

Odor Control Methods Used By Iowa Pork Producers

Introduction

Air and odor issues related to livestock production have received much attention recently and are a primary concern for pork producers. To establish baseline information about the odor control technologies used by producers, a survey was conducted in 2002. In early August, 3,249 surveys were sent to pork producers and 562 were returned and usable. This report provides a summary of the types of odor control methods used by Iowa pork producers and the level of satisfaction with those methods.

Results

Sixty-eight percent of the producers indicated that a deep pit was their primary manure storage system. About 20 percent said they

had a solid or bedded manure storage system. Eighteen percent had an outdoor slurry pit system and 6 percent had an anaerobic lagoon (fig. 1).

The distance from the main production facility to the nearest neighbor is critical in minimizing air quality impacts. Figure 2 shows that 70 percent of producers' nearest neighbors live between 1/8 and 1/2 mile from the production facility. The closer the neighbor, the more important odor control efforts become.

Odor control technologies used and satisfaction

The technologies producers reported using to help reduce odors are divided into four

Figure 1. Manure storage systems used by Iowa pork producers in 2002.

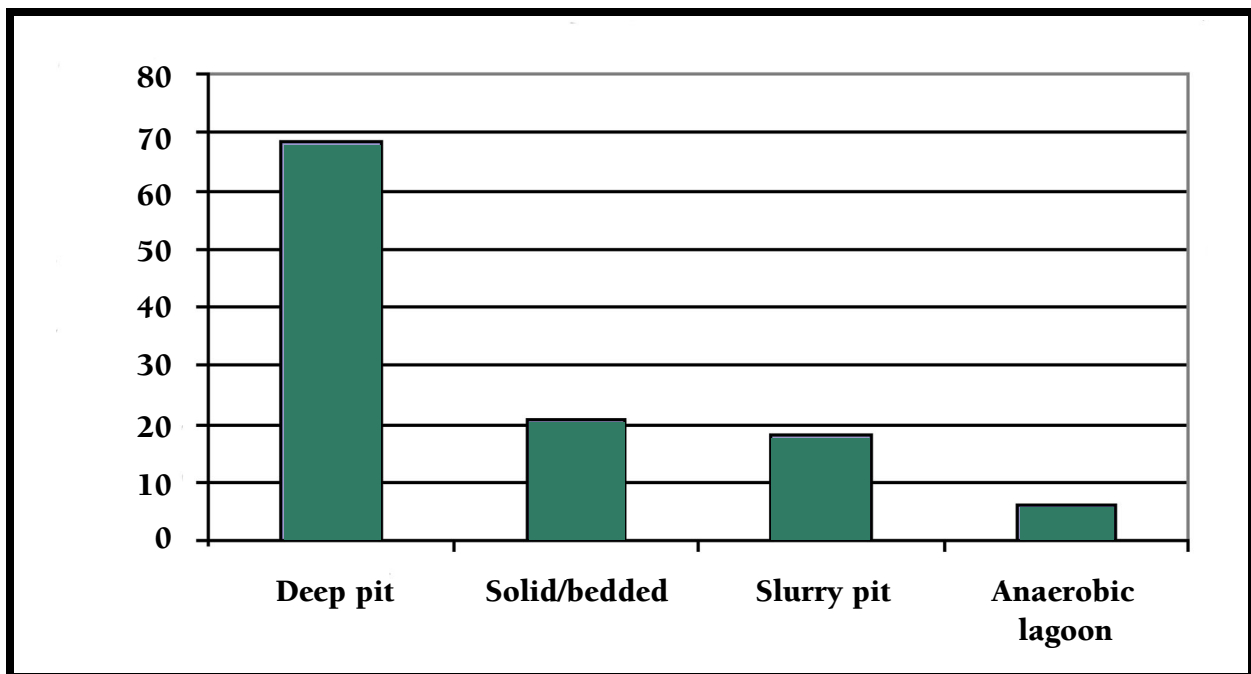
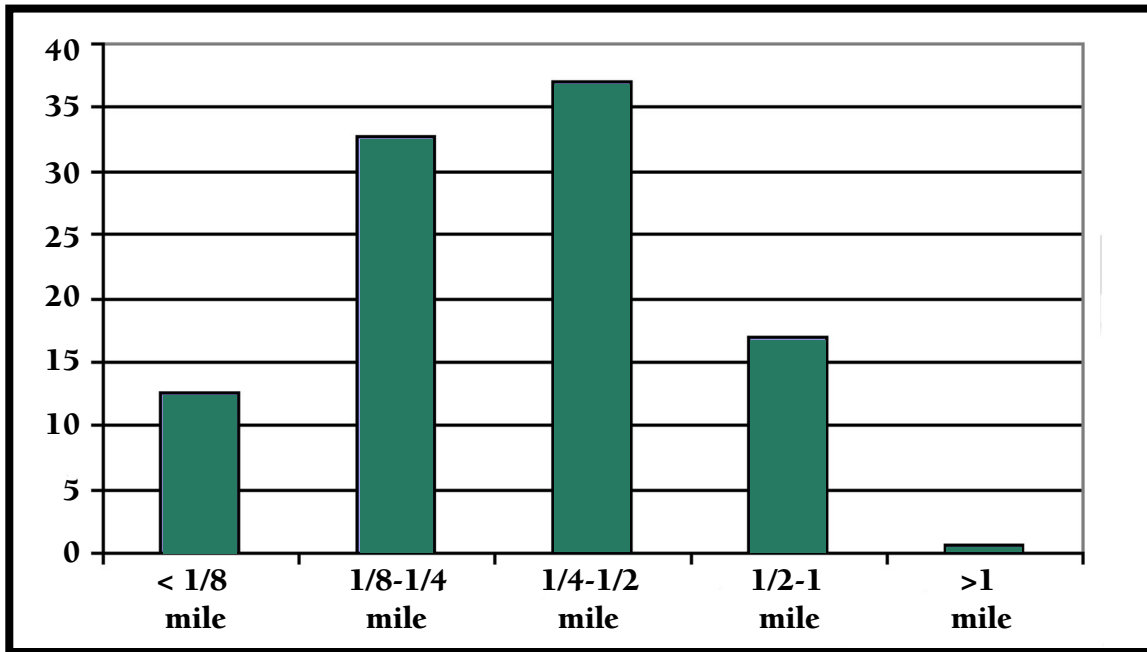


Figure 2. Distance between pork producers and nearest neighbors.



groups: (1) technologies associated with buildings, (2) technologies associated with manure storage, (3) feed modifications, and (4) land application (table 1). Producers who were using, or had used, each technology were asked whether they were satisfied, indifferent, or unsatisfied with that technology.

The four technologies that were the most popular with producers were: windbreaks (38% using and 64% satisfied); deep pit buildings (77% using and 77% satisfied); composting mortalities (50% using and 75% satisfied); and soil injection (69% using and 88% satisfied). Each of these technologies had a low number of producers discontinuing use: one percent for the first two technologies and 6 and 7 percent for composting and injection, respectively.

Some technologies were well liked by the users but were not widely used or had a high dropout rate. Examples of these technologies are the bio-covers (chopped straw or chopped cornstalks) on outdoor pits used by 10 percent

of the producers, of which 70 percent were satisfied. Sixteen percent of the producers quit using the bio-covers. Bedded manure systems were used by 36 percent of the respondents, of which 59 percent were satisfied and 16 percent quit. Aeration was used by 6 percent of the producers, 55 percent of whom were satisfied and 22 percent quit.

Producers also were dissatisfied with some of the technologies. Plastic covers, both permeable and impermeable, were tried by only 2 percent of producers. Among them, 33 percent were satisfied with the impermeable covers and 20 percent with the permeable. Thirty-three percent were dissatisfied with the impermeable covers and 60 percent (greatest dissatisfaction of all the technologies) with the permeable plastic covers. Of those who had tried plastic covers, 67 percent using impermeable and 40 percent using permeable covers quit using them. Manure additives were used by 43 percent of producers: only 23 percent were satisfied and 54 percent quit using them.

Table 1. Odor control technologies used and producer satisfaction level.

Technologies	Level of Satisfaction				
	Using or previously used %	Satisfied %	Indifferent %	Unsatisfied %	Quit %
<u>Building</u>					
Biofilter	1.6	25	37.5	37.5	11.1
Windbreak	38.1	63.6	35.4	0.9	0.9
Oil sprinkling	1.6	33.3	44.4	22.2	55.6
Bedded system	36.1	34.1	34.1	6.9	15.8
<u>Storage</u>					
Biocover	9.8	68.9	24.4	6.7	16.4
Impermeable plastic	1.1	33.3	33.3	33.3	66.7
Permeable plastic	0.9	20.0	20	60.0	40.0
Deep pit	77	76.6	20.5	2.9	1.4
Other type cover	3.7	84.2	15.8	0.0	4.8
Aeration	5.9	55.6	22.2	22.2	21.2
Lagoon	8.5	45.2	41.9	12.9	4.2
Solids separation	4.1	60.0	35.0	5.0	8.7
Composting, pigs	49.8	75.5	20.2	4.3	5.7
Composting, manure	20.3	65.7	26.5	7.8	13.2
Other	2.8	100.0	0.0	0.0	0.0
<u>Feed modification</u>					
Manure additives	42.7	23.4	44.4	32.2	54.2
Feed additives	27.0	38.0	43.8	18.2	30.9
Low protein diet	7.6	37.1	48.6	14.3	18.6
Other	1.4	71.4	28.6	0.0	0.0
<u>Land application</u>					
Do not agitate	19.7	54.3	28.3	17.4	20.7
Immediate incorporation	52.3	71.2	22.8	6.0	14.6
Soil injection	69.4	88.3	0.8	0.8	7.2
Other	10.0	70.8	20.8	8.3	5.4

Methods used by producers to improve neighbor relations

Producers were asked what else they do to maintain good neighbor relations. Their responses were classified into these categories.

Weather (rain, wind, and temp)

Thirty-one percent indicated applying manure after, before, or during one or more weather condition

Communications/neighbor relations/respect

Thirty percent interacted with their neighbors or their community to determine suggestions and provide community involvement and friendly interactions with neighbors.

Landscaping upkeep of facility and area

Sixteen percent try to improve the appearance of their facilities.

Timing of application

Fifteen percent attempt to spread or avoid spreading during certain times such as avoiding holidays, neighbor gatherings, or weekends.

Give pork/gift/manure

Twelve percent provide a gift or service to neighbors. This ranged from gifts of pork to moving snow to providing manure.

Location of facility and where applied

Eleven percent tried to place or avoid placing facilities and manure in certain areas. This ranged from facility placement to avoiding traveling along highways with manure.

Limit exposure/number of applications

Seven percent tried to limit the exposure of neighbors to manure or carcasses. This included everything from the number of applications to volume applied to applying as rapidly as possible.

ISU Extension Resources

For a list of research reports, ISU Extension publications and links to current news regarding air quality and animal agriculture please visit the Air Quality and Animal Agriculture Web page at: <http://www.extension.iastate.edu/airquality>.

Air Quality Resources for Iowa Animal Agriculture, (PM 1936)

contains a list of air quality resources and extension publications. This fact sheet can be found on the Web at: <http://www.extension.iastate.edu/publications>; ordered through any ISU Extension county office; or by calling ISU Extension Publications Distribution at (515) 294-5247.

Iowa Department of Natural Resources (IDNR)

The IDNR has created a Web page addressing air quality issues for animal feeding operations that includes such information as regulatory requirements monitoring studies and work group efforts. The site is located at <http://www.iowadnr.com/air/afo/afo.html>

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