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Swine Sanitation

Richard Hollandbeck, Animal Sciences Department

Swine production is the most important single source of the total agricultural income of Indiana. The more than 300 million dollar average annual gross income over the last few years is big business by any standard. It is a vital part of the Hoosier economy.

But this is the clean side of the board. What about the other side; the side showing the number of hogs that die and never reach the market and the dollar losses caused by unthrifty, unhealthy pigs? Although recent reports from the Office of Federal-State Statistician (USDA), Purdue University show that nearly 10 percent of our hogs (excluding the real early baby pig losses but including losses of in shipments) die each year, the dollar losses caused by poor management, poor nutrition and poor disease and parasite control far exceed the death losses.

Many hog raisers have literally been "run out" of the business by parasites and filth-borne infections they have allowed to accumulate on their farms. If we could pile up all the dead, sick, wormy, and unthrifty pigs resulting from poor sanitation practices on just one farm, it would be astounding. These losses attract very little attention. In fact, they have grown upon the industry so gradually, that in many cases, their cause is not recognized and they are looked upon as an accepted part of production practices.

A Problem? Yes

There are at least 12 kinds of infectious diseases, 3 kinds of external parasites and 5 kinds of internal parasites that can attack hogs and wipe out your margin of profit. The problems of control of these organisms have multiplied as hog numbers have increased. More hogs are being raised in confined quarters which can become highly contaminated with disease organisms and parasites.

Answer? Prevention Not Cure

The irony of the situation is that you can do something about it.

Most diseases, ailments and abnormal conditions of swine are preventable to a large degree. Prevention through good management and sanitation is highly effective and economical for all Indiana hog raisers. It is truly the key to success—or disaster.

Sanitation Defined

Sanitation is defined as the application of all of the measures pertaining to health. This includes a consideration of all that can be done for the prevention of diseases and injurious parasites and the promotion of health.

Loosely defined in every day usage, sanitation is the prevention of disease and injurious parasite transmission. When an animal is infected, the organism can leave the body by numerous routes. The infecting organism can make its contact by any one of a half-dozen different routes. As it comes in contact with another susceptible hog, the spreading of the condition is complete.
Organism Transmission

Disease and parasites are commonly transmitted to hogs in many ways. For example, the infection or infestation may result from direct contact with other hogs—dead or alive—harboring the organisms. Transmission is completed in indirect contact with the aid of carriers and/or intermediary hosts (vectors). The carriers harbor the organism and often transport it for some distance between hogs.

Snug bug harbors include both contaminated pens and lots which have previously housed diseased or parasite infested hogs and contaminated water in wallows, stagnant ponds and poorly drained areas.

The transporters can be either mechanical or animal. Vehicles going from one lot or farm to another are quite effective spreaders of organisms. The same goes for shovels, scrapers and equipment.

Animals such as birds, rodents, insects, dogs and even man can and frequently do carry the organism about from place to place as contaminant on hair, feet, clothing, boots, etc.

Air-borne disease organisms which thrive in high humidity caused by poor ventilation can infect hogs. Certain types of diseases particularly viral diseases, are spread from hog to hog through the avenue of intermediary host or vector. In this case the vector—

Figure 1. Frequent cleaning and addition of fresh bedding may help control scours and other diseases.

Figure 2. Haul animals from place to place to keep them from picking up diseases or worm eggs. Be sure the vehicles used to haul them are clean.
often man or dog—picks up the organism, contracts the disease, and passes on the organisms over a period of time during and immediately following his actually having the disease.

**How Sanitation Fits In**

The profits of the hog enterprise today are too small for us to afford sharing them with infection-causing organisms and parasites being harbored in contaminated animals, buildings, equipment and pastures.

Sanitation is an important part of herd management. Filthy feeding floors and watering places favor the spread of the organisms. Wet, filthy or dusty beds are detrimental to raising thrifty hogs.

A sound, practical approach is cleanliness. This means clean animals and clean premises. And keep them that way. Defense 'de bugs. The first immediate line of defense is at the farm-line fences. The second is between animals which are infected or infected and those that are not.

**Sanitary Measures**

Sanitary measures which contribute to the prevention of diseases and injurious parasites and the promotion of health include:

1. Preventive medical program  
2. Sound vaccination program  
3. Real cleaning program  
4. Effective disinfecting program  
5. Isolation of newly purchased or sick animals  
6. "No Trespassing" by potential carriers—animal or mechanical  
7. Removal and disposal of dead animals  
8. Professional diagnosis.

**Preventive Medical Program**

Disease (and to some extent, injurious parasitic infestation) has been likened to a fire. An epidemic outbreak compares with a raging holocaust of a forest fire. Both the organisms and the fire cause irreparable damage. Using the same analogy the licensed veterinarian is our professional fire fighter. We do not have enough veterinarians to give us "fire protection" from the profit sharing organisms by utilizing their professional talents to "put out the brush fires" after they have already started here, there and all over the community. Our fire experiences repeatedly tell us it is cheaper to prevent them than it is to put them out. And so also it is with medicine—it is cheaper to prevent than cure.

The preventive medical approach is a relatively new concept in swine production.
The idea is sound. It is working to the mutual benefit of both the farmer and veterinarian. It decreases the cost of production by more than enough to pay the veterinarian's fee. It is strongly recommended for consideration.

A Sound Vaccination Program

A sound vaccination program is an integral part of herd management. It is certainly a health promotion factor and a definite factor in disease prevention. Long before anybody knew about germs, farmers were trying to keep diseases away from their animals. They, then as today, increased the resistance of healthy animals so they would not get the disease if they were exposed. The effectiveness of obtaining this increased resistance (vaccination) has increased through the years.

The increasing concentration of hogs on farms, the increasing movement of hogs in the production and marketing channels, and the increasing inter-farm traffic of potential disease carrying vehicles and animals makes the risk of contracting diseases so great that vaccination must not be neglected. The responsibility of enacting a sound vaccination program rests on the shoulders of management.

A Real Cleaning Program

Cleanliness is the key to sanitation. Cleanliness must not only be established but also maintained. The initial step in sanitizing the premises is to know what proper cleaning is, why it is important and how to do it.

A thorough cleaning job starts with the removal of all gross waste, such as manure and bedding. The surfaces are then scraped and afterward scrubbed with brushes and a good detergent solution until they are visibly cleaned of foreign (particularly organic) matter. This includes any bird nests and droppings on exposed rafters, trusses, nail ties, etc. (birds can carry T.G.E.) Don't forget the hard to reach places like under the lids of fountains and corners and cracks of feeders and farrowing crates.

Remember, cleaning the hog buildings is only part of the job. Equipment and hand
tools used in connection with the hogs also need cleaning.

The thorough cleaning treatment is especially important between each batch of hogs to minimize chances of transmission of these unwelcome bugs to the new batch.

A real cleaning job is not so difficult to come by. About an hour per sow prior to farrowing, a little lye-water solution (1 pound lye per 10-15 gallons of water), some scrubbing equipment (broom or brushes will do) and some "elbow grease" will do the trick.

For those with larger herds of 15 or more sows, a power sprayer with a hand nozzle developing 100 or more p.s.i. will save time and labor. A steam cleaner, if used only for the hog enterprise, would be economical for herds of 45 to 50 sows or more. The beauty of the sprayer and the cleaner is the fact that they can be used for other enterprises as well—spraying fence rows, weed patches and steam cleaning other buildings and machinery.

An Effective Disinfecting Program

An effective disinfecting program must follow a thorough cleaning program. Disinfectants are relatively ineffective in the presence of organic material. Dr. W. L. Mallmann points out in the 1956 Yearbook of Agriculture that germicidal solutions applied to a contaminated wall reduced the bacterial population only about 50 percent. Another section of the same wall was washed with a detergent, rinsed with clean water and then disinfectant solution. In this section the bacterial population was reduced from 28 million per 2-inch square down to a mere 100. The wall that had been washed, rinsed and disinfected was properly treated, but that which had been disinfected only was still unclean and had many bacteria.

Disinfectants are agents that destroy germs. Loosely defined these agents fall into two categories—natural and chemical disinfectants.

The natural disinfectants include direct sunlight, temperature and time. Direct sunlight, not through a window pane, is a very good disinfectant. Heat is deadly to most "bugs" and parasites, hence the use of flame throwers, steam under pressure and scalding water for buildings and equipment sanitizing and burning for dead carcass disposal. Cold temperatures usually only slow down germ growth. Time always finally results in the death of both worms and germs, as well as all other living things, but is generally too slow to be relied upon in modern day hog farming to be the only disinfectant used.

The chemical disinfectants, properly mixed (see Mimeo E-51) and applied to cleaned surfaces are quite effective. Their killing ability in relatively short time lapses and their ease of use makes for their recommendation. It should be noted that the type
and concentration of a product will vary its effectiveness. The USDA regularly publishes a list of chemical products and the "killing power" of each. Your County Extension Agent has this information, so use it.

Isolate Newly Purchased and Sick Animals

The greatest single disease menace to a hog is another hog. More diseases are transmitted from one hog to another than in any other way. Over-crowding increases hog contact and ups the odds of disease transmission if present. Feed, water and bedding become contaminated easily and disease can spread rapidly.

A cardinal rule is to always isolate newly purchased stock for at least 30 days. Closely observe these for symptoms of disease and/or parasites. Combine animals into the herd only after they have been found to have a clean bill of health to prevent the introduction of some unwanted profit-sharing condition.

Close observation of the herd for first signs of disease, isolation of suspects and early professional diagnosis have in many instances literally stopped trouble before it got started and saved untold dollars.

Carriers, Keep Out!

Man, his machinery and his pets; birds; rodents; and, other animals all can carry disease to hogs.

Mud and manure on the shoes, boots, vehicle tires, and hand tools, such as scrapers and shovels in the traffic from one hog lot and/or farm can do a real effective job of scattering disease causing organisms and parasites over a wide area. Water and a scrub brush for cleaning, and foot baths and sprayers containing a disinfectant solution can prevent this. Some farmers make it a practice to keep all such "visitors" out of their lots and others furnish visiting people with disposable plastic boots. An increasing number are providing access areas and lanes to separate the "visiting vehicles" from the hog lots and buildings.

Contaminated feet, feathers and fur also transport the organisms. Dogs have been shown to actually contract T.G.E. which they pick up from hog lots or dead animals and become primary carriers over extended periods of time. Birds can carry T.G.E.

Figure 7. Mud and manure on tractor tires as well as on shoes, boots and hand tools can scatter disease-causing organisms and parasites over a wide area.

Figure 8. Dogs can carry TGE from one herd to another. Purdue research veterinarians have found that dogs may actually contract the disease and become primary carriers.
Contamination by such means can be prevented in a variety of ways by the farmer alert to potential dangers. Installing screens, for example, will keep out flying insects and birds.

Dead Hogs Transmit Disease

Most communicable hog diseases may be transmitted through a dead carcass by direct contact with a susceptible hog or by contaminated portions of the carcass being dragged about to other locations by dogs or scavenger birds and animals.

Always treat the carcass—whether it be that of a baby pig or an old sow—as a potential source of danger. Dispose of it immediately. Haul or carry it to an isolation area for pick-up by the "dead animal truck." Keep the truck out of hog lots for the chances are great that the driver's shoes and truck are contaminated from carcasses picked up at previous stops.

You may wish to bury the carcass. If so, bury deep and then only after it has been drenched with kerosene, quicklime or a similar bad-smelling, bad-tasting substance to discourage its being dug up by dogs or other animals. Dr. F. A. Hall, former Extension Veterinarian at Purdue, has suggested another way to dispose of carcasses of small stock. This method is to sink a large bell tile into the ground for a semi-permanent disposal area. The tile should be sunk into a high, sandy or gravelly area for good drainage. A tight fitting lid should always be kept on the tile to prevent dogs, birds and insects getting to the carcasses and scattering the diseased organisms about the farm or community. This is real handy to dispose of dead baby pigs and afterbirth by dropping them into the tile and covering them with quicklime.

Burning is probably the most sanitary method of disposal of dead carcasses. The fire consumes the carcass and with it any accompanying infectious material. Time, bother and risk of spreading fire have been listed as disadvantages to this method.

Get a Professional Diagnosis

When danger does strike—get a quick, professional diagnosis. A certain amount of decomposition takes place even just prior to death; the rate is accelerated following death. This certainly doesn't help diagnosis. The earlier it is done, the easier and more accurate the findings. The professional diagnostician, particularly when he is acquainted with the community, the farm and the management of the hog, can render a judgment and recommend sanitary and therapeutic measures necessary to arrest the causative agent and prevent spread of trouble.