



## *ARL Bimonthly Report 223*

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#### **Partnering for Improved Access to Agricultural Information: The Agriculture Network Information Center (AgNIC) Initiative**

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#### **Introduction**

The AgNIC (Agriculture Network Information Center) Alliance was formed in 1995 by a group of five ARL member libraries committed to a partnership for providing Internet access to authoritative agricultural information. Seven years later, this vision continues to sustain the Alliance, largely due to its collaborative nature. Libraries and U.S. Department of Agriculture (USDA) Cooperative Extension services affiliated with land-grant colleges--as well as other interested institutions (such as the American Farmland Trust <sup>1</sup>and the Agricultural Information and Documentation System for America <sup>2</sup>based in Costa Rica)--are working together with the National Agricultural Library (NAL) to develop the AgNIC Alliance, its collections and services, and the technologies upon which it relies.

The collaboration in AgNIC is multidirectional. For example, there are partnerships between libraries and USDA Cooperative Extension programs; between libraries and academic departments within colleges; between states who unite around a common agricultural theme or subdiscipline; and between technologists and librarians who are committed to using technology to knit disparate information resources into a cohesive whole. The results of these partnerships are rich, cost-effective collections of essential information and services offered to users around the globe.

One of the strengths of AgNIC is that member participants take responsibility for small, vertical segments of agricultural information related to food, agriculture, natural resources, forestry, etc. and develop Web sites and reference services in their specific subject areas. There are now 29 fully contributing partner institutions, 11 supporting partner organizations, and 38 subject-based Web sites. <sup>3</sup>

Another strength of AgNIC is the collaborative community it has created. For example, Cornell's partnerships with federal and state agencies have resulted in services such as the Cornell University Geospatial Information Repository (CUGIR) and the USDA Economics and Statistics System. (See the accompanying [list of collaborative AgNIC projects](#) for many more examples of fruitful partnerships.)

These partnerships are illustrative of the types of collaboration the Kellogg Commission on the Future of State & Land-Grant Universities envisioned in their report, "Returning to Our Roots: The Engaged Institution."<sup>4</sup> This report challenged academic institutions "to serve both local and national needs in a more coherent and effective way."<sup>5</sup> The authors of the report called upon land-grant colleges and universities to become "engaged" and be more productively involved in their communities. Although the Kellogg report neglected to mention libraries, per se, the AgNIC Alliance illustrates successful partnerships between libraries, government agencies, businesses, and the nonprofit world--the very entities that the Kellogg Commission associates with the "most successful" engagement efforts.

Partnerships can provide lasting value to an organization and the community it serves if they are approached from the beginning as long-term commitments, both externally and internally. When the contributions of partners are woven into the mission and daily work of the library, the services and resources resulting from the collaboration can be sustained. The Kellogg report makes clear that, "embedded in the engagement ideal is a commitment to sharing and reciprocity."<sup>6</sup> True engagement is characterized by two-way partnerships defined by "mutual respect among the partners for what each brings to the table."

This mutual respect is embedded in the organizational structure of the AgNIC Alliance as defined by its governance documents--AgNIC is an organization of equal partners with mutual interests and goals that operates with minimal overhead and bureaucracy.<sup>7</sup> Led by a Secretariat appointed by NAL, the Alliance members meet yearly to approve policy, set directions for the future, and determine membership requirements. An Executive Board, selected from and reporting to the full Alliance membership, provides administrative oversight for the group. Subcommittees within the Alliance developed membership guidelines, established technology specifications, and hammered out details related to metadata requirements.

With minimal overhead, bureaucracy, and funding, the AgNIC Alliance has achieved a remarkable string of collaborative partnerships, provided information and answers in response to millions of queries, and developed a coherent vision that continues to guide the organization. However, the limited organizational structure and insufficient financial support present challenges. Although considered an important initiative for the agricultural community, federal funding for the NAL to support AgNIC has been limited. This results in an annual scurrying for funds, often entailing legislative lobbying, grant-writing initiatives, and pursuit of foundation support.

In the first *Star Wars* movie, Han Solo reminds Luke Skywalker that "traveling through hyperspace ain't like dustin' crops, kid." This agricultural metaphor is a reminder that the "old

ways" of doing the information business may no longer be the best ways. Instead, institutions need to rely on partnerships and collaboration, a compelling vision, and a strong technical foundation. This benefits all members, and their constituencies, in ways they cannot achieve on their own.

## **Collections and Services**

### ***Partnerships for Content Development***

The multilevel collaborative model is a key feature of the AgNIC initiative. Nearly all of the participating AgNIC institutions have developed unique partnering relationships with a variety of internal and external institutions, groups, and agencies to develop content and tools for their respective Web sites.

Examples of internal institutional collaborations are many and usually involve university libraries working with departments that have expertise in the area chosen for a Web site "center of excellence," and with Cooperative Extension which has information dissemination goals similar to those of AgNIC. The NAL's Web-based Information Centers, many of which are the result of partnerships between academic institutions and government agencies, also participate in the AgNIC effort. Some collaborative models involve multiple AgNIC participants working together as partners. See the accompanying [list of collaborative AgNIC projects](#) for examples.

### ***Ensuring Enduring Access***

In addition to developing content, AgNIC also recognizes the importance of maintaining intellectual access to information resources. One of the original AgNIC goals was to "facilitate collaborative development, use, and archiving of distributed agricultural online primary resource (non-bibliographic) databases." <sup>8</sup> An example of this type of value-added service is the *Journal of Range Management (JRM)* published by the Society for Range Management (SRM). Through a memorandum of understanding between the University of Arizona and SRM, links are provided to the back issues of *JRM* via the AgNIC Rangelands Web site. To initiate the work, the Society provided the library with print volumes of the *JRM* for the years 1948-1998 (volumes 1-51). Partial funding for the project was made available from NAL.

### ***Online Reference Services***

As early as 1997, AgNIC partners agreed that a pivotal component of Alliance membership would be a commitment to providing online reference service, with each member institution responsible for covering questions pertaining to their chosen topics. Typically, institutional subject sites receive anywhere from one to twenty questions per week, with the great majority of these originating in North America. However, approximately 20 percent of those received to date have come from foreign countries. Answers are provided by e-mail and phone, usually by a reference librarian but also on an as-needed basis by faculty and others who are subject specialists.

The type of questions received directly from the main AgNIC home page vary and are fielded by staff at NAL. Over the past four years, the main site has received hundreds of reference questions on a variety of agricultural subjects ranging from rural sociology to entomology.

Many [positive comments](#) from users demonstrate the value of this service.

The importance of this service to users led to the decision in 2001 to draw up general guidelines for delivering online reference as a formalized part of the AgNIC system. It soon became clear that achieving consensus among more than 40 partners would be a challenge. Information was gathered from the partner institutions on their reference policies and procedures. This input was used in April 2002 to create draft guidelines that address such issues as timeliness of response, scope of each service to be covered, provision for feedback from customers, and quality assurance. A final version of the guidelines will be posted on the main AgNIC Web site soon.

### **Diverse Funding Sources**

Since its inception, AgNIC has been largely a grassroots effort with participating institutions contributing their own personnel, technical and server support, and travel funds to achieve the goals of the Alliance. This commitment and willingness to pursue a cause with very little or no financial support is due to a strong belief in the potential of AgNIC to be the premier Web resource for agriculture, food, and the environment. Having said this, it is also true that the AgNIC Alliance has pursued a variety of funding opportunities both at the national level and at the institutional level.

The initial funding for AgNIC came in the form of a one-year grant to NAL from the General Services Administration (GSA). This 1995-1996 grant provided a modest level of support for NAL to set up the technical foundation for operating AgNIC and for initiating the activities that would create its organizational structure. Financial support from NAL helped fund the implementation of a second-generation AgNIC site in 1999. While NAL has worked to support the organizational function of AgNIC within its own very tight budget, individual institutions have pursued other funding options for their own AgNIC Web sites.

The University of Nebraska-Lincoln obtained a GSA grant to develop a site on water quality and the University of Arizona was granted a USDA Cooperative State Research, Education, and Extension Service (CSREES) Agricultural Telecommunications grant to jumpstart its rangelands management site. In addition, the University of Arizona has been successful in leveraging funds from a variety of resources, particularly through Cooperative Extension, to create specialized educational and decision-making tools that have become part of the rangelands site. Mann Library at Cornell University has been active in gaining outside funds for its AgNIC efforts: an Agricultural Telecommunications Grant supported the development of the Soils Health AgNIC site and a grant from the U.S. Geological Survey is supporting the latest developments in CUGIR, the geospatial repository.

### **Expanding Relationships with Cooperative Extension**

It is beneficial for those of us in libraries, particularly at land-grant institutions, to view Cooperative Extension as a potential partner on a much broader level than is currently the norm. Research libraries and Extension share many of the same goals and challenges: both have long histories and strong traditions within their institutions and both have worked hard to make accurate and unbiased information available to those who need it. Libraries

accomplish this goal through the acquisition and organization of collections and the provision of reference services; Extension units accomplish this through their publications, educational programs, and specialized personnel on campus and around the state in county offices. In the past, both entities functioned largely as sole providers of information. However, with the 24x7 glut of free information (good and bad) on the Web and the monopolistic consolidation of commercial publishers in recent years, it is clear that the information landscape is drastically changing. We can no longer assume that people will come to libraries or Extension for information or assistance. Both the research library community and the Extension community are redefining what their roles will or must be in the future.

In March 2002, NASULGC's Extension Committee on Organization and Policy (ECOP) issued a report on "The Extension System: A Vision for the 21st Century."<sup>9</sup> This report suggests a vision for Extension "that considers the impact of changing demographics, advances in technology and profound social changes that confront our society." The report provides a rationale for Extension to "establish and maintain a national information technology network to develop, organize, manage and deliver Extension curricula using state-of-the-art technologies, methodologies and research." In recent months this vision has evolved further into a concept called e-Extension, a network that features goals and functionality similar to AgNIC. The exciting possibility for Extension and AgNIC to work together to allow these two networks to communicate with each other is already under discussion, aided by the chair of the AgNIC Executive Board--Randy Heatley, an Extension Specialist from Michigan State University.

## **Technological Infrastructure**

### ***Today's Technology***

The technology behind AgNIC closely reflects the organization of the Alliance: a collection of collaborating Web sites, each of which can function independently, but capable of drawing additional utility from partner sites. The AgNIC home page provides the gateway, or single point of entry, to the system. A listing of all partner sites and their areas of specialization is just one click away from the home page. A wealth of information about AgNIC as an organization is within easy reach from the home page as well. The main resource, and primary draw for users, however, is the database of carefully chosen agricultural resources. Unlike other Web search engines that throw everything into one giant pot, the AgNIC database consists of resources that have been carefully selected and classified by AgNIC partner sites. Containing resources from their own sites as well as resources from other recognized authoritative sources, the database and its search and browse functions offer a fresh approach to efficient Web searching.

To increase the success of search results, the AgNIC Alliance adopted a standard resource description, or metadata, format. A recommendation was made, and quickly implemented, to use unqualified Dublin Core as the metadata format for the system. By using this format, it was anticipated that migrations to next-generation systems would be much easier, and virtually any AgNIC partner, librarian, Extension specialist, student, or researcher would be able to enter resource descriptions into an AgNIC database with little, if any, training. Although the Dublin Core includes 15 set fields, to make the format even easier to use within

the AgNIC community, the 15 were narrowed to 5 mandatory fields, with the remaining 10 fields optional. (The required fields are URL, title, controlled subject, description, and resource type.) An additional 5 administrative fields are supplied automatically by the system and are used only internally by the software.

A key feature of the software that runs the AgNIC system is its ability to access other similar databases. Several AgNIC partners have installed this software and make available collections of information not found in the AgNIC database. Yet users who initiate a search from the AgNIC home page will retrieve this information because the software "knows" of these collections and automatically drills down into these distributed collections. Over time, the technology team expects to expand the number and variety of remote collections that can be accessed in this manner. To support this and other new functionality, the Alliance is looking to revamp the software infrastructure.

### *Coming Soon: AgNIC Portal*

In development at the time of this writing is a next-generation AgNIC Portal that will personalize the system for every user. In its final form, the portal will:

- deliver a spectrum of services such as databases of agricultural information, an events calendar, discussion forums that link field experts and reference librarians with users, and current awareness services that track and summarize selected topics;
- aggregate partner information to a single point of entry;
- empower partners in the management of the portal; and
- provide portal services to enhance partner interconnectivity and activity.

The new portal will be based entirely on open-source software and will support standards such as the Open Archives Initiative and Dublin Core. Just as a modern cable television service offers dozens of channels of select content, the AgNIC Portal will offer end-users a complete spectrum of agricultural "channels." These services will be delivered through a "myAgNIC" interface that can be tailored by users to suit their style of work.

Web services and portal technologies bring together widely distributed and highly divergent information resources into an easily managed and customizable interface. Alliance member institutions have been creating, organizing, and providing access to local repositories of information for many years. The AgNIC Portal presents a unique opportunity to aggregate this incredible wealth of Web-based resources. AgNIC Web services will accomplish this aggregation in a convenient and standard way, allowing the Alliance to maintain control of the syndication and dissemination of their channels without adding to local administrative burdens. At the same time the AgNIC Portal will focus these resources in a single point of access for users.

Current portal technology will also be pushed in new directions to expose, in effect, the "tuning knobs" of portal services to the Alliance members. For example, a typical Web search engine often buries important search results several screens down in the list while other relatively unimportant hits are listed prominently; there is little a user can do to remedy this situation save for contacting the maintainers of the search engine with suggestions for

improvements. The AgNIC Portal will fix this sort of disconnect by exploiting the real intelligence of the Alliance community through a number of mechanisms that allow members to "tweak" the behavior of the portal. From adjusting result-set ranking weights to augmenting the AgNIC ontology, Alliance members will have the means to effectively manage the AgNIC Portal.

The AgNIC Portal also will become a tool for the experts who are participating in the AgNIC Alliance. Select and dedicated "back channels," available exclusively to Alliance members, will serve to bridge members' collective expertise, thus enhancing the ability to efficiently locate, share, and exchange resources and information among their peers. As an example of how the AgNIC Portal might be exploited for member use, consider the development of a new Web site targeted at an emerging topic such as food safety. The proposal for such a site might emerge on an Alliance members-only discussion channel where a commitment is then made by several members to collaborate on the development of this new food-safety site. The portal will provide these participants with a dedicated discussion channel for this new initiative, with the option to feed members-only channel highlights back to the main discussion channel. Even more novel will be the utilization of the portal as a collaborative workspace where participants can begin to prototype and deploy the new food-safety site. In fact, technologies exist today that make such collaborative "through-the-Web" site development possible. Ultimately, the enhanced efficiency of Alliance members will translate into better service for end-users.

## **Conclusion**

Building on the significant achievements made by the AgNIC Alliance in spite of the limited financial support received so far, participants have been moving quickly this year to develop plans for expansion of the Alliance through the incorporation of new members and content, and for the development of the more dynamic technical foundation outlined above. Drawing on the membership of both AgNIC and the U.S. Agricultural Information Network (USAIN), combined with interest from such organizations as the Riley Memorial Foundation, new efforts to solicit support for AgNIC and NAL through the legislative process have begun in earnest. To this end, a letter-writing campaign was instigated, targeting the chairs of the Senate and House agriculture-related appropriations subcommittees and other members, with direct contact made whenever possible. In addition, there are plans to pursue funding opportunities through traditional grants programs involving several granting agencies. Finally, it is hoped that this article will increase research libraries' awareness of AgNIC and that this, too, will lead to broader support for it throughout the library community.

## **History of AgNIC**

*by Nancy L. Eaton, Dean of University Libraries, Pennsylvania State University*

AgNIC was one of those early ideas for how to use the emerging Internet to share information across agricultural communities of scholars and practitioners. It was conceived in 1993 by George Strawn (Director of the Computation Center, Iowa State University, who was on leave to the National Science Foundation [NSF]), Nancy L. Eaton (Dean of Library Services, Iowa State University), and Pamela Andre (Associate Director and then Director of the National Agricultural Library), as a discipline-based alternative to Internet Network Information Centers (InterNICs). InterNICs were technology-oriented, discipline-

independent service centers.

From the beginning AgNIC was envisioned as an "alliance," with a minimum of formal structure and a maximum of input by "partners" in the enterprise. Although NSF changed focus in its funding priorities as AgNIC was taking shape, it was an idea whose time had come. Thus, partners agreed to forge ahead and find other sources of support. As the design for AgNIC took shape, the intent was to involve many partners, each of whom would take one or more narrow subject areas and develop them in great depth on the Web. The goals were to make AgNIC one of the first places people would look online for agricultural information and to utilize the power of the Internet to distribute and share agricultural information worldwide. AgNIC continues to be a work in progress, but it has come a very long way toward meeting its initial goals.

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## Endnotes

1. See the American Farmland Trust's Farmland Information Web site <<http://www.farmlandinfo.org/>>. [back to text](#)
2. See the Agricultural Information and Documentation System for America Web site <<http://www.sidalc.net/>>. [back to text](#)
3. AgNIC membership requirements are available on the Web at <<http://www.central.agnic.org/agnic/about/agnicMembership.html>>. [back to text](#)
4. Kellogg Commission on the Future of State and Land-Grant Universities, *Returning to Our Roots: The Engaged Institution* (Washington, D.C.: February 1999), <<http://www.nasulgc.org/Kellogg/kellogg.htm>>. [back to text](#)
5. Kellogg Commission, 3. [back to text](#)
6. Kellogg Commission, 27. [back to text](#)
7. See the "AgNIC Alliance Governance Document," <<http://www.central.agnic.org/agnic/about/>>. [back to text](#)
8. *Agricultural Libraries Information Notes* 22 (Jan.-March 1996). [back to text](#)
9. Extension Committee on Organization and Policy, *The Extension System: A Vision for the 21st Century* (Washington, D.C.: February 2002), <<http://www.nasulgc.org/publications/publications.asp>>. [back to text](#)

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