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Baby Pig Scours

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Baby Pig SCOURS

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Cooperative Extension Service
South Dakota State University, Brookings
U. S. Department of Agriculture

Baby Pig Scours

(White scours, Colibacillosis)

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The intestinal tract of every pig normally harbors over 300 different types of microorganisms. Many organisms are useful and contribute to the well-being of the pig, for they aid in digestion and stimulate the development of generalized immunity to infection. Some of these microorganisms, however, are capable of causing disease when the balance of the bacterial community is disturbed.

The Disease-Producing Organism

Escherichia coli (*E. coli*) is one of the predominant bacterial organisms in the gut. Certain strains of *E. coli* are capable of producing the diarrheal disease known as colibacillosis (white scours). This is an acute, sometimes highly fatal inflammation of the intestinal tract of suckling and weanling pigs. The disease is characterized by a yellowish-white, watery diarrhea and often accompanied by a generalized infection involving the whole body. The disease is usually contagious and spreads easily within a litter, but it is more slowly transmitted from one litter to another. It has been estimated that the majority of baby pig diarrheas are caused by *E. coli*.

Pathogenic (disease-causing) strains of *E. coli* can be found in the feces of apparently normal adult swine. Sows harboring these strains are the common source for infection of the baby pigs.

Relatively few strains of *E. coli* cause disease. The difference between these more pathogenic strains and those that seem to be harmless is not well understood. One difference may be the comparative rate of multiplication. The intestinal tracts of pigs with colibacillosis usually yield profuse and pure bacterial cultures of *E. coli*. These findings suggest that pathogenic strains are capable of temporarily displacing all other detectable bacteria in the intestines. Another characteristic of pathogenic *E. coli* seems to be its ability to invade tissues and establish residence in most any area of the body.

The Disease Process

Pigs of three age groups are most commonly affected by colibacillosis. The signs of the disease depend on the age of the baby pigs.

When pigs ingest pathogenic *E. coli* within the first 4 days of life, these organisms may invade nearly every body organ and produce generalized disease or septicemia. Pigs become listless and weak, although attempts to nurse usually continue until death approaches. A watery, yellowish diarrhea unaccompanied by a rise in body temperature soon begins, but a few pigs may be found dead before scouring is evident. The pigs become dehydrated and may go into coma and die, or make a slow recovery.

The second period during which colibacillosis can become a problem to the swine grower occurs when the pigs are 3 weeks old. At this time disease resistance provided by the sow in her colostrum (first milk, high in antibodies) is disappearing, and the pigs are just beginning to form their own antibodies. Because of the waning immunity, newly ingested or existing pathogenic strains of *E. coli* can cause a sudden onset of diarrhea. Few deaths occur, but there may be a costly setback in growth.

A similar disease condition may ensue at weaning, due to the stress of changing environment and diet. The balance of the microbial organisms in the intestinal tract is often upset because of the change in foodstuff available to them. If present, pathogenic strains of *E. coli* may then find conditions favorable for rapid multiplication.

Diagnosis

Colibacillosis is usually diagnosed from the observations made at autopsy on one or more of the severely affected pigs. A sample of intestinal contents may be submitted to the laboratory for bacterial identification.

E. coli can be cultured from the entire length of the intestinal tract instead of being found only in its normal location. In pigs with generalized infection, *E. coli* can be cultured from most body tissues. When the sow remains healthy, and there is no spread of disease to pigs of other ages, colibacillosis can usually be differentiated from the mastitis-metritis-agalactia complex (MMA) and from TGE.

Treatment

Although many approaches to controlling the infection and maintaining the pigs have been partially successful, a definitive answer to the problem of colibacillosis does not yet exist.

The practice of low-level feeding of antibiotics to swine to increase weight gain has resulted in increasing the number of drug-resistant strains of *E. coli* which can create a treatment problem. The presence of drug-resistant organisms makes it necessary to adapt the treatment to the diseased herd.

Attempts have been made to inject antibiotics into the sow, relying on excretion of the drug in her milk to medicate the pigs. Most research workers agree that oral medication to the pigs is more effective than injected medication. Nearly every available antibacterial agent has been used to treat colibacillosis.

Antibiotic sensitivity tests help determine the most effective treatment.

Water should be available to the pigs to help counteract the fluid loss encountered with diarrhea. Electrolytes can be injected into severely dehydrated pigs or given orally in the drinking water.

Prevention

The prevention of colibacillosis requires good management practices. Cleanliness must precede disinfection, since organisms in ¼-inch of manure can resist formalin fumigation and may survive for many weeks or months. The sows must be on an adequate ration before and after farrowing, and should be kept as clean as possible. To give the sows a chance to develop resistance to strains of *E. coli* present on the farm, it is advisable to keep a closed herd and to place sows in the environment of the farrowing shed 3 weeks before farrowing is expected.

Stress situations for the pigs should be minimized. Pigs which become chilled or do not nurse for prolonged periods after birth are more likely to become victims of colibacillosis. Pigs should receive colostrum as soon after farrowing as possible, as this is their temporary source of protection from those disease organisms to which the sow has previously been exposed. Since weakened pigs are more susceptable to *E. coli* infection, all pigs should be treated to prevent iron deficiency anemia. Diet changes should be introduced gradually to avoid changing the bacterial population of the gut too suddenly and thereby giving pathogenic *E. coli* a chance to multiply.

Once pigs are scouring, sanitation procedures must be scrupulously observed since a scouring pig may shed 500 million *E. coli* in each teaspoon of feces; 1,000 virulent organisms are sufficient, if eaten, to cause the disease in another pig.

Vaccination for colibacillosis is being attempted. The sow can be vaccinated before farrowing, causing her to pass more immunity to the pigs in her colostrum. It is difficult to decide which strains of *E. coli* to include in the vaccine, since several strains are capable of causing the disease, and more than one dangerous strain can be present at once. Currently, the vaccination program seems to be most applicable to a farm that is having continual problems with colibacillosis. Under these conditions, attempts can be made to isolate the specific organism and to produce an autogenous vaccine that may offer protection against future *E. coli* diarrheas. Because *E. coli* bacteria are not good stimulators of immunity, however, vaccines may not establish adequate protection even though the proper strain of *E. coli* is included.

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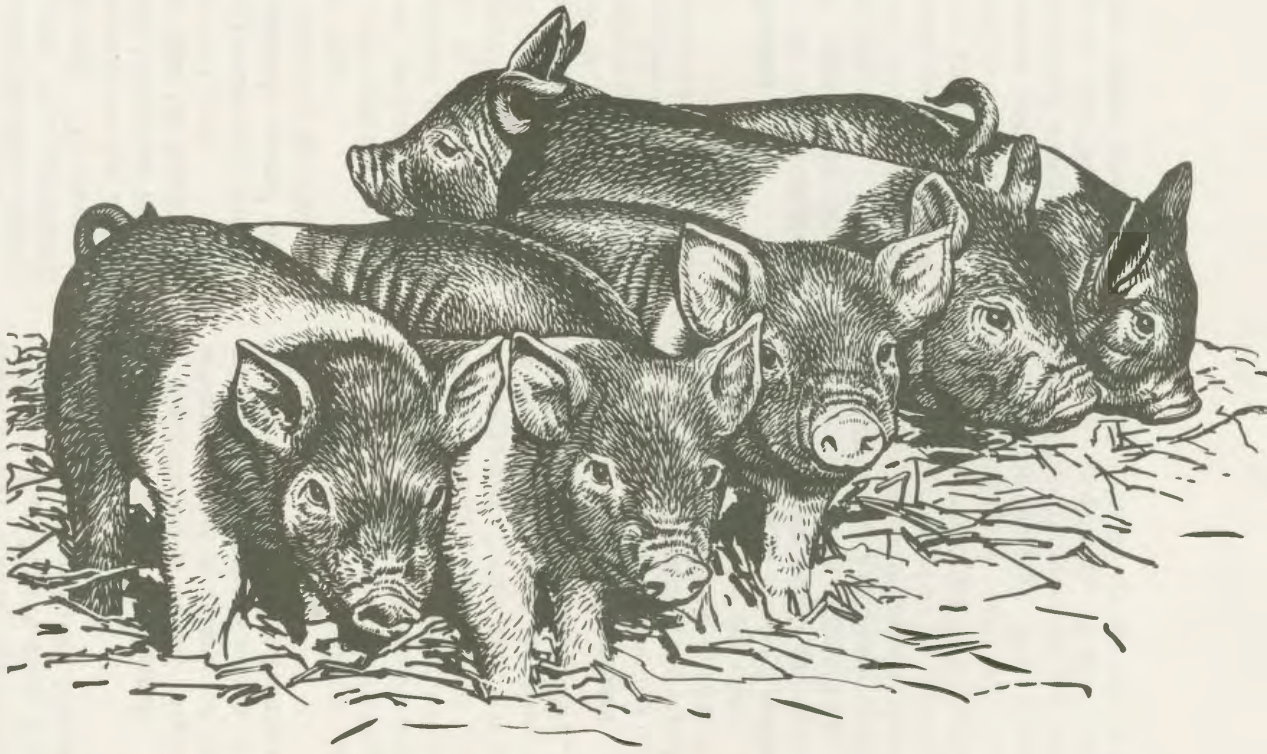

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