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This article is a case study of RadioSource.NET. The evolution of the RadioSource.NET project is examined with emphasis on the process of establishing and maintaining online collaborative partnerships within academia. The project's development is described and discussed, and Wheeler, Valacich, Alavi, and Vogel's (1995) framework for technology-mediated interinstitutional relationships for collaborative learning is used to help organize information and evaluate the project's effectiveness.

RadioSource.NET project is an example of successful university collaboration in new media. By utilizing a flexible system design, RadioSource.NET capitalizes on collaborative strengths such as increased innovation and efficiency, and it is anticipated that the project model can serve as a useful resource for other online collaborative endeavors utilizing emerging technologies.

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Introduction

In 1999, members from agricultural communication news departments at the University of Florida, Mississippi State University, the University of Kentucky, Texas A&M University, and the University of Georgia began to explore the establishment of an Internet radio project. Goals for the project included sharing resources, increasing online distribution of radio programming, and promoting research at land-grant universities. The project, which became known as RadioSource.NET, has grown to include sixteen member universities, and the site hosts a variety of audio programming that can be searched via a customized database.

The land-grant mission is grounded in a university outreach imperative that has continued to evolve since its origins in the 19th century. Land-grant universities serve society by providing access to higher education and professional training. Land-grant initiatives also focus on improving the welfare and social status of the agricultural and industrial community (Bonnen, 1998). Research has identified the need for land-grant institutions to find new ways to improve communication between the general public and the agricultural research community to meet the changing needs of society (Fischer & Zuiches, 1994). The RadioSource.NET member universities perceive Internet radio as an effective method to achieve this objective.

Internet technology offers distinct advantages over traditional radio programming distribution methods; among those benefits are on-demand access, 24 hours a day availability, and the ability to search and archive programming. Although project member universities also produce video programming, radio was considered a more appropriate and practical medium because the technology does not yet support broadcast-quality video for distribution via the Web. In contrast, the online audio industry offers an attractive forum for radio programming distribution. Recent advances in digital audio compression technologies, such as the MP3[1] format, have helped to generate a mass market for Internet radio programming and there are over 3,000 stations currently "Netcasting" on the Web (Cartenson, 2000). An online radio project also generated strong support from member universities because conventional broadcast radio is an

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established medium to disseminate agricultural information and has long been recognized as a preferred source of information and education for the agricultural community (Trede & Whitaker, 1998).

However, member universities faced both financial and technical limitations establishing multiple independent Internet radio Web sites. They identified a collaborative Internet project as an attractive option for entering the online environment because it would help to maximize the efforts of each university by allowing them to share resources.

There has been little evaluation of prior collaborative projects in similar communication efforts, even though this has been identified as an important area for study (Mowery, 1998; Feller, 1999). The objectives of this paper are to document the efforts of the RadioSource.NET project in order to contribute to the new media collaboration literature. First, the pros and cons of collaboration are reviewed. Then the Wheeler et al. framework for analysis is introduced. Specifics about the RadioSource project are then presented and referenced to the Wheeler et al. framework where appropriate. Finally we provide an evaluation of the project and discuss the decentralized approach needed for such collaboration in an e-environment and discuss the design flexibility of the RadioSource system that helped contribute to its overall success.

Literature Review

Increasingly, collaboration is considered an important and effective means by which to improve education quality. As technology continues to evolve and advance, new opportunities will continue to appear within the academic community. Collaborative projects can offer educational institutions advantages such as improved efficiency and increased innovation. These benefits are realized by capitalizing on economies of scale and can be especially effective regarding inter-institutional efforts in evolving technology, such as Internet broadcasting (Malone, 1998). Interfirm alliances also reduce competition among members and enhance the status and legitimacy of the collective. Collaboration provides a form of relationship or social capital by providing members "privileged access to potential exchange

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partners" (Stuart, 1998).

Despite the advantages of collaboration, some potential drawbacks have been raised. For example, while collaborations are usually considered to be economically attractive because they conserve resources, they may be inappropriate if one member is in the early stages of development of a new area of science or technology. In addition, universities may be especially concerned with protecting intellectual property rights. Collaborations also may have difficulties associated with measuring abstract benefits such as reduced duplication efforts (Mowery, 1998). Security issues may raise additional concerns regarding high-tech collaboration. Although collaborations improve cost-effectiveness through sharing technology support, members may experience anxiety about how sensitive information is shared (Alexander, 2000). Giving project members the ability to manage their own information on a collaborative site can help to reduce some of these concerns (Penni, 2000). University collaborations can also encounter difficulties stemming from differences between institutional infrastructures and curriculum (Wheeler et al., 1995).

Wheeler et al. (1995) conducted an overview of two separate university collaborative projects and produced a framework for technology-mediated interinstitutional telelearning relationships. The framework identifies five components of successful institutional collaboration: shared vision at the top; complementary skills and resources among partners; concrete plans for early success; procedure coordination; and appropriate partnership architecture. These components are explained in more detail below.

1.   Shared vision at the top. Shared vision suggests that each participating institution in a collaborative must have one or more people who "champion" the project. It is necessary that these champions consider partner diversity and agree upon common goals and objectives. This stage acknowledges that different institutions will have different reward structures and allocations. Some issues to be resolved at this stage are: What roles will individuals play in the partnership? What is the potential of the project to generate incremental resources and benefits?

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2.   Reciprocal Skills and Infrastructures. Complementary skills and resources refer to the abilities and motivations of the individuals at partner institutions. This category also encompasses the various technological partner infrastructures. Wheeler et al. conclude that there must be a degree "need" between participants in a collaborative, and that their technological infrastructures must support this interdependency. At this stage, Wheeler et al. pose questions such as "Who is responsible for project definition, design, development of materials and execution of project activities?"

3.   Concrete Plans for Early Success. Demonstrating value quickly to internal and external agents will help the long-range success of the project by generating support for current and future efforts. One manner by which to do this is to keep initial efforts simple so that goals can be reached quickly and successfully. This is especially important if the project has a small amount of start-up funding.

4.   Coordination of Procedures. This item concerns practical issues such as how information will be shared among partners.

5.   Appropriate Partnership Architecture. The risks and rewards of a collaborative relationship should be structured so that partners make contributions within their particular level of comfort and ability. Wheeler et al. suggest that institutions ask what short and long-term commitments they must make in order to make the partnership a success.

Wheeler et al's framework was devised to examine the "issues and implications of developing and maintaining partnering relationships among universities." As such, it was considered to be an appropriate method of analysis for this study because of the collaboration of land-grant universities that lead to the RadioSource.NET project.

Inception

The Internet radio project was originally funded from 1999 through 2000 with a grant from the USDA Agricultural Telecommunications program administered by the American Distance Education Consortium (ADEC)[2]. Five state universities

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were named on the original proposal: Mississippi State University, the University of Kentucky, Texas A&M, the University of Florida (UF) and the University of Georgia. In the Wheeler et al. study, the first two components, shared vision at the top and reciprocal skills and Infrastructures, were met by these initial partners. Each university had a "champion," most often the Director of the Agricultural Communications department, advocating the project, and infrastructure at the individual sites supported a collective mission.

Although all members would contribute ideas to the project evolution and programming to the final project, the University of Florida's Institute of Food and Agricultural Sciences (IFAS) Communication Services (ICS) was responsible for the project design and development. ICS hired a project coordinator and database programmer to work on the project. These people helped to direct the project in accordance with the requirements of the Wheeler et al. model by identifying specific roles within the partnership. The coordinator was the point of contact for all participants and arranged conference calls and other communication.

An immediate challenge ICS faced was that at the project's initiation in December 1999, the industry had not yet standardized online audio formats. There are two basic types of Internet audio: downloadable and streaming. Downloading a file involves copying data from a remote computer to a local computer. This method requires the user to wait until the entire file has been copied to his or her computer before listening to the content. Streaming audio plays directly from the originating server into the user's computer, enabling the user to receive data almost instantaneously. As such, the user does not retain a copy of the streamed information. Both types of audio have advantages and disadvantages. Because the user does not need to wait for the entire program to load before listening, streaming media usually makes files available more quickly than downloadable formats. However, streaming media is generally considered a lower quality media than downloadable material (Kennedy, 1999).

Several formats are available to download both types of online listening. Popular downloadable formats include WAV, MP3, and

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AIFF (for use on Apple/Macintosh systems). Streaming formats include Real Audio, and QuickTime. The member universities' news departments reflected the diversity in the online audio industry. They had varying levels of online audio infrastructure, programming, technical expertise and capital expenditures. For example, Mississippi State University had been streaming its *Better Farming* and *Southern Gardening* radio programs since October 1999 using Real Audio, and Texas A&M was preparing to launch its AgNet service on Jan. 31, 2000 using a combination of downloadable and QuickTime streaming formats. The Texas A&M site would also have still photos and radio scripts accompanying stories.

Reasons for choosing one audio format over another include budget, preference, technical expertise, and quality requirements. A key objective of the project was to share resources in order to minimize costs associated with the transition to online broadcasting. Structuring the project with a predetermined common audio standard would limit each university and was considered inappropriate considering the lack of industry standardization. Two participating universities had already begun online efforts using differing audio formats, and the collaboration hoped to expand its membership base in the future. Towards this end, the collaborative decided that a flexible system design was necessary in order to accommodate institutional diversity (such as program length, differing audio format preferences, budgets, and personnel). In an exploratory study of communication resources in collaborative design environment, Gay and Lentini encouraged the design of flexible systems that can adapt to the changing needs of individuals and society (1995).

The geographic separation of member universities raised additional coordination challenges. The physical distance between participating universities made face-to-face coordination difficult. Wheeler et al. refer to this remote information sharing as "Coordination of Procedures." To ensure collective input and distribution of information, the RadioSource collaborative holds monthly conference calls and maintains an electronic mailing list, or listserv. During conference calls participants discuss site structure, marketing strategies and Web audio industry updates. ICS also provides relevant site development updates.

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The electronic mailing list was established to promote additional input and information distribution, and each member of the collaborative can directly post to the list. Both the conference calls and email list included technical and administrative personnel from each university. This multilevel inclusion helped to address a wide range of concerns in the early planning stages and continually throughout the project. Both formats are an excellent resource for member universities, as they provide a forum for members to pose questions to departments who have direct experience in similar ventures.

Execution

Wheeler et al. (1995) caution that collaborative projects must demonstrate value to internal and external agents within a relatively short period of time in order to maintain continued support. Toward this end, ICS decided to create a system that would fulfill the collaborative's current needs, but be flexible enough to grow and evolve in the future. This would enable ICS to produce a preliminary functional system within the time limit of the initial grant. The initial grant had been awarded for a one-year period, and it was felt that a tangible product had to be developed within that time frame in order to generate continued financial support.

The project members envisioned three potential audiences for their content: radio stations, extension agents and the general public. Radio stations became an important target market following a survey Texas A&M conducted prior to the launch of its Agnet site in its home state. The results showed interest by radio stations and an existing ability to receive programming via the Internet. These results validated a perception that distributing programming to radio stations via the Internet was a major incentive for posting online. Traditionally, news departments had distributed programming by mailing out tapes or CDs. If radio stations could download programming directly from the Internet, the expensive and time-consuming duplication process could be reduced or eliminated. Posting programming online would also support extension efforts, and increase general Internet audience access to land-grant information.

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One of the first steps was to name the project and outline a system design. RadioSource.NET was chosen, in part, because the project was promoting land-grant research to new audiences, and it was felt that a more generic name would appeal to a broader audience base and reduce potential preconceived biases associated with more conventional agricultural reporting. The RadioSource.NET name reflected the project mission: to provide an Internet source for radio news. In addition, the RadioSource.NET URL was available amidst the cyberspace name grabbing that has occurred over the past several years.

The broad audience range required the site to be easy to navigate to accommodate users at varying levels of technical ability. Many users do not have high-speed connections and so the project designers considered the time necessary to download audio content from the site and focused on providing only relevant information for the user. The site was designed to be as simple, informative, and easy to navigate and use as possible, despite the intrinsic technical issues (for the provider) surrounding Internet audio.

The RadioSource system functions as a niche portal site. A portal site is a type of gateway for World Wide Web access. General portals include high profile sites such as Yahoo, Excite, Netscape, Microsoft Network, and America Online's AOL.com. Niche portals are more specialized information directories that enable users to log onto one site and access information from multiple locations and vendors. The portal structure decentralizes content management, minimizing the burden of site maintenance and supporting the project's goal to provide long-term viability and availability of the information. Each member retains its files on a server housed within their own facilities. However, all the information can be retrieved and displayed with a uniform presentation on the RadioSource.NET portal site.

A central database, linked to the portal, was identified as the most effective means by which to organize the large variety of audio content that members produced. ICS developed a tailored database that sorts information in several ways. Users are able to search for information topically, geographically, or by date. A keyword search can also be used to further narrow search results.

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The topic list categories were designed to appeal to a more general audience than traditional life-science terminology (e.g., including both "insects" and "entomology" in the topic heading).

Other options were included on the site to accommodate additional services not available from all members. For example, some members posted online scripts of their audio files while others did not. Thus, instead of lowering technical requirements for inclusion to the lowest common denominator (i.e., all members have to provide a service for inclusion), the project designed a broadbased set of options for member inclusion that are available on a case-by-case basis. If a member had scripts to post they could easily do so: if they did not, a not available (n/a) graphic would appear in place of the script link on the results page.

Similar design options were created to present a uniform audio display. The database allows up to five formats to be entered for each posted file (See Appendix A). The database can process streaming or downloadable files, or any combination thereof. Members can decide which audio formats best serve the needs of their particular program in terms of audience, budget, and technical requirements. In addition, by not limiting formats, the RadioSource system designers retain the ability to accept new format technologies that will appear in the future. This design adaptability allows the project to evolve and continue to support future members' efforts. Concerns regarding inconsistent formats from state to state were discussed, but it was decided that the flexibility achieved outweighed the lack of uniformity. Also, most audio players are capable of playing different formats so it was considered unlikely that individual users would have difficulty accessing programming from different states. Program length and style was also flexible. Currently, program lengths vary anywhere from 30 seconds to 15 minutes. To show the user what programming is available, the "Result" page provides the following information on a file: story title, length, description, format(s), and script (if available) (See Appendix B). To further streamline the maintenance process, and increase member autonomy, a "Kill Date" function was added to the entry template. This function gives the individual the option of entering a date for a particular audio file story to drop out of the system. This would be appropriate and desirable if a story had a limited, identifiable

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life span.

Once the portal site was built, database content was entered for a six-week period prior to the official site launch on September 1, 2000 by members contributing existing files from their archives.

Data was entered online via password-protected forms on the Web site (see Appendix A).

Surveys were also conducted by several of the member universities within their states to help direct their specific needs from their user-base. From these surveys an additional online survey was created and placed on the Web site to assist us with a more general assessment of user-base needs.

Launch/Marketing

The RadioSource marketing strategy is similar to the philosophy that fueled the project's conception: maximize the benefits of the collaborative format to increase visibility, while minimizing personnel and cost involvement. Towards this end, member institutions contribute to a national marketing campaign to promote their programming and RadioSource to commercial radio stations and to the public. Prior to the site launch, each member's agricultural communication department was asked to notify its appropriate university contacts and state extension offices in order to promote awareness and market the project internally. This was primarily achieved via email notification, although hard copy newsletters and word-of-mouth were also incorporated. Several members also distributed press releases (outside of the university) to announce their participation in the project.

External marketing efforts for RadioSource.Net began at the same time. Goals include increasing traffic to the site and user retention. Towards this end, the marketing plan incorporates several types of strategies including online promotion and traditional direct marketing.

The site is registered with search engines, and link requests to appropriate sites are made continually. Site links have been identified as an important part of an online marketing and

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growth strategy. A study conducted by the Georgia Institute of Technology concluded that most people find new Web sites from other Web sites (Tracy, 2000). Marketing efforts have also included production of promotional items for distribution, such as T-shirts, pens, Rolodex cards, and brochures. These items are distributed at conferences and through direct mailings. Because multiple members are directly involved in the project, RadioSource is able to have a representative at many more conferences and events than an independent organization and increasing the project's visibility significantly.

A press page link was also added to the site and includes an online version of the brochure as well as a link to press releases about the project. The press page is an effective marketing resource for online promotion. The coordinator can email radio stations and use the press page as a promotional piece, similar to direct mail campaign, but there are no shipping costs. In addition, the only production cost is for a one-time setup of the page, in contrast to additional costs for making multiple hard copy brochures.

Creating a unified cross-platform marketing plan for RadioSource has reduced the burden on each individual state to produce promotional materials for their programming. In some cases, member universities may want to modify the materials for their own specific use or to highlight their role in the project, but overall, duplication efforts have been reduced through overall collaborative efforts. For example, the brochure can easily be adapted to fit the needs of an individual university program for distribution in a particular state.

Evaluation

Response to the RadioSource.NET site has been positive from both the commercial and academic spheres. The Internet is a revolutionary medium for disseminating information. The RadioSource.NET project aims to educate and inform populations about important issues that are relevant to their lives. Radio has long been a primary and preferred means for lower-income and rural populations to receive information. Internet technology eliminates the need for people to tune in at a particular time to

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hear programming and allows users to access material on demand 24-hours a day. The search engine capability provides users additional autonomy and increases the value of the data substantially.

Because the Internet is accessible worldwide, the RadioSource. NET portal site has received an increasing number of hits from international users. In particular, users from Canada, Europe and Asia have been accessing the site programming. The project principals also have begun developing relationships with similar international entities such as the Russian Rural Information Network (http://www.fadr.msu.ru/radio/radio-e1.html) and Farm China. Now that former restrictions on information have been lifted, organizations like these are working toward obtaining agriculture programming and have found the RadioSource site a valuable resource. In addition, the inclusion of Spanish programming on the site helps RadioSource target Hispanic communities both abroad and in the United States. Hispanics are the fastest growing sector of the U.S. population ans also represent an important faction of agricultural workers.

The collaborative is looking ahead to the future and anticipates that online distribution to radio stations will become increasingly common and desirable. Several universities have already begun to provide online distribution to radio stations, reducing shipping and equipment costs. Providing programming on-line also makes news available in real-time. The RadioSource.NET site launched in September 2000. Statistics tracking shows a consistent increase in usage from various commercial and independent sectors. Exposure for the project is growing and feedback has been very positive.

Six months after the site launch, over 1300 radio stories had been entered into the RadioSource.NET database by the participating schools, and the project received news coverage in industry Webzines such as agriculture online and DirectAg.com.

The project is also an excellent forum to improve communication between universities. Agricultural students, extension agents, researchers and teachers can quickly and easily see the research being done at institutions around the country. Since the site launch, eleven additional universities have joined the collaborative

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(University of Arkansas, University of California, University of Illinois, Kansas State University, Louisiana State University, New Mexico State University, North Carolina State University, Purdue University, South Dakota State University, University of Tennessee and Virginia Tech).

Limitations

The two case studies used to generate the Wheeler et al. framework only included two schools in each instance. The RadioSource.NET project had five members from its inception and continues to grow. It would be helpful for future studies to examine interactions among larger collaborations. In addition, the Wheeler et al. study evaluated collaborations regarding education in a class structure while the RadioSource project targets audiences outside of a classroom. Therefore, strict comparisons may have reduced validity.

The continual evolving nature of the project makes evaluation more difficult. Universities can join RadioSource.NET at nonspecific intervals and the site is in a constant state of growth. The decentralized nature of the project also imposes limitations upon tracking particular audio file download statistics. Because member universities retain their audio files on their own servers, the central coordinator does not have direct access to file download statistics.

Conclusions

The RadioSource project has established an Internet network that land-grant universities can join that supports their current radio programming efforts and enables them to enter the online market with minimal financial and technical resources. The flexible system design supports continual growth and allows for technological industry advances. Flexibility allows the collaborative to grow, and helps to set realistic initial goals that can be adapted as the collective evolves.

Partnering provides a strong base for marketing and promotion, and a collaborative enterprise has the potential to generate more visibility and interest by larger networks than separate individual efforts might. In particular, portal sites are considered successful

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ventures for attracting large audiences. In addition to economies of scale in marketing, IT duplication efforts are reduced among members in the RadioSource project.

Applications for Internet broadcasting are still being discovered. By pooling resources, both financial and creative, RadioSource members have generated a body of knowledge concerning the emerging and evolving Internet and digital broadcasting technologies for the network participants. As this technology evolves, cooperative efforts can continue to stimulate collective learning and help the member universities maximize their resources. Universities have an advantage over many industrial sectors in this capacity as they do not have many of the same competitive pressures as industrial firms might. The land-grant mission focuses more on education and diffusion of information than market segmentation. Collaborative efforts increase the amount of site traffic by cross-linking, increasing visibility, and enhancing credibility.

RadioSource has succeeded in part because it clearly organized participant roles, and identified and provided clear benefits for joining (e.g., increased audience base, online distribution, centralized marketing force), and the project was able to support independent levels of partnership. Membership in such collectives can offer a combined value to academic institutions that is greater than the sum of its parts. Within the first month of operation, over 250 radio spots were entered into the RadioSource database by six member universities. Now in operation for over one year, the database maintains an active database of over 1,500 audio files. The significant amount of material generated on the network site illustrates the enormous potential of university collaboration for this, and other similar projects. It is anticipated that this type of niche-portal model can be effectively implemented using other emerging technologies as well, such as online video distribution.

Appendix A

RadioSource.NET Member Input Screen

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Appendix B

RadioSource.NET Search Results Page

RadioSource Input Page

Title:	
ShortTeaser:	
Keyword 1:	
Keyword 2:	
Keyword 3:	
Keyword 4:	
Keyword 5:	
Topic:	▼
Contributing University:	▼ State you are in ▼
Kill Date:	Enter a Kill date below if you want story removed from database. OR check N/A below. Month: ▼ Day: ▼ Year: 2002 ▼ Check if N/A ☐
Contact Name:	
Contact Email:	
Prog. Length:	in minutes and sec. (ex. 3:15)
File 1: Any Sound Format	This field can't be blank, at least have "http://" as minimum. http://
File 2: Any Sound Format	This field can't be blank, at least have "http://" as minimum. http://
File 3: Any Sound Format	This field can't be blank, at least have "http://" as minimum. http://
File 4: Any Sound Format	This field can't be blank, at least have "http://" as minimum. http://
File 5: Any Sound Format	This field can't be blank, at least have "http://" as minimum. http://

Transcripts:
Must be http:// file ending in ".html" or ".htm"

[Reset Form] [Submit Form]

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Endnotes

[1]MP3 stands for MPEG 1 (Motion Picture Experts Group) Layer 3. MP3 is a digital audio compression format that reduces sound

Search Results

ARCHIVE Month **01** Day: **01** Year: **00**
SEARCHING STRING: No_keyword_used

Your Results are as follows

CLIP INFORMATION	Click to listen	SCRIPTS	UNIVERSITY
1.) **TITLE:** Mosquito Diet **DESCRIPTION:** UF reserachers have developed a natural way to kill moquito larvae **LENGTH=** 1:31	MP3 WAV	N/A	University of Florida
2.) **TITLE:** Better Farming - 12/04/02 **DESCRIPTION:** MSU Extension Entomologist Dr Blake Layton talks about results of a just completed survey about cotton insect losses in Mississippi in 2002 **LENGTH=** 5:00	REAL MP3	N/A	Mississippi State University
3.) **TITLE:** West Nile virus **DESCRIPTION:** Animal scientists and livestock industry leaders are bracing for what they believe could be a serious disease issue in California next year Robert Singleton has more from the University of California **LENGTH=** 2:34	WAV MOV REAL	N/A	University of California
4.) **TITLE:** Harvest crews left holding the GWSS bag **DESCRIPTION:** Researcher are convinced their theories are correct in tracking the movement of a rapidly spreading insect borne citrus tree disease Robert Singleton has an update from the University of California **LENGTH=** 1:42	WAV MOV REAL	N/A	University of California
5.) **TITLE:** New urban insect pests **DESCRIPTION:** They slipped into California s Central Valley this year but no one knows how Yet they are here to stay Robert Singleton fills us in on another insect pest invasion issue in today s report from the University of California **LENGTH=** 2:20	WAV MOV REAL	N/A	University of California
6.) **TITLE:** Emerging almond tree pest expanding its California range **DESCRIPTION:** Whether it s called a June Bug Ten Lined Beetle or June Beetle for Central Valley farmers they re all the same enemy requiring the same eradication technique Robert Singleton updates us on the latest tree pest issue farmers may be facing some time soon **LENGTH=** 2:30	WAV MOV REAL	N/A	University of California
7.) **TITLE:** Watch Out For Ticks **DESCRIPTION:** Georgian s need to be concerned about diseases transmitted by ticks during the fall months **LENGTH=** 1:34	WAV MP3	Script	University of Georgia
8.) **TITLE:** College Research On Malaria Control **DESCRIPTION:** College scientists recently made a discovery that could lead to new methods for controlling malaria **LENGTH=** 1:43	WAV MP3	Script	University of Georgia
9.) **TITLE:** Stinging Insects More Aggressive During Fall **DESCRIPTION:** The fall months can be painful if certain stinging insects get angry **LENGTH=** 1:18	WAV MP3	Script	University of Georgia
10.) **TITLE:** Fire Ants **DESCRIPTION:** The rapid northern progression of fire ants is beginning to slow a little in Tennessee **LENGTH=** 1:55	WAV MP3	N/A	University of Tennessee
11.) **TITLE:** Biting Red Mites Make You Itch **DESCRIPTION:** If some tiny insects bite into you be prepared for a lot of itching and scratching **LENGTH=** 1:25	WAV MP3	Script	University of Georgia
12.) **TITLE:** The corn leafhopper target of intense agriculture studies **DESCRIPTION:** It has taken awhile but agiculture scientists now think they know how cropland insects play hide and seek **LENGTH=** 2:41	WAV MOV REAL	N/A	University of California
13.) **TITLE:** Africanized honey bee migration still on course **DESCRIPTION:** Although the meandering flight of the bumble bee may seem erratic and without purpose the migratory flight of the Africanized honey bee remains steady and sure Robert Singleton reports from the University of California **LENGTH=** 2:13	WAV MOV REAL	N/A	University of California
14.) **TITLE:** West Nile Virus Alert Issued **DESCRIPTION:** http www ift uiuc edu 2002 if020607 west_nile pdf Mosquitoes through out much of the nation may carry the West Nile Virus While it can sometimes be deadly more often than not the infection goes unnoticed Todd Gleason files this report on the virus and how people can protect themselves **LENGTH=** 2:36	REAL MP3	Script	University of Illinois
15.) **TITLE:** Honey bees (part 2 of 2): California honey bee disaster averted (short version) **DESCRIPTION:** This year California s almond growers could have been in serious trouble if Mother Nature had not intervened Robert Singleton has more from the University of California **LENGTH=** 1:17	WAV MOV REAL	N/A	University of California
16.) **TITLE:** Honey bees (part 1 of 2): California honey bee disaster averted (long version) **DESCRIPTION:** This year California s almond growers could have been in serious trouble if Mother Nature had not intervened Robert Singleton has more from the University of California **LENGTH=** 2:35	WAV MOV REAL	N/A	University of California
17.) **TITLE:** College Scientists Battle Sweet Potato Weevils **DESCRIPTION:** College scientists are working to control an insect pest that causes a lot of problems for sweet potato growers **LENGTH=** 1:30	WAV MP3	Script	University of California
18.) **TITLE:** Better Farming - 05/07/02 **DESCRIPTION:** MSU Extension Entomologist Dr James Jarratt talks about the risk of disease if you re bitten by a tick how to reduce the risk of getting bitten by ticks and how to remove a tick from your body **LENGTH=** 5:00	REAL MP3	N/A	Mississippi State University
19.) **TITLE:** Ticks are abundant problem in Arkansas this spring **DESCRIPTION:** LITTLE ROCK The University of Arkansas Cooperative Extension Service is warning Arkansas residents that ticks have become a serious problem in the state **LENGTH=**	WAV MP3	N/A	University of Arkansas
20.) **TITLE:** Guess who's coming to a yard near you **DESCRIPTION:** LITTLE ROCK April has been proclaimed as fire ant awareness month in Arkansas **LENGTH=**	WAV MP3	N/A	University of Arkansas
21.) **TITLE:** Insect pest management researchers always on the lookout for a new trick **DESCRIPTION:** During warfare stealth and deceit are coveted secrets for defeating the enemy In California agriculture scientists are applying similar tactics against an old orchard pest Robert Singleton reports on this insect pest management alternative in today s update from the University of California **LENGTH=** 2:57	WAV MOV REAL	N/A	University of California
22.) **TITLE:** Africanized honey bee seems ready for another move northward **DESCRIPTION:** Agriculture scientists believe the notorious Africanized honey bee is still heading northward right up the middle of California s great Central Valley A progress report concerning the bees movements is the subject of today s update with Robert Singleton at the University of California **LENGTH=** 2:32	WAV MOV REAL	N/A	University of California
23.) **TITLE:** **DESCRIPTION:** griculture scientists are devising new tactics for outsmarting troublesome insect pests Robert Singleton reports from the University of California **LENGTH=** 2:20	WAV MOV REAL	N/A	University of California

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files by 10-15 times. Despite its high compression rate, MP3 files retain most of the perceived audio fidelity by stripping out the waveforms that the human ear doesn't process (Angry Coffee Web site).

[2]ADEC is an international consortium of state and land-grant institutions. ADEC promotes distance education programming and services (ADEC Web site)

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