



PROJECT REVIEW

NAME: Christopher Browne	
INSTITUTE: The Royal Veterinary College	FULL TIME Year 2
TITLE: Reducing <i>Mycoplasma hyopneumoniae</i> in the environment of the pigs using alternative methods	
AIMS & OBJECTIVES:	
To determine the efficacy of i). UVA activated photo-catalytic paints, ii). Silver ion solutions and iii). UVC-based air purification system against <i>Mycoplasma hyopneumoniae</i> in the environment of pigs.	

KEY MILESTONES:	TARGET DATE:	ACHIEVED DATE:
Survival of <i>M. hyopneumoniae</i> comparing different temperatures and surfaces	Nov 2012	Dec 2012
<i>In vitro</i> analysis of photocatalytic paints, UVC air filtration and silver solutions	Nov 2013	Dec 2013
<i>In vivo</i> analysis of reducing <i>M. hyopneumoniae</i> and bacteria from the environment of pigs	Dec 2013	
QPCR on <i>Mycoplasma hyopneumoniae</i> load in the pig rooms	Jan 2014	
Comparing the metagenomics of photocatalytic paints, UVC air filtration and silver solutions	Mar 2014	
Publication: Survival of <i>M. hyopneumoniae</i> in the environment	Oct 2013	
Publication: Variables of photocatalytic analysis on <i>M. hyopneumoniae</i>	Jan 2014	

PROJECT REVIEW AND COMMENTARY:
<p>Antibiotic resistance is an increasing public concern. There is increased pressure on agriculture to reduce antibiotic use. Pigs and poultry are the largest users of antibiotics and therefore pressure is being focused these industries. At the same time, pig units increasing in the size to meet the global demand for pork. This has led to increased pig densities and an increase in disease pressure. It is therefore imperative that the pig industry develops methods that do not rely on antibiotics to reduce disease.</p> <p>This PhD is looking at three methods to reduce pathogen load in the environment of pigs with the ultimate aim to reduce disease. We are using <i>M. hyopneumoniae</i> as this pathogen occurs throughout the world and plays a significant role in the porcine respiratory disease complex (PRDC). There are three stages to this PhD including 1. <i>M. hyopneumoniae</i> survival in the environment, 2. <i>In vitro</i> and 3. <i>In vivo</i> efficacy studies of the three novel methods. A selection of basic bacteriology methods i.e. culturing and molecular based methods will be used throughout the three year PhD.</p>

POTENTIAL BENEFIT TO INDUSTRY:
<p>Research aims to identify novel and alternative methods to reduce pathogen load in the environment of pigs. Particular emphasis towards the respiratory pathogen <i>Mycoplasma hyopneumoniae</i> has been chosen as this causes considerable economic and welfare concerns. There have been substantial concerns towards the use of antibiotics in agriculture; this is largely due to antibiotic resistance. Therefore this research is two-fold by developing novel and alternative methods thus reducing/ replacing antibiotics. Secondly, reducing disease on farm.</p>

SUPERVISOR: Dr Mandy Nevel
FUNDERS: BPEX and Zoetis



DATED: 18th October 2013

Notes from Seminar: