

Final grant report: Student grants

Project title:	Assessing the prevalence and effect of reusing needles on piglet welfare in the UK
Researcher:	Dr Kathryn Owen
Supervisor:	Dr Troy Gibson and Dr Nicola Blackie
Year awarded:	2019

Provide a lay summary outlining the project, focusing on the project's achievements and potential impact to animal welfare.

The reuse of needles in the farming industry is a common occurrence but information on how widespread this practice is in the UK pig sector during routine injection of piglets with iron supplements is currently unknown. In this project, UK pig farmers were asked to complete a short questionnaire on how they administer iron injections to piglets.

The questionnaire was completed by 31 pig farmers. The results showed that iron injections are common in indoor herds, and many are injected earlier than The Pig Site recommendation of 3-5 days of age. Most pig farmers use a 21G 5/8 needle, and the needle is changed at least every three litters. Furthermore, there seems to be little consideration for hygiene when reusing a needle.

These results were then used to design a short laboratory project aimed to assess how repeated needle use affects the force required to push a needle into and out of piglet skin. It was found that repeated needle use using a 21G needle increases the compressive force on pig tissue and is detectable from 50 injections onwards.

Although there are limitations, including a small survey sample, and other factors such as variability in needle manufacture, skin thickness and moisture content of pig meat samples, this study has welfare implications for the pig farming sector and for other animals. Future work might consider repeat experiments with piglet skin and continue microscopy analysis e.g. visualising needle damage by electron microscopy.

Provide a short description of your personal experience in undertaking this project.

This project has enabled me to pursue an area of research that was of great interest to me, broadened my contacts within the pig sector and provided me with a hands-on appreciation of the challenges facing animal welfare in farming. The process of developing an understanding of other stakeholder perspectives, as I have done on this issue, will help me in my future career as a vet, in terms of developing my relationships with individual farmers and enabling effective communication with them. The results of the questionnaire provide an insightful view of current UK practice of iron injection of piglets and highlights areas of good practice as well as where practice can be improved and/or better communicated. The pilot data generated of the compression force experienced upon needle penetration provides a good platform for further work. On a more practical level, I was responsible for writing the safety assessment protocols for the laboratory work, as well as applying for ethical approval for the project. This has enabled me to appreciate the entirety of the research role and the importance of project management. I have enjoyed undertaking this project and will continue to develop this area of research further. My goal is that ultimately my research will contribute to providing scientific evidence to support best practice in the farming sector.

Please provide details of any reports, papers or other publications that have been or will be published to communicate your findings.

Discussions on the relevant forum for communicating this research is progress with my project supervisors. AWF will be updated in due course.

In addition to the report please send us any photographs of the project in action and/or a one-minute video, introducing yourself and the project and outlining the skills and experience you gained during the project.

I applied to the Animal Welfare Foundation Student Grant Scheme during my second year of my veterinary science degree, having observed first-hand, whilst on summer placements in my first year, the practice of needle reuse on farms. Given my background in human clinical research prior to studying for my veterinary degree, I was surprised to see needles being reused so frequently on farms. Upon searching in the literature and speaking with my university lecturers, I found that despite iron injection of piglets being a common procedure, there was little published information on the protocols that pig farmers follow and the subsequent welfare impacts. I was actively looking for a funding opportunity to pursue this area of interest as a summer research project when I saw an advert for the AWF student grant scheme - the application process was straightforward and I was very pleased to be awarded the grant to investigate this issue further. For skills and experience I have gained during the project, see comments above. The presentation attached provides pictures of the project in action.

If you have created any posters or presentations on the project for your University work, please enclose these.

See attached presentation summarizing the project. This will be presented to the RVC Student Animal Welfare Society. Furthermore, a short flyer summary of the questionnaire findings is in preparation and will be sent out to the farmers targeted in the questionnaire. AWF will be sent a copy in due course.