



greenhouse

hoop house

photoperiod

Get ready!

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

- How long are the growing seasons in your country?
- How can farmers extend growing seasons?

Reading

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

- The author believes site selection is the most important aspect of planting crops.
- Areas with short photoperiods have colder temperatures.
- Hoop houses increase air temperature.

Vocabulary

3 Match the words (1-6) with the definitions (A-F).

- | | |
|---|---|
| 1 <input type="checkbox"/> base temperature | 4 <input type="checkbox"/> site selection |
| 2 <input type="checkbox"/> last frost date | 5 <input type="checkbox"/> mean temperature |
| 3 <input type="checkbox"/> greenhouse | 6 <input type="checkbox"/> growing degree day |

- the act of choosing a place to plant crops
- the last day during which plants may freeze
- the minimum temperature at which plants may grow
- a structure that retains solar energy
- the average temperature in an area
- a measure of how much heat a plant will receive in a day

Aggie Trends Magazine • Summer Edition

The Challenges of Growing Seasons

One of the most critical concerns for any agriculturist is the changing of seasons. Specifically, the decline in temperature, often sharp and precipitous, that occurs as each fall turns to winter. Plants have varying degrees of tolerance for cold, so different strategies for coping with the cold may be used with each type of crop. Next to the characteristics of the plants themselves, the most important issue to consider is **site selection**.

Each agricultural site has its own unique characteristics. Different sites have differing growing seasons based on **elevation**, **growing degree days**, and **last frost dates**. For example, one site may have very high growing degree days while in another area, the **mean temperature** may barely rise over the **base temperature**. Agriculturists can protect their crops from the cold by selecting sites with long **photoperiods** and higher mean temperatures.

Of course, selecting a new site isn't always an option. After all, humans have cultivated crops in nearly every region on Earth. Less favorable sites may require special care. For example, there are several methods of **freeze protection** that an agriculturist can use. **Greenhouses** and **hoop houses** can be used to absorb and trap whatever heat the region does receive. Additionally, **heaters** can be used to raise the temperature of the air around tree crops.

4 Write a word that is similar in meaning to the underlined part.

- Long amounts of time that plants are exposed to light produce strong plants.
p _ _ _ _ p _ _ _ _ s
- The structure with a curved roof that traps heat allows farmers to grow in cold seasons.
_ o _ _ _ o _ _ _
- Janet's farm is at a higher height of an area relative to the ocean level.
_ l _ _ _ _ _ n
- Preventing crops from freezing saved the harvest last winter.
_ r e _ _ _ p _ _ _ _ t _ _ _
- Norman wants to start a farm in an area with a long period during which plants grow.
g _ _ _ _ _ g _ e _ _ _ _
- Get a device that burns fuel to create heat to keep the plants from freezing.
_ _ a _ _ _

5 Listen and read the magazine article again. What do heaters do?

Listening

6 Listen to a conversation between two farmers. Choose the correct answers.

- 1 What does the man want to do?
A reduce fuel costs
B extend the growing season
C construct a second hoop house
D purchase less expensive heaters
- 2 When does the man suggest they use heaters?
A in the fall C in the spring
B in the winter D in the summer

7 Listen again and complete the conversation.

Farmer 1: I want to try to extend our growing season.

Farmer 2: How would we do that?

Farmer 1: Well, we could plant our tomatoes, radishes, and spinach a month or two early if we used a hoop house.

Farmer 2: Perhaps. It would be nice to plant early.

Farmer 1: I'm trying to figure how we could extend our season into the late fall.

Farmer 2: Well, what about heaters?

Farmer 1: Oh, I see. When it starts to 1 _____ in the fall, we could use heaters at night.

Farmer 2: Exactly. We could probably have 2 _____ in a year.

Farmer 1: Hmm ... We could plant early, before the 3 _____ . Then we could plant again in the late summer after harvest.

Farmer 2: Right. The only problem is size. The hoop house can't hold that many plants.

Farmer 1: That's a 4 _____ .

Farmer 2: Let's 5 _____ the spinach and 6 _____ .

Speaking

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

USE LANGUAGE SUCH AS:

I want to try to ...

It would be nice to plant early.

We could use the heaters at night.

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

- longer growing seasons
- hoop houses
- heaters

Student B: You are a farmer. Talk to Student B about growing seasons.

Writing

9 Use the conversation from Task 8 to write a letter to a farm owner. Include: how to extend the growing season, equipment needed, and the benefits.

Dear _____

Regards

Get ready!

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

- 1 Name a damaging weed, pest, and disease in your country?
- 2 What are some ways to avoid crop damage from weeds, pests, and disease?



pesticide



biological control



fungal

Reading

2 Read the page from the farmer's guide. Then, mark the following statements as true (T) or false (F).

- 1 The guide advises against applying herbicides directly to fields.
- 2 Biological controls pose fewer safety risks than chemical controls.
- 3 Fungal diseases are easier to prevent than bacterial diseases.

Vocabulary

3 Match the words (1-6) with the definitions (A-F).

- | | |
|--------------------------------------|--|
| 1 <input type="checkbox"/> sanitize | 4 <input type="checkbox"/> pathogen |
| 2 <input type="checkbox"/> fungal | 5 <input type="checkbox"/> weed |
| 3 <input type="checkbox"/> bacterial | 6 <input type="checkbox"/> pest management |

- A preventing organisms from harming crops
 B being or related to fungus
 C an unwanted wild plant
 D being or related to bacteria
 E to kill bacteria
 F an organism that causes disease

Semple's Guide to Farming

Three of the greatest threats to farmers are weeds, pests, and diseases. Nevertheless, an informed farmer can develop effective strategies for dealing with these problems.

Weeds,
Pests,
and
Disease

Weeds

Weeds grow everywhere, but they seem to prefer farmer's fields. Use a **weed map** to identify problem areas. Then apply **herbicides** as needed for **suppression**. If **mulching** weeds, it is not advised to apply mulch directly to your fields.

Pests

Pests, primarily insects but also small mammals and birds, destroy countless crops every year. This is why farmers need a sound **pest management** strategy. These can be chemical or biological. Chemical controls refer to **pesticides**. They tend to be very effective but carry safety risks. Less risky, though sometimes less effective, are **biological controls**. An example is the predatory ground beetle, which feeds on crop-eating ground worms.

Disease

Disease arrives from one of three types of **pathogens**: **bacterial**, **viral**, and **fungal**. The first two are rather difficult to fight. The best defense is maintaining good soil and growing conditions to keep plants strong. Prevent fungal diseases with **fungicides**. Finally, simply **sanitizing** equipment can sometimes prevent the spread of **blight**.

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

1 weed maps / biological controls

A _____ show where to apply herbicides.

B _____ give farmers an alternative to pesticides.

2 herbicide / blight

A The _____ destroyed the entire crop.

B Most weeds can be controlled with _____.

3 fungicide / suppression

A Wendy used a _____ to protect her crops.

B _____ of pests is a concern for farmers.

4 mulching / pesticide

A _____ plant waste can enrich soil.

B _____ effectively controls insects.

- 5 Listen and read the page from the farmer's guide again. What does it suggest is the best defence against diseases?

Listening

- 6 Listen to a conversation between two farmers. Choose the correct answers.

- 1 What did the man use on his crop?
 A Biological controls
 B Insects
 C Chemical pesticides
 D Herbicides
- 2 Which biological control will the man use?
 A other plants C wasps
 B borers D bollworms

- 7 Listen again and complete the conversation.

Farmer 1: I just discovered that I have corn borers in my cornfields. I have to do something before they ruin my crop.

Farmer 2: I had a similar problem last year.

Farmer 1: What did you 1 _____ ?

Farmer 2: I 2 _____ . I sprayed my fields with pesticides.

Farmer 1: I'd prefer to try a biological control rather than 3 _____ .

Farmer 2: What do you mean, use other insects or something like that?

Farmer 1: Exactly. I 4 _____ wasps. Apparently, they eat the borers.

Farmer 2: How can insects be better than chemical pesticides?

Farmer 1: 5 _____ that shows they're very effective. And I wouldn't have to worry about chemical side-effects.

Farmer 1: Hmm. 6 _____ if it works. I'm starting to have a problem with bollworms.

Speaking

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

USE LANGUAGE SUCH AS:

*I just discovered that I have ... in my fields.
 I sprayed my fields with pesticides.
 How can insects be better than pesticides?*

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

- a problem with crops
- chemical controls
- biological controls

Student B: You are a farmer. Talk to Student A about controlling crop problems.

Writing

- 9 Use the conversation from Task 8 and the farmer's guide to write a farmer's memo to staff about a crop problem. Include the type of problem and the controls to be used.

MEMO

To: All staff



stunted



wilted

browning

stippled

University of Jacksonville

Extension Office: Crop and Field Problems

Who we are

We are **agricultural advisors** with extensive experience in diagnosing crop and field problems. Our services are available to the general public.

What we can do for you - We can provide technical assistance in a variety of ways ranging from advice on crop selection to on-site and laboratory diagnosis.

On site diagnosis

Give us a call if your plants are **stippled**, **stunted**, **wilting**, or **browning**. We attempt to establish **symptom patterns** for small groups of plants. For larger problems, we attempt to identify the **field pattern**. Once this information has been gathered, we can usually provide a definitive diagnosis using our **symptomology keys**.

Laboratory diagnosis

When a symptomology key does not provide a definitive diagnosis, we usually turn to lab analyses. These tests can identify if a **symptom** is caused by **biotic** or **abiotic** factors.

How to contact us

If you'd like to get our advice, or set up an appointment for a field or crop diagnosis, please call 888-555-0505 or send an email to diagnosis@extension.ur.edu.

[Back to Top](#) | [UR home](#) | [Terms of Use](#) | [Search](#) | [Site Map](#)

Get ready!

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

- 1 What are some signs that crops are failing?
- 2 What are some ways to save failing crops?

Reading

2 Read the webpage from an agricultural extension office. Then, choose the correct answers.

- 1 What is the purpose of the webpage?
 - A to explain a diagnostic technique
 - B to offer advice on diagnosing problems
 - C to give information about services
 - D to list common causes of crop problems
- 2 Who does the office provide assistance for?
 - A college students
 - B the general public
 - C laboratory scientists
 - D agriculture professors
- 3 Which service is NOT provided?
 - A advice on growing crops
 - B on-site diagnosis of problems
 - C laboratory analysis of samples
 - D preparation of new fields

Vocabulary

3 Match the words (1-5) with the definitions (A-E).

- | | |
|-------------------|----------------------|
| 1 — abiotic | 4 — symptomology key |
| 2 — brown | 5 — symptom |
| 3 — field pattern | |

- A to change color
- B non-living
- C a sign that indicates disease
- D a tool used to diagnose diseases
- E a sign of disease that occurs throughout an area



4 Fill in the blanks with the correct words and phrases from the word bank.

Word BANK

biotic stunted wilt
stippled symptom pattern

- _____ leaves are covered with spots.
- A _____ plant will be much smaller than others.
- Many crop problems have _____ causes.
- The crops started to _____ in the heat.
- Researchers are analyzing the _____.

5 Listen and read the webpage from an agricultural extension office again. What happens when a symptomology key doesn't provide a definite diagnosis?

Listening

6 Listen to a conversation between an agricultural advisor and a farmer. Check (✓) the symptoms of the farmer's corn.

- wilting
- drying out
- browning tops
- blackened roots
- stunted growth

7 Listen again and complete the conversation.

Advisor: Mr. Fussel, what's the problem with your corn?
Farmer: Well, 1 _____ even though I gave them plenty of water and fertilizer.
Advisor: 2 _____ first noticed the problem.
Farmer: That would have been 3 _____. First, I noticed the tops of some of the plants were browning.
Advisor: What happened next? 4 _____?
Farmer: Not that. Next, they 5 _____ slightly. That's when I 6 _____ water.

Speaking

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

USE LANGUAGE SUCH AS:

What's the problem with your corn?

I noticed the tops of some of the plants were ...

And what happened next?

Student A: You are an agricultural advisor. Ask Student B about:

- crop problems
- symptoms
- changes

Student B: You are a farmer. Answer Student A's questions.

Writing

9 Use the conversation from Task 8 to write an email to an agricultural advisor. Include: your problem, crop symptoms, and changes you've seen.

To: Farmadvisor@farmsite.com
 From: THernandez@Hfarm.com

To _____

Sincerely _____