

1. Can you identify the season at the start of the book? At the end of the book?

In the beginning of the book, in the spring, farmers begin to prepare their field for planting. At the end of the book, in the fall, many crops are harvested from the fields and can be eaten, sold or stored for the winter.

2. Do you remember what worms do to help the soil?

Worms help to increase the amount of water and air that gets into the soil. Worms do this by burrowing through the soil, which breaks it up and allows oxygen and water to reach the root systems of plants. Worms also break down 'organic matter', like manure and leaves and grass, into nutrients that plants can use. When worms eat, they leave behind castings, which is rich in nutrients and helps to fertilize plants.

3. How did farmers Nick and Mandy prepare their fields?

Mandy and Nick plow and add manure to their fields in the spring. Some farmers plow and add manure to their fields in the fall to get a head start on spring planting.

4. Why do the farmers plow their fields and add manure to their soil?

Farmers want to give seeds the best chance of sprouting and growing. Sometimes that means breaking the ground with a plow, because soil can become dense and compact. Plowing can make it easier to plant and break up the blocky structure of the soil which can help in drainage and root growth. Plowing can also break up weed roots and prevent weeds from growing. Many farmers spread manure, also called 'organic matter', from cattle and swine onto their fields. This manure is rich in nutrients, which plants need to grow. Plowing the soil mixes the manure and increases oxygen in the soil which speeds up the manure's decomposition and makes more oxygen available for the plant roots. Worms like Alex also help with decomposition as they feed on organic matter that helps restore nutrients to the soil.

5. Do all farmers plow their fields? Why or why not?

Farming is full of decisions! There are many reasons for farmers to plow their fields, but plowing does come with some challenges, and not all farmers choose to plow their fields. One of the main problems with plowing fields is that when bare soil is turned, wind or water more easily carry soil away from the field. This is known as water or wind soil erosion. For this reason, many farmers chose to plant without plowing their fields, using "no-till" technology. Seeds are drilled directly into soil without plowing and last year's plant stems or leaves are left on the surface of the field. As we learned in the book, insects and worms like Alex, as well as bacteria and fungus, all live in the soil and create a unique environment that contribute to the health of the soil. Plowing can sometimes disturb the insects and worms in the soil. In the end, the farmer must decide what is best for their fields, their crops and the environment.

6. What does it mean to 'tend' a seed like Alex does? What do plants need to grow healthy and strong?

Tending a seed means caring for it, and ensuring it has what it needs to survive. Good gardeners, like good farmers, know that we don't make the seeds grow. We don't glue on the leaves, or attach the roots or paint the petals. Plants grow themselves! However, good farmers and gardeners help to create the best environment to encourage seeds to grow, and help provide what seeds need to grow healthy and strong. Seeds need a good place to sprout, water, air and nutrients.

7. What other insects or animals can help plants to grow, like worms do?

There are lots of insects that help plants grow. Think of bees and butterflies, that help to pollinate plants. Beetles and many other insects who live in the soil, like Alex, work to break down organic matter like leaves and manure, and restore nutrients to the soil. There are also lots of insects, like ladybugs, who help by eating insects harmful to crops, like aphids. Sometimes, the most well-known insects are those that cause disease or compete for our food crops, but these insects are only a small fraction of the world's insect population. Most insects are *beneficial* to humans and the environment. Without insects, the environment could not function as it does!

Journal Prompts:

- If you could tend a seed like Alex, what seed would you choose? Why?
- You have been hired as the chef of the Compost Café. What other menu items would you include? Draw your specials of the day.
- Imagine a world without farms. What are 3 foods that you miss? Draw them! Consider: would you be able to raise or grow any of these foods yourself? Why or why not?