

# CLOSER TO HOME

A food systems approach to  
promoting nutrition and health  
equity

Betty T. Izumi, PhD, MPH, RD  
Food, Nutrition & Health Update

Moore Family Center  
Oregon State University  
February 25, 2014



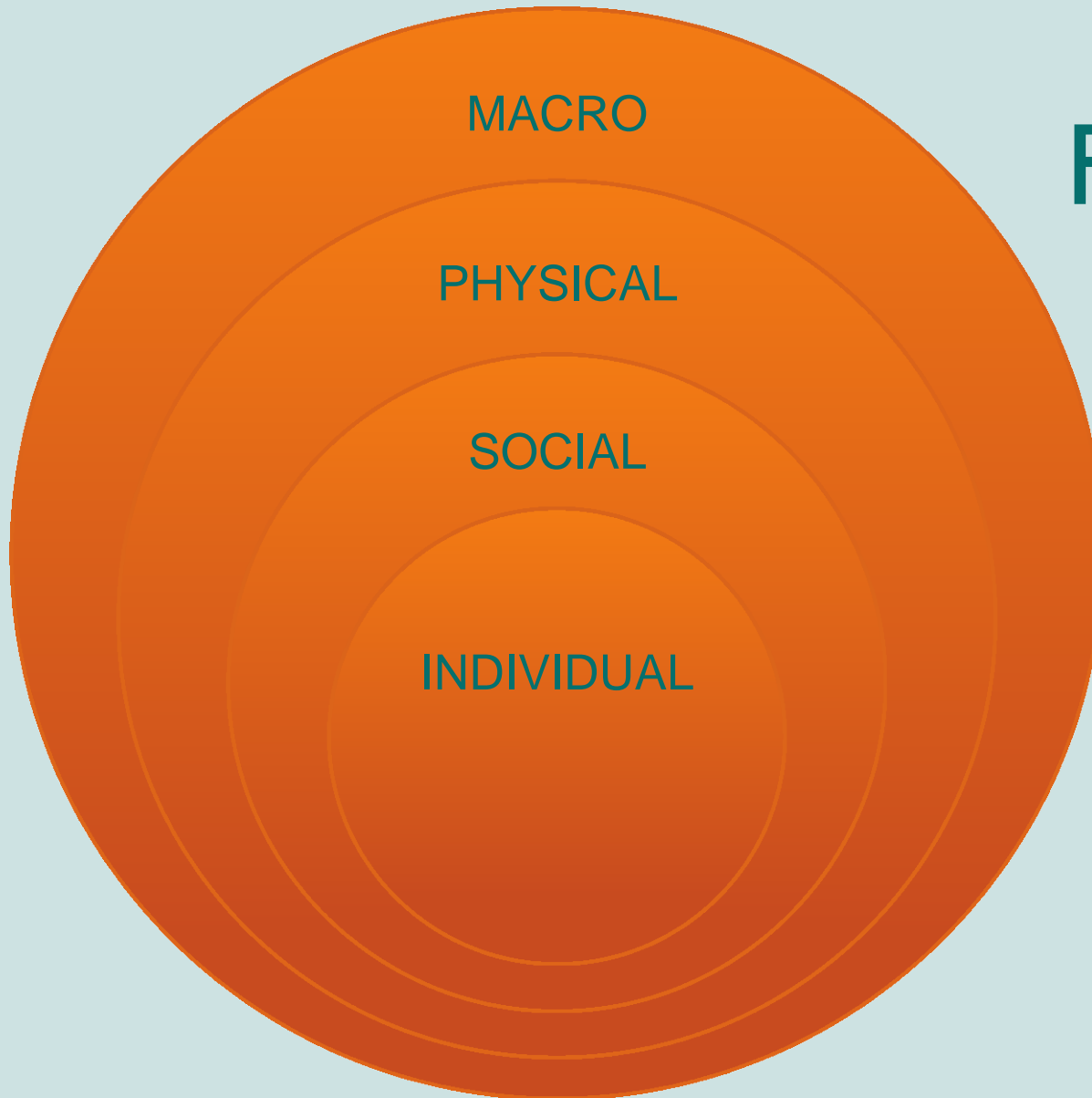
**12.5** MILLION  
AMERICAN  
CHILDREN  
ARE OBESE.

There are significant **racial & ethnic**  
**disparities**  
in obesity prevalence among children

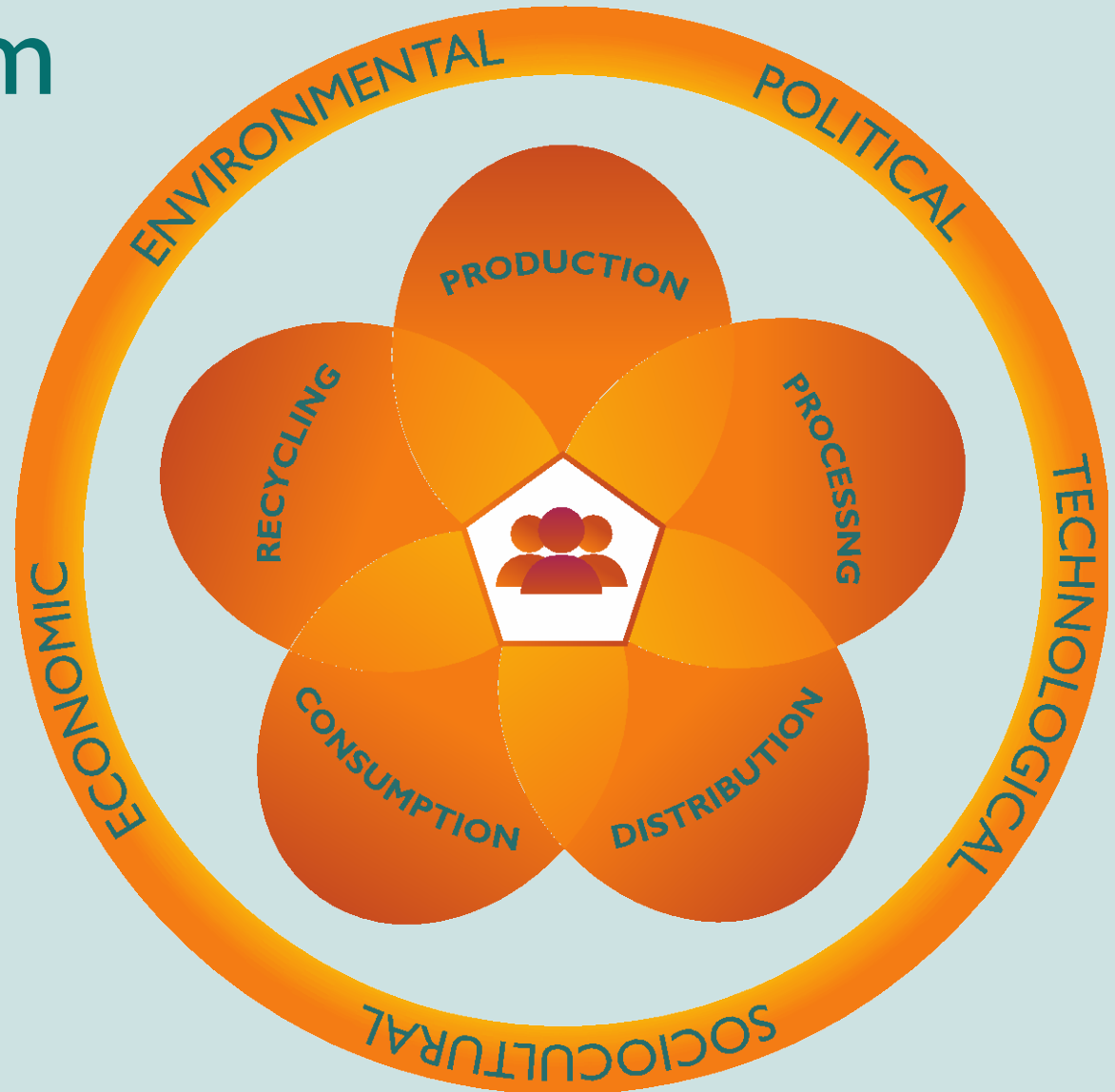
**Poor diet** is a major contributor of obesity.

# Ecological Framework

Brofenbrenner, 1979  
McLeory et al., 1988  
Story et al., 2008

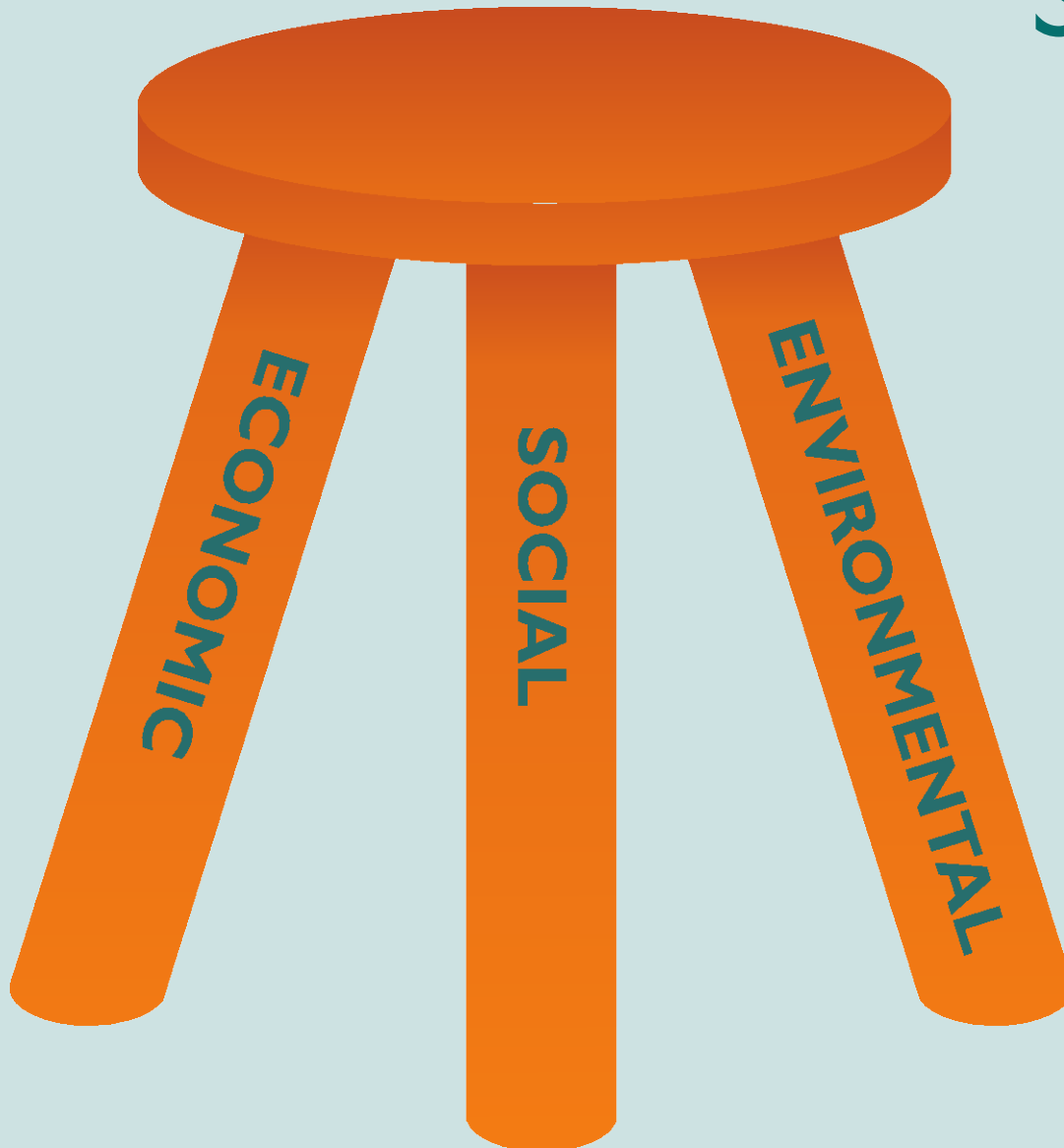


# Food System Model

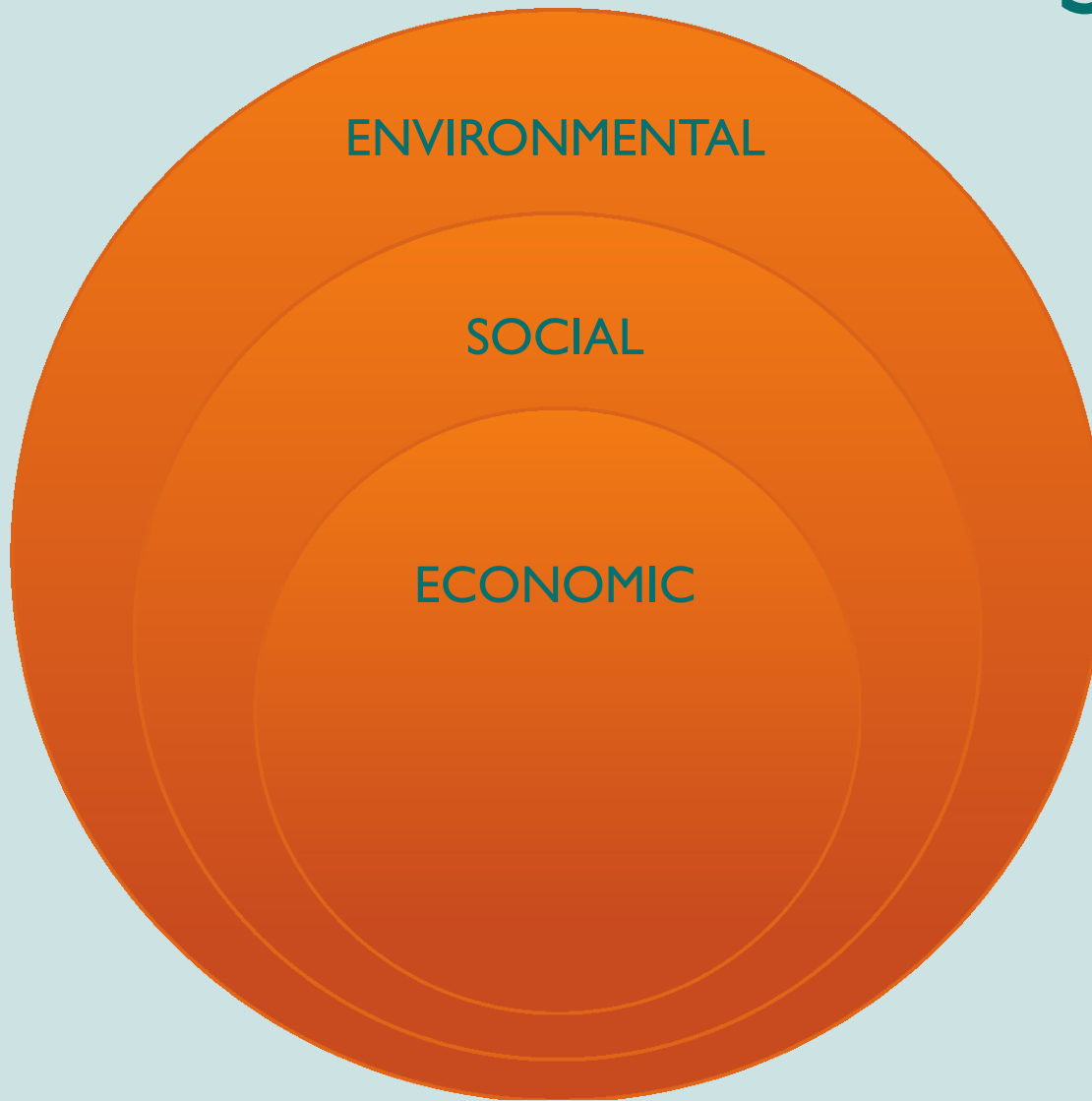


Story, Hamm & Wallinga, 2009; Neff et al., 2009; Villarejo et al., 2010

# Sustainability



# Sustainability



Dawe & Ryan, 2003; Magis & Shin, 2009

**GOOD FOOD =**

**HEALTHY, GREEN,  
FAIR & AFFORDABLE.**



**Food preferences are  
formed early on in life.**

**13 million** of the nation's  
21 million preschoolers  
in some form of regular  
**non-parental care**

**1,045,000 children** were  
enrolled in Head Start in  
2012-2013

**HARVEST for  
HEALTHY KIDS**

# Acknowledgements



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## Harvest for Healthy Kids Steering Committee

PSU School of Community Health, Mt. Hood Community College Head Start & Early Head Start, OHSU, Dancing Roots Farm, Ecotrust, Food Services of America, Child Care Resource and Referral of Multnomah County



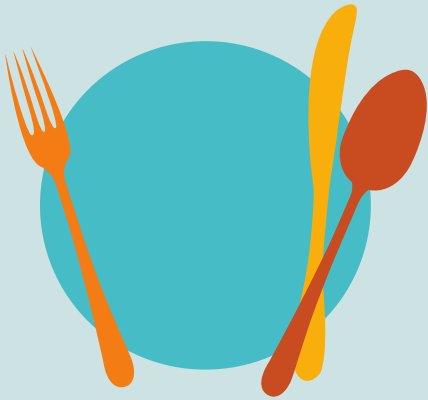
## Our funders

Kaiser Permanente Northwest, Meyer Memorial Trust, Walmart Foundation



# 8 FEATURED FOODS

- Beets
- Sweet Potatoes
- Root Veggies
- Carrots
- Winter Squash
- Cabbage
- Berries
- Asparagus

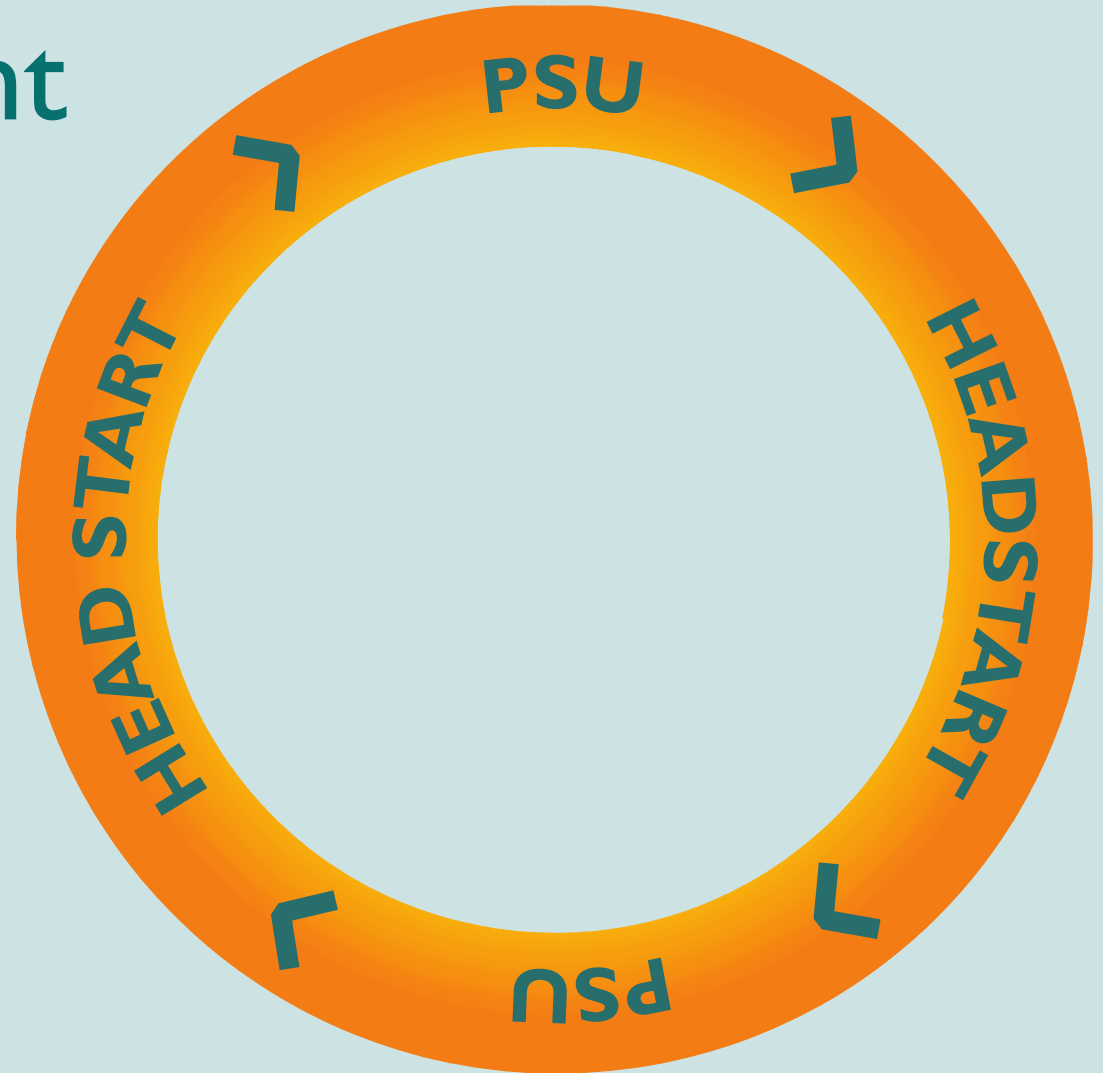
# Foodservice Component



**2X** PER  
WEEK

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
				

# Curriculum Development



Izumi et al, (2013).





# Activity Plan

## ★ READ ALOUD BOOK AND DISCUSSION Vegetables

### OBJECTIVES:

1. Children interact during a read-aloud and book conversation.
2. Children learn that a vegetable is a type of plant that we eat.
3. Children learn the importance of eating a variety of fruits and vegetables.
4. Children learn that beets grow underground.
5. Children learn that trying new foods can be fun.

### WHAT YOU MIGHT NEED:

Book: *Vegetables* by Nancy Dickmann  
Beets for children to touch, smell, and feel

### WHAT YOU MIGHT DO:

- Tell children this month we will be learning about beets. Pass around beets so that children can touch, smell and feel the vegetables. Ask if anyone has tasted a beet. Ask children to describe how they ate it, and what it tasted like.
- Read *Vegetables*.
- Identify the vegetables that grow above the ground and those that grow below the ground.
- Point out the beets. Talk about their color. Talk about how beet roots grow underground, and beet leaves (or "greens") grow above the ground.
- Talk to children about what makes fruits and vegetables part of a healthy diet. Talk about why it's important to eat a "rainbow" of fruits and vegetables, because different colored vegetables have different vitamins and nutrients that make us strong.
- Ask children if they have a favorite fruit or vegetable.



VOCABULARY  
vegetables  
plant  
beet  
healthy eating

HARVEST FOR HEALTHY KIDS

## ★ CREATIVE ARTS Watch our Garden Grow

### OBJECTIVES:

1. Children learn that we can grow beets in a garden.
2. Children review how beets grow.
3. Children make their own beet to display in the classroom "garden."

### WHAT YOU MIGHT NEED:

Small paper plates  
Colored paper, yarn, paint, or other art supplies  
Scissors  
Glue

### WHAT YOU MIGHT DO:

- Make a beet using a paper plate and colored paper. Create the beet root on the paper plate, and paste green strips to the plate as the beet greens. Use this plate as an example to show the class.
- Tell children we can grow beets in a garden. Ask children if anyone has ever grown beets in a garden.
- Ask children to remember how beets grow (the roots are underground, the leaves grow above the ground).
- Show children example plate and tell children: "Today we're making beets for our 'class garden.'"
- Provide children with plates, colored paper, scissors, and invite children to make their own beet for the "class garden."
- Designate a space on a wall in the classroom for the "class garden." Add to the wall each month with children's colorful featured fruits and vegetables in the Harvest for Healthy Kids.



## Family Recipe

### RAINBOW CRUNCH SALAD (Beet and Carrot Salad with Citrus Dressing)

Serves 4-6

#### INGREDIENTS

**Dressing:**  
1/4 tsp. grated fresh ginger, grated  
1 Tbsp. honey or brown sugar  
juice of 1 large lemon (2-3 Tbs.)  
juice of 1/2 large orange (2-3 Tbs.)  
1/4 tsp. salt or to taste

**Vegetables:**  
3/4 pound carrots (mix of colors, if possible), grated  
3/4 pound raw beets, grated

#### DIRECTIONS

Make dressing: Measure lemon and orange juices into a medium bowl. Add grated ginger and honey/brown sugar and whisk to combine. Add 1/4 tsp. salt, or to taste.  
Make salad: Add grated carrots to the bowl and stir to combine. Add beets and mix lightly. Refrigerate until ready to serve.

\* Adapted from Alison Harvest, Food Service Director, Harrington, VT



HARVEST FOR HEALTHY KIDS

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## MORE IDEAS

### "B" IS FOR BEETS

Talk with children about how beet starts with the letter "B." Explain that beet roots grow under the ground. Beet leaves grow above the ground. Ask children to come up with other words that start with "B" and record their ideas on a large piece of butcher paper or construction paper. Hang the chart paper in the classroom for the month.

# B



### TASTE AND TELL

Gather children in circle time and offer tastes of raw and cooked beet. Ask questions like: "What do beets taste like? How do the beets taste the same or different? Are raw beets different than cooked beets? Do the children like the taste? Offer tastes of different colors of beets (red, orange, striped). Ask children to predict what each color will taste like. Record children's responses on a chart, and hang it in the classroom."

### PAPER BAG GUESSING GAME OR SURPRISE BOX

Place a beet or a handful of beets in a paper bag. Invite children to reach their hands in the bag and describe the feel and shape of the beet. Pull out the vegetables and ask children to describe their size, shape, and color. Alternatively, use a cardboard box or small shoebox for this activity. Cut out a hole large enough to fit small and big arms through.



### PICTURE CARDS

The Harvest for Healthy Kids picture cards can be used any time during the month in which the fruit/vegetable is featured. Picture cards come in three categories: Fruit and Veggie Photo Cards, How Does It Grow? (botanical illustrations of fruit and vegetables), and Same but Different (vegetables/fruits in different colors, or different varieties of a vegetable/fruit). Find ideas for how to use these cards in the Harvest for Healthy Kids Teachers Guide, and on the back of each picture card.



HARVEST FOR HEALTHY KIDS

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# Picture Cards

**BEET**



RUSSIAN  
**Svekla (свекла)**

SPANISH  
**Betabel**

VIETNAMESE  
**củ cải đường**

Beets are sweet and delicious to eat! Who has tasted a beet? What did it taste like? We can roast beets in the oven, or eat them raw. We can also eat pickled beets, or eat them in soup. There is a special beet soup called Borscht - has anyone tasted it?

**How do BEETS grow?**



**SAME BUT DIFFERENT  
BEETS**



**Golden (Orange) Beets**



**Red Beet**



**Chioggia Beet**

# Teacher Bites

## BEETS

**Spanish:** betabel **Russian:** свекла (свекла) **Vietnamese:** củ cải đường

Beets - also called beetroot, garden beets, or table beets - originated from the Mediterranean. They are thought to have descended from the "beet" (Beta maritima). Beets have been grown since around the third century. They are popular throughout the US for their flavor and high nutrition content. Beets are part of the Beta vulgaris family and closely related to spinach and chard and sugar beet (grown in the U.S. and processed for use as a sweetener). In Oregon, they are grown nearly year round from March to November. You can find them in many varieties, colors, shapes and sizes: orange, yellow, pink and red; round or cylindrical; large and small. All parts of the beet are edible and delicious (both the root and the greens).



TEACHER BITES

### FROM SEED TO PLATE



Beets are annual vegetables, meaning they need to be replanted. They are most commonly grown from seed. Sometimes, beet plants are transplanted into the soil.

**FIND OUT MORE:**  
<http://www.nature.com/nature/vegetables/beets.html>  
<http://www.vegetable.com/vegetables/beets.html>

**DID YOU KNOW?**  
 A beet seed is actually a cluster of seeds. That is why several seedlings grow from one seed.



### IN THE GARDEN

Beets are fun and easy to grow at preschool or center-based gardens! They are planted early in spring and the seeds are large and fun to look at. Review the tips below for a successful harvest.

- SUN:** Full Sun
- WATER:** Regular water
- SOIL:** Beets grow well in sandy soils with good aeration. They thrive in soils with good drainage and uniform soil moisture.
- SEEDS:** Beet seeds are fun to look at and easy to plant. Place each seed 1/2 to 3/4 inch deep in rows 18 to 24 inches apart.
- PLANT:** Plant in early spring. Beets can withstand frost and can be planted 30 days before the last frost date for the area and continued through mid-summer. While the plants prefer warmer weather, the seeds prefer cooler. They are best as an early season and fall crop.
- SPACE:** Each plant needs enough soil space to grow to maturity. As the seedlings come up, thin them to be 3-5 inches apart.
- CARE:** Be sure to keep the garden bed weeded, especially when plants are young and establishing themselves. They have difficulty competing with other plants for space and nutrients.
- HARVEST:** Whole beets can be harvested at any stage depending on your preferred use, typically harvesting occurs at 40-60 days. They will continue to increase in size if left in the soil, but left for too long, they will become tough and as it begins to emerge from the soil. At 60 days, remove a plant by pulling gently on the greens. If a larger size is desired, there is ample space for them to grow, leave them in the ground and continue checking.

**FIND OUT MORE:**  
<http://www.nature.com/nature/vegetables/beets.html>  
<http://www.vegetable.com/vegetables/beets.html>



### BEETS

#### STORAGE AND HANDLING

- Roots should be reasonably dry and free of soil for best results
- Look for smooth, hard and round beets that are free of cuts and bruises.
- Oversized roots may be woody.
- If greens remain, avoid wilted or browned leaves. However, even with wilted leaves, roots are likely still delicious.
- Remove the green tops from beets and store each in separate, unsealed plastic bags.
- Topped beets in the refrigerator will last 4-8 weeks. The green tops last for two days.

**FIND OUT MORE:**  
<http://www.nature.com/nature/vegetables/beets.html>  
<http://www.vegetable.com/vegetables/beets.html>

### IN THE KITCHEN

Beets can be eaten in a variety of delicious ways: raw in salads, roasted in the oven, sautéed, steamed, or boiled. Time for preparation depends on the method used - they can be done in a snap when eaten raw, and will take an increasingly longer amount of time as you enter steam, roast, or boil them.

Before using, trim beets well to make sure there are no dirt spots remaining. Peel and grate beets to top salads or to add to sandwiches. If roasting or boiling, poke a few holes in the beet and cook with the peel on - once cooked and cooled, the peels slide off easily. To roast, cut beets into round slices, toss to coat with olive oil, rosemary, salt and pepper, and bake at 400 for 30-40 minutes. Or, chop whole beets into boiling water for 40 minutes, or until a fork enters it without force, peel and slice to dress and add to salads, or eat with a simple sauce.

Try the classroom recipe at home, with this family-size version!

#### RAINBOW CRUNCH SALAD (Beet and Carrot Salad with Citrus Dressing)

Serves 4-6

##### INGREDIENTS

- Dressing:**  
 1/4 tsp. grated fresh ginger, grated  
 1 Tbsp. honey or brown sugar  
 Juice of 1 large lemon (2-3 Tbs.)  
 Juice of 1/2 large orange (2-3 Tbs.)  
 1/2 tsp. salt or to taste

- Vegetables:**  
 3/4 pound carrots (just of color, if possible), grated  
 3/4 pound raw beets, grated

##### DIRECTIONS

Make dressing: Measure lemon and orange juices into a medium bowl. Add grated ginger and honey/brown sugar and whisk to combine. Add to tsp. salt, or to taste.  
 Make salad: Add grated carrots to the bowl and stir to combine. Add beets and mix lightly. Refrigerate until ready to serve.

\*Adapted from ALAN ARNOLD, FOOD SERVICE DIRECTOR, HARRINGTON VT



### FAMILY CONNECTIONS

The family newsletter for beets can be sent home at the beginning of the month. The newsletter is available in English, Spanish, and Russian. Print the first page only, or add photos and stories to the second page and print both sides for families.



#### GET PARENTS' ATTENTION!

- Attach the newsletter to the child by attaching a string of yarn to the paper and making a newsletter "necklace" or pinning the newsletter to an article of clothing.
- Attach the newsletter to a drawing or other piece of artwork created by the child.
- Get a set of "Ask me about \_\_\_\_\_" stickers or nametags, or use blank nametag stickers to draw attention to the fruit or vegetable of the month. Send each child home with an "Ask me about beets!" sticker for the best month.
- Offer tastes of the recipe at the month at a parent meeting, or when parents pick up their children from your site.

### BEET VARIETIES

Red • Golden (Orange) • Chioggia



#### ABOUT HARVEST FOR HEALTHY KIDS

Harvest for Healthy Kids is a nutrition program designed to introduce children to a wide variety of fruits and vegetables through their meals and snacks and classroom activities. Monthly family newsletters engage families. Harvest for Healthy Kids is a partnership between Mt. Hood Community College Food Store and the School of Community Health at Portland State University.



# Family Newsletter

## HARVEST for HEALTHY KIDS news



ASK YOUR  
CHILD ABOUT  
BEETS!

### BEETS!

This month, we are learning all about beets. Beets are a root vegetable that can be eaten raw, cooked, and pickled. You can eat the greens, too! Try beets raw in a salad, as in the recipe below. Or, roast beets with skins on in the oven at 375° for about 40 minutes. Beets are available year-round. You can find them at farmer's markets from May-December.

### ★ PRODUCE TIPS

- Look for smooth, hard beets, without cuts and bruises.
- When possible, choose fresh beets with green tops still attached. Greens should look healthy and green, not wilted or brown.
- Store beets in a plastic bag.
- Beets will stay fresh in the refrigerator for up to two weeks. Beet greens should be used within a few days.
- Choose low-sodium or no salt added canned beets.



### KIDS CAN COOK: BEETS

- Kids can help prepare beets by:
- Grating—instruct your child to stop grating when they get close to the holes, and help them by using an adult hand over a child hand while they are learning.
  - Mixing a dressing
  - Chopping cooked beets with a plastic or ceramic knife
  - Combining carrots and beets in the rainbow crunch salad

### CLASS RECIPE - TRY IT AT HOME!

#### RAINBOW CRUNCH SALAD\* (Beet and Carrot Salad with Citrus Dressing)

SERVES 4-6

##### INGREDIENTS

Dressing:  
1/2 tsp. fresh ginger, grated  
2 Tbsp. honey or brown sugar  
Juice of 1 large lemon (2-3 Tbs.)  
Juice of 1/2 large orange (2-3 Tbs.)  
1/4 tsp. salt or to taste

Vegetables:  
3/4 pound carrots (mix of colors, if possible), grated  
3/4 pound raw beets, grated

##### DIRECTIONS

MAKE DRESSING: Measure lemon and orange juices into a medium bowl. Add grated ginger and honey/brown sugar and whisk to combine. Add 1/4 tsp. salt, or to taste.

MAKE SALAD: Add grated carrots to the bowl and stir to combine. Add beets and mix lightly. Refrigerate until ready to serve.

\* Adapted from Alison Forrest, Food Service Director, Huntington, VT

Find out more at [HarvestforHealthyKids.org](http://HarvestforHealthyKids.org)



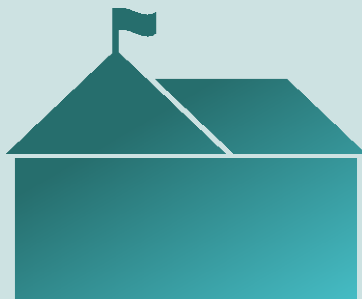
# Study Design



**HIGH-INTERVENTION**



**LOW-INTERVENTION**



**CONTROL**



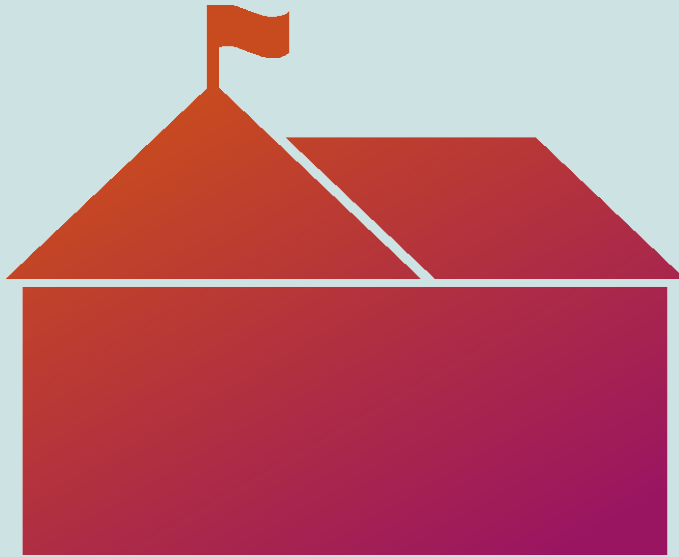
**BASELINE**

**WILLINGNESSTO TRY  
LIKING**



**8-months POST**

**RECOGNITION  
WILLINGNESSTO TRY  
LIKING**



**HIGH-INTERVENTION**



Foodservice Modifications  
Classroom Education



**LOW-INTERVENTION**



Foodservice Modifications

food · farmer · earth

A journey of wide discovery about our food and sustainable agriculture.

by [Cooking Up a Story](#)

## A Critical Head Start for Pre-Schoolers: Eating Healthy Foods

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 [t Tweet](#) 17



Head Start began as an eight-week demonstration project in 1965 to help break the cycle of poverty, providing preschool children of low-income families with a comprehensive program to meet their emotional, social, health, nutritional and psychological needs. Since then it has

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A journey of wide discovery about our food and sustainable agriculture.

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# Methods

## ➤ Data Collection

- Age-appropriate survey
- Taste-test

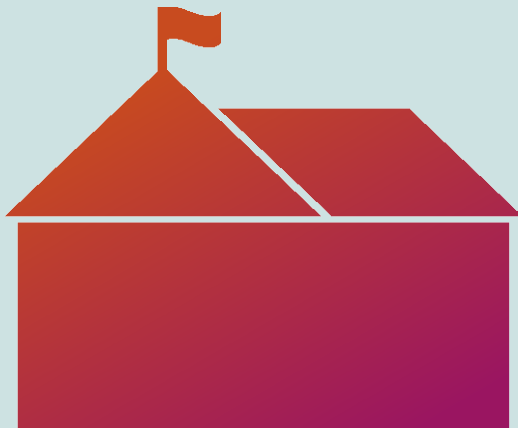
## ➤ Data Analysis

- Chi-square
- Fisher's exact test

# Measures

- Recognition
- Willingness to try
- Liking

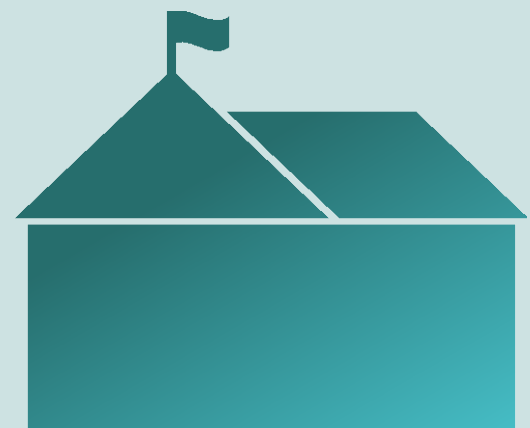
# Baseline



**HIGH-INTERVENTION**



**LOW-INTERVENTION**



**CONTROL**

HIGHER PROPORTION:  
Willingness to Try  
Liking  
Recognition

# Post-intervention



HIGH-INTERVENTION

LOW-INTERVENTION

CONTROL

# Post-intervention

## SQUASH



**HIGH**  
(n=123)



**LOW**  
(n=96)



**CONTROL**  
(n=79)

**p-value**

**Recognize**

**25 (20.0%)**

**13 (13.4%)**

**11 (13.9%)**

**0.3**

**Try**

**111 (88.1%)**

**88 (90.1%)**

**59 (74.7%)**

**0.0**

**Like**

**75 (70.8%)**

**33 (37.5%)**

**26 (44.1%)**

**0.0**

# Harvest for Healthy Kids

had a positive impact on recognition, willingness to try, and liking.

# Study Limitations

- Small sample size
- Lack of baseline recognition data
- Data collection challenges

# Next Steps

- Dissemination
- New activity kits
- Early Head Start



**THANK YOU**