

Agricultural/Food Science Technician

Snapshot

Career Cluster(s): Agriculture, Food & Natural Resources; Science, Technology, Engineering & Mathematics

Interests: Agriculture; Animals; Food

Earnings (Yearly Average): \$44,700

Employment & Outlook: Faster Than Average Growth Expected

OVERVIEW

Sphere of Work

Agricultural and food science technicians assist agricultural and food scientists by performing duties such as measuring and analyzing the quality of food and agricultural products, as well as maintaining the health and wellness of livestock. Duties range from performing agricultural labor with added recordkeeping duties to laboratory testing with significant amounts of office work, depending on the field the technician works.

Work Environment

Agricultural and food science technicians primarily work in offices and laboratories, but may also work in greenhouses, processing plants, and on farms or ranches. In non-office settings, they may be required to be physically active for long periods.



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Occupation Interest

Agricultural and food science technicians have a passion for both science and nature. They want to ensure that crops and livestock remain vibrant and healthy, for the benefit of the environment and for human quality of life.

Profile

Working Conditions: Both Inside & Outside
Physical Strength: Moderate Work
Education Needs: Associate Degree; Bachelor's Degree
Licensure/Certification: Not Required
Opportunities for Experience: Internship
Interest Score: RIC

Duties and Responsibilities

Agricultural Science Technician

- Following protocols to collect, prepare, analyze, and safely store crop or animal samples
- Operating farm equipment and maintaining agricultural production areas to conform to scientific testing parameters
- Examining animal and crop specimens to determine the presence of diseases or other problems
- Measuring ingredients used in animal feed and other inputs
- Preparing and operating laboratory testing equipment
- Compiling and analyzing test results
- Preparing charts, presentations, and reports describing test results

Food Science Technician

- Collecting and preparing samples in accordance with established procedures
- Testing food, food additives, and food containers to ensure that they comply with established safety standards
- Helping food scientists with food research, development, and quality control
- Analyzing chemical properties of food to determine ingredients and formulas
- Compiling and analyzing test results
- Preparing charts, presentations, and reports describing test results
- Preparing and maintaining quantities of chemicals needed to perform laboratory tests
- Maintaining a safe, sterile laboratory environment

A Day in the Life—Duties and Responsibilities

Agricultural and food science technicians often specialize by subject area, which includes animal health, farm machinery, fertilizers, agricultural chemicals, or processing technology. Duties can vary considerably by specialization, and many duties are influenced by biological science.

Agricultural science technicians typically study ways to increase the productivity of crops and animals. These workers may keep detailed records, collect samples for analyses, ensure that samples meet proper safety and quality standards, and test crops and animals for disease or to confirm the results of scientific experiments.

Food science technicians who work in manufacturing investigate new production or processing techniques. They also ensure that products will be fit for distribution or are produced as efficiently as expected. Many food science technicians spend time inspecting foodstuffs, chemicals, and additives to determine whether they are safe and have the proper combination of ingredients.

WORK ENVIRONMENT

Immediate Physical Environment

Technicians work in a variety of settings, including laboratories, processing plants, farms and ranches, greenhouses, and offices. Technicians who work in processing plants and agricultural settings may face noise from processing and farming machinery, extreme temperatures, and odors from chemicals or animals. They may need to lift and carry objects and be physically active for long periods.

Agricultural and food science technicians typically work full time and have standard work schedules. Technicians may need to travel, including international travel.

Human Environment

Technicians must be able to work both independently and with colleagues, in lab and field settings. They must also be prepared to present research findings to superiors and other scientists.

Technological Environment

Agricultural and food science technicians use a range of laboratory equipment to conduct their research, as well as computer software to input and track data. They must be comfortable transporting and setting up equipment in the field, as well as creating presentations with results, including graphs and charts.

EDUCATION AND TRAINING

High School/Secondary

Students interested in a career as an agricultural or food science technician should take as many high school science and math classes as possible. A solid background in applied biology, chemistry, physics, math, and statistics is important. Knowledge of how to use spreadsheets and databases also may be necessary.

Some agricultural and food science technicians successfully enter the occupation with a high school diploma or equivalent, but they typically need related work experience and on-the-job training that may last a year or more.

Workers who enter the occupation with only a high school diploma or equivalent often must have experience in a related occupation during which they develop their knowledge of agriculture or manufacturing processes. These related occupations include food and tobacco processing workers and agricultural workers.

Suggested High School Subjects

- Algebra
- Biology
- Botany
- Chemistry
- Civics
- Computer Science
- Earth or Environmental Science
- English
- History
- Physics
- Statistics
- Trigonometry

Related Career Pathways/Majors

Agriculture, Food & Natural Resources Career Cluster

- Animal Systems Pathway
- Environmental Service Systems Pathway
- Food Products & Processing Systems Pathway
- Natural Resources Systems Pathway
- Plant Systems Pathway

Science, Technology, Engineering & Mathematics (STEM) Career Cluster

- Science & Mathematics Pathway

Postsecondary

Agricultural and food science technicians typically need an associate degree in biology, chemistry, crop or animal science, or a related field from an accredited college or university. Some agricultural and food science technician positions require a bachelor's degree.

Students may take courses in biology, chemistry, plant or animal science, and agricultural engineering as part of their programs. Programs include technical in-

Transferable Skills and Abilities

Analytical Skills

- Conducting a variety of observations and on-site measurements, all of which require precision, accuracy, and math skills
- Using computer modeling to prepare analyses

Communication Skills

- Understanding and giving clear instructions, keep detailed records, and, occasionally, write reports

Critical-thinking Skills

- Reaching conclusions through sound reasoning and judgment
- Determining how to improve food quality and testing products for a variety of safety standards

Interpersonal Skills

- Working well with others
- Supervising agricultural and food processing workers and receiving instruction from scientists or specialists

Physical Stamina

- Standing for long periods, lifting objects, and generally performing physical labor in manufacturing or agricultural settings

struction and hands-on experience. Many schools offer internships, cooperative-education, and other programs designed to provide practical experience and enhance employment prospects.

Related College Majors

- Agricultural Engineering
- Biology
- Chemistry
- Plant/Animal Science

Additional Requirements

Agricultural and food science technicians typically undergo on-the-job training. Various federal government regulations outline the types of training needed for technicians, which varies by work environment and specific job requirements. Training may cover topics such as production techniques, personal hygiene, and sanitation procedures.

EARNINGS AND ADVANCEMENT

Earnings of agricultural and food science technicians depend on the type of employer, the type of job, and the education and experience of the employee. The median annual wage for technicians was \$44,700 in 2021. The lowest 10 percent earned less than \$29,010, and the highest 10 percent earned more than \$62,920.

Agricultural and food science technicians may receive paid vacations, holidays, and sick days; life and health insurance; and retirement benefits. These are usually paid by the employer.

EMPLOYMENT AND OUTLOOK

Agricultural and food science technicians held about 31,600 jobs nationally in 2021. Employment is expected to grow as fast as average through the year 2031, with a projected increase of 9 percent. Demand will continue for agricultural research into areas such as the effects of population growth, increased demand for water resources, harm from pests and pathogens, changes in climate and weather patterns, and demand for agricultural products, such as biofuels.

Fast Fact

Raising beef cattle is the single largest segment of American agriculture. Source: farmflavor.com.



Photo by Brian Johnson & Dane Kantner, via Wikimedia Commons.

Agricultural science technicians will be needed to assist agricultural and food scientists in investigating and improving the diets, living conditions, and even genetic makeup of livestock. Food science technicians will assist scientists to improve food-processing techniques, ensuring that products are safe, waste is limited, and food is shipped efficiently. Technicians will also continue to assist in studies that analyze soil composition and soil improvement techniques, find uses for agricultural byproducts, and selectively breed crops to resist pests and disease, or improve taste.

Related Occupations

- Agricultural/Food Scientist
- Agricultural Engineer
- Agricultural Worker
- Animal Care/Service Worker
- Biological Technician
- Chemical Technician
- Conservation Scientist/Forester
- Environmental Science/Protection Technician
- Food/Tobacco Processing Worker
- Microbiologist

MORE INFORMATION

American Registry of Professional Animal Scientists (ARPAS)

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American Society of Agronomy (ASA)

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American Society of Animal Science (ASAS)

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Future Farmers of America (FFA)

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Institute of Food Technologists (IFT)

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Soil Science Society of America (SSSA)

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