

August 8, 2016

Jeff Prier  
Iowa Department of Natural Resources  
Field Office 6  
1023 West Madison St.  
Washington, IA 52353-1623

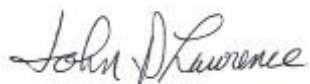
Dear Mr. Prier:

Per cooperative agreement number 16ESD-FSB-JPRIER-0015, between the Iowa Department of Natural Resources and Iowa State University Extension and Outreach, attached is a copy of the FY2016 Manure Applicator Certification final project report. The project report covers the period from July 1, 2015 to June 30, 2016. A copy of the final report will also be made available electronically at:  
<http://www.agronext.iastate.edu/immag/mac.html>.

Also enclosed are copy of each of the training DVDs per our contract requirements and a copy of a program CD with program modules and handouts.

If you have any questions regarding this report please feel free to contact me. I look forward to a continued relationship on this project.

Sincerely,



John D. Lawrence  
Associate Dean, Extension Programs and Outreach  
Director, Agriculture & Natural Resources Extension

Enc.

c. Daniel Andersen  
Rachel Klein  
Christine Knight

**Manure Applicator Certification Program**  
**July 1, 2015 to June 30, 2016**  
**Agreement Number 16ESD-FSB-JPRIER-0015**  
**Final Report**

## **Introduction**

In 1998, the Iowa Legislature passed HF 2494. This bill required certification of commercial manure applicators and confinement site manure applicators with operations of a designated size. Legislative changes (HF 644) again in 2003 required rule changes for the 2004 program. These changes primarily dealt with the administrative changes to the commercial manure applicator program. The new law required manure application businesses to hold business licenses and allowed fees to be set for businesses, managers and employees. The purpose of this project, entered into by the Iowa Department of Natural Resources (IDNR) and Iowa State University Extension (ISUE) was to develop manure certification training and testing materials and to conduct certification workshops for commercial manure applicators and confinement site manure applicators. Three programs were developed for 2016, a commercial, a confinement, and a dry manure applicator program. Online learning modules are being developed to be updated on the website and provide applicators with options most relevant to their training needs. This annual report covers year 19 of the certification program.

## **Training Material Development**

### **Confinement Site Manure Applicator Program**

Training materials for the confinement site programs were developed into individual modules. The goal of the module concept was that the material could be used again in future programs with minimal time used in development of the presentation of the materials but instead, time focused on updating the subject matter of each module for future use. The modules were identified from email discussion and ideas submitted by Extension Field Specialists and input from the Manure Applicator Certification Advisory Committee. An Extension campus and/or field specialist or IDNR staff member then develops and presents each module. For some modules, other speakers are identified and asked to participate in the program. The materials are developed into a PowerPoint presentation or a video segment and then burned onto a CD for use at the annual workshops. Each module may be modified at the local level by Extension Field Specialists to adapt for regional or county use to meet certain manure application practices, crop, soils, or topography requirements. These segments are being adapted for updating in the on-line learning certification program with the dry program anticipated to be ready in early July.

A list of modules by year, from 2008-2016 is presented in Table 1(a complete list of modules by year from 2001-2016 is available upon request).

### **Commercial Manure Applicator Program**

Materials developed for the 2016 Commercial Manure Applicator program were discussed and determined during the annual advisory committee meeting, via email and phone discussions with Extension Field Specialists, IDNR staff, and members of the Manure Applicator Certification Advisory Committee and several commercial manure applicators. The program materials were delivered by pre-recorded video segments at the annual coordinated showing of the Manure Applicator Certification program, which was held on January 6, 2016. A list of modules by year, from 2008-2016 is presented in Table 1(a complete list of modules by year from 2001-2016 is available upon request).

## Dry Manure Applicator Program

This program is a subset of the commercial manure applicator and confinement site applicator program. The program is designed to meet the training requirements of both types of applicators, but focuses more on dry/solid manure issues and handling. A list of modules for 2016 is included in Table 1.

Table 1. Certification modules developed and presented at training meetings by program and year.

Year	Confinement Site Manure Applicator Program	Commercial Manure Applicator Program
2008	DNR Land Application Rules, Separation Distances and Manure Management Plans 25 Minutes	DNR Land Application Rules, Separation Distances, Spill Training 30 Minutes
	Emergency Mortality Management 27 minutes (Glanville DVD)	DOT Regulations/Weight Restrictions 30 minutes Chris Boswell
	Confinement Site Investigation Scenarios 50 minutes	Review of Land Application Issues from past 10 years 20 minutes Karen Grimes
		DNR Case Studies on Manure Spills and Spill Response 25 minutes Ted Peterson
		Injector effects on soil, odor, residue and manure 35 minutes, (Hanna Video)
2009	Valuing, Pricing and Selling Manure 60 minutes	DNR Land Application Rules, Separation Distances and Manure Management Plans 40 minutes
	Hydrogen Sulfide Safety During Deep-Pit Pump out 25 min (Swestka/Burns DVD)	Economics of Hauling Manure (Leibold video) 33 minutes
	DNR Land Application Rules, Separation Distances and Manure Management Plans 35 min	Hydrogen Sulfide Safety During Deep-Pit Pump out 25 minutes (Swestka/Burns video)
		Road Safety and Personal Protective Gear 60 minutes
		Mole Toolbar (video) 15 minutes
2010	Review of Rules, Land Application Separation Distances, MMP Requirements, Winter Application, Stockpiling Regulations, Paperwork, Fees and Recordkeeping Requirements 60 minutes	DNR Land Application Rules, Separation Distances, Winter Application Rules, Water Quality Impacts, Spill Response, Paperwork, Fees and Recordkeeping Requirements. 60 minutes
	How to Interpret your Manure Analysis 30 Min	

	Pit Explosions, Fires and Foaming 15 Min	Commercial Application of Manure: Case Studies and Tips for dealing with Liability Issues. 35 minutes
	Liquid Dairy Case Study 15 minutes	Drag Hose/Rupture Video 6 minutes
		Infiltration of Manure, Movement to Tiles and Ways to Minimize Risk of Rapid Export from tile 40 minutes
		Safety and Spill Response Trailer Video 10 minutes
		Pump Safety Video 13 min
		Q and A Panel Discussion 20 Min
	<b>Dry Manure Program</b>	
	Review of Rules, Land Application Separation Distances, MMP Requirements, Winter Application Rules, Paperwork, Fees and Recordkeeping Requirements 60 Min.	
	Stockpiling Regulations 40 Min	
	Transport of N and P to Subsurface Drain Water under Layer Hen Manure-Applied Field Plots 60 min	
	Q and A 20 Min	
2011	Review of Rules, Land Application Separation Distances, MMP Requirements, Winter Application, Stockpiling Regulations, Paperwork, Fees and Recordkeeping Requirements 44 min (Prier)	DNR Land Application Rules, Separation Distances, Winter Application Rules, Paperwork, Fees and Recordkeeping Requirements. 45 minutes (Prier)
	Frozen Ground and Winter Application Rules 17 min (Prier)	Manure Nitrogen Availability and Supply 49 min (Sawyer)
	Manure Nitrogen Availability and Supply 49 min	Water Quality Impacts and Spill Response 25 min (Wiklund)
	Video segment of Safety Pumping from Deep Pits 15 min (Arora and Harmon)	Frozen Ground and Winter Application Rules 17 min (Prier)
		Update on Foaming Pits Research 28 min (Schmidt)
		Video segment of Safety Pumping from Deep pits 15 min (Arora and Harmon)
		Frequently Asked Questions 15 min (Rieck-Hinz)
	<b>Dry Manure Program</b>	
	Review of Rules, Land Application Separation Distances, MMP Requirements, Winter Application Rules, Paperwork, Fees and Recordkeeping Requirements 42 Min. (Rieck-Hinz)	
	Frozen Ground Winter Application Rules 17 min (Prier)	
	Manure Nitrogen Availability and Supply 49 min (Sawyer)	
	Stockpiling Regulations 25 min (Rieck-Hinz)	
	Water Quality Impacts and Spill Response 25 min (Wiklund)	
	Frequently Asked Question 15 min (Rieck-Hinz)	
<b>2012</b>	<b>Confinement Site Manure Applicator Program</b>	<b>Commercial Manure Applicator Program</b>
	Review of Rules, Land Application Separation Distances, MMP Requirements, Winter Application, Stockpiling Regulations, Paperwork, Fees and Recordkeeping Requirements 50 (Prier)	DNR Land Application Rules, Separation Distances, Winter Application Rules, Paperwork, Fees and Recordkeeping Requirements. 45 min (Prier)
	Winter Application of manure or not 25 min (Terry Steinhart)	Infiltration of manure, movement to tiles, and ways to minimize risk of rapid export from tiles and runoff pathways 40 min (Matt Helmers)
	Motor Vehicle Enforcement IDOT 17 min (Chris	Motor Vehicle Enforcement IDOT 17 min (Chris

	Boswell)	Boswell)
	Determining when your MMP is Due 13 min (Rieck-Hinz)	Road Damage Study 48 min (Kevin Erb)
		Beef and Poultry Manure Phosphorus Water Quality Issues 31 min (Antonio Mallarino)
	<b>Dry Manure Program</b>	
	Review of Rules, Land Application Separation Distances, MMP Requirements, Winter Application Rules, Paperwork, Fees and Recordkeeping Requirements 50 Min. (Rieck-Hinz)	
	Bulk Dry Animal Nutrient Chapter 200A 30 min (Kevin Klommmhaus)	
	Beef and Poultry Manure Phosphorus Water Quality Issues 31 min (Antonio Mallarino)	
	Motor Vehicle Enforcement IDOT 17 min (Chris Boswell)	
	Road Damage Study 51minutes (Kevin Erb)	
<b>2013</b>	<b>Confinement Site Manure Applicator Program</b>	<b>Commercial Manure Applicator Program</b>
	Intro and Program Reminders, Paperwork and Fees, A. Rieck-Hinz 4 min	Intro and Program Reminders, Paperwork and Fees, A. Rieck-Hinz 6 min
	Intro to Nutrient Reduction Strategy, J. Lawrence 4 min	Land Application Rules, Separation Distances, Recordkeeping, Winter Application J. Prier 52 min
	Nutrient Reduction Strategy Science Assessment, M. Helmers, 44 min	Iowa Commercial Manure Applicator Certification Training Legal Liability, E. McAfee, 24 min
	Manure and Nutrient Movement in Soils. D. Andersen, 27 min	Intro to Nutrient Reduction Strategy, J. Lawrence, 4 min
	Land Application Rules, Separation Distances, Recordkeeping, Winter Application Laws, MMPs, J. Prier, 40 min	Nutrient Reduction Strategy Science Assessment, M. Helmers, 44 min
		Iowa One-Call, K. Gregorich, 16 min
		Manure and Nutrient Movement in Soils, D. Andersen, 27 min
		Top Ten List on How to Prevent Manure Spills, R. Rausch and B. Jochum, 10 min
		ICNAA Membership 4 min
	<b>Dry Manure Applicator Program</b>	
	Rules, Separation Distances, Recordkeeping Requirements, Signage, Stockpiling and Spill Reporting. A. Rieck-Hinz 50 min	
	Interpreting and Using Manure Test Results, J. DeJong, 40 min	
	Intro to Nutrient Reduction Strategy, J. Lawrence, 4 min	
	Nutrient Reduction Strategy Science Assessment, M. Helmers, 44 min	
	Manure and Nutrient Movement in Soils, D. Andersen, 27 min	
<b>2014</b>	Introduction A. Rieck-Hinz- 6 min	Introduction, Fees, Forms A. Rieck-Hinz 9:30
	Rules. J. Prier 30 min	Land Application Rules J. Prier 40 min
	Foaming Pits D. Andersen 37 min	Foaming Pits. D. Andersen, 37 min
	PEDV and Biosecurity, B. Baker 30 min	PEDV and Biosecurity, B. Baker, 39 min
	Manure Spill Response. T. Steinhart 22 min	Manure Injection Issues, D. Andersen, 26 min
		Review of Custom Applicator Survey. A-Rieck-Hinz 30 minutes
	<b>Dry Manure Applicator Program</b>	
	Rules, Separation Distances, Recordkeeping Requirements, Signage, and Spill Reporting. A. Rieck-Hinz 50 min	
	Managing Beef Feedlot Manure. Russ Euken 40 min.	

	Solid Manure Sources and Management Practices of the Iowa Nutrient Reduction Strategy, A. Rieck-Hinz 40 min 2014 Stockpiling Regulations, A. Rieck-Hinz 30 min.	
<b>2015</b>	<b>Confinement Site Manure Applicator Program</b>	<b>Commercial Manure Applicator Program</b>
	Introduction, D. Andersen 5 min	Introduction, D. Andersen 5 min
	Rules, J. Prier 10 min	Rules, J. Prier 16 min
	Land Application and Separation Distance Requirements, J. Prier 15 min	Land Application and Separation Distance Requirements, J. Prier 15 min
	How have spills occurred? B. Brenneman and K. Hassenius 25 min	How have spills occurred? B. Brenneman and K. Hassenius 25 min
	Work Plan Agreement between DNR and EPA Region 7, J. Prier 20 min	Work Plan Agreement between DNR and EPA Region 7, J. Prier 20 min
	Understanding what DNR is looking for. Confinement Site, J. Prier and D. Andersen, 12 min.	Understanding what DNR is looking for. Commercial, J. Prier and D. Andersen, 22 min.
	Manure Sampling and Testing, D. Andersen 25 min	Manure Sampling and Testing, D. Andersen 25 min
		What's new in manure application equipment, M. Hanna 35 min
	<b>Dry Manure Applicator Program</b>	
	Rule, Separation Distances, Recordkeeping Requirements, Signage, and Spill Reporting, K. Arora 50 min	
	Stockpiling, A. Rieck-Hinz 23 min	
	Impacts of Poultry Manure Application on Water Quality, M. Soupir, 22 min	
	Work Plan Agreement between DNR and EPA Region 7, J. Prier 20 min	
	Understanding what DNR is looking for, J. Prier and D. Andersen 22 min	
	Manure Sampling and Testing, D. Andersen 25 min	
<b>2016</b>	<b>Confinement Site Manure Applicator Program</b>	<b>Commercial Manure Applicator Program</b>
	Introduction, D. Andersen 5 min	Introduction, D. Andersen 5 min
	Rules, J. Prier 10 min	Rules, J. Prier 16 min
	Land Application and Separation Distance Requirements, J. Prier 15 min	Land Application and Separation Distance Requirements, J. Prier 15 min
	Update on Inspections J. Prier 14 min	Update on Inspections J. Prier 14 min
	Manure Safety, Leon Sheet 13 min	Manure Safety, Leon Sheet 13 min
	Nitrogen Inhibitors, J. Sawyer 28 min	Nitrogen Inhibitors, J. Sawyer 28 min
	Nitrogen and Manure, D. Andersen 16 min	Nitrogen and Manure, D. Andersen 16 min
	Phosphorus and Manure, D. Andersen 14 min	Phosphorus and Manure, D. Andersen 14 min
	Hydrogen Sulfide Safety, J. Harmon 17 min	Hydrogen Sulfide Safety, J. Harmon 17 min
		Manure Pump Safety, D. Andersen 15 min
		Manure Boat Safety, D. Andersen 19 min
		Manure Application Nozzles, D. Andersen 5 min
	<b>Dry Manure Applicator Program</b>	
	DNR Rules, Separation Distances, Recordkeeping Requirements, Signage, and Spill Reporting, K. Arora 45 min	
	Stockpiling, A. Rieck-Hinz 24 min	
	Beyond the Law-Neighbor Relations, D. Andersen 19 min	
	Update on Work Plan agreement between DNR and EPA Region 7, J. Prier 15 min	
	Spill Response, D. Andersen 21min	
	Biosecurity Training, D Andersen 20 min	
	HPAI Composting, K. Arora 40 min	

## **Supporting Training Materials**

Copies of DNR 113 *Separation Distances for Land Application of Manure*, DNR 115 *Commercial Manure Applicator Certification*, and DNR 116 *Confinement Site Manure Applicator Certification* were distributed at all workshops and video trainings.

## **Certification Workshops**

### **Confinement Site Workshops**

Certification workshops for the 2016 Confinement Site Manure Applicator Certification program began in January 2016 and continued through February 2016. A total of 60 Confinement site manure applicator workshops were scheduled for 2016. Confinement site applicators also meet certification requirements by watching a two-hour DVD at their local County Extension office.

ISU Extension and Outreach staff has reported 1,237 confinement site applicators attended the certification workshops, while ISUEO has collected 1,139 confinement site application evaluations. The 2016 Confinement Site program was presented by 18 specialists including: 4 Field Agricultural and Bio-systems Engineers, 14 Livestock specialist, and one faculty member.

There was also a confinement site certification workshop held at the 2016 Iowa Pork Congress on January 28, 2016, in which 7 people attended. A workshop was also conducted on February 10, 2016, at the National Animal Disease Center for staff working with animals and manure; 26 people attended that workshop. The DNR requires staff at NADC meet certification requirements.

According to the IDNR database, the Confinement Site program has increased in the number of applicators again this year. Currently, the number of certified applicators is 2,272 compared to 2,242 last year.

## Commercial Applicator Workshops

The 2016 Commercial Manure Applicator program was delivered via coordinated showing on January 5, 2016. This showing was presented in 74 Iowa County Extension offices, one Minnesota County office, and two Wisconsin County offices.

The ISU Extension and Outreach staff has reported 1,094 commercial applicators attended the certification meetings, while ISUEO has collected 1,240 commercial applicators evaluations as of the date of this report.

According to the IDNR database, the Commercial program has had a small decrease in the number of applicators compared to the past few years. Currently, the number of certified commercial manure applicator businesses has decreased to 560 compared to 566 last year. The number of currently certified Commercial manure applicator representatives has also slightly decreased. In 2015, there were a total of 2,179 certified commercial manure applicator representatives compared to 2,093 for the 2016.

## Dry Manure Workshops for Commercial and Confinement Site Applicators

In February, seven dry manure applicator workshops were scheduled in the state of Iowa.

<b>Date</b>	<b>Location</b>	<b>Attendance</b>
February 9, 2016	Washington	24
February 10, 2016	Storm Lake	29
February 11, 2016	Orange City	20
February 15, 2016	Greenfield	16
February 16, 2016	Hamilton	17
February 17, 2016	Thompson	3
February 19, 2016	Clarion	38

The workshops provided the necessary three hours of training for the commercial applicators and subsequently met the required time requirements for confinement site applicators. The topics for the workshops were: DNR Rules, Land Application and Separation Distances, Recordkeeping requirements, Spill reporting, Update on DNR Inspections, Beyond the Law-Neighbor Relations, Biosecurity training, HPAI Composting, and stockpiling requirements.



# Certification Workshop Evaluation

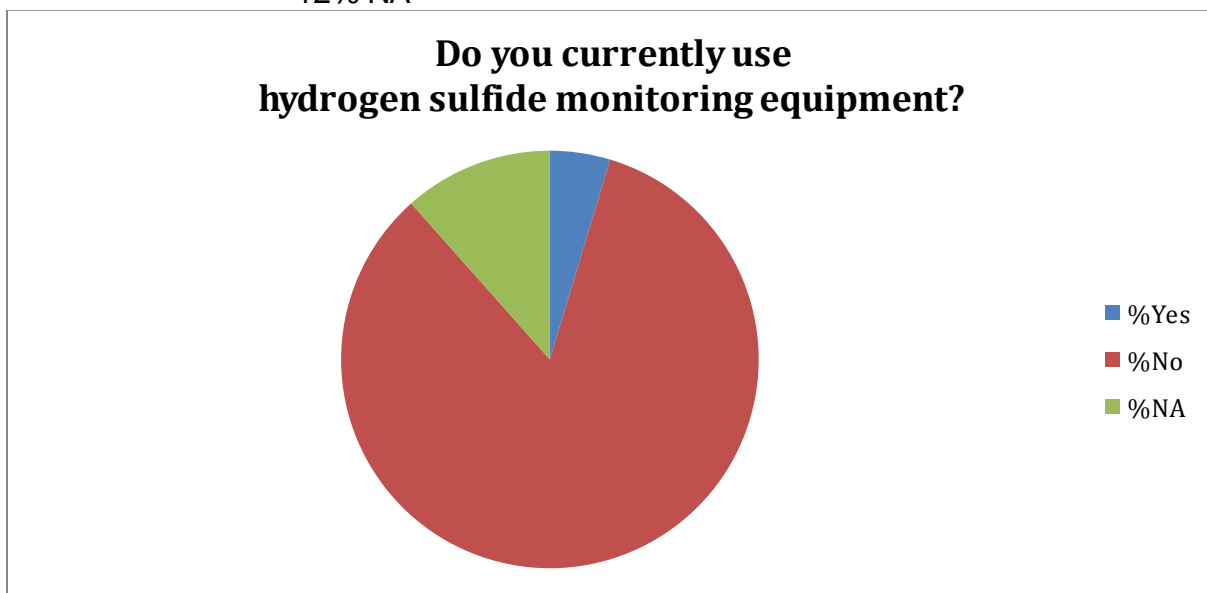
## 2016 Commercial Manure Applicator Program Evaluation

An evaluation form was created for the Commercial Manure Applicators pertaining to the material given during the certification process. At the end of each workshop, and at the end of each DVD, the applicators were asked to complete an evaluation on the information presented, overall evaluation of the program, and then the managers or business owners were asked the following questions:

### Manure management and safety questions:

1. Do you currently use any kind of Hydrogen Sulfide Monitoring Equipment?

- 5% Yes
- 84% No
- 12% NA

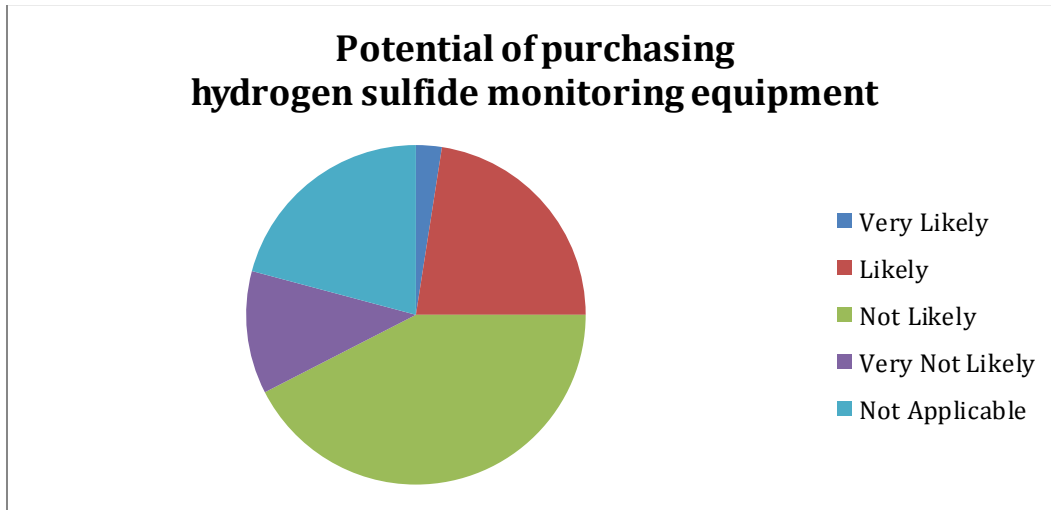


2. If so, what type of equipment do you use?

- Honeywell
- Gas badges/meter

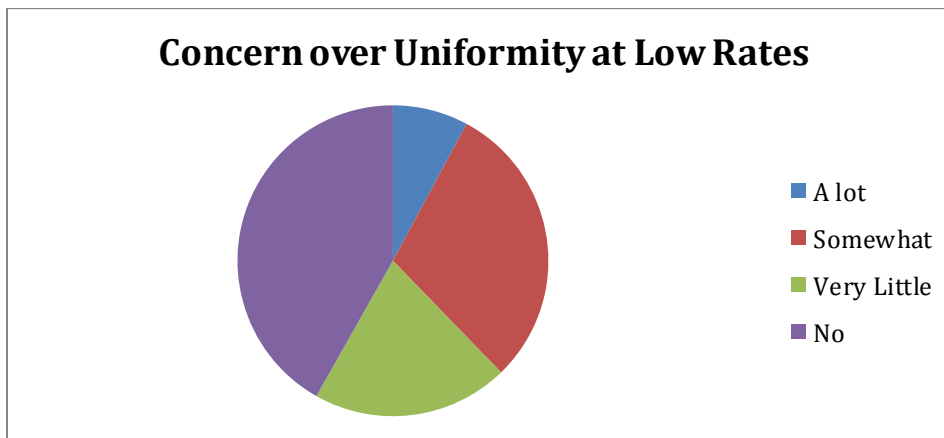
3. If you currently don't use Hydrogen Sulfide Monitoring Equipment, how likely are you to start using Hydrogen Sulfide Monitoring Equipment?

- 2% Very Likely
- 23% Likely
- 42% Not Likely
- 12% Very Not Likely
- 21% Not Applicable



4. Are you concerned about your equipment's ability to achieve lower manure application rates or the uniformity of manure application at lower rates?

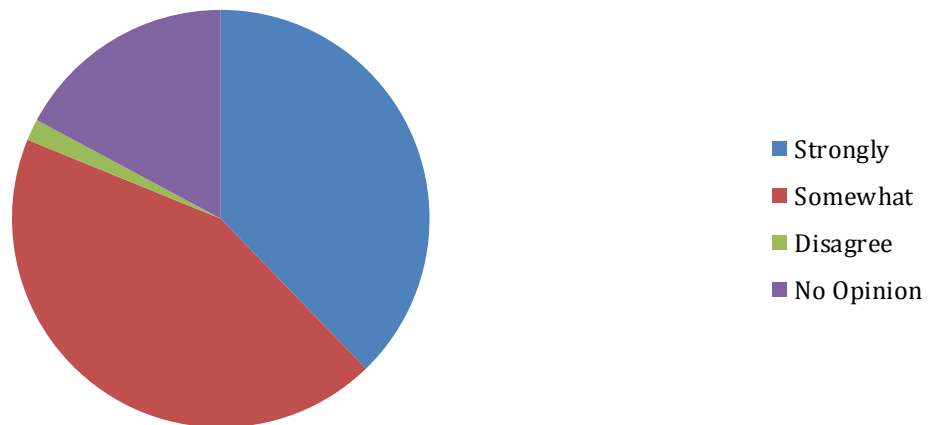
- 8% A lot
- 30% Somewhat
- 20% Very Little
- 42% No



5. When hearing about new equipment options and choices, its valuable to me. It helps me understand how the equipment I'm using is designed, how to make manure application more accurate, how to use it as a better fertilizer resources, and/or how to minimize the probability or harm caused by manure spills.

- 30% Strongly agree
- 43% Somewhat agree
- 2% Disagree
- 17% No opinion

**Seeing new equipment keeps me safer, more accurate,  
and fewer spills.**

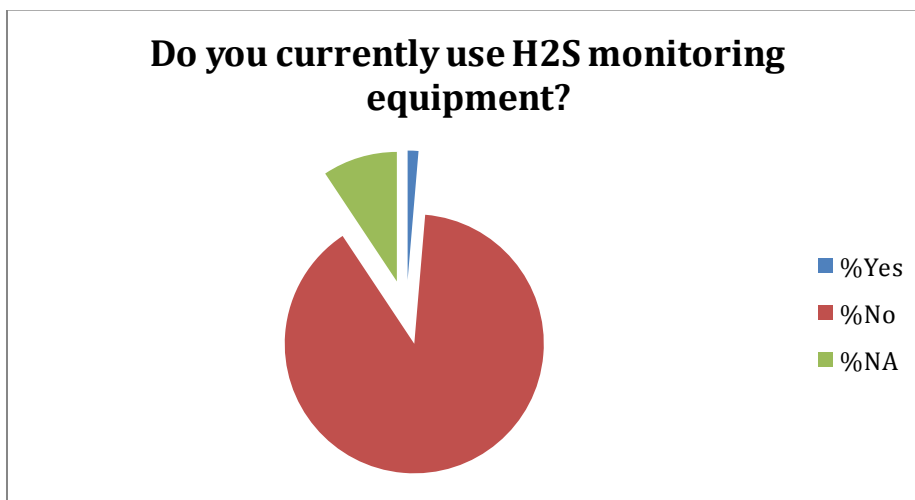


## 2016 Confinement Site Program Evaluation

Evaluation forms were created with new questions for the applicators pertaining to the material given during the certification process. At the end of each workshop and at the end of each DVD, the applicators were asked to complete an evaluation on the information presented, overall evaluation of the program, and manure management and equipment used. The following were a few of the responses to selected questions in the 2016 Confinement site program:

### 1. Do you currently use any kind of hydrogen sulfide monitoring equipment?

- 1% Yes
- 89% No
- 9% Not applicable

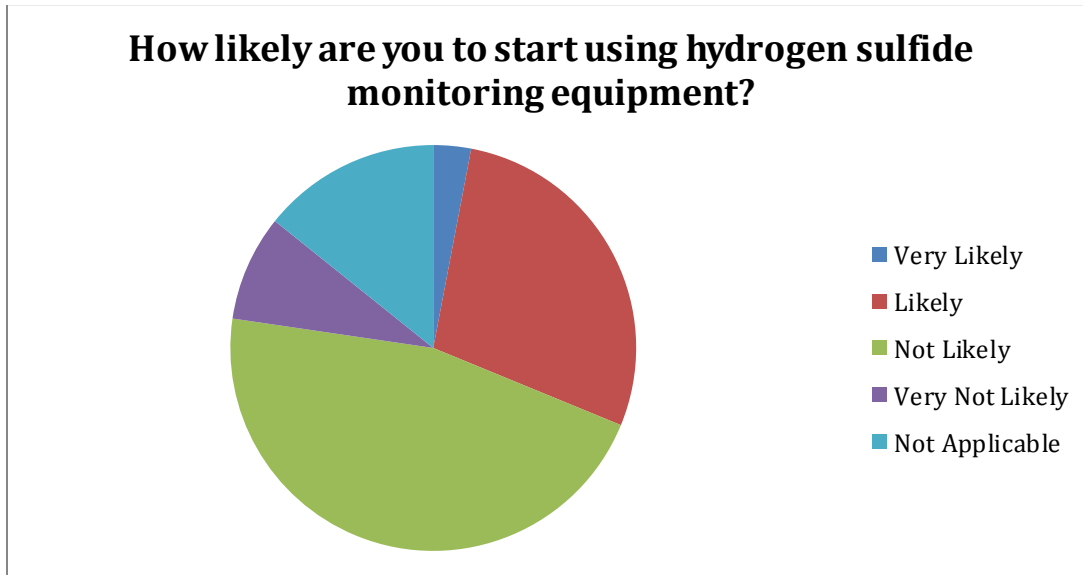


### 2. If yes, what type of equipment do you use?

- None of the applicators gave a specific brand they used. The applicators only said if they were clip on or hand held.

**3. If you currently don't use hydrogen sulfide monitoring equipment, how likely are you to start using hydrogen sulfide monitoring equipment?**

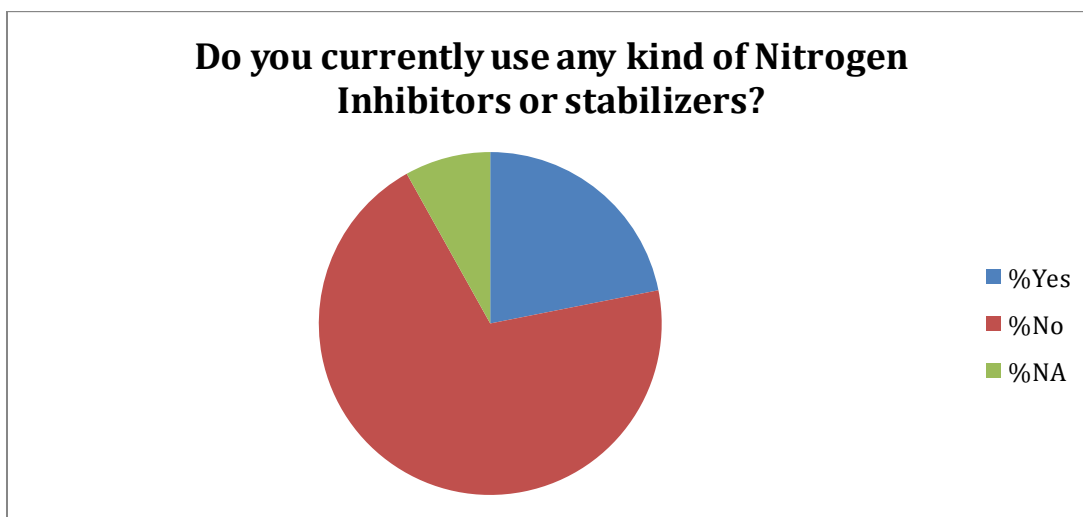
- 3% Very Likely
- 28% Likely
- 46% Not Likely
- 8% Very Not Likely
- 14% Not Applicable



**Nitrogen Inhibitors**

**4. Do you currently use any kind of Nitrogen Inhibitors or Stabilizer?**

- 22% Yes
- 70% No
- 8% Not Applicable

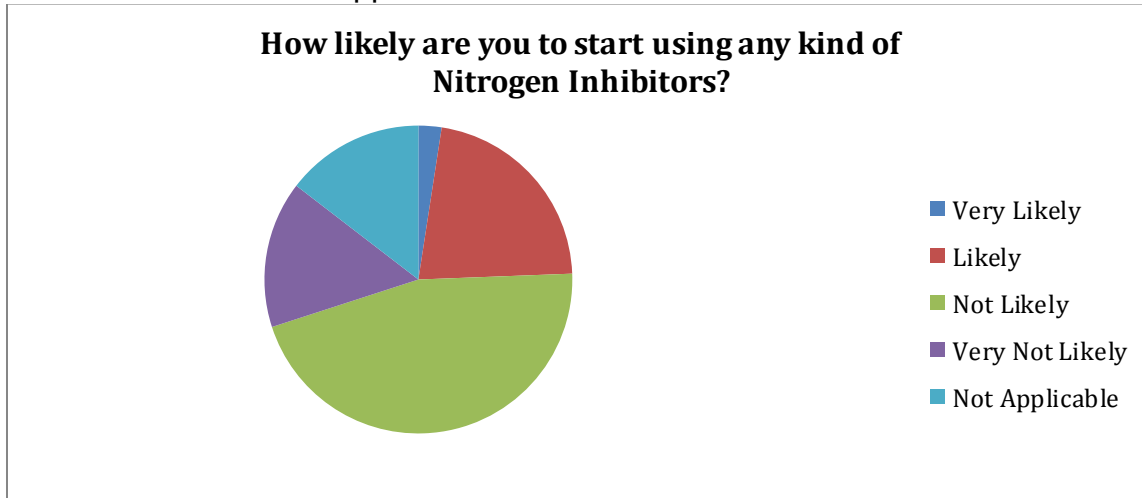


**5. If yes, what do you use?**

- 5-Accomplish
- 1-Agritain, Instinct, More than Manure
- 1-ATS
- 1-Conklin product Guardian
- 2-D-Com
- 74-Instinct
- 6-Instinct and More than Manure
- 5-Instinct and N-serve
- 4-Instinct II
- 1-Manure Magic
- 79-More than Manure
- 1-More than Manure and Manure Magic
- 1-More than Manure/Sludge Away/Waste Away
- 1-Manure and Moore
- 27-N-Serve
- 1-N-Serve, More than Manure, Instinct
- 1-N-Serve, More than Manure
- 1-N-Serve, Instinct II
- 1-N-Serve, Instinct, Accomplish
- 1-N-Serve, NutriSphere
- 2-Pit Charger
- 1-Sludge Away

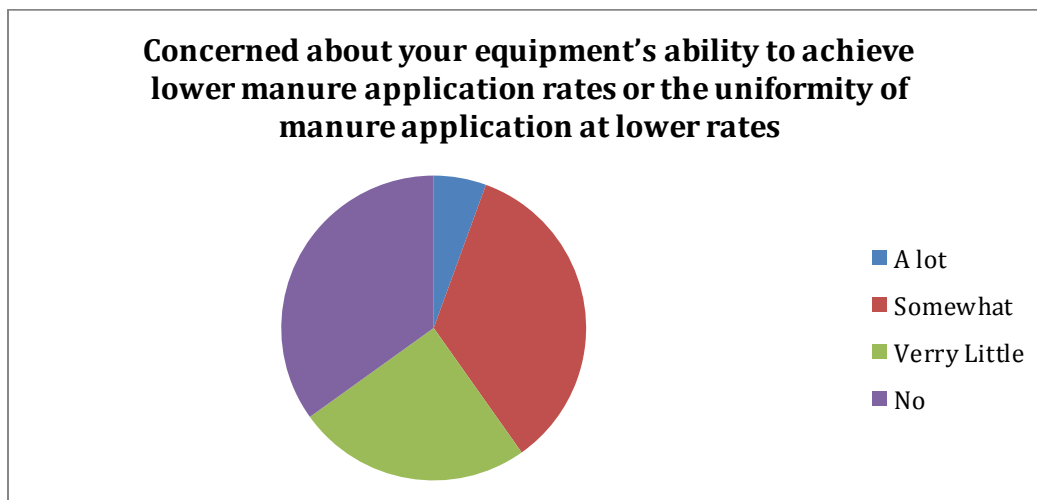
**6. If you currently don't use any kind of Nitrogen Inhibitors, how likely are you to start using any kind of Nitrogen Inhibitors?**

- 2% Very Likeley
- 22% Likely
- 46% Not Likely
- 15% Very Not Likely
- 15% Not Applicable



**7. Are you concerned about your equipment's ability to achieve lower manure application rates or the uniformity of manure application at lower rates?**

- 6% A lot
- 35% Somewhat
- 25% Very Little
- 35% No



Complete results of program surveys can be found at: <http://www.agronext.iastate.edu/immag/maceval.html>. These results are continuously updated as we receive evaluations from County Extension offices. Evaluations from previous years are also available at this site.

## **Advisory Committee**

The 2016 MAC advisory committee gathered on May 28, 2015, at Story County Extension Office in Nevada, Iowa. Members in attendance included: Dan Andersen, Kapil Arora, Rachel Klein, John Sawyer, Mark Hanna, Shawn Shouse, Greg Breneman, Kris Kohl all ISU staff; Jeff Prier, Lois Benson, and Karen Grimes, IDNR staff; and Shelia Larson, Iowa Turkey Federation. Aaron Saeugling, Russ Euken, ISU; Tyler Bettin, IPPA, and Colleen Conroy, DNR were online. Brad Jochum and Rich Rausch, ICNAA; Tom Miller and John Lawrence, ISU; and Bill Ehm, DNR were not able to attend. Introductions were made and discussion about the three different delivery systems of the program: live workshops, DVDs, and the addition of on-line learning and how that was progressing. Handouts were given to committee members, which included the agenda and topics since 2008. The committee reviewed the 2015 program year, discussed program ideas and training materials for the 2016 program year.

## **Promotional Materials**

Promotional materials used in the 2016 Manure Applicator Certification programs were similar to that of previous years. Postcards were developed for the January 2016 Commercial program and a brochure was developed for the Confinement Site program to be used as an informational and recruitment tool. Copies of the postcard and brochure were mailed to all currently certified commercial manure applicators and confinement site applicators in December 2015.

Again this year, postcard templates were designed for use by the County Extension offices to remind the Confinement Site Applicators of the upcoming workshops in their area. A set of instructions on how to use the templates was also posted to the MAC "For Staff" Web page. Copies of all brochures and postcards used for recruitment purposes can be found on the enclosed CD titled "ISUEO 2016 MAC Program Applicator Training Materials".

Press releases were prepared and used by County Extension offices for local media. A copy of those press releases can be found in Appendix 1. Workshop dates were maintained on the MAC section of the IMMAG web site (<http://www.agronext.iastate.edu/immag/mac.html>) and were also linked on the Iowa Pork Industry Center's web page <http://www.ipic.iastate.edu/pastevents15.html#dec15>. A list of workshop dates was distributed to attendees at the Iowa Pork Congress in January 2016. An article was prepared and distributed through the November 2015 *Iowa Pork Producer Magazine* (p. 31) found at <http://www.iowapork.org/wp-content/uploads/2012/10/nov-mag-final.pdf>

In addition; livestock commodity groups were provided with information regarding training opportunities that they used in their monthly email newsletters to their members.



A press release of the online certification was also prepared and used by County Extension offices for their local media.

All of the public certification materials have been distributed electronically through the IMMAG site. The Manure Applicator Certification Program button on the IMMAG site links users to a site solely devoted to the Certification Program (<http://www.agronext.iastate.edu/immag/mac.html>). The site contains a description of who needs to be certified, how to get certified and a list of questions and answers most commonly received about the program. The site also has a “staff only” link for ISU Extension and Outreach employees to download program-planning materials. This site serves as the primary location for MAC information in the state of Iowa.

## **Reporting Requirements**

This contract requires quarterly reports and a final project report. This document serves as the final project report. The quarterly reports were submitted to the Iowa Department of Natural Resources point of contact, Jeff Prier, via email for quarters after the contract was signed.

## **Partnerships**

For FY16 the normal partnerships with IDNR, members of ICNAA, ITF, IPPA, ICA, ISDA and IPA were maintained.

## **Future Needs**

Fiscal year 2016 continues to show an increase in the number of confinement site manure applicators. This is reflected by attendance at our workshops, video showings and by the number of applicators who have met training requirements by the end of the fiscal year.

An informal survey of commercial application businesses suggests that our businesses would be interested in attending some live, in-person trainings to help generate interactive discussion and promote conversation. We would propose talking to our swine integrators to work through them to set up a date to train manure applicators. Training would be presented by ISU extension personal and supplemented by additional training through the integrator.

**Budget**

A copy of the budget expenditures as of June 30, 2016, is provided via the ISU Office of Sponsored Programs.

**Appendix 1.  
Press Releases**

**Commercial Manure Applicator Training Scheduled for --County**

**Commercial Manure Applicator Training Scheduled for Jan. 5, 2016**

**2016 Confinement Site Manure Applicator Training Scheduled in -- County**

**Confinement Site Manure Applicator Workshops Scheduled for 2016**

**Manure Applicator Certification Available online**

**Date****Contacts:**

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Rachel Klein, Department of Agronomy, (515) 294-6685, [raklein@iastate.edu](mailto:raklein@iastate.edu)

## **Commercial Manure Applicator Training Scheduled for [County name] County**

### **Registration deadline is December 30**

[CITY], Iowa – Commercial manure applicators should plan to attend the Commercial Manure Applicator training program scheduled for Tuesday, January 5, 2016, from 9 a.m. to noon. Iowa State University Extension and Outreach in cooperation with the Iowa Department of Natural Resources will conduct the required three-hour training workshop at that time. There is no fee to attend the workshop, but commercial applicators must register by Dec. 30 by contacting the ISU Extension [county name] County office at [phone number].

Commercial manure applicators needing to recertify and those wanting to certify for the first time should attend. The workshop will provide the required three hours of annual training and will cover rules for applicators as well as land-application requirements, update on inspections, what you need to know about nitrogen and phosphorus in manure, nitrogen inhibitors, manure application equipment, and manure and hydrogen sulfide safety.

All currently certified commercial manure applicator licenses will expire on March 1, 2016. Commercial applicators can attend training throughout the year, but if they were previously certified, they should plan to attend training and submit the forms and fees to DNR prior to March 1, 2016, to avoid paying the late fees. Certification fees for commercial manure applicators have not changed for 2016. ISU Extension and Outreach will charge a \$10 fee to applicators choosing to view the certification materials on a non-scheduled reshow day at the county office. For this reason, all applicators are encouraged to attend the workshops or to plan to view training materials on the scheduled reshow date at their local county extension office. The fee will not apply to workshops or scheduled reshow dates.

Please contact your county extension offices to determine which days are scheduled for the manure applicator certification programs. Due to scheduling conflicts, many county extension offices will no longer accept walk-in appointments to watch the training DVDs.

If attending the Jan. 5 commercial manure applicator program or watching the three-hour DVD is not convenient, commercial applicators may contact their local DNR field office to schedule an appointment to take the certification exam. In addition to needing an appointment to take the exam, applicators must bring a pencil and photo I.D., and should plan to bring a calculator.

Applicators now have another option, online certification, which an applicator can take their training on-line at DNR MAC eLearning site at <https://elearning-dnr.iowa.gov/>. The applicator will need to sign-in and get an A&A account.

Commercial manure applicators hauling, handling or land-applying primarily dry or solid manure are encouraged to attend the dry manure applicator workshops scheduled for February 2016. Dates and locations can be found in the link below.

For more information about the commercial applicator program contact the ISU Extension [county name] County office at [phone] or access a list of the training locations at: <http://www.agronext.iastate.edu/immag/certification/macprogrampostcard.pdf>

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**Date****Contacts:**

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**Commercial Manure Applicator Training Scheduled for Jan. 5, 2016****Contact ISU Extension and Outreach county office for complete schedule**

AMES, Iowa — Commercial manure applicators can attend annual training to meet commercial manure applicator certification requirements on Tuesday, Jan. 5, 2016. Iowa State University Extension and Outreach and the Iowa Department of Natural Resources (DNR) will conduct Commercial Manure Applicator training from 9 a.m. to noon at 74 locations in Iowa; two locations in Wisconsin and one location in Minnesota. Doors open at 8:30 a.m. There is no fee for the workshop, but applicators must register by Dec. 30 with the ISU Extension and Outreach county office where they plan to attend. A complete list of workshop locations can be found at: <http://www.agronext.iastate.edu/immag/certification/macprogrampostcard.pdf>

Commercial manure applicators needing to recertify and those wanting to certify for the first time should attend. All currently certified commercial manure applicator licenses will expire on March 1, 2016. Those wanting to renew must complete training requirements and submit forms and fees to the DNR prior to March 1, to avoid paying late fees. The law requires all commercial manure applicators to attend 3 hours of training annually to meet certification requirements. Businesses that primarily truck or haul manure of any type or from any source are also required to meet certification requirements.

Those unable to attend the program on Jan. 5, need to schedule time with their ISU Extension and Outreach county office to watch the training DVD. Due to scheduling conflicts, many extension offices will no longer accept walk-in appointments to watch these DVDs, but do offer scheduled dates and times to provide this training. If you can't attend training during one of the scheduled reshow dates at your county extension office, you will be charged a \$10 fee to view the training at your convenience. If attending the workshops or watching the three-hour DVD is not convenient, commercial applicators may contact their local DNR field office to schedule an appointment to take the certification exam. Another option for commercial manure applicators is to take their training on-line at DNR manure applicator certification eLearning site at <https://elearning-dnr.iowa.gov/>. The applicator will need to sign-in and get an A&A account.

In addition to the commercial manure applicator training offered on Jan. 5, ISU Extension and Outreach will also offer seven dry/solid manure workshops for commercial manure applicators in February 2016. Information regarding these workshops and locations is also contained in the link to the brochure listed above. Program requirements are the same as the regular commercial training program, but this training program is geared more toward dry/solid manure issues.

If you have questions about the commercial manure applicator certification program, contact your ISU Extension county office or on the Web at:  
<http://www.agronext.iastate.edu/immag/mac.html>

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## **Date**

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## **2016 Confinement Site Manure Applicator Training Scheduled in [county name] County**

### **Applicators must complete training by March 1 deadline**

Confinement site manure applicators should plan to attend a two-hour workshop offered by Iowa State University Extension and Outreach and the Iowa Department of Natural Resources to maintain or renew their confinement site manure applicator certification. The [county name] workshop will be offered on [date] at [time] in [location].

“Iowa law requires confinement site manure applicators to attend two hours of continuing education each year of their three-year certification period, or take and pass the exam once every three years,” said Dan Andersen, assistant professor, ISU Ag and Biosystems Engineering and coordinator of the manure applicator certification program. “If applicators fail to attend the two hours of continuing education each year, they will be required to pass a written exam to be eligible to recertify.” Each year nearly 200 confinement site applicators fail to attend training and must pass the remedial exam prior to being eligible to renew their certification for the following year.

The workshop serves as initial certification for those applicators that are not currently certified, recertification for those renewing licenses and as continuing education for those applicators in their second or third year of their license.

The 2016 Confinement site program will include rules for applicators as well as land-application requirements, update on inspections, what you need to know about nitrogen and phosphorus in manure, nitrogen inhibitors, and manure and hydrogen sulfide safety.

Operators must be certified to handle, transport, and apply manure if the confinement livestock operation has more than a 500 animal unit capacity unless the manure is applied by a commercial manure applicator. The certification fee is \$100 for a three-year certificate. This fee is paid when applicators initially get certified and then every three years when they re-certify to apply manure.

Confinement site applicators are also required to pay an annual education fee of \$25. All fees and application forms must be sent to the Iowa Department of Natural Resources to complete certification requirements.

ISU Extension and Outreach will charge a \$10 fee to applicators choosing to view the certification materials on a non-scheduled reshov day at the county office. For this reason, all applicators are encouraged to attend the workshops or to plan to view training materials on the scheduled reshov date at their local county extension office. This fee will not apply to



workshops or scheduled reshow dates. Please contact the county extension office to determine which days are scheduled for the manure applicator certification programs.

Applicators now have another option for certification; online certification, which an applicator can take their training on-line at DNR manure applicator certification eLearning site at <https://elearning-dnr.iowa.gov/>. The applicator will need to sign-in and get an A&A account.

Applicators are encouraged to complete certification requirements annually prior to March 1 to meet certification deadlines and avoid being assessed a \$12.50 late fee for re-certification.

For more information about meeting dates and locations, or to schedule an appointment to attend training, contact the ISU Extension and Outreach [county name] County office at [phone] or visit <http://www.agronext.iastate.edu/immag/certification/confinementsitebrochure.pdf> to view the 2016 workshop schedule.

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## Date

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## Confinement Site Manure Applicator Workshops Scheduled for 2016

### Contact ISU Extension and Outreach county office for complete schedule

AMES, Iowa — Confinement site manure applicators and anyone interested in learning about manure issues should plan to attend a two-hour workshop offered by Iowa State University Extension and Outreach in January or February 2016. These workshops are offered in cooperation with the Iowa Department of Natural Resources (DNR). There is no fee to attend the workshops, but applicators will need to pay certification fees to complete certification requirements.

“Iowa law requires confinement site manure applicators to attend two hours of continuing education each year of their three-year certification period, or take and pass an exam once every three years,” said Dan Andersen, assistant professor, ISU Ag and Biosystems Engineering and coordinator of the manure applicator certification program.

A total of 69 counties will participate in the confinement site manure applicator workshops. In addition, a series of seven dry/solid manure applicator certification meetings will be held in February. ISU Extension and Outreach county offices have a complete list of workshop dates and locations, or view a list at: **Error! Hyperlink reference not valid.**

<http://www.agronext.iastate.edu/immag/certification/confinementsitebrochure.pdf>

The workshops serve as initial certification for those applicators that are not currently certified, recertification for those renewing licenses and continuing education for those applicators in their second or third year of their license.

Due to uniform certification deadlines, applicators are encouraged to attend workshops prior to March 1 to avoid being assessed a late fee of \$12.50 for those who are re-certifying. Those unable to attend one of the workshops need to schedule time with their ISU Extension county office to watch the training DVD. Due to scheduling conflicts, many extension offices will no longer accept walk-in appointments to watch these DVDs, but do offer scheduled dates and times to provide this training. If you can't attend training during one of the scheduled reshow dates at your county extension office, you will be charged a \$10 fee to view the training at your convenience. If attending the workshops or watching the two-hour training DVD is not convenient, confinement site manure applicators may contact their local DNR field office to schedule an appointment to take the certification

exam to meet certification requirements.

Applicators now have another option, online certification, which an applicator can take their training on-line at DNR manure applicators certification eLearning site at <https://elearning-dnr.iowa.gov/>. The applicator will need to sign-in and get an A&A account.

Contact your ISU Extension county office for more information about the Manure Applicator Certification Program or visit: <http://www.agronext.iastate.edu/immag/mac.html>

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## DATE

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## Manure Applicator Certification Available Online

### New program provides convenience, 24-hour access

[EXTENSION OFFICE CITY], Iowa –Manure applicators now have another option to receive their certification from the Manure Applicator Certification (MAC) program. Iowa State University Extension and Outreach in cooperation with the Iowa Department of Natural Resources recently developed an online version for the DNR’s e-learning site, <https://elearning-dnr.iowa.gov>.

“The program was two years in the making and involved many people from both agencies,” said Dan Andersen, agriculture engineering specialist for Manure Application Certification at ISU Extension and Outreach. “It was a phenomenal effort.”

The online MAC program was a result of House File 312, a bill passed by the Iowa Legislature in 2013 that required the DNR to provide an instructional course for manure applicators via its website. The DNR contracted with ISU Extension and Outreach to help create the training modules.

County Extension Director [NAME] recommends that those who have never been certified enroll in a course through ISU Extension and Outreach rather than opting for the online route. First-time applicators can benefit from the one-to-one guidance while getting a chance to have their questions answered. “They can experience the personal customer service that the local extension office offers,” [LAST NAME OF DIRECTOR] said.

State certification is required for all commercial manure applicators and confinement site manure applicators with more than 500 animal units in a confinement facility. Upon completing the online modules, the user obtains instructions on how to print the certificate and pay for the training, which can be done by mail or online.

The modules cover DNR rules, land application and separation distances, water quality, manure sampling and testing, understanding DNR inspections and case studies. The time involved is the same online as it is in person: three hours for commercial applicators and two hours for confinement site applicators.

Entire groups from one work site may find it easier to take the training together at their county extension office, according to [LAST NAME OF COUNTY DIRECTOR]. Applicators cannot take it simultaneously online; only the person who signs into the system obtains credit for certification.

For more information, contact the ISU Extension and Outreach [COUNTY NAME] office at [PHONE NUMBER].

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**Related links:**

Iowa Manure Management Action Group

<http://www.agronext.iastate.edu/immag/homepage.html>

Iowa Department of Natural Resources

<http://www.iowadnr.gov/Environment/LandStewardship/AnimalFeedingOperations/Confinements/ManureManagement/ManureApplication.aspx>

**Related publication:**

“Manure Management Resources for Beef and Dairy Operations,” PM 1872

<http://store.extension.iastate.edu/ProductList?Keyword=manure>

**Image:**

