Where Health & Horticulture Intersect: A Navajo Wellness Collaboration

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Thank You!

- Communities of Shiprock and Crownpoint
- Office of Youth Development and Dream Diné
- NNHRRB
Project Overview

• 3 year pilot project
• Two community-based gardens
  – Dream Dine Charter School, Shiprock, NM
  – Office of Dine Youth, Crownpoint, NM
• Survey
  – 4 assessment time points
• 2 summer gardening workshop series
• Main research question: Would a community garden in your community influence you to change how you eat or how you feel about gardening?
Long term goal and context

Enhance the consumption of fresh produce among the Navajo (Diné) people and their neighbors, in order to reduce the rate of diabetes and reduce cancer risk in the context of local food production.

- The U.S. Department of Agriculture has labeled the entire Navajo Nation a "food desert," because of the lack of healthy foods.
- The Navajo Nation is the largest reservation in the United States, roughly the size of West Virginia - it only has 10 grocery stores.
- 1 of 3 Navajo people suffers from diabetes (Indian Health Service)
Attitudes about Gardening

- Health benefits of gardening
- Nutrition
- Economic benefits of gardening
- Gardening was important in the past.
  - Some younger generations didn’t seem to view it as a top priority. Why farm?
  - Others were very interested in reconnecting

"I think with the extra movement, hoeing, weeding, it would be good exercise although it would be healthier to eat more fruit and vegetables if it’s ongoing”

Ramah Chapter (Pine Hill, NM)
Specific Aims

• Develop a multi-component intervention that integrates community gardens, educational workshops and community outreach components in Navajo communities;

• Estimate the effects of an integrated intervention on adoption and frequency of gardening practices, vegetable and fruit intake amongst participating communities

• Estimate the effects of an integrated intervention on self-monitoring, self-efficacy, behavioral capability, and social norms related to gardening and vegetable and fruit consumption
## Project Progress and Timeline

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**Legend:**
- **Garden**
- **Infrastructure enhancement** (irrigation/hoop house)
- **Workshops version 1**
- **Workshops version 2**
- **Survey Timepoint**
Gender, Age, and Marital Status

Gender
- Male: 30%
- Female: 70%

Age
- 18-29: 27%
- 30-39: 22%
- 40-49: 22%
- 50-59: 17%
- 60+: 12%

All About Discovery!™
New Mexico State University
nmsu.edu
Language, Education, and Employment

Language
- English only 13%
- English = Navajo 28%
- English > Navajo 50%
- Other 2%

Education
- HS diploma/GED at most 29%
- Some college/vocational degree 57%
- College degree 13%

Employment status
- Year round 32%
- Day/seasonal 23%
- Other 45%
Priliminary Results

• Pre-post analysis showed the intervention increased the frequency of gardening activities. There were no changes in vegetable and fruit consumption.

• Explicit focus on healthy eating is needed.
  – 58% report 2 or fewer fruits and vegetables daily
• Frequency of gardening increased most in Crownpoint
• Is this because Crownpoint is not located in a farming area?
Gardened in the last year

P = 0.13

P = 1.00

Crownpoint

0.35

0.29

n = 17

Shiprock

0.43

0.67

n = 15

Pre-Intervention

T2
Abbreviated FFQ

- Crownpoint: Pre-Intervention = 4.62, T2 = 4.03, $P=0.76$, $n=17$
- Shiprock: Pre-Intervention = 3.79, T2 = 3.89, $P=0.98$, $n=15$
Single item FFQ

P = 0.95

2.47
2.59

Crownpoint
n = 17

P = 0.41

2.13
1.87

Shiprock
n = 15

Pre-Intervention
T2
Barriers to Gardening: Shiprock

Prairie dog predation decimated Shiprock garden in 2014

- Animals: 31%
- Insects or Pests: 23%
- Weeds: 14%
- Wind: 5%
- Other (e.g., Water right issues, lack of time and livestock): 17%
- No Space Available: 10%
- Other (e.g., Water right issues, lack of time and livestock): 17%
Financial barriers to gardening: Crownpoint and Shiprock

Emphasize water conservation:
- Native plants
- Water conserving technologies

NTUA Water Usage Charge
- First 3,000 gallons: $3.91 per 1,000 gallons
- All Additional gallons: $ 6.05 per 1,000 gallons
- According to the NTUA water consumption fee, the cost of watering a 2,000 sq. ft. garden that received 816.5 gal over 21 days equaled $3.19
Financial barriers to gardening: Crownpoint and Shiprock

Cost of fencing:
- Not at all: 20%
- A little: 26%
- A lot: 54%

Cost of tools:
- Not at all: 33%
- A little: 37%
- A lot: 30%
Summary

- Implemented and evaluated community garden intervention in 2 Navajo communities.
  - Recruited 186 participants from 161 households, who completed at least one survey
  - 300 participants attended at least one of 17 workshops
  - Constructed 10 garden beds and 1 greenhouse
- Conducted qualitative ancillary study to further assess barriers to gardening and healthy eating (N = 16)
- Students at San Juan College, Dine College and Fort Lewis College interested in regional health disparities
• **Limitations:** Our intervention was not intensive enough

• **Present Work:** In conjunction with focus groups, we are engaging adults through the family

• **Future Directions:** Attempt to estimate gardening intervention effect (note there are many programs around gardening – few with formal evaluation).

• Responsive to area of interest among Navajo (Gardening is becoming more prominent on the Navajo Nation)
Food is Medicine: Examples of Warm Season Crops: Fruit are consumed

- Tomato
- Beans
- Peppers
- Corn
Examples of Warm Season Crops: Fruit are consumed
Examples of Warm Season Crops: Generally Fruit are Eaten
Examples of Cool Season Crops: Generally Roots and Leaves Eaten
Examples of Cool Season Crops: Generally Roots and Leaves Eaten

- Broccoli
- Cabbage
- Kale
Examples of Cool Season Crops: Generally Roots and Leaves Eaten
Examples of Cool Season Crops: Roots and Leaves Eaten
Examples of Cool Season Crops: Roots and Leaves Eaten

- Radish
- Beets
- Peas
QUESTIONS?

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