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124001

Swine Research Industry

UIUC College of ACES, Swine Research Center

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Business Context

Pork makes up more than one-third of all meats produced worldwide. In the modern-day pork industry, many research projects are conducted to uphold and further rising production needs. Many of these projects are revealing crucial information that is useful for farmers or veterinarians that are working in the industry. According to UIUC's veterinary website, "On the swine side of things, research is a part of your everyday job. You're going to do clinical trials, vaccines, and treatment regimens," and "understanding the swine industry means leveraging research, large-scale animal care, ethical business practices, and strategic decision-making."

UIUC has three swine research units, the Swine Research Center (SRC) being the primary. SRC hosts research focused on nutrition, metabolism, reproduction, and behavior. Illinois offers students opportunities for internships and research training early on to get a head start in their careers in livestock medicine. At UIUC and most swine facilities, research pigs are kept in small, individual crates. (Image 1)

Business Project Description

Throughout my time working at UIUC's ACES' Swine Research Center, I was given various tasks to assist in a swine study. I collected bihourly rectal temperatures (Image 2,3) and thermal images of ~15-20 sows. (Image 4,5) I later validated this information in data spreadsheets, along with other qualitative data for each sow. Once daily, I would collect saliva samples, which I then centrifuged and pipetted onto microscope slides (Image 6) and chips, and packaged to be analyzed by a lab. I maintained the labeling and organization of these slides/chips and saliva tubes. I also occasionally helped with the weighing and saliva collection for pregnancy checks of sows. These are just a few examples of tasks that may be completed during a swine research study.

Business Project Research

My business research revolved around biosecurity and disease. My inquiry was led by the question *How common are diseases in commercial swine units and how can they be prevented from a staff personnel standpoint?* I completed my research by gaining knowledge through experience in my internship, as well as a literature review. I could not find an explicit response to how common diseases are, but I did learn about biosecurity and disease prevention.

Biosecurity is defined as, "the application of measures aimed to reduce the probability of introduction and spread of pathogens." Swine diseases can be very serious if the proper preventative measures are not taken. Influenza A for example, when presented in swine, has the potential to become a pandemic, due to how swine pathogens function.

At UIUC's SRC, as with many farms and research facilities, biosecurity is implemented in various forms. Showers must be taken upon entry and exit of the facility. You must wear provided coveralls- or wash any clothes at the facility before wearing them. Boots are also provided and stay at the facility. Barns are properly power washed and sanitized. UIUC doesn't enforce the following practices, but some farms will require you to change clothes or boots between barns, bring lunch in 100% disposable containers, and more.

Business Project Key Learnings

As I plan to become a veterinarian, this project has expanded my knowledge and given me experience with an animal that before I had minimal experience with. It allowed me to become more well-rounded in experience, as well as learn more about how the industry is structured and functions. I learned how research is carried out when involving live animals. It also gave me insight into my future schooling and career path, as well as the opportunity to create professional relationships with people in the industry.

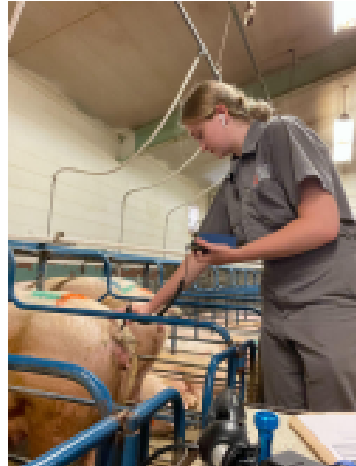
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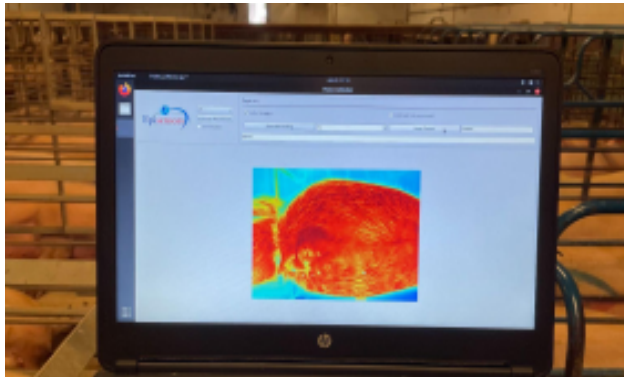
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Annotated Bibliography

Vanderwall, Kimberly. "Global Trends in Infectious Diseases of Swine"

<https://www.pnas.org/doi/10.1073/pnas.1806068115>

This article speaks on the importance of pork production and provides statistics to encompass the significance of pork in the world, such as how of all meat in the world, pork makes up $\frac{1}{3}$.

The University of Illinois at Urbana-Champaign College of Veterinary Medicine. "Swine-Focused Students Stand Out" <https://vetmed.illinois.edu/2020/02/10/students-swine-research/> UIUC's vet med

school article talks about how, in the everyday life of a person working in the veterinary industry, you have to use research tactics. People in the field do research and use the skills from research to care for animals. UIUC provides these research opportunities to their students to better prepare them for their line of work.

The University of Illinois at Urbana-Champaign College of Agriculture, Consumer, and Environmental Sciences. "Swine Research Center"

<https://ansc.illinois.edu/about/facilities/swine-research-center>

UIUC's ACES' page provides information on all of their farms and animal facilities. This page provides information on the Swine Research Center. It gives information on the location, facilities, types research done at the farm, and manager.

Alarcón, Laura Valeria. "Biosecurity in pig farms: a review"

<https://porcinehealthmanagement.biomedcentral.com/articles/10.1186/s40813-020-00181-z>

Valeria's review of biosecurity in the swine industry provides an overview, along with many facts and statistics about infectious diseases, how they are prevented, and how they are treated when related to pig farms. It talks about how animal pathogens, especially in pigs, are more susceptible to widespread diseases, such as Influenza A, in this case.

Willard, Naomi & Moest, Nicole & Pol, Katherine & Shull, Caleb & Pimpinella, Rich & Grein, Christoph & Ellis, Mike. (2023). PSIII-3 Correlations Between Body Surface and Rectal Temperature of Newly Weaned Sows. Journal of Animal Science. 101. 263-264. 10.1093/jas/skad341.299.

https://www.researchgate.net/publication/375069639_PSIII-3_Correlations_Between_Body_Surface_and_Rectal_Temperature_of_Newly_Weaned_Sows

Research paper of project that I was working on