

New Hampshire ENVIROTHON 2014

Current Issue Challenge: *Sustainable Agriculture/Locally Grown*

Introduction

Agriculture in the United States has been transformed since the early 1900's from production on small family farms to production in large, highly mechanized operations that involve increased chemical use. While this transformation (coupled with large government subsidies) has increased agricultural production rates and has lowered food prices, there have been significant ecological and social costs such as groundwater and surface water contamination, high fossil fuel usage, aquifer depletion, animal welfare challenges, and the degradation of economic and social conditions in rural America. Food security has also been affected due to increased reliance on food being transported long distances, loss of crop biodiversity, and the fact that disease outbreaks in large-scale agriculture facilities have more widespread impact on the population than a farm with a narrower distribution.

In the past few decades, there has been a movement in this country and elsewhere toward *sustainable agriculture*. Sustainable agriculture is an integrated system of plant and animal production that protects natural resources, promotes economic development, and enhances society's quality of life while making healthy food accessible and affordable. An important component of sustainable agriculture is the local production, local processing, and local consumption of agricultural products. Locally-produced foods can reduce the environmental costs of transporting foods long distances, can increase food security, and can revitalize the economic and social structure of rural areas.

Local foods are marketed using *direct* and *indirect* methods. Direct marketing includes farmers markets, pick-your-own operations, farm stands, and community supported agriculture. Indirect marketing includes farm-to-school programs, farms selling directly to restaurants, hotels and retail shops, as well as farms selling directly to government entities.

The Challenge

Your team is charged with: **a)** investigating best practices in sustainable agriculture; **b)** determining the availability and price of locally-produced food in your community, and **c)** surveying members of your school to determine knowledge of and attitudes toward locally-grown products. **Lastly**, you will propose a method to educate your community (school, town, and/or region) on the benefits and challenges of sustainable agriculture.

Your investigation into the best practices associated with sustainable agriculture should include:

- 1) Building soil organic matter
- 2) Efficient use of water resources
- 3) Integrated/ecological pest management techniques
- 4) Ways that farmers can reduce reliance on fossil fuels
- 5) Efficient use of waste products
- 6) Marketing and sales strategies for farmers

To determine the availability and price of local-produced foods you need to find information on:

- 1) Locally-grown agricultural products availability
- 2) Existing direct and indirect marketing programs
- 3) A comparison of the costs of local vs. non-local food

To investigate knowledge of and attitudes on locally-grown products your survey should include:

- 1) General knowledge of sustainable agriculture practices
- 2) Economics of local vs. non-local food
- 3) Ecological and social impacts of large scale agriculture
- 4) Importance of eating locally-produced food (*e.g.*, nutrition)
- 5) Social/economic issues surrounding local farms
- 6) Factors considered when making buying decisions
- 7) Other topics that you feel are important

Lastly, your team will propose a way to educate your community on the benefits and challenges of sustainable agriculture. The information should include ecological, economic, and social aspects of local agriculture.

Presentation Guidelines

1. All five team members must participate in the presentation. Your team will have exactly 15 minutes to make your presentation, followed by 5 minutes of questions by the judges. Plan and rehearse your presentation accordingly.
2. Visual aids for your presentation will be limited to hard-copy charts, handouts, and displays. Your presentation may not involve any audio or video players, projectors or computers, but you may use computers to prepare materials that can be printed on 8.5" x 11" or 8.5" x 14" paper. Neat hand-drawn posters and visuals are fully acceptable.
3. Work on the challenge is restricted to the five team members and two alternates. You may seek additional information from any source, but you are not permitted to get help on your solution to the challenge (your analysis, proposed project, the proposal itself, or any handouts or displays) from parents, teachers, advisors, consultants, professionals or anyone else. Teams will be asked to certify that they have complied with this rule. You may, and should, get help and guidance in rehearsing your presentation.
4. You can meet with scientists, educators, and other career professionals about the subject matter for the current issue challenge. You must not ask the professional specific questions about the challenge; but, you are encouraged to discuss the topic with them in general terms and to learn about the issue from their perspective.

Resources

SUSTAINABLE AGRICULTURE

Pastures of Plenty: The Future of Food, Agriculture and Environmental Conservation in New England, NH Agricultural Experiment Station Publication #2340 (2008), Carroll, J. *This publication is likely available in your local library*

The Real Dirt: Toward Food Sufficiency and Farm Sustainability in New England , University of New Hampshire, (2010), Carroll, J. *This publication is likely available in your local library*

Sustainable Agriculture Research & Education

<http://www.sare.org/>

Sustainable Agriculture at University of California-Davis

<http://www.sarep.ucdavis.edu/about/front-page>

National Sustainable Agriculture Coalition

<http://sustainableagriculture.net/>

Leopold Center for Sustainable Agriculture

<http://www.leopold.iastate.edu/>

SOILS

Introduction to Soil Surveys for Agriculture from the US Department of Agriculture

ftp://ftp-fc.sc.egov.usda.gov/NSSC/Educational_Resources/surdown.pdf

Soils Health Manual from Cornell University

<http://soilhealth.cals.cornell.edu/extension/manual.htm>

Building Better Soils for Better Crops

<http://www.sare.org/Learning-Center/Books/Building-Soils-for-Better-Crops-3rd-Edition>

MAPPING SOILS

Web Soil Survey

<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

MAPPING LAND USE

Granite View (University of New Hampshire)

<http://granitview.unh.edu/>

WATERSHEDS & AGRICULTURE

United State Department of Agriculture, Natural Resources Conservation Service

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/water/watersheds/>

LOCAL FOOD

Home Grown: The Economic Impact of Local Food Systems in New Hampshire (2010), Food Solutions New England, University of New Hampshire, Durham, NH.

http://www.foodsolutionsne.org/sites/foodsolutionsne.org/files/HomeGrownReport_final.pdf

Farming for the Future: A Sustainable Agriculture Agenda for the 2012 Food & Farm Bill (2012), National Sustainable Agriculture Coalition, Washington, DC.

http://sustainableagriculture.net/wp-content/uploads/2008/08/2012_3_21NSACFarmBillPlatform.pdf

Choices, The Magazine of Food, Farm, and Resource Issues

<http://www.choicesmagazine.org/choices-magazine>

Local Food Systems: Concepts, Impacts, and Issues (2010), United States Department of Agriculture, Economic Research Service, Report Number 97.

http://www.ers.usda.gov/media/122868/err97_1.pdf

Is Local Food More Expensive? A Consumer Price Perspective on Local and Non-Local Foods Purchased in Iowa (2009), Pirog, R and McCann, N. <http://www.leopold.iastate.edu/sites/default/files/pubs-and-papers/2009-12-local-food-more-expensive-consumer-price-perspective-local-and-non-local-foods-purchased-iowa.pdf>

Current Issue Challenge Committee

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