Measurement of exposure to bio-aerosols in livestock farming: Trials and Tribulations

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Overview

- The UK agricultural sector
- Health and Safety in agriculture sector
- Case Study
- Measurement Strategy
"Your fear of being publicly exposed as a fraud is a stress-related disorder called 'Imposter Syndrome.' It's common among people in high-profile authority positions, and, of course, in actual phonies, like you."
...but I am a farmer!
Agricultural Sector

• Large majority SME’s, often family-run or one-man
• Aging workforce – training, learnt from dad
• Younger generations – agricultural colleges
• Workplace is also their home – children
• H&S generally not top of their priority list!
Health and Safety in Agriculture

In the last ten years, almost 1 person per week killed as a direct result of agricultural work.
The worker fatal injury rate in the agriculture, forestry and fishing sector (7.61 per 100,000 workers in 2016/17) remains higher than any other main industry sector: around six times that in construction and 18 times that across all industries.
Technology
Farm Safety Partnership.

The Farm Safety Partnership consists of organisations representing a broad spectrum of agricultural interests, including the large farming membership organisations; auctioneers, training providers, farming press; and machinery dealers.

Partners discuss how to co-ordinate activities to increase safety awareness, whilst tailoring delivery to engage farmers in specific sectors in the most appropriate way. Organisations involved in the Partnership are encouraged to develop unique and complimentary ways to engage with farmers, their workers and other people who may have an influence on farm safety. Throughout our work, the aim is for the message to remain constant and to work together towards a safer industry.

The aims of the partnership are to:

- To provide leadership to improve the safety of farms and allied industries.
- To reduce the numbers of deaths and major injuries to farmers, workers and anyone else coming into contact with farming activities.
H&S Research on farm sites

- Site recruitment
- Arranging a date and time
- Communication can be tricky!
- Finding the farm....
- Speak their language
- Pragmatic approach
Case Study: measuring bio-aerosol exposure during pressure washing of pig units

- Indoor pig units
- Enclosed, low ceilings, little ventilation
- Pressure washing for animal health
- Identified as a task for potential bio-aerosol exposure
Bio-aerosols

- Endotoxins
- Bacteria
- Viruses
- Fungi
- Dusts, dander
- Plant and Animal matter, bedding, feed
- Residual medication
- Chemicals
Measurement Strategy

Pumped button sampler

Un-pumped button sampler

Cyclone respirable dust sampler

Direct reading respirable particulate monitor

Personal and Static
GoPro Cameras
Overview

- On-going research
- Every site is different!
- Assess appropriate RPE for these tasks
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