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Guest editors: Jim Morris-Knower
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From the Editor's Desk

Even though it is small, this volume of the AIW has been in production for well over a year. After several false starts we were finally able to get this issue into production. The fault lay with me as after the death of Amélie Charron (see *IAALD Remembers* in this issue) I simply could not motivate myself to get this issue off the ground. But with the help of a number of people the issue finally became a reality. These people included Jim Morris-Knowler from Mann Library, Cornell University USA who actually edited a number of articles over a year ago for the issue; Rosemay ng Kee Kwong formerly of the Mauritius Sugar Research Institute and now living in China who did earlier editing and some final editing of the articles; Peggy and Naomi Phillips who have stepped into Amélie's large shoes to do the technical editing; the very patient authors who have been waiting almost 18 months to see their articles in print; Marie Josée Jehl-Cooke and Lynn Menendez who provided the French and Spanish abstracts for most of my tenure; and last but not least Charles Chandler who has formatted every issue of the journal since 1992.

The issue is a mix of articles. We have one paper from the last IAALD Africa Conference that the author graciously updated, one paper from the last IAALD World Congress that was inadvertently left out of the issue and that author also graciously updated her paper and one article that came across my desk last summer on a timely agricultural topic. We are also featuring abstracts of the papers from the IFLA Agricultural Discussion Group and tributes to past contributors to IAALD.

It is with a heavy heart that I write my last editorial. For the past 35 years I have been involved in some capacity in the production of this journal but it is time for all good things to come to an end. I am now in phased retirement and plan to fully retire in the near future. IAALD has been a bright spot in my 45 year career but I am now looking forward to moving on to new challenges in life.

I do not know what the future of IAALD will be. IAALD as an organization became 60 years old this past September and maybe it is time for it to retire as well.

IAALD was formed to link agricultural information professionals from around the world in an age when communication was mostly written and sent by mail. Telephone calls were expensive and there was nothing like email and all of the social networking sites that now link like minded people together. IAALD achieved a great deal in its 60 year history. It organized and sponsored 14 world congresses, organized three chapters (Africa, China, Central/Eastern Europe) and in addition to a quarterly journal, published 4 editions of a world directory of agricultural libraries, 2 editions of a *Primer for Agricultural Libraries*, 2 editions of *Current Agricultural Serials*, aided in starting *World Agricultural Economics and Rural Sociology Abstracts* with CABI and AGLINET with the FAO. In addition to all of that activity IAALD sponsored numerous regional conferences, roundtables, workshops, training sessions, training aids and travel grants during its 60 years history. All of this happened because agricultural professionals wanted to better the profession and gave of their time and talent to make it happen. IAALD was and always has been an all volunteer organization. For a complete listing go to the IAALD Website and look at the History section under About (<http://www.iaald.org/chronology-0>)

To quote Solomon "For everything there is a season" and perhaps IAALD's season has passed. The Agricultural Information profession has changed dramatically and so must organizations. IAALD will either survive as a different entity or it will go the way of many other specialized organizations. Its future will be decided by the current generation of information professionals and perhaps it is time for my generation to just move out of the way.

Whatever happens I do not regret my service and the service of so many others who had made IAALD what it was. My hope is that we have made the profession a better place for the next generation.

Toni Greider
December 2015

Supporting Faculty Reporting to the USDA at the University of Florida

Valrie Minson and Melody Royster

EDITOR'S NOTE: *This paper was originally presented at Emerging Priorities for Scientific and Agricultural Information, XIVth IAALD World Congress, July 21–24, 2013 Cornell University, Ithaca, New York, USA and was inadvertently left out of the published papers. The paper is published here as presented with updates from the author.*

ABSTRACT: This paper discusses the established agreement between Marston Science Library, University of Florida and the Institute of Food and Agricultural Sciences (IFAS) at the University of Florida to manage the faculty publication reporting needed to meet US Federal reporting requirements. In 2008, IFAS transitioned from a home-grown software system to utilizing EndNote Web (ENW) software, available through the UF Libraries, for the management of the refereed publication reporting process. In 2009 IFAS found the level of support required to sustain the reporting process with ENW was too great and approached the Libraries with a request for additional support. Several years into this relationship, the Libraries have refined the process and improved the level of publication reporting. In addition, the Libraries now have a greater understanding of the publishing trends of their agricultural science clientele and are seen as valuable resources when publication questions arise.

RESUMÉ: Cet article discute de l'accord établi entre la Bibliothèque des sciences Marton, l'Université de la Floride (UF) et l'Institut des sciences agricoles et alimentaires (IFAS) de l'Université de la Floride pour gérer la publication nécessaire des rapports de la faculté, selon les critères exigés pour publier un rapport fédéral américain. En 2008, l'IFAS est passé d'un système informatique développé en interne, à l'utilisation du logiciel EndNote Web (ENW), disponible dans les bibliothèques de l'UF,

pour la gestion du processus référencé de la publication des rapports. En 2009, l'IFAS a trouvé que le niveau de soutien nécessaire pour encadrer ce processus de rapporter avec l'ENW était trop lourd, et a demandé aux bibliothèques un soutien supplémentaire. Après quelques années de collaboration, les bibliothèques ont peaufiné le processus et amélioré le niveau de publication des rapports. En outre, les bibliothèques ont aujourd'hui une meilleure compréhension des tendances de publication de leur clientèle en sciences agricoles, et sont considérées comme des ressources précieuses dès qu'il s'agit de publier.

RESUMEN: Este artículo discute el acuerdo establecido entre la Biblioteca de Ciencias Marston de la Universidad de Florida y el Instituto de Alimentos y Ciencias Agrícolas (IFAS), también de la Universidad de Florida, para gestionar la presentación de informes de publicaciones de los docentes, lo cual es necesario para cumplir con los requisitos de presentación de informes federales de los Estados Unidos. En 2008, IFAS hizo la transición de un sistema de software diseñado internamente hacia el uso del programa EndNote Web (ENW), disponible a través de las Bibliotecas UF, para manejar el proceso de informar sobre publicaciones arbitradas. En 2009 el IFAS encontró que el nivel de apoyo necesario para sostener el proceso de presentación de informes utilizando ENW era demasiado grande y contactó a las bibliotecas con una solicitud de apoyo adicional. Varios años después de iniciar esta relación, las bibliotecas han refinado el proceso y mejorado el nivel de presentación de informes de publicación. Además, las Bibliotecas UF ahora tienen un mejor conocimiento de las tendencias de publicación de su clientela de ciencias agrícolas y son vistas como recursos valiosos cuando surgen preguntas acerca de publicaciones.

Faculty Publication Reporting: IFAS and the USDA

The University of Florida's Institute of Food and Agricultural Sciences (IFAS), in order to meet U.S. federal funding requirements and to showcase the rich publication assets of a vibrant agricultural research community, requires researching faculty to annually report their refereed articles. These publication lists, as well as additional research and extension accomplishments, are submitted annually to U.S. National Institute of Food and Agriculture (NIFA) under the AREERA Act – Agricultural Research, Extension, and Education Reform Act of 1998. For many years, faculty reported publications and other efforts using a home-grown reporting system, but switched in 2008 to the use of the bibliographic management software EndNote Web, included in the Library's subscription to the Thomson Reuters' Web of Science database. Moving to EndNote Web re-

moved the financial burden of continued software development while maintaining a comparable workflow that placed limited burden on faculty.

IFAS, in the first year working with the new system, utilized an existing IFAS Information Technologist for instruction and one-on-one support to the more than six hundred publishing faculty located in twenty eight units. After the initial year, IFAS administrators felt the required level of support was too great and approached the George A. Smathers' Marston Science Library to assist with annual faculty publication reporting. In the fall of 2009, IFAS and the Libraries established a Memorandum of Understanding (Appendix) to establish the terms of the support and began several years of a successful and reciprocally-beneficial support relationship. The Libraries have provided the support from 2009 until this last year and have gathered approximately one thousand or more citations for each reporting year. The acquisition of a

“complete” set of publication data opens the door to interesting and new data analyses that can reveal quite a bit about scholarly behavior. This paper will present an overview of the support processes and workflow, the various challenges experienced, what the copious amounts of available data can tell us about agricultural publishing at the University of Florida, and what future possibilities this data may herald for future joint projects.

Why the libraries?

Through the years, IFAS and the Libraries have mutually benefited from developing strong and lasting partnerships which included library consultations on issues related to publication tracking, author disambiguation (grouping same-name authors into different people), data management, metric analyses, digitization and meta-data, ethical conduct, and campus outreach. Our successful preservation of born-digital extension publications, as well as a strong library instructional program with an emphasis on bibliographic management software such as RefWorks and EndNote Web, identify the libraries as both knowledgeable of the publication landscape and capable of providing quality instructional support for a difficult and frustrating process. Librarians’ familiarity with faculty publications, database searches, and the ENW software contributed significantly to their expanding role in the faculty reporting practices and made them ideal partners for managing IFAS’ citation reporting process.

Roles, timeline and data collection workflow

The faculty reporting process includes a number of key roles/positions and workflows for the efficient management of the reporting process. The Reporting Coordinator is the primary support contact and assists with all aspects of the reporting process. Roles and responsibilities include:

- IFAS Faculty: create the list of refereed publications; share that list with Unit Coordinators
- IFAS Unit Coordinators: create the unit list of publications, de-duplicate list, and review data for accuracy; share the list with the Reporting Coordinator
- Reporting Coordinator (Library): create and update support materials; disseminate reminders and deadlines to Unit Coordinators and faculty; review unit lists for accuracy and compile the IFAS master list and statistics; document the process
- Librarian: supervise and train the Report Coordinator; review data quality; oversee process, as needed; review lists and statistics prior to submission to IFAS Administration
- IFAS Administration: communicate expectations, deadlines, and policy

The work, from first notification email sent to faculty to the final report sent to IFAS Administration, falls between

November and April and is separated into five distinct workflows:

- 1) Support materials and timeline development,
- 2) Self-reporting,
- 3) Unit reporting,
- 4) Unit and master list processing,
- 5) Sanitization and analysis

Workflow:

1) *Support Materials and Timeline Development* – In November, the Reporting Coordinator, the Librarian, and IFAS administration develop a timeline of the work, which includes identification of key times for communication. The Reporting Coordinator reviews and updates the online print guide, the video tutorials, and the support web pages. The Reporting Coordinator also creates spreadsheets in order to document the questions asked throughout the cycle and to maintain statistical counts for the final report.

2) *Self-reporting* – In early December, faculty receive their first official notification of the upcoming deadline from IFAS administration. A follow-up email from the Reporting Coordinator with support information includes additional details on the expectations, on important deadlines, and on requesting additional support. Faculty are given two months to complete their publication reporting. They are asked to:

- Populate a folder in EndNote Web with their peer-reviewed publications.
- Submit accepted, in-press, or submitted publications in the official publish year.
- Include the tag “refereed” in the Type of Work field.
- Include author(s), article title, source, volume, issue, year, and persistent URL when available.
- Share their folder with their unit coordinator by late January.

Faculty are encouraged to export publications using Web of Science or other databases relevant to their subject areas, although faculty often find it easier to hand-enter the publications. In 2009, IFAS administration required faculty to include retrospective publications from previous years, but in subsequent years this was optional or even discouraged. As a final step in self-reporting, when faculty have finalized their publication lists, they distribute the list to Unit Coordinators through the “share” function found in EndNote Web.

3) *Unit reporting* – In the first two weeks of February, Unit Coordinators compile the individual faculty folders into one unit-level master list. Unit Coordinators are asked to:

- Remove multiples of the same article (appearing when an article is co-authored by multiple faculty in the same unit)
- Review for accuracy

The Unit Coordinator then shares the unit master list with the Reporting Coordinator.

4) **Unit and master list processing** – By the end of February, the Reporting Coordinator has received the unit lists and begun the heavy lifting of the project. The coordinator must:

- Remove duplicate publications from the 28 separate unit folders
- Review each unit list for accurate reporting of “refereed”

The Reporting Coordinator compiles an IFAS-All master list of publications, completes a final de-duplication process, and documents and submits statistics to IFAS administration.

5) **Sanitization and analysis** – Separate from the above steps, the librarian completes a final, quick data sanitization step in order for the data to be showcased publicly by IFAS. In past years the data was displayed with little regard to how “clean” the data appeared. The following steps were included in the collection workflow and are now part of the added data analysis sanitization process:

- Export individual unit data from EndNote Web to Excel for initial sanitization (capitalization changes)
- Import Excel into Google Refine and sanitize the data (uniform source titles, additional de-duplication)

Challenges of data collection

The Libraries encountered more than a few challenges, including limitations with the tools, differences in user perceptions, and general breakdown in communication. We overcame many of the challenges through the development of altered processes, conversion to a new technology, or adjustment of our communication plan. Below are the challenges faced and the solutions employed for acquiring more accurate reporting data.

Tool limitations – Bibliographic management software applications are excellent for bibliography creation but are not always intuitive for “occasional” users. Both faculty and unit coordinators utilize this software only for annual publication reporting and found exporting/importing and database selection difficult to navigate. Rather than learn how to export or import citations, or take time to locate the best database, many faculty chose to manually input publications. To overcome the difficulties of using bibliographic management software, the coordinator offered additional trainings, presented at unit meetings, created short video tutorials, and encouraged the use of Google Scholar as a general export option. The Reporting Coordinator also provided deadline incentives by providing export support to the few faculty and unit coordinators working in advance of the scheduled deadline.

Accurate folder sharing between researcher, unit coordinator, and coordinator accounts is important to the overall process as we compile separate publication lists; unfortunately, the software’s folder sharing features, while excellent, were not designed for large-scale sharing. To

reduce sharing issues that arise each time a new unit coordinator is assigned the role, and for easier troubleshooting account issues, we created and assigned EndNote Web unit accounts to each unit coordinator; despite the account creation, as well as increased communications, researchers still occasionally share with an incorrect email account.

Another limitation of bibliographic management software is visible when attempting to manage thousands of citations, particularly when the citations are shared between multiple accounts. For example, the workflow for the Reporting Coordinator included de-duplication of the unit and IFAS master lists. The de-duplication step was accomplished from within the software but without utilizing the “duplication checking” functionality, as the software does not easily allow de-duplication within a particular folder.

Lastly, glitches in the software are a frequent occurrence, particularly between the shared accounts. In one instance a faculty folder was empty but the unfiled folder listed 1174 citations. In another instance, citations visible from one account were not visible to a second shared account. These types of glitches were resolved quickly with a phone call to technical support but posed a threat to the accuracy of the data, particularly if the unit coordinator failed to identify that data was missing. These issues were incredibly frustrating to faculty and unit coordinators who spent valuable time troubleshooting. If we continue to utilize the software for faculty reporting, these types of glitches are expected to continue.

User perceptions – On occasion faculty perceived the process as evaluative. There may be some anecdotal evaluation at the administrative level (i.e., unit X has fewer publications this year); however, evaluation of the individual or unit was not the purpose. Despite this, faculty bolster their lists by reporting beyond what is required (including “in process”, “in press”, or “submitted” publications, as well as posters, presentations, patents, etc.). The inclusion of items outside the refereed requirements means filtering for refereed publications is a crucial step. For easy filtering, faculty are required to include a “refereed” tag in citations, but frequently make reporting mistakes which include: failing to include the “refereed” tag, tagging non-refereed publications as refereed, or incorrectly tagging with data that adversely affect the search filter results (i.e., “referred” or “non-refereed”). To increase refereed reporting accuracy, the Reporting Coordinator spot-reviews publications by searching Ulrichs Web for the refereed status of a journal. To further compound the issue, many journals are listed in Ulrichs as non-refereed when, under further examination, the titles were found to be refereed. To avoid disagreements, the Reporting Coordinator will add a refereed tag to a citation, but will only remove a tag if the title is clearly an Extension document. Extension documents do undergo a type of review process, but this review process does not fit with the definition of

refereed for NIFA reporting. In the future, to avoid the time-consuming process of reviewing titles in Ulrichs, we will request that faculty submit only peer-reviewed publications.

Communication breakdowns – Communication is a great challenge on any multi-step project involving many people and organizational units. In our first year the library sent out emails to the unit coordinators, asking they disseminate the announcements to the faculty. Unit coordinators were not always diligent in forwarding the announcements. We have since outlined a thorough schedule of key times to send out communications and reminders. These communications are sent to all people involved in the reporting process, with occasional communications coming from IFAS Administration as official reminders, and offer support incentives to units finalizing their lists early. Over time we have also shortened the time allotted to faculty to work on their lists, as support queries indicated that faculty failed to utilize the extra time.

One additional and important communication challenge faced by the libraries is our insertion in an unpopular process. It is important that the libraries continue to be thought of as a neutral support entity separate from evaluative processes. Library communications should emphasize the libraries as providing support for a difficult process, rather than as initiators of the process. When faculty email the libraries regarding their frustration with the process and interruption to their work, it is important to continue to provide gentle communications regarding our support role and refer all policy decisions to IFAS Administrators.

Data Analysis

This ongoing project provided the Libraries with several years (2009–2012) of comprehensive citation lists containing fairly accurate data. Prior to the collection of this data we had a general understanding of the research habits of faculty, but much of our knowledge was anecdotal. This data provided an opportunity to understand researchers from their publishing habits and to cater services and collections to specific needs. For example, the field of agricultural sciences covers many different disciplines, making it difficult to choose just one database for exporting a particular faculty member's publications, and yet, there is a generally held belief that Web of Science has relatively complete agricultural science journal coverage. The data offers us answers to two basic questions—in which journals are faculty publishing? and which databases index the greatest proportion of those journals?—that can provide a better understanding of the databases' value. Below are the questions we sought to answer and the methods used to answer these questions. Included are the amount of processing time (N = none; L = limited; M = medium; H = high; V = very high) required and (**) methodology or tools utilized.

None (N) indicates there is no processing beyond the previously identified data sanitization workflow. Many of these questions can be applied at both the IFAS and unit level and compared across multiple years.

- How many publications were authored? (N)

Curation: tally publications

Provided general benchmarking and accreditation reporting support regarding quantity of publications

- What is the faculty to publication ratio? (N)

Curation: Current faculty counts are required

Provided information on unit productivity. This answer helped us understand which units had the greatest number of publications per faculty member.

- What percentage of publications that are single-, double-, or triple-authored? (M)

Curation: Hand-count authorship, or utilize statistical program such as SPSS to assist

Provided a preliminary understanding of co-authorship trends for each unit. This answer helped us assess which units published large-authorship papers, similar to the Physics Department. Single, double, and triple authorship were organized by unit count. For local analysis, librarian reviewed which units were multi-authored (local interest only).

- In which journals are the researchers publishing? (L)

Curation: Extract journal counts using SPSS or Google Refine.

It is interesting to note that of 500 journal titles in 2012, 250 were only published in once by IFAS faculty. These counts help us understand the value of a journal to the institution and can assist with additional questions about journals and databases.

- What types of journals (open access or subscription)? (H)

Curation: Search Ulrichs by journal title and document OA status.

Useful for understanding whether OA journals are used for UF research dissemination, as well as whether annual OA publishing fund initiatives are effectively utilized.

- Which databases index the journals? (H)

Curation: Search Ulrichs by journal title and document indexing databases.

Useful for understanding which databases are best for exporting faculty publications.

- Does VIVO@UF or Google Scholar list the citation? (M)

Curation: Search VIVO and Google Scholar by article title and document availability.

This search would tell us which source might be the strongest source for dynamic harvesting of citations. Additionally, searching VIVO reveals the effectiveness of the publication harvesting effort from Web of Science

and presents opportunities for researching author disambiguation. Lastly, the data can be used to talk to faculty about increasing access to publications through consistent author affiliations.

- What percentage of publications are co-authored with other IFAS researchers? (H)

Curation: Acquire an IFAS employee listing and note unit affiliation (code by home or tenure unit).

Results

We were able to examine and compare some data between 2011 and 2012, as the data from these years benefited from improved sanitization processes, but the most thorough and complete analysis was applied to 2012 data. The greatest challenges of the analyses were navigating and ordering the sanitization steps, the hand-processing required for greatest accuracy, and planning collaboration analyses when many of the articles were co-authored by more than 12 authors. Secondary challenges included navigating unfamiliar tools (Google Refine, SPSS, advanced Excel) or working within the limitations of the available tools (such as Ulrichs).

The Reporting Coordinator and Librarian spent approximately 240 hours processing the 2012 citation data, resulting in the following statistics:

- From 2011 to 2012 there was a 9% increase in the number of publications reported.
- In 2011, 10% of publications were co-authored with other IFAS units. In 2012, this percentage increased to 17%.
- The units with the greatest number of publications per researcher were Southwest Florida Research and Education Centers, Wildlife, Soil and Water Science, Citrus Research & Education Center, Agronomy, West Florida Research & Education Center, Indian River, and Plant Pathology.
- In 2012, researchers published articles in 562 unique journals. 312 of these journals published only one article with an IFAS researcher listed as an author. The remaining 248 journals published two or more unique articles. The 10 journals with the highest frequency of articles, included: HortScience (48), HortTechnology (43), Plant Disease (28), PLoS One (28), Florida Entomologist (27), Arthropod Management Tests (23), Journal of Animal Science (18), Crop Science (16), and Phytopathology (16). Of the 248 titles, 18 are open access.
- According to Ulrichs, the 248 journals with 2 or more articles were indexed with the following counts:

Number of journals indexed	Database
186	Agricola
227	CAB Abstracts
219	Scopus
213	Web of Science

- As the time of the writing of this article, the Libraries were processing and analyzing whether citations can

be discovered in Google Scholar and VIVO. The general findings, based on a closer analysis of citations, revealed that both Google Scholar and VIVO had a very high ratio of the peer-reviewed articles available.

Future directions

Our preliminary findings are important for supporting us in assessment of future directions. This ongoing project is funded by IFAS for the primary purpose of faculty publication reporting; thus the Library's primary goal has been to increase the reporting accuracy while reducing the difficulties encountered by faculty when self-reporting. Over the years we streamlined the process significantly and reduced the number of complaints received. EndNote Web was chosen by IFAS under a different administrative team and is not a technology we feel strongly wedded to for this work. Eventually we hope shifting from EndNote Web to a different system will reduce frustration levels. We are considering a number of alternate solutions for data collection, as the majority of faculty do not use the export publication function provide by EndNote Web. Utilizing benchmarking resources such as Academic Analytics or harvesting publications from VIVO and supplementing with a simple form may be other options to consider. We will have to be cautious if we shift to a new solution, as this workflow has the potential to be used as a solution for the recent Office of Science and Technology Policy (OSTP) mandate requiring the long-term preservation and sharing of publications funded by federal agencies.

We are also exploring ways in which the data analysis may assist with Southern Association of Colleges and Schools' (SACS) accreditation review or general benchmarking support. IFAS is interested in a number of metrics for SACS reporting, as well as metrics to identify collaboration trends. The basic publication reporting provided by this work is significant; for example, one of the IFAS SACS goals is to increase scholarly productivity (as measured by refereed journal publications per faculty FTE) by 5% in 5 years. The current process will allow for tracking this type of productivity and it may be, with further exploration, that our reporting can continue to expand support for SACS and benchmarking efforts. Additionally, the final NIFA report includes assignment of publications to NIFA Knowledge and Program Areas. We are also exploring methods to painlessly assign these categories to the relevant citations in order to assist with additional reporting requirements not met by our current process.

We hope to both continue the publication support and to continue to expand the analyses to meet the changing needs of IFAS administration. One area of interest is the exploration of non-IFAS and non-UF collaborations. We are also considering continued analyses on the scholarly impact of our researchers. These types of analysis are generally approached from within a discipline and are

time-consuming and difficult to accomplish, albeit valuable for understanding team science as applied to agriculture. Initiatives such as ORCID (Open Researcher and Contributor ID), as they further develop, will help with understanding a researcher's collaboration or scholarly impact.

This data will also feed the improvement of library collections and support services. The identification of key journals for IFAS provides insight into the significance of particular journals, many of which we subscribe to only in print. Acquiring these titles in electronic format, despite a high financial burden, is something to consider given their importance. This same approach can also be applied to databases. The Libraries have long subscribed to Web of Science, rather than Scopus, and there has been some question as to whether Scopus is the more appropriate database. The analysis has identified the primary journals in which IFAS faculty and IFAS units publish have better indexing in CAB Abstracts and Web of Science, although the question still remains as to the thoroughness of the indexing within these two databases. Library support services may also be improved. Currently the libraries are developing a data support framework. This project has provided librarians with greater familiarity with spreadsheet technologies (Excel), data transformation programs (Google Refine), statistical programs (SPSS), and data visualization software (Sci2), leading to additional workshop and instructional support. Lastly, we hope to develop additional workflows that increase the number of faculty publications submitted into the library's institutional repository.

Conclusion

This project was highly successful in many different ways. It helped the libraries build a trusting and unique relationship with the agricultural science community and provided the libraries with data that assisted with collection and service development. In the last few years, data has become an important topic within the academic community and this project provided hands-on data and technology experience. These relationships and skills are necessary for the library to continue to meet ongoing data needs, and this project, firmly integrated in the agricultural science community and with clearly-defined outcomes, has given the libraries greater prominence within the faculty and administrative community.

2015 Update

Since 2013, the authors continued to assist IFAS with data collection and have refined the data collection, data sanitation, and data analysis workflows. Using data collected in 2011, 2012, and 2013, the authors have outlined detailed data sanitization steps and in-depth analysis a

deeper understanding of research of IFAS. The analysis revealed publication and journal trends that were used for collection decisions and as a means to understand the existing collections overall value to growing fields of emphasis. These results will be published in a future article. Additionally, the authors are also exploring publication reporting possibilities offered by Research Information Management Systems such as Converis, Symplectic, or Pure database systems.

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About the Authors

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Appendix

The Memorandum of Understanding (MoU)

The agreement was perpetual until either party cancels, in writing, with a minimum of 45 days' notice of cancellation.

Funds would be used to employ a position (Reporting Coordinator) to assist IFAS with faculty publication tracking. The general responsibilities include:

- Assist all IFAS faculty with publication reporting related questions
- Assist all IFAS faculty with EndNote-related technical questions
- Assist EndNote Unit Coordinators with creating unit publication lists
- Ensure data validity by checking all publication data for quality, completeness, and applying reporting standards, and correcting records which are not sufficiently complete or accurate
- Provide customized lists and/or reports for Research Deans on request
- Serve as IFAS-wide phone/email contact for EndNote

This position is supervised by a Library faculty member and may work in either the Marston Science Library building or remotely, as deemed appropriate. IFAS funds the purchase of a computer every 3.5 years to be used by the position and the computer is supported by the library IT department. The UF Libraries provide a suitable workspace, a telephone and connectivity. The employee delivers monthly progress reports to the Library supervisor and shares the report with IFAS.

Food Systems Citation Analysis: Trends in an Emerging Interdisciplinary Field

Megan Kocher and Julia Kelly

ABSTRACT: Food systems is an emerging field that draws researchers from food science, economics, nutrition, agronomy, and public health. To gain a better perspective on food systems literature, a citation analysis was performed on four journals covering the topic of food systems—a relatively new discipline in academia. Analyses included the types of works cited, the most commonly-cited journals in this discipline, age of materials cited, geographic location of authors, and types of data cited. The data collected aided the librarians who were tasked with supporting this new area of research and will be used to support the research by assisting students and building appropriate collections.

RESUMÉ: Les systèmes alimentaires sont un domaine récent qui attire les chercheurs en sciences de l'alimentation, de l'économie, de la nutrition, de l'agronomie et de la santé publique. Pour obtenir une meilleure perspective sur la littérature en sciences alimentaires, une analyse des citations en référence a été effectuée dans quatre revues couvrant ce sujet—une discipline académique relativement nouvelle. Les analyses incluent le genre de travaux cités, les revues les plus souvent citées dans cette dis-

cipline, l'âge du matériel cité, la location géographique des auteurs, et le type de données citées. Les données collectées ont aidé les bibliothécaires qui ont la tâche de soutenir ce nouveau domaine de recherche, et seront utilisées pour soutenir la recherche en assistant les étudiants et en développant des collections appropriées.

RESUMEN: Los sistemas alimentarios constituyen un campo emergente que atrae a investigadores de ciencias de la alimentación, economía, nutrición, agronomía y salud pública. Para tener una mejor perspectiva de la literatura sobre sistemas alimentarios, se realizó un análisis de las citas de cuatro revistas que tratan el tema de estos sistemas—una disciplina relativamente nueva en el mundo académico. Los análisis abarcaron tipos de trabajos citados, revistas citadas más comúnmente en esta disciplina, antigüedad de los materiales citados, ubicación geográfica de los autores y tipos de datos citados. Los datos recopilados ayudaron a los bibliotecarios encargados de apoyar esta nueva área de investigación y serán utilizados para apoyar la investigación al ayudar a estudiantes y desarrollar colecciones apropiadas.

Introduction

Food systems is an emerging field of academic study. It focuses on the entire farm-to-table process and has been defined as “the whole array of activities, ranging from input distribution through on-farm production to marketing and processing, involved in producing and distributing food to both urban and rural consumers” (Staatz 2000).

Thus, food systems touches on a number of related fields including agronomy, animal science, economics, marketing, nutrition, and sustainability. Articles on food systems appear in the journals in all of these fields. In addition, a small number of food systems-focused journals have recently emerged, including the 4 that are covered in this study.

As with many citation analysis projects, this one was undertaken in part to better inform collection development activities related to food systems. The wide variety of disciplines represented may not necessarily emphasize the same types of literature. In animal science the journal literature is premier while working papers and conference papers are important to economists and some food systems researchers may rely on government documents.

Citation analysis is a well-established investigational method, falling into the category of bibliometrics (Nicolaisen 2007). In addition to collection development, citation analysis is sometimes done to gain perspective on historical trends. Recent articles on the topic have focused

on automated methods (Fransen 2012), the importance of consistency in citation analysis methodology (Hoffmann and Doucette 2012), and the more detailed investigation of research objectives of recent citation analysis studies (Ashman 2009).

Citation analyses that cover a subject area are often done using PhD dissertations but in this case there are very few graduate programs with an emphasis on food systems. They also tend to be new programs and some are limited to more narrow areas such as community or sustainable food systems. Using the citations from food systems journals was a more promising avenue.

Methods

We evaluated the references of researched articles published in the 2012 and 2013 issues of 4 food systems journals:

- *Agroecology and Sustainable Food Systems*
- *International Journal on Food System Dynamics*
- *Journal of Agriculture, Food Systems, and Community Development*
- *Renewable Agriculture and Food Systems*

We located 5 potential journals by searching Ulrich's Periodical Directory and conducting searches on food systems in relevant databases. Of these five, *International Journal of Tropical Agriculture and Food Systems* was eliminated because its focus was too narrow and it was not published with much regularity.

TABLE 1 – Details on the four journals analyzed

Background Information							Indexing Sources				
Journal	Type of Publisher	Open Access	Country of Publication	Issues/year	Year of 1st issue	Former title	Agricola	CAB	FSTA	Scopus	WOS
Agroecology and Sustainable Food Systems	Commercial	No	USA	8 to 10	2013	Journal of Sustainable Agriculture (1990–2012)	X	X	X		X
International Journal on Food System Dynamics	Not for profit	Yes	Germany	4	2010						
Journal of Agriculture, Food Systems, and Community Development	Academic	No	USA	3 to 4	2010			X			
Renewable Agriculture and Food Systems	Commercial	No	USA	4	2004	American Journal of Alternative Agriculture (1986–2003)	X	X	X	X	X

See Table 1 for additional information about each journal such as dates published and open access status.

Research articles in each issue of the journals were identified, and for each of the items cited in those articles, the following information was noted:

- Category of item (journal article, Web site, working paper, etc)
- Year of publication
- Name of 1st author
- Country of 1st author, if available
- Name of journal, if appropriate
- Name of book, for books and book chapters

The list of categories of items was developed by first brainstorming possible entries and testing the list against random lists of reference from each of the four journals. We began with 28 categories and after the analysis was completed we grouped some like categories together.

Information on some of the journals was able to be exported from Web of Science or Scopus and for the others we used a Google form to input the articles one by one. The process of assigning a category to each citation was simplified a bit by labeling any item with a volume and page range as a journal article. For a number of the cited works, it was necessary to look at the item itself before deciding on the category. It should be noted that our citation analysis yielded only one patent which was included in the “other category.”

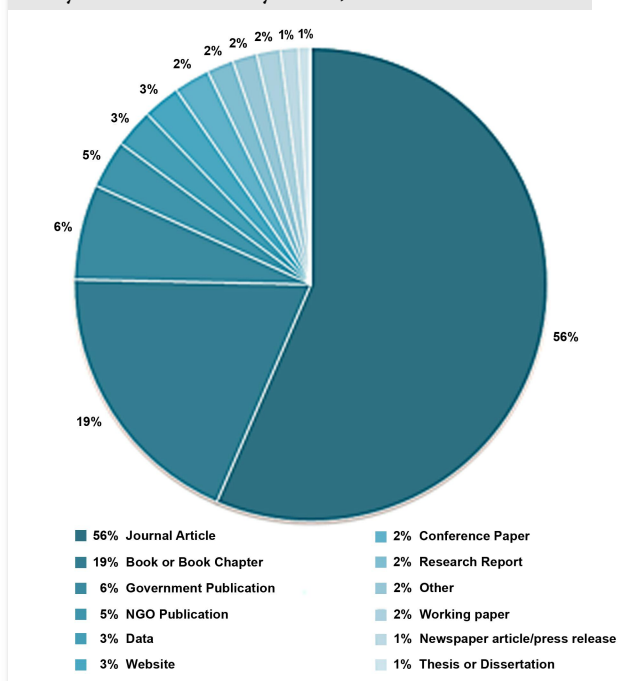
Results and Discussion

In total, this analysis included 11,194 citations from articles in the four journals. Each citation was originally sorted into one of 28 categories, but this list was compressed to 12 for analysis. See Appendix A for a full list of the original and compressed categories. Of these twelve categories, the most-cited was Journal Article (56%) followed by Book or Book Chapter (19%) and Government Publication (6%) (See Figure 1). It should be noted that 44% of the citations were for non-journal-article sources. This is higher than in other disciplines such as food science (Salisbury, Bajwa, and Dillon 2007), atmospheric science (Kaczor 2014), and biology (Miller 2011). While journal articles are certainly important to this discipline, a wide variety of other sources are relevant and necessary to its work.

INDEXING SOURCES

- **Agricola:** Focuses on agricultural and all related disciplines including food and nutrition. The database is international in scope. Publisher: National Agricultural Library (United States), Beltsville, MD USA.
- **CAB Abstracts:** This database includes journals, books, conference proceedings, reports, theses and other kinds of literature published internationally. Publisher: Centre for Agriculture and Bioscience International. Wallingford, England.
- **Food Science and Technology Abstracts (FSTA):** Worldwide coverage of selected source material from scientific and technical literature relating to food health. Publisher: IFIS Publishing, Reading, England.
- **Scopus:** A large database of abstracts and citation of peer-reviewed literature. Publisher: Elsevier B.V., Amsterdam, The Netherlands.
- **Web of Science (WOS):** A multidisciplinary science index with more than 100 years of backfiles. Publisher: Thomson Reuters, New York, New York USA and Toronto, Canada.

FIGURE 1 – Comparison of Categories of Publications Analyzed in the Food Systems Journals



The ten most cited journals in this set ranged from 252 citations (4% of the total journal citations) for *Agronomy Journal* to 73 citations (1% of the total journal citations) for *Science*. All ten most-cited journals are listed in Figure 2. That no single journal received more than 4% of the total journal citations suggests that no single or small set of journal titles comprise the bulk of what is cited in food systems, although most of the top ten journals are related at least broadly to the field of agriculture. Further analysis shows that the most highly cited journals

vary widely by the journal doing the citing (See Figure 3). For a list of the top journals cited by each source, see Appendix B. The analysis of citations by journal also shows that some journals cite their own articles more frequently, thus boosting their citation count.

In order to gauge the international scope of food systems research as it is published in these four journals, we recorded both the journals' countries of publication (See Table 1) and the first author's institutional country affiliation for each article studied within those journals. The

FIGURE 2 – Top Ten Journals Cited in Rank Order

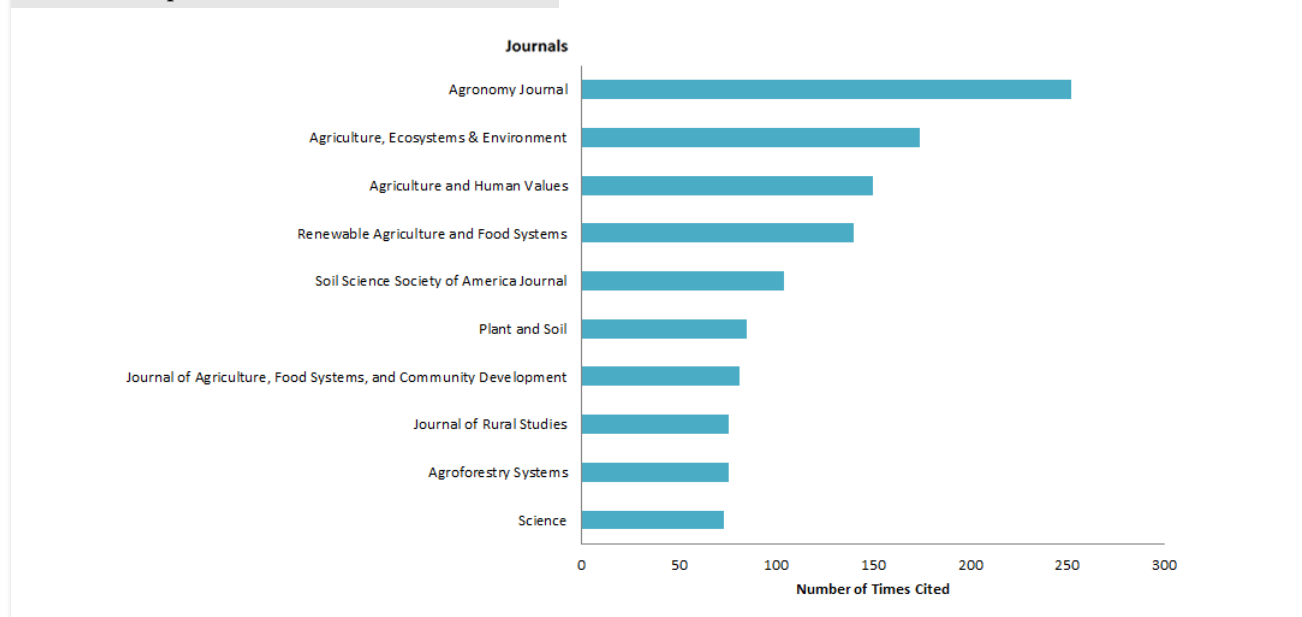
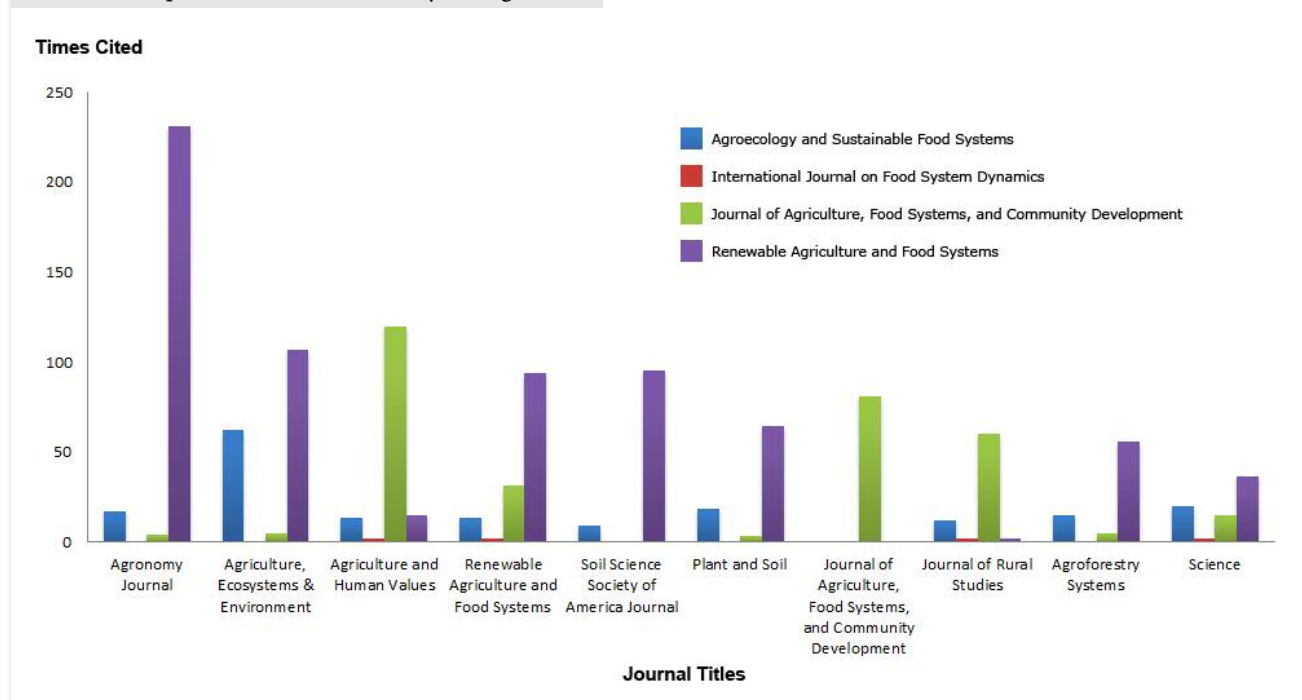


FIGURE 3 – Top Ten Journals Ranked by Citing Source



results show that the majority (46%) of authors are based in the United States which is not surprising given that three of the four journals are published there and all are published in English. The remaining 44% of the authors spread out among 35 different countries including Canada (7%), Italy (5%), and Germany (5%) (see Table 2).

We also looked at the number of sources cited by each article to determine how many sources are commonly cited in papers in this field. The average results for each of the four journals individually and combined are shown in Table 3. Overall, the average number of references cited per article was 46.

Because food systems is a relatively new discipline, we wanted to assess to what extent the literature it uses is

newly generated versus older content. To do this, we calculated the median year of citation for each of the twelve source types in our analysis (See Table 4). These results show that while some older materials may be cited (the oldest citation being a journal article published in 1857), the majority of citations for all types of sources were published within the 10 years preceding (the exception being books which skew just a few years earlier.) This suggests that for collection development purposes, libraries should focus first on current materials and less so on backfiles and older materials.

Data was one category of citations that we wanted to delve into further in order to learn more about the needs of researchers in food systems. The data category in our analysis was comprised of three categories from our original system — Government Data, NGO Data, and Other-Data. Of these three categories, Government Data provided the vast majority (85%) of sources (See Figure 4). Some of the most commonly cited producers of this data were

TABLE 2 – Country of Institution Affiliation of First Authors

Country	Number of Authors	Percentage of Authors
USA	111	46.06%
Canada	17	7.05%
Italy	13	5.39%
Germany	13	5.39%
The Netherlands	7	2.90%
Spain	7	2.90%
India	7	2.90%
Australia	6	2.49%
China	5	2.07%
UK	4	1.66%
Switzerland	4	1.66%
France	4	1.66%
South Africa	3	1.24%
Norway	3	1.24%
Mexico	3	1.24%
Ireland	3	1.24%
Denmark	3	1.24%
Brazil	3	1.24%
Austria	3	1.24%
Nigeria	2	0.83%
Malaysia	2	0.83%
Kenya	2	0.83%
Ethiopia	2	0.83%
Belgium	2	0.83%
The Philippines	1	0.41%
Taiwan	1	0.41%
Sweden	1	0.41%
Slovenia	1	0.41%
Singapore	1	0.41%
Poland	1	0.41%
Japan	1	0.41%
Iran	1	0.41%
Ghana	1	0.41%
Finland	1	0.41%
Costa Rica	1	0.41%
Argentina	1	0.41%
Grand Total	241	

TABLE 3 – Average Number of References Per Article Cited in the Four Journals

Journal Title	Average Number of Citations Per Article
Agroecology and Sustainable Food Systems	46
International Journal on Food System Dynamics	35
Journal of Agriculture, Food Systems, and Community Development	42
Renewable Agriculture and Food Systems	58
Total	46

TABLE 4 – Median Year of Citations for 12 Source Types

Age of Sources Cited	
Cited Source Type	Median Year Cited
Book or Book Chapter	2004
Conference Paper	2007
Data	2009
Government Publication	2007
Journal Article	2006
Newspaper article/press release	2009
NGO Publication	2007
Other	2009
Research Report	2008
Thesis or Dissertation	2008
Website	2011
Working paper	2005

the United States Department of Agriculture, the United States Census Bureau, and Statistics Canada. Familiarity with these types of sources is a necessity for librarians and information professionals supporting food systems and complements their use of government and NGO publications.

We also did further analysis to break out the types of websites cited and discovered that NGO (35%), Trade (15%), and Government (15%) Internet resources are the most commonly used in this discipline (See Figure 5). This speaks to the importance of non-academic work to food systems research and the interplay between the two. It is also worth noting that a combined 4% of the citations in this analysis were for conference or working papers (See Figure 1). As this discipline grows, this type of gray literature may become more important for rapid dissemination of information and ideas.

The main limitations of the results presented here are a byproduct of food systems being a relatively new and interdisciplinary field. While citation analyses have traditionally been performed on graduate theses and dissertations, we were not able to take this approach because very few food systems PhD programs exist and those that do are too new to have produced many dissertations. There are also no established conferences or societies solely for food systems researchers from which to draw information.

Of the four journals we chose for this analysis, two had former titles that did not include the term “food systems,” instead using the terms “sustainable agriculture” and “alternative agriculture.” This suggests that earlier research or relevant journals may have been excluded due to overlap in disciplines and changing vocabulary. Further, because food systems is so interdisciplinary, research on this topic is published in a broad range of journals—not just those explicitly focused on food systems. To highlight this point, a title search for the phrase “food systems” in Web of Science produces 633 records from 106 sources ranging from *Journal of Food Science* to *Technological Forecasting and Social Change*.

Conclusions

This citation analysis of four food systems journals provides valuable information for librarians about the

FIGURE 4 – Distribution of the Three Categories of Data Cited in the Food Systems Journals

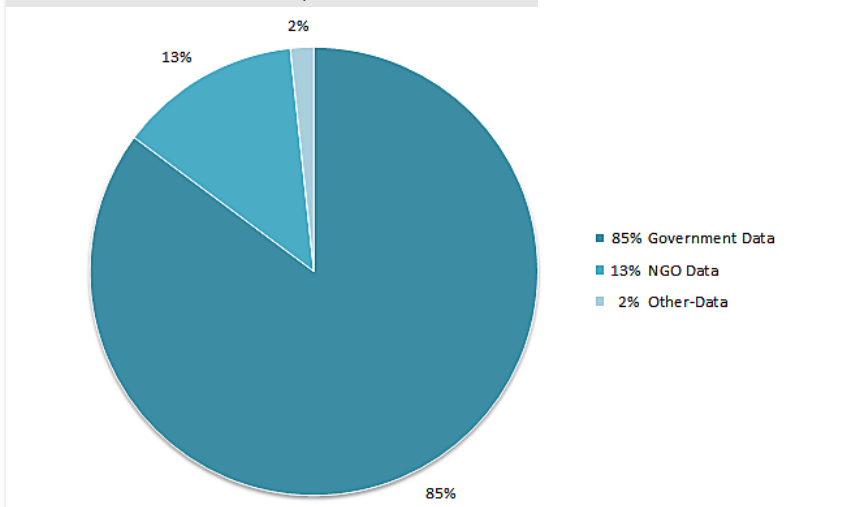
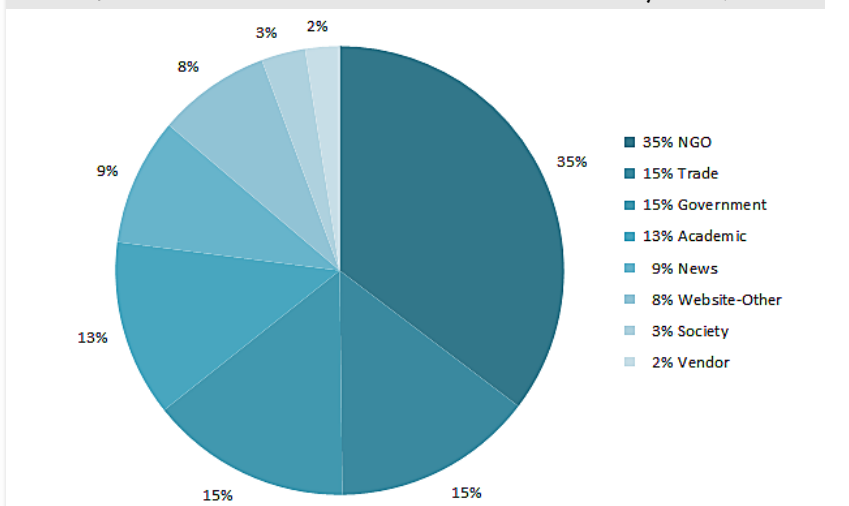


FIGURE 5 – Distribution of the Websites Cited in the Food Systems Journals



resources used by researchers in this emerging field. Few journals focus strictly on food systems, but the numbers will likely grow as the discipline matures and the number of graduate programs grows. It is revealed that authors cite materials from a wide variety of related disciplines including some in the social sciences and that it is acceptable to cite more informal information sources such as Web sites and articles from trade journals. Even among the small number of journals studied here, there is variation among the types of materials cited and the most commonly cited journals.

While journals are the most common type of source cited, books and book chapters represent a significant portion of the citations and use of government documents was also worth noting. The number of citations to data is not large but the importance of government data to this field should be acknowledged. A more traditional citation analysis of dissertations may be useful in the future as graduate programs in food systems become well-established.

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Appendix A: Types of Publications Considered for Analysis

ORIGINAL CITATION CATEGORIES

- | | | | |
|-------------------------------|-------------------------------------|----------------------------|---------------------|
| 1. Book | 7. Journal Article; trade | 15. Product Information | 23. Website-NGO |
| 2. Book Chapter | 8. Magazine Article | 16. Research Report | 24. Website-Society |
| 3. Conference Paper | 9. Book; Manual | 17. Standard | 25. Website-Trade |
| 4. Government Data | 10. Newspaper article/press release | 18. Thesis or Dissertation | 26. Website-Vendor |
| 5. Government Publication | 11. NGO Data | 19. Working paper | 27. Website-Other |
| 6. Journal Article, scholarly | 12. NGO Publication | 20. Website-Academic | 28. Other |
| | 13. Personal Communication | 21. Website-Government | |
| | 14. Policy Brief | 22. Website-News | |

CONDENSED CATEGORY LIST FOR ANALYSIS

- | | | | |
|-------------------------|------------------------------------|---------------------------|-------------------|
| 1. Book or Book Chapter | 3. Data | 7. NGO Publication | 11. Working Paper |
| 2. Conference Paper | 4. Government Publication | 8. Research Report | 12. Other |
| | 5. Journal Article | 9. Thesis or Dissertation | |
| | 6. Newspaper article/press release | 10. Website | |

Appendix B: Most Frequently Cited Journals in each of the Four Journals by Journal Title

FIGURE 6 – Agroecology and Sustainable Food Systems

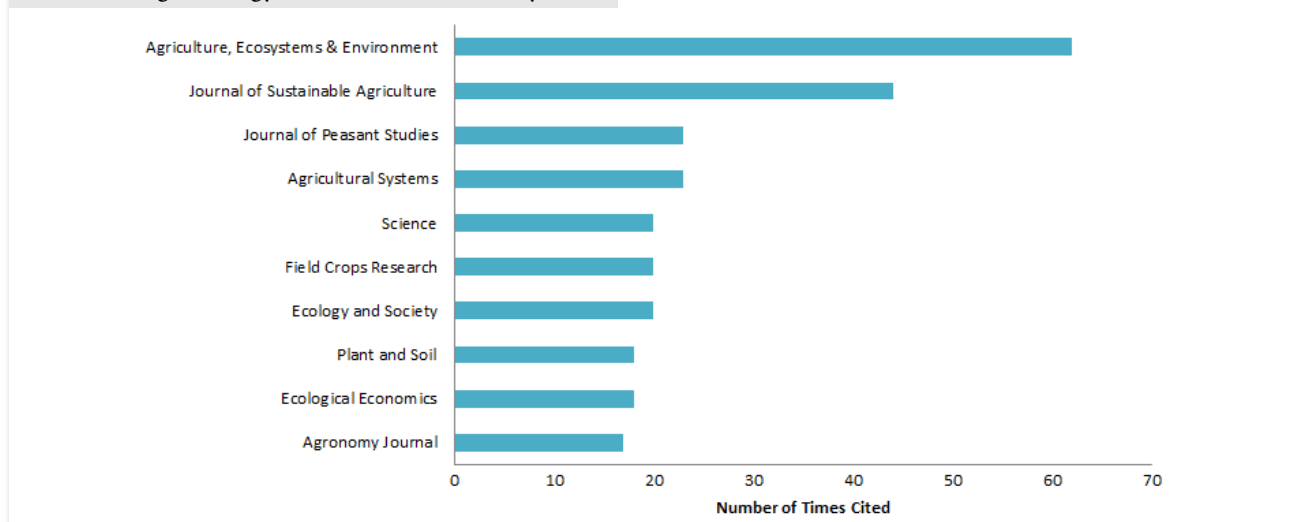


FIGURE 7 – International Journal of Food System Dynamics



FIGURE 8 – Journal of Agriculture, Food Systems, and Community Development

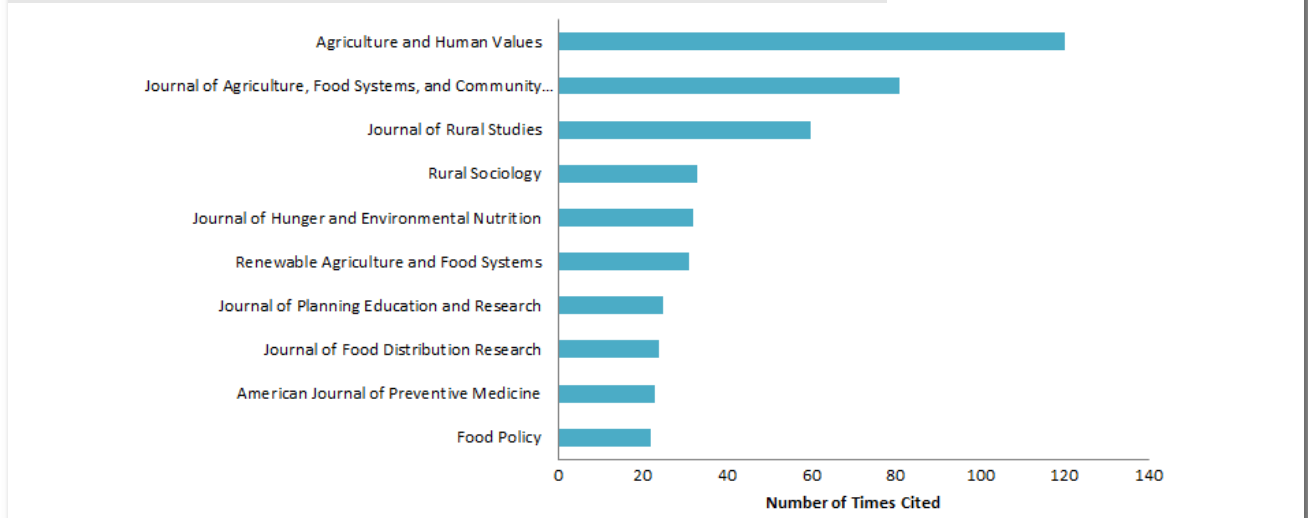
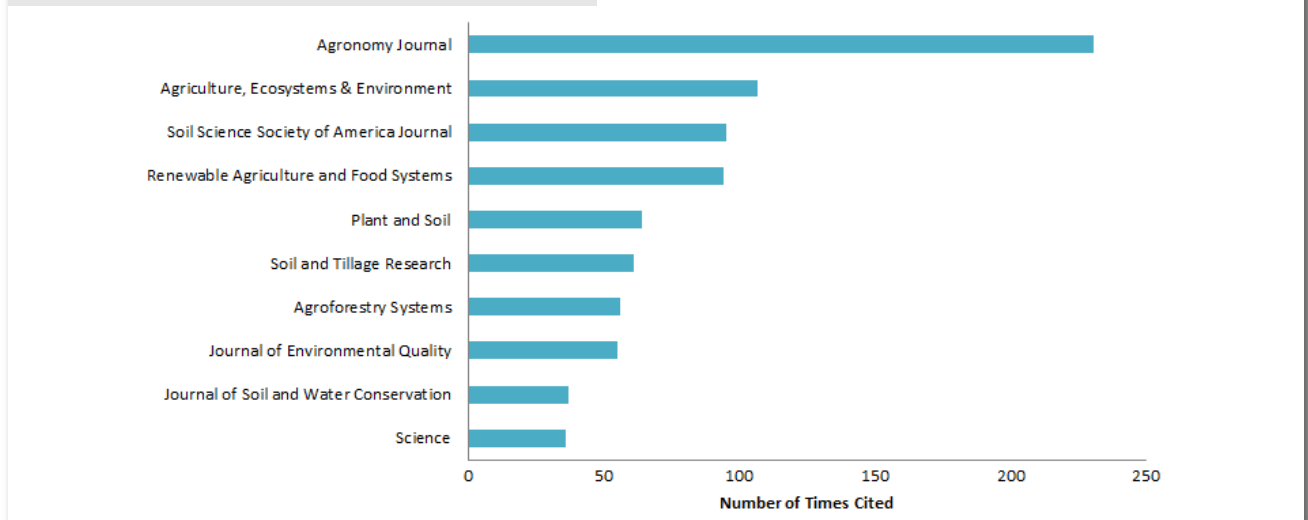


FIGURE 9 – Renewable Agriculture and Food Systems



The Use of Radio to Disseminate Agricultural Information to Farmers: The Ghana Agricultural Information Network System (GAINS) Experience

Joel Sam and Lucy Dzandu

EDITOR'S NOTE: *This paper was originally presented at the Third IAALD Africa Chapter Conference, e-Agriculture for Improved Livelihoods and Food Security in Africa. May 21–23, 2012, Johannesburg, South Africa and is published here as presented with an update from the author.*

ABSTRACT: In Ghana, an important vehicle for increasing agricultural productivity is the provision of relevant and current agricultural information on time and in the right format to stakeholders. This paper discusses the role that the Ghana Agricultural Information Network System (GAINS) has played in disseminating agricultural information to farmers using radio. Recommendations have been made on how to improve information dissemination and to collaborate with other institutions, to provide agricultural information to improve agricultural productivity, food security and rural livelihoods in Ghana.

RESUMÉ: Au Ghana, un important moyen pour augmenter la productivité agricole est la fourniture d'information agricole actuelle et pertinente, au bon moment et sous format adéquat

pour les utilisateurs. Cet article discute du rôle qu'a joué le GAINS dans la diffusion de l'information agricole par radio aux agriculteurs. Des recommandations ont été faites sur la manière d'améliorer la diffusion de l'information et la collaboration avec d'autres institutions ; de fournir l'information agricole pour améliorer la productivité, la sécurité alimentaire et le bien-être rural au Ghana.

RESUMEN: En Ghana, un medio importante para aumentar la productividad agrícola es el suministro de información agrícola relevante y actualizada a las partes interesadas, de manera oportuna y en el formato adecuado. En este trabajo se analiza el papel que el Sistema de Red de Información Agrícola de Ghana (GAINS) ha desempeñado en la difusión de información agrícola a los agricultores utilizando la radio. Se han hecho recomendaciones sobre cómo mejorar la difusión de información y cómo trabajar en colaboración con otras instituciones para proporcionar información agrícola para mejorar la productividad agrícola, la seguridad alimentaria y los medios de vida en zonas rurales de Ghana.

Agriculture plays an important role in Ghana's economy. About 60% of the population is employed by the agricultural sector, which supports about 80% of the population economically through activities such as farming, distribution of farm products, and the provision of other related services. In economic terms, the sector was for many years the largest contributor to the GDP until 2006 when the service sector overtook it. Data available from the Ghana Statistical Service (GSS) showed that in 2006 the service sector contributed 48.8% while agriculture contributed 30.4% to country's GDP. This trend has been continuing and in 2010, the service sector's contribution rose to 51.4% while that from agriculture fell to 29.9% (GSS, 2011). But in spite of this trend, its development still holds the key to poverty alleviation and improved food security in Ghana and other developing countries.

The peasant farmers produce the bulk of the country's food crops for home consumption, as well as cash crops for export. Their inability to sustain increased food production levels over the years can be attributed to factors such as the lack of reliable information that will help them to adjust their farm management practices. To overcome this problem, they have to be provided with the requisite knowledge to enable them to increase their output, and thereby increase their earnings from farming activities.

In the agricultural sector, information is one of the major resources to increase food production, and effective information delivery service greatly enhances agricultural development. However, in a situation where information about new methods of production rarely reaches the peasant farmers, the majority of whom have very little or no formal education, it becomes necessary to adopt alternative methods to adequately meet these demands. Such an approach should provide the information needed to solve their problems, and also motivate them to accept changes and adopt improved practices. (Sam, 2011).

Information Communication Technologies (ICTs) encompass a range of electronic technologies that facilitate the production, storage and exchange of information, though a distinction is often made between new ICTs such as computers, Internet and mobile phones and older ICTs such as newspapers, radio, television and landline telephony. The new ICTs are known for their digital transmission mechanisms, greater interactivity, wider geographical coverage, cost-effectiveness, and availability on a 24/7 basis. By contrast, the older ICTs use analog transmission mechanisms and mostly provide one-way communication (Greenberg, 2005).

Recently, the potential contribution of ICTs to development generally, and poverty reduction in particular, has received growing attention worldwide. The widespread

availability of ICTs has generated much interest in their potential use for development and poverty alleviation. ICTs may play a role in the livelihoods of people in rural areas by facilitating access to information that can boost agricultural production and provide marketing information for agricultural products, hence improving farmers' income. ICTs may also improve poor people's access to education, health, government and financial services (Cecchini and Scott, 2003). Arguably, the values of ICTs can be particularly high in areas where other forms of communication such as postal systems and roads are poor.

This paper discusses the use of radio by the Ghana Agricultural Information Network System (GAINS) in the dissemination of agricultural information to farmers. Radio was chosen as the channel to disseminate agricultural information to farmers, the majority of whom are illiterate and could therefore not be reached through traditional channels. Radio was found to be appropriate as the agricultural information programs are broadcast in the local languages that are understood by the illiterate farmers. It is for this reason that GAINS has since 2004 been disseminating agricultural information to farmers through the radio.

The Ghana Agricultural Information Network System (GAINS)

The Ghana Agricultural Information Network System (GAINS) is a Ghanaian information network that has primarily been used for the sharing of agricultural research information. Since 1991, it has linked the libraries of eighteen of Ghana's agricultural research and academic facilities to each other and to external contacts. It facilitates a Question and Answer Service (QAS) to address stakeholders' agricultural information needs, attempts to improve the accessibility of locally produced research findings, and builds the capacity of stakeholder institutions' libraries and information management professionals. It is managed by a coordinating center based at the Institute for Scientific and Technological Information of the Council for Scientific and Industrial Research (CSIR-INSTI) in Accra. (GAINS, 2010).

GAINS' mission is to bring together the creators and disseminators of agricultural research information in Ghana to increase information sharing and collectively address their common needs. The GAINS coordinating center has been increasing stakeholders' collective access to scientific information, especially international journals, and seeking external partnerships. However, the network faces major challenges in assisting its member institutes to improve their own information management and sharing capabilities. Despite the efforts of the coordinating center, locally generated research outputs are still quite difficult to access, as very few of GAINS' member institutes have functioning repositories of their research outputs, and even fewer effectively share their output with the rest of the network (GAINS, 2010).

LIST OF ACRONYMS FOR ORGANIZATIONS

- **CSIR-INSTI** – Council for Scientific and Industrial Research-Institute for Scientific and Technical Information, Accra, Ghana
- **CTA** – Technical Centre for Agricultural and Rural Cooperation ACP-EU, Wageningen, Netherlands
- **FAO** – Food and Agricultural Organization of the United Nations, Rome, Italy
- **FARA** – Forum for Agricultural Research in Africa, Accra, Ghana
- **IICD** – Institute for International Cooperation and Development, The Hague, Netherlands
- **KIT** – Royal Tropical Institute, Amsterdam, The Netherlands
- **KNUST** – Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
- **UDS** – University of Development Studies, Nyankpala near Tamale, Ghana

Information and Knowledge Resources in GAINS — Databases

Since March 2000, when GAINS started facilitating the Ghana Question & Answer Service, the Essential Electronic Agricultural Library (TEEAL) database has been found to be a very relevant source for providing information to users. TEEAL, operating through a local area network, is a useful source of information for the Ghana Question and Answer Service (QAS) and also complements the online AGORA database. The acquisition of three sets of TEEAL has helped meet the information needs of research scientists and academics throughout the country as they are strategically placed in CSIR-INSTI, (Accra), KNUST, (Kumasi) and UDS, (Nyankpala, near Tamale).

Within GAINS, a number of Ghanaian agricultural research information databases have been created with the collaboration of local partners to serve the information needs of users. These include:

- **Ghana Agricultural Research Information Database (GHAGRI)** – a bibliographic collection of information on all aspects of agriculture and rural development in Ghana and contains over 9700 records largely of journal articles, books, conference proceedings, unpublished reports, thesis and dissertations dating back to the early 1900s. This database can be accessed online at: www.gains.org.gh. It was developed using the WINISIS software and indexed using *AGROVOC Thesaurus*.
- **Ghana Science Abstracts (GHASAB)** – a bibliographic database of refereed journal articles published in Ghana or about Ghana in the area of science and technology and contains 1845 records. It can be accessed online at: www.gains.org.gh and was developed using the WINISIS software and indexed using *Spine Thesaurus for Science and Technology*.

- **GAPP Institutional Repository Database** – is made up of metadata and associated full-text collection of information on all aspects of agriculture and rural development in Ghana. This database contains 1032 records of which are 25 metadata and 1007 full-text and was developed using the WINISIS software and indexed using *AGROVOC Thesaurus*.

These and other in-house databases such as Agricultural Experts in Ghana (AGRIEX) and the thesis database, as well as the GAINS newsletter archive, are accessible from the GAINS website, and many of the international databases (AGORA, HINARI, OARE and Science Direct) are accessible from their own sites. All of these databases have been very beneficial in serving the information needs of research scientists and academia as they provide a very useful source for Ghanaian generated information.

They are, however, unhelpful to farmers, the majority of whom are illiterate. In recent times, attempts have been made by GAINS to expand its focus to address the needs not only of researchers and academia, but also of end users such as farmers and intermediaries such as extension agents. This led to the idea of using the radio to repackaging the information and broadcast it using the local languages to reach the farmers.

Radio and Agricultural Information Dissemination

Agricultural information in Ghana is provided through two main channels. These are the well-known formal channels—which include libraries and information centers, radio and television, posters—and the informal channel of oral communication. Of these, farmers tend to rely on the oral method of communication and sometimes on the radio for their information needs, while other users of agricultural information such as policy makers and researchers depend on formal channels for their information needs (Hanson, 1994). GAINS, in collaboration with its development partners notably CTA, FAO, FARA, IICD and KIT, has explored the use of ICTs in the dissemination of agricultural information to its stakeholders.

Farmers need to be informed and educated about improved agricultural practices in order to increase their productivity and income. Several channels such as extension agents, individuals, farmer-to-farmer contact, print media (newspapers, magazines, newsletters, leaflets, pamphlets, and posters) and electronic media (radio, television, films) have been widely used to disseminate information to farmers. (Rite FM, 2011)

However, through the challenges and lessons learned in the provision of agricultural information to farmers under the CTA supported Question and Answer Service (QAS) project in Ghana, the use of radio was identified as a medium through which the information needs of farmers could be best met. Many farmers in Ghana are peasant farmers

who live in the rural areas of the country, many of whom are illiterate and lack the formal skills to read and understand technical research findings. It is on that basis that the QAS entered into partnerships with community radio stations with CTA's support to reach more Ghanaian farmers in their own local languages to disseminate agricultural research findings to them, and also help them identify solutions to their farming problems.

Radio is one broadcast medium that almost all experts identify as the most appropriate for a rural emancipation program. It beats distances, and thus has immediate effect. It has been identified as the only medium of mass communication the rural population is very familiar with. This is because a radio set is cheap to obtain and is widely owned in the rural areas. This is made possible by the advent of the battery-operated transistorized sets. Furthermore, radio is favored as a medium of communication in rural communities because it transcends the barriers of illiteracy and demands less intellectual exertion than the print media messages (Rite FM, 2011). Its limitation of being a one-way communication channel has been overcome in Ghana through a massive improvement in telecommunication that enables the audience to respond via telephone to radio broadcasts.

Format and Content Development for the Radio Broadcast

The radio programs are broadcast live for one hour once a week with a repeat broadcast either in the same week or the next depending on the radio station. The issue for the week is advertised prior to the broadcasting for the listeners to be aware of what will be aired. A topic is chosen based on an analysis made of the questions received either by the radio station or the coordinating center and the FAQs form the basis for the broadcast series. FAQs allow for the identification of (i) agricultural issues that can be addressed by scientists, policy-makers and other stakeholders, and (ii) priority information needs of the larger farming community. Once the priority information needs of the farming community are identified both from questions received by partners and from community consultation in the catchment areas of the radio stations, topics are selected for the development of radio programs by CSIR-INSTI in collaboration with the radio stations based on these findings. On the day of the radio broadcast, the resource persons introduce the issue, discuss it for about thirty minutes and listeners are then allowed to phone into the program or send text messages to ask follow-up questions, seek further clarifications, access information, and share knowledge with other listeners. Those who phone in have their contact details and questions registered by the receptionist of the radio station.

Farmers who do not have the means or knowhow to call into programs are encouraged to visit the radio stations with their problems or success stories so they can be

shared with a wider community. The phone-in facility and sending of text messages provide a good feedback mechanism to evaluate the program and also receive follow-up of related questions. It also makes the program more participatory and interesting and widens the listenership.

Efforts are made to align programming with the various farming seasons so that farmers can be provided with timely and pertinent information for the farming season. The programs are also recorded, and farmers who could not listen to the program or who want to keep a copy go to the station to get copies of a particular program for future use.

In developing content for the radio broadcast, both the radio stations and the coordinating center of GAINS play certain vital roles. With respect to the radio stations, as a follow up to frequently asked questions they receive from the listeners or sent to them from the coordinating center, they conduct community consultation at the local level and in consultation with CSIR-INSTI to develop relevant content for the broadcast series. Findings of the community consultations are then analyzed and synthesized to form the basis for the broadcast series. After the broadcast, they do a follow-up on some of the people who asked the question to find out how knowledge gained is helping them or possibly their neighbors. The stations also have to agree with CSIR-INSTI on the materials/issues to be broadcast beforehand. They finally submit to CSIR-INSTI a copy of each broadcast on CD, certificate of broadcasts, an evaluation report on the program at the end of the series using the smart toolkit for radio.

In the case of the coordinating center, they provide resource persons for the production of the broadcast series when required, provide resource materials for the production of the broadcast series, assist with the monitoring and evaluation of the program to ensure its objectives are being met, and offer financial support for the production and broadcast of the series.

Resource Persons

Resource persons are those people with academic qualifications as well as others with a wide range of experience in the issue under discussion such as farmers, extension officers, and fishers. With this development, the program is well patronized as the voices of the less privileged in society are also heard.

Use of Tongshi Radio

Through the financial support of CTA, twenty Tongshi brand radio receivers were acquired in 2008 and distributed to assist the partners to facilitate access to agricultural research and development information available via digital satellite broadcasts for QAS partners. Personnel of the beneficiary institutions were trained on the installation of the equipment and downloading of information. The information downloaded is then dis-

seminated to the various stakeholders to meet their information needs.

Evaluation and Impact Stories from Radio Broadcast

In April 2011, an assessment of Rite FM agricultural programs was undertaken to determine the impact of radio agricultural programs on the target audience (farmers). The data was collected from 400 respondents, scattered in 13 communities, located in 7 districts from 3 regions. The findings of the study showed that the programs broadcast on Rite FM were relevant to the agricultural information needs of respondents, the majority of whom admitted that they gained some new knowledge through listening to the programs. Times of day specific programs were broadcast and unreliable power supply were indicated as constraints to listenership of the programs, but the programs, to a large extent, had the desired impact on the listeners. It should therefore be sustained but with some modifications in terms of time of presentation and encouragement of group listenership.

Earlier in 2009, Radio Peace undertook a similar study with 447 farmers. The result of that study indicated improved livelihood of the target audience (farmers) by way of improved production practices, adoption of improved technologies, and the setting up of new businesses (agro-chemical shops) to supplement their farm income.

The radio programs seem to be having an impact in the lives of the rural people. Some listeners of Radio Peace and Royals FM have shared a number of impact stories with others, including one about fishing communities having problems with the level of their catch, primarily because of foreign fishing vessels encroaching on the 3 kilometer zone protected under international law. The reefs were also being destroyed as well. Despite numerous complaints to government, no action was taken. It was only when the issue was broadcast by Radio Peace, Winneba that the government went into action to address the problem.

Another story concerned some farmers who had challenges regarding the proper application of a weedicide to clear their fields. Experts provided by Royals FM discovered that the farmers were applying half of what was prescribed. A special program was aired to deal with the situation and the farmers later called to the program to report of improvement in clearing their fields.

In a third story, a farmer had a problem with his cashew production. Apparently his trees had reached maturity, but they were producing very few cashews. An expert from Royals FM visited the farm and identified that the problem had to do with spacing and thick canopy of the trees; and the farmer was advised to prune them – which he did. Production increased significantly.

Finally, it has been observed that the status of farmers in the Winneba and Wenchi communities has improved with the adoption of new agricultural technologies. It is

BRIEF PROFILE OF RADIO STATIONS

A study carried out by the CTA-supported QAS project in Ghana revealed that it was better to work with community-based FM stations, as they broadcasted programs in local languages understood by farmers and fishermen.. It was also found to be more viable economically to work with community-based FM stations as opposed to the national broadcasting station.

In line with this, the repackaging of agricultural information into radio programs started in 2004 with Radio Peace, a community-based FM station in Winneba in the Central Region of Ghana and the station serves seven out of the ten regions of the Central region of Ghana. It is estimated that on average about 5,000 people listen to the agricultural program on Thursday evenings when the live broadcast is aired, with an equal number listening to the repeat program on Saturdays. The program is broadcast in the local language (Fante).

In addition to Radio Peace, GAINS now partners with one community radio station (Royals FM) and two community-based commercial radio stations (Lorlornyo FM and Rite FM) to provide tailor-made agricultural programs to empower farmers with relevant agricultural best practices.

- **Royals FM** is a community Radio station based at Wenchi in the Brong Ahafo region. It is under the management of a community-based organization called Rural Organized Youth in Agriculture, Literacy and Sanitation [ROYALS]. One of the organization's aims is to help educate the people in the Wenchi municipality and Tain district especially and beyond on improved farming technologies for farmers. It

broadcasts an agricultural radio program in Asante Twi known as *Kua Pa Ye (Good Farming Practices)* every Saturday evening with a repeat the next Saturday. Thirty-three community information centers in and around Wenchi & Tain districts are linked to the QAS radio program.

- **Rite FM** is a commercial radio station based in Somanya in the Eastern region and it operates a twenty-four hour radio service. The prime focus of the station is on agriculture and social development. Through its carefully prepared material, based on a solid foundation of well-structured program platforms, the station disseminates timely information primarily to farmers and secondly to all stakeholders in the agricultural value chain in three different languages — English, Twi and Krobo. With respect to the agricultural program, Twi and Krobo (the local dialects) are used to broadcast the program on Friday morning with a repeat on Monday evening. The programs are also streamed on the Internet (www.ritefmonline.com) to get feedback from a wider audience. This website also generates a newsletter that is sent to over 1000 agricultural professionals around the country. Since this website was made public it has had over 180,000 hits and usually attracts an average of 100–800 people daily.
- **Lorlornyo FM** is also a commercial radio station in Hohoe in the Volta region. The broadcast covers over ten districts in the Volta region, parts of the Eastern region and part of Togo. Ewe and Akan are used to air the radio programs on Thursday evenings with a repeat broadcast on Sunday afternoon.

also encouraging to note that the youth in the communities reached by the radio programs are getting involved in agriculture.

Key Challenges in using Radio

The key challenges faced using radio to disseminate agricultural information were:

- **Duration of the program** – one of the key challenges that has faced the radio program is the issue of the duration of the program per week (1 hour). It has been observed that the period is too short for the issue at stake to be thoroughly discussed, explained and also to respond to the questions during the phone-in segment. This has resulted in the phone-in segment being truncated most of the time with a number of lingering issues unresolved.
- **Language barriers** – most of the resource persons, especially the research scientists, are not fluent in the local languages of the radio stations so sometimes they have to speak in English for it to be translated by the host. This defeats the purpose of the program that is to be aired in the local language.
- **Communication skills** – some of the resource persons also lack the necessary communication skills to communicate to the audience. It therefore makes the program uninteresting.

- **Road network** – the poor road infrastructure in most of the rural areas makes it very difficult for follow-up activities to be undertaken.

Lessons Learned in using Radio

A number of lessons have been learned in using radio to disseminate agricultural information. It has been established that the program is useful and has enriched the work of the farmers and extension agents who listen to it. The introduction of the phone-in facility has resulted in issues of concern to the listeners being addressed on the spot by experts. And it has also brought variety to the programs due to the varied nature of the resource persons and their background knowledge.

With this development the program is well patronized as the voices of the less privileged in society are also being heard. The program has therefore broken the secrecy that used to be the hallmark of farmers in not sharing their success stories with others. That said, it must be emphasized that there is the need for more communities to be involved in such radio programs to enhance access to information.

One other key lesson is that the radio programs have increased the outreach of responses to FAQs and more people have answers to issues of concern to them. It has

therefore led to increased listenership. It is also worth mentioning that farmers are now sharing experiences they have had as individuals in farming. Though some of the information may have no scientific basis or proof, they were worth sharing as they were practical experiences.

Finally, record keeping and community entry in all the radio stations improved significantly. Prior to the project most of the stations were not keeping track of issues that were discussed and following up to ensure that solutions provided are working.

Conclusions and Recommendations

GAINS has become a major source of information for agricultural development in Ghana, and through the creation of web-based information systems, there are better linkages and information sharing among their partners. Today, GAINS has established the mechanism for continuous data gathering, updating, storage, processing and dissemination, and it maintains national databases and information resources and provides value added information services. Finally, it provides primary information sources and helps to bridge the resource gap by making materials available electronically through the building of an online system and also providing access to international online resources.

And through its collaboration with rural radio FM stations, GAINS has played a significant role in the dissemination of agricultural information to rural farmers and other stakeholders in agriculture. Farmers have improved their production practices, through adoption of new technologies. Follow-up visits have revealed that the use of radio in the dissemination of information to farmers in agriculture has impacted positively on the lives of the rural community, increasing knowledge sharing among farmers, improving livelihood, ensuring food security, and enhancing rural development.

However, in this information age where there is so much information, no one organization or institution can provide the information needs of all stakeholders in agriculture. There is therefore the need for a coordinated and concerted effort of all the institutions, both public and private, research, extension, university, and farmer based organizations to provide relevant, timely and accurate information. There is also the need for a combination of methods, manual information system, radio, television, and web-based system to meet the information requirements of the different stakeholders. With recent advances in information technology especially in e-collaboration tools, the potential for information sharing among stakeholders is high.

Efforts should be made for GAINS to collaborate with all the district agricultural information centers (AICs) of the Ministry of Food and Agriculture. Such collaboration will assist greatly in reaching the majority of the farmers and fishers in a cost-effective manner. The radio programs produced by one station could also be given to

the other stations and the AICs to use, which would help increase farmers and extension agents' access to agricultural information. It is suggested that instead of a repeat broadcast, the previous broadcast be discussed by the same resource persons briefly and the rest of the time given to the listeners to ask questions. This may cost a bit more, but would help people whose calls could not go through in the previous broadcast to try again with their questions and increase the contribution of the listeners.

It is further recommended that consideration should be given to the number of languages to be used in the broadcast especially by Lorloronyo FM, based on which the number of times it must be aired should be considered. Unlike other regions, the Volta region always has been faced with the issue of Ewe, Akan and the other numerous but relevant dialect speaking communities of which the region is made.

The Community Information Center (CIC)—an initiative by the government of Ghana—seeks to bridge the digital divide between rural and urban areas; to provide a Wide Area Network (WAN) for the Ministries, Departments and Agencies (MDAs), hotels, schools, hospitals etc.; to provide community information needs and enhance national integration; to create ICT awareness in the rural areas; and to disseminate information to the rural communities especially in areas of health, local government, environment and agriculture.

There is currently no direct linkage between the GAINS and any of the CICs. There is, however, the potential to collaborate with the centers in the future in the provision of agricultural information to farmers and extension agents at the district level. GAINS can support the centers through training on how to repackage information, provision of information materials in agricultural technologies and rural development. This will ensure that many more farmers and fishers are reached with current and relevant information in a timely and cost-effective manner.

Finally, for further enhancement and improvement of the GAINS service, there is the need to introduce mobile phone based service. This is because more than 70% of the Ghanaian population now own mobile phones. What is now left is to intensify training for more farmers on how to use the phones to access information.

All of this may be summarized in a simple statement: GAINS has ensured that the majority of farmers will have easy access to timely and cost-effective information to ensure increased agricultural production and food security.

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Mobile Based Service Since 2012 an Update

In concluding the 2012 paper, it was noted that there is the need to introduce mobile based service in Ghana to assist farmers with access to information in a timely manner. Since 2012, mobile based service had been introduced to assist with information provision for farmers.

Though the GAINS service has not incorporated this service directly, Esoko, a private company has been championing the course of Ghanaian farmers through technology since 2014. It has introduced its latest innovation to aid the Ghanaian farmer called “farmer helpline”. It is designed to provide expert agricultural advice to farmers.

The service is available to anyone dialing 1900, a group of agricultural experts are on-hand to answer questions ranging from issues pertaining to diseases and pest, post-harvest issues, storage, use of pesticides and fertilizers,

among others. The Esoko farmer helpline is available during normal working hours with experts providing answers in 12 local languages at regular call rates on Vodafone, MTN and Airtel, and currently with plans of adding other networks soon.

The main objective of the call centre was to improve the livelihood of Ghanaian farmers. The helpline project was made possible with partnership from NGOs and the USAID. The project was a creative innovation that would go a long way to help increase agriculture, boost food production and ultimately improve the livelihood of Ghanaian farmers.

It is expected that with this initiative from Esoko, farmers will be in a better stead to seek information of diseases and pest, post-harvest issues, storage, use of pesticides and fertilizers among others which they seldom get from the Ministry of Food and Agriculture and its agencies on a regular basis.

It could be the beginning of the long journey to making farmers better off and they will be required to take full advantage of the opportunity.

AUTHOR’S NOTE: Two studies have been done by GAINS staff towards the award of Masters’ degree in Communication Studies (2013) and Agricultural Extension (2014). These studies basically aimed at the effect of radio on agricultural information dissemination and the results basically confirmed what the 2012 paper came out with. They did not research into the use of mobile phone service in disseminating information to farmers.

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IAALD Remembers...

A personal essay by Toni Greider

IAALD HAS LOST THREE GOOD FRIENDS since our World Congress in 2013.

Amélie M.E. Charron, 1955–2013



Although not a member, Amélie Charron worked tirelessly for IAALD for 25 years. In 1990 she assumed the role of technical editor of the *Quarterly Bulletin of IAALD* and continued to perform her duties up until her untimely death in October of 2013.

Amélie read every article IAALD published at least twice, once before it went to typesetting and then she read the proofs. She was more than a proof reader as she checked references, determined the statistical validity of articles that included statistical data and made suggestions on how to layout the articles for readability. She performed this service under 2 editors and worked through the transition from the *Quarterly Bulletin of IAALD* to *Agricultural Information Worldwide*.

Amélie's interest in IAALD went beyond the journal. She worked as my executive assistant from 2000 to 2005 as we prepared to host the joint IAALD World Congress/USAIN Biennial Conference in Lexington KY. Her conference assignment was handling the AV for the many concurrent sessions but she went well beyond that. She was a seasoned conference worker and she assisted me with every aspect of the conference and made good suggestions on how to resolve the issues that arose as we planned the event. She set up the internet cafe, managed the AV for four rooms and made sure that each presenter had what they needed to do their presentation. She was instrumental in the overall success of the conference.

Amélie came to love IAALD and all it stood for. She contributed in many areas and over the years put forth suggestions on how to make IAALD better. In 2005, the IAALD EC recognized her many contributions and gave her a complementary membership to the organization. Amélie remained interested in IAALD to the very end and when she died IAALD lost a major contributor to the organization and I lost a very good friend.

Oswaldo Hugo Tuyá, 1948–2014



Long time IAALD member Oswaldo Hugo Tuyá Director of the Anguil Agricultural Experiment Station Library in La Pampa, Argentina died unexpectedly in August of 2014. Oswaldo had been an IAALD member for over 30 years and often contributed information from South American to both IAALD journals.

He had a distinguished career as an information professional who focused on information management, information services and products, new information technologies and communication networks. He actively collaborated on the international level with AGRINTER, AGRIS and locally in Agricultural Information System for Agricultural Science and Documentation of Latin America and the Caribbean (SIDALC) and the Inter-American Institute for Cooperation on Agricultural (IICA-OAS).

During his career Oswaldo held management positions in AIBDA, was president of the Association of Library and Information of La Pampa (ABYDELP) and was secretary of the Popular Library "Manuel Pose Rodrigues" of Anguil. He authored or co-author over fifty specialty papers that appeared in Argentine and foreign publications and participated as lecturer or assisted with conferences, seminars, and workshops both in Argentina and abroad.

I had the pleasure of communicating with Oswaldo for most of his 30 year membership in IAALD first as IAALD Editor then as conference chair and finally as the Secretary/Treasurer. In 2005 we finally met face to face when Oswaldo was awarded an IAALD travel grant to attend the XIth IAALD Congress held in Lexington, Kentucky USA. We kept in touch after his visit to Kentucky and I had my last communication with him in July of 2014. He was a fine gentleman and I was privileged to have had him as a colleague for more than 30 years.

Rita C. Fisher, 1941–2015



Rita Fisher was an active IAALD member from 1985 until her retirement from Washington State University in 2000. Rita was a major contributor in a number of areas but the most lasting contribution was her work on all three editions of the *World Directory*.

Along with John Beecher (first edition only), Carol Boast Robertson, and Jane Johnson Rita devoted 15 years of her life documenting the Agricultural Libraries and Information Center's around the world. The three editions of the *World Directory* earned IAALD in excess of US\$40,000 which was earmarked for training and education for developing countries.

Rita began her career in agricultural librarianship in the mid 1970s at the University of Georgia, Athens Georgia, USA. When her husband moved from Georgia to Washington State University in Pullman, Washington, USA, Rita was appointed the agricultural Liaison at Washington State University (WSU), a position she held until she retired. During her tenure at WSU she became involved in several US Aid for Development (USAID) projects and spent some time as a consultant to libraries in the Jordon Valley. It was during her time there that Rita became interested in international agricultural librarianship and in 1985 she convinced me to travel with her to the VIIIth IAALD Congress being held in Ottawa, Canada. I can honestly say it was life changing for both of us. Rita agreed to work on the *World Directory* and I became more involved with IAALD by working on the *Universal Agricultural Thesaurus*. Rita continued working on the *Directory* for 25 years and I continued my involvement in IAALD as the journal editor, world congress planner and finally secretary/treasurer.

From that point on Rita and I traveled together to every IAALD Conference and a number of IAALD board meetings. Our last trip together was to the XIth IAALD Conference in Dakar, Senegal and as a gift to ourselves we then took a hiking safari across the Serengeti. The last time I saw Rita was in 2001 when she was traveling through the state of Tennessee and she was enjoying her retirement.

Rita Fisher was a hard working and dedicated librarian who preferred to work in the behind the scenes. After her retirement she and her husband Don traveled

the United States in their motor home and enjoying the life of a vagabond. Even after Don's death Rita continued to travel and in 2014 she took her motor home and with some friends drove up into the State of Alaska. That was the last trip she was to take.

AS I WIND DOWN MY CAREER I think of the many colleagues I have been honored to know. My involvement in IAALD has greatly enriched my career and I am thankful for the many good friends I have made around the world. I hope all of you reading this feel the same.

News from the International Federation of Libraries Association (IFLA)

IFLA Agricultural Libraries Discussion Group Closer to Becoming a Section

The IFLA Agricultural libraries Discussion Group (Special Interest Group — SIG) is closer to becoming a full section of IFLA according to IAALD member Dr. Deva E. Reddy, Agricultural and Life Sciences Librarian at Texas A & M University USA. In December of 2014 the IFLA Governing Board approved Dr. Reddy's proposal to form the Agricultural Libraries Section in IFLA. In order to move the proposal forward the Governing Board required that an interest survey be conducted, 40 letters of interest secured from member organizations and an action plan for the proposed section be developed. These steps were completed and the application has gone forward to the IFLA Professional Committee for approval. A final decision is expected in December of 2015 or January 2016.

The Scope of the proposed section is aimed at promotion, development and support of library and information services for the benefit of the agricultural sector. Its objectives are:

- To identify the information needs and barriers to information access by the primary producers
- To advocate for the development of comprehensive and accessible library and information services for all members of the agricultural sector
- To promote public awareness of agricultural library services and information transfer issues
- To encourage and foster relevant ties among the organizations and institutions in the library community and information resource management sector
- To disseminate information in support of the goals and objectives of IFLA internationally

Over the past 5 years the Agricultural Libraries Discussion Group (SIG) has provided a venue for agricultural librarians to present on their research and projects. Beginning with the IFLA Conference in Gothenburg, Sweden, the group has solicited papers around a central theme for presentation at the conference. The past conference themes are:

- *Current Trends in Agricultural Information Services for Farmers* (2010)
- *Information Systems for Indigenous Knowledge in Agriculture* (2011)

- *Social Networking of Agricultural Research, Education, and Extension Service: An International Perspective* (2012)
- *Education and Training for Agricultural Library and Information Professionals* (2013)
- *Role of Information Literacy in Agricultural Productivity and Food Security: An International Perspective* (2014)

The theme for papers presented at the 2015 Conference in Cape Town, South Africa was *Synergizing Agricultural Extension and Library and Information Services for Agricultural Productive and Food Security: An International Perspective*. The abstracts and links to the full papers follow this news item.

Papers presented at IFLA 2015

The IFLA World Library and Information Congress was held in Cape Town, South Africa, 15–21 August 2015. Congress Session 150, entitled *Synergising Agricultural Extension and Library and Information Services for Food Security: An International Perspective* was organised by the IFLA Agricultural Libraries Discussion Group (SIG) and took place on Tuesday, 18 August 2015.

In order to gain a wider audience for the papers, IFLA has agreed to the reproduction of the abstracts for each of the four presentations, under the terms of Creative Commons Attribution 3.0 Unported License (see below). There are links to the full text of each paper.

MASTEL, Kristen (2015) *Extension-Library Partnerships: Looking Backwards 100 Years for Inspiration for the Next Century*.

ABSTRACT: Libraries and cooperative extension have similar missions of providing information and research to the public in order to build strong communities. One might think the parallel path of both entities that serve the public would have collaborated more closely. This may not have happened in the first 100 years of cooperative extension, but extension-library partnerships could be the innovation both entities need to stay relevant for the next 100 years. This paper will share some examples from the University of Minnesota and other libraries around being partners to further the mission of Extension and agricultural information dissemination.

ORDEIRO, Fábio Lima and SANDES-GUIMARÃES, Luisa Veras de (2015) *Dissemination and democratization of information access in rural communities: the role of librarians in the Mini Libraries project.*

ABSTRACT: This paper articulates the history of the Mini Library project, the current situation and the contributions of librarians in the project advancement. The Mini Libraries project is an innovative proposal for the dissemination and popularization of scientific knowledge generated by Embrapa (Brazilian Agricultural Research Company). Through this project Embrapa distributes kits containing a collection of print publications, videos and radio programs to encourage reading and productive inclusion in rural areas. The project is very well received in the benefited communities, but it needs some improvements to improve its efficiency. In this paper we propose two solutions to help in the project operation: a Mini Library web portal, to improve the communication with users and mediators participating in the project; a control and borrowing scheme for the collection.

PINTO MACIEL, Daniela and GALON ARRUDA, Rosangela and TORRES, Tércia Zavaglia (2015) *Information communication between the library and the extension in the Brazilian Agricultural Research Corporation (Embrapa).*

ABSTRACT: The exponential increase of information available and the potential mechanisms for storage and recovery made clear the need to extend the traditional concept of reference services/ mediation of information from libraries. The offer of information is located at the intersection of two fields of information science: the study of demands for profiles, and the organization, processing and availability of information for effective use. This work aims to present the experience related to the development of a project Embrapa Library System (SEB), whose main objective was to build interactive strategies of dissemination of knowledge generated by the Brazilian Agricultural Research Corporation (Embrapa). This project first resulted in a diagnosis of the extension in the state of Rondônia, which supported the creation of online and offline customer service in libraries, creating an information channel with news about the world of scientific and technological information and training for extension in the use of database and digital repositories of Embrapa.

WALTON, Peter (2015) *Looking to the future by digging up the past – capturing and disseminating tacit knowledge.*

ABSTRACT: In the past, it was customary for the findings of agricultural research to be packaged into extension materials, and extended to farmers via the extension workers. In the Pacific, the degrading of government-led

extension and advisory has happened at the same time as a decline in print publications. In recent years, there has been an increase in the number of social media initiatives all intended to better communicate with the public, among which are the farmers. There is anecdotal evidence to suggest that this is not helping the farmers. There is similarly a lack of evidence that this is equipping extension workers with a good knowledge base, and there is also the loss of knowledge and experience as researchers and extension officers age retire. No attempt has been made to capture what is called ‘tacit knowledge’: information and knowledge known to an individual by virtue of their experience, lessons learned and knowledge gained, the loss of which is guaranteed to ensure that lessons learned are lost, and the wheel is reinvented. To address these issues, the author has been involved in two activities in Solomon Islands. In the first activity, a procedure was proposed to try and use the collective wisdom of a group of researchers and technical extension people, in the form of a writeshop to put together extension fact sheets. The focus was on capturing content, irrespective of its eventual packaging. The second activity was the preparation of a manual to address severe problems in the country with cocoa contamination. In undertaking this activity, it became clear that the published information was contradictory and, in many respects, lacking in critical detail and this despite decades of research and development. The only way to address this was by engaging in an activity to capture tacit knowledge. At the end of that period, there was much improved content, based on lived experience over many years. The search is now on to find a way beyond a print-based resource to manage the content that has been acquired. In the meantime, lessons have been learned about what can help this process along, the principal lesson being the need to better manage and share content, and to do so strategically.

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