



Statewide manure management education initiative

Abstract: After manure management was identified as a high priority issue for programming, ISU Extension launched a statewide initiative that made education and individualized assistance on manure nutrient management available to crop and livestock producers in every Iowa county. The initiative involved educational workshops for producers as well as on-farm demonstrations and increased publicity concerning the economic and environmental value of managing manure nutrients for crop production.

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Budget:
\$31,500 for year one
\$30,000 for year two
\$25,000 for year three

Background

In Iowa, manure management has become an issue of economic, environmental, and political importance for farmers with all sizes of livestock operations. In response to their concerns, ISU Extension (ISUE) launched an initiative in 1996-97 to make education and individualized assistance with manure nutrient management available to producers throughout the state.

In addition to ISUE and the Leopold Center, this initiative was supported by the Iowa Veterinary Medical Association, the Iowa Independent Crop Consultants Association, and the Iowa Pork Producers.

The project sought to enhance farm profitability by increasing the use of on-farm nutrient resources, reduce potential nitrate and bacterial pollution of surface and shallow groundwater, and reduce potential negative environmental impacts of excessive or improper manure nutrient applications.

The original project objectives were:

- *Education* Assist farmers, through an intensive workshop including individualized attention and planning, to make more appropriate decisions about the utilization of manure nutrients.

- *Information* Together with partner organizations, conduct a statewide information campaign to promote the project, recruit participants, and encourage adoption of refined manure management practices.
- *Evaluation* Evaluate the project's impact through a pre-workshop assessment, exit survey, and six-month follow-up survey.

Approach and methods

In scheduled workshops, producers learned how to make a plan for livestock manure application tailored to their individual fields, crops, and manure resources. Participants completed surveys before and after the workshops to evaluate the impact of the educational program. Demonstrations and publicity were also part of the educational delivery package.

Half-day manure nutrient management sessions were held during the fall and winter of 1996-97, 1997-98, and 1998-99. Workshop delivery was modeled after the statewide Pesticide Application Training Program. Sessions were conducted locally by "teaching teams" comprised of extension field specialists for crops, farm management, and agricultural engineering. Participants were asked to pre-register, complete a survey of their livestock and cropping operations, and submit a Farm Service Agency photo of fields where manure would be applied on their farms.

The program had a consistent statewide workshop format with teaching materials adapted to local conditions. Subject matter was focused strictly on nutrient utilization and did not cover other manure management issues. The workshops were offered free of charge to livestock producers. Crop producers were eligible to attend if they planned to use manure for fertilizer. ISUE sociologists and the planning committee conducted a four-part evaluation of the workshops.

The first portion of each half-day workshop session was a case study on technical details of developing a manure nutrient management plan, followed by a discussion of the plan and its economic implications. In the second segment of the session, each participant had an opportunity to create an individualized manure inventory, partial utilization plan, and economic evaluation based on conditions in their own farming operation.

Local demonstrations also were used to help producers see the benefits of managing manure for crop nutrition. A statewide protocol for on-farm manure management demonstra-

tions was developed, specifying the use of local manure sources in replicated treatments.

Results and discussion

Over the three-year period, 267 workshops reached 1,904 producers. Ninety-nine of 100 Iowa counties hosted at least one workshop. Workshop attendance averaged six to nine persons per meeting, which is within the size range that staff requested to optimize interaction with individual participants.

However, some counties experienced problems with high numbers of walk-in participants.

These people presented difficulties because along with the lack of pre-registration, they did not have copies of the pre-meeting materials and preparation needed to take full advantage of the workshop activities. In later meetings, 80 maps of "example farms" were supplied to crop specialists so that walk-in participants or others who came with insufficient data could still complete the planning exercise.

Cows returning to pasture. Photo by Dale Thoreson, ISU.



Cows returning to pasture

Photo by Dale Thoreson, ISU

All participants were asked to complete pre-workshop inventories and exit surveys, and a randomly selected subset completed six-month follow-up surveys by mail. The pre-workshop inventories confirmed that the workshops reached a broad range of livestock producers in terms of size and type of operation. More than 80 percent of the participants the first two years raised hogs and many raised more than one type of livestock. Participants applied manure most frequently to corn, followed by soybeans, and pasture or hayland. The majority said that they did not have a manure management plan.

In exit surveys, participants were asked if they were likely to alter their manure management practices. The results of more than 1,400 surveys found that:

- 86 percent expected to save money on fields where manure was applied and about half of those expected to save more than \$10 per acre,
- 92 percent would set realistic yield goals by field and 85 percent would follow a nutrient-based manure management plan,
- 80 percent would change the amount of nutrient credits taken where manure was applied and 79 percent would test manure for nutrient content,
- 79 percent would keep a record of manure applications (compared with only 31 percent on pre-workshop evaluations), and
- 99 percent said they would recommend the workshop to others.

The follow-up survey done six months later showed that the workshops had a significant impact on targeted manure management practices. Seventy percent of the participants who responded to the re-check survey said that they had developed or revised a manure nutrient

management plan for their operations as a result of attending these workshops. Adoption of all recommended practices was increased to some extent. Forty-five percent of respondents had changed the rate of their manure application, and 30 percent had changed the application location. Nearly 500 respondents estimated their economic savings on acres where they followed their manure nutrient management plans. The extrapolated median savings were \$16.50 per acre.

Conclusions

Total participation numbers were not as high as program planners had hoped. Even with widespread publicity, counties with the best participation rates attracted only 50 to 70 producers. However, outreach and educational goals for impact on producers were met or exceeded. Personal recruitment proved to be extremely important to achieving attendance, with the major effort falling to ISUE county and field staff.

According to pre-workshop surveys, the program was successful in reaching a full range of producers from both livestock and crop criteria. Participants came from every county, and livestock operations of every type and size were represented. Likewise, participants' operations were characterized by a broad spectrum of cropping and management practices prior to the workshops. Six months later, 70 percent of the producers responding indicated that they had created or changed their manure management activities for their operations after attending the workshops. Economic benefits were seen by three-fourths of the respondents who had put their management plans into action.

Impact of results

This project has documented that a voluntary



Pigs on concrete lot.
Photo by IDNR.

and fairly brief education program can have a significant influence on producer intentions and lead to changes and refinements in manure management with positive economic results. In the future, regulatory requirements for certification training of confinement manure applicators will inevitably reduce voluntary attendance at programs of this kind because producers who are pressed for time will perceive that the programs are “the same.” However, the large numbers of participants enrolled in certification training make it difficult to present the same sort of individualized attention as these workshops. Educational programs on optimizing manure nutrient management will still be needed.

Education and outreach

This project was an education/technology transfer effort. A Manure Nutrient Management fact sheet was published and revised. Eleven issues of a newsletter called Iowa Manure

Matters have been released and are also available on-line at <http://www.exnet.iastate.edu/Pages/communications/EPC/>

Twenty-one field demonstrations were coordinated by ISUE in crop year 1998, and another six occurred in 1999. Most fertility demonstrations highlighted manure’s potential nitrogen contribution, the aspect of fertility credits that is most impacted by management and also is environmentally controversial at this time.

In crop year 2000, the Leopold Center approved application of \$15,000 of funding from this project to a new Swine Manure Nutrient Utilization Applied Research and Demonstration Project. Seven on-farm sites were established in 2000 to look at corn and soybean responses to manure and commercial fertilizer, and answer producer questions about nitrogen and phosphorus in the manure management equation.

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