



JOURNAL OF THE NACAA

ISSN 2158-9429

VOLUME 3, ISSUE 1 - JULY, 2010

Editor: Donald A. Llewellyn

SUCCESS OF A RADIO-BASED IPM CAMPAIGN IN NORTH DAKOTA: A REPORT ON TEAM EFFECTIVENESS, PROGRAM COSTS AND CAMPAIGN OUTCOMES

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ABSTRACT

Radio is a powerful mass communication medium for the transfer of agricultural information to crop producers. Radio campaigns can be more impactful if information is synchronized with other communication channels like newsletters and Websites. This article describes an Extension integrated pest management (IPM) campaign conducted in North Dakota during 2007 and 2008 that aimed at combining radio-based information delivery system with paper and Internet publications for weekly diffusion of IPM recommendations to farmers. Several Extension Agents participated in the weekly radio broadcasts in order to report pest outbreaks, crop scouting observations, and IPM recommendations that were adopted by farmers. Success of the radio-based IPM campaign was indicated by the strong financial support that the campaign generated via sponsorships (\$4,000+) and the doubling of broadcast time due to requests from farmers. Based on the information compiled after one full year of IPM campaign, the cost of radio broadcasts was approximately \$1.26 per listener per year with a 15% increase in IPM adoption rate. This is the first study in United States that documents the cost effectiveness of radio for Extension IPM campaigns.

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Introduction

Cooperative Extension aims at providing transformational learning experiences to clientele by using a combination of traditional and advanced delivery systems (Boone, 1992; Davis, 2006). Although the use of Internet is common in the United States, the use of radio for Extension campaigns has lagged as suggested by rarity of journal publications on this topic. Radio shows, integrated with on-site workshops, have been used with limited success in transmitting agricultural information (Bentley et al., 2007) and family nutrition exercises (Romero-Gwynn & Marshall, 1990). However, those published accounts of radio-based campaigns were discontinued due to cost and time issues. The synchronized use of radio, the Internet, and print publications for promoting integrated pest management (IPM) was an untested concept till the completion of this study.

Methodology

Need for multi-channel outreach initiative: In 2007, a paper-based Extension IPM survey of crop producers was conducted in ten southeastern counties of North Dakota, namely, Barnes, Cass, Eddy, Foster, Grand Forks, Griggs, Nelson, Steele, Stutsman, and Traill. The survey questionnaire was designed by Extension Agents (listed under Acknowledgement) and approved by the Institutional Review Board of North Dakota State University (NDSU), Fargo. The survey indicated that 37% respondents (n = 504) referred to the Extension print publications and about 16% searched the Internet to make an IPM decision (A. Majumdar,

unpublished data). The survey also indicated that 66% and 20% farmers had broad-band and dial-up Internet facility, respectively. The average use of radio for learning about agricultural information was about 8% with high variability (4 to 15%) between surveyed counties. Overall, the IPM survey supported the concept of integrating multiple communication strategies for quickly transmitting IPM information to growers.

Radio-based IPM campaign: The Counties that were surveyed in 2007 received broadcasts at 105.5 FM from a popular rural radio station called KMAV Studios (Mayville, ND). This radio station has about 21,000 listeners comprising of many farm families, home owners and local agribusinesses. There was no Extension IPM program from this radio station prior to the launch of the IPM campaign; therefore, the station manager was invited to collaborate with NDSU Extension Service to support the development of a weekly IPM radio show. In the April of 2007, a team of 11 NDSU Extension Agents initiated the "Ag Alert on Radio" show. Each edition of Ag Alert had two 15-minute pre-recorded reports from Extension Agents regarding current IPM issues in row crops, commercial and home horticulture, and livestock. The total broadcast time for Ag Alert was 35-minutes per edition and about 38 editions of Ag Alert were transmitted in 2007-2008. This Extension IPM radio show was publicized for sponsorship through local newspaper advertisements and distribution of information brochures at various Extension events. The Steele County Extension Website (www.ag.ndsu.edu/county/steele) was modified to serve as a digital archive for Ag Alert radio shows; on-line visitors could download the full shows free of charge. IPM information discussed on the radio was also published in the Extension newsletters (150 subscribers) and posted on the Steele County Extension Website.

Outcomes of the IPM Campaign

There were many indicators of success for the radio-based IPM campaign. The project generated strong IPM messages that were easily understood by the diverse clientele. Ag Alert on Radio generated over \$4,000 in direct sponsorship from many agribusinesses, including seed and chemical companies who ranked the Extension show as exceptional. The generated funds were utilized for sustaining the IPM campaign and for increasing the broadcast time of Ag Alert. In other words, the 35-minute modules were repeated twice each week in 2008 due to strong demand from listeners for the IPM information. Based on the NDSU Website statistics (2009), number of server requests for the Steele County Website (i.e., Ag Alert archive) increased from 44 per month (average) before launch of the radio show to over 2,000 per month after the launch of the radio-based IPM campaign. The number of radio show downloads exceeded 30 per month. Such on-line information usage patterns suggest that a Web-based radio archive enabled clientele beyond the normal transmission range of KMAV to listen to the IPM information. Thus, a multi-faceted and high quality IPM campaign resulted in attracting visitors beyond the County lines.

Feedback surveys collected during various field events conducted in August and September, 2008, indicated that 67% respondents used the upgraded Steele County Extension Website for IPM information and 100% respondents who lived in the KMAV listening area were aware of the IPM radio show. Surveys also indicated that 15% respondents had actually listened to one or more radio programs and utilized the information for IPM decision-making (e.g., reduction in the number of insecticide applications for late-season soybean aphid control). One farmer commented, "I listened to the radio program and called in when I needed further information. Through this IPM campaign area farmers were able to avoid both crop losses through timely insecticide applications and save money by not applying unnecessary insecticides. For example, when I avoided one insecticide application on my soybeans I saved \$12,000." There were many other encouraging remarks from listeners to indicate success of the first radio-based IPM campaign. Extrapolating from the survey findings and considering the annual broadcasting cost as \$4,000 per year with a 15% IPM adoption rate due to the radio-based campaign (i.e., 3,150 persons in KMAV listening area benefited from technology transfer), it is estimated that the cost of this radio-based IPM campaign was about \$1.26 per listener.

Interestingly, the Bolivian study reported by Bentley et al. (2007) is the only previously reported study that estimated the cost of a

radio-based educational campaign as \$0.42 per listener. Thus, there is evidence that radio is a cost-effective communication channel for timely dissemination of IPM information to farmers that can cause desired behavioral changes and create high impact on rural populations.

Future implications

As shown in this article, radio is a cost-effective communication channel that can benefit Extension campaigns by transmitting clear and distinct messages to farmers. This study has demonstrated that full-length radio shows can be developed with team effort and publicized for generating public support to sustain the educational campaign. Farmers who listened to the IPM information over radio used that information within the season in order to make substantial profits. Future efforts for the county level Extension programs may include greater integration of traditional and modern approaches for rapid technology transfer and promote technology adoption among the low resource and new farmers.

Acknowledgement

Authors wish to acknowledge the following individuals from the NDSU Extension Service for participating in the IPM surveys and the radio programming: John Kringler, Cass County Extension; John Swenson, Griggs County Extension; Kendall Nichols, Traill County Extension; Lesley Lubenow, Pembina County Extension; Nels Peterson, Nelson County Extension; Randy Gruneich, Barnes County Extension; Steve Sagaser, Grand Forks County Extension; Tim Becker, Eddy County Extension; Wendy Becker, Foster County Extension.

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