12. Organic Farms

Overview
With so many choices at the grocery store today, people often wonder if buying organic foods is really the best thing to do. Students will evaluate the pros and cons of organic and conventional products to determine their opinion on this question, helping them to become more informed consumers.

Grade Levels: 9 – 12
Time: Three 50 minute periods.

Minnesota State Standards: Geography
GRADE 9
Benchmark: 9.3.1.1.1.
Create tables, graphs, charts, diagrams and various kinds of maps including symbol, dot and choropleth maps to depict the geographic implications of current world events or to solve geographic problems.

Benchmark: 9.3.2.4.2
Identify the primary factors influencing the regional patterns of economic activity in the U.S. and the world.

Key words
• Organic farming, conventional farming

Prior Knowledge
• Basic map reading skills

Objectives
The student will:
• Describe the process of organic farming.
• Identify the opportunities and challenges of organic farming.
• Interpret maps and graphs.
• Explain the distribution and pattern of organic farms across Minnesota and the United States.
• Identify ideal locations for an organic farm in Minnesota.

Materials
• Food for Thought Maps found at http://www.mda.state.mn.us/fft
  ➢ Organic Farms in MN (2009) (Map 19)
  ➢ Organic Farms in MN (2014) (Map 20)
  ➢ Farmland in MN Counties (Map 25)
  ➢ Farmland Value in MN Counties (Map 26)
  ➢ Population Change in MN Counties (2000-2010) (Map 32)
  ➢ Major Highways in MN (Map 38)
Organic

The word is a promise about how a food was grown and handled before you buy and eat it. While all farming is rooted in the biology of living things, organic farmers rely on the principles of biology and ecology to a much larger extent than non-organic farmers. Organic farmers don’t use synthetic (human-made) weed killers, insecticides, fertilizers, or genetically modified seeds (GMO) that are common on many of today’s farms, and they must promote biodiversity on their farms.

One really important thing all organic farmers do is rotate their crops. This means they don’t grow the same one or two crops in the same place year after year. Instead, they mix up the crops they grow. For example, they might grow oats in year one, hay in years two and three, corn in year four and soybeans in year five. Rotating crops this way helps confuse insect pests, reduces weeds, and improves soil quality.

There are special rules for organic farmers who raise livestock, too. For example, all the animals must be allowed to go outside if they want to. Their feed must be organic and their stalls or pens for housing must be clean and comfortable so that they stay healthy. Many farmers also give their animals vaccines to prevent them from getting sick.

At the beginning of this section we talked about organic being a “promise.” Organic farmers and food companies get inspected on a regular basis to ensure that they are keeping this promise and following all the organic rules.

Minnesota is one of the national leaders in organic production, with more than 750 certified organic farms. Our organic farmers raise cereal grains (such as wheat, oats, barley, and rye), corn, soybeans, dairy and beef cows, chickens, fruit, vegetables, and even maple syrup and buckwheat! Some farms are as big as 3,000 acres and some are just an acre or two. Minnesota also has more than 200 food companies that process organic milk, pasta, salad mix, oatmeal, cookies, chips and more.

Why Organic?

Organic farming is hard work, but the farmers do it because they like it. Farmers have different reasons for choosing to be organic. Some like the challenge of growing many different crops and farming with nature. Others don’t like buying or using synthetic chemicals or genetically modified seed. Price is also important. Farmers usually receive more money for products that are organic.
Procedure

Part 1 - Research
Ask students to research the following questions using a computer and the internet. They may use the resources listed in the materials section or find their own using an internet search engine.

1. Define organic agriculture.
2. List the characteristics which differentiate an organic farm from a more traditional farm.

Part 2 - Guided Notes and Discussion

1. Engage the students in an introductory discussion about organic production using the questions on this page. Discussion areas might include soils, precipitation needs, climate, land prices, transportation, access to local processing, distance to consumer market, major population centers, etc.

2. Individually or in small groups, have students complete the graphic organizer with their opportunities and challenges hypothesis of organic farming. Students should list at least five for each category.

3. Then, as a class, complete the graphic organizer together, seeking input from all students.

   Note to Educators: Consider visiting an organic farm, interviewing a farmer over the phone, or asking an area organic farmer to visit your classroom.

Part 3 - Minnesota’s Organic Grown

1. Show copies of organic labels and samples of organic products so students will be able to recognize this type of product in the market.

2. Engage the students in an introductory discussion about organics using the same questions.

Questions for Students

- Have you ever eaten organic products? — answers will vary
- Have you ever visited an organic farm? — answers will vary
- Are there any organic farms in your neighborhood or community? — answers will vary
- What types of agricultural products are produced in Minnesota? — Corn, soybeans, wheat, sugar beets, dairy, hogs, turkeys, fruits and vegetables and much more.
- What types of agricultural products are produced organically in Minnesota? — Most of the above to scale but, in particular, cereal grains, corn, soybeans, milk, chickens, fruits, vegetables and herbs.
- Why would Minnesota consumers demand organic products? — Some shoppers don’t like the idea of pesticide residue on foods, others consider organic better for the environment, still others say organic foods taste better. To some the higher cost is also acceptable.
- Why would Minnesota farmers produce organic products? — Less impact on the environment, higher profit potential, growing demand in market, personal conviction to growing method.
- Why wouldn’t Minnesota consumers want organic products? — Lack of knowledge, higher prices
- Why wouldn’t Minnesota farmers produce organic products? — Greater risk, possible limited market, lack of knowledge, labor intensive, marketing demands.
- What kind of organic farm would be a good fit for your county? Why? — answers will vary
- You are an organic dairy farmer and want to move to Minnesota. Where will you locate your organic dairy and why? — answers will vary
- How does the local geography affect an organic farmer’s ability to grow for and deliver to that market? — Soil quality, adequate rainfall, transportation

3. Provide each student with a copy of MN Counties (named) (Map 41). Ask students to draw (with pencil) a dashed line where they think organic farms would be in Minnesota. Ask them to share their maps with their neighbor.

4. Show students MN Organic Farms 2009 (Map 19) or 2014 (Map 20).

5. Now have students draw a solid-lined circle around the regions of Minnesota where actual organic farms are located. How close were they? Discuss.
6. Show students the MN Population Change in Minnesota Counties map (Map 32). Next, display the MN Farmland (Map 25), and then the MN Farmland Value (Map 26). After showing all three maps, discuss the following question with students: Why are Minnesota organic farms located where they are? Population clusters, available farmland, price of farmland, demand, profit maximization opportunities.

7. Use maps to compare Organic Farms 2009 (Map 19) and Organic Farms 2014 (Map 20). Ask students to draw conclusions about the following questions: Where are there greater numbers of organic farms? Are there locations that have lost organic farms? If so, how might this happen? What may have led to the growth? Are there any locations that are unexplained?

**Part 4 - Here or There?**

1. Using the following maps for reference, Farmland in MN Counties (Map 25), Farmland Value in MN Counties (Map 26), and Minnesota Counties (named) (Map 41), ask students to consider the following:

   Given the choice between two counties, where would you buy land to locate an organic farm?
   - Stearns County or Ramsey County?
   - St. Louis County or Winona County?
   - Kittson County or Pipestone County?
   - Renville County or Washington County?
   - Becker County or Benton County?
   - Blue Earth County or Carlton County?

   Note: Require students to justify their answers by listing characteristics of their county which would support organic farming, or characteristics which would inhibit organic farming.

2. Students should pick one set of counties from the above list and then explain why they would locate an organic farm in one of the counties. Answers should be shared with the class. During discussion, students could also color their county in on an overhead transparency map.

   Options: Put students into small groups and assign one or two of the selections, allow students to pick one, or require they answer all six.

**Part 5 - U.S. Organic Grown**

1. Following the same line of questioning as in Part IV: Here or There? Ask students how the distribution of organic farms nation-wide would look.

2. Show students the following maps. They can be found at www.mda.state.mn.us/fft.
   - U.S. Certified Organic Farms by Zip Code
   - U.S. Total Farms
   - U.S. Vegetable Farms
   - U.S. Population Distribution map
   - Environmental Food Atlas


4. After reading the article, students should answer the following questions:
   - Where are there greater numbers of organic farms?
   - Does this follow the pattern in Minnesota?
   - What types of products do you think are most often grown organically?

**Assessments:**

1. Students will hand in their research handout for credit and also be graded on the presentation of opinions for locating an organic farm in Minnesota.

2. Students may also be assessed by their participation in class discussions.
## Organic Agriculture Graphic Organizer

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