

Feedlot Rules Education Project Evaluation:
Phase II, Land Application

**Land application of manure:
Minnesota livestock producers' practices and educational needs**

Executive summary

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Introduction

This report is the result of an effort directed by the Water Resources Center, University of Minnesota to identify farmers' educational and informational needs in the area of manure and nutrient management, particularly, land application of manure. Eight farmer focus groups were conducted in four counties—Pope, Waseca, Fillmore, and Benton. The previous winter—2001-2002—county level, producer workshops on land application of manure had been held in each of these, as well as many other counties in the state. Each pair of focus groups in a county consisted of one group who attended the winter workshop ('Attendees') and another group of participants who had not attended ('Non-Attendees'). The Focus Group proper was preceded by a three-page questionnaire to get the participants thinking about issues that would be explored in more detail during the course of the discussion. The participants retained the questionnaire through the discussion and were asked to refer to it at different points during the session. A total of 51 producers attended the sessions. Session size ranged from four to eight, with a mean of 6.4.

All groups were conducted by the same moderator. In addition to the moderator, each session was staffed by a county Extension Educator, as well as either a Regional Extension Educator or a Conservation District representative. The Focus Group sessions were recorded on audiotape. Abbreviated transcripts for each session were prepared. The key findings from the discussions and the questionnaire are presented below. Focus group results are presented first in summary form and then in more detail with supporting quotes for the first five of the eight listed key findings. The last three findings are relevant, of interest, and equally important in terms of representing the weight of the farmers' opinions. However, they are not as useful in terms of Extension action or follow up. For the supporting quotes for these three findings, see Chapter 3.

Focus groups: key findings summary

• **Variability and availability and the consequences**

The variability in open lot and other solid manure and in the first and second year availability of nutrients, makes it difficult to apply at rates that closely match crop needs.

• **Spreader calibration: promote, provide, assist**

Many of the producers who spread their own solid manure, need and request on-farm assistance with weighing their manure wagons/spreaders. Some have never calibrated their equipment.

• **Manure application record keeping forms are needed**

Producers that apply their own solid manure, need and want suitable forms for field-by-field record keeping.

- **Nutrient Management Plans: assistance needed; involve private sector, ag. professionals**

Those producers with some experience with NMP, recognize that it not something they can readily do or would want to do themselves. Those who are interested in starting NMP, know they need assistance. In some cases, it is not clear where this assistance will come from. The participants suggest that more private sector ag. professionals be trained to provide this service.

- **Website as a source of information: important to some, but most farmers are not keen to use**

There is quite a range in the level of interest and proficiency when it comes to computers and the Internet. However, most of the participants are not likely to use an Extension website very often.

- **Sensitive area rules are generally workable**

Most of the producers feel that the rules for sensitive areas are generally fair and workable and do not pose much of a problem in their own operation. (Exception: Pope Co. participants)

- **Sensitive areas setbacks will pose a difficulty for some farmers AND Setbacks are not fair, reasonable, etc [Pope Co.]**

For some of the farmers, the setbacks will be a hardship. In most cases, these producers are daily scrape and haulers with a limited amount of land that is not near a sensitive area. The inability to incorporate in the winter, adds to the difficulty.

- **Farmers look to Extension for research, demonstration, and education**

Farmers continue to expect that Extension will play an important role in research, on-farm demonstrations, educational events, and in providing informational materials and services. This sentiment was expressed in a general sense in the context of, for example ‘most important thing Extension could do’. It was also expressed with respect to specific topics such as ‘rates’, nutrient management planning, and ‘sensitive areas’.

Focus groups: key findings with supporting quotes

1. Variability and availability and the consequences

The variability in open lot and other solid manure and in the first and second year availability of nutrients, makes it difficult to apply at rates that closely match crop needs.

The nutrient content of solid manure varies greatly, being influenced by many factors such as bedding content, water content, animal age, feed, etc. The first and second year nutrient availability of manure also varies, according to weather, tillage practices, etc. The responses and attitudes of producers are understandable. Many of the daily scrape and haul operators feel it’s not practical or worthwhile to keep track of all the loads and all the fields (and portions of fields). Record keeping and the calculation of application rates is too time consuming and they have other things that have to be done. Most of them do not keep good records. Some use estimates; some even ignore the manure’s nutrient contribution, especially if they have a lot of land for the amount of manure that has to be applied. Many deem it adequate to rotate fields and do soil tests. In some cases, the cost of hauling the manure is greater than the value of the nutrients contained, so the manure is viewed as a liability rather than an asset. Many operators—including those with storage capacity, tend to over apply commercial fertilizer, because they are not confident that the manure’s nutrients will be available when it’s needed by the crop.

Selected producer quotes

[For a more complete listing of relevant quotes for each of these key findings, see Chapter III]

But, it’s hard to believe there’s that much nitrogen left on those second year credits. I think that’s where we typically over do it.

And it's hard to do with the type of manure we apply. Cause it depends on how much straw happens to be in the gutters that particular day. Some days it's more solid than others. And, so your rates do vary a little bit from day to day. Has Extension come yet, with a good, clear answer on how much of that nitrogen's available first year? That's sort of a floating figure.

So, the temperature has a lot to do with when the stuff is gonna be released. [name] applied hog manure from a neighbor two years ago. Cold summer, boy—just seen nitrogen deficiency all summer long. And, we had went that 20% over the rate . . . more people complain that, don't seem like that hog manure gets released in cool temperatures as fast as what you would anticipate it would. Or, that your plant probably needs it. You're short at a certain time. And I don't know how the farmer is going to compensate for some of this sometimes. Sometimes a little commercial fertilizer put on either at planting time—to be readily available, and then wait for the manure to kick in when the soil temperatures warm up. Seems to be what I've found.

I think that's where it's easy to get 20% over, because I know the formulas I ran through, boy it was hard to hold some of those numbers up—that--second year credit. I mean I'd just as soon you erase that 20-30 lbs to zero and make sure I got enough N going into this year, than saying well that's—that bottom end of your second year, holding you off the top end of your first year—or yer upcoming year. You know you're holding that 30 lbs. off because supposedly you got that left from 18 months ago—boy that's—with open winters, and heavy rains, yeah aggggh. Hard to do.

Note: Also see third quote, next section.

2. Spreader calibration: promote, provide, and assist

Many of the producers who spread their own solid manure, need and request on-farm assistance with weighing their manure wagons/spreaders.

A number of the participants had previously availed of Extension or the Conservation District for assistance with weighing manure wagons and spreader calibration. Some have never calibrated. Some were not aware that scales and assistance were available to them. A number indicated that this is one area where they could use some one-on-one assistance. They don't have time to get scales and then return them. They recognize that if they don't calibrate, then they don't know their application rates very well, even if they are doing nutrient sampling. On the other hand, some feel that because of the variability in their manure, it isn't worthwhile to calibrate. To them, it is not worth the trouble to 'fine-tune' their applications. Again, they are satisfied with using estimates, rotating their fields, and doing soil testing. Calibration was one of the two topics most often suggested for field days. Pope Co. does not appear to have any suitable scales available.

Producer quotes

I think they're going to have to have scales available . . . so that you can go out and weigh these box spreaders . . . when we're spreading solids out of a manure pack—we're gonna have to know what these spreaders weigh. And, you're going to have to do this more than just once. . . . have to do this for a few years to get half a handle on what you're spreading.

That's the problem with that. The convenience of getting that stuff, you know. There's only so many days you can get stuff done. What do you do there? Do you run to [city] and get a scale and . . .

How do you calibrate it when you haul about 10-12 different kinds of manure in one day? Yeah, you could weigh it on a scale and so forth, but I mean, like I'd said before you take one load out of the yard that's steer manure and you scrape it up and if there's more water in it, it's a lot heavier and your next time it might be dry and you pick up a around a round bale feeder or you go out and get dirt in it and it'd be very hard to come up with an accurate—other than just common sense of not over applying it and basically soil tests to put it on. [Note this quote is also relevant with respect to the previous key finding]

I just think it's [calibration] pretty important—it's all a mute point if you don't know what that load weighs.

With one-on-one assistance, you know the SWC[D] came out and helped me calibrate the poultry spreaders—that was very helpful. Had scales and stuff like that. 'Cause it, quite frankly, wouldn't get done, otherwise. Can try to hunt up scales and do that kind of stuff— is too time consuming for me.

3. Manure application record keeping forms are needed

Producers that apply their own solid manure, need and want suitable forms for field-by-field record keeping.

The farmers are not aware of a suitable form for field-by-field, manure application record keeping or they do not think the form in the Extension publication, “Manure Planning and Record Keeping Guide” is suitable for use in the field. [Benton SWCD has its own form for EQIP participants.] This issue came up in almost all the sessions. Both pocket size and full (letter) size options are needed. Most of the respondents expressed interest in something suitable for use in the field—very simple and easy to use. Some were thinking more in terms of something that would be on file in the office and that could, for example, be useful for reviewing previous years. Some currently use a calendar, computer spreadsheet, or field maps.

Producer quotes

Maybe [there's] not a uniform record keeping system. If you had a form on there and it had field acres, where you can just go down the line and write in the numbers, it probably would get done a little easier too, I suppose.

I think you all were laughing about the plastic jacket, but I think it's going to have to be readily available even in your milk room or in the cab of your tractor that your spreading manure with or something that's going to have to be protected and something that's real user friendly so I can mark down that hey, I put down 7 loads on this date and this field, and you're done. That's it It's going to have to be real user friendly to the farmer for him to do it. If it's gonna be a chore it's not gonna get done. The farmers just don't have the time . . .

Those pocket size books that we had a few years ago for keeping track of calves are . . . really handy and something like that—sometimes that would be more user friendly than the large book.

[Response to previous] Use it out there so you can transfer it later . . . It's gotta be the smaller one that does fit in your pocket and stays there—would be a very handy thing to carry along all the time. It's surprising when you do carry that along most of the time, how much stuff you do write in there all the time. . . . that'd be the handiest.

I think it would be nice if it did have full page, but have enough room that you could write maybe on page for three or four years before you have to start a new page. Then you could look back—instead of paging back through two books.

. . . the only thing I really want to work on is get a better system on the record keeping. You know, try to improve that some. Where it would be easier to go back a couple years and see . . .

4. Nutrient Management Plans: assistance needed; involve private sector, agricultural professionals

Most of the producers with some experience with NMP recognize that it not something they can readily do or would want to do themselves. Those who are interested in starting NMP, know they need assistance. In some cases, it is not evident where this assistance will come from, although it is becoming clear that in many cases, they cannot rely on the public sector. The participants suggest that more private sector agricultural professionals be trained to provide this service.

Producer quotes

I think you are going to have to get the private consultants or the agronomists involved wholeheartedly in this because, number one, the farmers are already working with agronomists now. . . . I think those people have to be brought up to the speed because they're the ones you are already making contact with, they're the ones that know your farm plans and what you've done in the past already, and it'd be very simple . . . for the farmer to get involved with them to do the manure management and help these guys out, really quick. Versus bringing a new person in that you have to train and he has to go through the whole background of what's going on. So I think agronomists in the local area are the ones that really have to be helped out. Maybe Extension helps them, to train them—I think those are the key people that can get this thing really rolling quick.

If they're gone be done [Nutrient Management Plans], who's gonna do it . . . ?

The problem is that we're not going to have a place to go get one [NMP]. Because the guys [Extension Educators] are gonna be . . . six counties away.

Well, I think we're in trouble. Because I went through a plan with [Extension Educator] here a couple weeks ago and if Extension—if he's not available—where are the people gonna come from that do these plans? I mean it isn't—you're talking about—you're drawing on a lot of experience and lot of expertise that, that's not necessarily out there—to do these plans for us. You're talking a large investment by the individual producer if you're gonna try and do them yourself.

. . . .What do other consultants think of the practice? Because, I think most people would rather listen to their consultant, than to what the state or what the county or [?] somebody tells them to do. So maybe to get more consultants on board would really help.

5. Website as a source of information: important to some, but most farmers are not keen to use

There is quite a range in the level of interest and proficiency when it comes to computers and the Internet. However, most of the participants are not likely to use an Extension website very often.

Most of the farmers either don't use or seldom use the World Wide Web to get information. Some don't have computers. Some have computers, but don't use it much or don't use it much for farm matters. There are some that are moderate to avid users, but would not be likely to go to an Extension website very often to get info. It appears that among those who gave a high rank to [Extension] 'Website' on the questionnaire, only some of these would actually use it very often.

Producer quotes

I can't say I've looked at it a lot lately

Because that's just so convenient for me, I mean, I have, you know, the favorite lists on the websites that I check almost daily or weekly

That's—pretty much where if I need to research something or any product or look for buying or whatever, first place I hit—convenient, it's in the office, I hit the website, I research stuff.

Probably because I just probably wouldn't go and do it. You know, I just wouldn't say "Boy, I better check the Extension website" [responding to question re. why gave it a low rank]

I guess for me—I can check it whenever I want. I don't have a set time where I have to be someplace

I like calling somebody up and say, 'hey, this is what I need, tell me what I need to know'. I get on the Internet, it's kinda like I could spend all day look for something that takes me five minutes to get out a phonebook and . . .

That is true. [responding to preceding comment/quote] I rated it high out of all these [educational formats and options on questionnaire]. But, it's not saying I would use it a lot . . .

Yeah, I did [gave it a high rank on questionnaire], because I spend a lot of time with the technology, the Internet.

I just detest the thing. [computer]. My kids and wife are on it all the time and I can't get anything else out of it.

Yeah [responding to preceding quote], instead of spending an hour at a meeting. It's an efficient use of time—you can get something that you need.

I don't know how to work a computer. I think I'm too old to learn about a computer.

Questionnaire: key findings

1. More farmers are adopting recommended manure and nutrient management practices.

For a group of ten practices or sets of practices examined [Questionnaire items 4-13], the overall rate of implementation or adoption increased from 55 percent 'Before 2000' to a Current rate of 72 percent, with a predicted rate of 88 per cent 'By 2004'. This overall trend was mirrored in all subsets examined: 'All Attenders', 'All Non-Attenders', and each of the four counties.

2. Pope County appears to lag other counties in the implementation of these recommended practices.

For the combined results for 10 practices (questionnaire items), differences among the four counties and between Attenders and Non-Attenders are small. The largest difference noted was for the Pope County participants. Their current (2002) rate of implementation is 58 percent. The participants from other counties reported rates ranging from 71 to 80 percent. [The differences between counties for the beginning (Before 2000) and ending time (By 2004) frames are relatively small (but Pope County's rates are the lowest or tie for lowest in each case)].

3. Differences between Attenders and Non-Attenders are generally small to moderate, but variable.

For the combined results for ten practices, Non-Attenders started at somewhat higher implementation levels (60 vs. 52%) and Attenders expect higher levels by 2004 (91 vs. 83%). Current rates are the same (71 and 74%). However, for each of the three time frames, there are individual items among the ten for which the differences between Attenders and Non-Attenders exceed fifteen percentage points.

4. Almost all of the individual practices are predicted to be implemented at rates exceeding 80 percent 'By 2004', by both Attenders and Non-Attenders.

There are exceptions:

- Adjust for phosphorus (68%, Non-Attenders)
- Develop/update manure management plans (70%, Non-Attenders)

5. For Extension programs or educational events, three of ten listed topics [Item 16A] stood out in terms of likelihood of attendance.

The farmers' top choices were:

- Field selection: soil phosphorus levels and manure application rates
- Managing sensitive areas
- Applying and incorporating manure: methods, implements, uniformity, timing

6. 'Publications' are the preferred 'format' for obtaining manure management information.

Of a list of seven 'educational items or opportunities', 'publications' was the most preferred format.

Also, compared to Non-Attenders, Attenders were more interested in:

- 'farm visit by specialist or consultant OR one-on-one assistance'
- 'workshops'