

# Manure Odors from Livestock Operations

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Complaints of odors generated by livestock operations have intensified in recent years as facilities have increased in size. Many volatile organic and inorganic compounds released from livestock operations, particularly swine facilities, have objectionable odors. The amount and strength of the odor is influenced by:

1. The type of manure storage facilities.
2. How and when the manure is applied.
3. The presence of wet and dusty surfaces in the livestock facility.

## The Process and Perception of Smell

Every odorant has a threshold concentration. Below this concentration, the odor compound can not be detected. The area of the brain that processes smell overlaps with the area that controls emotion. For this reason, unpleasant odors can affect mood, and may prompt unpleasant memories.

In an odor study last summer, we asked neighbors living near swine operations to evaluate odor intensity daily over a six-week period. As expected, neighbors closer to the swine units, and those living to the east and south reported higher odor scores than those living further away, and to the north and west. But odor scores were also affected by a number of personal factors.

For example, the following items tended to decrease odor scores recorded by neighbors:

- 1) If the neighbor knew the swine producer well.
- 2) If the farm was perceived as attractive.
- 3) If the neighbor's self-reported health status was high.
- 4) If the swine facility was not visible from the home or road.

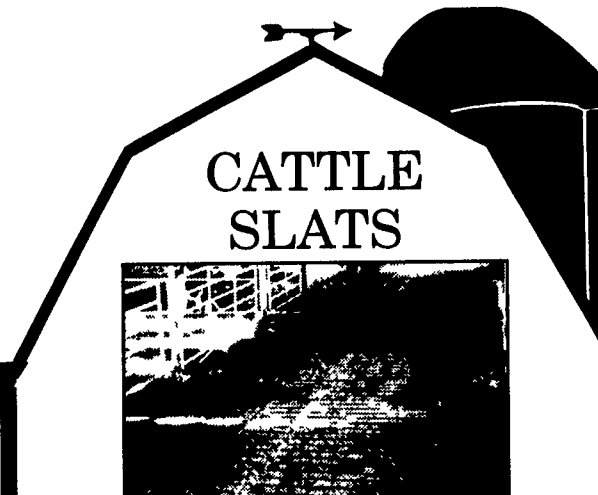
Personal factors that had little or no impact on odor scores included: income, gender, age, education, whether the neighbor had been raised on a farm, length of time the neighbor had lived there, and the neighbor's reported knowledge of swine production.

## Response to Odors

Research conducted by Susan Schiffman at Duke University shows that the mood of people living near swine facilities is negatively affected during the times they smell odors from the facility.

During our odor study last summer, we compared responses of neighbors of swine operations to those of rural residents not living near large livestock facilities. Both groups reported identical overall health scores. But neighbors indicated they experienced cough, nausea, fatigue, and throat irritation more often than did non-neighbors. There were no significant differences between the two groups in regard to frequency of headaches, muscular aches, chest

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41.5	4.9	2.1	1150'	200'	100	63AT1050	\$16,890
48	4.6	2.38	990'	210'	130	70AT885	\$16,990
50	4.6	2.5	930'	210'	150	75AT820	\$17,213
68.3	5.3	3.0'	1000'	240'	200	90AT870	\$20,150
67.2	5.9	3.0	1120'	240'	200	90AT985	\$21,950
61	7.0	3.0	1250'	240'	180	90AT1250	\$26,350
90.7	6.8	3.75"	1180'	275'	275	110AT1050	\$27,230
90.2	7.6	3.75"	1310'	280'	275	110AT1190	\$28,700
88.7	8.3	3.75"	1440'	280'	275	110AT1312	\$33,250
135	7.8	4.00	1200'	300'	450	120AT1050	\$33,180
176	7.5	4.20"	1150'	300'	500	125AT985	\$33,680
88.2	9.3	3.54"	1640'	280'	260	110AT1510	\$35,200
131	9.0	4.00"	1410'	280'	400	120AT1250	\$35,100
139	9.1	4.10"	1410'	300'	400	125AT1250	\$35,900

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