

# AGRICULTURAL JOB MARKET REPORT

## January 2024 Report



**PURDUE**  
UNIVERSITY

Agricultural Economics  
COLLEGE OF AGRICULTURE

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## 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 January 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. On Google's job search engine, LinkedIn is the most popular job board for agricultural jobs that are found in the data.

### JOB TRENDS

Agricultural Job postings were collected 27 times between February 4, 2022, and January 24, 2024. On average, there are 2758 new job openings every four weeks. There were 2816 new job openings on Google between November 29, 2023, and January 4, 2024. Current job postings and openings increased between the last two scrapes for the first time in four collections.

### SALARY

The average agricultural job salary since February 2022 is \$47,187/year, which is below the average salary for all jobs in the United States, according to the Bureau of Labor Statistics. On January 24, 2024, jobs in economics, animal science, and agronomy are among the highest-paying agricultural jobs. Additionally, remote jobs had a higher average salary than any U.S. geographical region.

### DESCRIPTION ANALYSIS

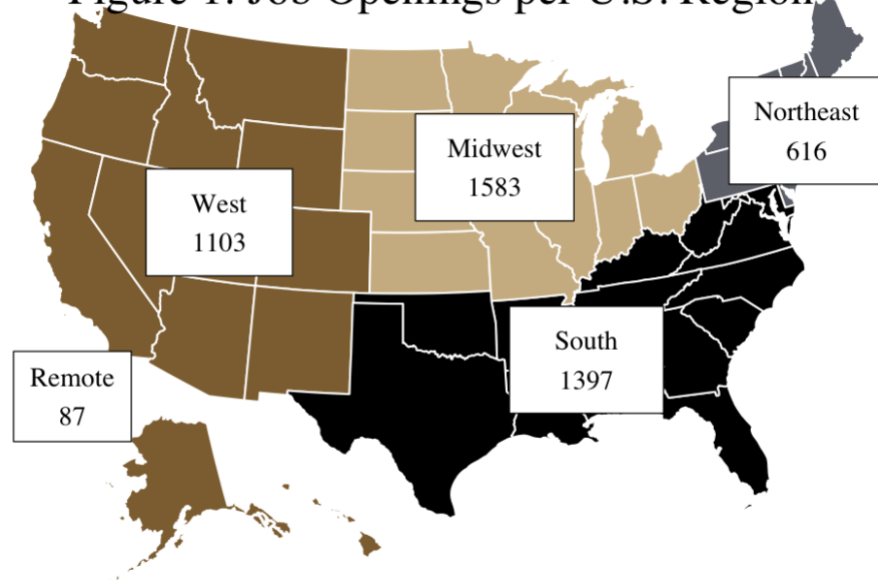
The most common types of job openings are lending and finance, natural resources, and sales. Academic jobs are the least common job types. New internship positions as a percent of total new jobs continued a downward trend since October 2023.

## Job Postings and Openings

In the report, “job posting” refers to any separate occurrence of a job advertisement for an individual job. Any representation of a single specified 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 5040 job postings for 4786 unique jobs on January 24, 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 January 4, 2023, remote job openings increased along with jobs in the Northeast, South, and West. The Midwest was the only region where job openings were 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 (January 2024)

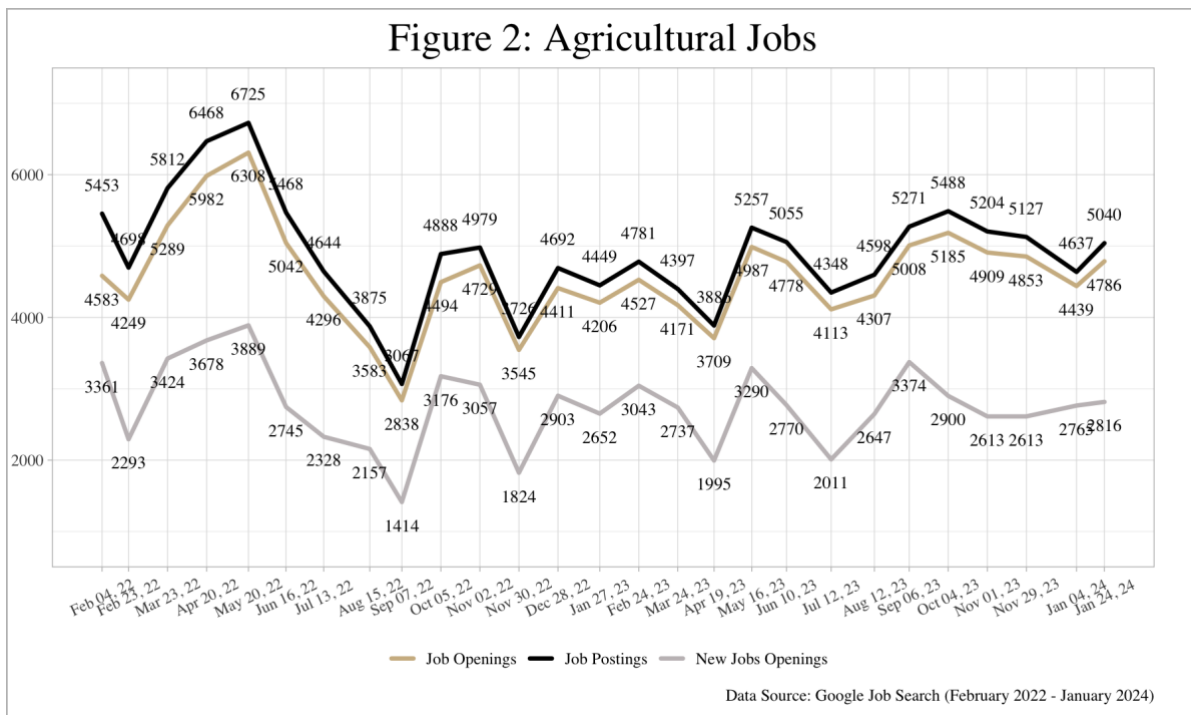
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## Job Trends

Figure 2 represents job posting collections for every four weeks from February 4, 2022, to January 24, 2024. The two-year average of present new openings every four weeks has been 2758. The number of new jobs present has increased for two straight months and was most recently 2816. Relative to this time last year, new job postings are higher. The two-year maximum occurred in May 2022, and the two-year minimum occurred in September 2022.

On average, there were 4568 job openings at each collection date. On January 24<sup>th</sup>, there were only 4786 unique job openings. This is an increase over the 4439 jobs present on January 4, 2024 and ends three straight collections of decreasing openings. Relative to January 27, 2023, job openings were higher on January 24, 2024. The two-year maximum was on May 20, 2022, and the two-year minimum occurred on September 7, 2022.

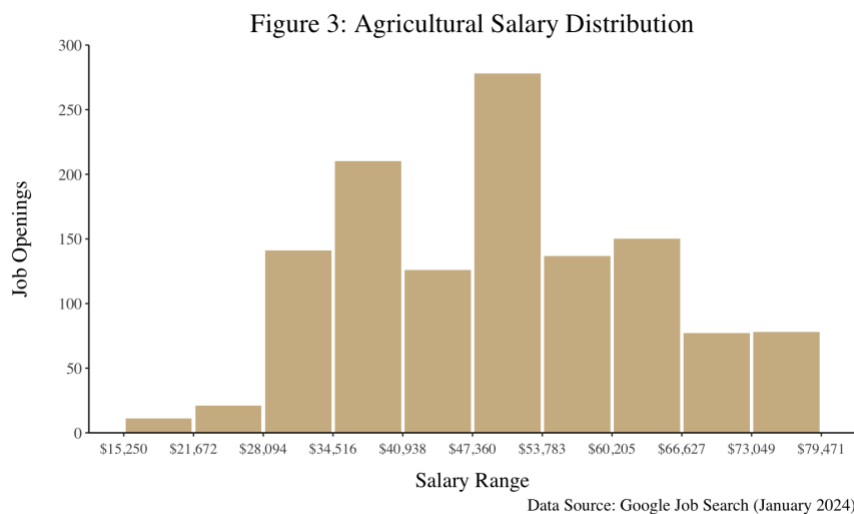
The average number of job postings in each period was 4890. The long-term trend closely follows job openings, but it may be more interesting to evaluate the posting in terms of postings per opening (PPO). Over the two years, the average PPO was 1.07. Prior to November 2022, the number of PPOs ranged from 1.07 to 1.19. Since November 2022, PPO's have ranged from 1.04 to 1.07. This means that over the last 15 months, companies have more commonly only posted job openings to one job board when seeking to fill positions.



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## Salary

The national median salary computed for the last 24 months was \$43,683/year, and the average salary was \$47,187/year. According to ZipRecruiter, the national average salary for agricultural-related jobs is \$47,483/year. The median weekly wage of all full-time employees was \$1,145 in the 4<sup>th</sup> quarter of 2023, according to the Bureau of Labor Statistics, which equates to \$59,540 annually. It is important to note that only 17% of job openings collected from Google jobs included salary information. Figure 3 illustrates the distribution of salary among agricultural job openings for January of 2024.



### SALARY BY SUBSECTOR

The distribution of salaries varies across the different subsectors of agricultural jobs, as shown in Table 1. Jobs in economics (\$59,510 /year), animal science (\$57,110/year), and agronomy (\$56,271/year) have the highest average salary. Food science jobs had the lowest average income, with an annual salary of \$47,047. It is important to note that jobs can belong to multiple subsectors. It is also possible that specific subsectors exclude salaries more often or have salaries that are excluded as outliers.

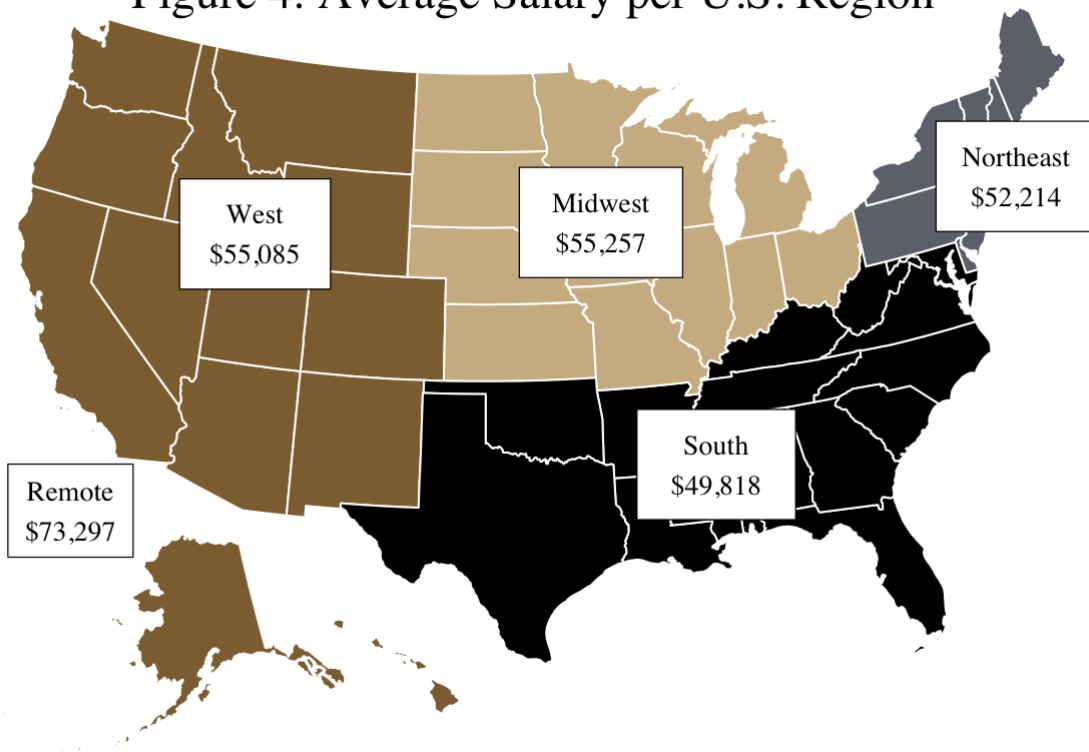
Table 1 Job Salary by Subsector	Average Salary	Median Salary
<b>Academic</b>	\$56,246	\$58,913
<b>Economics</b>	\$59,510	\$56,964
<b>Education</b>	\$54,750	\$51,654
<b>Engineering</b>	\$54,785	\$51,907
<b>Sales</b>	\$53,987	\$50,000
<b>Agronomy</b>	\$56,271	\$52,000
<b>Animal Science</b>	\$57,110	\$51,654
<b>Farming</b>	\$55,378	\$51,362
<b>Food Science</b>	\$47,047	\$46,160
<b>Lending and Finance</b>	\$56,096	\$51,654
<b>Natural Resources</b>	\$55,683	\$52,000
<b>Research</b>	\$56,041	\$54,750
<b>Google Job Search (January 2024)</b>		

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## 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 \$73,297/year. The Midwest has the highest average regional salary in job postings at \$55,257/year, followed by the West at \$55,085 /year. The third highest average salary by region is the Northeast at \$52,214/year, followed by the South at \$49,818/year. Relative to the average regional salaries on January 4, 2024, every geographic region saw average salaries decrease while the average salary of remote jobs increased. Compared to January 4<sup>th</sup>, the rank of regional salaries has also changed, with the previous order being West, Northeast, Midwest, and South from highest to lowest average salary.

Figure 4: Average Salary per U.S. Region



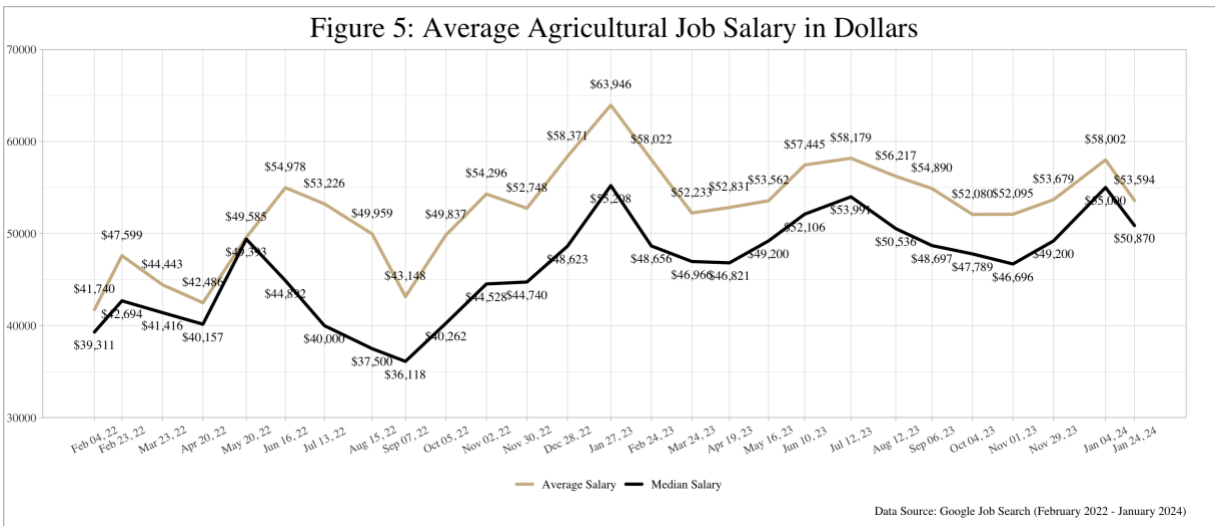
Data Source: Google Job Search (January 2024)



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## 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 of agricultural jobs was \$53,594, and the median reported salary was \$50,870. These mark a sharp decrease from reported salaries from January 4<sup>th</sup>. Over the past two years, the highest average salary occurred on January 27, 2023, and the lowest average salary occurred on February 4, 2022. Relative to this time last year, both average and median reported agricultural salaries are lower.



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## Description Analysis

### INDUSTRY SUBCATEGORY

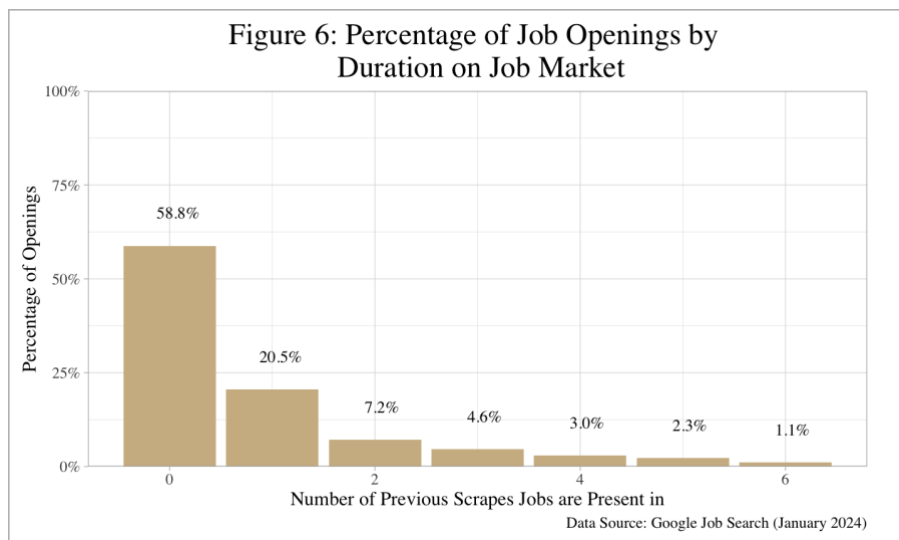
The data can be grouped in job types by mentions within job descriptions. Based on company type or job responsibilities, it is possible for a job to fit in multiple different subcategories. For example, if a job on a farm requires feeding animals and operating machinery, it would be both animal sciences and farming.

Table 2 reports the percentage of job openings that include each word or some variation of it. The top three subcategories are lending and finance, natural resources, and sales. Academic jobs are the least common job type.

Table 2 Industry Subsector	Job Openings that Mention
Academic	2.40%
Ag Education	43.60%
Agronomy	39.80%
Animal Science	25.70%
Economics	34.40%
Engineering	59.30%
Farming	53.70%
Food Science	25.00%
Lending and Finance	76.40%
Natural Resources	68.40%
Research	56.20%
Sales	59.60%
<b>Google Job Search (January 2024)</b>	

### DURATION ON JOB MARKET

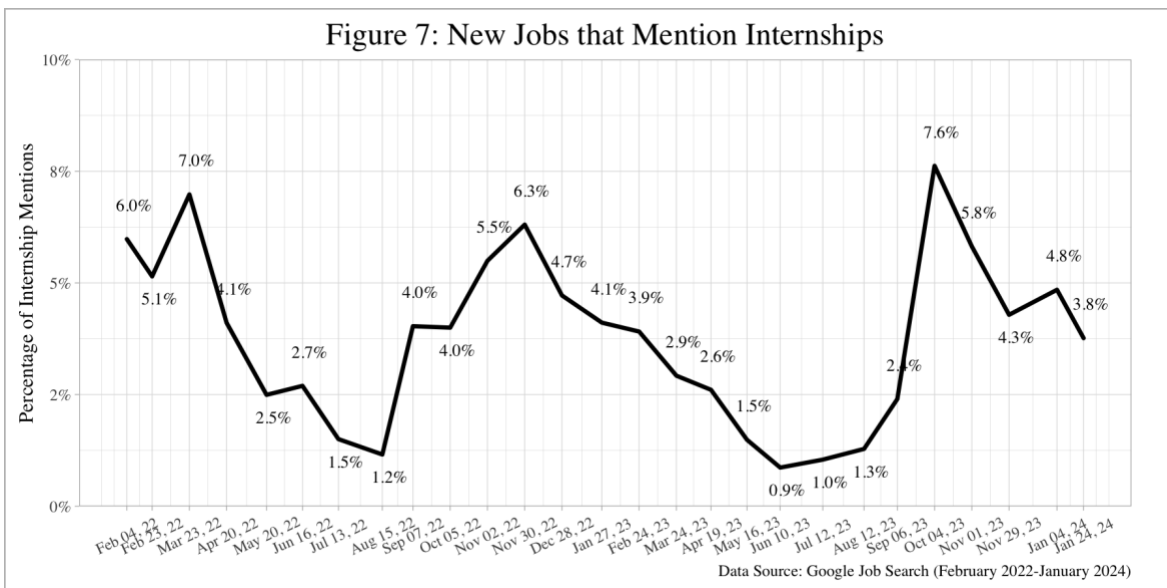
The amount of time that a job opening is listed can be an indicator of how fast agricultural jobs are filled and how long agricultural employers search for potential candidates. Figure 6 shows the duration of which current job openings have been on the market. 58.8% of agricultural jobs were not present in the prior scrape, while 86.5% of job openings are less than three months old.



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## NEW INTERSHIP OPENINGS

Internships are often filled by current college students looking to gain experience for their future careers or meet a degree requirement. As a result, these types of job openings often follow the academic calendar. Figure 7 shows the percentage of new jobs that mention internships between Feb 2022 and January 2024. Internship mentions are cyclical, increasing in the fall as companies seek students to employ and slowly decrease as the summer positions are filled. During the 2022-2023 academic year, there was a peak in November 2022, with 6.3% of new jobs being internships. This academic year, the peak was higher and earlier, with 7.6% percent of new jobs in October 2023 being associated with internships. Since October, new internships have fallen to account for only 3.8% of new jobs.



## 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

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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.

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Industry Subsector	Word List
<b>Academic</b>	Company name must contain “college”, or “university” and Description must contain “professor”, “dean”, “adjunct”, “tenure”, “chair”, “post doc”, “postdoc”, “faculty”, “lecture”, or “instructor”
<b>Ag Education</b>	“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”
<b>Agronomy</b>	“crop adviser”, “agronomy”, “agronomist”, “corn”, “soybeans”, “soil”, “seed”, “crop”, “grain”, “cultivation”, “greenhouse”, “irrigation”, “appraiser”, “horticulture”, “fertilizer”, “pesticide”, “fungicide”, “herbicide”, “applicator”, “sprayer”, or “botanist”
<b>Animal Science</b>	“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”
<b>Economics</b>	“economic”, “economist”, “econometric”, “statistician”, “risk”, “commodity”, “price”, “pricing”, “policy specialist”, “policy analyst”,
<b>Engineering</b>	“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”
<b>Farming</b>	“farming”, “farmhand”, “planting”, “plant”, “harvest”, “harvester”, “farm”, “forage”, “combine”, or “farmer”
<b>Food Science</b>	“food science”, “food production”, “meat packing”, “butcher”, “food distribution”, “food handling”, “food processes”, “food product”, “meat”, or “produce”
<b>Lending and Finance</b>	“loan”, “credit”, “lender”, “lending”, “bank”, “finance”, “tax”, “investment”, “budget”, “financial”, “insurance”, “account”, “underwriter”, “audit”, or “collateral”
<b>Natural Resources</b>	“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”
<b>Research</b>	“research”, “laboratory”, “scientist”, “chemist”, or “lab”
<b>Sales</b>	“ag sales”, “agricultural sales”, “sell”, “customer”, “account”, “commission”, “sale”, “seller”, “buyer”, or “buying”

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

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

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Benefits	Word List
<b>General Benefits</b>	“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”
<b>Diversity</b>	“diverse”, “diversity”
<b>Equal Opportunity</b>	“equal opportunity”, “without regard”, “religion”, “sex”, “color”, “age”, “race”
<b>Tuition Reimbursement</b>	“tuition”
<b>401(K)</b>	“401k”, “401 k”, “401(k)”

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



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## References

2024. "About Indeed." Indeed. Available at [www.indeed.com/about](http://www.indeed.com/about).

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

U.S Department of Labor, Bureau of Labor Statistics. 2024. *Usual Weekly Earnings of Wage and Salary Workers Fourth Quarter 2023*.

SerpApi, LLC. 2024. "Google Jobs API." SerpApi. Available at <https://serpapi.com/google-jobs-api>.