

Reading 2

Skills:

- Details
- Author's purpose
- Make inferences
- Make connections
- Vocabulary in context
- Understand negative facts

Getting started: Do you know what kind of technology can be used in agriculture?

THE 6 MOST AMAZING AI ADVANCES IN AGRICULTURE



When we think about agriculture, we tend to think about old-school farming. But although many of us might think that **the agricultural community is behind the curve when it comes to implementing new technologies**, there is lots of evidence that farmers are actually moving quickly to modernize almost everything about the farming process. Surprisingly, they're using artificial intelligence in new and amazing ways to bring the process of food cultivation into the future.

Sowing the Seeds

High-tech agriculture starts at the very second that the seed is first placed in the ground. Experts in the field are familiar with “variable rate planting equipment” that does more than just planting a seed down into the dirt somewhere.

Who’s Picking Your Food?

This is a reality now. **Driverless tractors** are harvesting fruits and vegetables **routinely**. Just check out resources from Harvest Croo, which has produced an autonomous strawberry picking machine, and Abundant Robotics, where a vacuum machine harvests mature apples from trees. These technologies operate on the basis of machine vision and sensor fusion to “see” where harvest fruits and berries are. They use sophisticated directed movements to pick precisely. This is the kind of functionality that is very much in the “artificial intelligence” field and mimics human cognition and directed action.

Eye in the Sky

How are farms using artificial intelligence to direct crop planting, harvesting and more, and how are they getting that data in the first place? Nowadays, you can see **unmanned** aerial vehicles or drones with precision sensors in order to run the fields and get the data that’s needed. These surveillance engines can look for crops where seeds don’t grow, signs of pest or weed damage, dryness and many other variables that are part of the difficulty of farming in general. With all of this data in hand, farmers can **enhance** their production models and their strategies across the land to decrease risk and waste.

Pest and Weed Control

Farmers are quickly adopting new high-tech ways of protecting plants against weeds and various kinds of pests outdoors. We know that artificial intelligence excels at image processing — computers can now “see” almost as well as we can or even better, and the drones, outfitted with competitive image processing, are the farmer’s eyes. So, by deploying mobile technologies with AI and computer vision built-in, farmers can find weeds and eradicate them, instead of spraying an entire crop. That makes the food cleaner, and it saves enormous amounts of money.

Boosting Algorithms

The mathematical models behind computer science are the fundamental basis for how we deal with big data to make decisions. Companies are now quickly developing agricultural algorithms that can

show farmers what's going to be best for a crop. Despite some concerns about the difficulty of doing this type of analysis in nature, farmers and others have been able to make quite a lot of advances in maximizing crop profit, simply by applying the algorithms and intelligence generators that are built to help computers imitate our own cognitive abilities.

The Farmer's Alexa

Yes, companies are talking about creating **chatbots** for farmers, artificial intelligence personalities like Amazon's "Alexa", which are able to converse with farmers to help them figure out tough problems. If they're packed with the right answers and analytics information, the farmer's chatbot could be a real tool for busy farm managers who are doing all they can to expand and grow their businesses.

These are some of the best new technologies coming out to help farmers produce all the food that we need in a rapidly changing world. Population growth and climate change will be massive challenges, but artificial intelligence use can help decrease the impact of these and other challenges and make smart farming much more resistant to the problems that farmers face.

**Adapted from <https://www.techopedia.com/the-6-most-amazing-ai-advances-in-agriculture/2/33177>*

Glossary:

- **Chatbot:** A chatbot is an artificial intelligence (AI) software that can simulate a conversation (or a chat) with a user in natural language through messaging applications, websites, mobile apps or through the telephone.

Answer the following questions:

1. What does the author mean when he/she uses the phrase **the agricultural community is behind the curve when it comes to implementing new technologies** in paragraph 1?
 - a. Farmers don't know anything about the existence of farming technologies.
 - b. Farmers use traditional farming methods instead of using new techniques.
 - c. Farmers refuse to adapt technological devices into their farming procedures.
 - d. Farmers could implement new machines if they had the money to do so.

2. What can be inferred about the use of planting equipment in paragraph 2?
 - a. These tools must be guided only by experts.
 - b. This type of equipment must be very expensive.
 - c. This device may analyze when and where is right to sow a seed.
 - d. These machines can plant seeds accurately, but only if they're familiar with the field.
3. What are **driverless tractors** in paragraph 3?
 - a. Tractors that don't require a driver.
 - b. Tractors with a powerful engine.
 - c. Tractors which are driven by farmers.
 - d. Tractors that only used in strawberry fields.
4. The word **routinely** in paragraph 3 is closest in meaning to
 - a. monotonously
 - b. on a daily basis
 - c. once in a while
 - d. rarely
5. The word **unmanned** in paragraph 4 refers to
 - a. not having parts built by men
 - b. not containing sensors
 - c. not using cameras to get data
 - d. not having humans inside the machine
6. The word **enhance** in paragraph 4 is closest in meaning to
 - a. enable
 - b. destroy
 - c. improve
 - d. decrease
7. What does the author mean when he/she says that, "drones are the farmer's eyes"?
 - a. There are farmers whose sight is not accurate.
 - b. Mobile technology could never replace human senses.
 - c. Machines have the ability to detect certain things humans cannot.
 - d. There are very dark places where it is impossible to collect data.
8. According to paragraph 6, what is NOT stated about using algorithms in farming?
 - a. Based on data that is provided, farmers can make better choices.
 - b. Farmers can make tons of money by implementing their use.
 - c. They help exploit a crop more accurately.
 - d. They simulate the way humans think.

9. What is stated about chatbots in paragraph 7?
- a. This is a tool that can help farmers find the answer to several issues.
 - b. Chatbots are packed with unlimited information about diverse topics.
 - c. Amazon is the true pioneer in this revolutionary sort of technology.
 - d. This can be a tool for solitary farmers who don't have anyone to talk to.

What do you think?

In which cases should agriculture continue using traditional methods?