



pesticide



desertification



irrigation



till

Get ready!

1 Before you read the passage, talk about these questions.

- 1 What can happen in dry areas that receive inadequate irrigation?
- 2 What kind of chemical, used to kill pests, can damage soil?

Reading

2 Read the article. Then, mark the following statements as true (T) or false (F).

- 1 What is the main idea of the article?
 - A farming methods that damage soil
 - B how to reverse soil degradation
 - C a comparison of agricultural practices
 - D types of chemicals that cause pollution
- 2 Which of the following is NOT true of salinity?
 - A Some salinity helps crops grow.
 - B Desertification can increase salinity.
 - C High amounts of it will kill crops.
 - D Irrigation can add to salt levels.
- 3 What is one effect of tilling?
 - A It reduces the need for fertilizer.
 - B It leads to less irrigation use.
 - C It restores primary salinity levels.
 - D It increases moisture loss.

Vocabulary

3 Read the sentences and choose the correct words.

- 1 The soil has a **pH value** / **primary salinity** of 3.3, meaning it is very acidic.
- 2 To get rid of the weeds, use a **herbicide** / **fertilizer**.
- 3 The cause of the **secondary salinity** / **soil pollution** was a toxic chemical spill.
- 4 This system of **desertification** / **irrigation** delivers water through pipes.



Department of Agriculture

Farming Issues: Saving Your Soil

Soil pollution and **soil degradation** are major problems facing **agriculture** today. These problems result from a variety of sources.

Salinity can have a negative impact on soil and plant growth. **Primary salinity** usually results in a high degree of biodiversity. However, **secondary salinity**, often caused by **irrigation**, reduces production. Irrigated water carries salt, which then accumulates in the topsoil. **Dryland salinity** is similar, but results from rising groundwater levels. Both processes lower crop yields and eventually kill plants. In addition, salinity from improper irrigation can lead to **desertification** in already dry areas.

Anytime you use chemical **fertilizers**, **pesticides**, or **herbicides**, they must be carefully controlled to prevent damage. For instance, chemicals can contaminate water sources as **runoff**. Furthermore, using fertilizers improperly can change the soil's **pH value**. Generally, the pH value should be around 5.5. More acidity means higher levels of toxic substances. Use of chemicals should be minimized whenever possible.

Tillage, another common agricultural practice, can also lead to soil degradation. When farmers **till**, it loosens the soil. This has two negative effects. First, more topsoil and nutrients are lost to erosion. Second, more moisture escapes the soil. To combat these effects, farmers use more fertilizer and irrigation, which have their own consequences. Avoiding tilling or using techniques that limit damage is highly recommended.



agriculture



runoff

4 Read the sentence pairs. Choose where the words best fit the blanks.

1 pesticides / agriculture

- A _____ get rid of insects, but they add chemicals to the soil.
B _____ is the primary industry in many developing countries.

2 soil degradation / primary salinity

- A _____ is salt that has collected in soil over millions of years.
B Excessive grazing by animals is a major cause of _____.

3 fertilizer / runoff

- A Manure, or cow excrement, can be used as a natural _____.
B _____ can carry elements like nitrogen into groundwater.

4 dryland salinity / desertification

- A _____ results when vegetation is removed and more water is absorbed into the ground.
B _____ is causing the Sahara in Africa to grow by almost 50 kilometers a year.

5 till / secondary salinity

- A The effects of _____ can be reduced with better drainage.
B Some farmers don't _____ their soil because it causes erosion.

5 Listen and read the article again. What are the different types of salinity?

Listening

6 Listen to a conversation between a scientist and a farmer. Mark the following statements as true (T) or false (F).

- ___ The soil's pH levels are too high.
- ___ The man's current crops are not salt tolerant.
- ___ The woman recommends changing irrigation methods.

7 Listen again and complete the conversation.

- Farmer:** So what were the results of the 1 _____ test?
Scientist: Well, unfortunately, the 2 _____ were pretty high.
Farmer: That's what I was 3 _____.
Scientist: The problem is 4 _____, probably because of your irrigation system.
Farmer: What's wrong with it?
Scientist: Well, your soil isn't absorbing water. And irrigation water generally has some salt in it. So it's just 5 _____.
Farmer: So the salt remains in the soil and 6 _____?

Speaking

8 With a partner, act out the roles below based on Task 7. Then switch roles.

USE LANGUAGE SUCH AS:

- What were the results of ...?*
I'm afraid that ...
You could try ...

Student A: You are a scientist. Talk to Student B about:

- a problem with the soil on his or her land
- what caused the problem
- how he or she can fix the problem

Student B: You are a farmer. Talk to Student A about solving the soil problems on your farm.

Writing

9 Use the article and the conversation from Task 8 to write a letter to a farmer about a problem with his or her soil. Include: the results of a soil test, the causes and effects, and a solution.