

**DR. E.X. AHERNE PRIZE FOR
INNOVATIVE PORK PRODUCTION**

Supporting Document One: Comments by Dr Michael Sheridan



HOG COUNTRY

Serving Western Canada's Hog Producers

Ever notice that when 'manure happens' it's never a good time ... and never a good thing? That's why Dr. Mike Sheridan of Sheridan, Heuser, Provis Swine Health Services of Steinbach, MB tested a new product that liquefies the manure, makes it easier to handle in cleaning pits, reduces flies, and saves on labour and energy.



Too good to be true: That's what Sheridan set out to determine when he started using Nordevco Associates BactiDomus technology Bio4 Swine: Barn product designed to assist with in

barn manure management. He tested the product in several herds in a number of different situations on a trial basis to see how, and if it works.

The main focus for Sheridan, who received the Swine Veterinarian of the Year award at the annual meeting of the American Association of Swine Veterinarians held in Toronto, in March 2005, was to improve the drainage of manure pits in gestation barns where the manure is dry because of poor drainage and lack of flow. This makes it hard to clean and produces an ideal place for flies to populate.

Last summer, he tested the product in a poor working dry sow pit, collecting manure from 120 animals. The pit had two drainage plugs. The plug at one end worked, while the other one did not. The drained end had about six to eight inches of surface solids while the end with plugged drain, had 14 to 16 inches. With two pits in the barn, he treated one with the product according to recommendations, and used the other one as the control pit.

"It's very easy to use," he said. "Mix it up as slurry, and then pour it into the pit, stir it up a bit, add a little water to get it into the surface."

Every two weeks, Sheridan helped with the pit drainage, took measurements in the treatment side, and in the control side.

"Initially, it was very discouraging because nothing happened," he said. "On the fourth week, we started noticing there were areas on the surface of the treated pit, which became wet, as opposed to the control side that remained fairly dry. Maybe that's the start of things happening, we thought."

He noticed something else. The crust on the treated side was getting

thicker and the crust on the controlled side remained static. With nothing else happening, the discouragement grew.

"Until we realized about two weeks later, it was probably hydration of the surface crust because it was a little thicker, but also a little more goeey. By the eighth week we were able to really see the big difference."

He pulled the plug, and despite a thicker crust, it just went humph and disappeared, just like wet porridge. Pulling the plug on the untreated control pit first, the drainage pressure from the treated pit would bubble up in the control pit. About the fifth week in, he noticed a wet spot, on the surface around the control pit. The manure was starting to liquefy. This just reinforced the fact the product was working.

"We realized at that time, Bio4 Swine: Barn really worked," said Sheridan. "Instead of high energy, high effort, short time, a low energy, biological mechanism, all we needed was patience. With that time, we were able to really obtain the results the producer wanted."

The producer had been saying he wasn't sure if it was really working, but when he saw the manure move out quickly, he acknowledged the results immediately. That's when Sheridan started treating some of the other problem pits in the gestation barn.

While this barn didn't have many flies to begin with, the liquefaction of the manure would have kept the flies down.

"As the manure started to liquefy producing semi-moist solids on the surface, those solids started to dissipate," said Sheridan. "Had there been flies, they would have been much less."

Next, he treated another farm with a very heavy fly infestation in the gestation barn.

"By the end of the summer, when the fly populations should have been going up in the barn, they were actually down to extremely low levels," he said. "The initial crust would have provided just everything, fruit and house flies needed for their egg and maggots stage. Once that crust liquefied, there were no dry solid sites for the maggots."

"It's quite satisfying to have someone like Dr. Sheridan who appreciates the possibilities our approach offers," said Dr. Paul Deprez, Chief Technology Officer for Nordevco Associates. "Innovation has always been at the heart of our technological approach. Our goal was to bring innovation to manure management. Producers that have adopted the liquefaction approach have already seen numerous benefits yet we've only just scratched the surface." •

— By Harry Siemens

Story featured from June/July 2006
edition of Prairie Hog Country on page 23

PRAIRIE HOG COUNTRY

ph: 780.986.0962 fax: 780.980.9640 email: hogcountry@shaw.ca



[«A manure Treatment that Works](#)

[NORTH AMERICA'S FIRST NATURALLY PRODUCED OMEGA -3 PORK PRODUCER OBTAINS USDA LABEL APPROVAL»>](#)

Benefits and Potential for Bio4 Swine: Barn product

Harry Siemens - Dr. Mike Sheridan of Sheridan, Heuser, Provis Swine Health Services of Steinbach, MB outlines the benefits and potential of Nordevco Associates of Winnipeg, MB BactiDo mus technology Bio4 Swine: Barn product. Sheridan sees the primary benefit in cleaning out manure pits. With liquefaction over time, it's easier to remove and rid the pit of solids, without adding a lot of extra water, expending high-energy costs, and not having to remove that water with the manure. By allowing the product enough time to work, it will make the manure removal a lot easier, he said. He sees fly control as a secondary benefit helping in controlling disease. Flies are vectors of diseases that bring potential pathogens from the pit and manure area, up into living space of the animal above. Fewer flies, drops the disease potential. Another benefit is removing the sludge at the bottom of a pit that stops the flow of manure to the drainage plug. By treating the far end of the pit away from the plug in one barn, they were able to liquefy the top six inches of surface crust into very gooey solid type sludge. The treatment also helped make the sludge at the bottom disappear. When he pulled the plug, they achieved the proper flow pattern.

Tests on nursery barn manure show high levels of circovirus viral DNA. Circovirus is a very persistent virus in the manure and other items in the room.

"That includes the manure sludge such that even with drainage, some flushing, and chlorination, we still have detected extremely high amounts of virus DNA in there," said Sheridan. "By removing the surface solids and by reducing the sludge along the bottom, the hydraulic effects of pulling the plug, will get more total manure removed, and hopefully minimize the amount of remaining virus." The reduced solid residue will make for better disinfection of the pit between batches. Ammonia levels after room cleanup have also dropped"

Sheridan sees a fourth potential benefit, an exciting one from his perspective, changing dry sow feeding . Manure liquefaction allows feeding more fibre in diets.

"Research in Britain suggests by adding more fibre to the dry sow's diet, not only would we get better digestive health, but we'd get some behavioral advantages, too," he said. "Less water in the diet, less water in the manure, that means a drier pit. If we have innovation that liquefies a drier pit, then we can look at some nutrition modifications that might just enhance our sow health and well-being and decrease manure removal costs. Increasing the fibre in a sow's diet could reduce water consumption by 10, 20, or even 40 percent. Fibre reportedly reduces appetite and thus sows need less water to satisfy appetite between feedings."

There's much potential with the Nordevco products. The main is manure liquefaction.

"What makes this different is it's a live product," he said. "You are putting bugs in that feed on the manure and in the process produce by-products that help in the liquefaction. "

He says the potential usage will depend on the problems producers need to resolve in the barns. To be established in the pit, it requires a couple of initial treatments and some maintenance treatments over the years as opposed to weekly treatments, or in-feed treatments: This is truly an on going manure treatment.

This entry was posted on Thursday, June 8th, 2006 at 7:18 am and is filed under [Agriculture](#). You can follow any responses to this entry through the [RSS 2.0](#) feed. Both comments and pings are currently closed.

Comments are closed.

Siemens Says

From: "Mike Sheridan" <msheridan@shpswine.com>
To: "Brendan Penner" <bpennerj@mts.net>
Cc: "Stuart Greenfield" <smgreenfield@nordevco.net>,
"Paul Deprez" <pdeprez@nordevco.net>
Subject: manure treatment
Date: Thu, 29 Aug 2002 08:09:13 -0500
X-Mailer: Microsoft Outlook Express 6.00.2900.2180
X-NAS-Language: English
X-NAS-Bayes: #0: 0; #1: 1
X-NAS-Classification: 0
X-NAS-MessageID: 1115
X-NAS-Validation: {8D32DF8B-D3B8-4783-A0C5-FE37E2FC8659}

Brendan

I was quite pleased with the findings from the manure treatment trial with the Bio4Swine product.

The 2 treated pits(4 kg one time) have definitely responded with a very marked reduction in sediment level.

There is now a 6 inch soft crust at the non-plug end,a bit thicker actually than when we started. There is no sediment detected when probed. There is liquid from the base of the crust to the floor.

Our decision on the two treatment pits was to forgo further treatment. We will wait until the sows in that row are moved out, and Gaylin can then break the crust with a power washer under the surface.

These pits will be longer term problems, but for now I think the retention of the product with partial drains as Gaylin has done will give us the best short term function. perhaps with the crust mixed we can see a better flow and less re crusting .Certainly the reduced floor crusting in the pit will aid drainage .

The two pits we put the excess product in(at the non-plug end) have shown a change . There is a crust then liquid to the bottom . The two adjacent non treated pits had solids to the bottom and we had a difficult time turning the probe wwith the l shaped bottom.

We chose to use up the product remaining in the south serpentine pits. These have 8 inches of solids and I hope we can effect a change and with improved flow we can see these pits break up and drain rapidly.

Follow up.

1. Can you ask Gaylin when sows over the two treatment pits are going to be empty. If my schedule allows i hope to be able to attend the farm while he is breaking the crust.
2. Be sure to break up the crust on the 2 part treated pits.
3. Ensure that Gaylin only half empties the pits we treated today.

I will circle my calender to visit with you in early March to re assess that one.

Mike

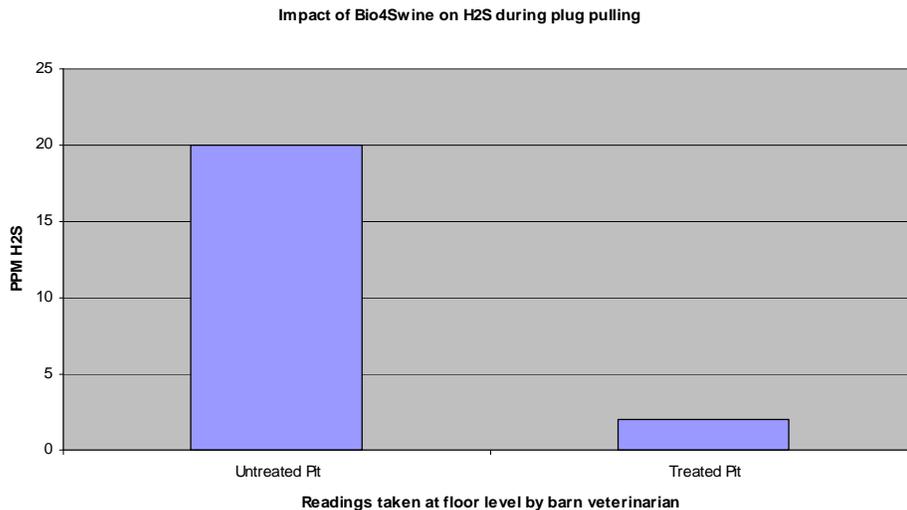
Results of Bio4Swine testing carried out by Dr. Sheridan at Twin Oaks Sow Barn, Manitoba

The Challenge: Solids accumulation leading to problems draining pits including a lack of flow when plugs pulled and release of odours and gases when plugs pulled, visibly affecting the sows in the vicinity of the plug

The Objectives of the treatment:

1. Break down solids, liquefying them to facilitate pit draining and recover lost storage capacity
2. Reduce the impact of plug pulling on the sows
3. Recover manure storage capacity in pits due to solids accumulation

It should be noted that this treatment was conducted and overseen by Dr. Michael Sheridan without the knowledge of Nordevco or any of its staff about the actual test and its location. All the results described are according to the observations of the barn staff and Dr. Sheridan



The Results in Dr. Michael Sheridan's words:

"I was quite pleased with the findings from the manure treatment trial with Bio4Swine. The treated pit definitely responded with a very marked reduction in sediment levels. There is no sediment detected in the treated pit when probed. The Bio4Swine also had an impact on odour and gases – H2S levels of 20 ppm were registered at the plug when draining the untreated pit, while the treated pit registered levels of less than 2 ppm. Ammonia levels after room cleanup have also dropped.