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Leslie A. Everett

University of Minnesota, evere003@umn.edu

Kevin Blanchet

kl.blanchet@insightbb.com

Jodi DeJong-Hughes

University of Minnesota Extension, dejon003@umn.edu



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Small-Group Workshops Develop Participant Commitment for Nutrient Management Planning

Leslie A. Everett

Education Coordinator and Agronomist, Water Resources Center
University of Minnesota
St. Paul, Minnesota
evere003@umn.edu

Kevin Blanchet

Agronomist
Burlington, Kentucky
kl.blanchet@insightbb.com

Jodi DeJong-Hughes

Regional Extension Educator
University of Minnesota Extension
Marshall, Minnesota
dejon003@umn.edu

Abstract: Eighty small-group workshops were organized over 3 years to lead crop and livestock producers through preparation of two-field nutrient management plans using their own farm data. Follow-up surveys quantified the adoption of recommended manure management practices and completion of nutrient management plans resulting from the workshops. The small-group format combined the effectiveness of one-on-one contact and coaching with the staff-time efficiency of group presentations of background information.

Introduction

Minnesota livestock producers with more than 300 animal units are required to maintain a manure/nutrient management plan. The plan specifies nutrient application rates for each field based on soil tests, manure tests, and yield goals, following university recommendations. It also specifies protective measures for manure application near water bodies and other sensitive features.

While the regulation provides some motivation for some producers to prepare nutrient management plans, education is necessary to enable all producers to either prepare the plan or communicate with a hired professional. Shepard (1999) reviewed the literature on effectiveness of education methods used for changing agricultural practices and reported on effectiveness of diffuse communication methods compared to one-on-one methods of conveying manure management practice information in two watersheds in Wisconsin. He concluded that the literature and the Wisconsin observations indicated that one-on-one methods resulted in greater changes in practices. Experience in Iowa (Miller, 2001) indicated that small-group workshops employing both presentations and one-on-one coaching were effective in preparing producers to develop nutrient management

plans.

The objective of the project described here was to enhance crop and livestock producer understanding of and commitment to manure and crop nutrient planning, including appropriate management practices, and to enable them to write their own plans or to better communicate with a plan writer. University of Minnesota (UM) Extension offered hands-on plan-writing workshops over a 3-year period beginning February 2003 for small groups of producers using their own farm data. Follow-up surveys were used to determine if plans were made and practices changed in response to the workshops.

Methods

The project approach was similar to the program approach previously used by Iowa State University Extension (Miller, 2001) for nutrient management planning and education. In Minnesota:

- Two Extension specialists (second and third authors) recruited local organizers, including staff of county feedlot offices, Soil and Water Conservation Districts, livestock producer organizations, and local UM Extension offices, to schedule workshops.
- The local organizers invited groups of 10-15 producers and ensured that soil and manure test results and field maps for two fields of each producer were available at the workshops.
- A pre-workshop letter, manure management practices survey, and manure source and field inventory were sent to each producer by the local organizer. The inventory, when completed by the producer, provided the data necessary for completion of a two-field nutrient management plan.
- At the workshop, the Extension specialist, assisted by local Extension or USDA-NRCS staff, presented an overview of the planning process and manure management practices and then coached producers through plan preparation for their two fields. A series of worksheets assisted in step-by-step determination of nutrient application rates for each field. One of the worksheets assisted producers in estimating fertilizer cost savings if the new plans were implemented.
- At the end of the 3-hour session, producers completed a second survey to determine intended changes to their manure and nutrient management practices.
- A follow-up survey was sent to the participants after the next nutrient application season, to determine actual changes in practices.

Results

Eighty workshops were held across the state in 3 years, with 843 participants, resulting in two-field nutrient management plans for all producer participants (about 92% of all participants) managing approximately 608,800 crop acres.

In the workshop, participants completed a worksheet that calculates potential fertilizer cost savings for their

farms. Eighty-six percent calculated that they would save fertilizer expenses of \$6 or more per acre using manure application rates based on the plan they developed (Table 1).

Table 1.
Fertilizer Cost Savings When Fully Utilizing Manure According to the Plan

| Projected Fertilizer Cost Savings (\$ per acre) | Percent Responses |
|---|-------------------|
| Less than \$1 | 3% |
| \$1 to \$5 | 11% |
| \$6 to \$10 | 30% |
| \$11 to \$20 | 23% |
| More than \$20 | 33% |

A survey of first and second-year participants was mailed and followed up after the first growing season when the new nutrient management plans would have been employed. There were 260 total respondents, yielding a 47% survey return rate. Of respondents, 92% were producers, managing an average of 785 acres. Table 2 below presents results of responses regarding practice implementation. Stated increase in adoption of practices since the workshop ranged from 10 to 31%, with stated prior adoption rates already above 50% for most practices.

Table 2.
Post-season Survey Responses Regarding Practice Implementation

| Practice | Response to Question "Have you implemented this practice?" (%) | | | | | |
|---|--|-------------------------|---------------------------------|-----------------------|---------------------|-------------|
| | Yes, before the workshop | Yes, since the workshop | Will implement within two years | No plans to implement | Do not apply manure | No response |
| Follow UM N rate recommendations | 58 | 21 | 10 | 4 | 0 | 7 |
| Take soil tests at least every 4 years | 82 | 10 | 3 | 2 | 0 | 3 |
| Test manure | 58 | 19 | 14 | 2 | 3 | 4 |
| Calibrate manure spreader | 45 | 21 | 19 | 4 | 8 | 3 |
| Take full nutrient credit for manure | 53 | 27 | 10 | 4 | 3 | 4 |
| Rotate manure applications to avoid excessive P | 76 | 11 | 5 | 2 | 3 | 3 |

| | | | | | | |
|--|----|----|----|---|---|---|
| build-up | | | | | | |
| Keep field-based records of manure applications | 40 | 31 | 17 | 4 | 3 | 5 |
| Follow state guidelines for manure applications in environmentally sensitive areas | 58 | 28 | 5 | 1 | 3 | 4 |

In response to the question "As a result of the workshop, did you or your consultant complete or revise a Nutrient Management Plan for all or most of your operation?" approximately 70% indicated that they had completed their plans, previously had a plan, or were in the process of plan completion (Table 3).

Table 3.
Percent Plan Completion

| Response | | Percent | |
|------------------------------------|------------------------------------|---------|----|
| Yes | | | 60 |
| No | | | 38 |
| | Already had plan* | 6 | |
| | Plan in preparation* | 4 | |
| | Plan not required for my operation | 9 | |
| No Response | | | 2 |
| *Counted from volunteered comments | | | |

Conclusions

- Hands-on development of nutrient management plans in a small-group, highly coached setting was an effective method of enhancing plan completion and implementation. It facilitated understanding of the planning process and supporting practices.
- Use of the producer's own farm and field information provided motivation in the workshop and ownership of the plan after the workshop.
- The small-group format allowed us to capture information on prior practices and subsequent changes because it provided a close interaction with and commitment from participants. General surveys without

this relationship are less well received.

- The exercise of estimating fertilizer cost savings from plan implementation was an effective tool in motivating plan implementation.
- The small-group format combined the effectiveness of one-on-one contact and coaching with the staff time efficiency provided by group presentations of background information.

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