



Careers in Agriculture

What do you want to be when you grow up? Maybe a doctor who saves lives? What about a mechanic who works on trucks, a scientist researching a cure, or even a writer looking for his or her next story?

Did you know that all those careers, and many, many more can be in agriculture?

Before we go any further, let's define the word "agriculture." **Agriculture** describes the practice of growing crops or raising animals to make the food and many other things that humans need to survive. It's the most important industry in the world! An **agriculturalist** is someone who works in agriculture. While you may only think of farmers or ranchers when you read that definition, there are thousands more jobs that are involved in getting food from the farm to your dinner plate.

For example, the number of people who work with farmers is staggering! Here's just a few... a loan officer who works in the bank can loan money to the farmer for planting crops. A salesperson can sell the farmer the seeds to plant that will grow into the crop. A soil scientist will give the farmer advice on how to best care for the soil where the crops grow. An

entomologist is a scientist who can identify the good and bad insects on the farmer's crops. An information technology (IT) specialist might help the farmer set up a sprinkler irrigation system so it can be run from an app on a smart phone. And finally, a truck driver can haul the harvested crop from the farmer's field to the local receiving grain elevator.

The opportunities are endless! The best part is, even if you grow up with no experience with raising animals or growing plants, YOU can work in agriculture. Keep reading to learn more about the many unique and exciting careers that might interest you!

Agricultural Business

If you enjoy working with computers and high-tech tools, talking to people, doing math, or writing, then agricultural business may be for you. While many people who work in agriculture are outside growing crops and raising animals, there are even more working in offices across the country (and around the world) helping farms and ranches run more efficiently and successfully. There are thousands of companies that are tied to agriculture, and every one of them has their own work force.



Career Spotlight - Information Technology (IT) App Developer

Believe it or not, there are many smart phone and tablet apps designed for farmers and ranchers! From tracking the weather to controlling sprinklers, identifying weeds, and even telling a tractor where to drive using GPS, agriculturalists have really embraced the idea of using phones for more than just making phone calls. All of those apps are designed by people called app developers. App developers design and create apps to help make people more efficient in their day-to-day lives. Someone with this job would work closely with a team of people in their office, plus farmers and ranchers who can advise on exactly what they want out of an app. Because technology is getting more advanced, working in IT is a great career choice! Better yet, Colorado is ranked as one of the top states in the country for working in technology. App developers typically have to earn a bachelor's degree in computer science or a similar major.

What kinds of apps do you think you could help develop for farmers?

Other careers to research:
accountant, agriculture
communications specialist,
county extension agent,
grain buyer, social
media strategist, auditor,
commodity procurement/
merchandiser

Power, Structural, and Technical Systems

If getting your hands dirty and working outside is more your style, then a career in the power, structure, and technical systems might be the route for you! There are many types of jobs that fit under this umbrella, some of which only require a high school diploma and a program certificate, while others require a master's degree. People who work in this field typically like to figure out and understand how things work. They are the ones to work on a tractor or design cattle pens. Here's a couple of ideas for careers in the Power, Structural, and Technical Systems.



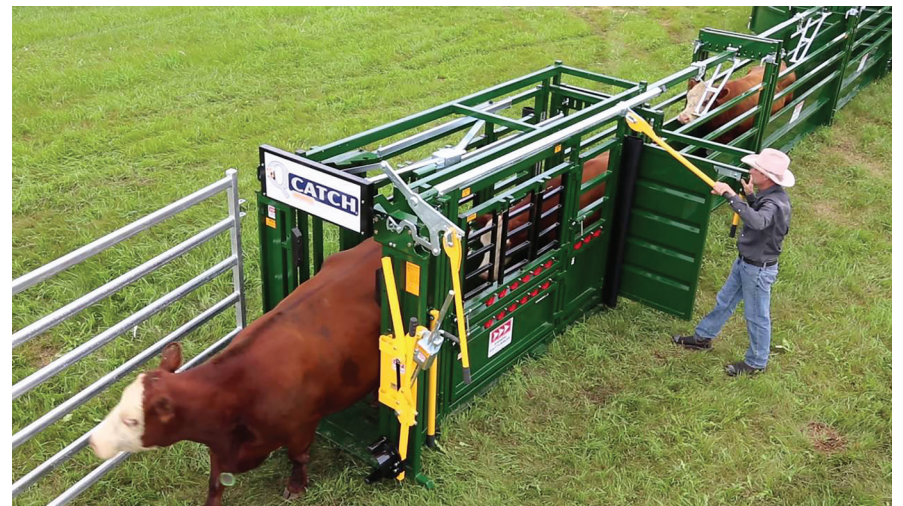
Career Spotlight - Welder

One career in the power, structural, and technical systems is welding. Welders assemble, install, and repair equipment or buildings made of steel and other metals. To weld something, you are bringing the temperature of metal up to a very high degree, and then melting it onto another piece of metal. The result is a very strong bond between the two pieces of metal. Welders are often creative people, who enjoy designing and creating things. Did you know there are even welders who are certified to weld underwater?! Typically, welders need a high school diploma and a welding program certificate to get a job.

Career Spotlight - Mechanical Engineer



A mechanical engineer is someone who builds equipment that uses energy to run. For example, they might design a mechanized chute, called a squeeze chute, that helps a rancher to work on his cows. A squeeze chute provides a safe, comfortable space for a cow to be held. This makes it safe for a person to provide care for the animal like give vaccinations or look at an injury. Ranchers care deeply for their cattle, and they will do anything they can to make working with their cattle easier and safer! A mechanical engineer who helps design a squeeze chute would try to look at the world through a cow's eyes, and think about questions like, "What would make this squeeze chute okay for me to walk into?" Cows are curious animals, but they are also very cautious. Shadows and strange things that look out of place (like a random hose on the ground) can cause cows to shy away, which makes it harder on the rancher. So, not only is it important for the chute to be user-friendly for the rancher, but they must also make it user-friendly for the cow too! Mechanical engineers typically have a bachelor's degree.



A rancher is caring for his animals using this squeeze chute.

Other options: carpenter, electrical engineer, livestock hauler, heavy equipment operator, hydraulics technician, sales representative for agriculture equipment

Animal Systems

Does the idea of working with animals excite you? Most careers in the animal systems field revolve around the care and well-being of animals. There are also some careers in this field that work directly with products that come from animals, like milk, eggs, and meat.



Career Spotlight - Animal Nutritionist

Just like you, animals need specific foods and nutrients to be healthy! Ranchers and farmers who raise animals rely on people called animal nutritionists to help them make decisions about their animals' feed rations. A **feed ration** is a mixture of feed an animal receives each day. Each feed ration is made from various types of feed that help the animal receive a complete diet. Think "My Plate" for animals! It is very important for farm animals, called **livestock**, to be healthy throughout their lives. We rely on livestock to provide us products like meat, milk, and eggs. If they are not cared for and fed properly, livestock can't produce these products. Animal nutritionists are knowledgeable about different types of feed, they have an understanding of how animals' bodies work, and which nutrients animals need at different stages in their lives. This career path requires at least a bachelor's degree, and sometimes even a master's degree.



Career Spotlight - Ranch Hand

If you have dreams of living like a cowboy in the Old West, riding horses and herding cattle, then a career as a ranch hand might be for you! Ranch hands live and work on cattle ranches all over the world. While the life of a ranch hand may not be exactly like it was in the Old West, many of their responsibilities have not changed with time. Their job consists of duties like feeding cattle, looking for and treating sick animals, maintaining and building fences, moving cattle from pasture to pasture, and helping cows give birth. There's never a dull moment in the life of a ranch hand. Their most important job is to make sure that every animal is treated humanely. The cattle are a rancher's livelihood, so he greatly depends on his ranch hands to make sure that the cattle are healthy, well-fed, and always have access to water. While nearly every ranch will require their ranch hands to have a high school diploma, some will also expect them to have an associate degree or even a bachelor's degree in animal science.

What career interests you? In the space below write, in complete sentences, what career you might be interested and why. Share your answer with your neighbor and actively listen to his or her answer.

Environmental Services

While the typical career path in agriculture is to work with livestock or be involved with farming, there are also many careers that revolve around caring for the environment. People who have careers in environmental services work to make the Earth a cleaner and healthier place. They focus on minimizing the harmful effects of human activities on the land, water, and air. They may be involved with things like recycling, water usage, water and air pollution control, and waste disposal.



Career Spotlight - Wind Turbine Technician

Have you ever seen the huge, white windmills out on the Colorado plains? They are called wind turbines, and as the blades turn the wind, they are creating energy. This energy helps power your house and school. Wind turbines are installed, maintained, and repaired by people called wind turbine technicians. These technicians work in teams, and are responsible for ensuring that the turbines are working correctly. Important! You must not have a fear of heights to have a job in this line of work! Technicians have to climb several hundred feet in the air to work on the turbines. Sometimes, an issue with a turbine doesn't have a clear solution, so a technician must be able to problem-solve to find the solution. Wind turbine technicians typically have an associate degree in applied sciences and go through a training program specifically designed for training future wind turbine technicians.



Career Spotlight - Fisheries Technician

Just like there are ranchers and farmers to care for livestock, there are fisheries technicians to care for fish! A fishery is a place where fish are raised and harvested. Think, fish farm! A fisheries technician works to ensure that fish are healthy and fed, and are responsible for general maintenance around the facility. Some of these tasks could include cleaning and managing habitats and equipment, providing support to biologists who are conducting tests, preparing food for the fish, sorting fish, and keeping detailed records of the fish. Depending on how large the fishery is, some technicians work alone, while others work on teams. A bachelor's degree is typically required to have a career as a fisheries technician.

Other careers to research:
energy sales specialist,
nematologist, waste
management specialist, water
treatment technician, wildlife
biologist, toxicologist, pest
control advisor, water lawyer

Food Products and Processing Systems

Maybe working with livestock or crops isn't your thing, but what about food? Everyone loves food! There are many different careers that fall under food products and processing systems, from working in food safety to developing the next greatest ice cream flavor. If you like science, this may be the career path for you! Careers in this area are very important because they are working to ensure the food we eat is safe, it tastes good, and it provides us nutritional value.



Career Spotlight - Nutritionist/Dietitian



Just like a cattle nutritionist works with a rancher to help him identify the right diet for his cattle, a dietitian can do the same for you. While in college, they become experts in how to properly fuel our bodies with food, while staying healthy. Their main job is to share that knowledge with other people who may not understand the different types of nutrients our bodies need to live a healthy life. They teach people how to look at and understand food nutritional labels, and how to choose foods in the grocery store based on those labels. Most importantly, they provide a connection between their clients and agriculture. Farmers and ranchers rely on nutritionists and dietitians to share correct information on how food is grown and raised. A person in this job must be passionate about helping other people. At least a bachelor's degree is required for this career.

Career Spotlight - Flavor Technologist



Probably one of the coolest jobs around, a flavor technologist gets to conduct experiments to figure out the best flavors for food. For example, if you are creating a cheesy cracker, you would make a lot of different crackers with different amounts of cheesiness in them, and then try them all to figure out which one tastes the best. Once you and the team of people you work with choose the best tasting cracker, you would create a process to make that exact cracker over and over again, so they always taste the same. So next time you are playing with your food, just tell your mom you are practicing for your future career as a flavor technologist! People in this career go to college to earn a bachelor's degree in food science, nutrition, or chemistry.



Career Spotlight - Conservationist

To help farmers and ranchers make decisions on how to best take care of the natural resources on their property, they rely on conservationists. Conservationists work with private land owners, like farmers or ranchers, to manage, improve and protect natural resources. Farmers' and ranchers' number one concern is to take care of their land because they want it to last for many years to come, so conservationists are very important to them! For example, a rancher might need a conservationist to help figure out how to best graze cattle on pastures, while not hurting the native grasses. You would be perfect for this job if you enjoy helping people, like to learn about science, and enjoy working outside. To have a career as a conservationist, you will need to earn a bachelor's degree, or even a master's degree.



Career Spotlight - Biological Technician

Another career opportunity in natural resources is a biological technician. A biological technician will take samples of water, soil, air, and crops on a farm, and then work with a conservationist to evaluate the samples for ways to improve those natural resources. They will also work with the farmer to find ways to improve their **yields**, or the amount of crops they harvest off a field. A **crop** is the plant a farmer is growing to be harvested for food. People who are biological technicians enjoy working outside and in a lab, are good at problem-solving, and enjoy working with others. This career requires at least an associate degree, but preferably a bachelor's degree.

Natural resources is a great area to work in if you love spending time in the great outdoors! **Natural resources** are all the minerals, forests, water, and land on earth. Humans use natural resources in their daily lives in many ways. Careers in this pathway work to develop, maintain, and manage these resources, so we don't overuse and ruin them. Farmers and ranchers are the original stewards of the land – meaning, they care for the land to make sure it's healthy year after year. They rely on people in natural resource jobs to guide them through best practices when managing their property's natural resources.

Other careers to research:
aquaculture hatchery
manager, ethanol engineer,
forester, geologist,
hydrologist, logger, saltwater
husbandry technician,
wildland firefighter

Plant Systems

Do you enjoy gardening, or just watching things grow? Plant systems may be the place for you! People who work in careers in plant systems enjoy studying seeds and plants and how they impact our world. The most important issue humans are facing is how to feed a growing population. Did you know, that by 2050, it is estimated our planet will have nearly 10 billion people living on it?! That's about 2 billion more people than we have now! There are many people in plant systems careers who are working to solve this issue. Some of these careers are working in a lab and greenhouse to study seeds and plants. Others are outdoors growing the crops, conducting research, or even selling seeds to farmers. However, not every job in plant systems is tied to feeding the world. There are even a few unique careers that are more focused on landscaping and managing yards, or creating beautiful flower arrangements for people.



Career Spotlight - Athletic Turf Manager

Have you ever been to a professional baseball game and seen the beautiful ball field? Or maybe you've gone golfing with your parents and saw how pristine the greens and the fairways look? All that perfectly manicured grass is taken care of by athletic turf managers. **Turf** is another word for grass. Athletic turf managers usually oversee a team of people who all work together to keep the grass looking its best. While that may seem like a fairly simple job, there is a lot to it! Besides general maintenance, they must constantly repair damage from golf balls, baseball players' cleats, and from other sports equipment that can ruin the turf. If this career sounds fun to you, look for a college program where you can earn a bachelor's degree in turf grass management.

Career Spotlight - Agronomy Sales & Management



A person who nearly every farmer relies on is someone who works in agronomy sales and management. These are the people who provide the farmer with seed and fertilizer, as well as give them advice on growing their crops. Many farmers work on a **crop rotation**, meaning they plant different crops in each field every year. This helps keep the soil healthy and helps with pest control. This is a great career path for someone who may not have grown up in agriculture because they can learn all they need to know in college and through work experiences. As long as there are farmers (which will be always!), there will be a need for people who work in agronomy sales and management. A bachelor's degree is typically required for this career path.



The *Colorado Reader* publication is an Agriculture in the Classroom project of the Colorado Foundation for Agriculture. The Colorado Foundation for Agriculture (CFA) is a 501(c)3 non-profit education corporation and works with industry partners to help meet our shared vision of advancing Colorado agricultural literacy.

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Financial support for this Reader provided by:
Colorado Department of Agriculture
Ag Leadership Grant



And the Adopt-A-Classroom Program.