

## 2017 Massachusetts Envirothon Current Issue Problem

# Agricultural Soil & Water Conservation

**Background** (For more extensive background see <https://massenvirothon.org/areas-of-learning/current-issue/2017-current-issue/>)

Local agriculture is booming in Massachusetts, from urban community gardens to rural orchards and pastures, from row crops to working forests. Local garden, farm, and forest production can strengthen local economies - providing not only food and fiber, but also fostering community.

But all is not well. More local agriculture also means more intensive use of local land and water resources, with the potential for resource depletion, pollution, and increased pressure on local ecosystems and biodiversity. In addition, climate change is shifting the basic conditions for growing – bringing long term warming, short term weather volatility, and increased intensity in the water cycle that affect soil chemistry, water availability, and ecology in fundamental ways.

Healthy soil and water resources provide essential ecosystem services for forest and farm production. And well managed farms and forests can contribute in a variety of ways to preventing and reducing the effects of accelerating climate change. How can we keep these essential resources healthy as we use them? Can we build healthy soils that ensure a supply of high quality food and fiber and at the same time protect our water resources and ecosystem future?

This year's Envirothon Current Issue problem focuses on the essential, fundamental ecosystem services that soil and water provide, and on decisions and actions for the management and protection of this ecological foundation.

Science is an essential tool, helping us to understand both the workings of the natural systems we depend upon and the effects of our practices within those systems. Understanding the science of soil and water will be an important part of preparing to respond to this year's Current Issue problem.

## The Problem

Individuals who serve on your city or town's agriculture commission, conservation commission, and regional food policy council have heard that you are doing research on soil and water resources in your community. They are interested in promoting local food and sustainable forest production. They would like to hear about what you have found, and what you might recommend. Their key questions are:

**What is the potential for producing local food, fiber, and/or wood products here, given the soil, water, and people resources in our community? What can be done to maximize this potential while remediating, protecting, and enhancing local soil and water resources for the long run? What do you recommend?**

In order to formulate sound recommendations, and present them with authority, your team needs to develop **two** kinds of expertise at **two** scales:

On the large scale, you should develop a good grasp of the land and water resources across your community, how they contribute to the economy and human welfare, and what the problems and opportunities are. Maps and field study will be essential, as will getting to know natural resource managers, local officials, and environmental advocates involved in stewardship efforts – and understanding the knowledge, skills, and values they bring to these questions.

On a smaller scale, you should choose (at least) two pieces of land in your community that in your judgment are in some way significant for the question of local food and fiber production. Using your field science and laboratory research skills, get to know the soil and water resource problems and opportunities that these fields and/or forests represent. Then talk with the people who work with these specific pieces of land to learn more about the practices they employ, the values they hold, and the policies that affect them.

At both town-wide and smaller scales, you should become familiar with the array of best practices for soil health and water conservation that might be appropriate.

## **In your presentation you should:**

### **Provide an overview of soil and water resources, both town-wide and at specific sites.**

- Introduce your local landscape, describing the variety of soil and water resources and land uses.
- Describe how these resources have been used through history.
- Describe the ecosystem services provided in your community by gardens, farms, working forests, and water bodies.
- What current conditions have you found? How healthy is the soil? What are the problems and opportunities?
- In particular, how have drought and (in some cases) flooding affected soil and water quality?

### **Provide an overview of relevant policies and practices for soil health, water conservation, and agricultural productivity that are currently in place in your community.**

- Introduce the people who are involved in stewardship of these resources. Who is involved and how? What knowledge, skills, and values do they bring?
- What local, state, and federal policies, regulations, and incentive programs make it more possible for individual growers to be good stewards of soil and water resources?
- What best practices are currently in use? What are the expected outcomes?

### **Provide your recommendations for producing local food & fiber while maintaining or improving the health of soil and water resources.**

- Is it possible to hold both goals? Which policies and practices will support both? Which will not?
- Can soil and water conservation support long term efforts to slow climate change? To adapt to change that is already taking place?
- What effects will your recommended policies and practices have in the short (5 year) and long (50 year) term? What do we know? What do we not know?
- What hinders the adoption of these policies and best practices?

## **Some tips for your presentation**

### **How it works:**

- The Current Issue Presentation score is 25% of your team's total Envirothon score.
- Five (and only five) members of your team will make your presentation to a panel of five to eight judges. Your coach and other team members will be able to observe but not participate. The judges' job is to listen, ask good questions, assess your work, and give you feedback on your research, your recommendations, and your presentation.
- You have 15 minutes for your presentation, followed by a 10 minute period when the judges can ask questions.
- Five of the judges will be designated to give your team a number score. The average of the middle three scores will be your score for purposes of the competition.
- All the judges are asked to give you helpful comments. Copies of the score and review sheets are sent to your coach.

**Show the judges how you know what you know, and how you came to your conclusions.** Tell them about where you visited, who you talked to, what documents you researched, what activities you participated in.

**You may have encountered surprising stories about ecological systems and human undertakings. Share them!**

**Use visual aids and examples.** Photographs, charts and graphs, samples, and quotes can help you make your points and distinguish your presentation from others. **Your Envirothon map** can help you to introduce your community.

**Practice your presentation.** Practice makes it easier for you to be poised and at ease in your presentation, including being able to make good eye contact and speak naturally with the judges.

**Be Prepared!** You will be presenting in a tent, outdoors. The day of the Envirothon is often surprisingly windy and cold, and sometimes wet. Mount your visual aids on sturdy boards in case of wind.