
AGRICULTURAL JOB MARKET REPORT

APRIL 2024

Table of Contents

Author Information	1
Executive Summary	2
Job Postings & Openings	3
Job Trends	4
Salary	5
Description Analysis	7
Appendix	10
References	14

AUTHOR INFORMATION



JOSHUA STRINE
Graduate Research Assistant
Department of Agricultural
Economics, Purdue University



DR. BRADY BREWER
Assistant Professor
Department of Agricultural
Economics, Purdue University

EXECUTIVE SUMMARY

PURPOSE

Purdue University's Department of Agricultural Economics started collecting data on agricultural job postings during the summer of 2021. This data is collected every four weeks, and this report represents an overview of the agricultural job market over time. The data extends from June 2021 to April 2024. The Agricultural Job Market Report provides a measurement of the current state of the job market and discussions on any trends or changes.

ABOUT THIS REPORT

Google's job search engine pulls job postings from thousands of job boards. These job boards can be company-specific or common job posting sites like LinkedIn and Glassdoor.

JOB TRENDS

Agricultural Job postings were collected 27 times between April 20, 2022, and April 17, 2024. On average, there are 2739 new job openings every four weeks. There were 2415 new job openings on Google between March 20, 2024, and April 17, 2024. This marks a sharp decline from the 3000 new jobs that have been present in the last two scrapes. Current job openings were lower than the previous scrape for the first time since January 4th. The number of postings per opening has decreased for the second straight collection. Over one-third of job openings were in the Midwest.

SALARY

The average agricultural job salary since April 2022 is \$48,579. On April 17, 2024, the average salary was \$55,583, which marks the third straight scrape average salary has increased. Jobs in economics, academics, and research are among the highest-paying jobs in agriculture. Additionally, jobs in the Northeast had the highest average salary among the geographical regions, but remote jobs had higher average salaries.

DESCRIPTION ANALYSIS

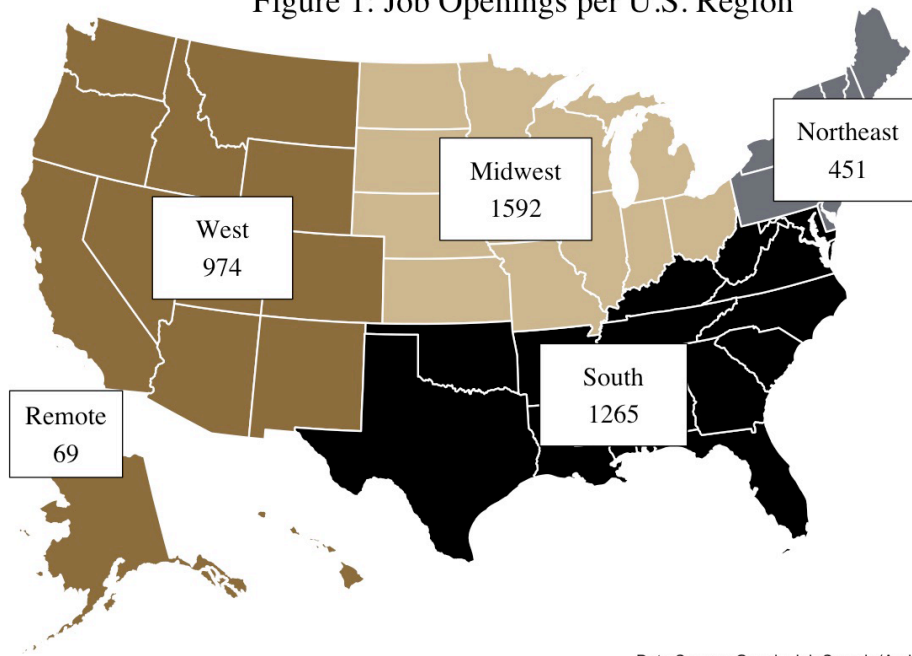
Experience is mentioned in the description of 95% of agricultural jobs, making it the most common job requirement on March 20, 2024. The most common type of job openings are lending and finance, natural resources, and engineering. Academic jobs were the least common. 30% of jobs mention a desire for or requirement of a bachelor's degree in their descriptions.

JOB POSTINGS & OPENINGS

In the report, "job posting" refers to any separate occurrence of a job advertisement for an individual job. Any representation of a single specific job opportunity of a company will always be phrased as a "job opening." Some companies have existing career pages on their website but continue to post to job boards, like LinkedIn and ZipRecruiter. Companies post to multiple job boards to cast a wider net for potential hires.

Figure 1 illustrates the number of job openings for each region of the United States. There were 4564 job postings for 4351 unique jobs on April 17, 2024. The most job openings were in the Midwest and South. Over one-third of all job openings were in the Midwest. Relative to the collection on March 20, 2024, the number of jobs in all four geographic regions and remote jobs was lower. The ranking of regions in terms of total job openings was the same in the two most recent collections.

Figure 1: Job Openings per U.S. Region

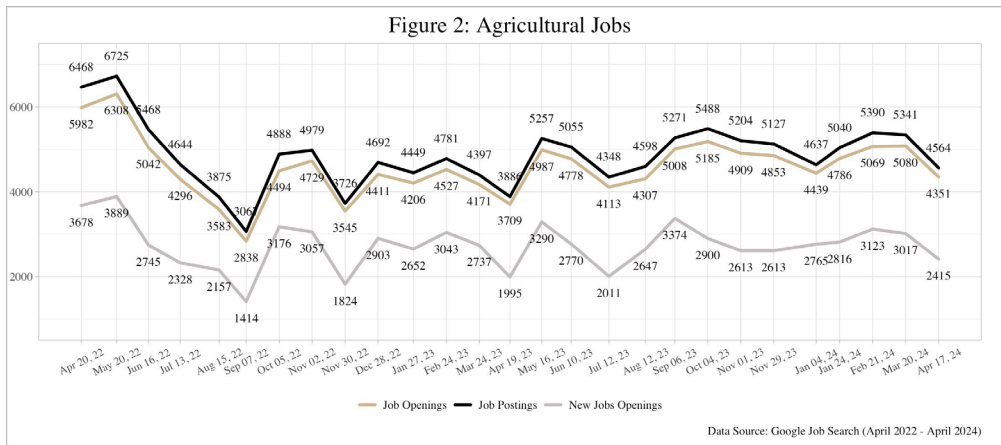


Data Source: Google Job Search (April 2024)

JOB TRENDS

Figure 2 represents job postings collected every four weeks from April 20, 2022, to April 17, 2024. On average, there were 2739 new openings present every four weeks. On April 17, 2024, there were 2415 new jobs collected. This is a significant decrease from the 3017 new jobs present on March 20, 2024. April 17th was also the first time the number of new jobs was below the two-year average since November 29, 2023, and had the lowest number of new jobs since July 2023.

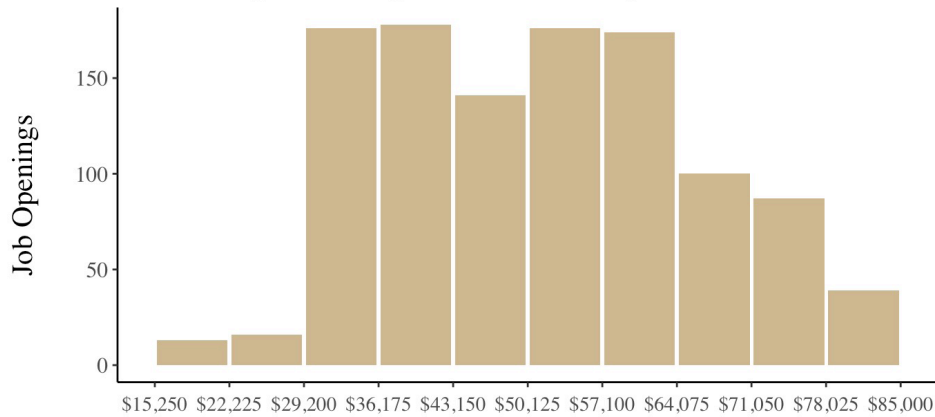
On average, there were 4582 job openings at each collection date. On April 17th, there were 4351 unique job openings, which is the lowest number of jobs since August 12, 2023. April 17th also marks the first time the number of current job openings has decreased since January 4, 2024. The long-term trend of job postings closely follows that of job openings.



SALARY

The national median salary computed for the last 24 months was \$46,228/year. The average salary was \$48,579 /year. Only 19% of job openings included salary information. Figure 3 illustrates the salary distribution among agricultural job openings for February of 2024. According to ZipRecruiter, the national average salary for agricultural-related jobs is \$47,486/year.

Figure 3: Agricultural Salary Distribution



SALARY BY SUBSECTOR

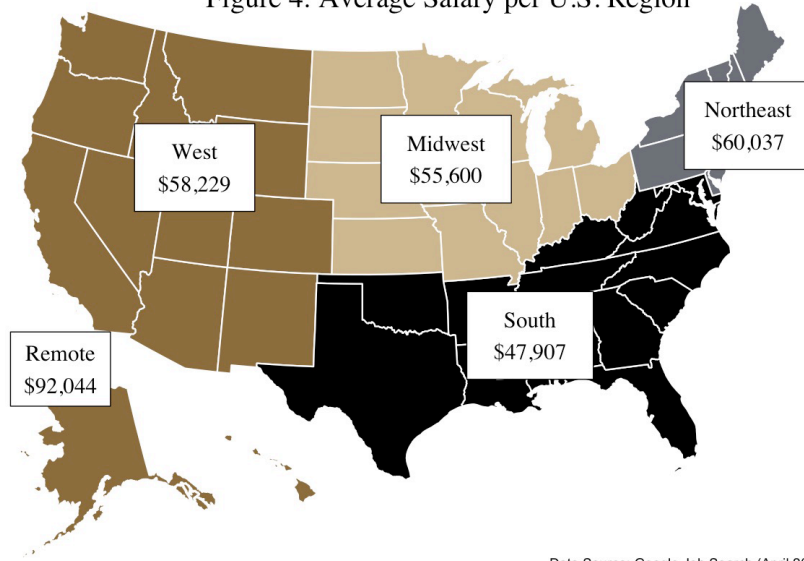
The distribution of salaries varies across the different subsectors of agricultural jobs, as shown in Table 1. Jobs in economics (\$62,464/year), academics (\$58,558/year), and research (\$58,190/year) have the highest average salary. Economic jobs have had the highest average salary in every collection since July 2023. Food Science jobs had the lowest average salary (\$48,992/year). It is important to note that jobs can fall into multiple subsectors. It is also possible that specific subsectors exclude salaries more often or have outlier salaries.

Table 1 Job Salary by Subsector	Average Salary	Median Salary
Academic	\$58,558	\$60,778
Economics	\$62,464	\$58,766
Education	\$55,037	\$51,654
Engineering	\$56,063	\$55,042
Sales	\$55,121	\$51,362
Agronomy	\$57,004	\$55,083
Animal Science	\$52,836	\$51,586
Farming	\$55,758	\$51,654
Food Science	\$48,992	\$46,160
Lending and Finance	\$56,861	\$52,992
Natural Resources	\$57,485	\$56,304
Research	\$58,190	\$57,276
Google Job Search (April 2024)		

SALARY BY REGION

Average salaries vary by region. Figure 4 illustrates the variation in average salaries across the U.S. Fully remote jobs have an average salary of \$92,044/year. The Northeast has the highest average regional salary in job postings at \$60,037/year, followed by the West at \$58,229 /year. The third highest average salary by region is the Midwest at \$55,600/year, followed by the South at \$47,907/year. Relative to the average regional salaries on March 20, 2024, Average salaries in the Northeast and West were elevated, and average salaries in the Midwest, South, and remote jobs were lower. April 17th marks the sixth straight collection where the average salary was lowest in the South.

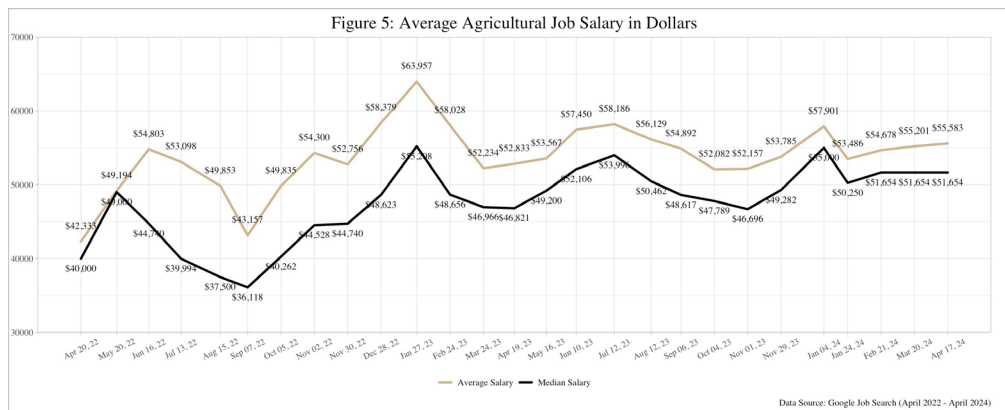
Figure 4: Average Salary per U.S. Region



Data Source: Google Job Search (April 2024)

SALARY TRENDS

The average and median salary for observed agricultural jobs over the past two years are depicted in Figure 5. Most recently, the average reported salary for agricultural jobs was \$55,583, and the median reported salary was \$51,654. The median salary has maintained the same level for three straight collections, while the average salary has now increased over the last three collections. Relative to April 2023, average and median salaries were both higher in April 2024.



Data Source: Google Job Search (April 2022 - April 2024)

DESCRIPTION ANALYSIS

INDUSTRY SUBCATEGORY

The job openings can be grouped by keywords mentioned within their descriptions. Based on company type or job responsibilities, it is possible for a job to fit in multiple different subcategories. For example, if a job on a farm requires feeding animals and operating machinery, it would be both animal sciences and farming. Table 2 reports the percentage of job openings that include each word or some variation. The top three subsectors are lending and finance, natural resources, and engineering. Academic jobs are the least common job type.

Table 2 Industry Subsector	Job Openings that Mention
Academic	2.6%
Ag Education	44.1%
Agronomy	38.7%
Animal Science	22.4%
Economics	42.0%
Engineering	58.4%
Farming	52.0%
Food Science	24.1%
Lending and Finance	76.4%
Natural Resources	67.2%
Research	57.5%
Sales	52.2%
Google Job Search (April 2024)	

JOB REQUIREMENTS

Table 3 shows the average percentage of mentions for specific job requirements. Experience is required by 95% of jobs, while over 50 percent of jobs also require leadership, education, communication, and data skills. Throughout the data collection, experience has always been the most common requirement. Leadership has been the second most common requirement since December 2022. The percentage of jobs mentioning travel requirements has dropped from 68% to 44% since September 2023. Public Speaking has also become a less required skill, being mentioned by 61% of Jobs in December 2021 but only 41% of jobs on April 17th.

Table 3 Requirements	Job Openings that Mention
Communication	69.4%
Critical Thinking	18.5%
Data	50.8%
Education	75.8%
Experience	94.5%
Leadership	86.4%
Microsoft	37.1%
Programming	12.8%
Public Speaking	41.1%
Quantitative	42.1%
Remote Work	26.3%
Teamwork	42.8%
Travel	44.3%
Google Job Search (April 2024)	

DESIRED EDUCATION

Table 4 reports the percentage of job postings in agriculture that mention each desired level of education by applicants. To be included, the educational term must be explicitly written in a job description. A job can mention multiple levels of education. Generally, a low share of agricultural jobs indicates a required education. According to Table 4, a bachelor's degree, the most cited requirement, is mentioned in 30.16% of agricultural job postings. Mentions of graduate degrees have increased significantly over the last six months. Mentions of master's degrees were at 8.3%, and mentions of PhD were at 4.9% on November 3, 2023, and were 19% and 13% on April 17, 2024, respectively.

Table 4 Desired Education	Job Openings that Mention
High School	20.9%
Associates	5.9%
Bachelors	30.2%
Masters	18.8%
PhD	13.0%
Google Job Search (April 2024)	

JOB BENEFITS

Key terms related to job benefits are in Table 5. These include benefits, diversity, equal opportunity, tuition reimbursement, and 401(K). In the same way companies may not post salaries with online listings, they may also not report all the relevant benefits. These numbers should serve as guides to understand what is being displayed in job descriptions but are unlikely to fully capture the benefit packages offered by agricultural employers. We can see that 65% of agricultural job postings use some general terms of benefits in the description, but few reference specific benefits such as 401(K) and tuition reimbursement. Additionally, 92% of jobs included mention of equal opportunity. These levels of mentions have maintained relative stability throughout data collection.

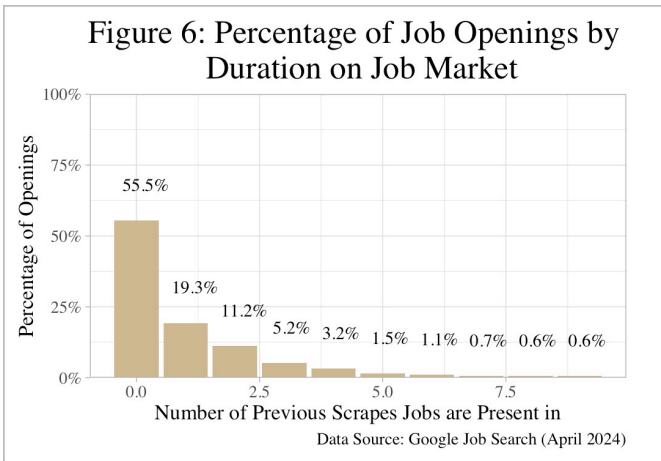
Table 5 Benefits	Job Openings that Mention
401(K)	5.4%
General Benefits	65.5%
Diversity	15.8%
Equal Opportunity	91.8%
Google Job Search (April 2024)	

DURATION ON JOB MARKET

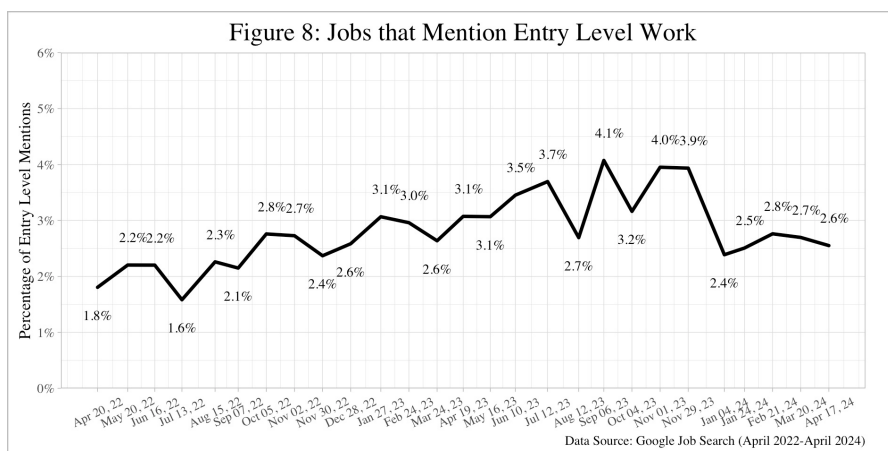
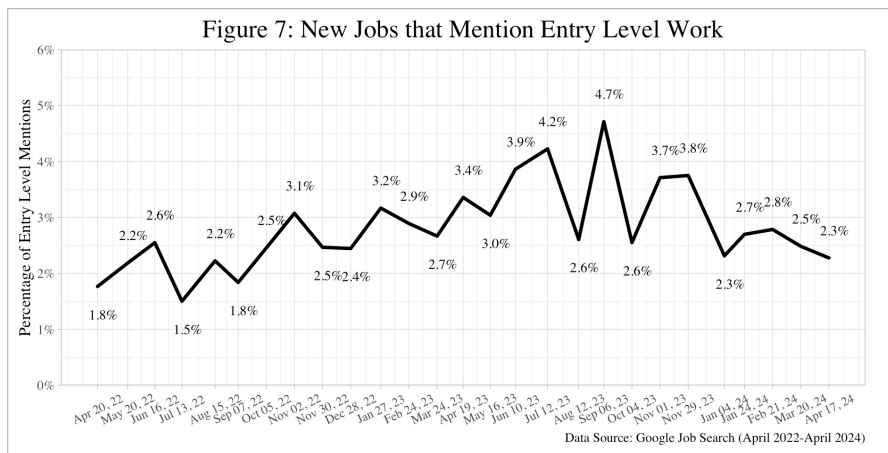
The amount of time a job opening is listed can be an indicator of how fast agricultural jobs are filled and how long agricultural employers search for potential candidates. Figure 6 shows the duration current jobs have been on the market. 55.5% of agricultural jobs were not present in the prior scrape. 14% of jobs have been present for more than two previous collections. On average, job openings present on April 17th were older than those present on March 20th.

ENTRY LEVEL OPENINGS

With graduation season approaching, there will soon be many high school or college seniors joining the workforce. These to-be graduates may already have a job lined up or may be actively searching for employment. Either way, the new labor force participants will likely be filling entry-



level positions. Figure 7 and Figure 8 show the percentage of new jobs and unique jobs that are entry-level positions over the past two years, respectively. Similar trends appear in both the new entry-level jobs and total entry-level jobs, but fluctuations in new entry-level jobs are greater. There had been an increase in entry-level jobs as a percent of all agricultural jobs between April 2022 and November 2023. Between November 2023 and January 2024, there was a sharp drop from 3.9% to 2.4%, but it has been relatively stable since then. With respect to all agricultural jobs, entry-level positions have been less common in 2024 than in 2023.



APPENDIX

DATA COLLECTION

For this research, data was collected through Google's job search engine utilizing an Application Programming Interface (API) provided by SerpApi. The data collected for the report includes job title, company name, description, salary (if posted), posting date, and original job board site name.

Not all online job postings appear on Google's job search engine and as a result the data discussed in the report should be treated as a sample of job openings existing within the agriculture industry. Indeed.com, the number 1 job site in the world, does not share job posting data with Google. Google's job search engine represents only a fraction of jobs posted online. Job postings can be posted on multiple job boards such as LinkedIn, Glassdoor, as well as company websites that allow Google's Cloud Talent Solution to analyze their job postings and display them on Google's job search engine.

Job postings that are available on Google's job search engine are curated to best fit the search terms of the user. The data in this report was collected using a general search term of "agriculture". Data presented in this report could impose bias that is specific to Google's job search engine data. Although possible, we believe the data collected is valuable for industry employers as a metric for comparing company hiring to the agricultural industry. Therefore, this report is an analysis of Google's data and is not fully representative of the agricultural job market.

Note that not all online job postings appear on Google's job search engine. Job postings can be posted on multiple job boards such as LinkedIn, Glassdoor, as well as company websites that allow Google's Cloud Talent Solution to analyze their job postings and display them on Google's job search engine. Job postings that are available to Google's Cloud Talent Solution are curated to best fit the search terms of the user. For this study, the search term included: "agriculture." This allows for a broad variety of jobs to be collected that exist within the agricultural job market. The data discussed in this report represents all job postings in the United States collected from Google's job search engine from June 2021 to November 2022. Google's job search engine is a conglomerate of multiple online job boards. Within the data, no jobs were collected from Indeed.com. Indeed.com does not allow Google access to their job board unlike other popular job sites. Google must be granted access to a company's job posting before advertising on Google's job search engine. Many job openings appear

on multiple job boards at a given time to get more advertising to potential employees.

Google's job search engine hosts thousands of job boards' data. Due to the immense amount of job boards available, job advertising is a competitive market. Companies seeking premium talent should post to the more popular job boards which produce more traffic.

DESCRIPTION ANALYSIS

From the data, each job posting has a description. Text mining was used to pull information from these descriptions, and it is possible to quantify the amount of mentions of specific characteristics. We were able to extract salary if not already mentioned, subsector information, requirements, and education. The categories were found using the "bag of words" technique. A list of words was created to represent any similar phrases and synonyms that represent a characteristic of interest. For example, quantitative skills would be marked as appearing in a job posting if terms appear in the description such as "quantitative", "analysis", "prediction", "mathematics", and "statistics." These terms are represented as nouns, verbs, and adjectives to catch all forms of context that might be represented in written language. Descriptions are then searched to evaluate if any of these terms were mentioned. If a term was mentioned once or more, the description was tallied as mentioning those specific characteristics.

Industry Subsector	Word List
Academic	Company name must contain “college”, or “university” and Description must contain “professor”, “dean”, “adjunct”, “tenure”, “chair”, “post doc”, “postdoc”, “faculty”, “lecture”, or “instructor”
Ag Education	“ag ed”, “ag teacher”, “agricultural teacher”, “ag education”, “agriculture education”, “agricultural education”, “educator”, “teach”, “teacher”, “class”, “classroom”, “ffa”, “4-h”, “4h”, “ag teacher”, “teaching”, “extension educator”, “future farmers of america”, “ext agent”, or “extension”
Agronomy	“crop adviser”, “agronomy”, “agronomist”, “corn”, “soybeans”, “soil”, “seed”, “crop”, “grain”, “cultivation”, “greenhouse”, “irrigation”, “appraiser”, “horticulture”, “fertilizer”, “pesticide”, “fungicide”, “herbicide”, “applicator”, “sprayer”, or “botanist”
Animal Science	“animal”, “veterinarian”, “veterinary”, “sheep”, “cattle”, “dairy”, “swine”, “pig”, “pork”, “beef”, “livestock”, “breed”, “poultry”, “equestrian”, “horse”, “bovine”, “ranch”, “farrowing”, “feedlot”, “grazing”, “dairies”, “milking”, “egg gatherer”, “herdsman”, or “herdsperson”
Economics	“economic”, “economist”, “econometric”, “statistician”, “risk”, “commodity”, “price”, “pricing”, “policy specialist”, “policy analyst”,
Engineering	“ag systems management”, “agricultural systems management”, “asm”, “engineer”, “mechanic”, “diesel”, “equipment”, “service tech”, “service manager”, “maintenance tech”, “production tech”, “electrical tech”, “precision tech”, “repair”, “construction”, “mechan”, “weld”, “precision”, “digital ag”, or “technology”
Farming	“farming”, “farmhand”, “planting”, “plant”, “harvest”, “harvester”, “farm”, “forage”, “combine”, or “farmer”
Food Science	“food science”, “food production”, “meat packing”, “butcher”, “food distribution”, “food handling”, “food processes”, “food product”, “meat”, or “produce”
Lending and Finance	“loan”, “credit”, “lender”, “lending”, “bank”, “finance”, “tax”, “investment”, “budget”, “financial”, “insurance”, “account”, “underwriter”, “audit”, or “collateral”
Natural Resources	“conservation”, “wildlife”, “environment”, “environmental”, “ecosystem”, “forest”, “tree”, “raw materials”, “nature”, “energy”, “pollution”, “renewable”, “fire”, “climate”, “natural”, “sustainable”, “resources”, “surveyor”, “fish”, “microbiologist”, “geologist”, “biologist”, or “biological”
Research	“research”, “laboratory”, “scientist”, “chemist”, or “lab”
Sales	“ag sales”, “agricultural sales”, “sell”, “customer”, “account”, “commission”, “sale”, “seller”, “buyer”, or “buying”

Desired Education	Word List
High School	“high school”
Associates	“associate’s”, “associate degree”, “associates’s degree”
Bachelors	“bachelors”, “bachelor’s degree”, “bachelor degree”
Masters	“masters”, “master’s degree”, “master degree”, “grad school”, “gradschool”, “graduate degree”, “advanced degree”
PhD	“phd”, “p.h.d”, “ph.d”, “doctorate”, “doctoral degree”

Requirements	Word List
Communication	“communication”, “communicate”, “talk”, “call”, “email”, “explain”, “present”, “speak”
Critical Thinking	“critical thinking”, “problem solving”, “analysis”, “deliberate”, “brainstorm”, “reasoning”
Data	“data”, “data analysis”, “big data”, “data analyst”, “data wrangling”, “data collection”
Education	“degree”, “degrees”, “college”, “graduate”, “undergrad”, “doctorate”, “phd”, “bachelor”, “bachelors”, “education”, “gpa”
Experience	“work experience”, “experience”, “training”, “prior job”, “familiarity”, “practice”, “knowledge”, “background”, “exposure to”, “understanding of”
Leadership	“leadership”, “lead”, “leading”, “leader”, “manager”, “management”, “mentor”, “supervision”, “supervisor”, “supervise”
Microsoft	“excel”, “spreadsheet”, “microsoft”, “word”, “powerpoint”, “outlook”
Public Speaking	“public speaking”, “speaking”, “speech”, “speeches”, “speak”, “present”, “presentation”
Programming	“coding”, “code”, “python”, “r”, “sql”, “java”, “c”, “computing”, “algorithm”
Quantitative	“quantitative”, “analysis”, “analyze”, “analyst”, “insight”, “predict”, “prediction”, “predictive”, “math”, “mathematics”, “statistics”, “statistical”, “optimization”, “optimize”, “regression”
Remote Work	“remote”, “remote working”, “home office”, “work from home”, “work at home”
Teamwork	“collaboration”, “team”, “teams”, “teamwork”
Travel	“travel”, “drive”, “driving”, “fly”, “flying”

Benefits	Word List
General Benefits	“medical”, “dental”, “vision”, “ad&d”, “ad and d”, “accidental death and dismemberment”, “std”, “short term disability”, “short-term disability”, “ltd”, “long term disability”, “long-term disability”, “vacation”, “holiday”, “disability”, “health insurance”, “health savings account”, “life insurance”, “paid time off”, “pto”, “referral program”, “retirement planning”, “retirement”
Diversity	“diverse”, “diversity”
Equal Opportunity	“equal opportunity”, “without regard”, “religion”, “sex”, “color”, “age”, “race”
Tuition Reimbursement	“tuition”
401(K)	“401k”, “401 k”, “401(k)”

States in Each Region from Figure 1 and 4	
Midwest	IN, IL, MI, OH, WI, IA, KS, MN, MO, NE, ND, SD
Northeast	CT, ME, MA, NH, RI, VT, NJ, NY, PA
South	DE, FL, GA, MD, NC, SC, VA, WV, AL, KY, MS, TN, AR, LA, OK, TX, DC
West	AZ, CO, ID, NM, MT, UT, NV, WY, AK, CA, HI, OR, WA

REFERENCES

"About Indeed." *Indeed.com*, Mar. 2020, www.indeed.com/about.

"Agricultural Salary." *ZipRecruiter*, 15 Apr. 2024, <https://www.ziprecruiter.com/Salaries/Agriculture-Salary#Yearly>.

SerpApi, LLC. "Google Jobs API." *SerpApi*, 2022, <https://serpapi.com/google-jobs-api>.