



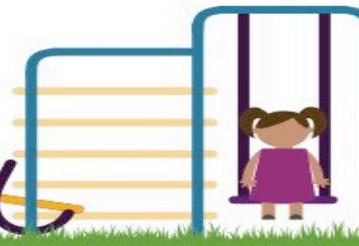
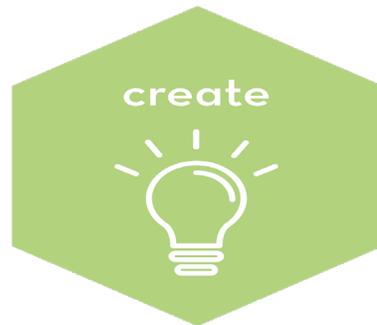
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We advance health and healthy living for children and families through cutting-edge research, innovative community-based programs, and dissemination of evidence-based practices.

STRATEGIC PLAN GOALS



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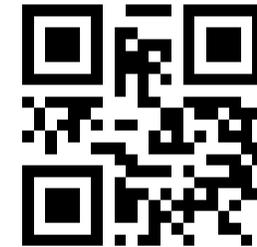
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The poster features a vibrant blue background with two human profiles facing each other. The profiles are partially submerged in water, with splashes around their faces. Inside the heads of the profiles, there are detailed, colorful landscapes of rural farmland, including fields, mountains, and water bodies. The overall theme is the connection between water, food, and human life.

16 October 2023

World Food Day

WATER IS LIFE
IS FOOD

**LEAVE
NO ONE
BEHIND**



DEPARTMENT OF
PEDIATRICS



Community Engaged Research in Nutrition - *Bridging the Gap for Better Health*

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October 12th, 2023

About me 😊



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Research agenda:

Studying health disparities and exploring SDOH inequity as it relates to obesity and diet-chronic disease prevention among individuals and families from under-resourced populations

Create an equitable environment by bringing about meaningful and pragmatic socio-environmental changes

Utilizing qualitative, quantitative, and mixed-methods research

Definition of Community Engagement

Centers for Disease Control and Prevention (CDC): “the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people.”

Principles of Community Engagement: “a powerful vehicle for bringing about environmental and behavioral changes that will improve the health of the community and its members. It often involves partnerships and coalitions that help mobilize resources and influence systems, change relationships among partners, and serve as catalysts for changing policies, programs, and practices.”

Goals: are to build trust, enlist new resources and allies, create better communication, and improve overall health outcomes as successful projects evolve into lasting collaborations.

Key principles of community engagement

Collaboration

Researchers and communities
working together

Respect

Respecting community values
and perspectives

Equity

Equitable partnerships

Empowerment

Empowering community
members in the research process

Transparency

Transparent communication

Well-established models and frameworks of CEnR

- **Socio-Ecological Model of Health:** understands health to be affected by the interaction between the individual, the group/ community, and the physical, social, and political environments. (CDC 2007)
- **Active Community Engagement Continuum:** provides a framework for analyzing community engagement and the role the community plays in influencing lasting behavior change.(Russell et al, 2008)
- **Diffusion of Innovation:** the process by which an innovation is communicated through certain channels over time among the members of a social system. (Rogers, 1995)
- **Community-Based Participatory Research:** all collaborators respect the strengths that each brings to the partnership, and the community participates fully in all aspects of the research process. (Israel et al, 2003)



Community engagement continuum

Community
targeted
research



Community
based
research



Community
driven
research

- No involvement in selecting research topic
- Assistance with recruitment
- Dissemination

- Community input
- Vote in selecting research topic
- Increased involvement in many aspects of research

- Community involvement
- Shared power and decision making
- Focus area generated by community
- Fully participatory

Why Nutrition?

- CEnR in the context of nutrition is vital for
 - addressing complex nutritional challenges
 - promoting healthy dietary practices
 - understanding local dietary practices and cultural factors
 - reducing disparities
 - improving overall public health and community well-being.
- Involve the community as active partners in research and intervention efforts, ensuring that solutions are
 - culturally sensitive and relevant, effective, and sustainable.



Research Methodologies



Surveys



Focus groups



Interviews



Observations

**COMMUNITY-BASED
HEALTH
INTERVENTIONS**

Benefits of Community Engagement

Increased relevance: community involvement ensures research aligns with local needs.

Enhanced trust: trust is crucial for successful research partnerships.

Diverse perspectives: community input provides a comprehensive view.

Sustainable interventions: the likelihood of long-lasting change due to community ownership.



Challenges of Community Engagement

- Time and resource constraints
- Building relationships and trust
- Balancing community and academic priorities
- Competing priorities
- Engaging and maintaining community involvement

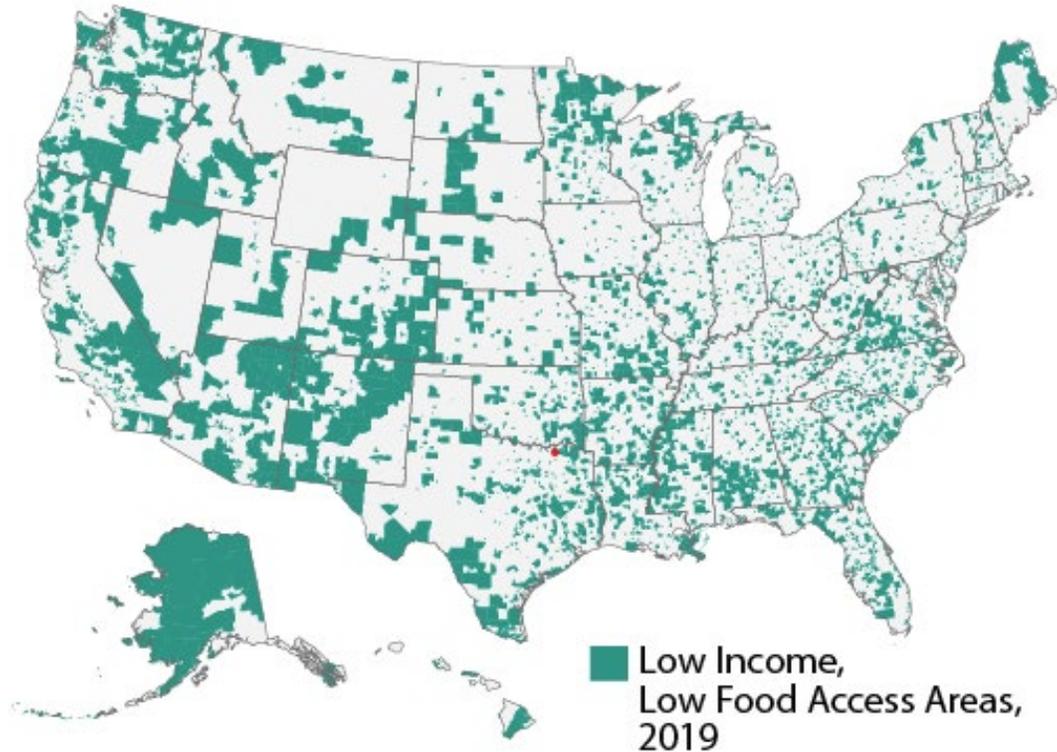


Hydroponic farming at food pantries in urban food deserts

- To assess acceptability and socio-cultural implications (individual, social/cultural, environmental, economic)
- To identify benefits and barriers of hydroponic farming



Urban Food deserts



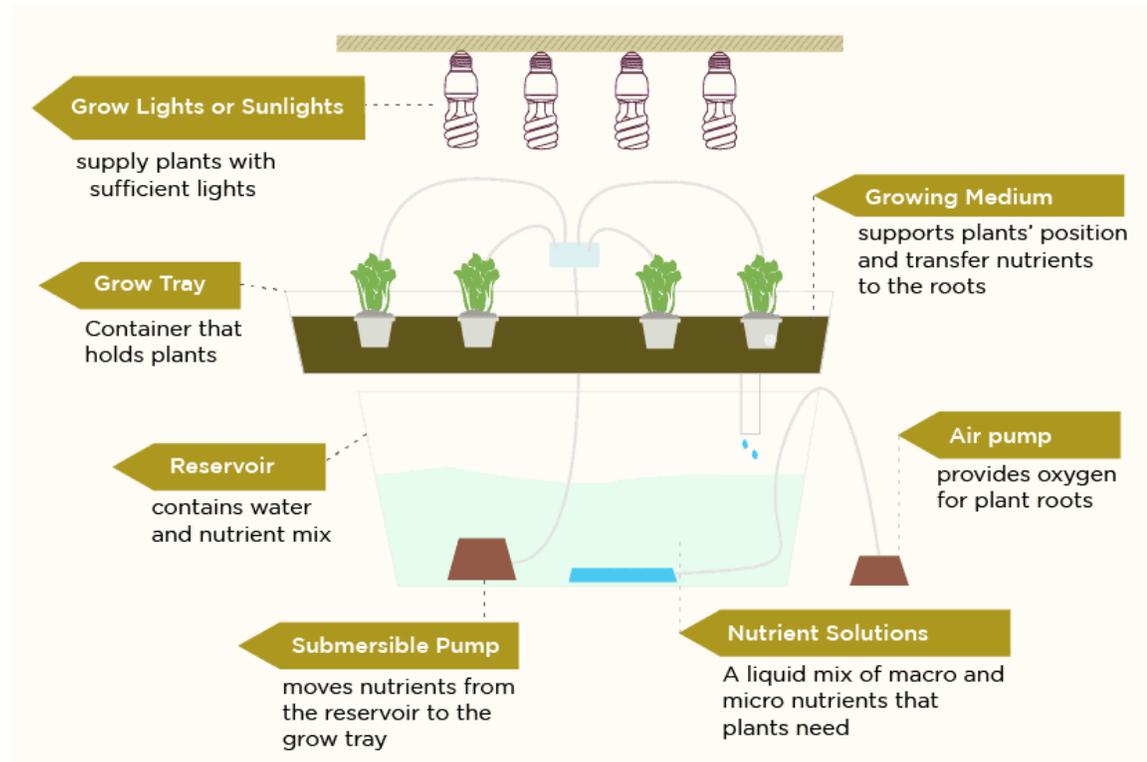
Green= low-income census tracts where urban residents live more than 1 mile or rural where residents live more than 10 miles from a supermarket.

IMPLICATIONS:

- The reduced availability of fresh produce in food deserts increases the reliance of many food insecure communities on processed shelf-stable foods available in convenience stores and bodegas (Gottlieb & Joshi 2010; Ornelas 2010).
- Residents without private transportation or convenient access to public transit can only choose among their neighborhood's limited and often less healthy options.
- This food system structure in low-income communities curtails individuals' food choices that continue to contribute to disparities in critical health outcomes unless access to healthy foods increases (Loo & Skipper 2017).

What is hydroponics?

Hydroponics is a subset of hydroculture and is a method of growing plants using mineral nutrient solutions, in water, without soil.



- Maximizes Space. Hydroponics requires far less space than plants grown in soil.
- Conserves Water.
- Facilitates a Micro-Climate.
- Produces Higher Yields.
- Require Less Labor.
- Produces Higher Quality Food.
- Reduces Supply Chain.

Hydroponic farming and food security

- Potentially change the face of hunger, community, and sustainability by enabling communities to gain socio-economic benefits.
- Simply producing local food may not solve hunger without addressing the various root causes, but it is one important part of the solution towards achieving food security (Weissman 2013).
- Contribute to the development of social connections, capacity building, and community empowerment, and offer links to community development practice (Hodgson et al 2011).
 - as a viable means of workforce and youth development, food budget supplements, and modest revenue generation
- Combined with other efforts to improve access to healthy foods, hydroponic farming becomes a valuable tool in promoting community food security, particularly in low-income neighborhoods.

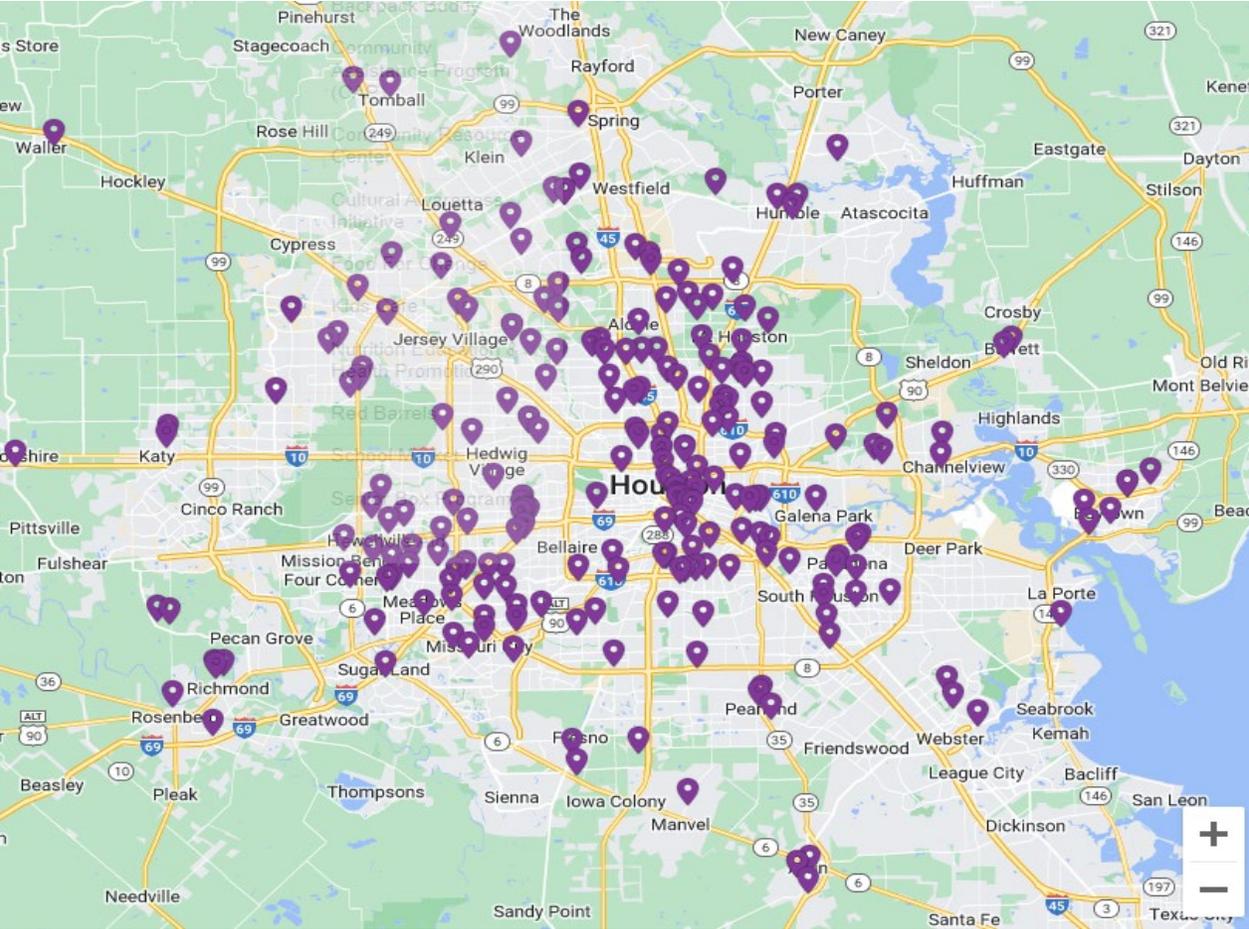
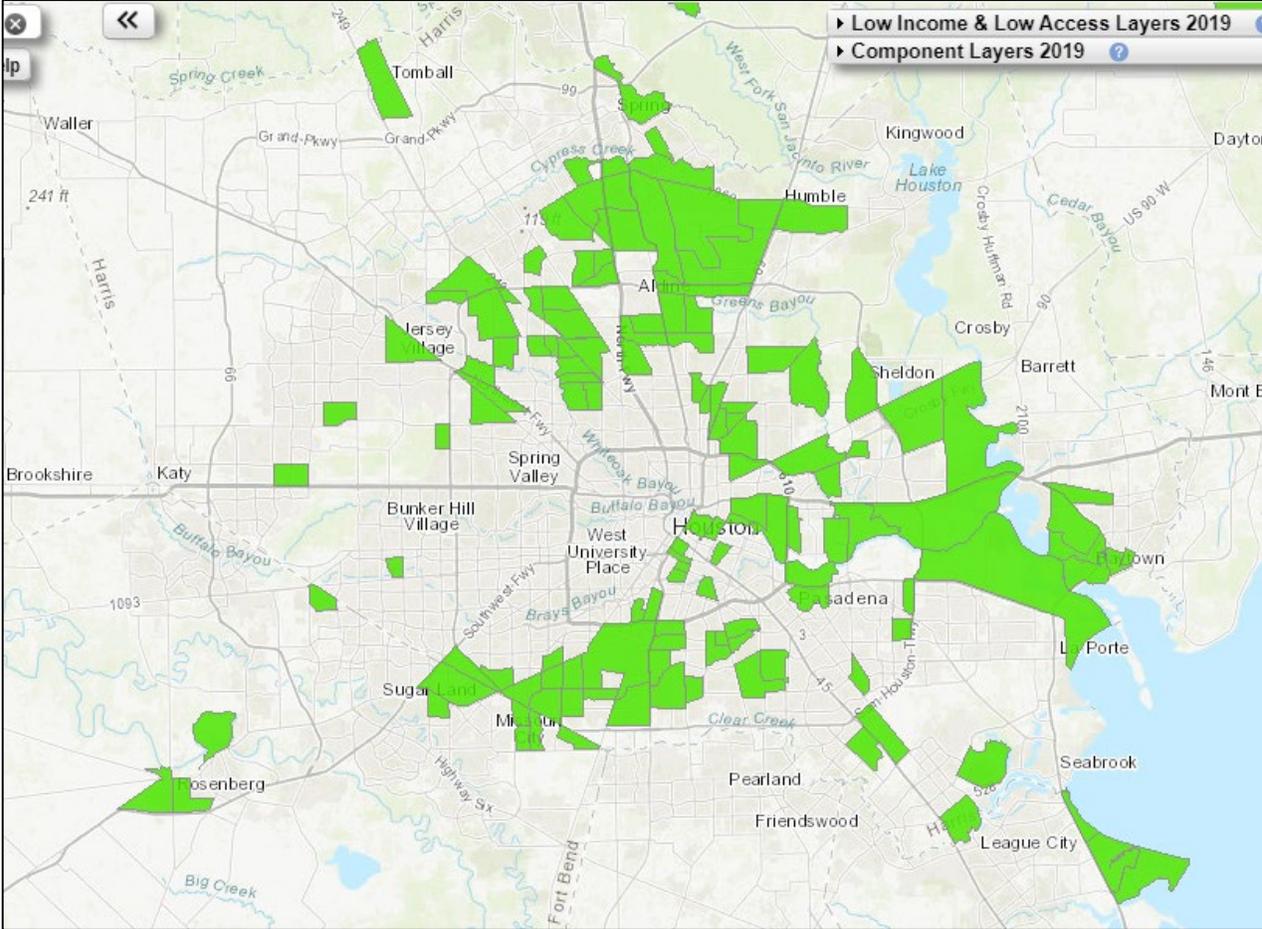


Houston can be a case study

- Harris County, the 3rd most populous county in the U.S
- Houston is one of the most racially/ethnically diverse large metropolitan area (42% Hispanic, 31% White, 19% Black, 8% Asian/Other)
- Houston, with the nation's highest rate of medically uninsured
 - ~ 39% of Harris County residents uninsured
 - an estimated 1.27 million people living below the federal poverty level.
- Household food insecurity rate – about 17%
- Child food insecurity rate – about 26%
- 65.6% children are eligible for Free School Lunch
- More than 750,000 Houston residents live in the USDA's designated food deserts.



Food deserts and food pantries across Houston, TX



Community Engagement Process

- Previous study collaboration
- Fresh produce access was limited in quality, quantity and variety
- Pitched the idea of hydroponic farming
- USDA funded grant
- Key stakeholders
 - Key community members
 - Advisory board (research, hydroponics, agricultural economics, legal/ethical)
 - Food pantry managers/staff
 - Food pantry clients



Resources for food pantries

- Videos
 - What is hydroponics and how it works?
 - What logistics need to be considered (power and water supply, nutrients, staff, etc.)
- Presentation
- Articles (other food pantries using hydroponics)



Interviews

- Staff at 5 food pantries were interviewed
- Interviews took place over Zoom
- Digitally recorded
- Recordings were transcribed
- Important concepts/themes were identified



Availability and accessibility of food

Food shortages, being in a food desert, other grocery stores

“It’s us, it’s Kroger, it’s corner stores. You don’t get the first HEB for another 5 miles I would say.”

“we are the only food pantry in a five-block radius, so we get a lot of that clientele.”

“All of the communities that we’re established to serve are located in food deserts.”



Produce procurement

Partnership with the food banks, grocery stores, local farmers, restaurants, private businesses and donations, occasional purchases

“Our main source has been the food bank”

“I do not purchase anything, I do have a small budget if I would have to, but for me, I try to resource everything we can.”

“We pick up from 23 different retailers during the course of the week. So we’re bringing in fresh seven days a week. We get the bagged retail produce, the cut up fruits and vegetables, that kind of stuff. We have variety, but the problem is, a lot of that stuff will be end of life, and so by the time people get it home, if they consume it that day, or the next day, it’s not really viable.”

Available produce

- Canned – peas, vegetables, pinto beans, corn, artichoke hearts
- Fresh – broccoli, iceberg lettuce, onions, potatoes, carrots, zucchini
- Frozen – carrots, peas, corn, onions

“Most of it is going to be canned. More than 50% canned. Fresh is very variable and again that shelf life.”

“During the winter, during fall and winter, around this time, we get lots of... squash, pumpkins, potatoes, onions. We get lots of those. We almost always have, especially potatoes and onions. But you really want to give people more variety? I mean, really? Do they really need 10 pounds of potatoes every time they come? I don't think so.”

Available education resources

Some - fixed curriculum, possibility of a nutritionist/dietician visiting

“Texas A&M, the Agrilife, they actually wrapped up an English cohort probably a month ago, and then Houston Food Bank is coming in actually this Thursday to do something in Spanish.”

“Well, through the use of food bank, we can partner up with a nutritionist. And then, we do have some certified social workers, they would be able to volunteer X number of hours. I don't know how many.”



Hydroponic farming thoughts

- Crops of interest to the clients
 - Bell pepper
 - Lettuces
 - Berries
 - Herbs (cilantro, parsley, lemongrass)
 - Dark leafy vegetables



Hydroponic farming thoughts

Positive attitude towards hydroponic farming

“we get the messages almost twice a month from USDA and the National Food Department that there will be a food shortage and also from Houston Food Bank. And I think we need to get prepared for that and with hydroponic we'll be able to manage that more effectively.

“...you have to understand, most of them are parishioners themselves from our church next door. So the sense of product that you get from your own parish doing this and being at the forefront of nutrition is priceless.”

“to be able to provide hydroponic produce at low to no cost at all would be a dream come true.”



Hydroponic farming thoughts

Concern – client education, subsidizing power and water, staggered produce, funding

“I do maybe envision some sort of client education portion where we teach, not how use it, but different ways of using it. So they don't get bored using it for the same thing.”

“I would be interested as would my board as far as subsidizing the electricity, the water, a staff person that would know how to do those kind of things.”



Next steps

- Further coding of collected qualitative data
- Sensory testing with food pantry clients (n=60)
- Survey on food access, food assistance program participation, and dietary intake among food pantry clients (n=60)
- Interviews with food pantry clients on current situation of food access and availability within their home and the community and benefits and barriers of hydroponic farming at the food pantries (n=30)

- Large scale intervention



Take away: CEnR

For researchers:

- Improved study design
- Enhanced data quality
- Increased trust and acceptance
- Ethical considerations and conduct
- Enhanced collaboration
- Enhanced participation
- Community feedback
- Research validity

For community:

- Relevance and contextualization
- Community involvement, empowerment, ownership
- Capacity building
- Minimized harm
- Tailored interventions
- Policy and practice impact
- Cultural sensitivity
- Long-term sustainability



Best Practices

- Form strong and lasting partnerships with community organizations and leaders
- Focus on cultural sensitivity and awareness when working with diverse communities
- Be flexible and cognizant of community's need and wants
- Involve the community in research ensuring relevance and ownership
- Acknowledge contributions and recognize the legitimacy of the partnership.



Acknowledgements

Collaborators

- Debbe Thompson (CNRC)
- Tzuan Chen (University of Houston)
- Ariun Ishdorj (Texas A&M University)

Dave Lab

- Mamie White
- Alexandra Castro
- Alice Sun (Rice intern)
- Catherine Cook (Rice intern)

Community Partners

- Houston Food Bank
- Food pantries

Funding:

- USDA 3092-51000-058-2S
- USDA 2020-67023-31636



Thank you!

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