

Marshall County Food Systems - Resilience

Impact from COVID-19 and severe climactic events

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The snapshot is formatted to give an in-depth analysis of findings related to impacts of the climactic events and COVID-19 on Marshall County, Iowa. Iowa State Extension and Outreach and Marshall County Extension have been working in partnership to understand impacts of COVID-19 and natural disasters across the county.

The research was conducted between 2020-2022. Participants consisted of community advocates, farmers and food businesses, non-profits, a college, and state organizations. Data collection included surveys, interviews and focus groups; resulting in 35 survey responses, 19 interviews, and two focus groups (six participants total), each with IRB¹ approval and informed consent.

Overall, this research has shown strong community collaboration and networking across the county as well as the need to continue developing relationships with individuals that work across different geographic locations (beyond Marshalltown) and with diverse populations and ethnic groups. Additionally, the research has shown a strong interest in food access, increased programming, and awareness of organization response during disasters. Discussion around improving environmental conditions and agricultural practices also showed up through interviews and focus groups. Another key discussion suggested a clear understanding of limitations as it relates to infrastructure for meat processing.

A special thanks to all the farmers, businesses, organizations, staff, and individuals that met and shared their stories. Thank you for your work and dedication to resilient food systems. We are humbled and grateful for your time.

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¹ Institutional Review Boards and Protection of Human Subjects- study Exempt

Marshall County Suggested Priorities

Based on the snapshot, interviews, surveys and focus groups, action planning sessions were held to determine priority areas. The options below include the priority areas by level of need identified in action planning sessions. For notes and voting information from the action planning sessions, please see Appendix E. Many of the priorities are intersectional and build across and within other priority areas.

The priority that will be acted on through funding from the Agricultural Marketing Resource Center will be for supporting food access by expanding the efforts of little free libraries across the county. The primary goal will be to support increased access for food distributed through 20 little free pantries across the county and to evaluate the successful implementation through focus groups of volunteers and anonymous surveys from users of the pantries. The \$10,000 will be allocated to Marshall County Extension and Outreach, which will then provide food supplies to each of the 20 little free libraries for four months.

Additional support for evaluating the success of this initial project will be conducted by Iowa State University Extension Food Systems team.

Suggested Priorities

1. Improve Iowa State University Extension and Outreach (ISUEO)'s ability to support and respond to disasters (preparedness and recovery)
 - a. Develop a plan for how Extension responds, both internally and with community, to disaster
 - i. Create a plan for preparedness, response, and recovery
 1. Phone call trees; point of contact for staff
 2. Process for outreach for help
 - ii. Understand role for community in response to disaster
 1. Determine lane and role for preparedness, response, and recovery
 2. Create consistent messaging and awareness for the areas
 3. Provide space for coordination
 - iii. Support access to food through little free libraries across the county and convene group meetings to understand usefulness
 - b. Coming together as a state to support counties that have been impacted
 - i. Network of communication and outreach to county agents impacted by storm to understand needs (related to Suggested Priority #2)
 - ii. Determine best communication practices for supporting county agents post-disaster
 - iii. Identify a point of contact who is always aware of disaster preparedness, response, and recovery
 - iv. Social Media/ press releases/ website support to get information out – campus providing information when county is unable
 - v. Increase information on other disasters (in addition to drought and floods) on ISUEO
 - c. Create disaster preparedness courses for agriculture (related to Suggested Priority #3)
 - i. Potential connection to farm safety and rural health (natural disaster/ preparedness training)
 - ii. Teach people how to develop their own on-farm safety and on-farm disaster plans
 - iii. Connect to programming like [Annie's](#) – include in regular programming
 1. Learn from other programs, like Foreign Animal Disease, on how to develop a plan on the farm; develop table-top scenarios for response to disaster
 - iv. Connect to programming for Local Food Leader and Community Food Systems certifications

- v. Convenor/ facilitator to support groups develop a plan – Community Economic Development support to create the response plan
2. Create a community disaster plan and communication strategy
 - a. Establish pre-disaster and post-disaster contacts
 - i. Partner with organizations and support systems, including public-private partnerships
 - ii. Consider networks both internal and external to disaster zone; address needs and innovative ways to respond
 1. Internal networks may be organized through school district regions
 2. Develop regional, state, and external collaborations; organizations and support systems out of the disaster zone, which may help with receiving support from non-impacted areas
 - iii. Engage more Marshall County Emergency Management and determine potential collaboration
 - iv. Identify the lead (or co-lead); identify roles for different aspects of response
 1. Know the gatekeepers and connectors in the community that understand community needs across all populations and geographic parts of the county. These individuals can share the word and can inform where to go get information and resources.
 2. Include multilingual communication materials, and text and phone platforms (cuts across all areas)
 - b. Create a regional communication network for prevention, response, and recovery that includes various partner organizations, farmers, and businesses
 - i. Encourage collaborative discussion and co-creation of ideas; foster trust with gatekeepers of community populations and all parts of county
 - ii. Engage with individuals that want to volunteer, both internal and external to disaster zone; have a way for people to get engaged immediately
 - iii. Develop a campaign for people to keep an eye on your neighbor and make relationships
 - iv. Include multilingual communication materials, and text and phone platforms (cuts across all areas)
 - c. Develop drills and activities that can help organizations, businesses, and the community respond to disasters in the future
 3. Develop hazard mitigation and food management plan
 - a. Response checklist for farms, food businesses, pantries and food banks, schools and additional organizations that impact food access, including access to farms during a severe weather event, water, and power protocols (having water storage, generator access and usability, tool sharing, etc.), food access and shelter locations, etc.
 - i. Create plans for each type of disaster and ability to respond
 - b. Identify existing food supply pre-storm that farmers, grocers, etc. have on hand and develop strategy for storm mitigation, including policies for pre- and post-storm
 - i. Identify where generators exist within the community
 - ii. Create a “how-to” for use
 - c. Research if any food businesses are contractors with FEMA for providing food through [FEMA’s Industry Liaison program](#) during disaster response
 - d. Research and identify amount of food currently available within Marshall County, and where to go for donation/ buying/ etc.

- i. Identify amount of food and locations of grocery, schools, food bank, pantries, feeding areas, and retailers
 - 1. Create transferable models for food access locations
 - ii. Identify options for gleaning and food donation; may include [ChowBank](#) or [MEANS Database](#)
 - iii. Create a plan for aggregation and safe distribution of food post disaster, specifically around food preservation, food safe storage, and food distribution
 - e. Create or identify existing insurance programs for farm and food businesses
- 4. Educate about impacts from farms, food businesses, grocers, and consumers related to disaster and COVID-19
 - a. Develop awareness campaign about the impact that natural disasters have had on food and farm businesses and the reason for supporting local businesses and organizations – sharing narratives and stories; economic impact indicators; etc.
 - b. Enhance outreach to underserved, marginalized individuals and organizations, including developing materials in multiple languages
 - c. Transferable programs for creating educational programs
- 5. Restore the natural environment, soil, and water quality
 - i. Increase use of environmental protection (and other government) programs
 - ii. Increase cover crops in county
 - iii. Investigate 3rd crop for rotation – potential small grain
 - iv. Season extension opportunities
- 6. Scale Up local agriculture through increased meat and specialty crop processing, gardening, and land access
 - a. Increase capacity for meat processing
 - i. Expand meat processing options, including storage, slaughter, and processing
 - ii. Identify options for fruit and vegetable storage and processing capacity (brick and mortar or mobile)
 - 1. Identify existing shared-kitchen spaces and policies for at home processing
 - b. Increase gardening and subsistence farming
 - i. Create a network of gardeners, producers, etc. and understand the desired communication platform for getting in touch
 - ii. Develop, or partner with existing gardening networks (like Master Gardeners) for seed sharing and gardening techniques
 - iii. Offer seed-saving courses
 - c. Land Access and Production
 - i. Increasing land access for small-scale production

Community Overview:

This section reviews values and ways that community members participate and connect in community. Within the survey, questions on individual values and community participation were asked. Within interviews and focus groups, open ended questions were asked about their community, like “how would you describe your community to someone else,” “what are the best parts about your community,” and “what are the worst aspects of your community?” Responses are reflected in the following pages.

Marshall County is located in central Iowa. In 2020, Marshall County had a population of 40,105 (United States Census Bureau, 2020); in 2021, there was an estimated decrease in population to 39,853 (United States Census Bureau, 2021). Marshalltown is the largest city within the county, with a population of 27,388. All other towns within the county have a population of less than 5,000. Figure 2 showcases race and ethnicity for Marshall County and Marshalltown.

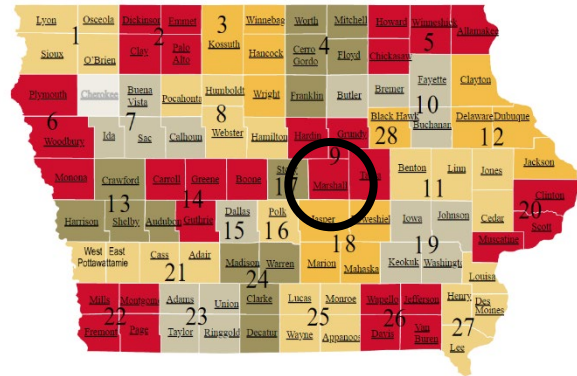


Figure 2: Marshall County, Iowa (Iowa State University Extension and Outreach, 2022)

For information on the demographics of those that participated in the survey, see Appendix A.

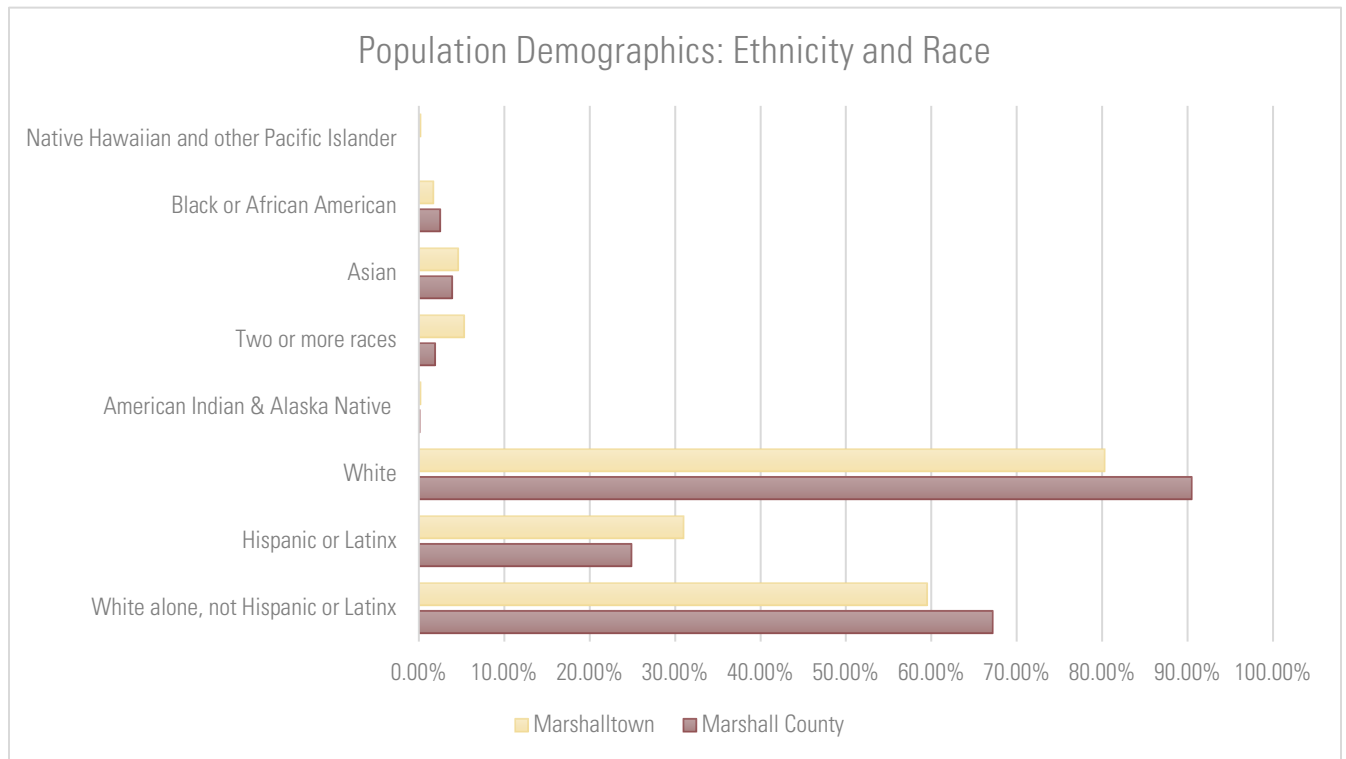


Figure 1: Population Demographics by Race (United States Census Bureau, 2021)

Livability

Personal health status is shown to be impacted by where one lives, works, and plays. According to the AARP Livability Index, [Marshall County](#) has an overall ranking of 54 (out of 100) for livability. This ranking is developed based on housing, neighborhood, transportation, environment, health, engagement, and opportunity.

Marshall County Livability Index Overall Ranking 55

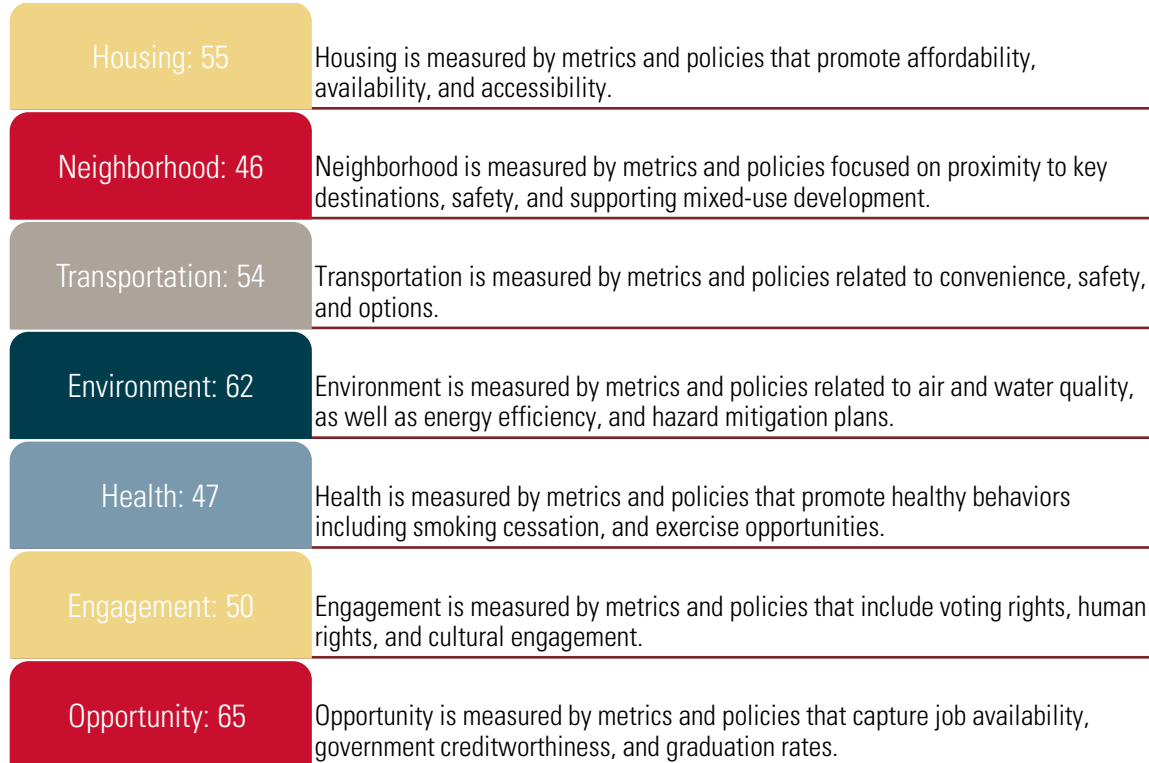


Figure 4: Livability Index Rankings; all definitions from AARP (AARP, 2022)

Neighborhood, which includes access to activities, grocery, and other amenities, received the lowest score of 46. A few of the metrics for this section include access to amenities such as grocery stores and farmers markets, diversity in destinations and ability to get to jobs via automobile. Diversity of destinations has declined since 2015, with an index of .52 compared to the US average of .65 as well as vacancy rate which has increased since 2015 by one percent. Additionally, the AARP index looks at policies for age-friendly communities and policies for walkability and transportation, of which Marshall County does not have.

Health was the second lowest score with 47; this attribute looks at income inequality, jobs per worker, high school graduation rate and age diversity. Marshall County has a slightly higher percentage of adults who are obese (36.2%) compared to the Nation, and a lower percentage for access to exercise opportunities (with only 81% having access). Additionally, Marshall County is seen to have a moderate healthcare professional shortage (AARP, 2022).

Values

Individuals who participated in the resilience survey were asked to select their top three societal values from a pre-created list; if they had additional values, they could add in options in "other." Education, Trust, and Community Ownership were ranked as the highest values, with 46% agreeing that Education is a top value (See Figure 4).

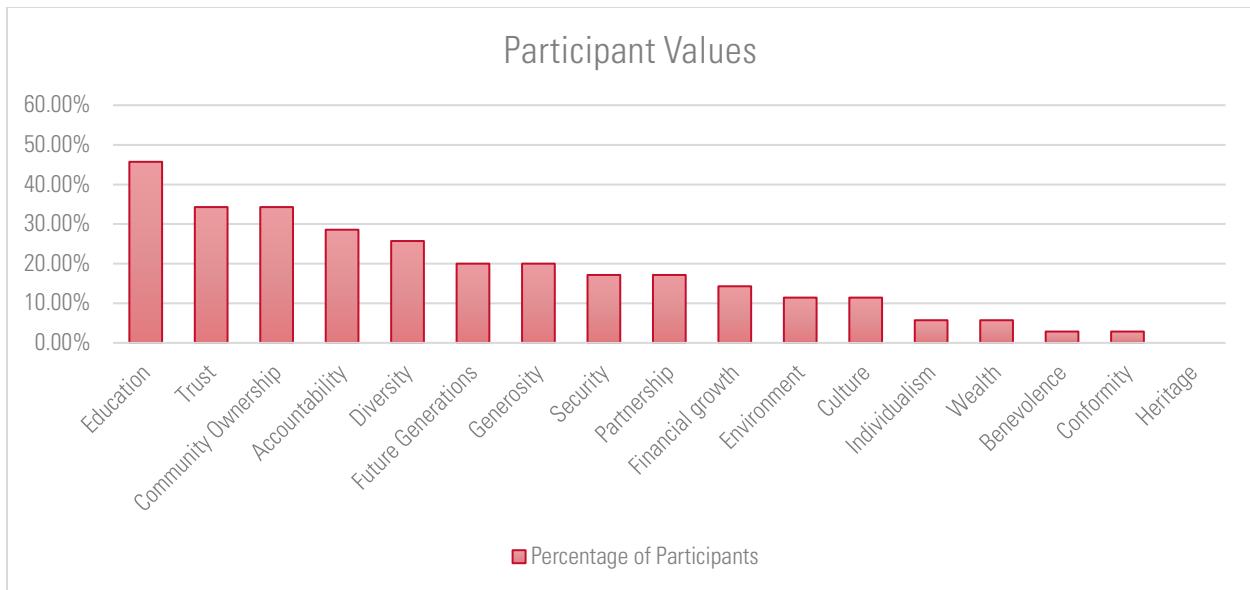


Figure 5: Participant Values (N=35)

In addition to the values shown in Figure 4, one individual wrote in “honesty”.

Through interviews, trust and community networks came up as values and assets within the community. One individual shared, “[our] community always comes together; regardless, everyone pulls together, even when people aren’t neighborly. When the crisis hits, they are neighborly,” and another shared that “[we] are a close-knit and helpful community.” The sentiment of being close and reliable occurred in 53% of interviews.

While diversity was a lower value by percentage from survey respondents, 74% of interviewees shared that diversity a strength of the community. One individual shared the “Hispanic community is really integrated and has been a good thing to keep [our] community thriving.” Another shared, “So the small businesses have become more invigorated by the Hispanic community,” and another mentioned, “There are 52 different languages in the schools; global companies in the community that are working and traveling here; the art culture has been exploding.” While cultural diversity is seen as a strength, there were also concerns that resources, food, and other culturally relevant materials are not being offered as well as general relationships and care for diverse populations. For example, one interviewee shared “[we] have a lot of different countries represented [who] are looking for diverse foods, but not everything is offered or available,” and another shared their experience within work by saying, “the community isn’t ready for diversity yet; there is a lack of equitable distribution of resources, and [I] still see the disparity in terms of where funds are going.” There were also discussions around community acceptance and partnership with different races— “people are ignorant, and there is a racial divide.”

In Figure 4, it details that education is the highest agreed upon value within the survey, with about 45% seeing this as a top value. Within interviews and focus groups, this arose as pride in the breadth of education options in formal settings like early care and K-12 schools, as well as the community college or informal class offerings through organizations.

Participation

There are many ways to participate and support the local community. Individuals were asked to share how they supported their community from a pre-created list and could also type in “other” responses. Voting in local elections and purchasing from local businesses each had over 94% of participation from survey respondents, followed by about 80% participation in seasonal celebrations and utilizing public assets like parks and libraries.



Figure 6: Community Participation (N=35)

In addition to the community participation shown in Figure 5, one individual shared that they “serve on non-profit boards.” Anecdotally, individuals shared about involvement with volunteer organizations and churches. One individual shared that keeping things going and sustaining is difficult, and many people will try to do their own things rather than collaborating.

Business and Industry

While the first section of the report took a broad look at community engagement and values, the next portion focuses on the business and industry, specifically related to food systems. Within the community, it is estimated that there are 791 small businesses within the county, with an annual payroll of \$572,000 (U.S. Census Bureau, 2020). See Appendix C for full table of businesses.

Agriculture

There are 886 farms in Marshall County and 316,451 acres of farmland, with 289,604 of cropland. 441 farms participate in variable government programs, with revenue of \$4,640,000. The median size of farms in the county is 119 acres (USDA National Agriculture Statistics Service, 2017). Tables 2-4 detail information on the number of farms by product type, farm value, and average number of acres. According to the USDA NASS statistics, almost 416 of those farms (47%) are making less than \$24,999 per year and 342 farms (38%) are less than 50 acres in size. In Table 2, highlighted products are recognized as most likely to be sold for human consumption. This includes 422 farms and \$49,201,000 in sales.

Table 2: Sales by Commodity (USDA NASS, 2017)

	Total # of Farms	Total Sales
Crops	603	\$175,281,000
Grain	519	\$166,140,000
Corn	455	\$99,453,000
Soybeans	448	\$66,649,000
Vegetables (including seeds and transplants)	29	\$115,000
Fruit and Tree Nuts	14	\$43,000
Horticulture	6	N/A
Field Crops, other, hay	129	N/A
Poultry, including eggs	42	\$323,000
Cattle, including calves	179	N/A
Milk	1	N/A
Hogs	44	\$47,940,000
Sheep and Goats	55	\$551,000
Equine	17	\$167,000
Aquaculture	1	N/A
Specialty Animals	7	N/A
Commodity Totals (included value added)	51	\$229,000

Table 3: Farms by Value (USDA NASS, 2017)

	# of Farms
Less than \$2,500	244
\$2,500 - 4,999	49
\$5,000 - \$9,999	54
\$10,000 - \$24,999	69
\$25,000 - \$49,999	48
\$50,000 - \$99,999	61
\$100,000 or more	361

Table 1: Number of Farms by Acres (USDA NASS, 2017)

Acres	# of Farms
1.0 -9.9 acres	128
10-49.9	214
50-179	161
180-499	174
500-999	114
1000 or more	95
Total # of Farms	886

According to the USDA, a farm is defined as “any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold during the census year” (2017, pp. Introduction, VIII). The definitions of terms used in Tables 2-4 can be found in the [2017 Census of Agriculture, Appendix B](#) (USDA, National Agricultural Statistics Service, 2017)

From interviews and focus groups, most participants focused on food access, gardening programs, environmental protection, and processing gaps for meat. Marshall County has a mix of commercial and small-scale growers, ranging from field crops, livestock production, and specialty producers (see Table 2). JBS is a large-scale meat processor in the county and services world-wide exporting for pork products. Additionally, the county has a 1B state-inspected meat processing facility (Iowa Department of Agriculture and Land Stewardship, 2022). The community also used to have the only fruit and vegetable processing business in the state, but according to an interview participant, “it was impacted by the tornado and then moved out in 2019.”

One individual described the production in the county as “corn and soybeans, but do have some vegetable produce and melons... The farmers market in town is well attended; we also have a few [people] doing berries and orchards...and there is some diversity; trying to set aside an acre or two for a garden.” Another shared that they believe home production is important, “especially for local gardeners for local and cultural foods.”

Food System

The intent of this research is to understand the interest and ability to have a resilient food system. Primarily, understanding the community's interest in local and regional foods, and the willingness to participate and purchase from farm and food businesses that operate within a local or regional geography.

When asked about the importance of supporting local food and farm businesses, over 86% believed it was either extremely or very important.

Within Marshall County, while there is a strong perspective of the importance of supporting local food and farmers (Figure 6), local food purchasing locations (Figure 7) showcase that while individuals believe that supporting local food and farming is critical, there is not a direct correlation with the businesses they are shopping at. There is high interest in supporting local food and farming businesses; however, there is a gap in commitment.

Survey participants were asked about their shopping patterns and where they purchase food, ranging from direct-to-consumer options, like farmers markets and Community Supported Agriculture (CSA), to larger grocery chains and supermarkets. 91% of participants stated they purchased from local or regional grocery stores, like Hy-Vee or Fareway, followed by farmers markets (65%) and utilizing personal garden or farms for consumption (50%).

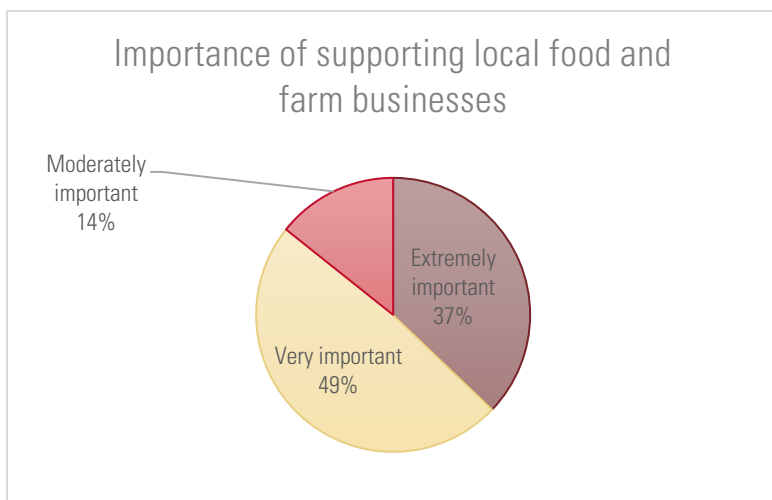


Figure 7: Extent of importance for supporting local food and farm businesses (N=35)

When asked specifically about how important it was to support local farm and food businesses, 86 percent agreed that it was either extremely important or very important.

Shopping Patterns

Comparisons of Figure 6 (perspectives of the importance of supporting local food and farmers) and Figure 7 (local food purchasing locations) showcase where individuals are shopping, or growing or gathering, their own food. Over 90% shared that they shop from locally or regionally owned grocers, followed by shopping at farmers markets (65%) and department or super stores, like Walmart (63%).

During action planning sessions, the group spoke about the primary focus on food access versus seeking out local foods, which can also be a challenge for fresh fruits and vegetables in Iowa. During the prime season for fresh produce, individuals are more likely to seek out local produce or grow their own. Additionally, commercially grown or raised products such as meat, eggs, and dairy are more readily found year-round.

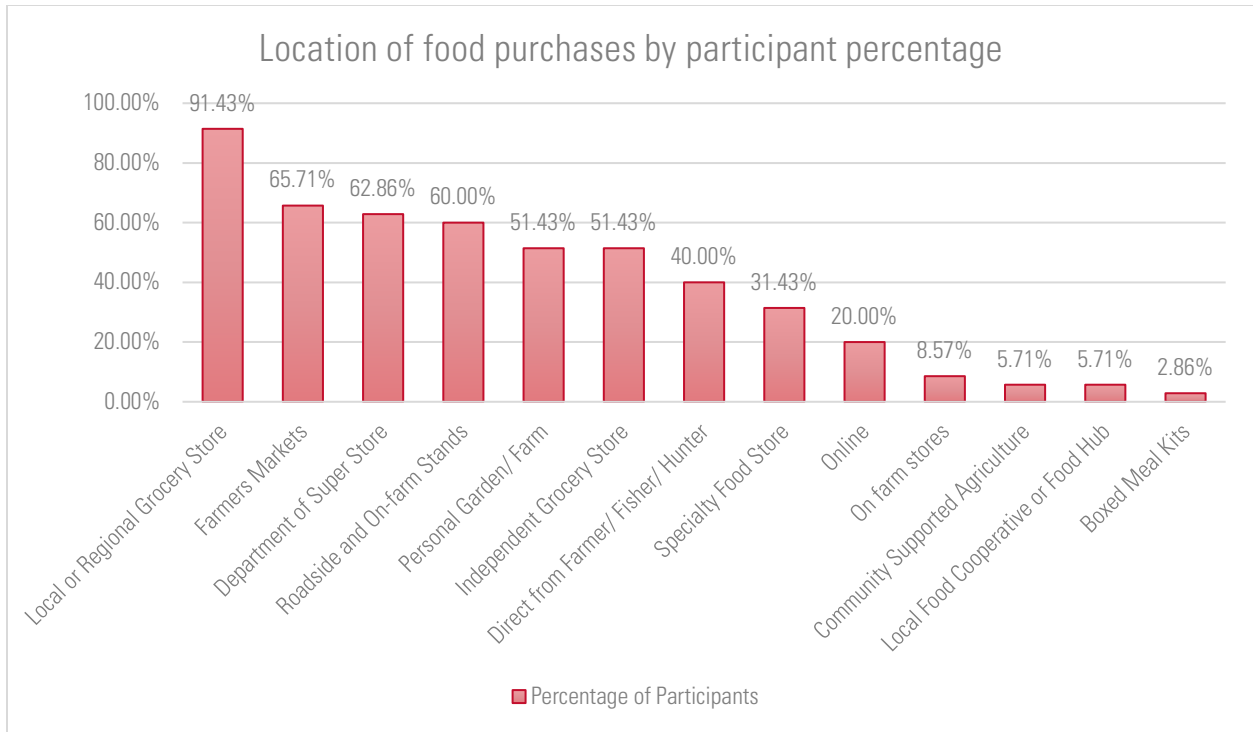


Figure 8: Location of food purchasing by participant percentage (N=35)

Attributes for food purchasing

To further understand purchasing habits, survey participants were asked about the level of importance for attributes for purchasing food. Based on average rankings (with extremely important equaling 5 and not at all important equaling 1), freshness (3.86) and affordability (3.89) were ranked highest; organic (2.24) and relationship with the producer (2.79) were ranked lowest (see Table 5 for all averages). Figure 8 details the percentage of individuals who ranked each attribute by level of ranking. In addition to the attribute options provided, write in responses in “other” included: “Responsibly produced (least negative impacts on nature, people, humane treatment of animals, etc.)” and “healthy.”

Table 2: Averages for importance of food purchasing attributes

	Grown Local	Affordability	Relationship with producer, seller, etc.	Location	Convenience	Organic	Fresh	Food Safety Practices
Average Scores	3.46	3.89	2.79	3.46	3.71	2.24	3.86	3.66

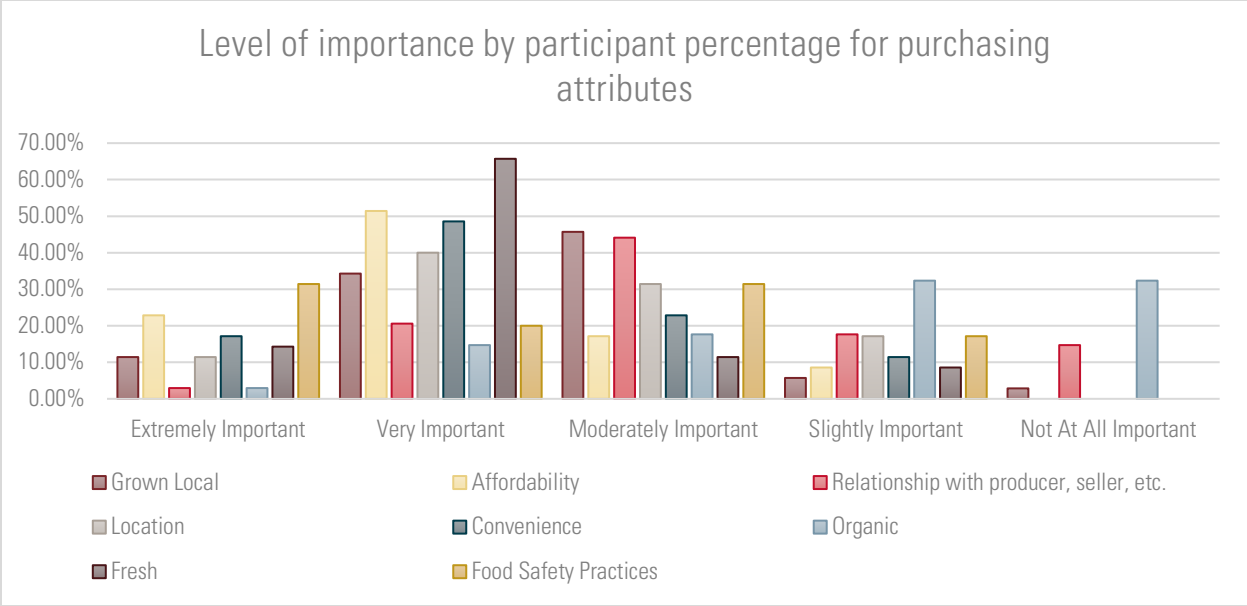


Figure 9: Importance of food attributes by percentage (N=35 except N=34 for Relationship with Producer and Organic); for full data spreadsheet on level of importance of attributes, see Appendix D

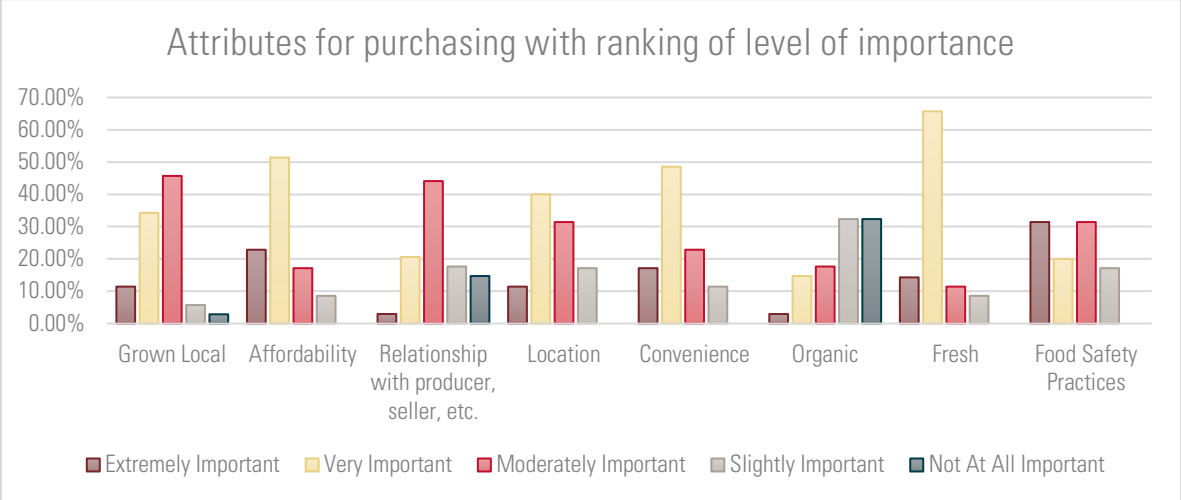


Figure 10: Importance of food attributes by percentage (N=35 except N=34 for Relationship with Producer and Organic); for full data spreadsheet on level of importance of attributes, see Appendix D

All attributes were ranked relatively low in importance, with the highest being a 3.89 of affordability, followed by freshness of 3.86. This is not surprising, as in focus groups and action planning sessions, participants alluded to the focus on food access and affordability and ease of sourcing food, compared to needing locally grown products.

Organic (2.24) and relationship with the producer (2.79) were ranked the lowest attributes for food purchasing decisions. This was not a surprising considering that organic can be more expensive, and there are additional ways to market naturally raised foods. Additionally, there was discussion on the idea that local products may be of interest, but it is not as critical to have a direct relationship and know the farmer who grew or raised the food.

Food purchasing decisions are also impacted by external causes, such as natural disasters and COVID-19. The following sections of this report will detail impacts for both cases.

Natural Disaster Impact

In addition to the primary research of focus groups, interviews and surveys, additional data for natural disasters has come from FEMA. However, FEMA only tracks nationally declared disasters, and from this research, it is understood there are many instances where climate change, and general climactic events, create additional havoc on farming and businesses with ever-evolving cycles and changes in weather, that are not tracked at the same level as extreme events.

Disasters impact all of community life, ranging from mild challenges for transportation and ease of access to devastating loss of infrastructure and life. Marshall County has been involved in five designated disaster areas since 2011 according to FEMA (FEMA, 2022); Table 6 details each of these disasters that have impacted the counties.

The funding allotment is shown for the entire region of impact, as specific county level data is not available. Each line details the name of the disaster, date, type of assistance and total amount allotted. Within the assistance type column, only the assistance that was provided to Marshall County is included. While federally proclaimed disasters do not showcase the full extent of extreme weather on the region, this is one way to understand impacts from disaster, such as infrastructure damage, debris, and damage to shelter and community areas. Types of disaster declarations include:

- DR: Major disaster declared
- FM: Fire Management
- EM: Emergency Declaration

Table 6: Natural Disaster Declarations (FEMA, 2022)

Disaster Declaration	Date	Assistance Type	Funding allotted (full region)
Iowa Severe Storms, Straight-line Winds, and Flooding DR-4016-IA	Jul. 9, 2011 – Jul. 14, 2011	Public Assistance PA- A-B Emergency and PA C-G Permanent work	\$5,743,591
Iowa Severe Storms, Tornadoes, and Flooding DR-4126-IA	May 19, 2013 – Jun. 14, 2013	Public Assistance PA- A-B Emergency and PA C-G Permanent work	\$20,510,097
Iowa Severe Storm and Tornadoes DR-4392-IA	Jul 19, 2018	Public Assistance PA- A-B Emergency and PA C-G Permanent work	\$2,796,950
		Hazard Mitigation	\$821,332
Iowa Severe Storms and Flooding DR-4421-IA	Mar. 12, 2019 – Continuing	PA- A-B Emergency and PA C-G Permanent work	\$166,616,892
		Hazard Mitigation	\$35,581,105
Iowa Severe Storms DR-4557-IA	Aug. 10, 2020	Individual Assistance	\$11,423,336 3092 Applications
		PA- A-B Emergency and PA C-G Permanent work	\$179,450,196
		Hazard Mitigation	\$22,536,113

Impact from Natural Disaster or Climactic Event

Interview, focus group, and survey participants were asked to reflect on their experiences of natural disasters. Of the 35 survey participants, 34 (97%) shared that they experienced either the 2018 tornadoes or the 2020 derecho; of those respondents, 88% experienced the tornado and 100% experienced the derecho.

Of those who experienced a natural disaster, 30 (88%) experienced both events. Table 7 details the number of participants that experienced each type of event (left column) and the impacts they experienced. Figure 11 showcases the percentage of individuals that experienced each event and the impact it had.

Table 3: Total participant numbers based on impact from natural disasters and climactic events

	Increase in mental stress	Loss of communications	Damaged home/ land/ etc.	Loss of essential provisions (water/ shelter/ etc.)	Increase in physical stress	Increase in financial pressures	Damaged business/ farm/ etc.	Business closure	Diminished personal health	Diminished family health
Tornado (30)	28	18	14	13	13	11	7	5	2	1
Derecho (34)	29	30	32	25	22	23	8	3	5	4
Totals:	57	48	46	38	35	34	15	8	7	5

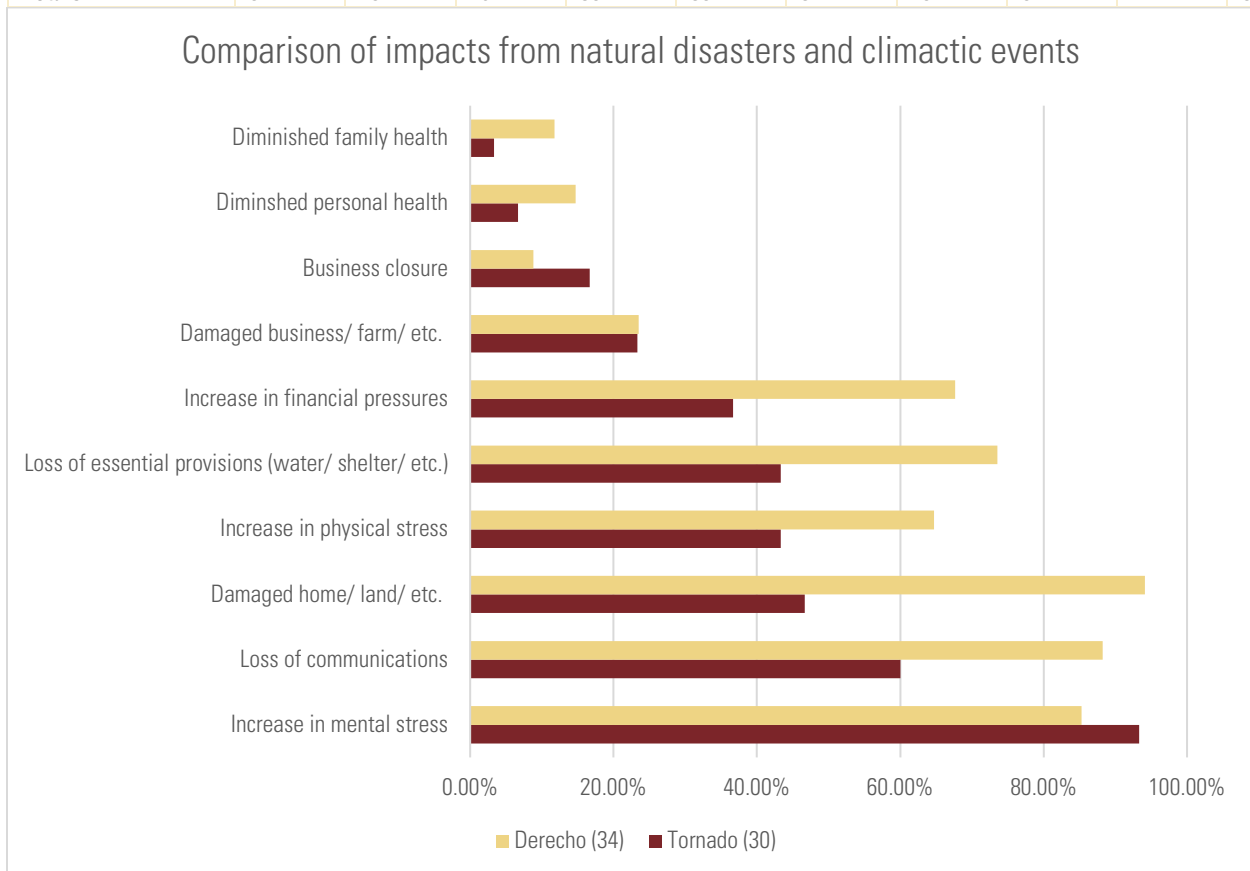


Figure 11: Comparison of impacts from natural disasters and climactic events based on percentage (total population numbers are expressed in the graph)

Other responses for impact are shared below based on disaster type:

- Tornado: “First Responder,” “I work at public library. City hall offices took over our meeting rooms until their buildings were repaired,” “Significant time spent in helping others and the city in repairing damage,” “Great increase in worry for low-income community members,” and “Displaced employment.”
- Derecho: “Off work for 5 days due to lack of electricity at the public library,” “Significant time spent in helping others and the city,” “Great increase in worry for low-income community members,” and “Displaced Employment & Needs.”

The derecho cause relatively high impact in multiple categories, but the highest were damage to home or land, loss of communications, and increased mental stress. Increase in mental stress, damage to home or property, and increase in physical stress were the most common impacts across all disasters. The tornado had the same categories as the highest percentage, however, in a different order, with increase in mental stress being the highest, followed by loss of communications and then damage to home or land.

In Marshall County, discussions around the impact of multiple disasters back-to-back was discussed at length. The 2018 tornado, while only impacting a portion of the community, devastated certain areas and damaged homes, removed trees, and created damage to properties in town. One individual shared their need to “separate the derecho from the tornado... [we were] still in early recovery phase of the tornado when the derecho hit,” and another shared “for the people that were in the original tornado path, the derecho made things 1000 time worse and more challenging... we are already a poor community, and [for] folks that are underinsured or uninsured, this has been crippling for.”

In a positive light, individuals shared that because of going through the tornado, they were prepared and knew how to respond to the derecho. Additionally, people shared that there was an immense amount of community outreach and support. Many turned to their neighbors. While it was great to have the support and response from the tornado, one interviewee reflected that “after the tornado, volunteer management was really hard, there were too many people that showed up and [we] needed more coordination.” Because of the tornado occurring first, the community was better prepared for the derecho, “we had the experience and knew what to do and where to find resources; we need to [learn from this] and be prepared; need to do drills and have a plan.”

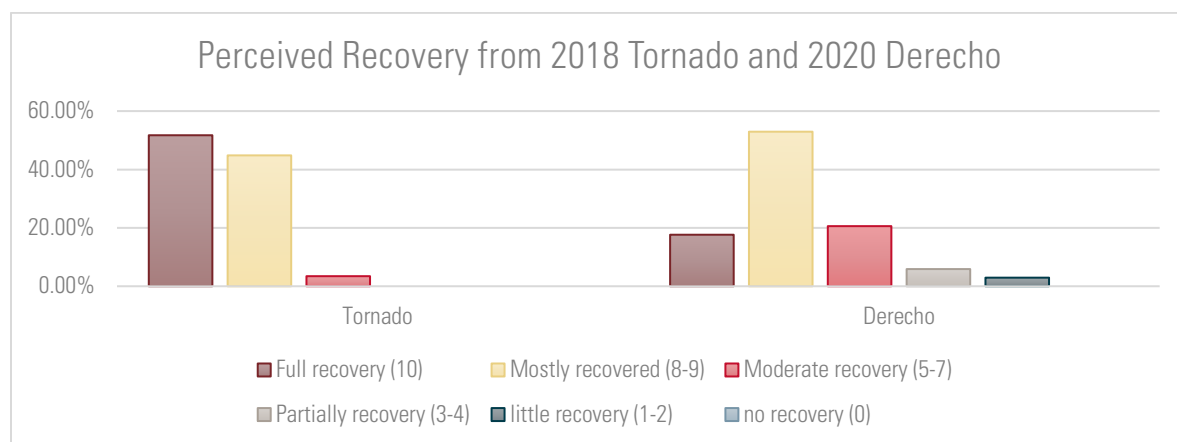


Figure 12: Extent of recovery for natural disasters; see Table 7 for number of individuals impacted; for full data spreadsheet on perceived recovery see Appendix E

On average, individuals feel they have almost fully recovered from the 2018 tornado (9.17) and are moderately recovered from the derecho (7.88). While most feel they have recovered, it was shared that “it will take another two to four years to come back...the double whammy and then COVID” made it difficult to recover. See Figure 12 for all responses to perceived recovery from the 2018 tornado and 2020 derecho.

Usefulness of Organization when responding to a Natural Disaster

Individuals were asked about usefulness for organizations in Marshall County, based on a pre-made list from interviews. Organizations included in the survey were County Government, City Government, Iowa Department of Agriculture and Land Stewardship (IDALS), Iowa Department of Education (IDOE), Iowa Department of Public Health (IDPH), Iowa State University, Iowa State University Extension and Outreach (ISUEO), Marshall County Extension, JBS, and FEMA. Table 8 shows exact percentages; bolded numbers are the top three highest values per category, and Figure 13 details the extent individuals felt that each organization was useful in responding to disaster on average, not specific each type of natural disaster.

Table 4: Average and Percentage usefulness of organizations in responding to natural disasters (N variable - see row “Total Number of Participants”)

Organization Usefulness	City Government	County Government	JBS	ISUEO	IDPH	Iowa State University	Marshall County Extension	FEMA	IDALS	IDOE
Total number of Participants	26	23	17	15	15	15	15	19	15	15
Average Usefulness	4.12	3.00	3.00	2.87	2.80	2.80	2.80	2.79	2.67	2.67
Extremely useful	46.15%	8.70%	5.88%	0.00%	13.33%	0.00%	0.00%	10.53%	0.00%	0.00%
Somewhat useful	34.62%	34.78%	29.41%	26.67%	6.67%	20.00%	26.67%	15.79%	13.33%	13.33%
Neither useful or useless	11.54%	21.74%	41.18%	46.67%	46.67%	53.33%	40.00%	36.84%	60.00%	60.00%
Somewhat useless	0.00%	17.39%	5.88%	13.33%	13.33%	13.33%	20.00%	15.79%	6.67%	6.67%
Extremely useless	7.69%	17.39%	17.65%	13.33%	20.00%	13.33%	13.33%	21.05%	20.00%	20.00%

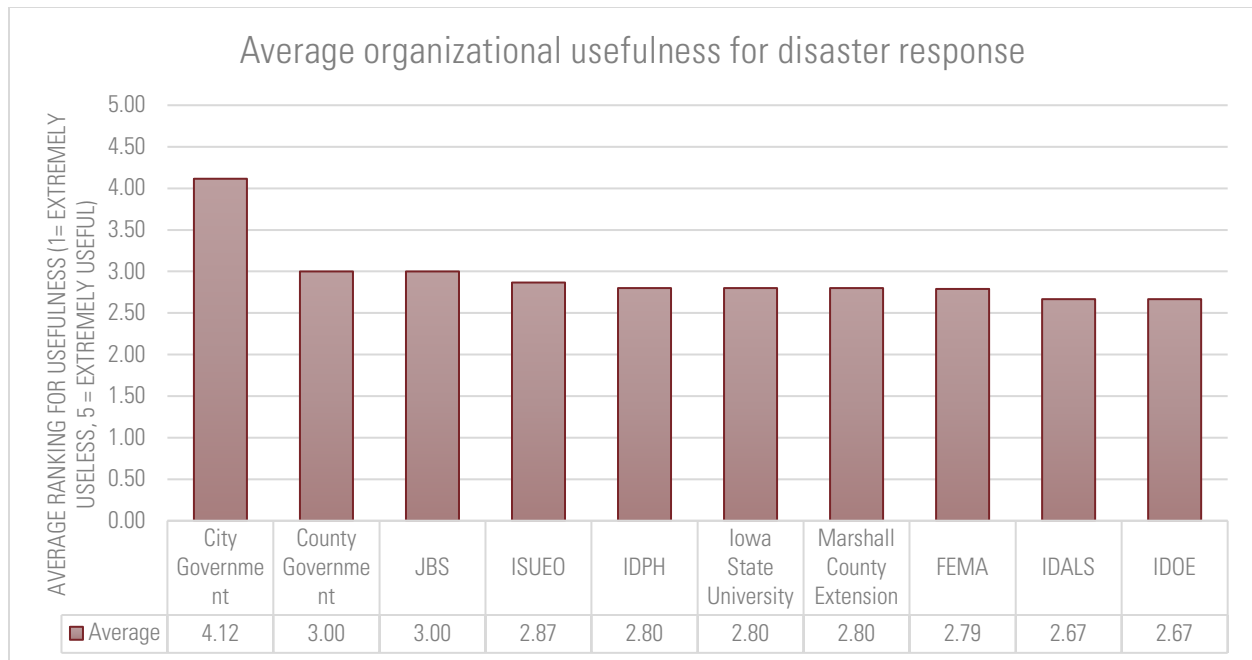


Figure 13: Average usefulness of organizations for responding to Natural Disasters; see Table 7 for total participant numbers

City Government, County Government, and JBS were seen to be the most useful organizations, while FEMA, Iowa Department of Land Stewardship, and Iowa Department of Education were seen to be the least useful. Additional categories were identified by providing “other” responses in surveys:

- Extremely useful: Local social service (CAPS, MICA, United Way, Salvation Army), Red Cross, Habitat for Humanity
- Somewhat useful: local communities and Team Rubicon
- Insurance and local restaurants donating food

City government received the only score of over “somewhat useful” while all other organizations were seen to be average or “somewhat useless.” When discussed within interviews and focus groups, many shared their reliance on neighbors for initial response and recovery. Individuals shared those businesses like JBS had “individuals from corporate come and help cook meals for people in Marshalltown” and that there was “a good emergency management staff person that pulled people together after the tornado and communicated with the police department on where to go.” The city was seen as a supportive organization as they “went into action and contracted with tree removal services to get rid of debris,” and “school districts put food pantries in elementary schools” to support food access. The Salvation Army and MICA were also mentioned as providing support and connections for financial or food access.

Additionally, during action planning sessions, it was shared that many people may not understand what organizations do in response to natural disasters, and it should be noted that participation in this response was significantly low (see participation numbers in Table 8). This could be due to individuals not seeing organizations as important to recovery from natural disasters, or not realizing how each organization may support individuals in their response to a disaster.

Future

To understand future needs for natural disaster response, interviews, survey participants and focus groups were asked to consider the next steps necessary. Additionally, a review of FEMA’s National Risk Assessment for Marshall County was taken into consideration. Figure 14 shows the expected annual loss due to natural disasters across Marshall County. Marshall County has a relatively moderate risk – 13.77 compared to 10.82 of the state of Iowa, and the national average of 10.60; however, the expected annual loss is relatively low – 16.25 compared to the state of Iowa average of 13.9 and national average of 13.33 (FEMA, 2022).

The risk assessment considers expected annual loss, social vulnerability, and community resilience based on datasets from 18 natural hazards (Department of Homeland Security, 2022). The formula utilized to assess risk includes:

$$(Expected\ annual\ loss \times social\ vulnerability) \div community\ resilience = Risk\ Index$$

- Expected annual loss: “natural hazards component that represents the average economic loss in dollars resulting from natural hazards each year”
- Social vulnerability: consequence enhancing risk component and community risk factor that represents the susceptibility of social groups to the adverse impacts of natural hazards
- Community Resilience: consequence reduction risk component and community risk factor that represents the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions
- Risk Index: represents the potential for negative impacts resulting from natural hazards

High areas of risk include drought, strong winds, and winter weather; moderate areas of risk include cold wave, hail, river flooding, and tornado (FEMA, 2022)

Figure 14 details estimates for expected annual losses from storms based on FEMA calculations. In addition to these figures, to understand full economic impact of the storms, Table 9 utilizes the estimated losses from FEMA Risk Assessment and then incorporating them into the [Local Food Economic Impact](#) study to understand overall impact across the community.

Expected Annual Loss Overview

Composite Expected Annual Loss	\$8,014,503.63
Building Value	\$1,697,855.70
Population	0.29 fatalities
Population Equivalence	\$2,228,369.91
Agriculture Value	\$4,088,278.03

Table 5: Economic Impact of Storms (FEMA, 2022)

Disaster	Risk Index Rating	Expected Annual Loss (from similar type of storm)	Economic Impact
Cold Wave	27.45	\$160,523	\$236,961
Drought	23.54	\$2,910,195	\$4,295,981
Hail	16.29	\$391,099	\$577,334
Ice Storm	10.25	\$26,915	\$39,731
Riverine Flooding	13.62	\$1,326,957	\$1,958,832
Strong Wind	22.50	\$1,098,554	\$1,621,667
Tornado	22.19	\$1,614,034	\$2,382,610
Winter Weather	28.87	\$313,150	\$462,267

Figure 14: Expected Annual Loss Overview (FEMA, 2022)

Strong wind, winter weather, and cold waves have the highest expected annual loss; however, drought and flooding are seen to have the highest agricultural value loss. Based on the FEMA index, Marshall County is seen to have a relatively moderate social vulnerability and a very high ability to prepare and anticipate climactic events, with a 57.78 compared to the state average of 57.90 and national average of 54.59.

One individual shared, “there are huge disparities in our community regarding people's ability to recover, impacted by their own "safety net" systems... The compounding effect of people being impacted by both natural disasters, while factoring in the impact on COVID, is enormous, and not often addressed in the narrative about our community's recovery. The disproportionate impact of all three of these hardships on the same populations is particularly worth noting (low income many income and refugee families).” This quote represents how some populations may not receive the same support and need additional outreach. Another individual shared that “[we need] better communication to our diverse and socio-economically challenged residents.”

While suggested next steps for natural disaster and climactic resilience, including preparedness, response and recovery are detailed below based on conversations with the community, it should be noted that all areas of programming, outreach, and response should be conducted with connection to all individuals through spoken and written messaging in appropriate languages.

Natural Disaster Resilience Next Steps

Based on the full research scope, the following are suggested priorities and next steps. Additionally, partners were identified though focus groups for who would need to be a part of prevention and recovery.

1. Develop hazard mitigation and food management plan
 - a. Response checklist for farms, food businesses, pantries and food banks, schools and additional organizations that impact food access, including access to farms during a severe weather event, water, and power protocols (having water storage, generator access and usability, tool sharing, etc.), food access and shelter locations, etc.
 - i. Create plans for each type of disaster and ability to respond
 - b. Identify existing food supply pre-storm that farmers, grocers, etc. have on hand and develop strategy for storm mitigation, including policies for pre- and post-storm
 - i. Identify where generators exist within the community.
 - ii. Create a “how-to” for use
 - c. Research if any food businesses are contractors with FEMA for providing food through [FEMA's Industry Liaison program](#) during disaster response
 - d. Research and identify amount of food currently available within Marshall County, and where to go for donation/ buying/ etc.
 - i. Identify amount of food and locations of grocery, schools, food bank, pantries, feeding areas, and retailers
 1. Create transferable models for food access locations
 - ii. Identify options for gleaned and food donation; may include [ChowBank](#) or [MEANS Database](#)
 - iii. Create a plan for aggregation and safe distribution of food post disaster, specifically around food preservation, food safe storage, and food distribution
 - e. Create or identify existing insurance programs for farm and food businesses
2. Create a community disaster plan and communication strategy
 - a. Establish pre-disaster and post-disaster contacts
 - i. Partner with organizations and support systems, including public-private partnerships

- ii. Consider networks both internal and external to disaster zone and address needs and innovative ways to respond
 - 1. Internal networks may be organized through school district regions
 - 2. Develop regional, state, and external collaborations; organizations and support systems out of the disaster zone, which may help with receiving support from non-impacted areas
 - iii. Engage more Marshall County Emergency Management – and determine potential collaboration
 - iv. Identify the lead (or co-lead); identify roles for different aspects of response
 - 1. Know the gatekeepers and connectors in the community that understand community needs across all populations and geographic parts of the county. These individuals can share the word and can inform where to go to get information and resources.
 - 2. Include multilingual communication materials, and text and phone platforms (cuts across all areas)
 - b. Create a regional communication network for prevention, response, and recovery that includes various partner organizations, farmers, and businesses
 - i. Encourage collaborative discussion and co-creation of ideas; foster trust with gatekeepers of community populations and all parts of county
 - ii. Engage with individuals that want to volunteer, both internal and external to disaster zone; have a way for people to get engaged immediately
 - iii. Develop a campaign for people to keep an eye on your neighbor and make relationships
 - iv. Include multilingual communication materials, and text and phone platforms (cuts across all areas)
 - c. Develop drills and activities that can help organizations, businesses, and the community respond to disasters in the future
- 3. Restore the natural environment, soil, and water quality
 - a. Increase use of environmental protection (and other government) programs
 - b. Increase cover crops in county
 - c. Investigate 3rd crop for rotation – potential small grain
 - d. Season extension opportunities
- 4. Scale Up local agriculture through increased meat and specialty crop processing, gardening, and land access
 - a. Increase Capacity for Meat Processing
 - i. Expand meat processing options, including storage, slaughter, and processing
 - ii. Identify options for fruit and vegetable storage and processing capacity (brick and mortar or mobile)
 - 1. Identify existing shared-kitchen spaces and policies for at home processing
 - b. Increase gardening and subsistence farming
 - i. Create a network of gardeners, producers, etc. and understand the desired communication platform for getting in touch
 - ii. Develop, or partner with existing gardening networks (like Master Gardeners) for seed sharing and gardening techniques
 - iii. Offer seed-saving courses
 - c. Land Access and Production

- i. Increasing land access for small scale production
- 5. Improve Iowa State University Extension and Outreach's ability to support and respond to disasters (preparedness and recovery)
 - a. Develop a plan for how Extension responds, both internally and with community, in response to disaster
 - i. Create a plan for preparedness, response, and recovery
 - 1. Phone call trees/ point of contact for staff
 - 2. Process for outreach for help
 - ii. Understand role for community in response to disaster
 - 1. Determine lane and role for preparedness, response, and recovery
 - 2. Create consistent messaging and awareness for the areas
 - 3. Provide space for coordination
 - iii. Support access to food through little free libraries across the county and convene group meetings to understand usefulness
 - b. Coming together as a state to support for counties that have been impacted
 - i. Network of communication and outreach to county agents impacted by storm to understand needs (related to "b")
 - ii. Determine best communication practice for support for county agents post-disaster
 - iii. Identify a point of contact who is always aware of disaster preparedness, response, and recovery
 - iv. Social Media/ press releases/ website support to get information out-campus providing information when county is unable
 - v. Increase information on other disasters (in addition to drought and floods) on ISUEO
 - c. Create disaster preparedness courses for agriculture (related to Suggested Priority #1)
 - i. Potential connection to farm safety and rural health (natural disaster/ preparedness training)
 - ii. Teach people how to develop their own on-farm safety/ on-farm disaster plan
 - iii. Connect to programming like [Annie's](#) – include in regular programming
 - 1. Learn from other programs, Foreign Animal Disease, on how to develop a plan on the farm; develop table-top scenarios for response to disaster
 - iv. Connect to programming for the Local Food Leader and Community Food Systems certifications
 - v. Convenor/ facilitator to support groups develop a plan and support to create the response plan (see "a")

COVID-19 Impact

Interview, focus group, and survey participants were asked to reflect on their experiences of COVID-19. 33 participants (94%) in the survey shared that they experienced some type of impact from COVID-19. Of those who experienced COVID-19, all also experienced the derecho, which occurred during COVID-19. Experiencing both COVID-19 and disasters influence mental and physical health, including general fatigue from exposure and worry, and stress related to financial and employment constraints that have occurred due to supply-chain and corporate closures.

Table 10 details the funding allotment for the entire state of Iowa for COVID-19 response, which was deemed both a “major disaster declaration” and “emergency declaration.” Table 11 details the number of participants that experienced COVID-19 by type of impact, and Figure 15 showcases the percentage of individuals that experienced each impact.

Table 6: COVID-19 Natural Disaster Declaration (FEMA, 2022)

Iowa COVID-19 Pandemic DR-4483-IA	Jan. 20, 2020; continuing	Individual and Households	\$27,835,806 3893 applications approved
		Public Assistance (B) Hazard Mitigation	\$258,599,011 \$3,375,369
Iowa COVID-19 EM-3480-IA	Jan. 20, 2020; continuing	Public Assistance (B)	NA

Table 7: Total participant numbers based on impact from COVID-19 (n=35)

	Increase in mental stress	Inability to see family/ friends/ social networks	Increase in financial pressures	Increase in physical stress	Diminished personal health	Diminished family health	Business closure	Unable to pay rent/ mortgage/etc.	Loss of job or unemployment
COVID-19	30	30	16	13	7	7	2	1	1

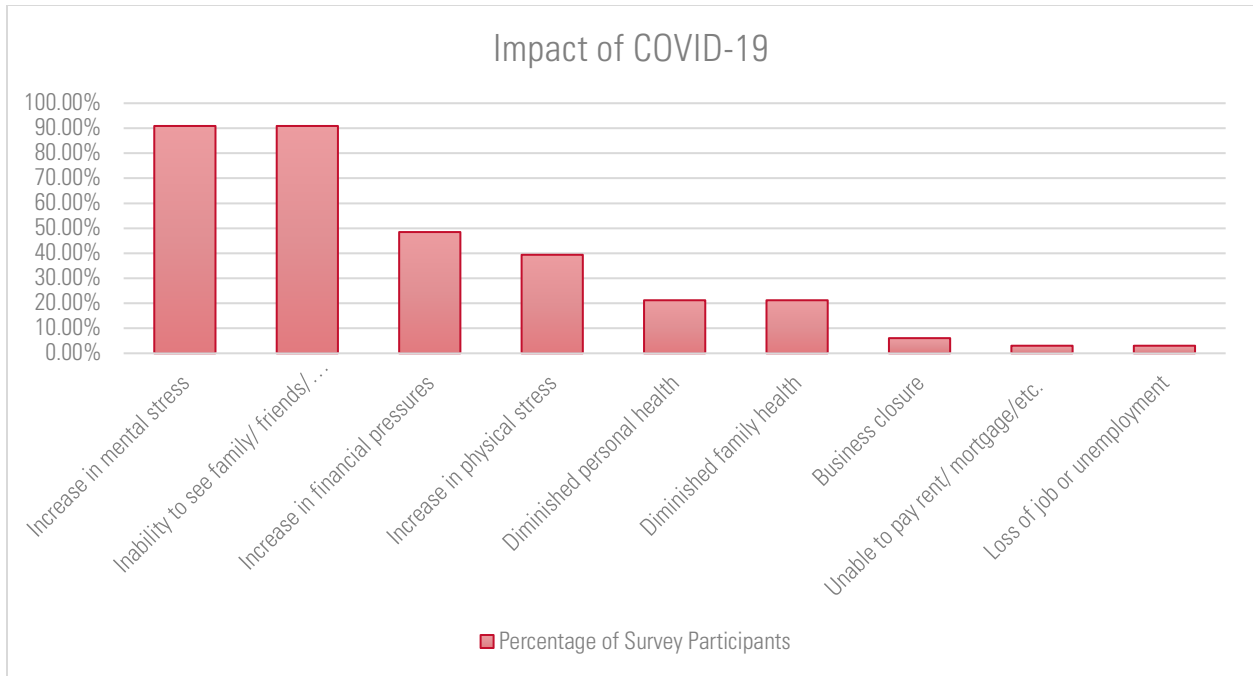


Figure 15: Comparison of impacts from natural disasters and climactic events based on percentage (n=35)

Additional impacts shared in “other” include the following: “increase in worry about low-income community members. Less connection available to reach out” and “serious impact on income, and on time needed to spend helping others deal with it.”

Participants mentioned mostly being impacted by increased mental stress and inability to see friends, with each showing over 90% experiencing these indicators. A smaller amount of survey participants, about 50% experienced an increase in financial pressures, and around 40% experienced an increase in physical stress. Overall, individuals saw the impacts of COVID-19, and the ability to respond, in a mixed way. Some felt isolated, alone, and were fearful; one interviewee shared that there was “a steady increase in mental health related calls and needs for social services [during COVID-19].” Another mentioned “having less social interaction caused concerns” while another participant spoke about how they saw “profound sadness in the elderly population...sadness is a large concern.”

Regarding food supply and access, individuals reported gaps in availability at the grocery stores. One individual shared, “There was meat shortage in the grocery store that was kind of scary for folks, and the locker in State Center was sold out of everything...there was a quick panic.” A farmer participant shared that their cattle production totally collapsed during COVID-19 and had to sell all their cattle: “The cattle ended up being sold for half of what they’re worth...and having them on feed for a month [was] also not the right quality; other friends with confinements had to kill 1,000 head to 2,400 and just euthanize.” On the other hand, the school districts were said to be supportive by having “meals taken into neighborhood, and children were still able to get lunches.”

While it is difficult to know the extent of recovery that has been able to occur from COVID-19 since it is an ongoing pandemic, individuals were still asked to share their perceived level of recovery from COVID-19 based on the moment in time that they were participating in the research study. Figure 16 showcases the extent individuals feel they have recovered. Most people felt that they are moderately recovered, with a 7.83 on average out of 10. It is fair that people have mixed reviews on recovery as we are still continuously hearing about COVID-19 impacts and new scares. No participants thought there was little or no recovery from COVID-19.

The quotes shared in additional needs for recovery within the survey highlight well the stress, fatigue, and frustration that they experienced within their community during COVID-19. Several participants commented on wanting to see more mask mandates or increase in vaccination rates. Their responses included the following: "Governor Reynolds and the Iowa Legislature should allow cities and schools to set mask and vaccination regulations, and should allow us to have vaccine passports;" "Getting people to understand that they need to get vaccinated to not only protect themselves but everyone around them;" "Wear masks. Social distance. Wash your hands. Get vaccinated;" and "People need to be vaccinated and care for others in the community." Meanwhile, other participants shared the sentiment of individual choice and removing mandates with responses like "Get back to normal. No more mask mandate, recommend and move on;" "Personal choice;" "Get people back to work and decrease public assistance to encourage self-sufficiency rather than government reliance;" and "Public education on testing/development of vaccination procedures. Many people are cautious/hesitant because of media hype and how quickly vaccines are developed with no long-term effects studies."

Usefulness of Organization when responding to COVID-19

Individuals were asked about usefulness for organizations in Marshall County, based on a pre-made list from interviews. Organizations included in the survey were County Government, City Government, Iowa Department of Agriculture and Land Stewardship (IDALS), Iowa Department of Education (IDOE), Iowa Department of Public Health (IDPH), Iowa State University, Iowa State University Extension and Outreach (ISUEO), Marshall County Extension, JBS, and FEMA.

Table 12 shows exact percentages; bolded numbers are the top three highest values per category, and Figure 17 details the extent individuals felt that each organization was useful in responding to COVID-19 on average.

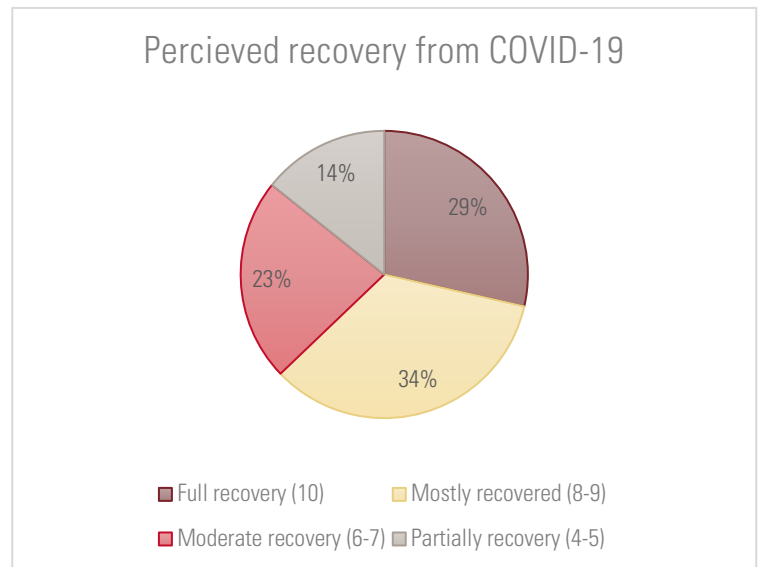


Figure 16: Perceived extent of recovery from COVID-19 (n=33)

Table 8: Average and Percentage usefulness of organizations in responding to COVID-19 (n variable - see row "Total Number of Participants")

Organization Usefulness	City Government	IDPH	IDOE	Iowa State University	Marshall County Extension	JBS	County Government	ISUDEO	IDALS	FEMA
Total Number of Participants	30	26	21	18	18	18	29	19	19	19
Average Usefulness	3.57	3.54	3.14	2.78	2.78	2.78	2.72	2.68	2.63	2.32
Extremely useful	23.33%	26.92%	14.29%	0.00%	0.00%	0.00%	3.45%	0.00%	0.00%	10.53%
Somewhat useful	36.67%	34.62%	23.81%	16.67%	16.67%	22.22%	24.14%	5.26%	5.26%	0.00%
Neither useful or useless	23.33%	15.38%	33.33%	61.11%	61.11%	50.00%	34.48%	73.68%	68.42%	36.84%
Somewhat useless	6.67%	11.54%	19.05%	5.56%	5.56%	11.11%	17.24%	5.26%	10.53%	15.79%
Extremely useless	10.00%	11.54%	9.52%	16.67%	16.67%	16.67%	20.69%	15.79%	15.79%	36.84%

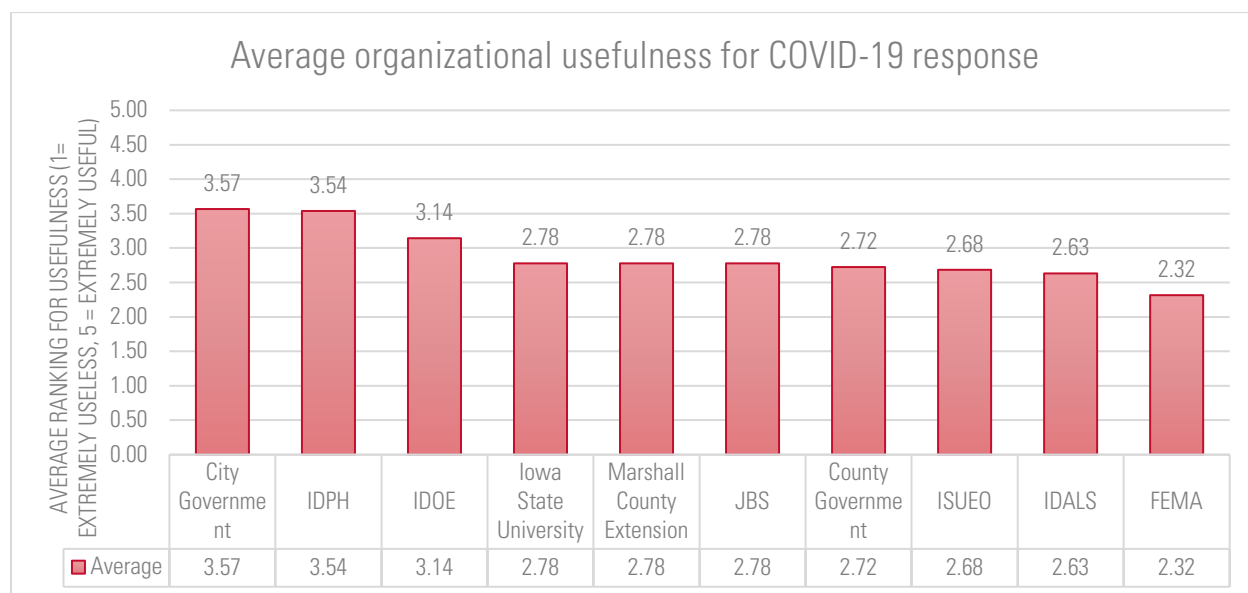


Figure 17: Average usefulness of organizations for responding to COVID-19; see Table 12 for participation numbers (n value)

No organizations were seen to be, on average, somewhat useful. City Government, Iowa Department of Public Health and Iowa Department of Education ranks highest, and FEMA, Iowa Department of Agriculture and Natural Resources and Iowa State University Extension and Outreach ranked lowest.

Additional categories were identified by providing “other” responses in surveys:

- Extremely useful: SBA
- Somewhat useful: Local social services including Community Response Coalition

Similar to the discussion with natural disaster response, during action planning sessions, it was shared that many people may not understand how organizations provided support during COVID-19. While there were more survey participants to the COVID usefulness questions, participation was still low, with an average of 22 responding to this question (see participation numbers in Table 12). It was discussed that organizations may need to build awareness and better promote what can be expected of their organization if another pandemic occurs in the future.

Future

To understand future needs for COVID-19 survey, interviewees and focus group participants were asked to share their ideas for recovery. One participant shared that “more investment needs to be made in public health, particularly for the most vulnerable populations and guidelines and decisions need to be based on health and CDC guidance, not political game-playing.” Additional comments from interviews and focus groups included the need to increase communication. One participant shared, “[we] have lost the ability to conduct community outreach, other than social media, which doesn’t reach everyone,” and another mentioned, “people are operating in silos – state, federal, city – even public health can be different between counties. The siloed communication isn’t effective.”

Others talked about the need for enhanced and continued networking. One individual shared, “there have been inconsistent partnerships and communication between city, county, state, etc., ... [people are] still unaware of the response or joint response needed to address the issue. This creates frustration and problems because of incoordination.” There was also a desire to have better connection with an emergency management system and organizations that can create a plan, determine roles, and figure out best practices for future response, which can include everything from food access to financial support and mental health resources. One individual shared, “[we need] a campaign for people to keep an eye on your neighbor and make relationships; [we need to] understand how to check in with each other.” The common thread of building relationships and trust came through as a necessary step to being more resilient and able to respond to COVID-19 and other disasters in the future.

Additional ideas for COVID-19 response are shared below.

COVID-19 Resilience Next Steps

Based on the research scope, the following are suggested as next steps.

1. Create a community disaster plan and communication strategy
2. Establish pre-disaster and post-disaster contacts
 - a. Partner with organizations and support systems, including public-private partnerships
 - b. Consider networks both internal and external to disaster zone and address needs and innovative ways to respond
 - c. Internal networks may be organized through school district regions
 - d. Develop regional, state, and external collaborations; organizations and support systems out of the disaster zone, which may help with receiving support from non-impacted areas
 - e. Engage more Marshall County Emergency Management – and determine potential collaboration
 - f. Identify the lead (or co-lead); identify roles for different aspects of response

- g. Know the gatekeepers and connectors in the community of the county that understand community needs across all populations and geographic parts. These individuals can share the word and can inform where to go to get information and resources.
 - h. Include multilingual communication materials and text and phone platforms (cuts across all areas)
3. Create a regional communication network for prevention, response, and recovery that includes various partner organizations, farmers, and businesses
 - a. Encourage collaborative discussion and co-creation of ideas; foster trust with gatekeepers of community populations and all parts of county
 - b. Engage with individuals that want to volunteer, both internal and external to disaster zone; have a way for people to get engaged immediately by knowing the tasks that individuals can take on
 - c. Develop a campaign for people to keep an eye on your neighbor and make relationships
 - d. Include multilingual communication materials, and text and phone platforms (cuts across all areas)
 - e. Develop drills and activities that can help organizations, businesses, and the community respond to disasters in the future
 4. Educate about impacts from farms, food businesses, grocers, and consumers related to disaster and COVID-19
 - a. Develop awareness campaign about the impact that natural disasters have had on food and farm businesses and the reason for supporting local businesses and organizations – sharing narratives and stories; economic impact indicators; etc.
 - b. Enhance outreach to underserved, marginalized individuals and organizations, including developing materials in multiple languages
 - c. Transferable programs for creating educational programs
 5. Research and identify amount of food currently available within Marshall County, and where to go for donation/ buying/ etc.
 - a. Identify amount of food and locations of grocery, schools, food bank, pantries, feeding areas, and retailers
 - b. Create transferable models for food access locations
 - c. Identify options for gleaning and food donation; may include [ChowBank](#) or [MEANS Database](#)
 - d. Create a plan for aggregation and safe distribution of food post disaster, specifically around food preservation, food safe storage, and food distribution
 6. Scale Up local agriculture through increased meat and specialty crop processing, gardening, and land access
 - a. Increase Capacity for Meat Processing
 - i. Expand meat processing options, including storage, slaughter, and processing
 - ii. Identify options for fruit and vegetable storage and processing capacity (brick and mortar or mobile)
 - iii. Identify existing shared-kitchen spaces and policies for at home processing
 - b. Increase gardening and subsistence farming
 - i. Create a network of gardeners, producers, etc. and understand the desired communication platform for getting in touch
 - ii. Develop, or partner with existing gardening networks (like Master Gardeners) for seed sharing and gardening techniques
 - iii. Offer seed-saving courses

Appendix A: Demographics and additional identifiers from survey participants

Zip Code

50106	1
50158	31
50162	1
50247	1
50518	1

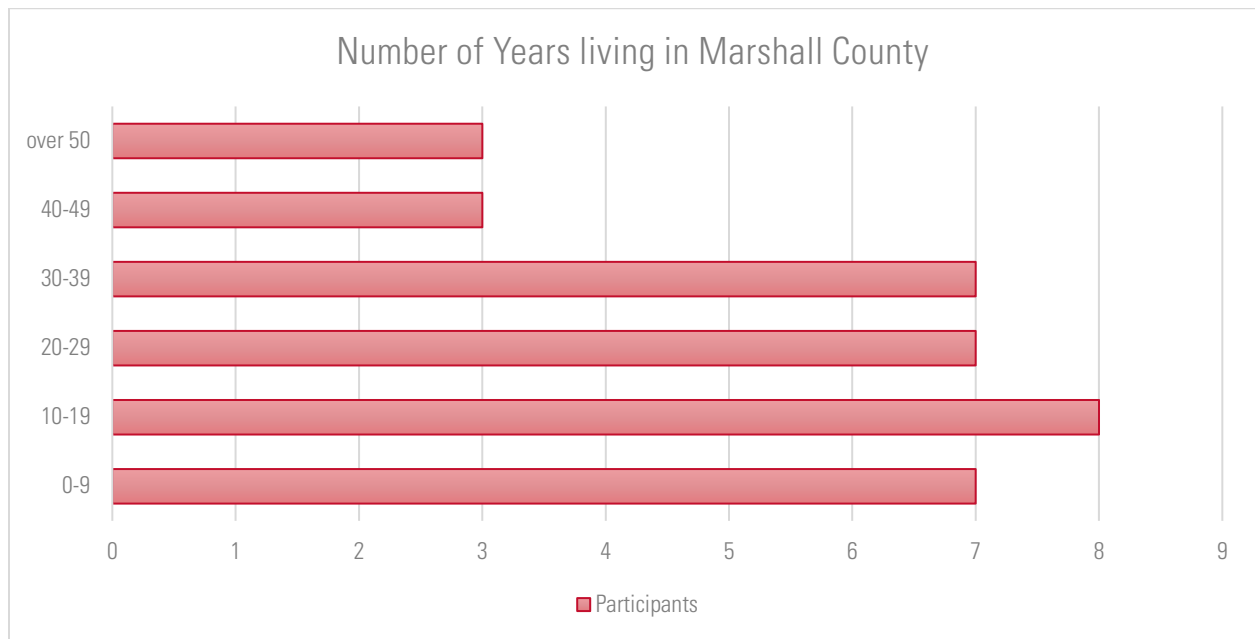


Figure 18: Number of Years in Marshall County, Iowa (N=35)

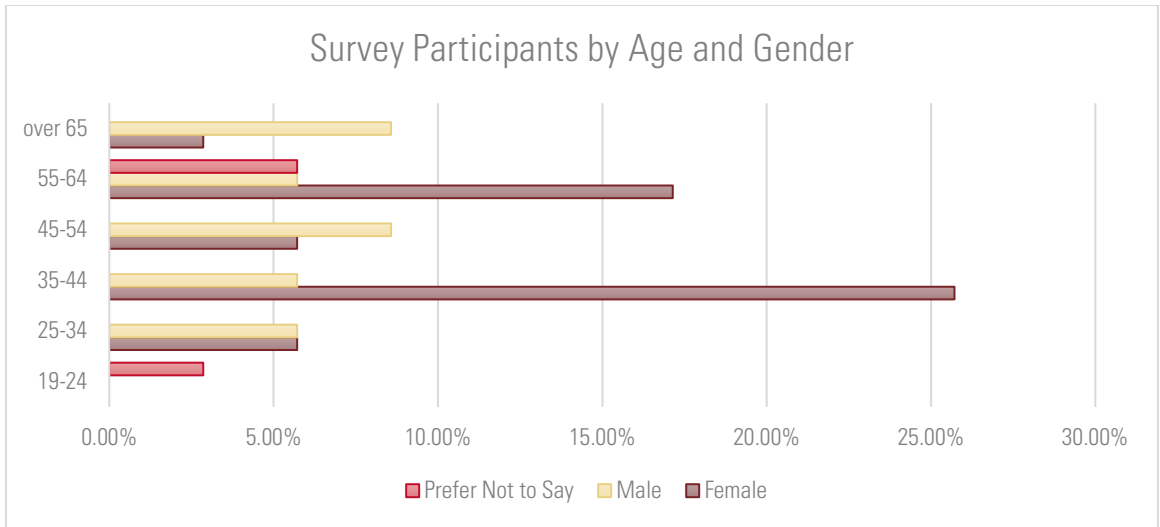


Figure 19: Survey Participants by Age and Gender (N=35)

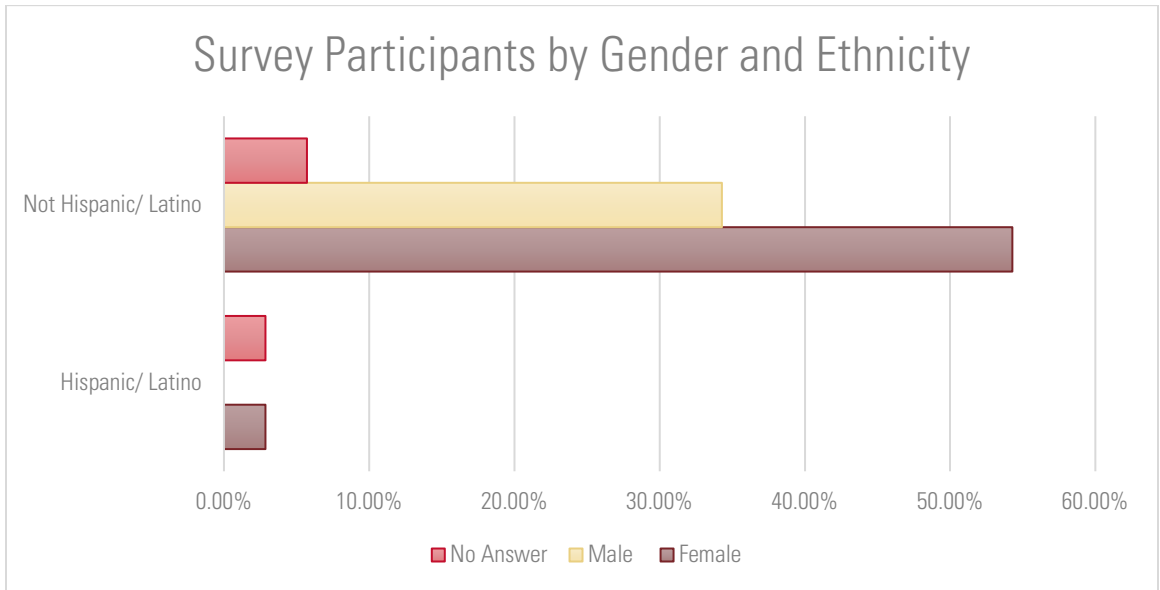


Figure 20: Survey Participants by Gender and Ethnicity (N=35)

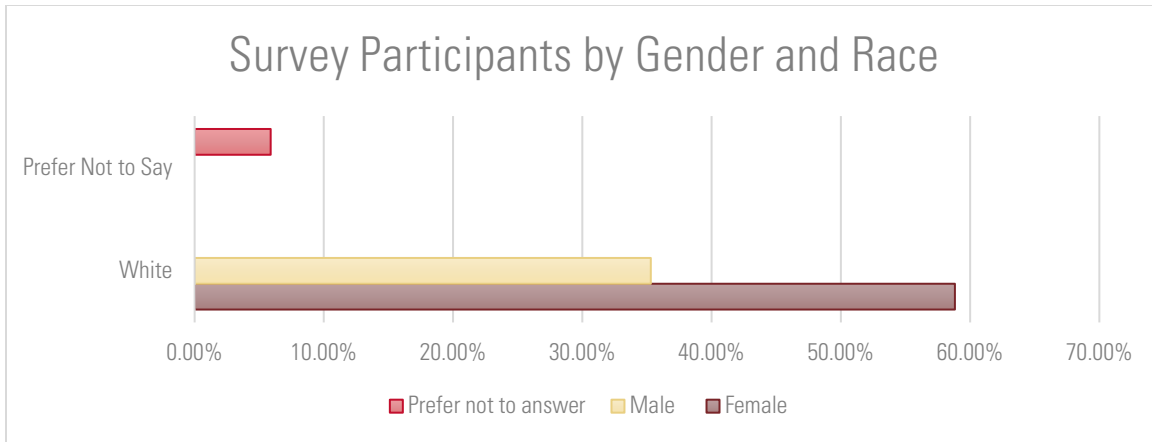


Figure 21: Survey Participants by Gender and Ethnicity (N=34; Participants could select all that apply); all other demographics were not responded to beyond "white" and "prefer not to say"

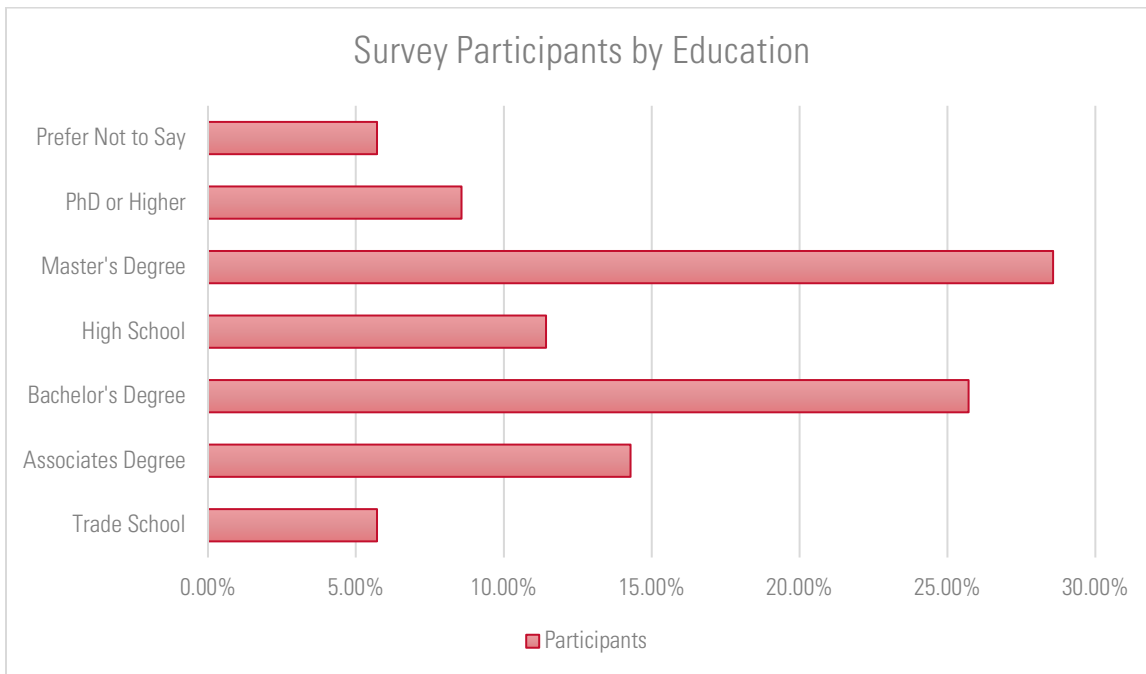


Figure 22: Survey Participants by Level of Education (N=35)

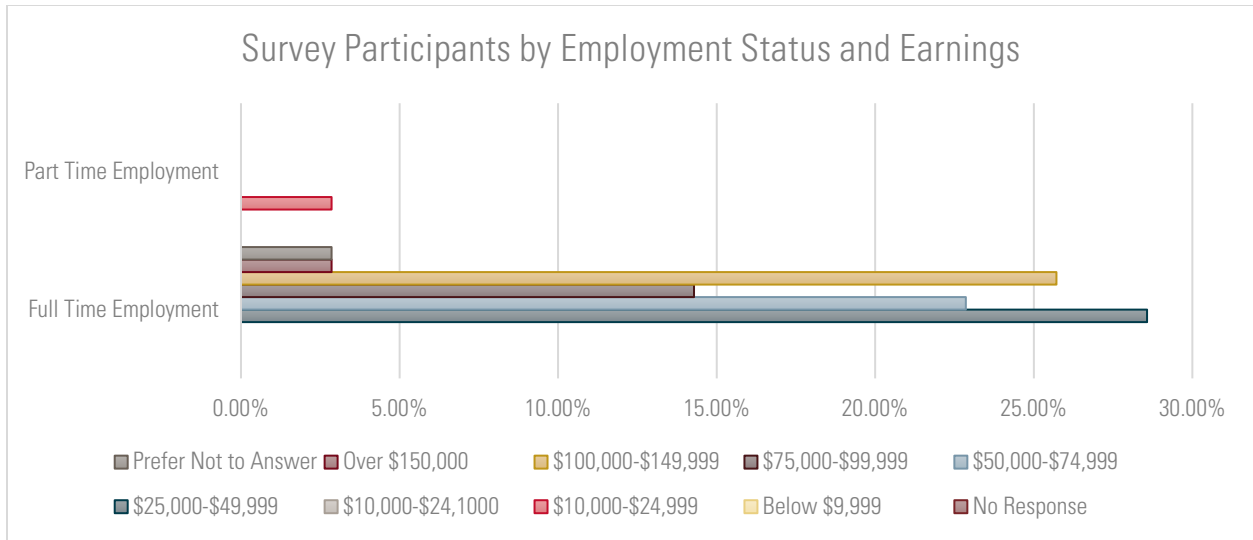


Figure 23: Survey Participants by Employment Status and Earnings (N=35)

Appendix B: Poverty Data

Table 9: Income and Poverty Thresholds for the United States

Size of family unit	Related children under 18 years									
	Weighted	None	One	Two	Three	Four	Five	Six	Seven	Eight or more
	average thresholds									
One person (unrelated individual):	13,171									
Under age 65.....	13,465	13,465								
Aged 65 and older.....	12,413	12,413								
Two people:	16,733									
Householder under age 65.....	17,413	17,331	17,839							
Householder aged 65 and older.....	15,659	15,644	17,771							
Three people.....	20,591	20,244	20,832	20,852						
Four people.....	26,496	26,695	27,131	26,246	26,338					
Five people.....	31,417	32,193	32,661	31,661	30,887	30,414				
Six people.....	35,499	37,027	37,174	36,408	35,674	34,582	33,935			
Seven people.....	40,406	42,605	42,871	41,954	41,314	40,124	38,734	37,210		
Eight people.....	44,755	47,650	48,071	47,205	46,447	45,371	44,006	42,585	42,224	
Nine people or more.....	53,905	57,319	57,597	56,831	56,188	55,132	53,679	52,366	52,040	50,035
Source: U.S. Census Bureau.										

SNAP Participation

It is estimated that 1,593 households in Marshall County received SNAP in 2020, or about 10.4% of the total households within the county. About 19% of those households had not worked within the past 12 months, 52% had one worker in the family, and 29% had two or more workers in the family (U.S. Census Bureau, 2020)

The Iowa Benefits website has an Iowa Supplemental Nutrition Assistance Program website with an [interactive table](#) to showcase eligibility for the program.

Appendix C: Business and Industry

Table 10: Business and Industry, Marshall County, United States Census 2021

Establishments by employees	Number of businesses	Annual Payroll (\$1,000)	Number of employees
Less than 5	402		
5-9	169		
10-19	109		
20-49	76		
50-99	19		
100-249	5		
250-499	4		
Total	791	572,950	13,143
By category			
Agriculture, forestry, fishing, and hunting	4	1,859	24
Utilities	4	18,423	171
Construction	75	25,245	433
Manufacturing	39	239,141	4,427
Wholesale Trade	49	24,511	373
Retail Trade	118	47,849	1,863
Transportation and Warehousing	34	9,952	223
Information	16	6,534	176
Finance and insurance	58	23,151	351
Real estate and rental and leasing	26	21,377	536
Professional, scientific, and technical services	42	13,099	263
Administration and support and waste management and remediation services	25	13,330	553
Educational Services	7	1,518	68
Health Care and Social Assistance	100	91,001	1,844
Arts, Entertainment, and Recreation	10	2,239	108
Accommodation and Food Service	78	14,550	1,045
Other services (except public administration)	101	15,056	576

Appendix D: Food Purchasing, Levels of Importance

Table 11: Level of Importance for food purchasing criteria- Resilience (N=35)

	Grown Local	Affordability	Relationship with producer, seller, etc.	Location	Convenience	Organic	Fresh	Food Safety Practices
Average	4.37	3.80	3.49	3.54	3.49	3.34	4.29	3.44
Extremely Important	48.57%	20.00%	20.00%	14.29%	11.43%	20.00%	48.57%	14.71%
Very Important	40.00%	42.86%	28.57%	34.29%	34.29%	28.57%	34.29%	35.29%
Moderately Important	11.43%	34.29%	34.29%	42.86%	45.71%	25.71%	14.29%	32.35%
Slightly Important	0.00%	2.86%	14.29%	8.57%	8.57%	17.14%	2.86%	14.71%
Not At All Important	0.00%	0.00%	2.86%	0.00%	0.00%	8.57%	0.00%	2.94%

Appendix E: Action Planning Notes

Marshall County Action Planning Notes:

Action Planning Session 1: 5:30 – 7:30 pm

Introductions: (No attendees)

Action Planning Session 2: 9:00 – 11:00 am

Introductions: (2 attendees)

Sharing the data/presentation discussion

- Discussion of food pantries and childhood nutrition
- Funding options through Community Foundation – little free food pantries and meal packing
- Generators- need to have access to them, but also understand how to use them
- During COVID had a team that met regularly; learned from the tornado that having these relationships in place was important, knew the roles and expertise that people had; this network needs to be continued
- Important to also recognize accomplishments and celebrate
 - Need to tell the story and understand impacts
 - Discussion on ability to understand the impact from providing resources and funding; do people have what they need? What is still needed?

Priorities Discussion:

- **Create a community disaster plan and communication strategy (2 votes)**
 - Incorporate Emergency Management- COAD team
 - Find the person to lead/ plan/ identify funding
 - Relationships matter- need to have people building trust and meeting before a disaster happens
 - Need to know the person who can share the word with their community
 - Point of contact – link with churches/ libraries
 - **additional points added into steps into priority listing**
- **Develop hazard mitigation and food management plan- including disaster preparedness and response checklists and understanding of existing food supplies (2 votes)**
 - Have food at same location of other resources – food reservoir with other emergency management resources
 - Determine the best location for hosting
 - Identify gatekeepers/ connectors within the community that can share the best place to be
 - Potential for book mobile that make be able to also provide food
 - **additional points added into steps into priority listing**
- **Educate about impacts of farms, food businesses, and community from natural disasters and COVID**
- **Restore the natural environment, soil and water quality through incentives for environmental protection programs**
- **Scale Up local agriculture through increased meat and specialty crop processing, gardening, and land access**
- **Improve Iowa State Extension’s ability to support and respond to disasters (preparedness and recovery)**

Additional resource discussions: Chow Bank, Food Access Assessments, DMARC, Means Database

Action Planning Session 3: 2:00pm – 4:00pm

Introductions: (6 attendees)

Sharing the data/presentation

- Question about Marshall County values survey- predetermined values or written in? An “other” section was available and “honesty” was the only word written in.
- Were we the only community with a Walmart? Yes, and it could affect how and where people buy food. Other communities studied had different situations of where to get groceries and produce.
- Discussion about the impact of the 2018 tornado and how it was a narrower spot of people impacted, so how did you deal with that? Yes, and also Derecho was harder to respond to because surrounding areas and organizations also had damage.
- Was there a definition of what disaster response meant? No, not in this survey but there were conversations surrounding it in interviews and focus groups
- Participants expressed that having a disaster contact would be beneficial because there’s a misunderstanding of whom to go to depending on the disaster situation
- When was the COVID survey sent out? September 2021
- Focus groups were during the Spring of 2021 and interviews were virtual.
- Iowa State University and Marshall County Extension were comparable in regard to the organizational usefulness of the COVID-19 response

What’s missing?

- Is there an opportunity for ISU Extension to be the point of knowledge for what to do when during disaster response (referencing the usefulness survey)? Maybe could be a part of the education component
- Is ISU Extension doing too much responding and not enough relaying information during disaster response? Could we do a better job at this?
- Where’s the personal education plan and responsibility? Whether that is a homeowner or whoever. Who do you call? What steps need to be taken during a disaster?
- Is the dissertation and project about resilience of food systems or disaster recovery? Resilience food systems- they are very inter-connected and this community has really focused on food access and disaster awareness while each group has been place-based.
- Could you expand on food access? Discussed was where are resources to find affordable and culturally relevant foods came up a lot (mapping food pantries, understanding food pantry hours, food access assessment etc.)
- Tama County created a brochure that lists where all the food pantries are in the county- plans to copy this in Marshall County
- The difference between Marshall County response during the 2020 derecho vs. 2018 tornado: after the tornado, no one in the office was affected nor was the office building so they focused on disaster recovery. When the derecho hit they were all affected and the office was out for an entire week, really had a hard time providing resources. How does ISU Extension has a whole provide for counties that are struggling when the county office is all affected? Several offices were like this around the area.
- What are the state services that should be provided in our county offices when natural disasters occur? Just a start. Felt like they were on their own

- Could expand to ISUEO (?)
- County offices don't always know when to step into state services for help and who to reach out to during disasters. Ex: A large daycare closed down in Marshalltown recently, they emailed human sciences team from ISU to help.
- Other natural disasters ISU Extension has experience with it:
- With floods, ISU Extension State Services had more experience and knowledge and could provide.

Priorities Discussion

Create a community disaster plan and communication strategy (3)

Develop hazard mitigation and food management plan- including disaster preparedness and response checklists and understanding of existing food supplies (3)

Educate about impacts of farms, food businesses, and community from natural disasters and COVID (1)

Restore the natural environment, soil and water quality through incentives for environmental protection programs (0)

Scale Up local agriculture through increased meat and specialty crop processing, gardening, and land access (0)

Improve Iowa State Extension's ability to support and respond to disasters (preparedness and recovery) (5)

First Priority: Improve Extension Support...

- Discussion of how there is currently not a point of contact post-disaster at Extension- who could this be?
- Discussion of farm safety and creating teams and the connection with public health- is there preparedness training that could be done or an educational piece? Help people create their own plans.
- Connecting to programs like Annie's- could be more appealing to the public
- Is there things we could learn through the foreign animal disease protocol and plans? Teaching methods and resources
- Extension could be a facilitator for support groups

Comprehensive Priority Areas and Votes

Create a community disaster plan and communication strategy (5)

Develop hazard mitigation and food management plan- including disaster preparedness and response checklists and understanding of existing food supplies (5)

Educate about impacts of farms, food businesses, and community from natural disasters and COVID (1)

Restore the natural environment, soil and water quality through incentives for environmental protection Programs (0)

Scale Up local agriculture through increased meat and specialty crop processing, gardening, and land access (0)

Improve Iowa State Extension's ability to support and respond to disasters (preparedness and recovery)

(5)

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