

# Defining Sow Productivity

Issue 3: Sow Mortality

## Sow Mortality Kills Profits

Nothing shocks and disturbs swine herd managers and veterinarians quite like the sudden death of sows. Because these animals typically represent huge financial investments, and because they set the pace for the overall productivity potential of the operation, sudden losses of sows at or near farrowing can severely disrupt pig flows, marketing goals, and profitability.

High sow mortality can inflict severe economic losses in various ways. Not only does sow mortality cause losses due to high replacement costs, herd managers are often prevented from strategically culling animals for reproductive or performance reasons. The need for high replacement rates due to sow mortality may also force a higher proportion of less productive first-parity females into the herd. Furthermore, since mortality often occurs around the time of farrowing, total pig output will be reduced.

### The bacterial culprit: *Clostridium novyi*

One of the most significant causes of sow mortality is the bacterial pathogen *Clostridium novyi*. While *C. perfringens* is well known as the cause of clostridial enteritis in piglets, the *C. novyi* pathogen is distinct, often causing sudden death of affected sows. Though *C. novyi* is a normal inhabitant of the gut and liver of pigs, a disease situation can occur when bacterial spores of the microbe infiltrate the liver and produce toxins that become systemically distributed throughout the animal, producing a rapid generalized

toxemia.<sup>1</sup> Probably the most distinguishing feature of sudden sow mortality due to *C. novyi* is an enlarged, friable, gas-filled liver, with liver lobes filled with pockets of gas that produce a honeycomb-like appearance (or similar to a chocolate bar filled with air bubbles).<sup>1,2</sup>

Pathogenic *C. novyi* has been implicated in high rates of sow mortality. In one herd with 21.6% sow mortality, researchers reported that almost half of the sow deaths were caused by *C. novyi*.<sup>3</sup> Similar experiences were voiced at a recent expert-panel veterinarian teleconference.<sup>4</sup>

Roy Schultz, DVM, of Avoca, Iowa, evaluated the causes of sow mortality on 72 farms in a large integrated system in the Midwest US.

Dr. Schultz reported that “40% of sow deaths were sudden deaths, and nearly half of these sudden deaths were documented by culture and fluorescent antibody testing to be caused by *C. novyi*.”

### Timing of sudden sow death

Much of the sow mortality associated with *C. novyi* appears to occur at or near the critical farrowing period. In the 72-farm US study mentioned by Dr. Schultz, annual sow mortality was averaging 13.2% in these herds, with

**Sow mortality can inflict SEVERE economic losses in various ways, such as high replacement costs and lower total pig output.**

continued

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39% of the mortality occurring from 2 days before to 5 days after farrowing.<sup>5,6</sup> The timing of sudden sow death was also discussed at the teleconference by John Deen, DVM, of the University of Minnesota.<sup>4</sup> “Generally, at least 50% of mortality occurs between 3 days before the expected farrowing date and the expected weaning date. That’s a real high-risk period for the animal.” Dr. Deen has observed a pattern of sudden death that tends to increase during the summer. He attributes this pattern to a number of factors that converge in the summer, such as overheating during parturition and going off feed due to a combination of heat and infections.<sup>4</sup>

## Controlling sow mortality

No antimicrobial agent is approved in the US or Canada for controlling sow mortality associated with *C. novyi*.

However, reports in the scientific literature have documented success in limiting mortality by feeding sows bacitracin.

BMD® (bacitracin methylene disalicylate) is the only bacitracin product approved for control of clostridial enteritis caused by *C. perfringens* in suckling piglets when fed to sows at 250 g/ton for 2 weeks prior to farrowing through 3 weeks after farrowing (the lactation period). Similar regimens have been reported to help control sow mortality and prevent *C. novyi* multiplication in the gut of sows.<sup>2,3</sup> In another study involving 7 herds with an average sow mortality

rate of 9.2%, bacitracin treatment of the sow herd at 200 to 240 g/ton significantly reduced ( $P < 0.05$ ) sow mortality by 46%.<sup>7</sup>

Similarly, in the 72-herd study discussed by Dr. Schultz, overall sow death losses decreased by 16% when BMD was added to sow diets at 250 g/ton during the last 2 weeks of gestation through lactation.<sup>5</sup> Furthermore, the treatment regimen reduced piglet mortality and increased pig weaning weights by 0.6 lb. “It was a win-win situation and economically rewarding,” emphasized Schultz.<sup>4</sup> Dr. Deen echoed these experiences, noting some of the same successes in reducing sow mortality by treating sows with BMD through the lactation diet. According to Deen, “we saw a decrease in mortality in both gestation and lactation, but the biggest improvement was in the lactation period.”<sup>4</sup>

## REFERENCES:

1. Reeves DE, Harmon B. *Clostridium novyi* associated mortality in the sow. *Proc Am Assoc Swine Vet* 2002; 153-154.
2. Duran CO, Walton JR. *Clostridium novyi* sudden death in sows: toxemia or post mortem invader? *Pig Journal* 1997; 39:37-53.
3. Marco E. Sudden death in sows. *Pig Journal* 1995; 35:157-163.
4. Alpharma Inc. *Defining Sow Productivity*. 2006.
5. Schultz RA, et al. A sow mortality study - the real reasons sows die: identifying causes and implementing action. *Proc Am Assoc Swine Vet* 2001; 387-395.
6. Wolff T. An overview of research on bacitracin methylene disalicylate (BMD®) in sow diets. *Proc Am Assoc Swine Vet* 2005; 101-105.
7. Kavanagh NT, Spillane P. Cost benefit studies of zinc bacitracin for the control of *Clostridium novyi* infection in intensively housed sows. *Proc IPVS* 1998; 2:241.

**“We saw a decrease in sow mortality that was concentrated in lactation but extended into gestation.”**

– DR. JOHN DEEN

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