Mapping the Pathways for Effective Dissemination and Education between Manure Nutrient Management Agriculture Professionals

Project Background

While manure is recognized in the agricultural industry as a valuable source of nitrogen, phosphorus and organic material for plant growth, the point and non-point source discharge of nutrients and bacteria can be detrimental to water-quality if manure is not properly managed.

A significant amount of effort and money has been invested into developing nutrient management research and programs, but there are substantial barriers preventing the flow of information between research and educational projects and programs and agricultural professionals that limit the impact and usefulness of those efforts. Additionally, education strategies differ between persons, projects, organizations, and regions and the success of educational outreach programs are affected by voluntary versus mandatory adoption policies, further highlighting the need for tailored programming and content delivery (Shepard, 1999; Poe et al., 2001).

A pathway from information producers to users is vital. By providing a pathway to audience types and needs, organizations can realistically identify the target groups for specific project outcomes and produce tailored products, information sources, and formats for end users. A hierarchical pathway also allows organizations to select project partners from specific agencies in their regions to communicate with directly and produce a tailored and impactful product.

Project Goals

- Delineate pathways for how manure nutrient management information is gathered, shared, and used and gain an understanding of information flow barriers.
- Develop a model for effective pathways of information dissemination of manure nutrient management from research to implementation.
- Provide the project team and agricultural professionals information on how manure nutrient management information is gathered and shared and the barriers to sharing.

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Methods

A survey was developed to evaluate the relevancy of current information and the barriers to information, dissemination, and partnerships. A pilot of the survey was distributed via cooperating agencies, organizations and personal contacts to technical service providers, producers, university personnel, regulatory personnel, private sales or service enterprises and other professionals who contribute to manure nutrient management in South Dakota. Following the pilot, the survey was distributed nationwide using a purposeful snowball sampling technique. The survey was distributed to several professional and producer mailing lists and listervs associated with manure management. The pilot survey and the survey results from the nationwide survey were compiled. 964 surveys were completed in total with 187 respondents failing to complete the survey in its entirety.

Results

The respondents were geographically distributed among 49 states (98%) and four Canadian provinces (1%). Over 50% of the responses were from six states: Pennsylvania (13.2%), South Dakota (9.4%), Nebraska (7.7%), North Dakota (7.2%), Ohio (7.0%) and Oklahoma (6.4%). Survey respondents trended male and older with the median age between 55-64, however results show increased female engagement among younger age categories. The distribution of organizational categories shows that more than 10% of the total survey responses were individuals from University/Extension, Government Non-Regulatory Agencies, Government Regulatory Agencies, Producers, Special Government and Sales/Private Enterprise roles. The largest concern for respondents with regards to nutrient management was surface and ground water, followed by soil and then crop issues.

Information Gathering Patterns

- Results demonstrate that across roles respondents found field experiences, professional development, science-based sites, and consultation the most relevant avenues for obtaining information. Press and media, decision tools, and social media were found to be the least relevant information sources.
- Producers identified consultation as the most relevant resource.
- Time commitment was the largest barrier for all information resources with the exception of press and media and social media, where the main barrier was low source credibility.

Information Dissemination Patterns

- Field experiences, consultation and professional development were the most relevant sources of information dissemination. Social media, press and media and decision tools were the least relevant.
- In line with information gathering, producers noted that consultation was the most relevant for information dissemination, followed by field-based experiences.
- Technical information channels were more relevant than non-technical information channels.
- Overall, the biggest barrier to information dissemination was the high-time commitment. For social media, press and media, and decision tools the largest barrier was lack of audience relevance.

Results indicated that all groups found relevant collaboration with producers. Producers felt the most relevant collaborations were with fellows producers, University/Extension personnel and state agency staff. The biggest barriers to collaboration were that it was not relevant to their job, or they did not have a relationship with the entities listed.

The survey results were graphically depicted using Mind Jet software to better demonstrate statistically significant links or pathways between different organizations, types of information, and potential barriers.

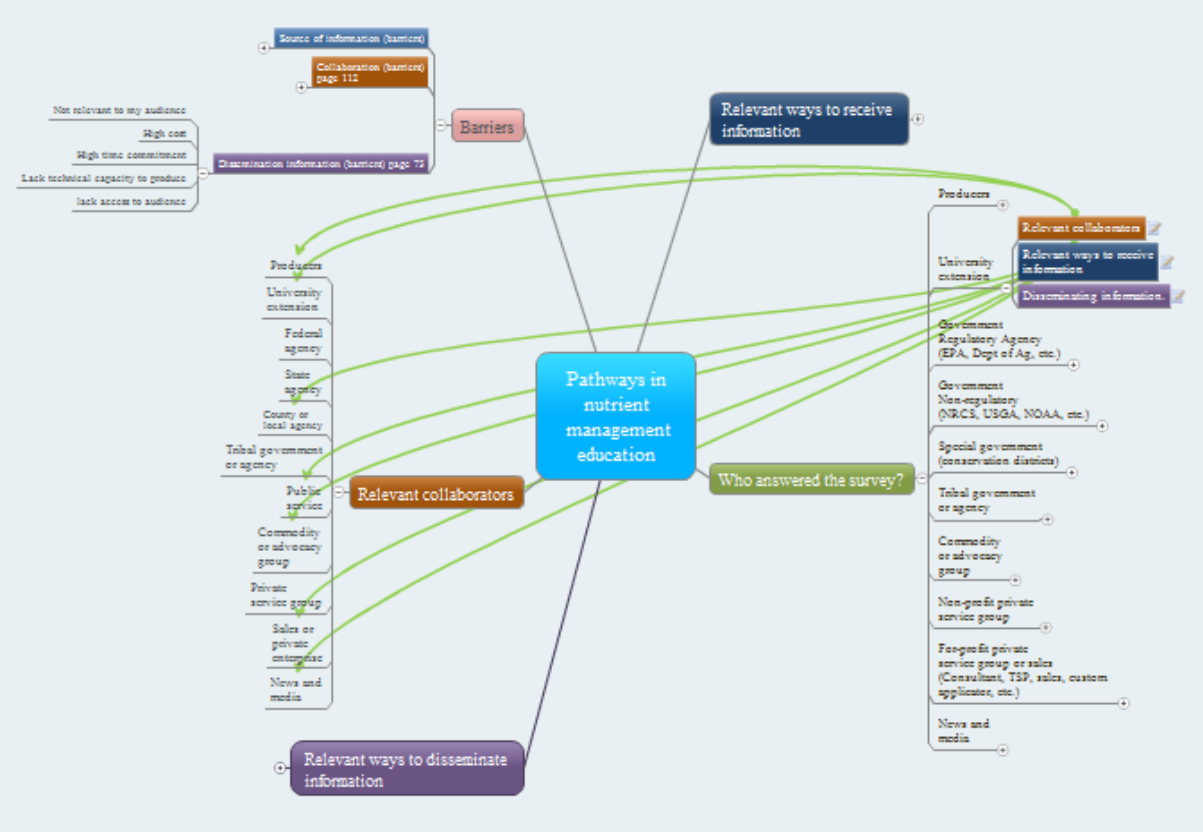

Figure 1. *Example links between the University/Extension audience and relevant information sources, using the mind map of the Pathways survey results*

Key Takeaways

- Decision tools appear to lack relevance for information gathering and dissemination.
- Field experiences, consultation, and professional development were the most relevant across roles for information gathering and dissemination.
- The biggest barrier to these information sources was their high time commitment. Conversely, those information sources with low time commitment often brought concerns of low source credibility or lack of relevance.
- Collaborations with producers are relevant across roles.

Lessons Learned

Project team members and project team affiliates indicated they increased their understanding of nutrient management information flow as a result of this project. Using a scale of 1 (not at all) to 4 (a large extent), project team members increased their understanding of where manure nutrient management information is obtained by different audiences (M= 3.69), the relevancy of the different types of products for different manure management audiences (M= 3.46), the importance of cross-audience collaboration for nutrient manure management (M= 3.69), and the relationships between audiences that use and disseminate manure nutrient management information (M= 3.54).

"…this was a new way of thinking about the whole process of creating programs and planning them"

"Visually seeing the pathways of communication/education and related demands or expectations regarding waste and nutrient management helps me to better the development of related programs"

Sharing Results

This information was presented at the 2015 Waste to Worth Conference in April of 2015, and presented at a Livestock and Poultry Environmental Learning Center (LPELC) Webinar in November 2015. Each presentation shared project methods and results, and provided key information on how manure nutrient management professionals learn, share, and collaborate. An audience survey following the LPELC webinar demonstrated that all respondents deepened their understanding of how people get their manure nutrient management information, with 78% indicating they moderately to significantly improved their understanding.

References

Poe, G.L., N. L. Bills, B. C. Bellows, P. Crosscombe, R. K. Koelsch, M. J. Kreher, and P. Wright. 2001. Will voluntary and educational programs meet environmental objectives? Evidence from a survey of New York dairy farms. Review of Agricultural Economics 23(2): 473–491.

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