

**SOUND AGRICULTURAL PRACTICE**  
**Opinion Number 97-1**

**SUBJECT:** Request for an opinion pursuant to Section 308 of the Agriculture and Markets Law as to the soundness of a certain agricultural practice conducted at Trengo Farms on New York State Route 427, Town of Chemung, in Chemung County.

**REQUESTOR:** Trengo Farms  
5229 Wilawana Road  
Elmira, New York 14901

**Preliminary Statement**

On April 23, 1996 the Department received from Joseph Trengo a request for an opinion, pursuant to Section 308 of the Agriculture and Markets Law, regarding the soundness of the manure management program at the Trengo farm. The farm is located on New York State Route 427 in the Town of Chemung, Chemung County. Mr. Trengo requested that the Commissioner issue an opinion as to the soundness of the farm's livestock housing and manure spreading practices with regard to odor. The Commissioner issued an opinion on September 7, 1995 (Opinion #95-2), that the manure storage and application practices on the farm as they relate to water quality were sound. That opinion was challenged in an Article 78 proceeding by certain neighbors of the farm. The neighbors' Petition was dismissed by the New York Supreme Court, 3rd Judicial district, on September 23, 1996, and the neighbors have filed a timely Notice of Appeal. No law suit concerning odor is pending at this time. However, some of the neighbors have expressed concern about the odor from the farm.

Pursuant to this request, the Department conducted a sound agricultural practice review of the Trengo's manure storage and application practices, and general management of the swine facility. Department staff visited the farm and surrounding area numerous times during the review in an attempt to determine the intensity and frequency of the odor emanating from the farm. In conducting the review, the Department also considered the information gathered during the previous review and related litigation.

**Information Considered in Support of the Opinion**

1. The Trengo hog farm is a partnership owned and operated by Joseph Trengo, his wife Mary and their son Michael. The farm generally houses approximately 1,000 pigs. The farm consists of approximately 166 acres, about 97 of which are used for crop production. The crops being produced in 1996 include 10 acres of hay and 80 to 85 acres of sweet corn. According to the Department's agricultural district map dated October 3, 1993, the farm is located in Chemung County Agricultural District #2. The Trengo property has been in the agricultural district since its creation in 1977.
2. Joseph Trengo told Mr. Brower that the farm was originally a dairy farm until the cows were sold in 1986. They began raising 300 pigs in November, 1992. The

number of pigs housed at the farm has gradually increased since then. In March of 1995 the population increased from 500 to 1,000 pigs. The pigs are housed in the original barn, which has a new addition to accommodate the expanded farm operation.

3. The manure from the pigs falls through slats in the barn floor into concrete pits below. According to Joseph Trengo, the pit under the original barn is 5 feet wide, 10 feet deep and 110 feet long. The manure from this pit flows by gravity into a newer pit located under the addition. Joseph Trengo stated that the new pit is 41 feet wide, 8 feet deep and 126 feet long. The walls of the new pit are 8 inches thick, the floor is 4 inches thick and according to Joseph Trengo, all joints in the concrete have rubber seals to prevent leaking.
4. On May 28, 1996, following the request for an opinion as to the soundness of the farm's livestock housing and manure spreading practices with regard to odor, Department Attorney Ruth Moore and Mr. Brower visited the Trengo farm to observe the manure spreading operation and to gather information on the management of the manure and the hog facility. During their visit they were joined by Peter Wright, P.E. and Dr. Tro Bui, Cooperative Extension representatives from Cornell University. Mr. Wright is an Animal Waste Specialist and Dr. Bui is a Swine Extension Specialist. The group was also joined by Walt Nelson from the Chemung County Cornell Cooperative Extension office.
5. On May 28, 1996 Ms. Moore and Mr. Brower arrived at the Trengo farm at approximately 10:15 a.m. They approached the farm from the southeast and did not detect any odors in the vicinity of any of the neighboring houses. Mr. Brower and Ms. Moore were joined at about 11:00 a.m. by Mr. Wright and Mr. Nelson, and later by Dr. Bui. Mr. Trengo stated that they started land applying the manure at about 9:30 a.m.
6. At the time of Department staff's arrival, one truck was operating and this truck was applying manure to a field located northwest of the barn and next to the road. Two tractors with moldboard plows were being used to incorporate the manure. None of the manure was visible on the surface following the incorporation. At approximately 12:30 p.m. a second truck arrived and both trucks began applying manure to a hay field on the west edge of the property.
7. During Department staff's visit, the fans used to ventilate the barn were operating and odor could be detected in the vicinity of the fans. Mr. Nelson stated that he drives by the farm about once a month and during humid periods in August, when the curtains to the barn are open, he has smelled a strong odor coming from the vicinity of the farm. Mr. Brower reported that mild to somewhat strong odor was noted at different locations on the property, but at some locations, such as the south side of the property and along the road, no odor was detected. Mr. Brower did not notice any odor as close as 20 feet from the area where the manure is pumped from the concrete pit into the trucks, which is located on the south side of the property. All manure was well

contained during the loading and unloading of the trucks and no spills were observed during the pumping from the pit to the trucks or during transportation to the fields.

8. Department staff entered the barn and remained inside for 15 to 20 minutes while the manure in the pit was being agitated and pumped. Mr. Brower indicated that the odor inside the barn was similar in intensity to other farms he has visited, including dairy and poultry operations. According to Mr. Brower, the inside of the barn was clean. He indicated that very little manure was on the floor and only a small quantity of spilled feed and dust was present. He also indicated that the pigs were relatively clean. Staff did not become ill from the odor at any point during the visit and none of the other people present including the two truck drivers, the two tractor drivers, two other workers, Mr. Trengo, Mr. Wright, Mr. Nelson, and Dr. Bui appeared to be ill from the odor. No one needed any type of respiratory protection, such as a breathing mask, during the loading and landspreading of the manure.
9. Mr. Trengo stated to Mr. Brower that the ventilation system for the old barn was installed in 1993, and the fans for the addition and the pits were installed when they were constructed. Mr. Trengo also stated that the barn fans are automatically controlled, but the pit fans run constantly. Dr. Bui and Mr. Wright indicated to Mr. Brower that the ventilation system could not be improved upon.
10. Mr. Trengo stated that the barn is washed with a pressure washer between each rotation of pigs. Mr. Trengo stated to the group that all dead pigs are taken immediately to a rendering plant three miles up the road from the farm. Mr. Trengo also stated that nothing is added to the feed to reduce dust because of the particular feed ration that has been chosen. Dr. Bui indicated that the benefit of feed additives for dust and odor control is questionable and that using enzymes might result in only a 10% reduction in odor, making it uneconomical. Mr. Wright stated that biofilters, another method of reducing odor, are not always successful in reducing odor and would not be economical for an operation of this size.
11. Mr. Wright and Dr. Bui both stated to Department staff on several occasions that Mr. Trengo has an "ideal" operation. Mr. Bui indicated to the group that the ventilation system and housing arrangement is the best he has seen in the State.
12. On July 8, 1996 Ms. Moore and Mr. Brower met with several complainants and Brenda C. Moses, an attorney with the law office of Knauf and Craig, LLP to gather information on the odor issue. They interviewed each of the neighbors present. One of the complainants provided Mr. Brower and Ms. Moore with copies of various publications on swine odor, copies of the dates that she and another neighbor detected odor from the farm, and copies of odor complaint forms that the neighbors filed with the Department of Environmental Conservation's Air Division at the regional office in Avon.
13. Department staff did not detect any odor emanating from the Trengo farm during the course of their two hour visit at the neighboring residence. When driving by and near

the farm, Mr. Brower only noticed a mild odor for a brief moment when directly in front of the Trengo barn.

14. The complainants described various alleged health problems as a result of being exposed to the odor including: nausea, vomiting, respiratory problems, severe headaches, sinus stuffiness, irritation of the nose, throat and eyes, dizziness, chest congestion, and bloody noses. The complainants stated that the alleged odor gets into their vehicles and are absorbed by clothing. The complainants also stated that the odor from the Trengo farm prevent them from enjoying outside activities.
15. One of the complainants stated that the odor is constant but not as severe as when the Trengo's were daily spreading the manure. She indicated that the odor is the worst when the pit is emptied. This person stated that her allergy problem has been aggravated by the odor. She also indicated that the odor was not bad the day of the spreading in May, 1996, but it was bad the second and third day after the spreading. She also stated that she experiences odor on warm days when the curtains are open.
16. Another complainant stated that the odor is hurting her horse operation because customers do not want to be around the odor. Affidavits were also submitted to the Department by two people who board horses at this complainant's property. Both stated that they have noticed offensive odor coming from the Trengo farm while they were visiting the neighboring property.
17. The complainants all generally agreed at the meeting on July 8, 1996 that their physicians have been noncommittal in terms of stating that their health problems are the result of the odor from the farm.
18. The complainants have made several suggestions to the Department for resolving the odor problem including: adding peat moss to the manure, planting an evergreen buffer around the Trengo barn, providing notification of plans for land applying the manure, and improving the barn ventilation by directing the exhaust from the barn up into the air and, possibly through a scrubber. They also indicated that it was helpful to receive the advance notification from the Trengos this spring providing the dates when they planned to land apply the manure.
19. Following the July 8, 1996 meeting, the complainants submitted additional information to the Department, including a letter from Elliot Rubinstein, M.D., which states that one of the complainants has had allergic problems for several years. The letter indicates that strong odors can make the problem worse and that they should be avoided. Another complainant submitted to the Department a letter from Rakesh Agarwal, M.D. which stated that she had been seen for nasal allergy symptoms seven times starting January 27, 1995 and up to March 25, 1996. Dr. Agarwal speculated that this neighbor's symptoms were "due to the fumes that come out of the septic tank, near her house," or that she could be allergic to hogs "or their feedings."
20. In an affidavit dated May 2, 1996 another neighbor stated that she lives on the east side of the Trengo farm. The neighbor stated that she has not detected nauseating

odor, dust, etc. in the area. She indicated that she will “sometimes notice a temporary country smell” resulting from several farming operations in the area, such as a dairy farm, the Trengo farm and a farm that is located between her house and the Trengo farm. This person stated that she has not experienced any headaches, burning eyes, nausea, etc. as a result of the Trengo farm.

21. On August 5, 1996 Mr. Brower phoned four other residents in the vicinity of the Trengo farm to gather additional information on the alleged odor from the farm. These four neighbors all indicated that there has not been an odor problem from the farm except for when the manure was being applied and none of them have experienced any medical problems as a result of the odor. According to one of the neighbors, a dairy farmer had spread manure on a neighboring field this spring and the odor from that was worse than from the Trengo farm. Another neighbor stated that he has been inside the barn and in his opinion it is a clean facility. On August 8, 1996 Mr. Brower interviewed two other neighbors concerning the intensity of the odor. The neighbors indicated that they appreciated receiving the notice this spring concerning the dates when the Trengos planned to spread the manure. The neighbors stated that they did not have any respiratory or other problems during the spreading activities. According to Mr. Brower the neighbors indicated that it appeared the Trengos were doing a “good job” and were trying to “do things right.”
22. On August 5, 1996 John Lacey, an Agricultural Resource Specialist for the Department of Agriculture and Markets, drove past the Trengo farm to check the intensity of the odor in the area. This was a very warm, sunny day with high humidity and calm winds. Mr. Lacey stated that he slowly approached the Trengo farm from the northwest at approximately 9:30 p.m. and he began to notice mild odor near the northwest edge of the Trengo property and it became stronger as he approached the farm. Mr. Lacey indicated that the odor was strongest in front of the barn and no odor was noticed on the southeast side of the barn. Mr. Lacey stated that he continued to slowly drive southeast to the Pennsylvania State line and he detected a strong odor coming from a dairy farm in Pennsylvania. He stated that the odor smelled like rotten hay and that it could be noticed in a large area between the State line and the Trengo property. Mr. Lacey indicated that he slowly drove northwest, past the farm again and continued up to the northwest edge of the property. He stated that he did not notice any odor on the southeast side of the farm, but odor was noticeable in front of the Trengo barn. The odor, however, became less intense as he drove northwest.
23. On August 5, 1996 Mr. Brower contacted Dan Walsh, an Environmental Engineer with the NYSDEC Region 8 Division of Air Resources, to gather information concerning the complaints that had been filed with his office. Mr. Walsh stated that the Department had received the complaints, but they had not conducted an investigation as of that date.
24. On August 8, 1996 Mr. Brower visited the Trengo farm again to gather additional information on the past manure spreading practices and to observe conditions in and around the barn Mr. Brower stated that he slowly drove past the farm and did not

notice any odor on the southeast and northwest side of the Trengo barn. At the time of the visit, half of the barn was empty and Joseph Trengo was in the process of washing the inside of the barn before the next delivery of pigs. Mr. Trengo stated that the barn is washed approximately once every four months. According to Mr. Brower, it appeared that the walls, floor and feeders are all washed during the cleaning process. Mr. Trengo indicated to Mr. Brower that he washes the fans during the cleaning and disinfecting process. Mr. Brower indicated that the barn was relatively clean with little dust present. Mr. Brower stated that he detected a mild odor outside in front of one fan on the north side of the barn, but did not notice any odor on the east, south and west sides of the barn. According to Mr. Brower, the area around the grain storage bins was generally clean. Mr. Brower described the odor noticed during this visit as being similar to that of other farms he has visited in the past.

25. Mr. Trengo provided Mr. Brower with copies of his records for the dates when his manure was spread in 1995 and 1996. Below is a summary of the land application practices:

5/2/95 and 5/3/95 - 54,000 gallons were applied on the cornfields and incorporated within 24 hours with moldboard plows.

7/8/95 - 39,000 gallons were applied to hayfields and not incorporated. Joseph Trengo stated that this was done to fertilize the hay fields.

11/11/95 - 88,000 gallons were applied to various hay and cornfields and not incorporated; they stopped spreading because of poor weather.

11/28/95 - 4,000 gallons were applied to various hay and cornfields and not incorporated.

12/1/95 and 12/2/95 - 172,000 gallons were applied to various hay and cornfields and not incorporated.

5/28/96 - 220,000 gallons were applied to various hay and cornfields and incorporated immediately with moldboard plows.

26. Mr. Trengo stated to Mr. Brower that the manure was not incorporated into the soil in November and December of 1995 because they were intentionally trying to lose some of the nitrogen through volatilization.

27. On August 13, 1996 Mr. Brower contacted Peter Wright concerning their observations during the land application in May of 1996. Mr. Brower questioned Mr. Wright about the reduction in odor that could be achieved if the manure was injected, as opposed to surface applied and immediately incorporated. Mr. Wright indicated that injection could potentially reduce the odor during land application, but the reduction would not be significant compared to the method used by the Trengos this spring. During a phone conversation with Mr. Brower on October 7, 1996, Mr.

Wright indicated that the main reason for incorporating the manure is to conserve the nitrogen, which apparently was not the objective at the time of the application in November and December of 1995. Mr. Wright also indicated that the potential for odor is less of a concern during late November and early December because the temperature is lower and people generally are not engaged in outdoor activities.

28. On August 15, 1996 Mr. Brower contacted Tom Kump from the Chemung County Health Department. Mr. Kump stated that his office has not received any complaints in reference to odor from the Trengo farm. Mr. Kump indicated to Mr. Brower that he has been to the farm and the surrounding area several times in 1995 and in 1996. Mr. Kump stated that while he was at the neighboring properties he either did not notice any odor or there was a faint odor. He also stated to Mr. Brower that the level of odor he has detected on and near the Trengo farm has been consistent with that of other farming operations.
29. Ross Harris, Jr., President of Environmental Consultants International Corporation, filed an affidavit for the PAW lawsuit against the Department. The law suit claimed that Opinion 95-2, which was issued by the Commissioner of Agriculture and Markets and concluded that the manure storage and application practices on the Trengo Farm are sound in relation to water quality, should be annulled and declared ineffective. Mr. Harris's evaluation of the Trengo farm was based on information provided by PAW and there is no indication that he has visited the Trengo farm to observe and review any of the practices employed by the farm. In his affidavit, Mr. Harris indicates that incorporation of manure by injection, as opposed to surface applying it and "discing it in" would be a more "effective way" of reducing odor.
30. On August 19, 1996 Mr. Brower contacted Stuart Klausner of the Soil, Crop and Atmospheric Science Department at Cornell University to gather information concerning the benefits of applying liquid manure to hay fields during the summer months. Mr. Klausner stated that this practice is an excellent method for fertilizing the hay crop with the nutrients (i.e. manure) on the farm. Mr. Klausner also indicated that the potential for odor does not outweigh the nutritional benefits to the hay crop. This practice is also consistent with the nutrient management plan that was developed for the Trengo farm.

### **Review of Pertinent Literature**

31. According to Miner and Barth<sup>1</sup>, "compounds emanating from swine buildings have never exceeded safe air standards and are not hazardous to humans." A report from the Swine Odor Task Force in North Carolina<sup>2</sup> indicates that it is not likely that odorous compounds generated by swine operations are toxic to humans given the dilute levels that exist outside of the swine facilities. Odors in the vicinity of swine operations can, however, have other impacts on people living in the area. A study

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<sup>1</sup> Miner, Ronald J. and Clyde L. Barth. "Controlling Odors from Swine Buildings". Pork Industry Handbook. 1988. PIH-33 (REV), p.1.

<sup>2</sup> Swine Odor Task Force. Options For Managing Odors. North Carolina State University. 1995, pp.8-22

conducted by Susan Schiffman<sup>3</sup> found that residents who were exposed to odors from nearby swine operations had more tension, depression, anger, fatigue, confusion, and less vigor than the control group. The study did not conclusively determine that the change in mood was due directly to physical effects from the odorous compounds generated by the swine operations.

32. According to Barker et al.<sup>4</sup> under certain conditions, the concentration of gases inside swine production facilities can reach levels that cause the symptoms described by some of the neighbors: headaches, respiratory problems, eye irritation, dizziness, etc. No information was found to support the claim by the neighbors that the level of these gases can be high enough outside of the facility to cause the symptoms they described.
33. Richard Nicolai<sup>5</sup> links odors from swine operations to three sources: buildings and facilities, outside storage structures, and land application. Odors can be controlled in and around the buildings by keeping the area clean, i.e., preventing manure accumulation on floors, preventing dirty hogs and spilled feed, and properly disposing of dead pigs (Nicolai). The Delaware Guidelines ~ Manure Management For Environmental Protection<sup>6</sup> lists several recommendations for reducing odors at the time of land application: avoid spreading when the wind is blowing toward neighboring residences; spread during the week as opposed to weekends and holidays; avoid spreading near main highways; spread on sunny days when the humidity is low; spread in the morning when the air is rising; and inject the manure into the soil or incorporate it by plowing, discing or chiseling.
34. Other methods of odor control have been investigated, but have certain limitations. Chemical compounds manufactured for odor control have not produced satisfactory results (Nicolai). Schmidt and Jacobson<sup>7</sup> indicate that reducing the size of the facility or requiring a certain setback distance does not guarantee that the problem of odors will be resolved because large operations with sound odor control may produce less odors than smaller facilities. Furthermore, establishing an adequate setback distance is difficult. Predicting the intensity and duration of odors at a specific distance from a facility is difficult and site-specific conditions could cause odors to travel farther than a "reasonable setback distance" (Schmidt and Jacobson). The cost of construction, operation and maintenance makes such technologies as scrubbers uneconomical for swine operations (Swine Odor Task Force).

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<sup>3</sup> Schiffman S., E. A. Sattely Miller, M.S. Suggs and B.G. Graham. The Effect of Environmental Odors Emanating From Commercial Swine Operations on the Mood of Nearby Residents. 1995. Brain Research Bulletin Vol. 37. No. 4. pp.369-375.

<sup>4</sup> Barker, James, S. Curtis, O. Hogsett, and F. Humenik. "Safety in Swine Production Systems". Pork Industry Handbook. 1986. PIH-104, pp.1-3

<sup>5</sup> Nicolai, Richard E. Managing Odors From Swine Waste. Agricultural Engineering Update. University of Minnesota. 1995. AEU-8, pp.1-2.

<sup>6</sup> Delaware Guidelines ~ Manure Management For Environmental Protection. Mary Pritchard, editor. 1992. Delaware Cooperative Extension Bulletin #27, p.15.

<sup>7</sup> Schmidt, D. and L.D. Jacobson. Odor and Odor Policy Criteria. University of Minnesota. 1995. p.3.

## FINDINGS

Based on the facts, information and circumstances described above, and in consultation with the Advisory Council on Agriculture; the New York State College of Agriculture and Life Science at Cornell; the USDA Natural Resources Conservation Service; and the Sound Agricultural Practice Guidelines<sup>8</sup> by which agricultural practices are evaluated, I find the following:

1. Storing the manure until it can be land applied during favorable weather conditions and when the crops can take advantage of the nutrients in the manure is a superior method of manure management on the Trengo farm. In this case, other alternatives, such as daily spreading, have a greater potential for creating water quality problems and other adverse off-farm effects. Manure injection would not necessarily achieve significant reduction in odor in relation to the cost of the practice.
2. The Department's investigation, review of written statements submitted by farm neighbors and interviews with neighbors and others show a wide variation in the perceptions of the nature, frequency and intensity of the odor emanating from the farm. Some of the neighbors allege that the odor has caused various health problems for them and their families including: respiratory problems, allergies, and nausea. Other neighbors indicate that they have not experienced health or other problems as a result of the swine farm. Department staff have detected no unusually strong odor from the farm during numerous visits made to the farm and surrounding area during the course of the review. While various sources indicate that levels of certain gases inside a swine facility could be high enough to cause the health problems described by the complaints, no information was found to suggest that the concentration of these gases could be high enough outside the facility to cause such health problems. In fact, scientific sources indicate that the compounds coming from swine facilities do not exceed safe air standards and are not hazardous to humans because they are diluted once outside the facility. According to information provided by the neighbors' doctors, some of the alleged health conditions existed prior to the swine farm. The statements from the neighbors' doctors do not indicate conclusively that the health problems experienced by the neighbors are caused directly by the Trengo farm, and there is no indication that any of the doctors have visited the area to observe the odor frequency and intensity.
3. The farm's manure spreading activities are substantially consistent with its manure management plan and in accordance with the recommendations of nutrient management specialists and the professional literature in this area. The nutrient management plan recommends incorporating the manure within two days when it is

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<sup>8</sup>On November 1, 1993 the NYS Advisory Council on Agriculture published its report entitled Protecting the Right of New York Farmers to Engage in Sound Agricultural Practices. The Council developed guidelines to assist the Commissioner of the Department of Agriculture and Markets in determining what is sound pursuant to Section 308 of the Agriculture and Markets Law. The Guidelines state that the practice 1) should be legal; 2) should not cause bodily harm or property damage off the farm; 3) should achieve the results intended in a reasonable and supportable way; and 4) should be necessary. The sound agricultural practices guidelines recommended by the Advisory Council on Agriculture are given significant weight in assessing agricultural practices.

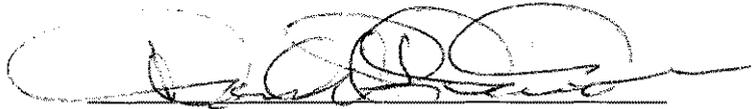
applied to corn fields and allows for the spreading of manure on hayland without incorporation. The application of the manure to cornfields, according to the nutrient management plan, and timely incorporation into the soil allows the crop to utilize the nutrients in the manure. Furthermore, application of the manure to hay fields is a supportable use of nutrients on the farm. The manure was incorporated into the soil immediately during two of the spreading events. During one spreading event it was not practical to incorporate the manure because it was being applied to fertilize hayfields. On three occasions when the manure was applied to cornfields, it was not incorporated. However, the application was consistent with other recommendations including spreading when temperatures are cooler and residents in the area are less likely to be engaged in outdoor activities. The Trengos are using the most current information available to utilize the nutrients in the manure, while reducing the risk of negative environmental impacts.

4. The hog barn at the Trengo farm is well managed. It is relatively clean, which is consistent with the general recommendation for controlling odor from the barn. The inside of the barn is washed and disinfected approximately once every four months. The swine specialist who inspected the ventilation systems for the manure pits and the barn to be a superior system for managing hogs and hog waste.
5. The Department has found no evidence or received other information indicating that the manure management practices or livestock housing practices as observed on the Trengo farm violate state or local law. To the best of the Department's knowledge, the Trengos have not been cited for any violation of law or regulation in relation to their manure management practices.

### CONCLUSION

Based on all of the forgoing information, I conclude that the livestock housing and spreading practices on the Trengo Farm as described above and as they relate to odor are sound.

1-8-97  
Date

  
Donald R. Davidsen, D.V.M.  
Commissioner