



Pork Prose

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SALMONELLA IN SWINE

Salmonella problems are either on the increase, or we're getting better at diagnosing them.

Dr. Tim Loula, a veterinarian from Minnesota, recently told other practitioners attending the SPF Swine Conference that the disease seems to be gaining momentum in the Upper Midwest.

Dr. Roy Shultz, a veterinarian from Iowa, says the incidence of Salmonella cholerasuis in the last three to four years is the worst he's seen in his 32 years of practice. And Kent Schwartz, who works in the Iowa State University diagnostic laboratory, estimates that 25 percent of farms that finish pigs and 10 percent of the farrow-to-finish producers have had signs of Salmonella in the last year or two.

Nature Of Salmonella

Salmonella is a tough organism. It can grow between temperatures of 45 and 113 degrees Fahrenheit. It survives freezing and drying better than most bacteria. It's been known to live in manure oxidation ditches for up to 47 days.

Fortunately, the cells are quickly inactivated by heat or sunlight, and most disinfectants are effective at destroying Salmonella.

Pigs carry many types of Salmonella, but only three known serotypes lead to clinical signs of dis-

ease. The major form is *S. cholerasuis*, which accounts for about 95 percent of all disease-causing salmonella isolated from swine.

Pigs are affected from nursery through finishing. Signs of the disease include diarrhea, pneumonia, purple colored ears and belly, and a general lack of vigor. An important aspect of this serotype is that the disease isn't just in the gut — problems occur in many organ systems.

For example, Salmonella, which is usually not associated with pneumonia, was the most commonly isolated pathogen from swine lungs in 1989 at the Iowa State University diagnostic lab. In addition, pigs infected with *S. cholerasuis* often suffer from septicemia (bacterial contamination of the blood).

The second type of Salmonella, *S. typhimurium*, is isolated from only 2 percent of clinically affected swine. Because this serotype remains in the gut, diarrhea and poor growing pigs are the rule.

Occasionally this and the *S. cholerasuis* serotype can lead to a rectal stricture, which stops the passage of feces and eventually kills the pig. On rare occasions, the third serotype, *C. typhisuis*, clinically infects pigs. Pigs suffer from prolonged diarrhea and poor growth.

Spread Of Salmonella

Pigs with diarrhea (of any Sal-

monella serotype) will spread millions of bacteria by the day. Even common practices such as trucking, mixing, and collecting at feeder pig sales can trigger pigs to shed the organism.

The important concept to remember is that the bacteria are best transmitted from one pig to another. In fact, this is about the only mode of transmission in the case of *S. cholerasuis* since feed contamination with this type is rare.

S. typhimurium crosses species lines, infecting other farm animals, rodents, and birds (and possibly humans) which may move to neighboring farms spreading the disease. Feed contamination also occurs, although Salmonella contamination of meat and bone meal

is much less prevalent than it was 10 years ago.

The Salmonella strains sometimes found in pork supplies originate from the live pig, but these are serotypes that do not cause disease in the pig.

Diagnosis

Seeing a group of pigs wasting away with profuse yellow to brown diarrhea should make you suspicious of a Salmonella infection. But with signs like that, it could just as easily be swine dysentery or possibly necrotic enteritis (caused by *Campylobacter*) if the pigs are in the nursery stage.

With salmonella, small amounts of tissue sloughed from the intestinal lining are often seen in the manure. And you may also see

some blood, although it's usually not as profuse as that of dysentery.

But there is no sense in guessing. Take a few pigs to the lab to find out for sure.

Treatment

Little good news in this category. Most of the drugs at our disposal aren't too effective against Salmonella.

Kent Schwartz recently listed the sensitivity of *S. cholerasuis* isolates to various antibiotics. Here's the list plus a few comments.

Table 1: Percentage of Salmonella cholerasuis isolates sensitive to antimicrobials in 1988 (high percentage means more effective)

(Turn to Page D7)

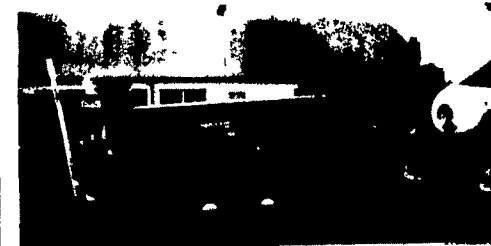
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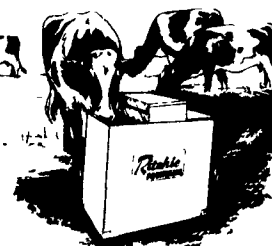


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