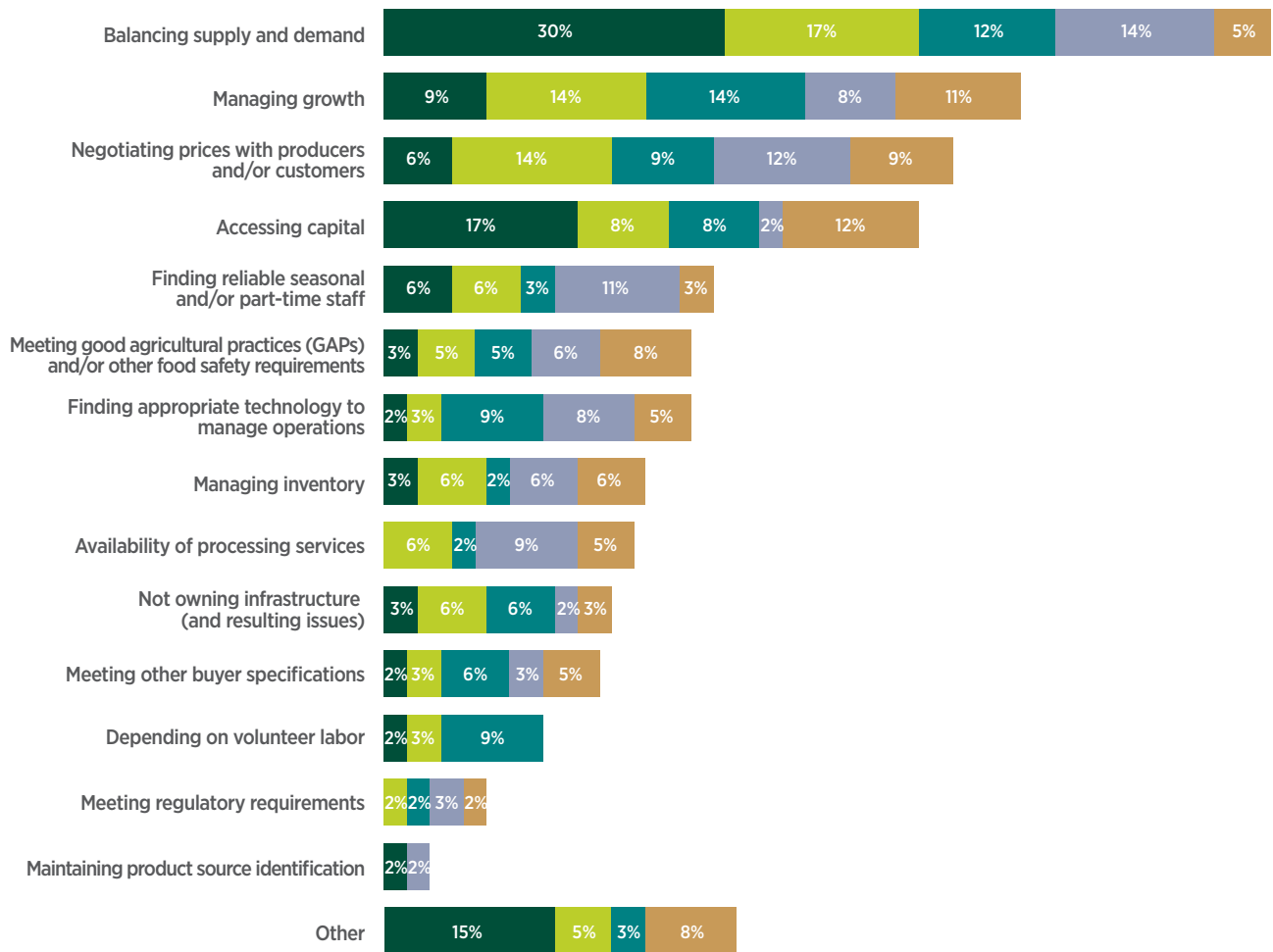


In addition to describing perceived current change, hubs were also asked to predict future change; 91% of hubs said they expected demand to grow a little or a lot, compared with 94% in 2017 and 98% in 2015 (see Figure A14 in Appendix A). The impact of the COVID-19 pandemic on demand remains to be seen.

## TOP CHALLENGES

Hubs were also asked about their top challenges overall. In 2019, 77% of responding food hubs chose balancing supply and demand as one of their top five overall challenges, with 30% choosing this as their greatest challenge. Balancing supply and demand has consistently been the top challenge since the 2013 survey. The other challenges chosen by at least half of the responding hubs were managing growth and negotiating prices with producers and/or customers (see Figure 30).

**Figure 30. Top Challenges for Food Hubs in 2019**



*The top challenges for food hubs have remained fairly consistent across all 4 national food hub surveys.*

- Greatest challenge
- Second greatest challenge
- Third greatest challenge
- Fourth greatest challenge
- Fifth greatest challenge

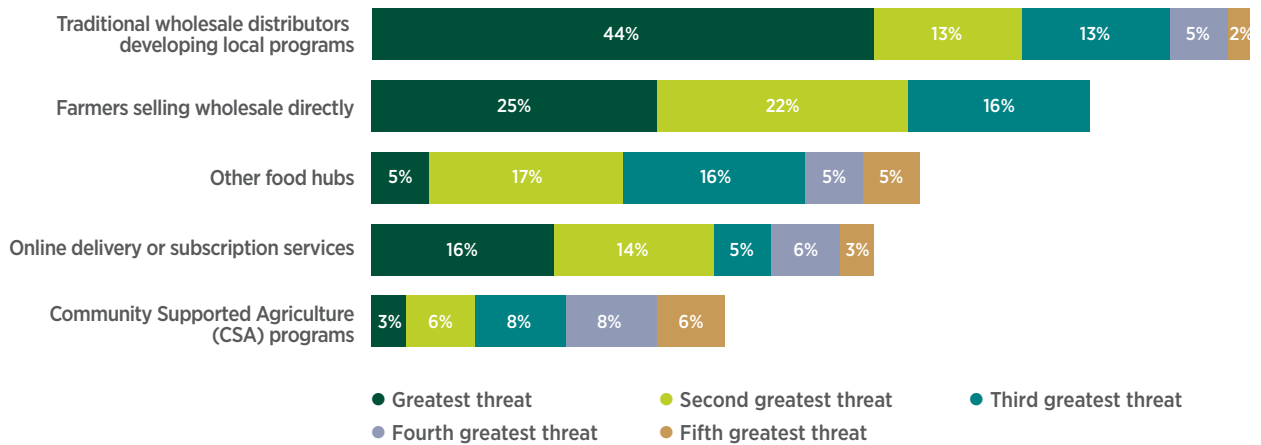
Note: n = 66

Figure A15 in Appendix A shows the percentage of food hubs who placed each challenge in their top three challenges for all four survey years.

## COMPETITION

Just as most food hubs predicted that demand for their products and services will continue to grow, they also predicted that competition for customers will increase over the next two years (see Figure A16 in Appendix A). Responding hubs expected the most competition from traditional wholesale distributors that are developing local programs. As illustrated in Figure 31, more than three quarters consider distributors as competition. Nearly two thirds perceived farmers selling wholesale as future competition.

**Figure 31. Perceived Competition by Distributor Type**



Note:  $n = 63$

## OTHER BARRIERS TO GROWTH

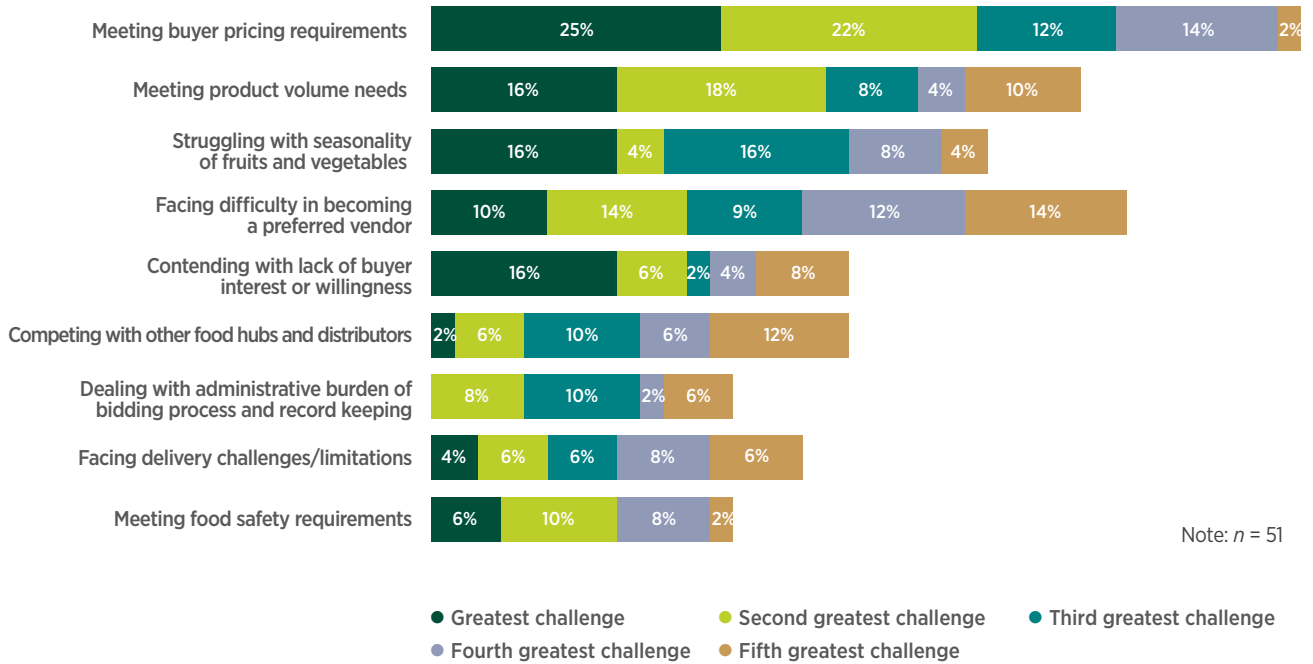
New in the 2019 survey, food hubs were asked about barriers to growth in specific markets. These included institutional markets (colleges, universities, and hospitals), the K-12 school food service market, and the ECE center or pre-K food service market. The top challenges in all three of these markets were meeting buyer pricing requirements, meeting product volume needs, and struggling with the seasonality of fruits and vegetables.

### COLLEGES, UNIVERSITIES, AND HOSPITALS

As indicated in Figure 32, three quarters of responding food hubs selected meeting buyer pricing requirements as one of their top five barriers to entering or increasing shares in the college/university and/or hospital market, with one quarter choosing it as the top barrier. Other barriers in these markets included difficulty becoming a preferred vendor and meeting product volume needs. (See Figure A17 in Appendix A for a full list of barriers into this market.)



**Figure 32. Top Barriers to Expansion into the College/ University and Hospital Market**



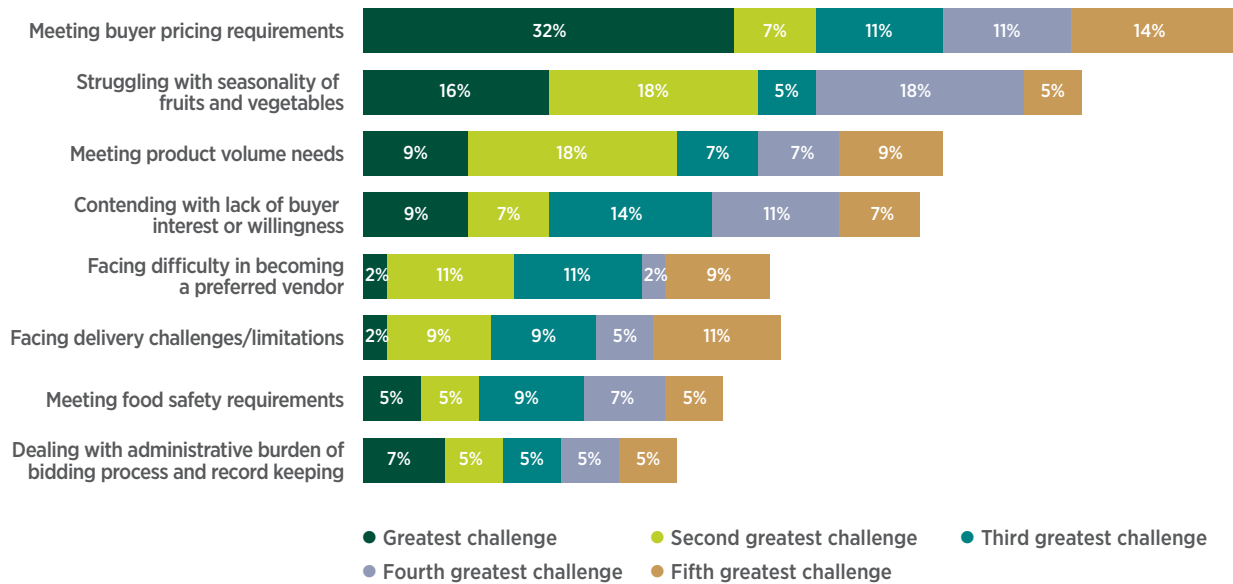
*Difficulty acquiring preferred vendor status suggests there are structural barriers to entering these institutional markets.*



## K-12 SCHOOL FOOD SERVICE

As indicated in Figure 33, three quarters of responding hubs said meeting buyer price requirements was one of their top five barriers to entering or increasing shares in the K-12 school food service market, with 32% of respondents choosing it as the top barrier. Another top barrier to growth in these markets was the seasonality of fruits and vegetables, perhaps due to the mismatch between school calendars and production seasons. (See Figure A18 in Appendix A for a full list of barriers into this market.)

**Figure 33. Top Barriers to Expansion into the K-12 School Food Service Market**



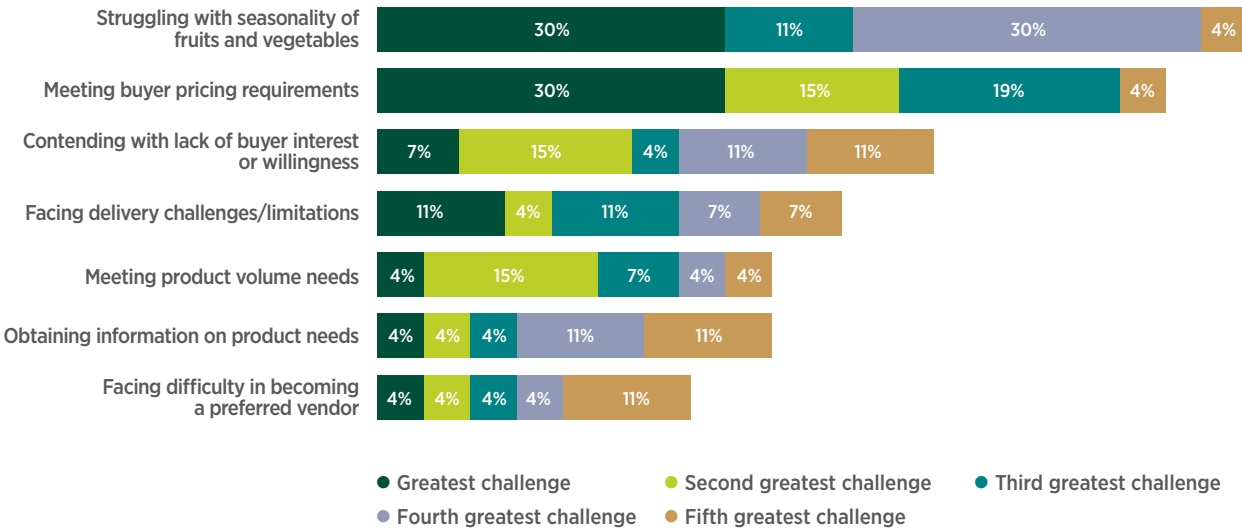
Note: n = 44

*Pricing requirements are very important to K-12 food service buyers.*

## EARLY CARE AND EDUCATION CENTERS AND PRE-K FOOD SERVICE MARKET

As indicated in Figure 34, nearly three quarters of responding food hubs selected the seasonality of fruits and vegetables as one of their top five barriers to entering or increasing shares in ECE and pre-K food service markets, with 30% choosing this as the top barrier. Other top barriers to growth in these markets included meeting buyer pricing requirements and lack of buyer interest or willingness. (See Figure A19 in Appendix A for a full list of barriers into this market.)

**Figure 34. Top Barriers to Expansion into the ECE and Pre-K Food Service Market**



Note: n = 27

*Seasonality of fresh fruit and vegetables is a key limitation to entering these markets.*

# Food Hubs in the Era of COVID-19

Since this survey report was written, the COVID-19 pandemic has transformed almost every aspect of life in the United States. We recognize that it would be nearly impossible to read the results contained here without reflecting on all that has changed. The coronavirus pandemic has exposed deep flaws and inequities in our conventional food systems, our health-care networks, and our criminal justice system and forced a painful national reckoning with the deadly effects of systemic racism on Black, Indigenous, and people of color.

As the devastating human and economic toll of the coronavirus continues to grow daily, the crisis has also revealed the resilience and ingenuity of the people living in our cities, towns, and rural areas.

Beginning in the early days of the pandemic, food hubs across the country have adapted to meet the essential needs of their communities. After lockdowns caused entire segments of the food marketplace to disappear, hubs that previously focused on serving restaurants and institutions quickly retooled to distribute food directly to consumers. Others leveraged their networks and partnerships with community-based organizations to ensure that food did not go to waste and that farmers continued to have a market for their crops. Food hubs are also distributing thousands of free food boxes every week through the USDA Farmers to Food Box program.





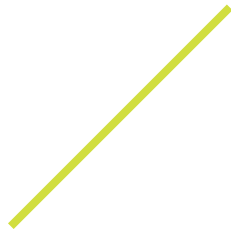
# Food Hubs in the Era of COVID-19

**As the pandemic caused global supply chains to buckle, leading to national food shortages, vast amounts of food waste, and volatile prices, many consumers and food service buyers have looked to local and regional food systems as a safe and reliable source of essential nutrition.**

As we begin planning a 2021 National Food Hub Survey, we are interested in better understanding the ways in which food hubs enhance and support the resilience of local and regional food systems. Additionally, we plan to continue exploring the ways that food hubs are addressing racial equity within their operations and communities. We invite scholars and practitioners to utilize this 2019 survey report as a snapshot of food hub activity in pre-COVID-19 times. This report will provide a valuable reference point for those working on food hub adaptations and operational pivots caused by the pandemic.







# References

Barham, J., Tropp, D., Enterline, K., Farbman, J., Fisk, J., & Kiraly, S. (2012). *Regional food hub resource guide*. U.S. Department of Agriculture, Agricultural Marketing Service. <https://www.ams.usda.gov/sites/default/files/media/Regional%20Food%20Hub%20Resource%20Guide.pdf>

Colasanti, K., Hardy, J., Farbman, J., Pirog, R., Fisk, J., & Hamm, M.W. (2018). *Findings of the 2017 National Food Hub Survey*. Michigan State University Center for Regional Food Systems & The Wallace Center at Winrock International. <http://foodsystems.msu.edu/2017foodhubsurvey>

Fischer, M., Hamm, M., Pirog, R., Fisk, J., Farbman, J., & Kiraly, S. (2013). *Findings of the 2013 National Food Hub Survey*. Michigan State University Center for Regional Food Systems & the Wallace Center at Winrock International. <http://foodsystems.msu.edu/resources/2013-food-hub-survey>

Hardy, J., Hamm, M., Pirog, R., Fisk, J., Farbman, J., & Fischer, M. (2016). *Findings of the 2015 National Food Hub Survey*. Michigan State University Center for Regional Food Systems & the Wallace Center at Winrock International. <http://foodsystems.msu.edu/resources/2015-food-hub-survey>

Jones, T., Cooper, D., Noor, S., & Parks, A. (2018). *Racial equity implementation guide for food hubs*. <https://www.raceforward.org/practice/tools/racial-equity-implementation-guide-food-hubs>

Rodman-Alvarez, S., Rodriguez, R., Pirog, R., Fisk, J., Carr, K., Warsaw, P., Bielaczyc, N., & Barker, T. (2020). *Delivering More Than Food: Understanding and Operationalizing Racial Equity in Food Hubs*. Michigan State University Center for Regional Food Systems. <http://foodsystems.msu.edu/resources/delivering-more-than-food-understanding-andoperationalizing-racial-equity-in-food-hubs>

Wallace Center at Winrock International. (2019). *Financial management for food hub success: One KPI at a time*. <https://static1.squarespace.com/static/520ed291e4b066a62d157faa/t/5d2cc73f7eb4180001d27f2e/1563215681652/Wallace+Food+Hub+Benchmark+Report.pdf>