Leveraging Agricultural Information Literacy: Creativity and Innovation in Information Services

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Abstract

Agricultural information literacy is essential for empowering farmers, agribusinesses, and rural communities to make informed decisions that enhance productivity, sustainability, and resilience in an evolving agricultural landscape. This paper examines the role of creativity and innovation in developing and delivering agricultural information services that cater to the diverse needs of these communities. Focusing on the integration of digital tools, user-centered design, and community-driven approaches, this study examines how innovative information services promote effective knowledge transfer, support sustainable practices, and improve market access. Through a descriptive analysis of emerging trends, including mobile applications, online platforms, digital libraries, and localized information hubs, this paper identifies the strategies that have successfully fostered agricultural information literacy

Keywords: Agricultural Information Literacy, Libraries, Digital Libraries, Information Services, Innovation, Community Engagement.

1. Introduction

The global economy depends heavily on agriculture, which affects sustainable livelihoods, rural development, and food security. In this regard, the spread of agricultural knowledge is essential to enabling farmers, researchers, and policymakers to make well-informed choices that improve resilience and production. However, how useful information is depends on how well stakeholders can receive, understand, and use it. This idea is summed up in the term "agricultural information literacy".

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Although agricultural information literacy holds great importance, numerous agricultural stakeholders encounter obstacles that impede their capacity to obtain and utilize pertinent information. These obstacles encompass restricted access to resources, a lack of digital skills, and unawareness of existing information services. Libraries, as long-standing centers of knowledge, have a distinctive chance to tackle these issues by utilizing their resources and expertise in information literacy.

This study aims to explore how libraries and other agriculture institutions can creatively and innovatively enhance their information services to better support agricultural information literacy. By analyzing contemporary practices and recognizing effective strategies utilized by libraries and other institutions, this study aims to reveal ways for libraries to better connect with agricultural communities. By leveraging creativity and innovation in information services, libraries and other institutions have the potential to be the key players in providing agricultural stakeholders with the essential knowledge and skills required for sustainable growth and resilience in a continually changing environment.

2. Objectives

The objectives of this study are:

- To identify the institutions that provide support to agricultural communities.
- To explore different types of libraries that provide agriculture information.
- To examine the Innovative information services in libraries and other institution that support agricultural communities.

3. Review of Literature

Benoît Desmarchelier, Faridah Djellal and andFaïzGallouj (2024) discussed innovation in libraries: A service-oriented perspective. This study adopts a perspective of the library as an ‘architectural’ or ‘assembled’ service bringing together a number of core and peripheral services, and mobilizing competences and different types of technology to collaboratively generate, utilities for the user or community.

Ludiyabakti et.al, (2020) examined that Libraries should learn about users' preferences for social media content and their other needs. By doing this, librarians and administrators can

provide better and more current information to users. This will help increase the library's and librarian's presence and involvement in the community

Narendra Kumar Patidar, Ashwani Yadav, and Pradeep Kumar Gupta, (2017) evaluated user satisfaction with the educational information services offered by agricultural libraries in Madhya Pradesh. The findings indicate that these libraries provide a high level of educational information services to their users.

According to a study of Solomon Uganneya, Rebecca Ape and Nancy Ugbagir, (2012) agricultural research libraries in Nigeria largely demonstrate a commitment to providing reference and circulation services. Moreover, the study indicates a strong level of user satisfaction with essential information services, including referrals, assistance from reference librarians, and the adequacy of the reference collection.

Library Human Resources must maintain a professional attitude while performing their assigned duties. This includes understanding their roles and responsibilities in providing library services effectively. They should demonstrate exemplary performance by being friendly, smiling, and being caring and responsive to the needs and interests of library users. Additionally, they should show a strong commitment to improving the quality of library services (Maisarah Gusvita, Frances Alon, 2021).

William Mokotjo, Trywell Kalusopa (2010) recommended a regular and continuous training program, actively promoting AIS services, introducing appropriate information channels and technologies, and encouraging farmers to visit AIS to utilize the existing services.

4. Methodology

The data for the study was collected from various sources on the internet. Through descriptive method, the study examined Innovative information services in libraries and other institution that support agricultural communities and how they help in attaining agriculture information literacy.

This included examining previous studies, reports, and models that highlight best practices, the adoption of digital tools, and successful initiatives in agricultural information delivery.

5. Information Literacy

According to ALA, Information literacy is a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information. An information literate individual is able to:

1. Determine the extent of information needed
2. Access the needed information effectively and efficiently
3. Evaluate information and its sources critically
4. Incorporate selected information into one's knowledge base
5. Use information effectively to accomplish a specific purpose
6. Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally (ALA, 2000).

6. Agriculture Information Literacy

Agricultural information literacy refers to the capacity of farmers to access, comprehend, and apply agricultural information to make informed choices and enhance their farming methods. This competency is crucial for the advancement and effectiveness of agricultural practices.

7. Information Services

To meet information needs of the users, libraries provide a range of services.Information services are offered to meet the various needs of library users. Services such as current awareness, indexing, and abstracting fall under this category. Additionally, these services are sometimes provided based on user requests.

8. Basic Library Services

1. Lending or Circulation Service
2. Reservation of Documents

3. Inter Library Loan
4. Assistance in the Use of Library and Library Tools
5. Reference Service
6. Reader Advisory Service
7. Library Orientation

9. Types of Institutions That Specialize in Offering Agricultural Information

9.1. Agricultural Research Institutes and Centers

Research and educational institutions focused on agriculture carry out studies aimed at enhancing both the quality and quantity of crops and livestock. They generate scientific reports, conduct field studies, and develop practical guidelines that enhance agricultural methods

Examples: ICAR Institutes, International Rice Research Institute (IRRI), International Maize and Wheat Improvement Centre (CIMMYT), International Livestock Research Institute (ILRI)

9.2. Universities and Agricultural Colleges

Universities and colleges conduct agricultural research, publish academic papers, and offer degree programs in agriculture and related fields. They often have specialized libraries and databases that provide access to agricultural resources and host conferences, workshops, and training programs.

9.3. Government Agricultural Departments

These departments provide direct support to farmers through extension services, offering information on crop management, market trends, and climate adaptation. They often publish free resources, distribute educational materials, and run on-site training for farmers.

Examples: Indian Council of Agricultural Research (ICAR), United States Department of Agriculture (USDA), Agricultural Research Service (ARS), Kenya Agricultural and Livestock Research Organization (KALRO)

9.4. Agricultural Libraries

Agricultural libraries gather and manage materials related to agricultural research, making scientific journals, technical manuals, reports, and digital databases accessible. They enhance agricultural information literacy by providing resources and training to farmers, researchers, and the wider community.

Examples: National Agricultural Library (NAL, USA), Indian National Agricultural Library

9.5. Non-Governmental Organizations (NGOs)

Non-governmental organizations focus on agricultural development initiatives, frequently partnering with local communities. They offer practical manuals, organize training workshops, and distribute research insights that encourage sustainable farming methods and climate adaptability etc.

Examples: The Consultative Group on International Agricultural Research (CGIAR), Heifer International

9.6 Agricultural Co-operatives and Farmer Associations

Cooperatives and associations support members with market information, technical guidance, and resources on best practices. They also provide networking opportunities and serve as platforms for sharing knowledge and advocating for farmers' needs.

Examples: Amul Dairy Cooperative (India)

9.7. Community-Based Organizations and Rural Knowledge Hubs

Community organizations offer support at the grassroots level by organizing workshops, information-sharing sessions, and training for local farmers. These centres frequently connect formal agricultural institutions with small-scale or subsistence farmers.

Examples: Local farm bureaus, community resource centres, village knowledge hubs.

10. Different Types of Agricultural Libraries

10.1. Academic Agricultural Libraries

These libraries, located within agricultural colleges and universities, primarily serve students, faculty, and researchers in the field of agricultural sciences. They offer a wide range of academic resources, including scientific journals, research papers, theses, and access to specialized databases focused on agronomy, soil science, plant breeding, and other related disciplines.

10.2. Government Agricultural Libraries

Government departments or agricultural ministries operate these libraries, which provide essential information to support national agricultural policies, research, and extension activities. These libraries typically house a variety of materials, including government publications, agricultural statistics, research reports, and policy documents. They often play a crucial role in supporting agricultural extension programs and initiatives. An example of such a library is the Indian Council of Agricultural Research (ICAR) library.

10.3. Agricultural Research Libraries

These libraries are affiliated with research institutions and specialize in providing resources tailored for scientists and researchers engaged in agricultural innovation and development. They support research in areas such as crop improvement, soil health, climate resilience, and biotechnology. These libraries often contain experimental data, research findings, and materials specific to advanced agricultural research.

Example: library of the International Rice Research Institute (IRRI).

10.4. Public Libraries

Public libraries play a crucial role in disseminating valuable information to rural communities. Public libraries that feature agricultural collections serve both the general community and farmers, particularly in rural areas where they provide essential agricultural information. These libraries may offer practical guides on farming practices, local crop information, and resources on animal husbandry, all aimed at supporting sustainable agriculture and rural development.

10.5. Digital Libraries

Digital libraries offer online access to a wide variety of resources, such as e-books, research papers, statistical databases, and multimedia content, making them available to users around the globe. They assist rural and remote agricultural communities in overcoming geographic barriers to information access. Notable examples include AGORA (Access to Global Online Research in Agriculture) and the FAO's AGRIS database.

10.6. Non-Governmental Organization (NGO) Agricultural Libraries

Libraries operated by NGOs focus on promoting sustainable agriculture, rural development, and food security. They offer information and resources that assist smallholder farmers in adopting sustainable practices and may partner with local communities for training and education. Examples of such libraries include those run by organizations like Heifer International and World Agroforestry (ICRAF).

11. Innovative Information Services for Agricultural Communities

By providing innovative services, agricultural libraries are essential in closing the information gap, promoting knowledge sharing, and empowering agricultural communities to adopt sustainable practices and enhance productivity.

11.1. Farmer Training Workshops and Information Literacy Programs

Many libraries offer regular training sessions for farmers on topics such as digital literacy, utilizing online resources, and best practices in sustainable agriculture. These workshops also promote information literacy, teaching participants how to find and evaluate reliable sources.

11.2. SMS-Based Information Alerts

SMS and mobile alerts enable libraries to share crucial updates about weather conditions, pest outbreaks, market prices, and new

agricultural practices. This service is especially valuable for farmers who require timely and actionable information but do not have internet access.

11.3. Digital Libraries and Online Repositories

Libraries now provide digital repositories and databases that allow users to access research papers, agricultural manuals, extension publications, and other valuable resources. This service is especially beneficial for rural farmers and researchers who may lack physical access to a library but require reliable agricultural information.

11.4. Mobile Apps for Agricultural Information Access

These apps include local crop data, weather forecasts, soil health information, and best practices for farming. They offer a combination of educational resources and real-time updates that are essential for effective agricultural planning.

11.5. Collaborations with Extension Services

Libraries often collaborate with agricultural extension services to deliver relevant information directly to farmers, which may include setting up demonstration plots, organizing field visits, or developing educational materials on local agricultural practices.

11.6. Agricultural Information Portals

Some libraries develop tailored agricultural information portals that offer curated resources relevant to local farming techniques, crop details, weather forecasts, and pest control. These portals act as a comprehensive information hub for farmers and extension workers.

11.7. Mobile Library Services

Libraries offer mobile services that deliver books, digital materials, and other resources straight to the communities. These services can involve mobile vans stocked with books and digital resources, or even digital kiosks located in central areas for easy access to materials.

11.8. Community Knowledge Hubs

Libraries frequently function as centers of community knowledge, hosting discussions, forums, and networking events. These centers create an environment for farmers, researchers, and agricultural specialists to exchange information and converse about local agricultural issues and their potential solutions.

11.9. Content in Local Languages

Libraries are providing resources in local languages to enhance accessibility. This includes translations of agricultural research, local best practice guides, and materials tailored to community needs**.**

11.10. Maker Spaces and Labs for Agricultural Experimentation

Some agricultural libraries now offer maker spaces where users can conduct small-scale experiments, like testing soil samples or experimenting with new seed treatments, fostering community involvement and innovation.

11.11. Resource Sharing Networks

Libraries collaborate with institutions to create resource-sharing networks that give farmers access to materials such as maker space equipment, seeds, and crop performance data.

11.12. Data Visualization and GIS Mapping Services

Some libraries offer GIS (Geographic Information System) mapping and data visualization tools, helping farmers understand soil types, climate zones, and crop patterns. These resources are essential for informed decisions on crop rotation, irrigation, and land use.

11.13. Virtual Reference and Knowledge Podcasts

Virtual reference services allow users to connect with librarians or agricultural experts for personalized advice through chat, video conferencing, or email. To accommodate various learning preferences, libraries also create multimedia content, such as podcasts and videos

featuring expert interviews and tutorials, making information accessible for those with limited reading abilities or internet bandwidth.

12. Findings

12.1. Increased Awareness and Knowledge

Agricultural information literacy programs have increased awareness among farmers, helping them make informed decisions. These programs provide essential knowledge on sustainable practices, pest management, climate resilience, and modern technologies, resulting in better productivity and profitability.

12.2. Enhanced Role of Libraries

Library services help close the information gap by providing timely and relevant information tailored to local needs.

12.3. Empowerment through Technology

Digital tools such as mobile apps, SMS alerts, and online platforms have empowered farmers by offering real-time updates on weather, crop prices, and government schemes. This digital shift improves access to essential information and fosters connections with a wider network of experts.

12.4. Challenges in Adoption

Barriers persist despite benefits, including low digital literacy among farmers, limited internet access in rural areas, and language challenges. This highlights the need for localized, multilingual content and more support for digital literacy.

12.5. Collaborative Partnerships

Collaborations between libraries, agricultural research centers, and local governments effectively extend agricultural information services to underserved communities, enhancing information literacy programs through shared resources and expertise.

13. Conclusion

Farmers' information literacy can support their willingness to transition to sustainable agriculture. The stronger the farmers' information literacy, the bigger their endowment which is favourable to resource allocation optimization and rationalizing production. Information literacy can assist farmers in obtaining new knowledge and skills in order to increase the practicability and operability of green production transformation and reduce risk (Tian, Sun and Li , 2023).

By addressing the gaps in traditional information services and leveraging new technologies, agricultural information services are poised to create a more inclusive, adaptable, and resource-efficient support system for the agricultural sector. This research contributes to understanding how libraries and information service providers can harness creative approaches to promote agricultural literacy, thereby advancing food security, economic growth, and community development.

Libraries that focus on agricultural information literacy by incorporating creative and innovative services are making a meaningful impact on rural communities. By utilizing digital tools, targeted resources, and collaborative efforts, these libraries help farmers overcome informational and technological barriers, promoting sustainable agricultural practices and economic growth. To maximize these benefits, ongoing investment in technology, localized content, and partnerships is essential, ensuring that libraries continue to adapt to the changing needs of agricultural communities.

References

- Benoît Desmarchelier, Faridah Djellal., FaïzGallouj (2024). Innovation in libraries: A service-oriented perspective. *Research Policy*, 54(1).105110. DOI: https://doi.org/10.1016/j.respol.2024.105110
- Ludya Arica Bakti et.al (2020). Innovation in library services post covid 19 pandemic.25- 33. DOI: https://doi.org/10.14203/icdi.v3i.20
- Narendra Kumar Patidar, Ashwani Yadav.& Pradeep Kumar Gupta,(2017). A Study on Uses of Educational Information Services in Agricultural Libraries (Madhya Pradesh). *Journal of Advancements in Library Sciences*. 4(1), 35-38.

- Solomon Uganneya, Rebecca Ape. & Nancy Ugbagir (2012). Information services provision and user satisfaction in agricultural research libraries in Nigeria. *International Journal of Library and Information Science*. 3(6), 88-93.
- Maisarah Gusvita, Frances Alon (2021). Leadership Supervision in Improving Library Services at the BatangharíRegency Library and Archives Office. *At-Tasyrih: Jurnal Pendidikan dan Hukum Islam*, 7(1). 107-119. DOI: https://doi.org/10.55849/attasyrih.v7i2.68
- William Mokotjo, TrywellKalusopa. (2010). Evaluation of the Agricultural Information Service (AIS) in Lesotho. *International Journal of Information Management.* 350–356.
- Kamal Gulati, Bhuvan Unhelkar (2024). The future of social science research: AI - driven innovations in library and information science . *Library progress international*, 44(2), 422-428.
- Tian, X., Sun, R. Y., Li, Z.,(2023)The effects ofinformation literacy on farmers transition to green production. *Applied Ecology and Environmental Research*, 21(4):3445-3463. DOI: http://dx.doi.org/10.15666/aeer/2104_34453463