

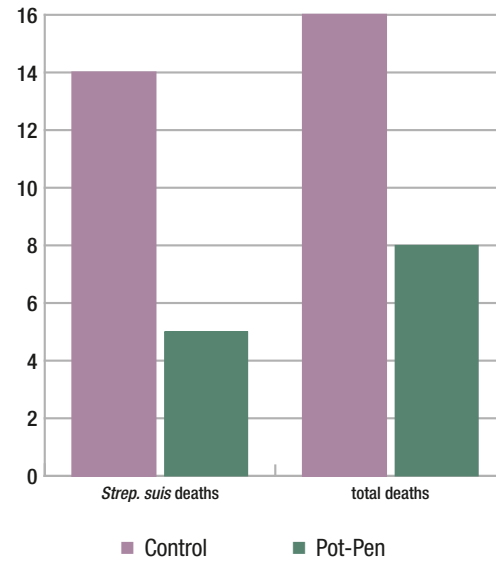
## Mortality rates

There was a 5.83% overall mortality rate in the control group compared to 3.35% mortality rate in the Pot-Pen group, although this difference was not statistically significant ( $P = 0.12$ ). However, mortalities attributed to *Strep. suis* were respectively 5.01% and 2.18% for the control group and Pot-Pen treated animals, and this difference was statistically significant ( $P = 0.044$ ).

	STREP. SUIIS MORTALITIES		TOTAL MORTALITIES	
	geometric mean %	number of mortalities	geometric mean %	number of mortalities
control	5.01 <sup>a</sup>	14	5.83 <sup>a</sup>	16
Pot-Pen	2.18 <sup>b</sup>	5	3.35 <sup>a</sup>	8

a, b - Values with different superscripts are significantly different ( $P < 0.05$ )

It must be noted that *Strep. suis* related mortality rates were higher during the time where the second set of swabbings were taking place (~ 39 to 44 days), compared with the first time replicate. This correlates with the control group displaying higher tonsil *Strep. suis* counts, as displayed in the **Tonsillar swab mean counts** graphic on the previous page.



## Discussion

The findings of this trial strongly suggest that penicillin G potassium (Pot-Pen) efficacy can be related to diminishing tonsil contamination of *Strep. suis*. The latter supported by the fact that *Strep. suis* related deaths were clustered during the time frame where tonsil level counts were significantly higher in the control group when compared to Pot-Pen treated animals. Moreover, *Strep. suis* related mortalities were significantly higher in the control group when compared to the Pot-Pen group. Although there was no significant difference in total mortalities between both groups (control, Pot-Pen) 16 versus 8 respectively, a favorable numerical difference towards the Pot-Pen group is displayed. The latter may have resulted in significant values if a higher number of animals were involved in the trial.


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Data on file with Vétoquinol


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**pot-pen**<sup>TM</sup>

Wheeeee!





**Dr Claude Thibault DVM**  
 Technical Veterinary Services  
 Vétoquinol Canada Inc.

Throughout the last decades, water soluble powders have been successfully used to deliver nutritional supplements and medications. Compared to injections and feed additives, soluble powders are a very efficient and an economical way to deliver mass medication:

- medicating a relatively large number of animals is definitely more logistically friendly through water consumption as opposed to repetitive injections,
- ill animals may have very low appetites especially when fever is involved, while water consumption may remain relatively reasonable, thus medicating through water is more likely to deliver optimal amounts of active ingredients,
- the sole use of soluble powders, as opposed to feed additives, will virtually eliminate the risk of antibiotic contamination of feed manufacturing, storage and distribution equipment,
- finally, soluble powders allow for precise administration of actives while allowing to treat targeted groups within a herd or flock, on pulse therapy programs, whereby overall efficiency is improved.

There are many commercially available medicated soluble powders, however, through recent research, only Pot-Pen® displays the following unique characteristics on its label:

SUMMARY	ACTIVE INGREDIENT	SCOPE	SPECIES + WITHDRAWAL (DAYS)	THERAPEUTIC SUMMARY
For the treatment of infections caused by penicillin susceptible micro-organisms.	penicillin G potassium	ANTIBACTERIAL MULTIVITAMIN	SWINE 1 BROILERS 1 TURKEYS 1	STREPTOCOCCUS SUIIS INFECTION NECROTIC ENTERITIS ERYSIPELAS INFECTION

Chart to the right displays concentration of penicillin G potassium per Pot-Pen® container:

- one jar (500,000,000 I.U.) in 13.1 L stock solution, distributed by water medicator – 30 mL per 4 L (1 oz per U.S. gallon), ~300,000 I.U./L or ~0.2 g/L
- withdrawal time is one day

INGREDIENT	ME.	CONCENTRATION
<b>per jar</b>		
Penicillin G Potassium	I.U.	500,000,000
<b>per pail</b>		
Penicillin G Potassium	I.U.	15,000,000,000

**IMPORTANT NOTE:**  
 The data supplied throughout the charts and texts in this page are merely a summary. Labels should be thoroughly read at all times to ensure proper usage.

At Vétoquinol we understand the need for ongoing research, and how this may better guide you in your everyday work. As a longstanding leader in the soluble powder market for over thirty years, we believe that we have the duty to supply you with the most recent information, and this understood as an intricate part of high quality products and services.

### Introduction

For many years Pot-Pen has been successfully used in pigs infected with *Streptococcus suis*. This is further supported by the **Pot-Pen technical profile #2** (December 2007), which displays trial results that clearly show the efficacy of penicillin G potassium against *Strep. suis*. However, there are questions on the mode of action of penicillin G potassium. The latter based on the accepted notion that some forms of penicillin are degraded in the gut of the animal. A hypothesis was put forward that the effectiveness of penicillin G potassium may take place prior to being absorbed by the intestinal mucosa. Therefore, a trial was recently conducted to not only evaluate the efficacy of penicillin G potassium (Pot-Pen) for the control of naturally occurring *Strep. suis* infection in weaned piglets, but foremost to attempt to identify a potential mode of action.

This trial was conducted in a commercial barn and included 448 pigs, through a randomized complete block design, with two treatments (control or Pot-Pen) assigned within each block of two contiguous pens. The study was carried out in the nursery, where weaned pigs were housed for 5 to 6 weeks. Pot-Pen was administered at label recommended dosage at 18 and 39 days of age. Tonsillar swabs were taken from randomly selected pigs from each pen prior to treatment and 1 day after the completion of each round of treatment. Swabs were cultured for *Strep. suis* using a semi-quantitative magnetic bead procedure. All swab samples were submitted to the Veterinary Microbiology Laboratory at St-Hyacinthe, Québec.

TREATMENT	SEX	NO. OF PENS	PIGS PER PEN	PIGS (TOTAL)
control	M	4	28	112
	F	4	28	112
Pot-Pen	M	4	28	112
	F	4	28	112

Day 18	Day 23	Day 24	Day 39	Day 44	Day 45	Day 55
start of treatment swabbing	end of treatment	swabbing	swabbing: treatment	end of treatment	swabbing	end of trial

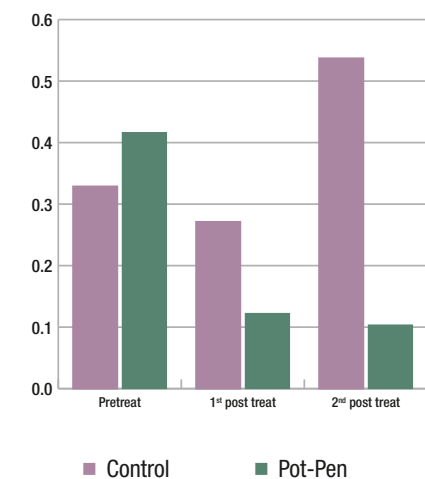
### Tonsillar Swab Mean Counts

The following graphs display the *Strep. suis* (Log<sub>10</sub>) mean counts from tonsils of pigs of either group: control and Pot-Pen treated animals. Prior to treatment there was no significant difference in *Strep. suis* counts between both groups, although the piglets yet to receive Pot-Pen showed a numerically higher count.

TREATMENT	PRETREAT	1 <sup>st</sup> POST TREAT	2 <sup>nd</sup> POST TREAT
control	0.3288 <sup>ab</sup>	0.2712 <sup>ab</sup>	0.5371 <sup>a</sup>
Pot-Pen	0.4164 <sup>ab</sup>	0.1223 <sup>b</sup>	0.1035 <sup>b</sup>

a, b - Values with different superscripts are significantly different (P < 0.05)

After the first treatment, tonsillar swabs show that *Strep. suis* counts are numerically lower in the piglets receiving Pot-Pen when compared to the control group. However, after the second treatment, *Strep. suis* counts are significantly higher in the control group when compared to Pot-Pen treated animals.



# Tetracycline Profile #3