



# People's Garden School Pilot Program

2013 Galaxy Conference, Pittsburgh

Brad Gaolach & Martha Aitken



Cornell University  
Cooperative Extension



Project Overview  
Research  
Implementation  
Preliminary Results



# Project Overview



# Project Parameters



- USDA/FNS funded project
  - \$1 million, 2.5 years
  - Pilot
- Research Project
- 3-5 States, by population
  - 1 each from high (WA, NY); medium (IA); and low (AR).
- Schools having: 50%+ students receiving free & reduced price meals, & no existing gardens



# Guiding Philosophy

## Strengths of the Land Grant University

- Office serving every county
- Local Extension Educators and volunteers, with expertise in:

- Nutrition (e.g. SNAP-Ed)
- 4-H/Youth Development,
- Community-based Horticulture (e.g. Master Gardener Volunteers)

- Gardening and lessons locally adaptable to climate and classroom needs
- Build ‘community’ with additional local partners



# Project Partnership



- **National Project Leadership Team:**

- Washington State University Extension  
Brad Gaolach, Martha Aitken, Karen Barale
- Cornell University Cooperative Extension – New York City/Cornell University  
Gretchen Ferenz, Caroline Tse, Nancy Wells
- Iowa State University Extension  
Nancy Franz, Karen Pattison, Cayla Taylor, Janet Toering, Linda Naeve
- University of Arkansas Cooperative Extension  
Laura Connerly, Janet Carson, Julie Treat

- **54 Schools**
- **Local Volunteers**
- **Extension Educators**



# Research



# Cornell University Research Team



- Nancy M. Wells, PhD, Lead Researcher, Associate Professor, Design & Environmental Analysis (DEA), Cornell University
- Beth Myers, doctoral student, DEA
- Jennifer Wilkins, PhD, Division of Nutritional Sciences
- Charles Henderson, MS, Human Development (Statistician)
- Cornell Research Associates



# Research Questions

**RQ 1:** Does Fruit & Vegetable (FV) consumption at school increase as a result of garden participation?

**RQ 2:** Does FV consumption at home increase as a result of garden participation?

**RQ 3:** Does preference for FV change as a result of garden participation?

**RQ 4:** As a result of their involvement with the garden program, were there changes from baseline to follow-up in children's: FV knowledge; Engagement and participation in learning; Time spent outside, and amount of physical activity?

**RQ 5:** What mediating variables explain linkages from program activities to medium-term outcomes? e.g, Increased availability of FV at home, increased availability of FV at school.



# Evaluation Questions

**EQ 1:** Document the *development and operation* of school gardens serving high-poverty schools in four geographically diverse areas.

**EQ 2:** Record the *varieties of fruits and vegetables* planted and the quantity produced in the gardens.



# Research Methods

- **Randomized Controlled Trial**
- **Schools Randomly Assigned to:**
  - Intervention – rec'd gardens in Spring 2012 OR
  - Wait list Control – receive gardens in late Spring 2013
- **Four Waves of Data Collection:**
  - Baseline Fall 2011
  - Wave 2 Spring 2012
  - Wave 3 Fall 2012
  - Wave 4 Spring 2013
- **Urban and rural schools**
- **Geographic differences**



# Assessing Diet: multiple measures



	None <input type="checkbox"/>	1-3 servings last week <input type="checkbox"/>	4-6 servings last week <input type="checkbox"/>	7 servings last week <input type="checkbox"/>	8 or more servings last week <input type="checkbox"/>
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	None <input type="checkbox"/>	1-3 servings last week <input type="checkbox"/>	4-6 servings last week <input type="checkbox"/>	7 servings last week <input type="checkbox"/>	8 or more servings last week <input type="checkbox"/>

SURVEYS, at SCHOOL

Name \_\_\_\_\_ Age \_\_\_\_\_ Date \_\_\_\_\_

	None <input type="checkbox"/>	1-3 servings last week <input type="checkbox"/>	4-6 servings last week <input type="checkbox"/>	7 servings last week <input type="checkbox"/>	8 or more servings last week <input type="checkbox"/>
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	None <input type="checkbox"/>	1-3 servings last week <input type="checkbox"/>	4-6 servings last week <input type="checkbox"/>	7 servings last week <input type="checkbox"/>	8 or more servings last week <input type="checkbox"/>

SURVEYS, at HOME



LUNCH TRAY PHOTOS  
(objective measure)



# Objective Measurement: Lunch tray Photography



# Analyze Pairs of Trays Before & After Lunch



- Take 3 days of before/after photos of student's lunch for digital analysis
- Measures Consumption

Roger M. Echon, PhD, Social and Health Research Center, 1302 South Saint Mary's Street, San Antonio, TX

# Additional Information Collected

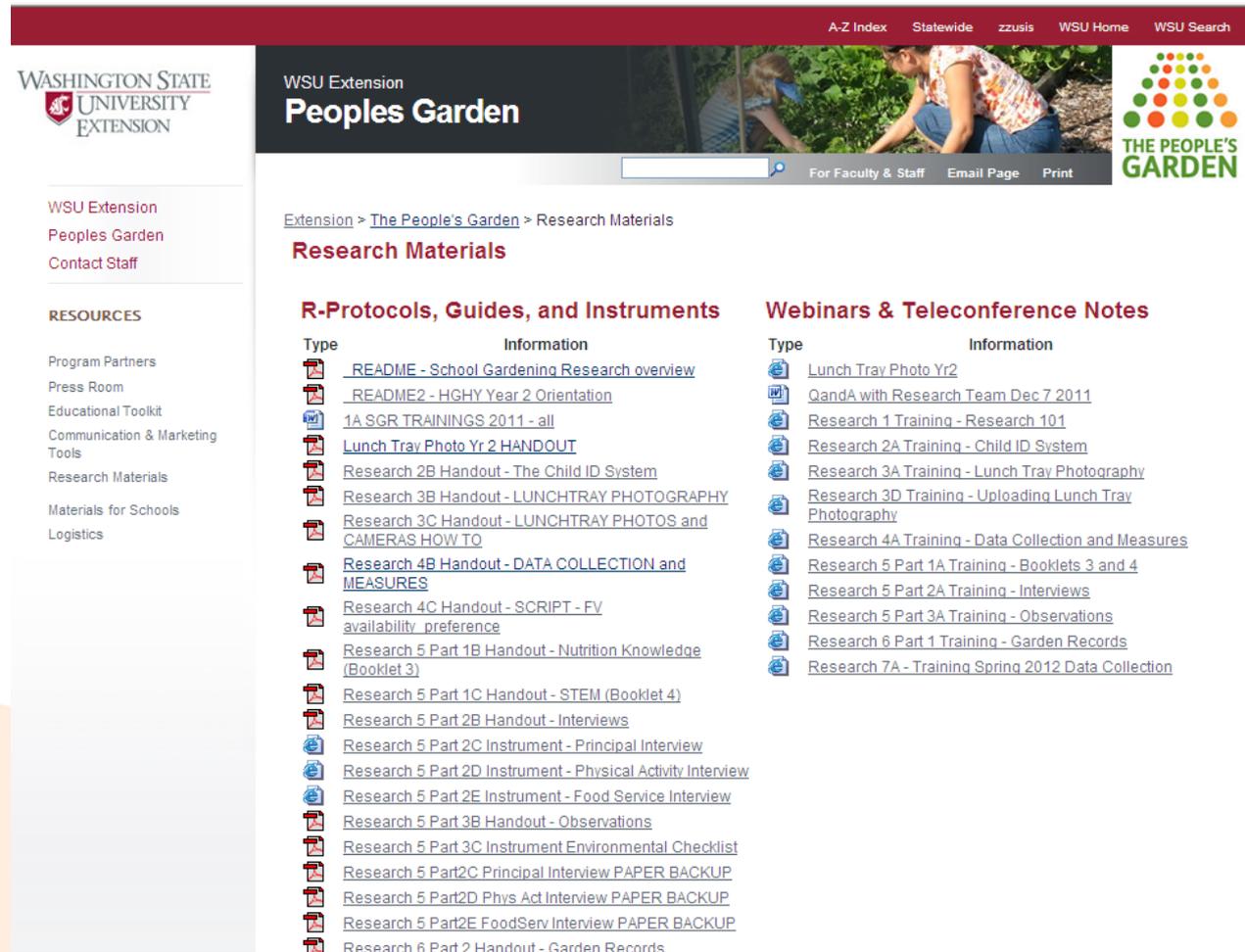
- 10 days of Lunch Menus (must include the 3 days photos were taken)
- 10 days of 'Production Records' from Cafeteria Staff (must include 3 days photos were taken)
- Classroom demographic information
- Classroom weekly schedule
- Principal Interview
- School Environment Assessment – cafeteria, gym, playground
- Garden Records
  - Garden Activities
  - Garden Production

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
2-E Egg Salad in a WW Wrap Or Chicken Nuggets Plain or Buffalo Tater Tots Chilled Fruit Cup	3-F Chicken Caesar Salad with Breadsticks Or Chicken Patty Italiano With Mozzarella Cheese on a WW Bun Corn Niblets	4-A P. Chef Salad with Breadsticks Or Hot Ham and American Cheese on a WW Wrap Steamed Squash Chilled Fruit Cup	5-B Turkey and Swiss On Whole Wheat Bread Or Chicken Fajita with Black Beans and Salsa White Rice Chilled Fruit Cup	6-C Whole Wheat Pizza Square Small Tossed Salad Low Fat Dressing Chilled Fruit Cup
9-D Tuna Salad in a Whole Wheat Wrap Or Baked Chicken Patty on a WW Bun Green Beans Chilled Fruit Cup	10-E Turkey Salad on a Bed of Lettuce Or Cheesy Baked Mac and Cheese Steamed Squash Chilled Fruit Cup	11-F Buffalo Chicken Salad with Cheese and Breadsticks Or Baked Mozzarella Sticks With WW Bread Slice Sweet Peas Fresh Apples	12-A Turkey and American On a WW Roll Or Soft Turkey Taco with Lettuce, Cheese & Salsa Chilled Fruit Cup	13-B Whole Wheat Pizza Square Cucumber Coins Low Fat Dressing Fresh Apples
16-C Chicken Caesar Salad With WW Bread Slice Or Chicken Nuggets Plain or Buffalo WW Bread Slice Corn Niblets	17-D P. Chef Salad Boiled Egg With CROUTONS Or Chicken Patty Parmesan On a Whole Wheat Bun Green Beans Apples	18-E Buffalo Chicken Salad with Cheese and Breadsticks Or Grilled American Cheese on WW Bread Candy Sticks Apple Sauce	19-F Ham & Swiss on a WW Roll Or Pizza Bagel with Mozzarella Cheese With Spinach Chilled Fruit Cup	20-A Whole Wheat Pizza Square Cantaloupe Low Fat Dressing Chilled Fruit Cup
23-B Crunchy Chicken Salad With Cheese Bread Sticks Or Baked Chicken Patty on a WW Bun Green Beans Chilled Fruit Cup	24-C Chef Salad with Egg and Breadsticks Or Mozzarella Sticks W Sauce Bread Slice Corn Niblets Chilled Fruit Cup	25-D Chicken Caesar Salad With CROUTONS Or Sopranos with Meat Sauce Small Spinach Salad Chilled Fruit Cup	26-E Buffalo Chicken Salad With Cheese and Breadsticks Or Hot Ham and American Cheese in a WW Wrap Green Beans	27-F Whole Wheat Pizza Square Small Tossed Salad Low Fat Dressing Chilled Fruit Cup
30 School Closed Memorial Day	31-A Crunchy Chicken Salad With Cheese and Breadsticks Or Soft Turkey Taco With Lettuce and Cheese Salsa			



# Training on Research Protocol and Instruments for Extension Educators

- Training Webinars
- Written Guidance



The screenshot displays the WSU Extension Peoples Garden website. The header includes navigation links for A-Z Index, Statewide, zzusis, WSU Home, and WSU Search. The main content area is titled "Research Materials" and is divided into two columns: "R-Protocols, Guides, and Instruments" and "Webinars & Teleconference Notes".

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[Extension](#) > [The People's Garden](#) > Research Materials

### Research Materials

R-Protocols, Guides, and Instruments		Webinars & Teleconference Notes	
Type	Information	Type	Information
	<a href="#">README - School Gardening Research overview</a>		<a href="#">Lunch Tray Photo Yr2</a>
	<a href="#">README2 - HGHY Year 2 Orientation</a>		<a href="#">QandA with Research Team Dec 7 2011</a>
	<a href="#">1A SGR TRAININGS 2011 - all</a>		<a href="#">Research 1 Training - Research 101</a>
	<a href="#">Lunch Tray Photo Yr 2 HANDOUT</a>		<a href="#">Research 2A Training - Child ID System</a>
	<a href="#">Research 2B Handout - The Child ID System</a>		<a href="#">Research 3A Training - Lunch Tray Photography</a>
	<a href="#">Research 3B Handout - LUNCHTRAY PHOTOGRAPHY</a>		<a href="#">Research 3D Training - Uploading Lunch Tray Photography</a>
	<a href="#">Research 3C Handout - LUNCHTRAY PHOTOS and CAMERAS HOW TO</a>		<a href="#">Research 4A Training - Data Collection and Measures</a>
	<a href="#">Research 4B Handout - DATA COLLECTION and MEASURES</a>		<a href="#">Research 5 Part 1A Training - Booklets 3 and 4</a>
	<a href="#">Research 4C Handout - SCRIPT - FV availability preference</a>		<a href="#">Research 5 Part 2A Training - Interviews</a>
	<a href="#">Research 5 Part 1B Handout - Nutrition Knowledge (Booklet 3)</a>		<a href="#">Research 5 Part 3A Training - Observations</a>
	<a href="#">Research 5 Part 1C Handout - STEM (Booklet 4)</a>		<a href="#">Research 6 Part 1 Training - Garden Records</a>
	<a href="#">Research 5 Part 2B Handout - Interviews</a>		<a href="#">Research 7A - Training Spring 2012 Data Collection</a>
	<a href="#">Research 5 Part 2C Instrument - Principal Interview</a>		
	<a href="#">Research 5 Part 2D Instrument - Physical Activity Interview</a>		
	<a href="#">Research 5 Part 2E Instrument - Food Service Interview</a>		
	<a href="#">Research 5 Part 3B Handout - Observations</a>		
	<a href="#">Research 5 Part 3C Instrument Environmental Checklist</a>		
	<a href="#">Research 5 Part 2C Principal Interview PAPER BACKUP</a>		
	<a href="#">Research 5 Part 2D Phys Act Interview PAPER BACKUP</a>		
	<a href="#">Research 5 Part 2E FoodServ Interview PAPER BACKUP</a>		
	<a href="#">Research 6 Part 2 Handout - Garden Records</a>		



# Implementation



# Concept for an Educational Toolkit

- No curricula development
- Review existing quality curricular resources
- Select lessons, activities, and other items to match our objectives & criteria
- Compile all materials into an easily accessible 'toolkit'



# Toolkit Development

## Established Criteria for Toolkit Content

Experiential learning

Age appropriate

Research-based content

Science, Technology, Engineering and Math (STEM) area focus

Enrich classroom instruction

Support the school garden

Developed strategy for review process

Reviewed 17 curricula

Selected lessons and other resources



# Toolkit components



- Lesson plans with activities, snack suggestions & recipes
  - 11 lessons each for 2<sup>nd</sup> & 4<sup>th</sup> grades for Year 1
  - 9 lessons each for 3<sup>rd</sup> & 5<sup>th</sup> grades for Year 2
  - Lessons aligned with Common Core Standards in all subjects
- Supporting Resources:
  - Using garden produce in school food services
  - Food safety in the garden



# Garden Implementation and Beyond Guide

*Provides instructions on how to:*

- Create, plan, plant and maintain the garden through the school year
- Garden during the summer
- Engage volunteers
- Build community capacity
- Sustain and grow a school garden program

## IMPLEMENTATION AND BEYOND: A GUIDE TO CULTIVATING A THRIVING SCHOOL GARDEN

*This section serves as an addendum to the Educational Toolkit and may be used as a resource on its own.*

### INTRODUCTION

While this Educational Toolkit is specifically written for the close to 60 schools taking part in the **Healthy Gardens, Healthy Youth (HGHY)** pilot program, the content and curriculum within are intended to be applicable to and eventually made available to any school and any garden seeking to incorporate youth into gardening programs.

There are thousands of excellent resources and garden-based learning curricula available from many organizations. Rather than write new material, a main purpose of this project was to bundle some of the best garden-based learning curricula into one user-friendly toolkit. Similarly, to create the **Implementation and Beyond** guide, we reviewed already written resources, slightly adapted them when necessary, and compiled them into one comprehensive





# The People's Garden School Pilot Project

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## About The People's Garden School Pilot Project

The "Healthy Gardens, Healthy Youth" School Pilot Project is an Extension partnership that aims to engage more than 4,000 elementary students in creating vegetable & fruit gardens in 54 low-income schools, as part of a 2.5-year research study.

... [more v](#)

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[globe](#) WSU People's Garden Site

[USDA](#) USDA People's Garden Site

[ISU](#) Growing in the Garden Curricula

Created by [ExtSchoolGarden](#)

Latest Activity [Jan 30, 2012](#)

Date Joined [Jan 19, 2012](#)

... [more v](#)

## Grade 2: Lesson 3: Our Food Garden Plan

93

by ExtSchoolGarden 1 month ago

# Extension Educators

- **University of Arkansas Cooperative Extension**  
Robin Bridges, David Carwell, Keith Cleek, Mitch Crow, Kevin Norton, Sara Sowell, Fran Tomerlin, Anthony Whittington
- **Cornell University Cooperative Extension**  
Zahrine Bajwa, Mary Lee Bourbeau, Donna Alese Cooke, Susan Coyle, Jeanne Darling, Valerie Dudley, Caroline Kiang, Denise Kolankowski, Chris Logue, Amie Matchak, Ellen Sergel
- **Iowa State University Extension**  
Kim Brantner, Cheryl Connor-Perez, Sue Cook, Kendra Crooks, Bryan Foster, Leslie Kauffman, Mary Kramer, Jacki Luckstead, Janet Martin, Karen Pattison, Daleta Thurness, Sharon Wasteneay
- **Washington State University Extension**  
Barb Schreibe, Kerri Wilson, Lisa Hervieux



# Unique challenges

- Schools
  - Academic pressures
  - Transition to Year 2
- Nutrition services
  - Subcontractors suspicious
  - New nutrition guidelines
  - Food safety concerns
- Educator workload and project timing
- Local adaptability vs. research



# During the project, 24 educators:

## Collected:

- 86,000 surveys
- 129,000 pre and post lunch tray photos
- 2,000 cafeteria production records

## Implemented:

- 4,000 educational toolkit lessons

## Planted:

- 6,200 square feet of gardens

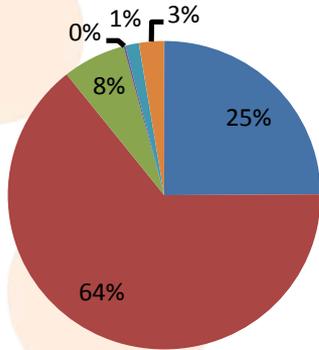


# Preliminary Results\*

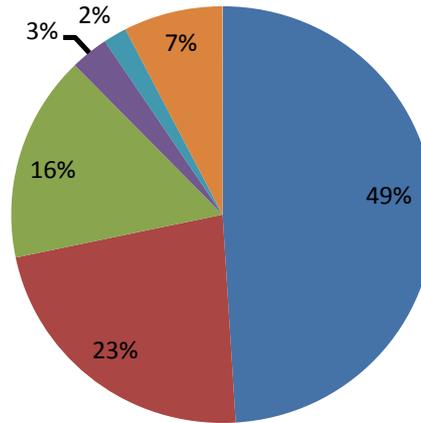
\*Results do not include analysis of all data periods &/or data elements. Results & outcomes may change significantly upon complete analysis.



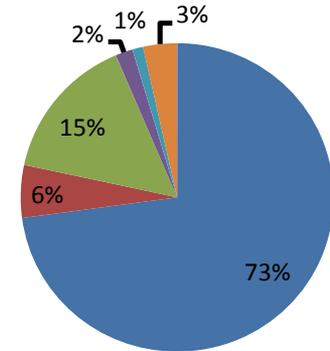
# Ethnicity of Participants



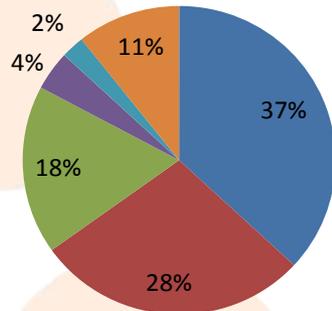
**Arkansas**  
(n=494)



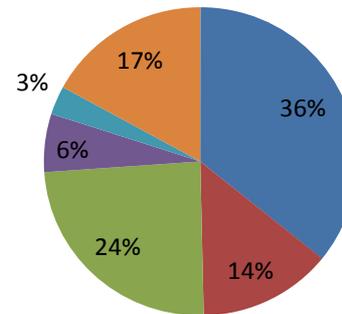
**All States**  
(n=2,905)



**Iowa**  
(n=1,160)



**New York**  
(n=723)



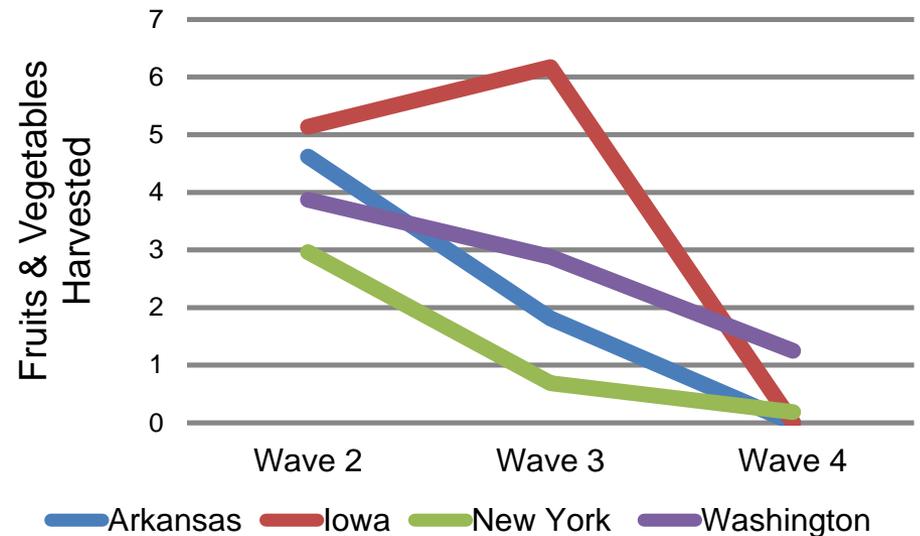
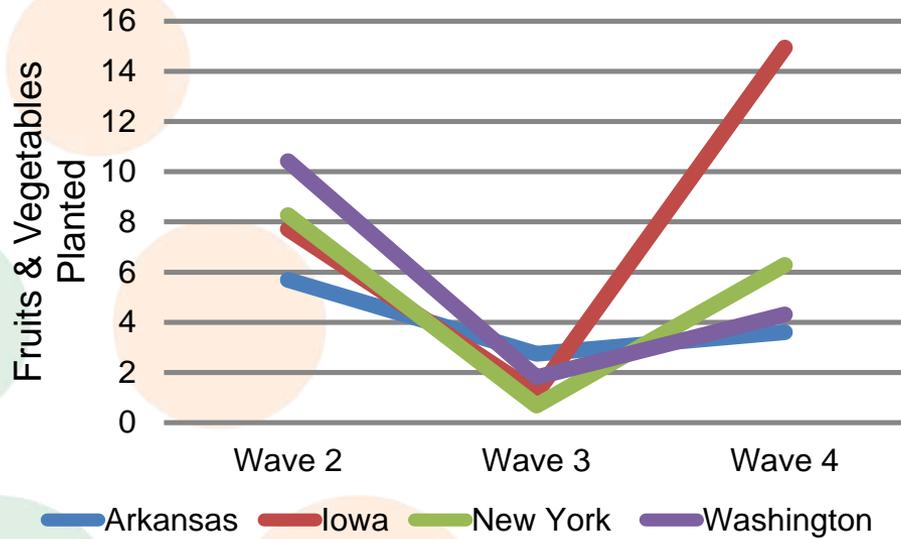
**Washington**  
(n=557)



Wave 1 (Fall 2011)

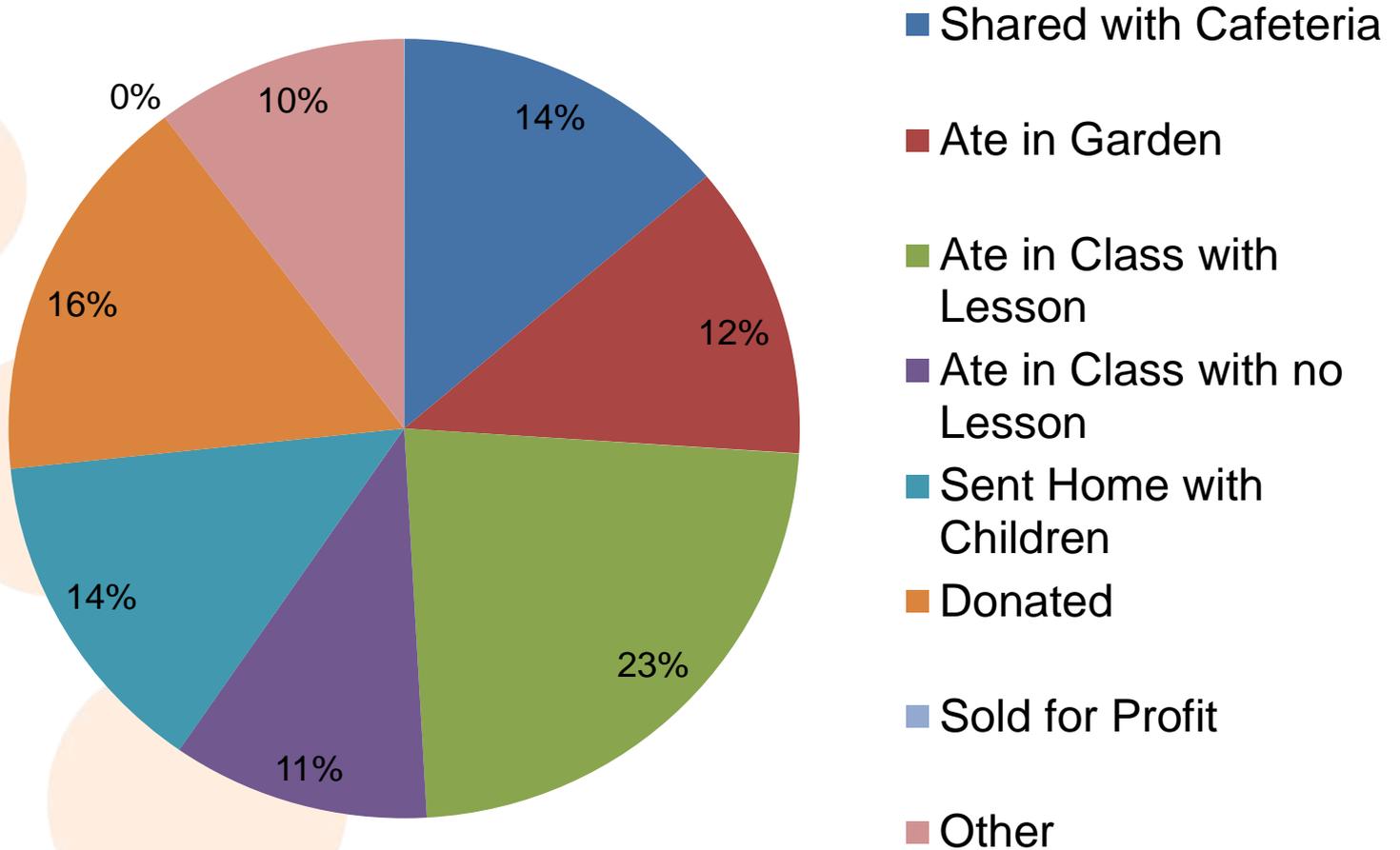


# Variety of Fruits & Vegetables, Waves 2 – 4



(n=239 classes)

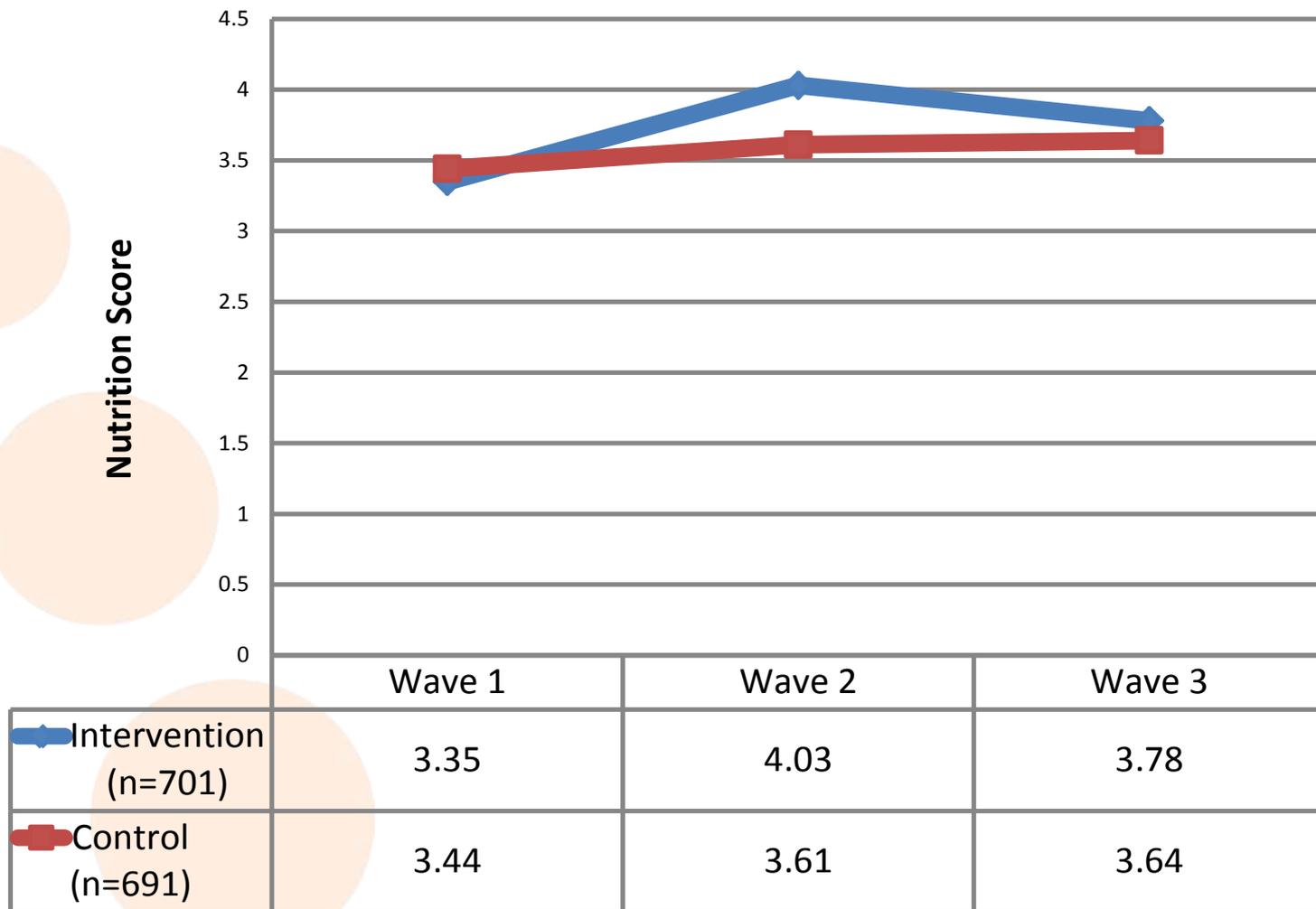
# Harvest Distribution, Waves 2 – 4



(n=239 classes)



# Nutritional Knowledge, Waves 1 – 3



# Project Timeline

- April 2011
  - Project Pre-Planning
- Fall 2011
  - Pre-Garden Data Collection Activities (*all schools*)
- Spring 2012
  - Garden Creation (*intervention schools*)
  - Data Collection (*all schools*)
- Fall 2012
  - Gardening (*intervention schools*)
  - Data Collection (*all schools*)
- Spring 2013
  - Gardening (*intervention schools*)
  - Data Collection (*all schools*)
  - Garden Creation (*control schools*)
- *Summer 2013 - Spring 2014*
  - Data analysis
  - Make toolkit available
  - Disseminate results



# Questions?

## Follow the Project:

Project website:

[peoplesgarden.wsu.edu](http://peoplesgarden.wsu.edu)

Facebook:

[www.facebook.com/HealthyGardensHealthyYouth](http://www.facebook.com/HealthyGardensHealthyYouth)

YouTube channel:

[www.youtube.com/user/ExtSchoolGarden](http://www.youtube.com/user/ExtSchoolGarden)



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