



# PROGRAM

## SUPPORT NOTES

### Industrial and Sustainable Farming

Program Support Notes by:  
**Teacher Name** Qualifications

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Produced by:  
**VEA Pty Ltd**

Commissioning Editor:  
**Sandra Frerichs** B.Ed, M.Ed.

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Executive Producers:  
**Edwina Baden-Powell** B.A, CVP.  
**Sandra Frerichs** B.Ed, M.Ed.

## ***For Teachers***

### **Introduction**

Whilst industrial farming has existed for thousands of years across the world, there is a growing need for farmers to take on sustainable farming practices that are beneficial to both consumption and the land. This will ensure that quality land continues to be available for the purpose of farming, and that it is able to produce crops of a high standard.

### **Timeline**

00:00:00 Industrial Farming Practices  
00:08:46 Sustainable Farming Practices  
00:20:21 Credits  
00:21:19 End program

### **Related Titles**

The Use of Irrigation in the Murray-Darling Basin  
Developments in the Food Industry – Science, Technology and the Environment  
New Foods – Changes and Advances in Technology

### **Recommended Resources**

- <http://www.motherearthnews.com/Sustainable-Farming/Nutrient-Decline-Industrial-Farming.aspx>
- <http://www.csiro.au/en/Outcomes/Food-and-Agriculture/Sustainable-Farming.aspx>
- <http://www.guardian.co.uk/environment/2010/oct/25/farming-ecosystems-prince-charles>



## **Active Viewing Guide**

### Industrial farming

1. What is currently the biggest challenge to the world farming industry, over the next decade?

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2. Define industrial farming.

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3. What three things are required for plants to grow?

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4. What are the consequences of the loss of habitat for our native species?

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5. Explain how industrial or intensive farming results in reduced prices for consumers.

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6. Consider what may be the ramifications if chemicals for pesticides or herbicides end up in the surrounding creeks.

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## Industrial and Sustainable Farming

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### Sustainable farming

7. Define sustainable farming.

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8. List two advantages of sustainable farming.

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9. What methods are used by farmers to track or reduce pests?

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10. Identify the three things that occur with crop rotation.

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11. What is the importance of leaving a farm in a better state than when it started?

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12.a) What are some of the benefits to consumers of sustainable farming?

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b) What are the benefits to the farmer?

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### Extension Activities

1. Investigate what sort of things (insects, fungi, and animals) might retard the growth of a crop. Prepare a poster that describes how farmers deal with the problem. Where possible include a description of both sustainable and industrial practices.
2. Some supermarkets encourage farmers to dip seedlings into a chemical called Confidor. In teams, investigate the active ingredient in Confidor, imidacloprid. Research the side effects of using this product. Have a class debate, arguing for and against the use of this chemical.
3. Consider why the process of changing a farm over to sustainable farming practices, would take the farmer 2 years? Create a timeline of things that need to happen.
4. During the program, a suggestion was made that tomatoes grow better with marigolds, as they help prevent nematodes; this is an example of companion planting. Research another example of companion planting. As a class project, plant tomatoes (and another easy to grow crop) in two batches, with one batch plant the companion plant and the other without the companion plant. Write a report on the outcome of the project, discussing what you noticed.
5. Research and summarize the farming practices used prior to World War II, and find evidence to back up the claim that it is a method that we should return to. Write a newspaper article putting forward this evidence to those who support industrial farming practices.

### ***Suggested Student Responses***

#### **Initiate Prior Learning**

1. Have you ever had a vegetable garden, or known someone who grew their own vegetables? What sort of vegetables did they grow?  
**Answers will vary, but may include: lettuce, tomato, cucumber, pumpkin, capsicum, herbs.**
2. List 10 foods that are grown by crops.  
**Answers will vary, but may include: all fruit and vegetables e.g. tomato, lettuce, pineapple, cucumber.**
3. Should chemicals be used on food? Research the topic: 'how do chemicals assist in growing crops'? What information can you find?  
**Answer may include the addition of fertilizers or products used to prevent pests.**
4. Investigate which organic foods are available in your local supermarket. See if you can find out what farmers need to do to get an organic certification on their produce.  
**Answers will vary, but may include: pumpkin, tomatoes, lettuce, and many other vegetables, depending on the area. Organic certification will vary depending on the area, but usually involves a long process of ridding the area of built up chemicals used in the past, and not using synthetic fertilizers, pesticides, herbicides, animal drenches, etc.**

## Active Viewing Guide

### Industrial farming

1. What is currently the biggest challenge to the world farming industry over the next decade?  
**To feed the world population, this is still growing.**
2. Define industrial farming.  
**It uses intensive agricultural practices to efficiently grow crops on a large scale.**
3. What three things are required for plants to grow?  
**Sunlight, nutrients and water.**
4. What are the consequences of the loss of habitat for our native species?  
**Not as many animals around. May then have a chain reaction if those animals are not around to eat smaller animals.**
5. Explain how industrial or intensive farming results in reduced prices for consumers.  
**You get a lot of food grown on a small area of land, so it is highly efficient. This increases profits for farmers, and flow on to consumers who benefit from lower food prices.**
6. Consider what may be the ramifications if chemicals for pesticides or herbicides end up in the surrounding creeks.  
**Pollution in the waterways, which may be harmful to local populations, and the flora and fauna. Unable to use the waterway for drinking water, recreational use, etc.**

### Sustainable farming

7. Define sustainable farming.  
**Preserving the capital of the farm, looking after the soil and making sure the land will still be useful for farming in future generations.**
8. List two advantages of sustainable farming.  
**Increase long term capacity of the farm  
Less inputs coming from far away (e.g. fertilizers – chicken for nitrogen)**
9. What methods are used by farmers to track or reduce pests?  
**Traps, visual inspections**
10. Identify the three things that occur with crop rotation.  
**Crop rotation benefits the soil, helps replenish nitrogen and reduces the build-up of pests and pathogens.**
11. What is the importance of leaving a farm in a better state than when it started?  
**Answers will vary, but may include the need to ensure that following generations can grow food to sustain our increasing population.**
12. a) What are some of the benefits to consumers of sustainable farming?  
**Answers will vary but may include: better quality produce, fewer chemicals that the consumer accidentally consumes.**  
  
b) What are the benefits to the farmer?  
**Answers will vary but may include: better price on produce, healthier working environment.**

### Extension Activities

1. Investigate what sort of things (insects, fungi, and animals) might retard the growth of a crop. Prepare a poster that describes how farmers deal with the problem. Where possible include a description of both sustainable and industrial practices.  
**Answers will vary.**
2. Some supermarkets encourage farmers to dip seedlings into a chemical called Confidor. In teams, investigate the active ingredient in Confidor, imidacloprid. Research the side effects of using this product. Have a class debate, arguing for and against the use of this chemical.  
**Answers will vary, but should include: can cause eye and skin irritation in humans, and is also toxic to earthworms, bees and some aquatic species.**
3. Consider why the process of changing a farm over to sustainable farming practices, would take the farmer 2 years? Create a timeline of things that need to happen.  
**Answers will vary, but include: crop rotation, finishing using any chemicals that had already been purchased, training workers.**
4. During the program, a suggestion was made that tomatoes grow better with marigolds, as they help prevent nematodes; this is an example of companion planting. Research another example of companion planting. As a class project, plant tomatoes (and another easy to grow crop) in two batches, with one batch plant the companion plant and the other without the companion plant. Write a report on the outcome of the project, discussing what you noticed.  
**Answers will vary.**
5. Research and summarize the farming practices used prior to World War II, and find evidence to back up the claim that it is a method that we should return to. Write a newspaper article putting forward this evidence to those who support industrial farming practices.  
**Answers will vary, but may include: without chemicals, with very little synthetic fertilizer, rock based fertilizers, natural fertilizers and allowing nature to take care of pest and diseases in order to have healthy soil, which results in a better quality product to consumers that is free from synthetic chemicals.**