

The food and agricultural nonprofit landscape

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Abstract

Collaboration among nonprofits, commercial entities, state Extension offices, and governmental agencies is crucial for improving and sustaining food and nutrition security at the state and local

levels. This study examines the landscape of 904 food and agricultural nonprofit organizations (FANOs) operating in Florida in 2019 to determine their scope, role in the food supply chain, and potential collaboration opportunities with allied organizations. FANOs primarily address the pre-production and distribution stages of the supply chain. Aligned goals and initiatives between FANOs and Extension programs revealed a wealth of opportunities for collaboration that would ensure the continuity of food systems and sustainable resource use in Florida, despite existing competition between allied organizations and FANOs.

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Keywords

nonprofit ecology, nonprofit landscape, nutrition security, food supply chain, collaboration, food security, resource competition

Introduction

Food insecurity is a pressing public health issue in the United States (U.S.) that affects 10.4% of U.S. households (Coleman-Jensen et al., 2022). Its prevalence is further complicated by the need to address the “equitable access to healthy, safe, affordable foods essential to optimal health and wellbeing,” referred to by the U.S. Department of Agriculture (USDA) as nutrition security (2022, p. 1). Improving and sustaining food and nutrition security at state and local levels requires collaborative efforts between nonprofits, commercial entities, state Extension offices, and governments. The nonprofit sector is integral to the food and agriculture industry, as it fills in systems gaps resulting from market failure. Nonprofits ensure that underserved populations can access nutritional foods (Fyall & Levine Daniel, 2018; Ma & Beaton, 2023), conduct research (Food Insight, 2022), promote policy change (Buck, 2018; Levine Daniel & Fyall, 2019), provide education (Koch et al., 2020), and promote food safety (Bierma et al., 2019).

Nonprofits are mission-driven organizations that address social and environmental problems, including food and nutrition insecurity. They differ from commercial entities in that their revenue is more often supported by donations, grants, and membership dues, and a majority rely on unpaid labor—or volunteers. The U.S. Internal Revenue Service (IRS) recognizes nonprofits as 501(c) tax-exempt entities. While nonprofits are often recognized as charities (e.g., food banks), they also serve as a legal option for professionals to pool resources for policy advocacy or professional development (e.g., farmers’ associations). Strengthening these nonprofits can fortify the food supply chain and agricultural industries. However, research in this nonprofit subsector is siloed and disjointed, reducing the ability to define its role and value holistically in addressing goals toward food and nutrition security. Mapping the nonprofit landscape will provide a greater understanding of the field and elucidate opportunities for cross-sector collaboration

and improvement of programmatic outcomes (Jones et al., 2018). In this study, we used Florida as a model to analyze the landscape of food and agricultural nonprofits (FANOs). We mapped FANO roles, which include their function and purpose, and assessed their value according to financial capital and personnel within the food supply chain. The findings highlight opportunities for partner organizations and state Extension offices to increase food and nutrition security through nonprofit collaboration.

Nonprofits and the Food Supply Chain

The food supply chain is a step-by-step sequence that tracks food from agricultural preproduction to food consumption (Food and Agriculture Organization, 2023). It comprises four stages: (1) preproduction, (2) production, (3) distribution, and (4) consumption (Global Food Systems Institute, 2022). Each of these stages often includes other critical components of the food supply chain, such as food storage, processing, packaging, transport, retail, markets, and loss and waste (Davis et al., 2021; Fanzo et al., 2021).

Nonprofits serve as active participants in the food supply chain primarily by ensuring food and nutrition security through emergency food services to individuals and by addressing ongoing community-level issues like food access and environmental sustainability (Hecht et al., 2019). For example, nonprofit professional associations support farmers in urban and rural communities, protect farmland, and improve community food access and nutrition through policy advocacy efforts (Haslam et al., 2019; Meenar, 2015; Thissen & Roka, 2010). Nonprofits within this domain range from interest groups and food policy councils to distribution operations and education organizations (Bacon & Baker, 2017; Gupta et al., 2018). Through their initiatives, FANOs seek to build more equitable, profitable, or sustainable food systems (Meenar, 2015).

Within each food supply chain stage, nonprofits serve in roles that enable continuity. In the *pre-production* stage, membership associations composed of farmers, food producers, and key food systems stakeholders strengthen food and agricultural networks by building professional networks,

conducting research, promoting education initiatives, and advocating for policy development (Fanzo et al., 2021). Nonprofits such as professional associations and youth education programs like 4-H (4-H, 2023) and the Edible Schoolyard also support this stage of the food supply chain by contributing to the development of life skills and family and community development (Knapp et al., 2019).

In the *production* stage, food is cultivated and prepared for distribution (Low et al., 2015, p. 92). This second stage in the supply chain includes the production of commodity and specialty crops and the raising of livestock at small and large scales. Production nonprofits include urban, suburban, and rural farms and gardens contributing to local, state, and national food supplies (Campbell et al., 2022b; Reynolds, 2011; Santo et al., 2021). Production-focused FANOs can also include community organizations such as community gardens and seed-saving nonprofits (Brown & Jameton, 2000; Santo et al., 2021).

Third, the *distribution* stage entails packing, marketing, and moving food to consumer-access locations (Low et al., 2015, p. 92). In this stage, food banks and organizations running farmers' markets support both farmer viability and food and nutrition security by connecting local food producers with consumers (Levi et al., 2022). For example, FANOs like the Common Market and Farm to School maintain distribution channels between local farms and schools, hospitals, and other nonprofits that serve food for consumption (Christensen et al., 2018). Nonprofits in this stage also work to improve food safety standards for perishable and non-perishable foods that are collected and transported from varied locations (Davis et al., 2014).

The fourth and final stage of the food supply chain is *consumption*, which includes the intake of food as well as food safety efforts to manage its handling or preparation (Govindan, 2018; Haslam et al., 2019). Nonprofits within this stage range from soup kitchens to professional organizations that advocate for healthy eating and provide evidence-based nutrition and food safety standards (Cody & Stretch, 2014). Nonprofits at this level are responsible for ensuring that foods are handled in

compliance with food safety regulations and that donated foods are delivered to consumers free of foodborne pathogens (Bierma et al., 2019).

Nonprofit Value in the Food Supply Chain

The nonprofit sector exists as an ecosystem with symbiotic and competitive relationships (Potter & Crawford, 2008). Within a community's FANO ecosystem, there is competition for all forms of capital: human, financial, and social. Nonprofits add value to the food system by leveraging their resources toward their individualized missions (Meenar, 2015; Potter & Crawford, 2008). Their effective resource usage strengthens the community (i.e., the nonprofit ecosystem). FANOs may measure their effectiveness through how many people they feed, the tonnage of food distributed, food pathogen spread (or lack thereof), or policy goals met.

Financial performance, such as overhead ratios, is often a stand-in for measuring nonprofit performance (Lecy & Searing, 2015). However, mission fulfillment serves as a more appropriate measure and is often far more challenging to capture. A nonprofit's mission statement determines its goals and impact. Heavy reliance on a single funder, such as the USDA or U.S. Department of Health and Human Services, can lead nonprofits to shift their mission and programming toward the funders' wishes and away from internally set goals (Froelich, 1999). Thus, a FANO's outputs and outcomes may not necessarily align directly with community-defined needs or even their mission.

FANOs are funded mainly by local, state, and federal grants from the USDA, private individuals or foundations, and corporate donors (Meenar, 2015). For example, the Sustainable Agriculture Research and Education (SARE) grant program is administered by the USDA's National Institute of Food and Agriculture to support research and education that promotes sustainable agriculture practices (Sustainable Agriculture Research and Education [SARE], 2023). The Healthy Food Financing Initiative, a USDA grant program administered by the Reinvestment Fund, provides resources to improve food access for underserved populations (USDA, 2023). Their total revenue can indicate their capacity to serve the community but is not

necessarily a reliable measure.

A FANO's human capital also indicates its value to the food system because FANOs often depend on volunteers to assist with organizational operations (Meenar, 2015). Volunteers are deeply embedded within nonprofit communities, and nonprofits compete for volunteers to help build relationships with prospective consumers and community partners (Schiff, 2008). Workers, paid and unpaid, are a finite resource within a community. Determining nonprofits' capacity in terms of pecuniary and human resources is crucial to understanding FANO's value and strength within the food system.

Opportunities for Collaboration

Food system partnerships most often exist between government and nonprofits because of their funding connection (Thissen & Roka, 2010). Weak or nonexistent collaborations between nonprofits can increase competition between entities with similar missions (Potter & Crawford, 2008). Nonprofits with similar missions have long competed for finite resources like government grants, donations, and volunteers (Chetkovich & Frumkin, 2003). The presence of commercial entities and competing organizations can exacerbate competition and challenge a nonprofit's ability to fulfill its mission. Alternatively, recognizing the utility of such diverse entities and expertise may lead to more efficient uses of resources that better support FANO missions (Selsky & Parker, 2005). Two entities maintain their autonomy while working together towards common goals as collaborators. When other organizations work in collective goal fulfillment with nonprofits, it enables nonprofits to provide their societal function, such as distributing fruits and vegetables to food-insecure populations and supporting their own organizational sustainability and growth (Gupta et al., 2018).

When network ties are strong and resources are pooled, diverse partnerships can be more impactful and ensure community resiliency during crises like food supply chain disruptions (Campbell et al., 2022a; Hecht et al., 2019; Levine Daniel & Fyall, 2019). For example, the Common Market is a regional nonprofit that works to improve individual, social, and environmental health through food

distribution by maintaining networks and building programs that forge collaboration between farmers, nonprofits, and communities (The Common Market, 2023). At the height of the COVID-19 pandemic, the nonprofit's collaborative efforts enabled it to shift its programmatic focus to distribute over 20,000 fresh food boxes per week across Texas, the Southeast, and Mid-Atlantic regions (National Farm to School Network, 2021). High-impact collaborations like these may be overlooked because the landscape of FANO efforts across the food supply chain requires comprehensive evaluation (Reynolds, 2011; Surls et al., 2015). As such, understanding the depth and breadth of nonprofit activity within food and agriculture networks is the first step in assessing existing efforts and ultimately identifying partnership opportunities.

Florida Food and Agriculture

Florida provides a unique location to study the landscape of FANOs. Between 2019 and 2021, 9.9% of Florida households, slightly less than the national average, reported low or very low food security (Coleman-Jensen et al., 2022). Florida is the third most populated state in the country, with over 22 million residents, and has experienced an increase in urbanization over the last two decades (Florida Department of Transportation, 2021). Florida is a leader in the U.S. agricultural industry: over the last several years, it has ranked first in production value for oranges, tomatoes, and watermelon, with increasing diversified fruit and vegetable production (Florida Department of Agriculture and Consumer Services, 2023). The state is home to major ports for distribution and a large agricultural labor workforce totaling nearly 127,000 farm workers. Over 50,000 Florida agricultural laborers use H-2A programs, which allow agricultural employers to hire employees from other countries on a temporary basis (National Center for Farmworker Health, 2023). Florida is also home to the comprehensive programming of the University of Florida's Institute of Food and Agriculture Sciences (UF/IFAS) Extension, which is a partnership between federal, state, and county governments that aims to strengthen food and agriculture systems by providing scientific knowledge and

expertise to the public (IFAS, 2023). Because of Florida's robust food and agriculture system, understanding the FANO landscape within the food supply chain and identifying opportunities for collaboration is especially useful.

Purpose and Objectives

This study aimed to provide a landscape of FANOs in Florida that elucidates their role and value to food and agriculture systems. The objectives were to:

1. determine the depth and breadth of FANOs in Florida,
2. define their role in and value added to Florida's food supply chain, and
3. identify opportunities for intersectoral collaborations.

Methods

To study Florida's FANO landscape, the research team built a dataset of nonprofits whose missions were associated with food and agriculture. Once identified, relevant nonprofits were analyzed to determine which stage(s) they engage in in the food supply chain to help identify the FANO's role in food and nutrition security. Then, we determined which UF/IFAS Extension initiatives best aligned to identify the potential for collaboration and innovation.

Data Collection and Sample

Data collection occurred in several stages to identify and refine a directory of FANOs. The research team used data from the Internal Revenue Service (IRS) to build a database of nonprofit information. This database was used to generate a list of the approximately 94,000 nonprofits registered in Florida in 2019, the most recently available IRS information at the time of the study. Specific criteria were then applied to limit this list to only those relevant to food and agriculture. Inclusion criteria required that nonprofits be labeled with one of 112 different food and agriculture codes as determined by the IRS National Taxonomy of Exempt Entities (NTEE). Nonprofits are required to file a publicly available annual tax return called the IRS Form 990. Those with an annual revenue of over

US\$200,000 file an IRS 990. Those with US\$50,000–US\$200,000 in gross receipts file either an IRS Form 990 or 990EZ. Those with US\$50,000 or less file an IRS Form 990N. The IRS, GuideStar, and scholars use the NTEE codes and IRS Form 990 type to sort nonprofits for analysis. For instance, production nonprofits that provide agricultural services are labeled K20 (Agricultural Programs) in the NTEE coding system. Codes range from A to Z and include a sub-numbering system.

Applying food and agriculture criteria to a search of NTEE codes limited the list to approximately 13,000 nonprofits. To further refine, the team applied exclusion criteria to eliminate the search terms "field" or "fish" because such terms primarily referred to sports programs or religious organizations, resulting in a list of 1,300 nonprofits.

The refined list was then randomly sorted into ten batches of 130 nonprofits to be manually investigated by the research team to ensure the nonprofits' relevance to food and agriculture. Team members relied on publicly available information to make this determination, such as reviewing nonprofits' names, websites, or IRS 990 Forms, including employer identification number, financials, number of employees and volunteers, mission, and programs.

Data Coding and Analysis

Two rounds of coding were conducted on the directory. The first round determined where a nonprofit's primary purpose aligns within the food supply chain: preproduction, production, distribution, and consumption. Team members were assigned batches of nonprofits and used publicly available information about nonprofit activities to categorize them correctly. To ensure uniform coding, the team created a shared glossary of terms with corresponding examples for each stage of the food supply chain. The coding tool also allowed coders to flag nonprofits if team members were unsure where the nonprofit fit in the food supply chain. Three team members discussed these flagged cases to complete the sorting process and ensure consistency within the data.

The second coding round was conducted to determine which UF/IFAS Extension initiatives

and workgroups best aligned with each nonprofit's mission and programming. The team used the initiative and workgroup definitions found in Florida's Extension Roadmap to correctly categorize nonprofits based on nonprofit activity (University of Florida, 2013). Batches of nonprofits from round one coding were shuffled and reassigned for second-round coding. Flagged cases were team-reviewed to determine the best placement.

After coding, batches were reassigned to the team for the final time. Every 10th nonprofit was reviewed to ensure coding agreement within the research team. Coding was then aggregated and paired with available IRS 990 data, including but not limited to IRS-defined categories such as 501(c). Nonprofits were sorted by UF/IFAS's five Extension districts to assess the size and reach of Florida FANOs.

Limitations

Three limitations emerged in this study. First, the directory relies on data from 2019, the most recently available IRS data at the time of the analysis. Thus, any nonprofit established in 2020 or later is not included in our dataset. Relatedly, nonprofits that are no longer in operation but were active during data collection are included in the directory. Second, the dataset does not include FANO outputs, outcomes, or the quality of their services. Thus, we cannot align community needs with the subsector's ability to meet those needs regionally or statewide.

The third limitation is the varying nonprofit data available for analysis. Depending on a nonprofit's total revenue, assets, and annual gross receipts, they may submit an IRS Form 990, 990-EZ, or 990-N. The 990N and 990EZ provide limited information about the nonprofits, which reduced our ability to analyze the organizations' human and financial resources. Differing forms provided differing information for analysis. In addition, larger and more established nonprofits typically had extensive publicly available information on their website, in annual reports, and through news articles. This information was helpful in understanding the scope of nonprofit services and activities. However, in some instances, this large amount of information made it difficult to

categorize the nonprofit into a single stage of the food supply chain. In such cases, FANOs were sorted into their primary focus, as indicated in their mission statement.

Findings

The research team identified 904 nonprofits in Florida with missions related to food and agriculture. The findings presented illustrate the landscape, role, and value of FANOs in Florida, followed by FANO overlap by food supply chain stage with Extension Initiatives.

Landscape of Food and Agricultural Nonprofits

FANOs were present in all but one of Florida's 67 counties and were primarily concentrated in Central and South Florida in Miami-Dade, Broward, and Hillsborough Counties. The density of FANOs aligns with population density across counties, and 84% of all FANOs were located in urban counties (United States Census Bureau, 2022). The number of FANOs in Florida by supply chain stage and Extension district can be found in Table 1.

Preproduction

Over half (54.6%) of FANOs functioned at the preproduction stage. The Southeast Extension District had the highest number of preproduction nonprofits ($n=144$) among the 494 total preproduction nonprofits. The greatest number of preproduction FANOs were located in Hillsborough ($n=38$), Orange ($n=32$), and Palm Beach ($n=27$) counties. While these three counties are among the top five most populated counties in Florida (United States Census Bureau, 2022), they neighbor rural farming areas and include a growing number of urban, suburban, and peri-urban agriculture operations that benefit from their services.

Preproduction nonprofits in Florida included membership organizations that conduct research and advocate for public policy, such as the county chapters of the Florida Farm Bureau, Florida Strawberry Growers Association, and Slow Food USA. Nonprofits in this stage, which included local chapters of the Future Farmers of America, provide agriculture training programs that prepare future farmers with the education and business

expertise to maintain and sustain successful operations. Similarly, nonprofits like the Agricultural and Environmental Development Institute conduct research and provide professional development for food and agriculture businesses to ensure they have the resources required to maintain stability.

Production

Production nonprofits accounted for only 12.1% ($n=109$) of Florida's FANOs. By Extension District, Southwest had the highest number of production nonprofits ($n=32$), and by county, Broward ($n=9$), Miami-Dade ($n=8$), and Alachua ($n=8$) Counties had the highest number. Interestingly, nearly 85% of production FANOs were in urban counties.

In this stage, FANOs supported food and agricultural production in Florida by aiding in cultivating crops, livestock, beekeeping, and sustainable farming through conservation stewardship, water containment, and seasonal and zone-specific crop support. For example, nonprofits like the Dominica Coffee Revitalization Initiative and the Karma Honey Project work to improve the sustainability of agricultural practices. Other nonprofits like Urban Farming Institute or Do Good Farms produce food and hands-on programming that supports urban food production.

Distribution

Distribution nonprofits, second to preproduction nonprofits, accounted for 25.2% of Florida's FANOs ($n = 228$). By Extension district, Southwest had the highest number of distribution nonprofits ($n = 85$); the fewest were in Northwest ($n = 14$). Miami-Dade ($n = 32$), Broward ($n = 22$),

and Palm Beach ($n = 12$) Counties had the highest number of distribution nonprofits in Florida. They were situated in areas with proximity to major lines of transport, like ports and interstate highways.

Food banks were the most common type of distribution nonprofit. Food banks are responsible for sorting, storing, and distributing food directly to consumers or other community-based organizations, like food pantries. For example, Helping Neighbors Feed Neighbors, a nonprofit in Broward County, purchases meals from restaurants impacted by COVID-19 to distribute to residents experiencing food insecurity. Nonprofits in the distribution category often provide emergency housing, childcare, or job training; many are affiliated with religious organizations.

Consumption

Just 8.1% of FANOs ($n = 73$) existed in the consumption stage of the food supply chain. By Extension district, the highest number of consumption nonprofits existed in the Southwest ($n = 28$) and the fewest in the Northeast ($n = 9$). Miami-Dade ($n = 9$) and Leon ($n = 8$) Counties had the most nonprofits addressing food consumption. However, nearly 70% of Florida counties had fewer than two consumption nonprofits.

Nonprofits in the consumption stage of the food supply chain connect consumers to food through one-time events as well as ongoing interactions. Youth development nonprofits and food programs like restaurant alliances, kitchens, and food retail associations support food preparation for immediate consumption and play a key role in food safety. Less than 3% of FANOs, including local chapters of the Florida Restaurant

Table 1. Number of Nonprofits (n) by Supply Chain Stage and Extension District

	Preproduction	Production	Distribution	Consumption	Total FANOs
<i>Extension District</i>					
Northwest	53	17	14	13	97
Northeast	83	11	23	9	126
Central	100	25	36	10	171
Southwest	114	32	85	28	259
Southeast	144	24	70	13	251
Florida	494	109	228	73	904

Association and the Florida School Nutrition Association, were involved in nonprofit-driven food safety initiatives statewide. Smaller nonprofits like Good Samaritan Meals worked to reduce food waste from grocery stores and restaurants to serve populations experiencing food and nutrition insecurity. Nonprofits at this stage also provided meals for holidays, such as Thanksgiving dinners, or organized local food festivals that connect consumers to local products.

Role of Food and Agricultural Nonprofits

Nonprofits fall into one of several 501(c) classifications as designated by the IRS. A description of each type of 501(c) and the percent identified in Florida FANOs can be found in Table 2. Over 75% of FANOs were 501(c)(3) and provided food, agriculture and nutrition, animal-related, and

education-based programs. Most (50%) of these charitable and educational nonprofits fell within the preproduction stage. FANOs in this category also included farm bureaus, granges, and research and policy advocacy nonprofits. These efforts are similar to Extension’s vast online and in-person education programming for farmers and residents and through research collaborations with University of Florida faculty (Institute of Food and Agriculture Sciences Extension, 2023). Organizations in the 501(c)(3) category most frequently fell into preproduction and distribution stages. They included food banks and pantries, food programs such as Meals-on-Wheels, and soup kitchens. The number of nonprofit types by food supply chain stage can be found in Table 3. This finding demonstrates the robust and varying roles that FANOs play in Florida’s food system.

Table 2. Nonprofit Types and Percent Identified in Florida Food and Agricultural Nonprofit Organizations (FANOs)

Nonprofit Type	Description ^a	% in Florida
501(c)(3)	Charitable, religious, educational, and scientific organizations that do not attempt to influence legislation and are eligible to receive tax-deductible contributions.	75.4%
501(c)(4)	Social welfare organizations that operate to promote the common good and which may engage in political activities.	1.1%
501(c)(5)	Labor, agricultural, and horticultural organizations that operate to promote the interests of workers and those participating in agricultural activities.	11.0%
501(c)(6)	Trade associations, including chambers of commerce, business leagues, and real-estate boards.	10.8%
501(c) (1; 7; 8; 12)	Any corporation exempt from Federal Income Tax; Social clubs organized for pleasure or recreation; Fraternal beneficiary societies; Benevolent life insurance associations.	1.7%

^a Note. Descriptions are based on *Charities and Nonprofits* from the Internal Revenue Service (IRS, 2022).

Table 3. Types of Food and Agricultural Nonprofit Organizations (FANOs) by Food Supply Chain Stage

Food Supply Chain Stage	501(c)					Total FANOs
	(3) Charitable and Educational	(4) Civic and Social Welfare	(5) Labor, Agriculture, and Horticulture	(6) Business Leagues	(1, 7, 8, 12) Other	
Preproduction	341	8	73	64	8	494
Production	79	0	19	8	3	109
Distribution	214	0	4	7	3	228
Consumption	48	2	3	19	1	73
Total	682	10	99	98	15	904

* These policies influenced FANO development because they allowed the FANOs to incorporate and increase revenue. However, nonprofits began reporting to the IRS in 1943, meaning that there were no IRS records of FANOs before that year.

Over half of FANOs that submitted a 2019 IRS Form 990 were established after 2000, with spikes in newly formed organizations following impactful federal food and agriculture public policy. Since policy changes were federal, similar trends would likely be found nationally. For example, newly incorporated nonprofits increased following the funding possibilities provided by the Healthy, Hunger-Free Kids Act in 2010. Changes in tax policy, like the 1964 change in the tax deduction limit for donations, resulted in more private donations for nonprofits because donors who gave more could reduce their personal tax burden. The revenue influx in the 1960s led to growth in the number of nonprofits. However, recessions in the 1950s and 2000s reduced donations sectorwide, challenging nonprofit financial resiliency. Changes in food policy increased nonprofits' access to government grants. Governmental funding sources established a consistent and stable nonprofit revenue stream, ensuring organizational longevity. Table 4 shows major public policy formulation and the number of FANOs in Florida that were incorporated and still operating in 2019. If we were to assume the 109 FANOs emerging in the 2000s were still open, that would mean that 75% of FANOs were less than 15 years old in 2024 and that nonprofits in this subsector are pretty young. The FANO's youth may negatively affect its ability to build strong collabo-

orative relationships and trust in the FANO among locals.

Value of Food and Agricultural Nonprofits

Of the 904 FANOs in our sample, only 196 nonprofits filed IRS 990 forms rather than 990EZ or 990N, indicating they were large enough to employ staff and ensure greater financial and human resources to fulfill their mission and remain stable during hard times. Most FANOs ($n = 376$) filed 990N forms, indicating that most nonprofits were small and primarily volunteer-run initiatives. About a quarter ($n = 210$) did not file with the IRS (status: IRS non-filer), which could mean the nonprofit closed or simply failed to submit the tax form (Searing, 2020).

Table 5 illustrates the organizational structure and financial capacity of the nonprofits ($n = 196$) that filed IRS 990 forms, sorted by their role in the food supply chain, including their reported employees, volunteers, and total revenue. The low number of employees compared to the large number of volunteers, particularly for distribution and consumption nonprofits, indicated a heavy reliance on unpaid labor through volunteer support. While preproduction and consumption had the highest and similar total revenues, indicating higher capacity than other food supply stages, far fewer consumption nonprofits were functioning with, on average, much higher sums.

Table 4. Public Policy and Aging Nonprofits

Public Policy (Year Established)	Ruling (incorporation) Decade	Nonprofits Incorporated in the Decade and Still Operating in 2019
Social Welfare Tax Exemption (1913)	*	*
First Food Stamp program (1939)	*	*
IRS Form 990 Filing First Required (1943)	1940s	83
Eisenhower Recession	1950s	8
Increased tax deduction limits for donations (1964)	1960s	76
Agriculture and Consumer Protection Act (1973) Food and Agriculture Act (1977)	1970s	48
Development of Electronic Benefit Transfers via the Hunger Prevention Act (1988)	1980s	49
Welfare Reform Act (1996)	1990s	122
Great Recession; Food and Nutrition Act (2008)	2000s	109
Healthy, Hunger-Free Kids Act (2010)	2010s	447

Table 5. Value of Nonprofits by Food Supply Chain Stage

	Preproduction (n = 102)	Production (n = 21)	Distribution (n = 58)	Consumption (n = 15)	Total (n = 196) ^a
Volunteers	9,311	4,258	11,615	27,537	52,721
Employees	698	466	758	349	2,271
Total revenue (US\$)*	\$99,597,014	\$42,069,215	\$73,602,016	\$95,821,486	\$311,089,731

^a Total revenue includes fundraising and government grant revenue, in addition to program service revenue, investment income, and other revenue.

Consumption-stage FANOs scarcity in the dataset could mean that community needs are addressed through federal and state resources like SNAP-Ed, free school lunch programs (Fyall & Levine Daniel, 2018), religious organizations,¹ or Extension programming on nutrition and food safety. Even though the consumption nonprofits were the least represented in our sample, they had the highest fundraising revenue, the fewest number of employees, and the highest number of volunteers of any food supply chain stage. Since this is the stage where nonprofits need to meet food safety regulations, counties with fewer than two nonprofits could be targeted for expansion or out reach of Extension efforts in relation to food consumption.

Florida Extension and Food and Agricultural Nonprofits

Extension efforts in Florida are driven by seven primary initiatives, as illustrated in Table 6. Working groups within each initiative focus on specific issues that fall under the umbrella of that topic. For example, working groups within Initiative 1: Agriculture and Horticulture work to increase the sustainability, profitability, and competitiveness of agriculture and horticulture enterprises (University of Florida, 2013). This organizational structure informs the type of research, programming, and education initiatives implemented by UF/IFAS Extension agents across the state.

The majority of FANO's missions overlapped with Florida Extension Initiative 1: Agriculture and Horticulture. To a lesser extent, FANO missions are aligned with Initiative 5: Individual and Family

Development and Initiative 6: Community Development, which work to empower individuals, families, and communities to build healthy lives and achieve economic success. This overlap in mission areas and Extension initiatives indicates a high risk for competition and vast opportunities for collaboration in ensuring food and nutrition security across Florida. The number of FANOs with missions aligned with Extension Initiatives can be found in Table 6.

Discussion

This study aimed to understand the role and value of FANOs in Florida within a food supply chain framework. Taking inventory of the FANO landscape makes it clear where organizational saturation exists and how financial and human resources are allocated across each stage. FANOs are positioned in their communities and within the food supply chain to make positive change; further research regarding the allocation of resources and organizational structure would strengthen their ability to make strategic decisions. These findings can benefit practitioners, such as Extension specialists or other nonprofits, and policymakers and scholars interested in opportunities to enhance community development to create more informed and effective strategies for increasing food and nutrition security.

For practitioners across the U.S., this study indicates valuable areas to investigate at both state and local levels. Our findings indicate that across the food supply chain, there is a diversity of FANOs that fulfill charitable missions, provide social welfare and labor advocacy, and maintain trade associations. IRS 990 forms are publicly avail-

¹ Religious organizations are not required to complete IRS Form 990s.

able and provide a wealth of helpful information about how nonprofits contribute to social and economic systems. For example, food policy councils and other local government grant-making entities could benefit from understanding the assets and services of large and small FANOs in their areas, the volume operating at each stage, and the types of resources they might need. This data type can inform organizational and governmental decision-making about community work. Strategic partnering with local and state-level FANOs may help to bridge gaps between similarly oriented goals, build capacity, reduce competition for resources, and increase the populations served.

This study is especially relevant for practitioners working in Florida and indicates key areas for strategic collaboration. Extension has historically served rural communities and commercial agriculture (Buys & Rennekamp, 2020). However, in recent years, UF/IFAS Extension has been working to expand its reach and offer services in urban areas, including in urban food systems and community development (Campbell et al., 2023b). Interestingly, 85% of FANOs in the production stage served urban counties, supporting recent assessments of the scope and growth of urban agriculture (Campbell et al., 2023a; Campbell et al., 2022b). Production FANOs typically host a variety of activities that revolve around food production, including education and job training programs; however, actual food output by these production FANOs may be limited (Campbell et al., 2022b; Santo et al., 2021).

The smaller number of production-stage

FANOs indicates that the supply chain continuity (that is, the supply chain movement from pre-production to production to distribution to consumption) may be addressed by commercial enterprises, government entities, and Extension services, or that populations in need are being overlooked. Additionally, UF/IFAS Extension Initiatives 1-4, which include agriculture and horticulture, water, natural resources, and energy, have a strong presence in Florida and may crowd out nonprofits that provide similar programming. Labor, access to capital, and challenges with profitability are some of the key barriers that urban producers in Florida report facing (Campbell et al., 2022b), which may indicate relevant gaps for FANOs to fill.

As Extension is seeking opportunities to reach new audiences, looking to the urban landscape of FANOs may help strengthen community capacity to reach existing and similar community food and agricultural goals. Additionally, as urbanization is projected to rise across the state (Florida Department of Transportation, 2021), programs whose systems are designed to serve urban audiences will be increasingly necessary. The employment and volunteer data from the largest FANOs indicate a heavy reliance on volunteer participation, placing Extension in direct competition for volunteers. Jones et al. found networking events are productive in bridging Extension-nonprofit partnerships and avoiding competition in such situations (2018). Strategically partnering with FANOs already serving urban populations can avoid competition and promote symbiotic relationships between FANOs and Extension (Harder et al., 2019).

Table 6. Nonprofit Overlap by Food Supply Chain Stage with Extension Initiatives

Extension Initiative	Preproduction	Production	Distribution	Consumption	Total FANOs ^a
Initiative 1: Agriculture & Horticulture	440	95	219	72	826
Initiative 2: Water	9	6	2	1	18
Initiative 3: Natural Resources	24	7	4	1	36
Initiative 4: Energy	4	4	0	0	8
Initiative 5: Individual & Family Development	65	12	126	31	234
Initiative 6: Community Development	146	26	32	6	210
Initiative 7: 4-H Youth	88	12	5	9	114

^a The number of food and agricultural nonprofit organizations (FANOs) exceeds the total number of nonprofits in our sample because many overlapped with two or more Extension Initiatives.

For community food systems scholars, this study indicates several opportunities for further exploration and theory-building within organizational ecology and food systems domains. The methodology provides a roadmap to assess and analyze local nonprofit organizations using the data available in IRS 990 forms. Considering these findings in the context of similarly agricultural states may help to assess nonprofit capacities across the food supply chain and the value they bring to their local economies and social communities. This study categorized FANOs into a supply chain stage according to their primary purpose. However, as discussed in our limitations, FANOs could fall into more than one food supply chain stage. Future studies could account for this by capturing both primary and secondary supply chain stages to indicate how FANOs play multifaceted roles in the food supply chain. Additionally, these findings present research opportunities for further investigation of organizational behavior and how FANOs

function and participate within the organizational ecology of the food supply chain.

Conclusion

FANOs played numerous roles in every stage of the food supply chain to maintain system continuity and serve Florida residents. The majority of FANOs were focused in the preproduction and distribution stages and were most commonly 501(c)(3) charitable and educational organizations or 501(C)(5) labor, agriculture, and horticultural organizations. Given the current state of food and nutrition insecurity in Florida (Coleman-Jensen et al., 2022), understanding the role and value nonprofits bring to the state is critical. The unique perspectives and expertise of both FANOs and Extension are especially suited for collaboration in service of public health and social goals that ensure the continuity of food systems and the sustainable use of limited resources. 

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