

## Manure Odors From Livestock Operations

**Kenneth B. Kephart**  
Professor of Animal Science  
Pennsylvania State University

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 the type of manure storage facilities, how and when the manure is applied, and 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, if the neighbor knew the swine producer well, if the farm was perceived as attractive, if the neighbor's self-reported health status was high and if the swine facility was not visible from the home or road, odor scores recorded by neighbors tended to decrease.

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

An on-going area of research is whether odors are simply a nuisance, or a legitimate health threat. 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.

Neighbors, however, 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 tightness, depression or anxiety. These results are similar to those reported by Kelly Donham's laboratory at Iowa State University.

### Dispersion Of Odors

An important aspect of odor dispersion is that the width of the odor plume changes very little as it moves from the source. Thus, wind blowing across a 1,000-foot-wide field with freshly applied manure will potentially affect more people

than wind blowing across a 300-foot-wide manure application area.

During a sunny day, most of the odors are carried up with rising air currents. This is the primary reason that neighbors won't notice odors as often or as far away during days when the

sky is clear.

During the night, the ground is cool so there are no rising air currents. In fact, when the air is very stable, temperatures are often inverted or upside down. This means that the temperature near the ground is lower.

## Send Your Favorite Beef Recipe To Enter Contest

The Pennsylvania Beef Council and *Lancaster Farming* are sponsoring a beef recipe contest to highlight the versatility and nutritional value of beef. To enter the drawing, pick out your favorite recipe which includes a substantial amount of beef or veal.

Simply give us your favorite recipe to prepare that steak, roast, filet, or ground beef for your hungry family and write a short description on why the recipe is such a hit with your family.

Your recipe may fall into the appetizer, soup, entree, vegetable, snack and salad categories

or any other creative way to prepare and present beef and veal.

The deadline to enter recipes is Friday, August 25. Contest winners will be printed in the September 2 issue of *Lancaster Farming*.

Send your entry immediately. Winners will be selected by a random drawing at the end of August, however *Lancaster Farming* will be printing beef recipes throughout September.

Please clearly print or type your recipe entry. Also be specific and accurate with measurements, temperatures, times, and sizes of baking dishes to use. We may disqualify entries if these guidelines are not followed.

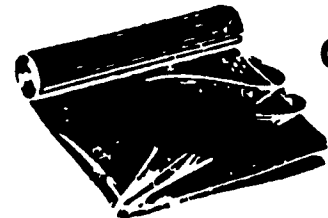
Along with the recipe include your complete mailing address so we can send you a prize if you are a winner. In addition please enter one recipe per family. Contest participants must be 18 or older.

Send entries to Lou Ann Good, Lancaster Farming Beef Recipe Contest, P.O. Box 609, 1 East Main Street, Ephrata, PA 17522.

The Pennsylvania Beef Council has furnished many terrific prizes to help you cook up, grill up, baste up, and eat up beef any style. Besides several full-color beef cookbooks and aprons, prizes include gift certificates to Hoss's Steak House, Doc Holliday's Steakhouse, and Giant grocery store. You may also win a 14-piece knife set in a counter block, a 4-piece steak knife set, stainless steel skewers, a roasting pan and rack, a basting brush, meat thermometers, two grill tool sets, and a grill mitt.



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