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# A Brief History of Farm Management



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## Acknowledgment

Appreciation is expressed to Mary Huninghake for meticulous data collection and tedious database entry. We appreciate ASFMRA for maintaining open access to its journal. We appreciate the opensource community, especially the R Core Team and authors of contributed packages to R. To further the concept of open data and opensource, the data and R script used for this analysis are available on GitHub at <https://github.com/spaceplowboy/GoldQuill>. Running the script will produce the same graphs included in this article. It is our hope that others will learn more about writing code and build upon the analyses presented here. The lead author (i.e., principal investigator) takes full responsibility for any errors in the database, R script, and narrative.

## Abstract

*The Journal of ASFMRA has a long-standing tradition of sharing farm management ideas and publishing the results of academic studies. A keyword analysis of titles from 330 published articles was conducted, along with an evaluation of the respective authors and their institutions. Comparisons between articles and the Gold Quill winners are discussed. Results of this analysis are of interest to authors considering submitting manuscripts to the Journal of ASFMRA and anyone interested in farm management and rural appraisal.*

## INTRODUCTION

The *Journal of the American Society of Farm Managers and Rural Appraisers* (ASFMRA) (hereafter referred to as “the Journal”) has been one of very few outlets of applied farm management. The Journal has provided a means for authors, largely academic researchers, to publish their studies under a peer review system. Consequently, the membership of ASFMRA has been provided with a steady flow of innovative ideas to consider in their farm management and rural appraisal practices. This mutually beneficial relationship has existed for the better part of a century.

The principal investigator decided to evaluate articles published in the Journal to test whether any farm management trends could be detected over time and whether articles deemed to be the most outstanding differed from those not selected for the honor. The Gold Quill Award is presented to authors of the most outstanding article in the Journal each year. Articles published in the Journal were evaluated by applying frequency and textual analysis of words appearing in article titles and the institutions of authors. Previous research has conducted textual analysis on titles of published articles, most notably Stephen’s evaluation

of *Human Communication Research* (1999). Information including author, institutions, title words, title length, farm management topic, and whether an article received the Gold Quill Award were analyzed. Differences between Gold Quill winners and other articles were also evaluated.

## DATA AND METHODS

Data was collected from the publicly available archives of the Journal. Articles published from 2000–2019 were retrieved from ASFMRA and associated websites. Articles selected as Gold Quill Award recipients were identified from the past award winners (ASFMRA, 2018).

Articles published in the Journal were manually coded into a database. Transcriptionists collected pertinent data from each article and manually entered the information into the master database. Data transcription was accomplished via copy-and-paste procedures from electronic files or by manually typing pertinent information. Coded information included year of publication, last name of each author, geographic location of lead author, institution of each author, and title of article. Locations were coded by state if in the U.S. or by country otherwise. After pertinent information was entered, articles receiving the Gold Quill Award were signified by a binary variable (i.e., 1 if winner and 0 otherwise).

The principal investigator assigned articles to one of 11 general farm management categories: crops, finance, human, farmland, livestock, machinery, marketing, planning, policy, risk, and technology. Farm management categories were developed based on topics presented as chapters in the seminal farm management textbook by Kay, Edwards, and Duffy (2020). The “crops” category represents plant-based production, including field crops, specialty crops, horticultural crops, and forages. The “livestock” category includes any animal production such as bison, deer, dairy, cattle, swine, goats, sheep, catfish, and poultry.

Data cleaning procedures were applied to title words. Plural forms of words were converted to singular (Table 1), such as “prices” to “price,” “farmers” to “farmer,” etc. Similar words were converted to core representation; for example, “manage,” “manager,” and “managing” were replaced with “management.” Similar processes were applied for “growers” to “farmers,” “land” to “farmland,” and “crop” to “crops.” In this way, the word “farm” collectively represents “farm,” “farms,” and “farming” (Table 1). The word “farmer” represents “farmers,” “producers,” and “growers.”

Once the master database was replete with information from all publicly available articles, the data was analyzed using textual analysis and data mining procedures (Kosnik, 2015) with R statistical environment (R Core Team, 2019). Specifically contributed packages utilized included **tm** (Feinerer and Hornik, 2018; Feinerer, Hornik, and Meyer, 2008) and **wordcloud** (Fellows, 2018). The data and R script are publicly available on the principal investigator’s GitHub site for rural property professionals and other researchers to perform their own evaluations.

## ANALYSIS AND RESULTS

The Journal has published 330 articles since 2000, nearly 17 articles per year with a maximum of 22 in 2010 and a minimum of 11 in 2017 (Figure 1). During this time period, most articles had fewer than four authors (Figure 2). The total number of authors contributing to articles each year varied from 26 in 2008 to 73 in 2009 and 2010 (Figure 3). Several authors have contributed to the Journal more than once. The number of co-authors was also assessed. Three authors were the most common, followed by two authors (Figure 2). Articles with single authors were third most common. The highest number of authors on a single article was 10.

In both academic publishing and industry, the first name on a journal article or wall of a building differentiates that individual. Names distinguish individuals and businesses and can set the tone for an article. The lead author of articles published in the Journal was evaluated (Figure 4). Most academic lead authors were associated with Kansas State University, followed by Purdue University (Figure 4). The second-largest group of authors was assigned to the catch-all for remaining non-academic institutions and referred to as “private sector.” The private sector group included independent rural appraisers, private research organizations, and commodity promotion associations. The University of Wyoming and the University of Illinois at Urbana-Champaign were tied for fourth-most articles. Authors from 31 academic institutions plus private sector firms and United States Department of Agriculture (USDA) agencies (e.g., ERS, NASS, and FSA) contributed lead authors to at least two articles. Considering all authors, not only lead authors, nearly 115 authors were associated with Kansas State University while Purdue University and the University of Wyoming each contributed nearly 55 and 75 authors, respectively (Figure 5). Nearly 85 authors were from the private sector not associated with any university or the USDA.

The number of words in titles was also evaluated. Current manuscript submission guidelines state that titles should be no longer than 10 words. The most common title length was nine words (Figure 6), followed by eight and 10. The longest title had 27 words, followed by 21 words. The shortest title had two words.

Most articles addressed the farm management topic of crops, followed by livestock and farmland. Planning and machinery were the least addressed farm management topics over the past 20 years. Fewer articles in the past decade have been focused on farmland relative to the 2000–2009 time period. The number of articles on crops remained nearly constant across decades but livestock articles fell by one-third. The number of machinery articles went from one during the 2000s to six in the 2010s. The proportion of articles addressing the 11 farm management topics each year are graphically represented in Figure 7.

## Gold Quill Comparison to All Articles

Each year, the Journal bestows authors of the outstanding article with the Gold Quill Award. Given that outstanding articles were selected from the pool of all articles each year, Gold Quill recipients may have detectable differences. The metrics evaluated included number of authors, institution of authors, number of words in title, title words, and general farm management category addressed by the article. Since 2000, 16 lead authors have received the Gold Quill Award, with two lead authors receiving the award twice. One author from the University of Illinois at Urbana-Champaign penned three articles that were awarded the Gold Quill.

Four Gold Quill recipients were penned by a sole author (Figure 2). The highest number of co-authors of a Gold Quill winner was eight. No winners had six or seven co-authors. The most common number of co-authors for Gold Quill recipients was one, followed by two, then three, then four, then five (Figure 2).

Figure 5 indicates how many authors received the Gold Quill Award. Most notable include Kansas State University, the University of Kentucky, the University of Illinois at Urbana-Champaign, and the University of Idaho. The quantity of articles published in the Journal was not correlated with the number of Gold Quill Awards received. The University of Wyoming had the second-highest number of authors over the past 20 years but never received the Gold Quill Award. Other notable institutions publishing articles without an award include the University of Arkansas, Louisiana State University, and the USDA (although it should be noted that authors who published at these institutions won the award while at other institutions). Also notable, the University of Idaho

won the award half as many times as its published articles. Additionally, several authors have contributed numerous articles without ever receiving the award.

Over the past 20 issues of the Journal, authors associated with the University of Illinois have been recipients of the most Gold Quill Awards, at nine (Figure 8). Faculty from Kansas State have received seven Gold Quill Awards. Kentucky authors received five awards. Seven institutions were associated with receiving the Gold Quill Award once. Five institutions received two awards. Private sector authors received three Gold Quill Awards.

The shortest title to win the Gold Quill since 2000 had two words, the shortest title for any article over the past 20 years (Figure 6). The longest title to receive the Gold Quill was 19 words; seemingly an outlier relative to the next longest title with 16 words. It was noted that two articles with 19-word titles received the Gold Quill. The most common title length of Gold Quill winners was tied at seven, eight, and 10 words.

Words from titles of articles were subjected to frequency analyses. The most common word across all article titles was “farm” (Figure 9). The most commonly used title words are graphically represented as a word cloud (Figure 10, part A for articles not receiving the Gold Quill and Figure 10, part B for Gold Quill recipients). Gold Quill recipients used “land,” “value,” “risk,” and “lease” more often than authors not receiving the award. Commonly used title words that were not in titles of Gold Quill articles included “economic,” “production,” “crops,” “farmer,” “cost,” and “price.”

The number of times a word appeared in the title of a Gold Quill winner was compared to the total number of times that word appeared in titles of all articles (Figure 11). Data was sorted such that the word must appear in at least two Gold Quill articles to be considered. The words “flexible” and “environmental” were associated with Gold Quill winners two-thirds of the times they appeared in a title. The words “lease,” “assessing,” and “cash” appeared in Gold Quill titles more than a third of the number of times used in all articles. More commonly used words such as “farm,” “impact,” “management,” “land,” and “agriculture” had relatively low ratios near 0.1. The previously mentioned word “risk” was associated with Gold Quill winners almost 20% of the time it appeared in any published article.

The majority of farm management topics associated with articles winning the Gold Quill Award addressed farmland, with nine articles. The farm management topic “farmland” also had the highest ratio of Gold Quill to all articles (Table 2). The next most common

farm management topic was a five-way tie between “finance,” “human,” “policy,” “risk,” and “technology.” One Gold Quill article addressed “crops,” which was the most common farm management topic across all articles. Four farm management topics—“livestock,” “machinery,” “marketing,” and “planning”—have yet to be associated with a Gold Quill article.

## SUMMARY

Articles published in the *Journal of ASFMRA* were evaluated for title words and authors’ institutions. Trends were detected for specific universities contributing the majority of farm management literature. Some institutions and authors were much more successful in obtaining the Gold Quill Award than others. It was also discerned that the Gold Quill Award has not been proportionately given to authors at institutions that published the most articles. No algorithm exists to suggest that using or avoiding specific words in titles will ensure winning the Gold Quill Award; however, trends for future authors should be noted. It is unlikely that any permutations of “farm value analysis agriculture flexible farmland environmental risk market returns” will ensure receiving the award, even though the words “environmental,” “flexible,” and “risk” were associated with Gold Quill articles more than other words, given the frequency with which they appeared. Finally, Gold Quill recipients tended to adhere to the Journal’s 10-word title requirement, an indication that value exists in following directions.

Proportions of basic farm management topics were imbalanced relative to the number of articles published in the Journal, although it is not clear if these topics need to be reevaluated or if authors should publish on these topics more. If the 11 topics are all truly core areas of farm management, it logically follows that all 11 would be somewhat uniformly represented as articles in the Journal, especially over long time periods. “Planning” and “machinery” rarely were represented over the past 20 years. Furthermore, the Gold Quill Award seemed to favor topics of farmland, although this may be an artifact of quality of individual researchers’ interests. Future authors may consider additional work in areas of “planning,” “machinery,” and “technology.”

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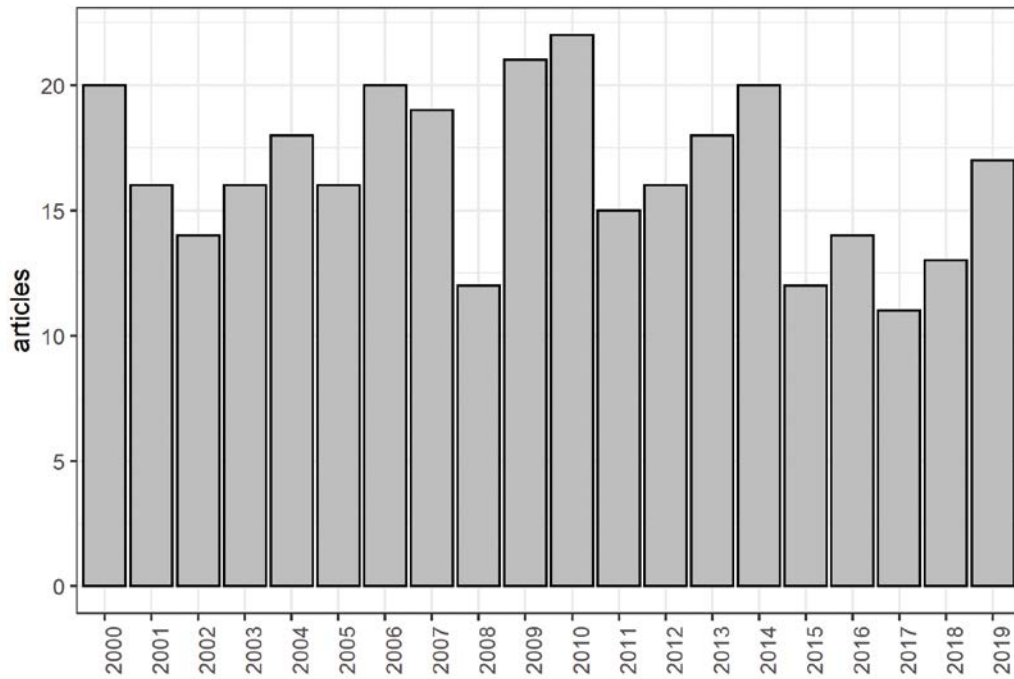


Figure 1. Number of Articles Published by Year

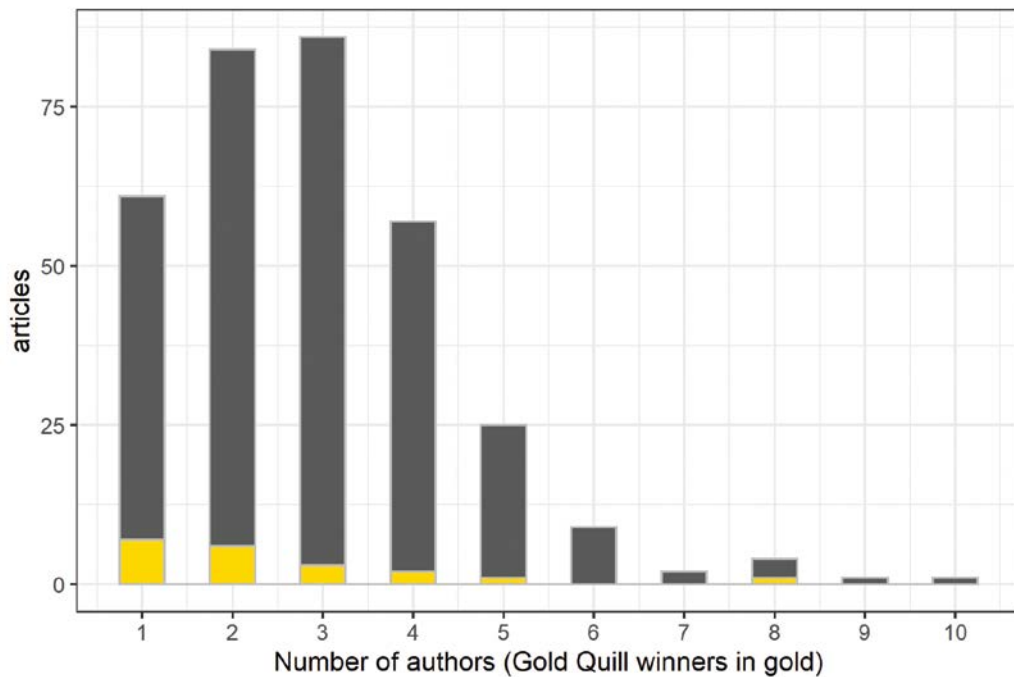


Figure 2. Number of Articles by Number of Authors Since 2000 (Gold Quill Winners in Gold)



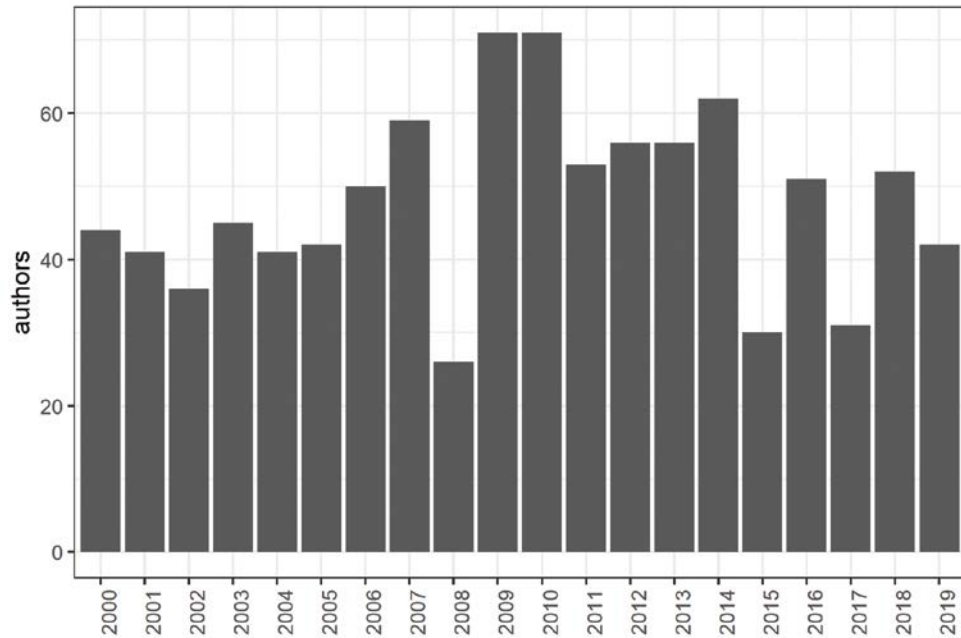


Figure 3. Number of Authors by Year Across All Articles

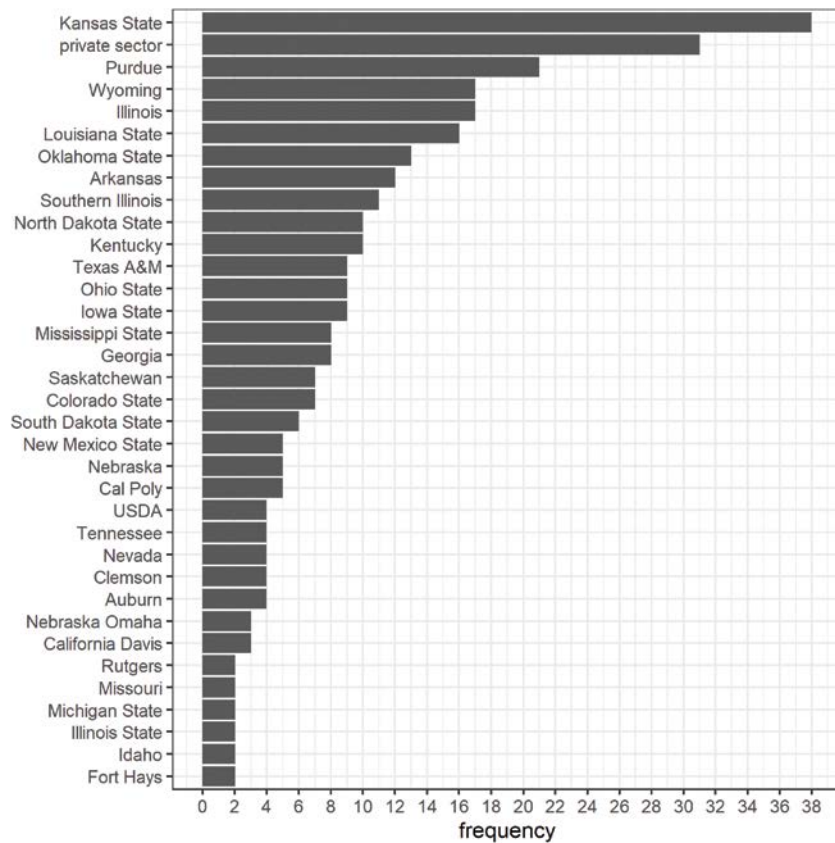


Figure 4. Number of Articles by Institution of Lead Author Since 2000

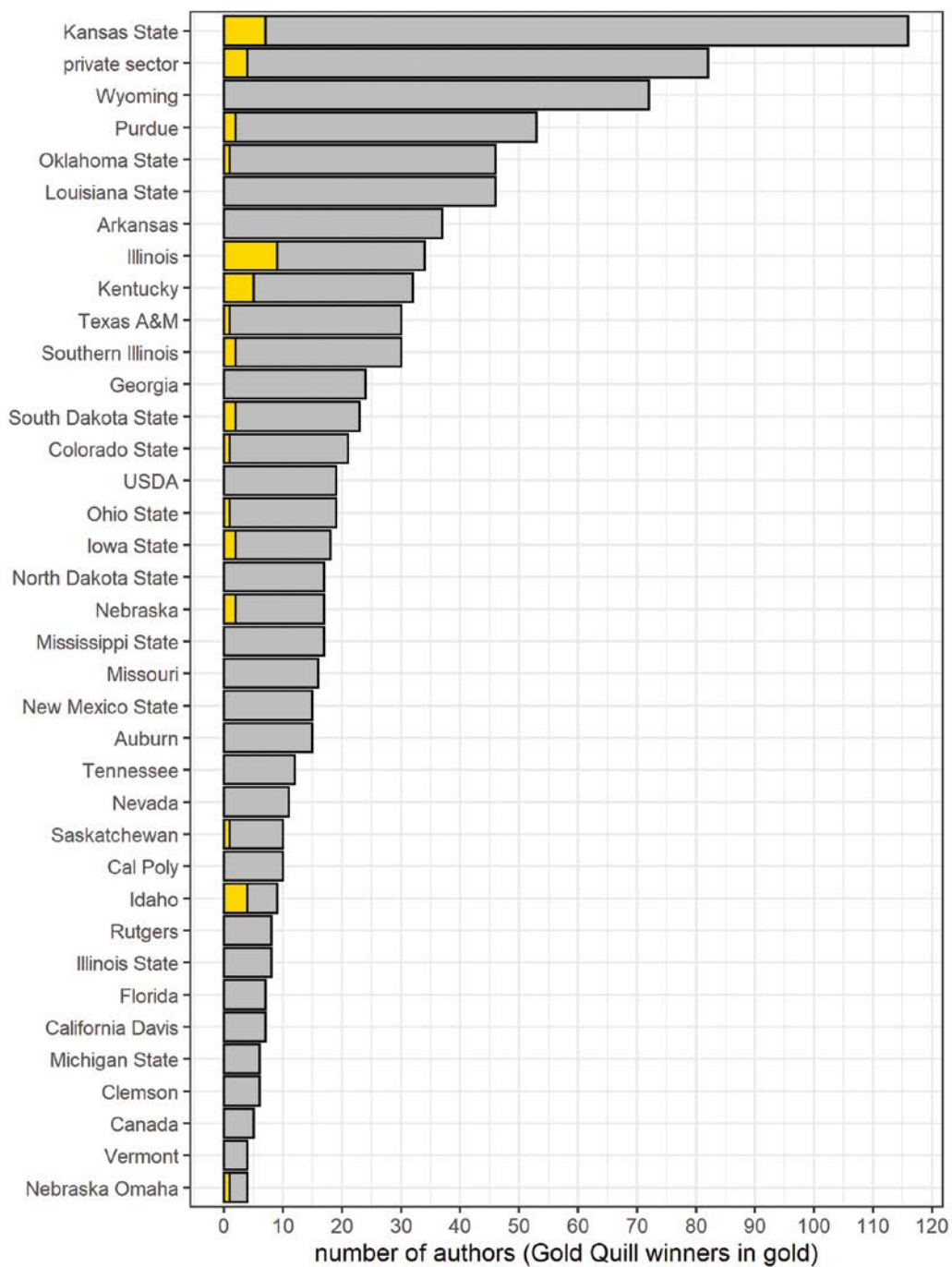


Figure 5. Frequency of All Authors (Including Co-Authors) and Gold Quill Awards by Institution Since 2000



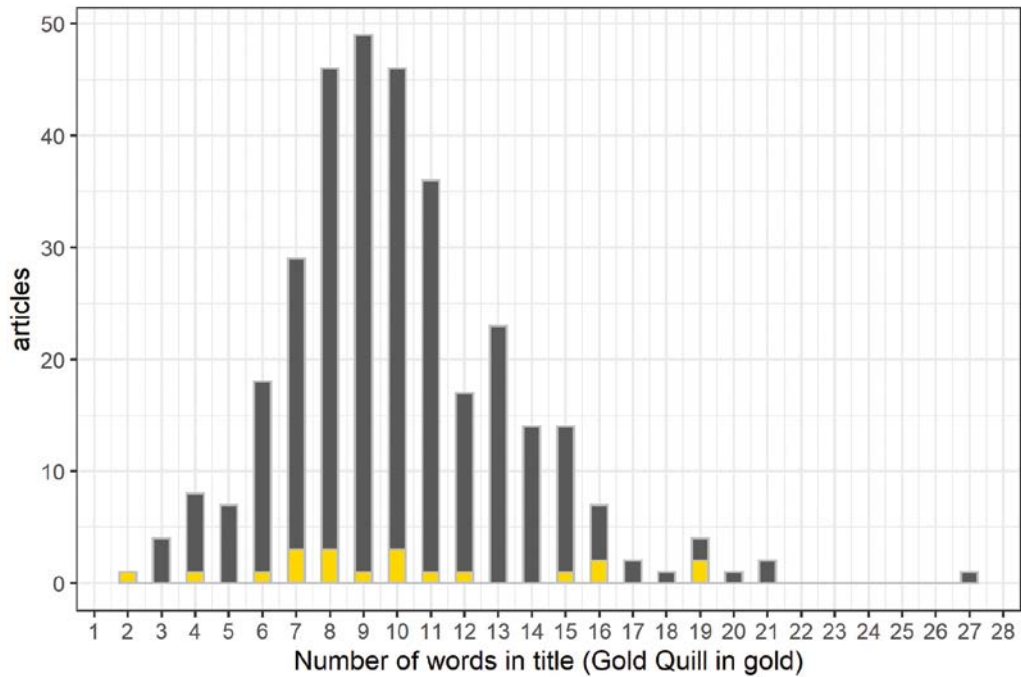


Figure 6. Number of Words in Titles of All Articles and Gold Quill Recipients

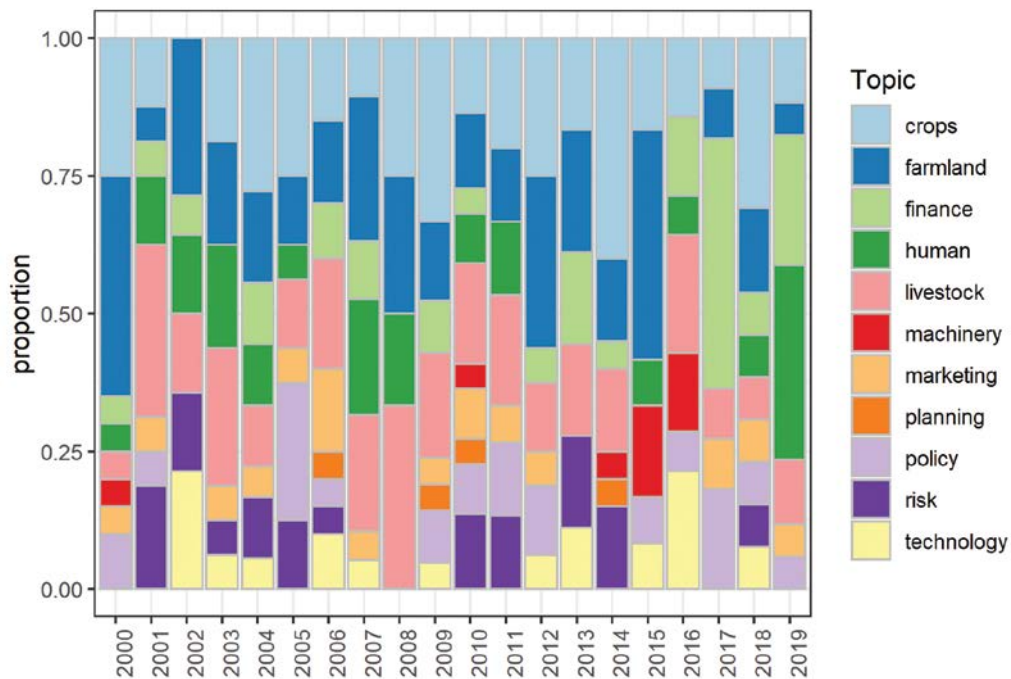


Figure 7. Proportion of Articles by Farm Management Topic by Year

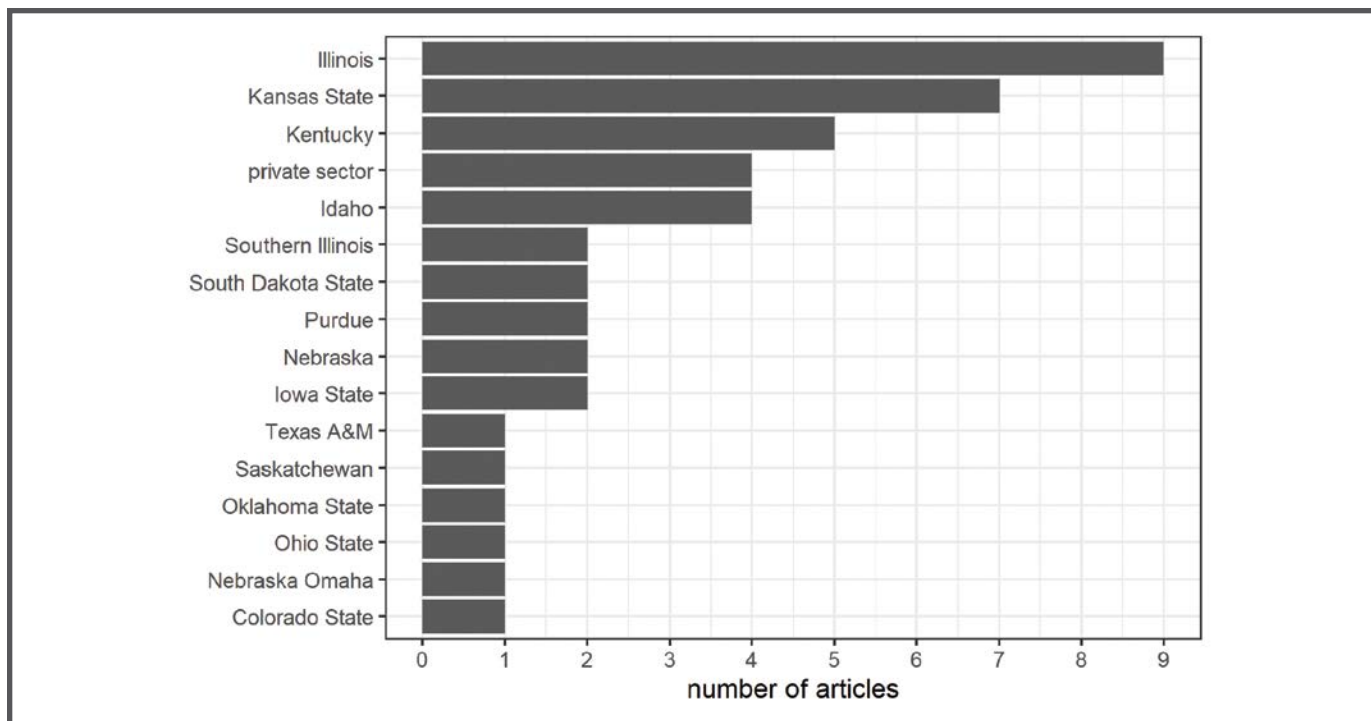


Figure 8. Number of Gold Quill Awards by Institution Since 2000

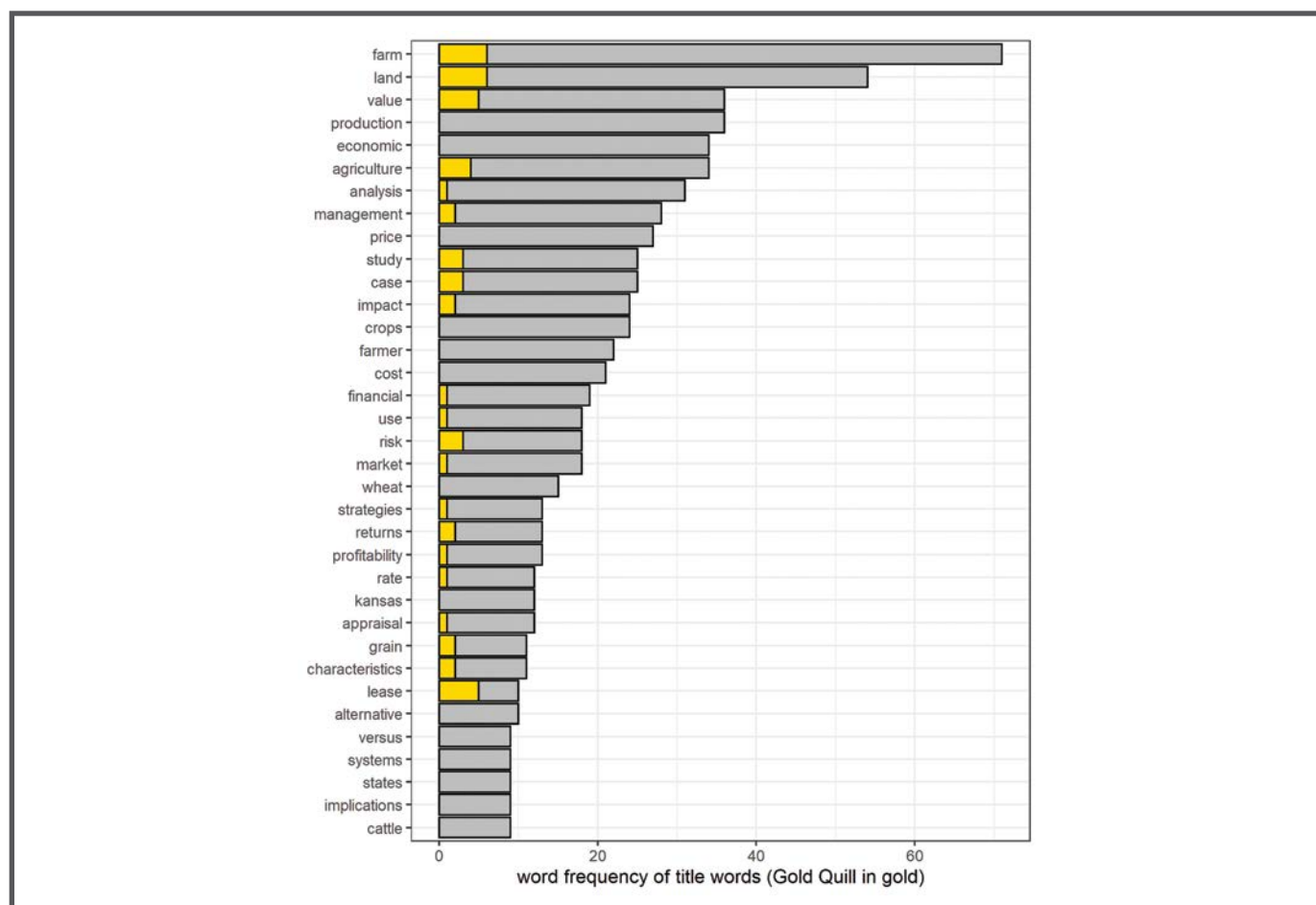


Figure 9. Frequency of Title Words Since 2000 (Gold Quill Winners in Gold)

A



B



Figure 10A and B. Most Frequent Words Appearing in Titles of ASFMRA Articles by Gold Quill Recipients. A, Word Cloud of Non-Gold Quill Recipients. B, Word Cloud of Gold Quill Recipients.

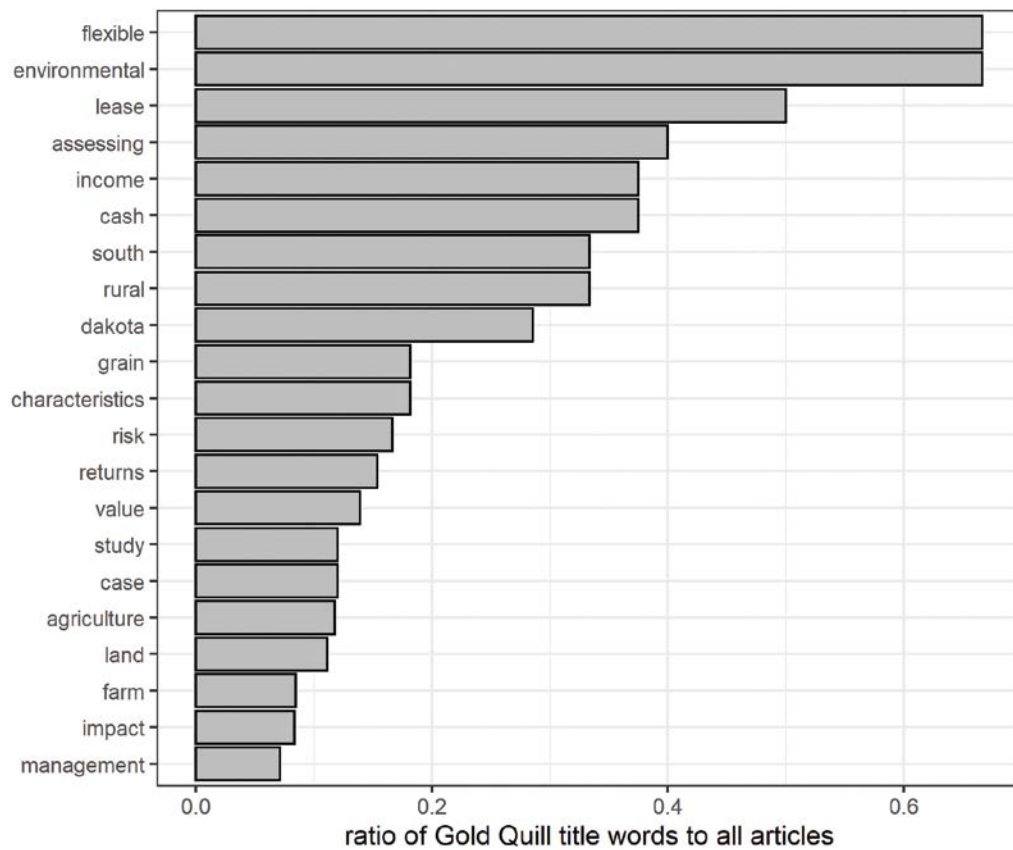


Figure 11. Ratio of Number of Times Title Word Appears in Gold Quill Relative to All Articles (Word Must Appear in at Least Two Gold Quill Titles to Be Listed)

**Table 1. Example Set of Word Conversions**

Words Converted From	Converted To
agricultural	agriculture
appraisers, appraising	appraisal
banks	bank
benchmarks	benchmarking
changing	changes
costs	cost
crop	crops
easement	easements
economics	economic
farms	farm
farmers, producers, growers	farmer
impacts	impact
farmland	land
leases, leasing	lease
managing, managers	management
marketing	market
prices, pricing	price
producing	production
rates	rate
soybeans	soybean
technologies	technology
using	use
values, valuing	value

**Table 2. Number of Articles and Gold Quill Awards by Farm Management Topic, 2000–2019**

Topic	All Articles	Gold Quill	Ratio
<b>crops</b>	65	1	0.02
<b>farmland</b>	52	9	0.17
<b>finance</b>	27	2	0.07
<b>human</b>	28	2	0.07
<b>livestock</b>	54	0	0
<b>machinery</b>	7	0	0
<b>marketing</b>	17	0	0
<b>planning</b>	4	0	0
<b>policy</b>	20	2	0.10
<b>risk</b>	21	2	0.10
<b>technology</b>	15	2	0.13