

# For the Love of Locally Grown Squash

A case study of incorporating local produce into a New England school district

Virginia Rall Chomitz, PhD, Dawn B. Olcott, MS, Josefina Wendel, MS, RD, LDN, Claire Kozower, MS, Stephanie Shapiro Berkson, MPH, Jane Smillie, Hannah Freedberg, Amber Espar, Jack Mingle

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# Purpose of Study

- To describe “what it took” to place one locally grown vegetable on school menu
- Evaluate feasibility and acceptability of squash recipe:
  - School Food Service
  - Students
  - Local producers (farmers)



# Cambridge Public School District (Study Setting):

- **12 K-8<sup>th</sup> grade schools (2 schools share a kitchen)**
  - Total student enrollment: ~4,000
  - 1 food service director for all schools
  - 11 kitchen heads (1 per kitchen)
  - 62 total food service staff
- **Diverse student body**
  - African American or black: 36%
  - Asian: 11%
  - Hispanic or Latino: 15%
  - White: 36%
  - Other: 2.5%
  - Eligibility for free or reduced-priced lunch: 43%



# Grants That Enabled Work

- Growing Healthy Collaborative: Farm to School to Home (USDA CFP Grant 2005-2008)
- Tasty Choices Grant (MA DPH Grant 2006)
- Carol S. White Physical Education for Progress Grant (US DOE PEP 2004-2007)



# Why We Undertook This Issue

- Sustainable agriculture issue: Massachusetts agricultural land lost—local food production decrease
- Public health issue: Children facing overweight epidemic and low fruit and vegetable consumption



# Why We Undertook This Issue

Farm-to-school is an ideal way to bridge sustainable agriculture & public health

- Benefits to farmer and community: Purchase of local produce
  - Supports local farm economy
  - Schools are large, reliable, stable market
- Benefits for public health: Promotion of fruit and vegetables
  - School houses captive audience of children & adolescents
  - Opportunity to also reach families

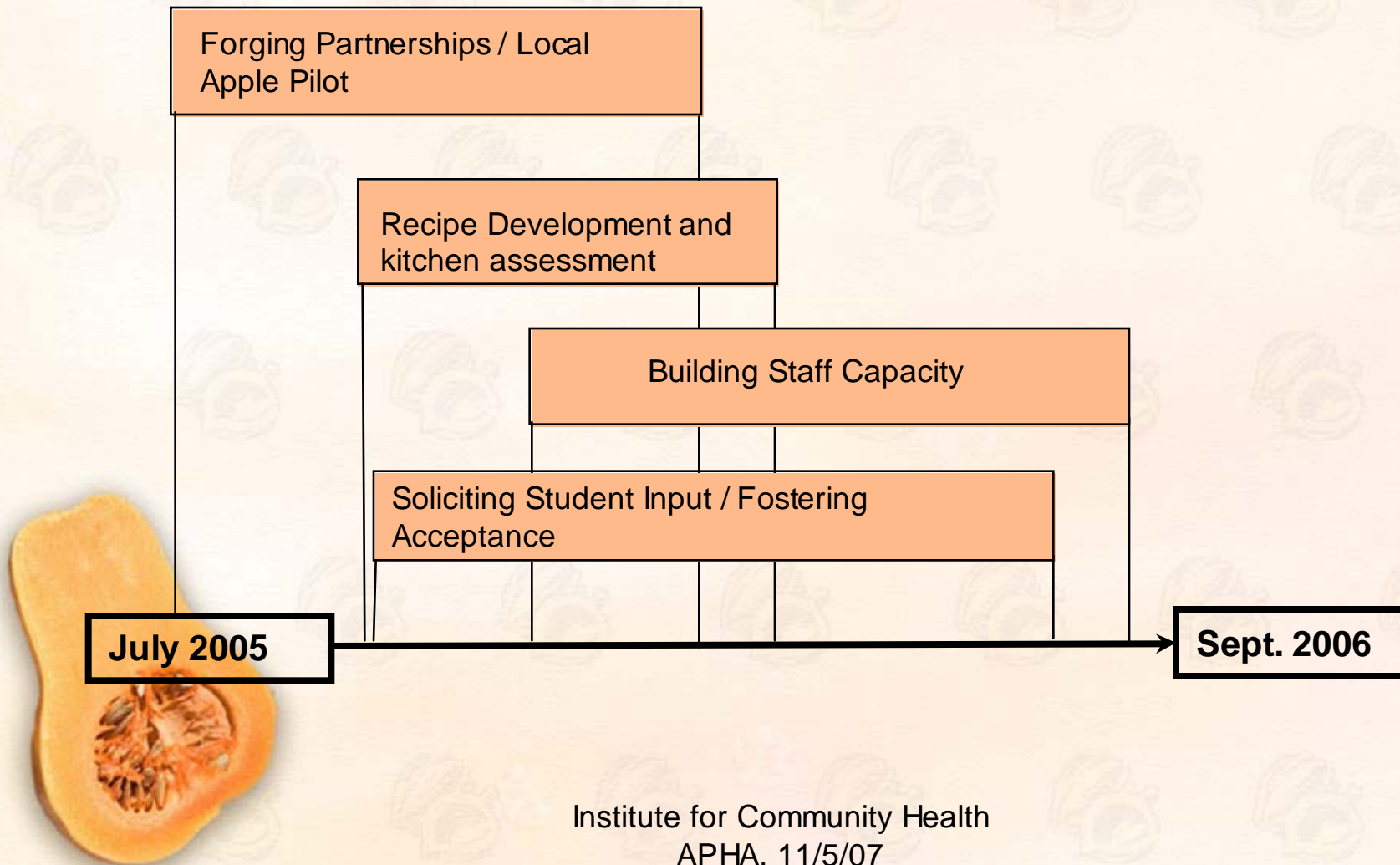


# Methods

- Describe process to incorporate locally grown vegetables onto school lunch menu
- Mixed methods to assess feasibility and acceptability
  - Farmer: qualitative interviews
  - Students: cafeteria “voting”, focus groups, in-class survey
  - Food service: records review, observational assessment, interviews



# What it took: Timeline



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# What it took:

## Forging Partnerships / Local Apple Pilot

- Farmer identified through MA Dept. of Agriculture Resources
- Identified feasibility issues such as:
  - Cost
  - Transportation
  - Procurement
  - Billing
- Started apple pilot to test farm to school system



# What it Took:

## Recipe Development and Kitchen Assessment

- Chef hired with school experience
- Butternut squash identified as appropriate:
  - Nutritionally dense
  - Available most of the year
- On-site kitchen assessments of equipment needs and staff training
- Cooking trials at 4 schools to test feasibility of recipe / acceptability



# What it Took: Building Staff Capacity

- Chef and farm to school coordinator visited all 11 school kitchens at least once:
  - demonstrate cooking recipe
  - On-site technical assistance
- Staff in each kitchen trained on equipment to prepare recipe:
  - \$13,000 spent on knives, cutting boards and cooking vessels
  - recipe modified for oven variability
- All 63 staff prepared recipe at all staff training in August 2006



# What it Took: Soliciting Student input / Fostering Acceptance

- Student acceptance was assessed (and fostered) through taste tests at all 12 schools (~4000 students),
- Voting and informal plate waste conducted at 2 schools
- Student input solicited in focus group with 11 students



# What it took:



- It took 14 months (July 2005 to Sept. 2006) from first locating a farmer until serving a recipe for local butternut squash district-wide.
- September '06 local squash served simultaneously at all 12 schools
- September '07 local squash still served at all schools



# Food Service Feasibility & Acceptability

- Since September 2006, Cambridge food service department has served roasted butternut squash on the menu 1x per month
  - Good fidelity to original menu
  - Pride in product - staff often encourages children to take squash
  - Squash must come to schools “prepped”: peeled and cut
- Squash Cost = \$1.75 – \$2.00 per pound - competitive with traditional produce distributor
- 380 – 400 lbs. ordered each time squash served



# Squash Recipe

## Cambridge Food Service Department



### Roasted Butternut Squash

Ingredients: (serves 80)

- 20 pounds cubed and peeled butternut squash
- 1/2 pound brown sugar
- 2/3 cup vegetable oil
- 1 tablespoon cinnamon
- 2 teaspoons nutmeg

Preheat oven to 425°. Peel squash and cut into 1-2 inch chunks. In a large bowl, mix all ingredients together. Spread in a single layer on a cookie sheet. Roast 40-45 minutes or until brown around the edges and soft.



# Nutritional Acceptability

Nutrient content for a 3 oz. portion  
Nutrikids nutrient analysis software

Calories: 50	Iron: 0.57 mg	Protein: 0.82 g	6.6% Calories from protein
Cholesterol: 0 mg	Calcium: 26.8 mg	Carbohydrates: 9.5 g	76.4% Calories from carbs.
Sodium: 4 mg	Vitamin A: 1170 IU	Total Fat: 1.5 g	27.3% Calories from Total fat
Dietary Fiber: 1.3 g	Vitamin C: 10.5 mg	Saturated Fat: 0.16 g	2.9% Calories from saturated fat





# Student Acceptability



- Taste tests:
  - Voting (2 pilot schools)
    - Yes: 87 students
    - Maybe: 62 students
    - No: 147 students
    - % yes & maybe: 50%
- 100% of students in grades K-8 exposed



# Student Acceptability

- Focus groups (Spring 2006):
  - Five 6th graders & six 4th graders
    - Likes & Dislikes:
      - Loved the squash - tastes like pumpkin pie
      - It looked good, if I didn't know I didn't like it I would think it looked good
      - Great taste, but didn't like the texture
      - Didn't like the squashy taste
    - Preparation - compared to home or other:
      - don't eat squash at home
      - Never had squash in my life and I really liked this it tasted like pie
      - Only had it at Thanksgiving and liked that better
      - Better than Thanksgiving dinner



# Student Acceptability: In-class Survey

Squash Preference		
	2005 n=753	2007 n=817
Never tasted	27%	17%
Of those who tasted squash:		
Dislike	52%	49%
Like at least a little	48%	51%
Results from student survey, conducted 11/05 & 3/07 Population: 4 <sup>th</sup> -8 <sup>th</sup> graders at 6/12 schools Funded by PEP grant, Institute for Community Health		

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# Farmer Feasibility & Acceptability

- Cambridge Public School Department has an ongoing contract with local farmer since fall '05
- Says: “Farm-to-school is worth his while financially”
- Delivering to Cambridge has opened markets:
  - Cambridge grocery stores
  - Cambridge farmer’s markets
  - Universities in and near Cambridge
  - Other school districts in MA



# Challenges & Barriers

- NE climate & seasonality of local produce
- Distribution of produce from farm to 11 schools simultaneously
- Procurement of enough prepped squash in sufficient quantities
- Low buy in from food service staff: eg.
  - Using more vendors than customary “one stop & shop” distributor is more work
  - Staff believing in the importance of local, fresh fruits & vegetables
- Low kitchen readiness & staff skills



# Enabling factors for Incorporating Local Produce

- Grant support facilitated coordination, kitchen readiness and staff willingness to take risks
  - Farm-to-school coordinator
  - Chef
  - Equipment
- Local “farm-to-school” producer was entrepreneurial and creative
  - used machine and staff to peel and dice squash
  - Bought squash from other local producers
  - Had trucks for distribution system - willing to deliver to schools
  - Had storage facilities for keeping squash
- Fuel costs helped make local produce more competitive
- Target audience involvement
  - Parents vested in nutritious school meals
  - Students engaged in process
- Extensive staff training and technical assistance



# Enablers, cont....

- Massachusetts “local” legislation (passed in 2006 as part of economic stimulus package):
  - Allows state agency to pay up to 10% above the lowest bid to purchase in-state agricultural products, as long as there is no conflict with other state or federal laws
  - State procurement officers may award contracts up to \$25,000 without seeking other bids, as required by standard procurement procedures
  - A governmental body may, by majority vote, establish a preference for purchasing local products



# Lessons Learned

- **Key to success of integrating local squash into menu:**
  - Local food advocate/s
  - Farmer willing to serve as a point person
  - Farmer able to deliver
  - Training food service staff
  - Parent buy in
  - Student participation
  - Funding to reduce risk to school / producer
- **Farm-to-school takes time to establish**
- **Entrepreneurial spirit of key players**





# Future Steps

- Integrate more recipes using squash:
  - Vegetarian chili
- Continue to increase local produce/fresh produce percentage
- Provide ongoing training for food service staff
- Conduct cost analysis



# THANKS!

- Contact information:

Ginny Chomitz

[Vchomitz@challiance.org](mailto:Vchomitz@challiance.org)

Or

Stephanie Shapiro Berkson

[Sshapiroberkson@challiance.org](mailto:Sshapiroberkson@challiance.org)

