



# Centering Farmers' Voices in Technology Development

A 2025 Workshop Report on  
*Anticipating Technology's Impact on Food Sovereignty*



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# ABOUT THE RESEARCH

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## Background & Motivation

There is a growing interest in addressing food insecurity through food system innovation. Recent technology pilots in Detroit have included:

- Waste management robots in Corktown that collect food scraps to turn into compost [[Orange Sparkle Ball](https://www.orangesparkleball.com/)]<sup>1</sup>
- Mobile grocery trucks that use electric vehicles to deliver produce to community centers [[Veggie Express](https://www.detroitnews.com/story/business/2023/08/07/detroit-startup-brings-fresh-produce-to-low-income-housing-complex/70541881007/)]<sup>2</sup>
- City of Detroit partnering with autonomous vehicle start-up to provide folks with free rides to grocery stores and other places [[Accessibili-D](https://detroitmi.gov/government/mayors-office/office-mobility-innovation/accessibili-d-self-driving-shuttle-pilot)]<sup>3</sup>

This research examines whether current food system innovations meet the needs of urban farmers and their communities. Our goal is to highlight how technology developers can reduce food insecurity and support communities' work toward food sovereignty.

## Our Approach

We brought together farmers and growers with connection to Detroit's food sovereignty movement to discuss the impacts new technologies have on Detroit's food system and how to address them.

In these conversations, we asked Detroit urban farmers for their thoughts about these technologies and what alternative technologies, if any, they would consider.

1. <https://www.orangesparkleball.com/>

2. <https://www.detroitnews.com/story/business/2023/08/07/detroit-startup-brings-fresh-produce-to-low-income-housing-complex/70541881007/>

3. <https://detroitmi.gov/government/mayors-office/office-mobility-innovation/accessibili-d-self-driving-shuttle-pilot>



# CHALLENGES TO ADDRESS

Workshop attendees uncovered opportunities for improving the urban farming innovation ecosystem and how to protect urban farming communities from exploitation.

01

## Need to Align Innovation Ecosystem with Farmers' Values

- Many technology developers lack farming experience, resulting in systems that do not align with community needs—they are often complicated, inaccessible, don't build on existing infrastructure, and create more work instead of less.
- Technology can support farmers in growing more food. However, it should enhance traditional growing practices—not replace them. Examples include harvest tracking, resource use tracking, and automation of routine tasks.



...we don't need another gadget or to reinvent something...we can use what we have and...merge it with what we are already doing to create better and more sustainable systems....We don't need another car driving itself around. *We need a sustainable system that the community can use with or without internet, with or without the government...and be able to actually sustain themselves.*

**-Claire Austin**



02

## Exploitation of Human Resources and Data

- Current technological solutions often come from corporations that may not prioritize privacy, human rights, or fair labor practices.
- Farmers can collect data about growing practices, soil conditions, and harvest yields—however, in the wrong hands, that information could be used against the community. For example:
  - Data makes farms vulnerable to government policing.
  - Exposing data to real-estate developers risks gentrification.
  - Farmers could use data to compete instead of collaborate.



Data can be objective, but it can also be subjective...we really just need to be careful of who is collecting it, why are we collecting it, what's the purpose of it and who gets access to it? Just some basic legal backing behind it. **-Ronson, P.**



# ADDRESSING THESE CHALLENGES

Community participants suggested key areas where technology developers can address these challenges.

01

## Invest in Systems That Support Farmers' Needs

- Technology solutions should build on existing food sovereignty programs rather than reinventing existing systems.
- Technology developers should work directly with urban farmers to ensure technology is relevant to urban farmers' goals.
- Creating digital spaces for farmers to share knowledge and coordinate resources could strengthen the innovation ecosystem while keeping it grounded in community needs.



...ask the people who have been running these operations for years. Ask the community gardens and urban agricultural organizations what we are lacking most, and what we need the most help with. **-K. Williams**



02

## Protect Community Autonomy & Data Rights

- Provide the community control over their data and how it is used.
- Create clear protocols for data sharing and develop legal frameworks that protect community rights.
- Establish collaborative ownership agreements and structures that support democratic decision-making and accountability.



...prioritize solutions that strengthen local food networks and increase community resilience. Focus on tools that help small-scale farmers manage resources efficiently, connect directly with consumers, and access markets. **-Kev**



03

## Develop Tech in Community Cooperatives

- Technology should draw on community expertise and experience rather than relying solely on external developers.
- Urban farming communities should use education to develop a community-sourced urban farming technology workforce.



# ADDRESSING THESE CHALLENGES

The urban farming community and city government can also take action to address these challenges.

## 04

### For Urban Farming Community Leaders

- Establish working groups to:
  - Document needs and evaluate potential technology pilots based on farming experience and values.
  - Create clear guidelines about what data urban farmers are willing to share and under what conditions.
- Advocate for more effective technology regulations.
- Establish a network for sharing knowledge and resources to ensure technology solutions support rather than disrupt the existing community.



To prevent exploitation from new technologies, collective actions could include developing clear ethical guidelines for technology use, ensuring transparency about data management, and fostering collaboration among farmers, tech developers, and policymakers. Providing education on technology use and monitoring the impact of these technologies can also help address and mitigate potential harms. **-Alexander**



## 05

### For City and Government Officials

- Establish policies that protect community data rights and prevent exploitation.
  - Create legal frameworks that provide the community more power in the technology development process.
  - Set up accountability measures for tech developers, e.g. community oversight boards.
- Expand funding for community-controlled infrastructure and technology initiatives.





# CONCLUSION

This research explored Detroit urban farmers' perceptions of technology's role in aiding farm work, alleviating food insecurity, and working towards food sovereignty.

Community participants shared their concerns about current and potential technologies, as well as how future technology could aid their work and help them achieve their goals.

This insight provides guidelines to technology developers for working with urban farmers both in and beyond Detroit.

## WORKSHOP FEEDBACK

We surveyed community participants on how future workshops could further expand conversations around technology and food sovereignty.

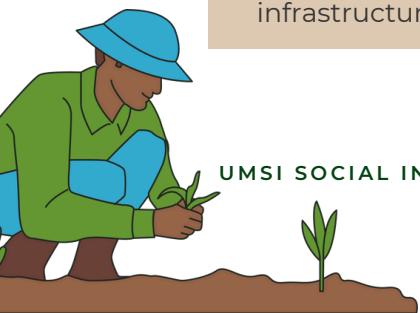


### Future Workshops Could Include More Groups Such As:

- Community organizers
- Public schools & school youth
- Non-grower community members
- City employees
- Business owners
- Tech developers
- Tech pilot teams & test subjects
- Tech students
- Farmers & farming organizations
- Health organizations

### Future Conversations Could Cover:

- Farming-related issues such as agricultural laws, food costs, land use, and compost.
- Tech-related issues, including more ideas for how technology could aid in farming and food sovereignty efforts, how tech pilots can involve urban farmers, how farmers use different technologies, and the potential for solar energy on small farms.
- Community-related issues, including health issues and protecting vulnerable populations from economic competition and exploitation.
- Ways to connect and collaborate more with urban farmers and those involved in the food sovereignty movement.
- How to create more co-ops that help farms share costs and infrastructure.



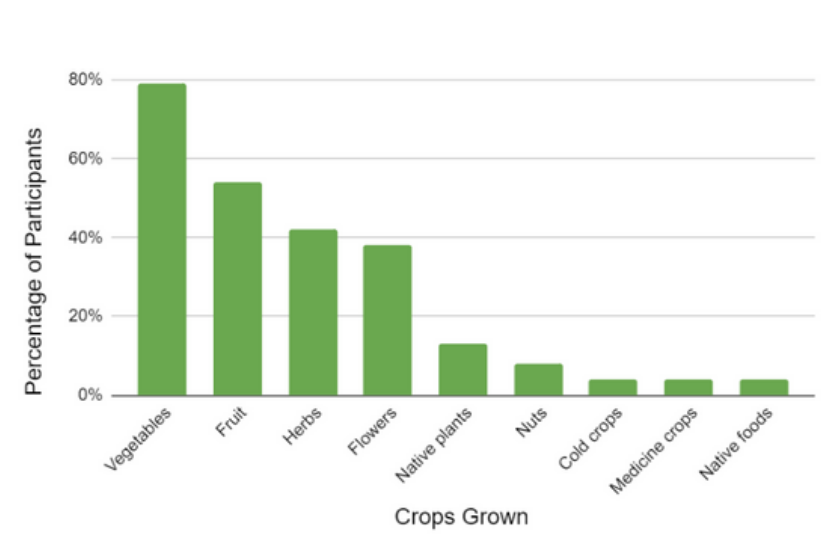
# Appendix

Our team conducted a series of speculative design workshops with urban farmers from Detroit who are interested in food sovereignty.

25 Detroit growers participated in our workshops. Among them, 68% were between ages 31 and 50, 50% were women, 75% had some amount of higher education, 70.8% identified as Black, and 50% operated farms smaller than one acre.

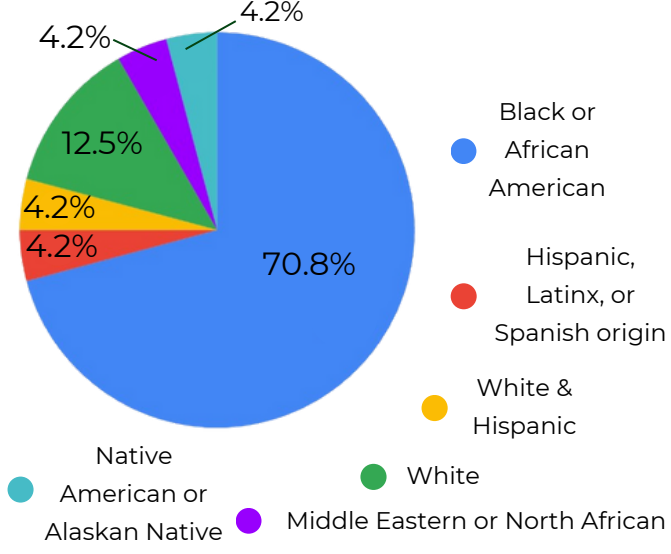
## Crops Grown

Types of crops grown by community participants



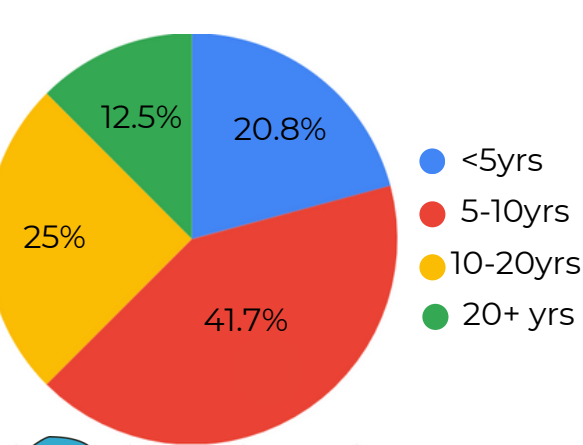
## Race/Ethnicity

Race/Ethnicity of community participants



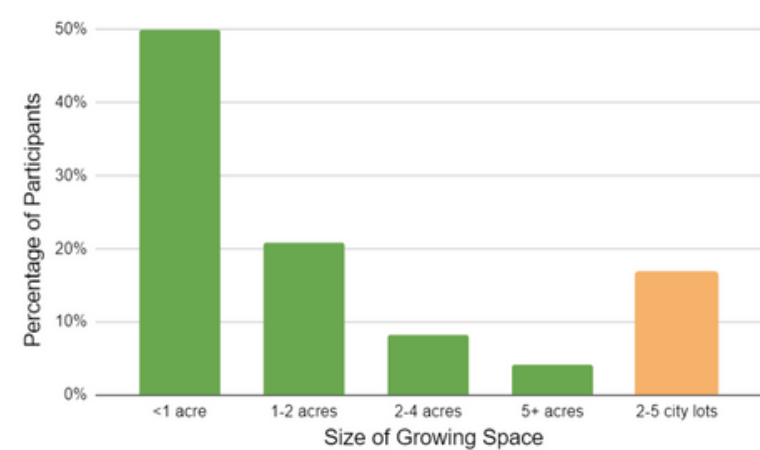
## Farming Experience

Number of years community participants have been farming



## Size of Growing Space

Sizes of community participants' growing spaces. 2-5 city lots is an outlier as we could not determine the conversion rate from city lots to acres.





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## Social Innovations Group

The *Anticipating Technology's Impact on Food Sovereignty* workshops and the *Centering Farming Technology in Community* report were conducted and written by the University of Michigan School of Information's Social Innovations Group.

The Social Innovations Group is a dynamic and diverse collective of interdisciplinary experts specializing in the research and development of ubiquitous and social computing technologies. Our vision is simple: To design, build, and enhance innovative technologies that effectively tackle real-world challenges.

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