

Sweet Rewards Beekeeper Supply

Whether you're considering beekeeping as a hobby or a career, Sweet Rewards Beekeeper Supplies has everything you need. We carry a wide selection of **beehive frames** to house your **colony**. From **top-bar hives** to traditional **skeps**, we have hives for any type of **apiary**.

In addition to hive frames, we also carry a complete line of beekeeper tools. We have several sizes of **smokers**, as well as **liquid smoke** and **cold smoke aerosols**. When it's time to harvest **honey**, take advantage of our new line of honey jars. We even serve beekeepers who prefer traditional methods. For these customers, we carry **honeycomb presses**.

Finally, no beekeeping operation is complete without protective gear. We have **beesuits** in a variety of sizes and designs including square **veils**, round veils, and shoulder veils.

Stop in today and see what makes Sweet Rewards the first choice for professional beekeepers.

Get ready!

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

- 1 What challenges do beekeepers face?
- 2 Why is beekeeping important today?

Reading

② Read the webpage. Then, choose the correct answers.

- 1 Which product do bees live in?

A apiary	C beehive frame
B beesuit	D honeycomb press
- 2 What is true of the honeycomb press?

A It protects beekeepers.
B It supports large colonies.
C It is preferred by professionals.
D It is used by traditional beekeepers.
- 3 What does the store NOT sell?

A bee colonies	C harvest equipment
B smoking tools	D protective clothing

Vocabulary

③ Read the sentence pairs. Choose which words best fit each blank.

- 1 **apiary / beesuit**

A This _____ produces a lot of honey.
B A good _____ protects beekeepers' skin.
- 2 **liquid smoke / colony**

A Wendy's _____ lives in a top-bar hive.
B _____ is a good option for people who dislike the smell of smoke.
- 3 **veils / skeps**

A There are many types of protective _____.
B Traditional beekeepers use _____.



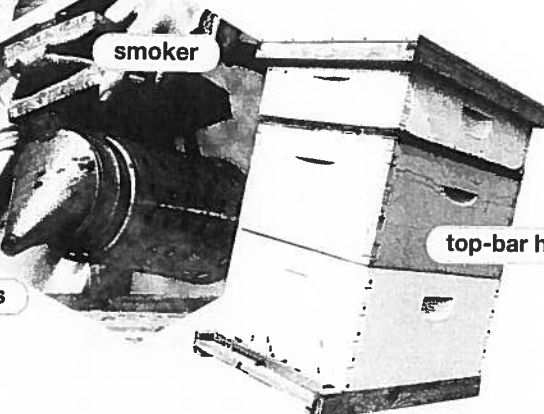
beesuit



honey

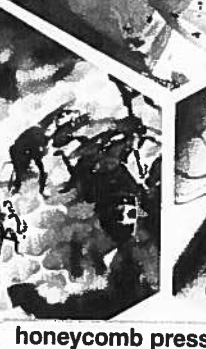


veil



smoker

top-bar hive



honeycomb press



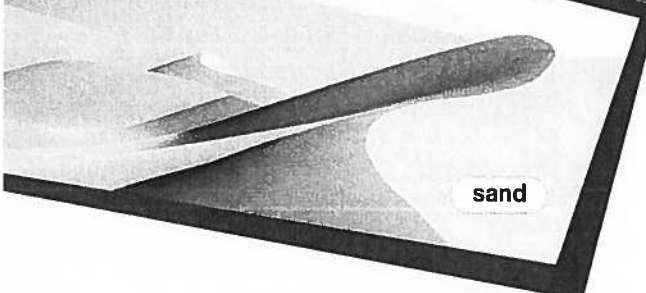
silt



highly-organic



peat



sand

KCI Laboratories

Soil Analysis Report

Prepared for: Sam Jones / Prepared by: Kim Horton

We took soil samples from three proposed farm locations. See the chart below for details.

The samples indicate substantially different soils at each location. The table below summarizes the **texture**, **composition**, and classification of the samples. No **highly-organic** soils were found. Both sites 01 and 03 offer desirable soil. However, in both cases we recommend adding **peat**. That will make them more suitable for agriculture. The soil at Site 02 is not suitable for irrigated agriculture.

Sample	Grain texture	Composition			Unified Soil Classification System Symbol/Group Name
		% sand	% silt	% clay	
Site 01	fine-grained	5	15	80	CL/clay
Site 02	coarse-grained	75	21	04	SM/silty sand
Site 03	medium-grained	2	68	32	MH/elastic silt

Vocabulary

3 Read the sentence pairs. Choose which word or phrase best fits each blank.

1 highly-organic / coarse-grained

A _____ soil is best suited for farming.

B Growing crops in _____ soil is difficult.

2 peat / clay

A _____ makes soil more fertile.

B _____ is much more dense than sand.

3 Unified Soil Classification System / composition

A Each soil type has a different _____.

B Soil types are organized by the _____.

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

1 ___ sand

3 ___ grain

5 ___ fine-grained

2 ___ silt

4 ___ classification

6 ___ texture

A soil deposited by water

B consisting of tiny particles

C a small piece of material

D group something belongs to

E how something feels

F soil made of rock and minerals

Get ready!

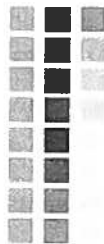
1 Before you read the passage, talk about these questions.

- 1 What types of soil are there?
- 2 How does soil type affect crop growth?

Reading

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

- 1 ___ No two sites had the same grain texture.
- 2 ___ Sites 01 and 03 had highly-organic soil.
- 3 ___ Adding peat to Site 02 will make it suitable for irrigated farming.



pH value

sulfur

THE MIDLAND HERALD

MONDAY AUGUST, 14

Farmers Struggle against Salt and Acid

WAYNESBORO – Martin Harrison has been a farmer for half a century. Recently, his crops have grown poorly. The culprit: rising **salinity** and **acidity** along with decreasing **sodicity**.

Harrison's farm is located in Brown County, an area known for its rich farmland with little risk of salinity problems. Historically, the **primary salinity** of the soils there was low. Soil sodicity started to change two years ago when drought arrived. Farmers began irrigating their fields with well water. That water had high potassium, chloride, and **sulfur** content. At first there were no problems. However, mineral deposits built up. This resulted in the increased **secondary salinity** of the soil. It also made the soil too acidic.

Harrison started to notice problems last summer. His tomato plants died. The soil had become **toxic** to several other vegetables as well. He now increases the soil's **pH value** by adding **lime**. But that is just a temporary solution to the problems caused by irrigation. Until the drought ends, crop yields will suffer.

Get ready!

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

- 1 How does salt get into soil?
- 2 How can farmers reduce acid levels in soil?

Reading

② Read the newspaper article. Then, choose the correct answers.

- 1 What changed the soil's primary salinity?
 - A saline deposits in the soil
 - B acids from rainwater
 - C minerals from well water
 - D toxins from fertilizer
- 2 How does the farmer improve his soil?
 - A He plants fewer crops.
 - B He adds lime to the soil.
 - C He irrigates in the summer.
 - D He increases the salinity.
- 3 When can you infer the crops will grow properly again?
 - A when farmers can stop irrigating
 - B when the pH value of the soil is lowered
 - C when sulfur content in the soil increases
 - D when farmers purify the well water

Vocabulary

③ Match the words (1-4) with the definitions (A-D).

- | | |
|---------------|-----------------------|
| 1 __ acidity | 3 __ primary salinity |
| 2 __ sodicity | 4 __ lime |

- A the amount of sodium in the soil
- B the amount of acid in the soil
- C a substance added to improve soil
- D salt that is in soil from natural processes

salinity

10 The Nitrogen Cycle

Nitrogen is a crucial nutrient for growing plants. Without the **nitrogen cycle**, which restores **nutrient-poor** soil, plants could not survive. During this cycle, nitrogen takes on many forms. It starts in the atmosphere as nitrogen gas. In this form, plants cannot absorb it. That changes after **fixation**, the next phase of the nitrogen cycle. During fixation, bacteria turn nitrogen into **ammonia**. In the next phase, **mineralization**, **decomposers** in the soil turn ammonia into **nitrites** and **nitrates**—forms of nitrogen that plants can use. Finally, during **dentrification**, bacteria reduce nitrates back into nitrogen gas.

Of course, the nitrogen cycle can also have negative effects. For example, it produces chemicals like **nitrous oxide**. When this substance leaks into bodies of water, **eutrophication** occurs. This build-up of algae can ruin a water supply. Unfortunately, commercial farming produces a great deal of such chemicals. A challenge facing modern farmers is to reduce their contribution to this harmful aspect of the nitrogen cycle.



Get ready!

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

- 1 How is nitrogen added to soil?
- 2 Why must farmers monitor nitrogen levels in soil?

Reading

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

- 1 Plants cannot survive without nitrogen.
- 2 During fixation, decomposers turn ammonia into nitrogen.
- 3 Nitrous oxide can cause algae build up in water supplies.

Vocabulary

3 Read the sentence pairs. Choose which words best fit the blanks.

1 ammonia / nitrous oxide

- A _____ is a component in many fertilizers.
 B _____ is a toxic product of the nitrogen cycle.

2 eutrophication / detrification

- A _____ restores nitrogen in the air.
 B _____ occurred in the pond due to fertilizer runoff.

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

- 1 fixation
- 2 decomposer
- 3 nitrite
- 4 nutrient-poor
- 5 nitrate
- 6 nitrogen cycle

- A not having the right amount of minerals to be healthy
 B substance that bacteria create from ammonia
 C the processes by which nitrogen is changed into chemical forms
 D the process of converting nitrogen into ammonia
 E substance that bacteria create from nitrites
 F organism that turns dead animals or plants into chemical nutrients

Get ready!

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

- 1 In what ways can soil be damaged?
- 2 What parts of your country have the best soil?

A Guide to Soil Conservation

Without healthy soil, farmers can't produce healthy crops. But soil faces many threats, including **nutrient depletion** and **erosion**. Fortunately, several methods of **soil conservation** can turn unhealthy soil into a plant paradise.

One method, **crop rotation**, solves nutrient depletion. **Cover crops**, or **green manure**, are rotated with other crops. This process increases the amount of nitrogen in the soil and reverses **land degradation**.

In addition to addressing nutrient-depletion, farmers also combat erosion. Several practices can prevent erosion. Planting **windbreaks** stops topsoil loss from wind. **Perimeter runoff control** prevents erosion from water. For example, **grassways** slow water and direct it away from fields.

Contour-farming techniques, such as **keyline design**, also prevent water from eroding soil. In one method, farmers plow rows **perpendicular** to hills. The water slows as it reaches the rows, which results in less soil loss.

windbreak

erosion

cover crops

perpendicular

Reading

② Read the magazine article. Then, choose the correct answers.

- 1 What is the main purpose of the article?
 - A to show the benefits of soil additives
 - B to describe soil conservation methods
 - C to recommend soil conservation products
 - D to explain the financial costs of soil damage
- 2 Which is NOT a suggestion made in the article?
 - A planting cover crops
 - B using keyline design
 - C applying manure fertilizer
 - D having perimeter runoff control
- 3 Which would be the best solution for nutrient depletion?

A crop rotation	C windbreaks
B land degradation	D contour farming

Vocabulary

③ Match the words (1-8) with the definitions (A-H).

- 1 _ nutrient depletion
 - 2 _ contour farming
 - 3 _ cover crop
 - 4 _ green manure
 - 5 _ soil conservation
 - 6 _ grassways
 - 7 _ keyline design
 - 8 _ perimeter runoff control
- A a name for cover crops that add nitrogen
 - B process where nutrients are taken from soil
 - C grassy areas that slow water flow
 - D the practice of maintaining soil
 - E plants that add nutrients to soil and prevent it from washing away
 - F a method of plowing to prevent erosion
 - G the use of plants near a field's borders to prevent erosion
 - H design that maximizes water resources

12 Preparing, Seeding, and Planting

Get ready!

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

- 1 How are fields in your country prepared for planting?
- 2 What planting methods are the most common in your country?

Reading

2 Read the section of *The Farmer's Guide*. Then, mark the following statements as true (T) or false (F).

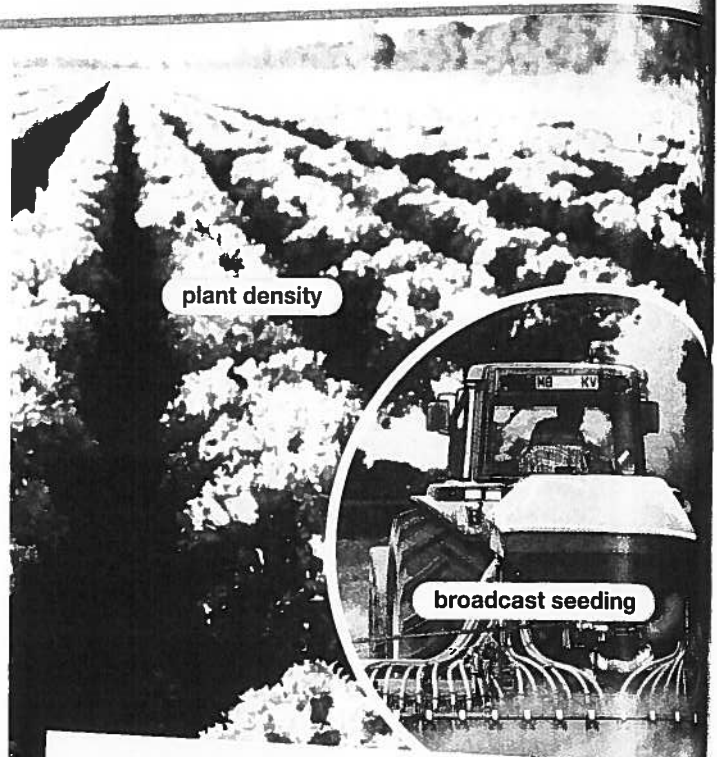
- 1 Amendments add nutrients to soil.
- 2 Herbicides should be applied weeks after planting.
- 3 Broadcast seeding is effective with oats.

Vocabulary

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

- | | |
|--|--|
| 1 <input type="checkbox"/> seeds per pound | 4 <input type="checkbox"/> amendment |
| 2 <input type="checkbox"/> broadcast seeding | 5 <input type="checkbox"/> seeds per square foot |
| 3 <input type="checkbox"/> plant density | |

- A a method of scattering seeds
- B amount of seeds planted per square foot
- C the number of seeds in a pound of seeds
- D the number of plants in a certain area
- E a substance added to improve soil



The Farmer's Guide



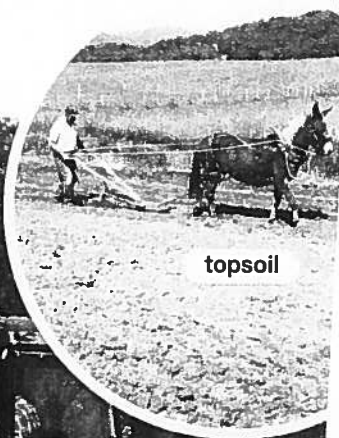
Chapter 1: Preparing, Seeding, and Planting

Although different crops demand different preparation, some practices apply to almost any crop. And what you do before planting is just as important as what you do after. Preparing the **topsoil** is always key. Test it in late summer to determine if **amendments** like lime, sulfur, or phosphorous are needed to adjust acidity. If the soil is nutrient-deficient, add **fertilizer**.

Likewise, most fields require treatment with a **herbicide**. Waiting two weeks to plant after using some herbicides is recommended.

Once the **soil temperature** is right, planting can begin. The **seeding rate** is determined by the ideal **seeds per pound** and **seeds per square foot**. Be sure to calculate the appropriate **plant density**. A miscalculation will result in low **emergence**.

The actual planting of seeds will vary by crop. **Broadcast seeding** may work for some seeds, while seed drills work better for small grains such as wheat or oats.



fertilizer

13 Climate and Weather

Vegetables

SEEDS UNLIMITED

Poblano Pepper \$3.19/pack

Plant in: full sun / soil temperature: 68-90 degrees Fahrenheit

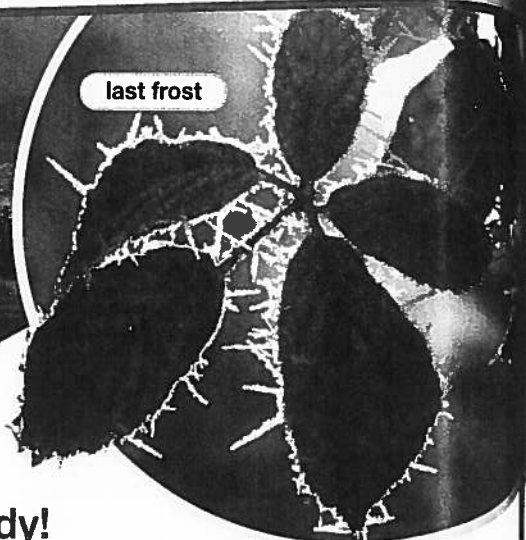
Description: Poblanos are flavorful peppers that are perfect for spicing sauces. They grow in warm areas with moderate **humidity**. Check your **hardiness zone** to make sure Poblanos grow in your region. Plant seeds about twelve weeks before **last frost**. A local **long-range forecast** will help you determine when to plant. Poblanos need some water, but just to keep the soil slightly damp. Do not overwater. Harvest after 14 to 16 weeks.

Famosa Cabbage \$3.79/pack

Plant in: partial shade / soil temperature: 59-64.4 degrees Fahrenheit

Description: The Famosa Cabbage is a crispy vegetable that grows in cool **climates**. Famosas need lots of water, so areas with high **precipitation** are ideal for growing. Use plenty of **mulch** to maintain healthy **soil moisture**. These cabbages need only partial sun. Plant six weeks before last frost. Harvest in late autumn for best results.

last frost



Get ready!

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

- 1 How does the climate in your country affect farming?
- 2 How can weather help and harm crops?

Reading

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

- 1 Poblano peppers grow best in areas with high precipitation.
- 2 Both types of seeds require full sun.
- 3 The cabbage should be harvested in the fall.

Vocabulary

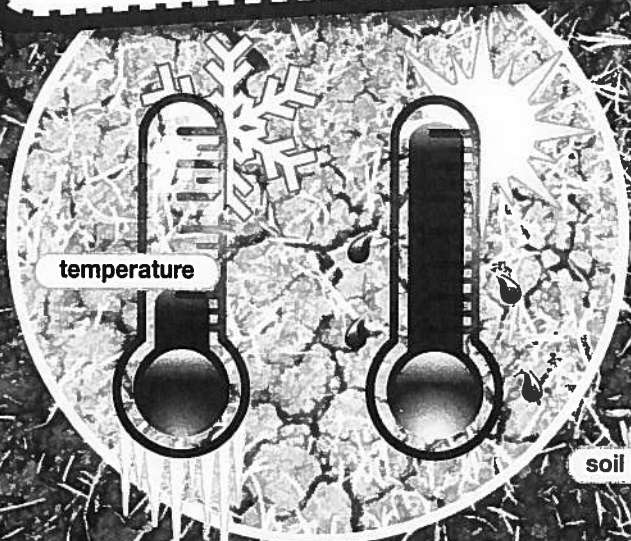
③ Fill in the blanks with the correct words and phrases from the word bank.

word BANK

precipitation last frost temperature
hardiness zones

- 1 If the _____ falls too low, the plants will die.
- 2 Don't plant any seeds until after the _____.
- 3 If there is enough _____, you won't have to irrigate.
- 4 Different plants may have different _____.

temperature



soil moisture