Name: _____ Date: _____

Crop Rotation Saves the Soil

Circle group

A farmer who grows the same crop in a field year after year gets into trouble. Each crop uses up certain things in the soil. Insects and sicknesses that feed on that crop also build up. The harvests get smaller.

For a very long time, farmers have fixed this with crop rotation. They grow different crops in the same field in a set order.

A good rotation has a legume, such as beans, peas, or clover. Legume roots live with bacteria in small lumps called nodules. The bacteria take nitrogen from the air and change it into a form plants can use. When the legume dies, some of that nitrogen stays in the soil for the next crop.

A farmer may plant corn after a legume, because corn needs a lot of nitrogen. Then comes wheat. Then the field rests in grass. The bugs and sicknesses that like one crop do not grow well on another, so changing crops stops them.

Rotation is not the only way to care for a field. Some farmers also plant a cover crop, such as clover or rye, between the main harvests. Then the soil is never left bare. When the cover crop is turned into the ground, it feeds the tiny living things in the soil and makes the soil better. Together, these habits help a farm stay good for many years.

Rotation also guards the soil. Plants have roots of different depths. Fields with plants growing for more of the year lose less soil to wind and rain.

Questions

1. What trouble comes from growing the same crop in a field year after year?

_____

_____

2. What is crop rotation?

_____

_____

3. What do the bacteria in the nodules do?

_____

_____

4. Why might a farmer plant corn after a legume?

_____

_____

5. How does changing crops help against bugs and sicknesses?

_____

_____

6. Why do fields with plants for more of the year lose less soil?

_____

_____

Words to know

rotation: a planned order in which things take turns
legume: a plant such as a bean or pea that grows seeds in pods
nodules: small lumps on roots where helpful bacteria live
nitrogen: a nutrient that plants need in order to grow

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Crop Rotation Saves the Soil

Triangle group

A farmer who plants the same crop in the same field year after year soon runs into trouble. Each crop takes certain nutrients from the soil, and the insects and diseases that feed on that crop build up in the field. The harvests grow smaller. For thousands of years, farmers have solved this problem with crop rotation, which means growing different crops in the same field in a planned order.

A common rotation includes a legume, such as beans, peas, or clover. Legume roots form partnerships with bacteria that live in small lumps called nodules. These bacteria can take nitrogen from the air and change it into a form that plants can use. When the legume dies back and its roots decay, some of that nitrogen stays in the soil for the next crop.

A farmer might follow a legume with corn, which needs a great deal of nitrogen, then with wheat, then leave the field in grass for a season. Because the insects and diseases that favor one crop do not thrive on another, changing the crop also breaks their cycle.

Rotation is not the only way to look after a field. Some farmers also plant a cover crop, such as clover or rye, between the main harvests so that the soil is never left bare. When the cover crop is turned into the ground, it adds plant material that feeds the tiny living things in the soil and improves its texture. Together, these habits help a farm stay productive for many years.

Rotation protects the soil itself, too. Different plants have roots of different depths, and fields with plants growing through more of the year lose less soil to wind and rain. Modern farms still use this old idea alongside other tools.

Questions

1. What problem comes from planting the same crop in a field year after year?

_____

_____

2. What is crop rotation?

_____

_____

3. What do the bacteria in legume nodules do?

_____

_____

4. Why might a farmer plant corn after a legume?

_____

_____

5. How does changing the crop help against insects and diseases?

_____

_____

6. Why do fields with plants growing through more of the year lose less soil?

_____

_____

Words to know

rotation: a planned order in which things take turns
legume: a plant such as a bean or pea that grows seeds in pods
nodules: small lumps on roots where helpful bacteria live
nitrogen: a nutrient that plants need in order to grow
decay: to break down slowly into smaller parts

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Crop Rotation Saves the Soil

Square group

A farmer who plants the very same crop in the same field year after year soon runs into serious trouble. Every crop removes particular nutrients from the soil, and the insects and diseases that feed on that crop gradually build up in the field. As a result, the harvests grow steadily smaller. For thousands of years, farmers have addressed this problem through crop rotation, which means growing different crops in the same field in a carefully planned order.

A typical rotation includes a legume, such as beans, peas, or clover. Legume roots form partnerships with bacteria that live in small lumps called nodules. These bacteria are able to take nitrogen from the air and convert it into a form that plants can use. When the legume dies back and its roots decay, some of that nitrogen remains in the soil for the next crop.

A farmer might follow a legume with corn, which requires a great deal of nitrogen, then with wheat, and then leave the field in grass for a season. Because the insects and diseases that favor one crop do not thrive on another, changing the crop also interrupts their cycle.

Rotation is not the only way to look after a field. Some farmers also plant a cover crop, such as clover or rye, between the main harvests so that the soil is never left bare. When the cover crop is turned into the ground, it contributes plant material that feeds the tiny living things in the soil and improves its texture. Together, these habits help a farm remain productive for many years.

Rotation protects the soil itself as well. Different plants have roots of different depths, and fields where plants grow through more of the year lose less soil to wind and rain. Modern farms still rely on this ancient idea alongside many newer tools.

Questions

1. What problem arises when the same crop is planted in a field year after year?

_____

_____

2. What is crop rotation?

_____

_____

3. What do the bacteria in legume nodules do?

_____

_____

4. Why might a farmer follow a legume with corn?

_____

_____

5. How does changing the crop interrupt the cycle of insects and diseases?

_____

_____

6. Why do fields with plants growing for more of the year lose less soil?

_____

_____

Words to know

rotation: a planned order in which things take turns
legume: a plant such as a bean or pea that grows seeds in pods
nodules: small lumps on roots where helpful bacteria live
nitrogen: a nutrient that plants need in order to grow
decay: to break down slowly into smaller parts

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: Crop Rotation Saves the Soil

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: Crop Rotation Saves the Soil

Easier · 256 words · Flesch-Kincaid grade 4.2

1. The soil gets used up, pests build up, and the harvests get smaller.
2. Growing different crops in the same field in a set order.
3. They take nitrogen from the air and change it into a form plants can use.
4. Corn needs a lot of nitrogen, and the legume leaves some in the soil.
5. The ones that like one crop do not grow well on another.
6. The plants and their roots help hold the soil against wind and rain.

Triangle: Crop Rotation Saves the Soil

This passage · 294 words · Flesch-Kincaid grade 7

1. The nutrients get used up, pests build up, and the harvests grow smaller.
2. Growing different crops in the same field in a planned order.
3. They take nitrogen from the air and change it into a form plants can use.
4. Corn needs a lot of nitrogen, and the legume leaves some in the soil.
5. The ones that favor one crop do not thrive on another, so their cycle is broken.
6. The plants and their roots help hold the soil in place against wind and rain.

Square: Crop Rotation Saves the Soil

Harder · 308 words · Flesch-Kincaid grade 8.2

1. The nutrients are used up, pests build up, and the harvests grow smaller.
2. Growing different crops in the same field in a carefully planned order.
3. They take nitrogen from the air and convert it into a form that plants can use.
4. Corn requires a great deal of nitrogen, and the legume leaves some in the soil.
5. The ones that favor one crop do not thrive on another.
6. The plants and their roots help hold the soil in place against wind and rain.