Food Insecurity and Health Outcomes…

Does Food Access Really Make a Difference?

Food Insecurity and Health Outcomes…

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My Background

Child of Appalachia (Western PA)

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Educator

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Thank you, Mizzou!

- Dr. Nikki Raedeke
- Ms. Barbara Wills
- Mizzou Advantage Research Symposium Planning Committee

Objective

- To discuss food insecurity and health outcome research and identify potential solutions for improving food insecurity in the United States.

Food Access = Food Security

- An essential, universal dimension of household and personal well-being.
- All people at all times have access to enough food for an active, healthy life.
- This includes the ready availability of nutritionally-adequate, safe foods and the assured ability to acquire them in socially acceptable ways.

Source: Anderson 1990

Food insecurity is evident when…

…families or individuals:

- Lack access to food.
- Depend on food assistance programs.
- Skip meals.
- Substitute nutritious foods with less expensive alternatives.
- Seek assistance from soup kitchens and food pantries.

Source: Holben, 2010

Food Security in the United States

Sources: ERR-141; ers.usda.gov

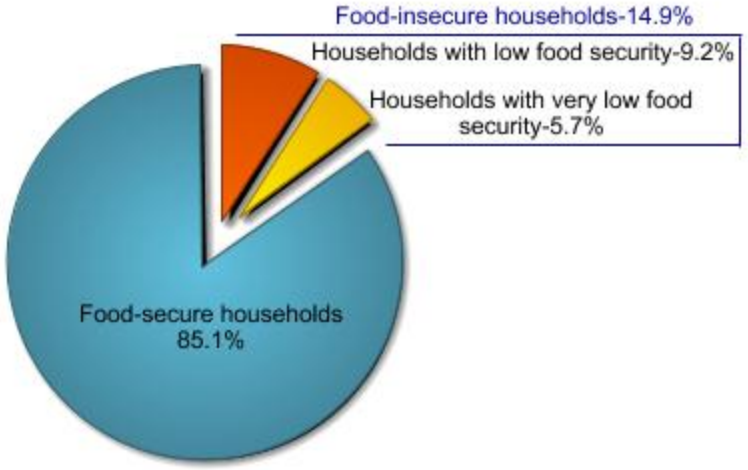
Most recent data….

- 85.1% of American households (101.6 million) were food secure throughout calendar year 2011.
- 14.9% (17.9 million) of households were food insecure.
  - 9.2% (11.0 million) of households had low food security.
  - 5.7% (6.8 million) of households had very low food security.
  - These households were uncertain of having, or unable to acquire, enough food due to insufficient money or other resources.

2011-Household Food Security

Sources: ERR-141; ers.usda.gov

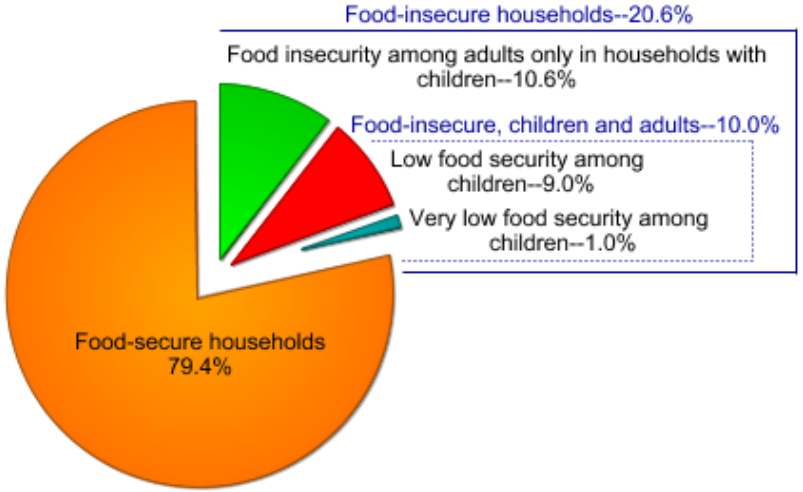
U.S. households by food security status, 2011



Source: Calculated by ERS using data from the December 2011 Current Population Survey Food Security Supplement.

ERS

U.S. households with children by food security status of adults and children, 2011



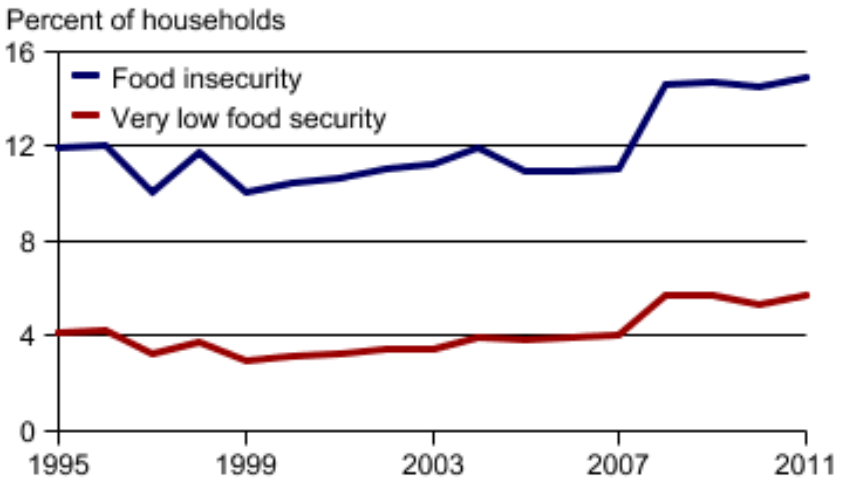
Source: Calculated by ERS using data from the December 2011 Current Population Survey Food Security Supplement.

ERS

2011-Household Food Security

Sources: ERR-141; ers.usda.gov

Trends in prevalence rates of food insecurity and very low food security in U.S. households, 1995-2011



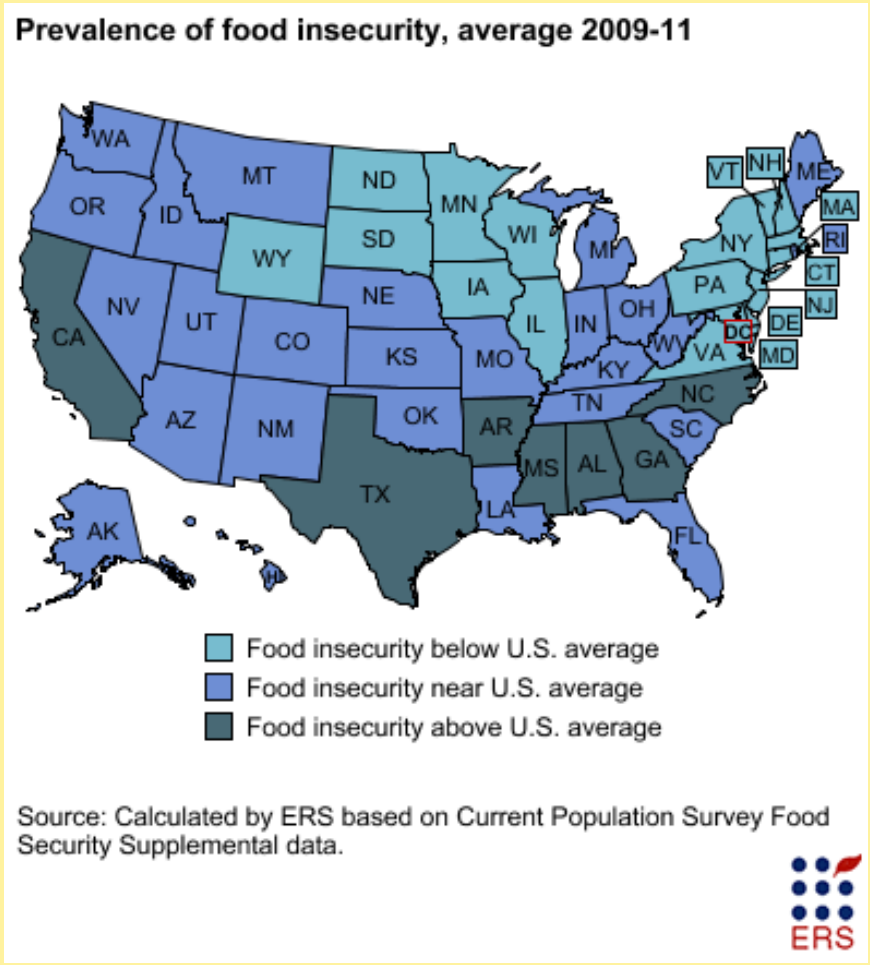
Prevalence rates for 1996 and 1997 were adjusted for the estimated effects of differences in data collection screening protocols used in those years.

Source: Calculated by ERS based on Current Population Survey Food Security Supplement data.

ERS

2011-Household Food Security

Sources: ERR-141; ers.usda.gov



2011-Household Food Security

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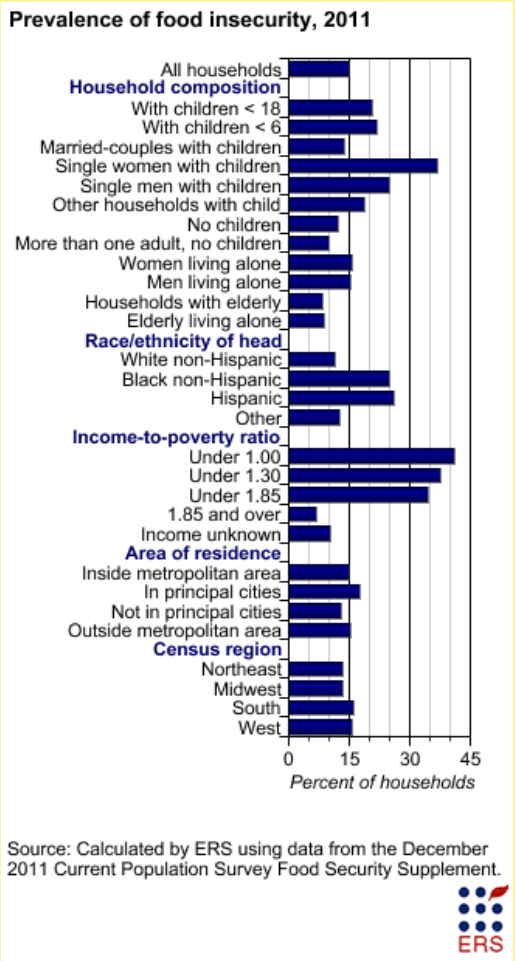
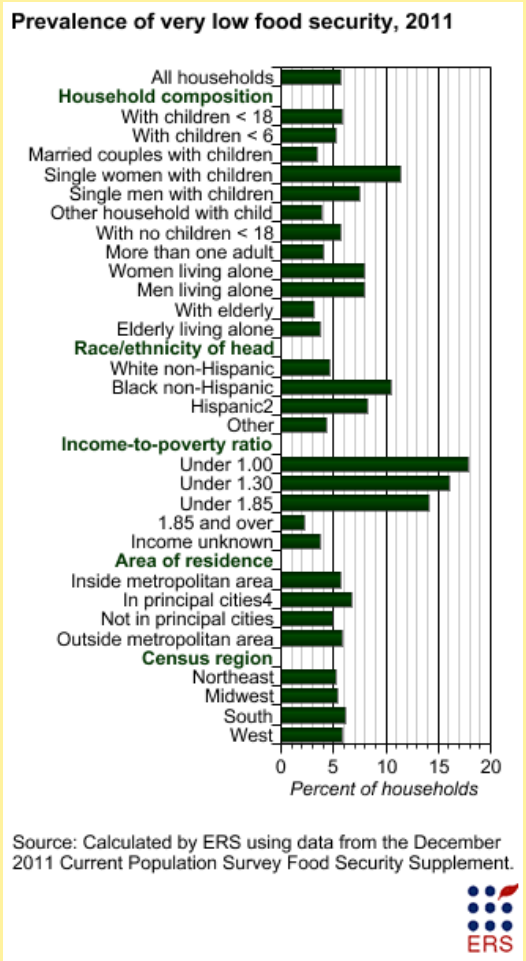




Households At Risk

- Income < 185% of poverty level
- Female-headed with children
- Male-headed with children
- Black or Hispanic
- Living in central cities or rural areas
- Living in south or west

Sources: ERR-141; ers.usda.gov

Food insecure hourseholds…

- Used a variety of coping strategies.
  - Ate less varied diets.
  - Participated in Federal food assistance programs.
  - Obtained emergency food from community food pantries.

Sources: Holben, 2010; Holben, 2012

Consequences of Food Insecurity

- Physical Impairments related to insufficient food
- Psychological issues due to lack of access to food
- Sociofamilial disturbances

Source: Hamelin et al., 1999

Examples

- Physical Impairments related to insufficient food
  - Illness
  - Fatigue

Examples

- Psychological issues due to lack of access to food
  - Feelings of constraint to go against held norms and values
  - Stress at home

Examples

- Sociofamilial disturbances
  - Modification of eating patterns and related ritual
  - Disruption of household dynamics
  - Distortion of the means of food acquisition and management

Bottom line?

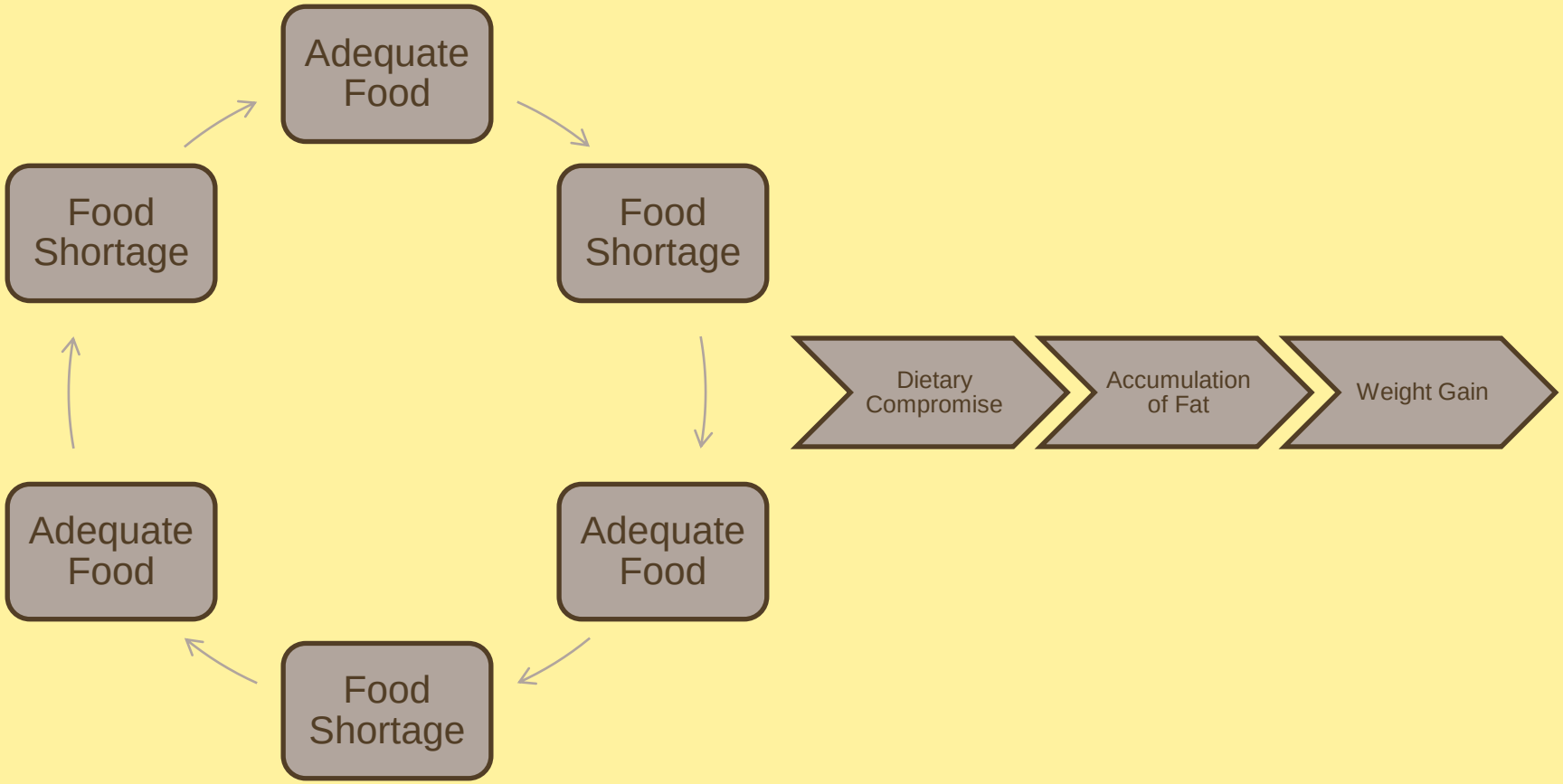
Food insecurity is a barrier to positive health and nutrition outcomes.

Sources: Holben, 2010; Holben, 2012

Outcomes of Food Insecurity

- Collectively, the literature shows that food insecurity has negative nutritional and non-nutritional outcomes and underscores the potential negative implications of food insecurity on US health care costs.

Food Insecurity and Chronic Disease Lee et al., 2012



Overweight and Obesity

- Adult women in food insecure households are particularly at risk for overweight and obesity.
  - Binge-like eating pattern
  - Overeating when food is available
  - Consumption of empty-calorie, high-fat, and high-sugar foods

Sources: Holben, 2010; Lee et al., 2012; Olson, 2005

Adult Health and Chronic Disease

- Food insecurity is associated with:
  - risk and incidence of chronic diseases
  - poor diabetes management
  - chronic disease management
  - overall poor health status
  - depression
  - HIV Infection

Health Status

- Appalachian Ohio Pilot Study
  - To examine the relationship between household food security status and measures of functional health status.
  - Participants: 1,006 adults
    - Clinic setting (n=605)
    - Community setting (n=401)
  - Outcomes
    - Household food security (USDA measure)
    - Functional health and well-being (SF-36)

Funding: Ohio University.

Pheley et al., 2002.

Health Status

- Appalachian Ohio Pilot Study
  - Functional health and well-being (SF-36)
    - Medical Outcome Study Short Form-36 (SF-36)
      - Survey (from Medical Outcomes Study, 1992)
      - 36 items representing an 8-scale profile (0-100 score)
        - » Physical functioning
        - » Role limitations because of physical health problems
        - » Bodily pain
        - » General health
        - » Vitality
        - » Social functioning
        - » Role limitations because of emotional problems
        - » Mental health

Pheley et al., 2002; Stewart & Ware, 1992; Ware et al., 1993.

Health Status

- Appalachian Ohio Pilot Study
  - Individuals living in food insecure households in a rural Appalachian Ohio community.
    - Poorer health status (physical health, bodily pain, general health, vitality, social functioning, role limitations due to emotional problems, mental health, and role limitations due to physical problems) ($p<.05$).
    - Food insecurity was associated with poor health, even at minimal levels ($p<.05$).

Pheley et al., 2002.

Chronic Disease Risk

- [Follow-up] Appalachian Ohio Study
  - To assess the relationship between household food security status and clinical measurements of several chronic health risks, including those that can contribute to obesity and diabetes.
  - Participants: 2,580 adults (community-based) (n=808, clinical health assessment)
  - Outcomes
    - Household food security (USDA measure)
    - Functional health and well-being (SF-36)
    - BMI, BP, Chol, Glu, HbA1c, Hgb

Funding: Ohio University. Holben & Pheley, 2006.

Chronic Disease Risk

- [Follow-up] Appalachian Ohio Study
  - Individuals living in food insecure households in a rural Appalachian Ohio community.
    - Clinical measures within recommended ranges and did not differ by food security status (BP, Chol, Glu, HbA1c, Hgb) ($p>.05$)
    - BMI was greater among participants from food-insecure houeholds, especially among women ($p=.04$)

Holben & Pheley, 2006.

Chronic Disease Risk

- [Follow-up] Appalachian Ohio Study
  - Individuals living in food insecure households in a rural Appalachian Ohio community.
    - Those with HbA1c level > 7% (33.9%) were more likely to come from food-insecure households than respondents with HbA1c < 7% (22.5%) (*P* = .053).
    - Of the 2,504 who noted their diabetes status, 298 (11.9%) reported having diabetes.
      - People who reported having diabetes were significantly more likely to live in food-insecure households (37.9%) than in food-secure households (25.8%) (*P* < .001).

Holben & Pheley, 2006.

Obesity and Metabolic Syndrome

- US Children (12-18y) Study
  - To assess differences in adolescent obesity and metabolic syndrome by household food security using a nationally-representative cross-sectional survey.
  - Participants: 7,435 (1999-2006)
  - Outcomes
    - Household food security (USDA measure)
    - BMI, Waist Circumference
    - LDL, BP, Glu, TG.

Funding: USDA Ridge Grant. Holben, Wang, & Taylor, unpublished.

Obesity and Metabolic Syndrome

- US Children (12-18y) Study
  - No significant differences were existed in mean BMI-for-age percentiles by food security status (p = 0.087)
  - Adolescents from marginally food secure (MFS, 44%, Odds Ratio: 1.44 [1.12-1.87]) and low food secure (LFS, 44.0%, OR: 1.44 [1.13-1.84]) households were significantly more likely to present with a BMI >85th percentile than high food secure (HFS) households.

Funding: USDA Ridge Grant. Holben, Wang, & Taylor, unpublished.

Obesity and Metabolic Syndrome

- US Children (12-18y) Study
  - Adolescents from HFS households had significantly lower mean central obesity than those from MFS and LFS households ($p < 0.001$).
  - MFS (52%, OR: 1.52 [1.08-2.15]), LFS (42.0%, OR: 1.42 [1.11-1.80]) and very-low food secure (VLFS, 51%, OR: 1.51 [1.10-2.08]) were significantly more likely to present with central adiposity than those from HFS households.

Funding: USDA Ridge Grant. Holben, Wang, & Taylor, unpublished.

Obesity and Metabolic Syndrome

- US Children (12-18y) Study
  - Only those from HFS households had significantly higher HDL than children from LFS households ($p = 0.019$).
  - There were no significant differences in blood glucose, lipids, blood pressure or metabolic syndrome by food security category.

Funding: USDA Ridge Grant. Holben, Wang, & Taylor, unpublished.

Potential Solutions

Holben 2012

- Learn about food insecurity.
  - Incorporate food insecurity- and poverty-related concepts into professional and continuing education programs.
- Screen patients and clients.
  - Obtain food access and related information.
- Refer patients and clients to safety net programs.

Potential Solutions

Holben 2012

- Collaborate with others to develop programs that improve food access and foster the skills needed to improve food security.
  - Economic self-sufficiency.

Athens Farmers Market

www.athensfarmersmarket.org

Chesterhill Produce Auction

www.ruralaction.org

Community Resources

The ECOHIO GARDEN Project

FULBRIGHT
CANADA
eco leadership program

The ECOHIO GARDEN Project – Principle?

- Underlying Principle of Program
  - –**E**veryone **C**an [in **OHIO**] **G**arden [plants] **A**nd **R**ake **D**irt [to] **E**nhance **N**utrition = **ECOHIO GARDEN**.

The ECOHIO GARDEN Project—Why?

- Gardening has the potential to improve both produce intake and physical activity, two foundations of good nutritional health for sustaining the human capital of a community.
- When sustainable practices are used, gardening has the potential to positively impact the environment and enhance the local food system.

FULBRIGHT CANADA eco leadership program

The ECOHIO GARDEN Project – Gardening Ed

The ECOHIO GARDEN Project

- Apply skills learned at the workshop
  - Community garden plot at the Athens Community Garden.

The Program

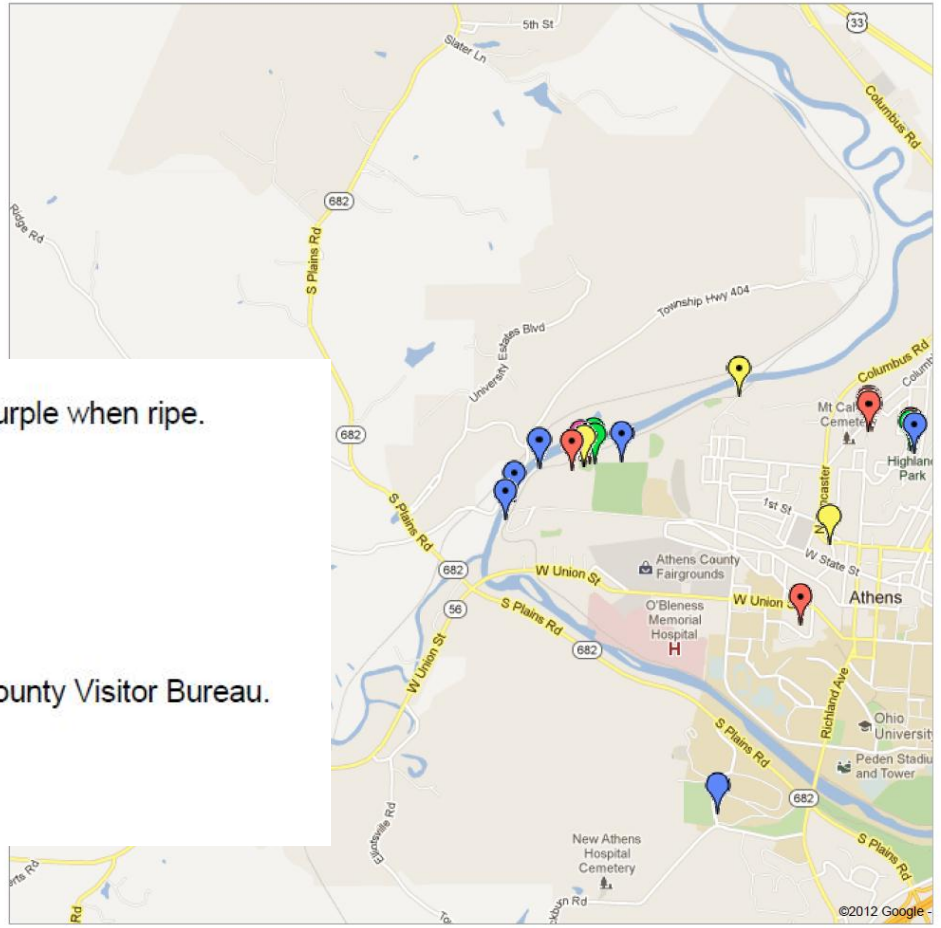
- Apply skills learned at the workshop
  - Fruit permaculture (permanently planted trees and shrubs) at hubs of activity within the community.
    - Ohio Ecohouse, a university-owned residence that “demonstrates affordable green technology and sustainable living in order to inform, engage and inspire both residents and visitors”
    - Athens Community Garden, Ohio University Child Development Center Children’s Garden, and other locations.
    - Fruit permaculture will be maintained by the organizations where they are planted.

The Program

- Develop map of edible fruit trees and shrubs on municipal land will be conducted in partnership with an environmental studies graduate student and community food initiatives.
  - Fruit trees on municipal lands are untapped sources of nutritious food for community members.
  - Promote an increased awareness of the location and season of the fruit for picking and consumption.

Interventions/Projects

- Map
  - http://athensfruittrees.blogspot.com/



Fruit Trees in Athens, Ohio
Fruit trees located on city property of Athens, Ohio.

The Program

- Video of Fruit Tree Planting
  - http://www.youtube.com/watch?v=jOV5i-La13A&noredirect=1

Changing Bottom Line

Food insecurity is a barrier to positive health and nutrition outcomes…what can you do to make a difference?

Sources: Holben, 2010; Holben, 2012

Thanks!