



Agriculture and Natural Resources Careers

When people think of agriculture and natural resources in Texas, they often think of big ranches and oil rigs-- part of what makes Texas great. These are industries that offer a lot of career opportunities for working outdoors and in industry support positions, with the possibility of new jobs to come in this cluster.

Careers in agriculture are primarily those in farming and occupations related to the growing and preparation of food. Natural resource careers are focused more on such things as oil and natural gas extraction, and those protecting natural resources, including environmental engineers and regulators. This cluster also includes veterinarians and others who take care of wild animals, farm animals, and pets. There are also many jobs in this cluster that support agriculture and natural resources sectors, such as finance managers, purchasing agents, and people who sell farm and oil extraction equipment.

Given the wide variety of opportunities in agriculture and natural resources, it is no surprise that approximately 100,000 people make a living in these kinds of occupations in the Texas Gulf Coast region (which includes Austin, Brazoria, Chambers, Colorado, Fort Bend, Galveston, Harris, Liberty, Matagorda, Montgomery, Wharton, Walker, and Waller counties). While some of these workers live in the same rural communities where their families have lived and worked for generations, many also work for major corporations in cities. If you have an interest in agriculture and natural resources, you can probably find a career and work environment that is just right for you.

Begin to prepare for your future now! Many high schools offer career and technology courses related to this cluster and some even have programs that will help you earn a certificate and get started while you are in school. Agriculture and natural resource certifications that are available include Tractor and Machinery Operator, Safety and Pollution Prevention, and Certified Veterinary Assistant.

So where do you go to learn more about specific occupations in agriculture and natural resources? Try the internet. You can find lots of good information there. Also, the Gulf Coast Workforce Board has developed a couple of resources for career planning. One is a “*Focus On*” series of short profiles of high growth industries and occupations in demand in the Gulf Coast region. They are designed to help students and parents plan for the future - <http://www.wrksolutions.com/jobs/focuson.html>. Also check out the Texas Education Agency’s *Achieve Texas* site, <http://www.achievetexas.org>, which provides information and suggested courses of study for specific occupations. Finally, know that the U.S. Department of Labor has lots of great career information, www.careervoyages.gov, including short videos illustrating what different jobs are really like.

For more specific information on the local market for agriculture and natural resources jobs, check out the following chart. It will tell you how many people are employed in different jobs and the wages people can expect to earn in these jobs.

In the chart below, highlighted occupations are considered High-Skill/High-Growth Occupations – those that pay well and have considerable opportunities for employment now and in the future.

Upper Texas Gulf Coast Region

SOC ¹	Agriculture, Food and Natural Resources Cluster Occupational Title	Annual Average Employment 2006	Percent Growth 2006-2016	Total Annual Average Job Openings ²	2007 Hourly Wages
<u>Short-term on-the-job training(Less than 1 month)</u>					
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	6,850	18.2%	295	\$7.96
39-2021	Nonfarm Animal Caretakers	2,900	24.1%	120	\$9.22
47-5081	Helpers--Extraction Workers	1,650	36.4%	110	\$13.89
53-7081	Refuse and Recyclable Material Collectors	2,000	10.0%	75	\$14.58
45-2093	Farmworkers, Farm and Ranch Animals	1,650	18.2%	70	NA ³
51-3092	Food Batchmakers	1,100	31.8%	60	\$8.95
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	1,250	24.0%	40	\$9.72
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	650	23.1%	35	\$9.03
37-3013	Tree Trimmers and Pruners	750	13.3%	20	\$10.95
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	250	20.0%	15	NA ³
51-3093	Food Cooking Machine Operators and Tenders	450	0.0%	15	\$8.67
<u>Moderate-term on-the-job training (1 - 12 months)</u>					
47-5071	Roustabouts, Oil and Gas	8,600	34.9%	555	\$13.77
47-5013	Service Unit Operators, Oil, Gas, and Mining	4,650	35.5%	210	\$19.74
47-5012	Rotary Drill Operators, Oil and Gas	3,000	31.7%	125	\$21.47
53-7073	Wellhead Pumpers	2,050	17.1%	115	NA ³
47-5011	Derrick Operators, Oil and Gas	2,350	34.0%	105	\$17.39
41-2022	Parts Salespersons	4,800	3.1%	70	\$16.07
51-3023	Slaughterers and Meat Packers	850	17.6%	40	\$10.44
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	650	30.8%	30	\$10.18
53-7071	Gas Compressor and Gas Pumping Station Operators	650	-7.7%	25	NA ³
45-2091	Agricultural Equipment Operators	450	11.1%	20	\$12.80
53-7072	Pump Operators, Except Wellhead Pumpers	450	0.0%	20	\$22.01
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	350	28.6%	10	\$17.11
45-4022	Logging Equipment Operators	150	33.3%	10	\$17.49
47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	100	50.0%	10	\$26.69
45-3011	Fishers and Related Fishing Workers	150	0.0%	0	NA ³
45-4011	Forest and Conservation Workers	50	0.0%	0	\$12.24
45-4021	Fallers	50	0.0%	0	NA ³
47-5051	Rock Splitters, Quarry	50	0.0%	0	NA ³
<u>Long-term on-the-job training (More than 12 months)</u>					
11-9012	Farmers and Ranchers	16,850	8.9%	295	NA ³
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	6,900	15.2%	295	\$26.39
51-3021	Butchers and Meat Cutters	2,250	15.6%	110	\$12.48
51-8031	Water and Liquid Waste Treatment Plant and System Operators	2,550	19.6%	95	\$16.11
51-8092	Gas Plant Operators	1,450	6.9%	50	\$23.70
49-3041	Farm Equipment Mechanics	700	14.3%	25	\$14.81
13-1021	Purchasing Agents and Buyers, Farm Products	100	0.0%	0	\$25.45

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<u>Work experience in a related occupation</u>					
41-1011	First-Line Supervisors/Managers of Retail Sales Workers	32,150	13.2%	1,100	\$19.59
37-1012	First-Line Supervisors/Managers of Landscaping, Lawn Service, and Groundskeeping W	3,800	19.7%	100	\$14.83
45-1011	First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	250	20.0%	10	\$13.91
45-2041	Graders and Sorters, Agricultural Products	250	20.0%	10	NA ³
45-1012	Farm Labor Contractors	50	0.0%	0	NA ³
45-2011	Agricultural Inspectors	100	0.0%	0	NA ³
<u>Associate degree</u>					
29-2056	Veterinary Technologists and Technicians	1,950	38.5%	140	\$11.98
19-4041	Geological and Petroleum Technicians	2,050	29.3%	135	\$27.78
19-4091	Environmental Science and Protection Technicians, Including Health	1,000	20.0%	55	\$19.36
17-3025	Environmental Engineering Technicians	550	27.3%	20	\$20.27
19-4093	Forest and Conservation Technicians	50	0.0%	0	\$19.58
33-3031	Fish and Game Wardens	100	0.0%	0	\$26.01
<u>Bachelor's degree</u>					
17-2081	Environmental Engineers	1,050	23.8%	55	\$36.04
29-9011	Occupational Health and Safety Specialists	1,200	25.0%	55	\$30.72
19-1011	Animal Scientists	400	25.0%	20	\$30.11
29-9012	Occupational Health and Safety Technicians	400	25.0%	20	\$23.95
17-1021	Cartographers and Photogrammetrists	150	33.3%	10	\$34.35
19-1012	Food Scientists and Technologists	200	25.0%	10	\$28.17
25-9021	Farm and Home Management Advisors	250	0.0%	10	\$14.51
19-1031	Conservation Scientists	100	50.0%	5	NA ³
19-1013	Soil and Plant Scientists	100	0.0%	0	NA ³
19-1023	Zoologists and Wildlife Biologists	100	0.0%	0	\$41.92
<u>Bachelor's or higher degree, plus work experience</u>					
11-3031	Financial Managers	7,300	21.2%	260	\$56.32
11-9011	Farm, Ranch, and Other Agricultural Managers	950	26.3%	30	\$27.22
11-9121	Natural Sciences Managers	550	18.2%	20	\$53.75
<u>Doctoral degree</u>					
25-1041	Agricultural Sciences Teachers, Postsecondary	550	45.5%	35	NA ³
<u>First professional degree</u>					
29-1131	Veterinarians	950	47.4%	65	\$41.40

Sources: U.S. Department of Labor Bureau of Labor Statistics and Texas Workforce Commission

¹ Standard Occupational Classification (SOC) Codes refer to a standardized coding system to categorize occupations. To find out more about an occupation, you can go to <http://online.onetcenter.org/find/>, enter the SOC code, and look at a complete description of an occupation.

² Total average openings include total job openings due to both growth and replacements. Job openings due to growth are created by increases in the total number of people employed in an occupation. Job openings due to net replacement estimate the need in existing jobs as workers vacate, change jobs, or leave the labor force.

³ Wage data for this occupation are not available.



Agriculture and Natural Resources Plan of Study

Recommended Plan _____
 Distinguished Achievement Plan _____

Learner Name _____
 Learner Signature _____
 Parent/Guardian Signature _____

Date _____
 Advisor Signature _____

High School Graduation Plan	9 th Grade	10 th Grade	11 th Grade	12 th Grade
	English I	English II	English III	English IV
	Algebra I	Geometry	Algebra II	Math Elective
	Biology I	IPC or Chemistry	Chemistry or Physics	Science Elective - Lab-based
	World Geography	World History	US History	Economics/Government
	Required Electives PE, Health, Fine Arts, Foreign Language, Communication Application, or Technology Applications _____	Required Electives PE, Health, Fine Arts, Foreign Language, Communication Application, or Technology Applications _____	Required Electives PE, Health, Fine Arts, Foreign Language, Communication Application, or Technology Applications _____	Required Electives PE, Health, Fine Arts, Foreign Language, Communication Application, or Technology Applications _____
	Required Electives PE, Health, Fine Arts, Foreign Language, Communication Application, or Technology Applications _____	Required Electives PE, Health, Fine Arts, Foreign Language, Communication Application, or Technology Applications _____	Career Electives Agriculture and Natural Resources Career Elective or Language (distinguished) _____	Career Electives Agriculture and Natural Resources Career Elective or Language (distinguished) _____
	Required Electives PE, Health, Fine Arts, Foreign Language, Communication Application, or Technology Applications _____	Career Electives Agriculture and Natural Resources Career Elective _____	Career Electives Agriculture and Natural Resources Career Elective _____	Career Electives Agriculture and Natural Resources Career Elective _____

Agriculture and Natural Resources Career Cluster Elective Courses approved by the Texas Education Agency are Listed on Page 5.

This plan of study should serve as a guide. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals



Agriculture and Natural Resources Career Cluster Career Elective Courses

Advanced Agribusiness Management and Marketing	Aquaculture Production
Advanced Animal Science	Energy and Environmental Technology
Advanced Floral Design	Entrepreneurship in Agriculture
Advanced Plant and Soil Science	Environmental Technology
Agribusiness Management and Marketing	Equine Science
Agricultural Biotechnology	Exploring Aquaculture
Agricultural Communications	Floral Design and Interior Landscape Management
Agricultural Electronics	Food Technology
Agricultural Mechanics I	Forestry and Wood Technology
Agricultural Mechanics II	Fruit, Nut, and Vegetable Production
Agricultural Metal Fabrication Technology	Horticulture I
Agricultural Power and Machinery	Horticulture II
Agricultural Power Technology	Horticulture Plant Production
Agricultural Resources	Introduction to Agricultural Mechanics
Agricultural Science and Technology Ind. Study	Introduction to Horticulture Science
Agricultural Structures Technology	Introduction to World Ag. Science and Technology
Animal Production	Landscape Design, Construction, and Maintenance
Animal Science	Meats Processing
Applied Agricultural Science and Technology	Personal Skill Development in Agriculture
Applied Entomology	



Plant and Animal Production

Plant and Soil Science

Range Management and Ecology

Specialty Agriculture

Wildlife and Recreation Management