**Oklahoma State University’s Role in Shaping the Future of Genomics**

**OSU’s Role in Conducting Research**

Immense differences are found between the University of Oklahoma and Oklahoma State University. Whether it is the location of the universities, caliber of sports teams, or campus set-up, there is an obvious variance in the experiences college students will hold when attending these two universities. However, the most important was implemented years ago with the founding of the universities, with one being established as a land grant. A land grant institution is founded on the basis of agriculture and mechanics. This reasoning led to Oklahoma State University (OSU) being originally founded as Oklahoma A & M College in 1890 as a result of the Morrill Act (OSU Alumni Association, 2018).

**Dr. Desilva’s Research Overview**

With rich roots in these two entities, OSU has held large emphasis in research in these areas. With its expansion through the past century, research has expanded to many entities, including science. Dr. Udaya Desilva discussed his transition from veterinary medicine to a researcher of the molecular life sciences and genetics professor at the university as well as some of his most recent and favorite publications.

The most recent publication of Dr. Desilva’s, which has received the largest amount of praise, was officially published in 2010 called “Rumen Microbial Population Dynamics during Adaption to a High Grain Diet.” This particular journal article has been cited over three hundred times since its publication in 2010, showing the significance and reliability of the study. This series of experiments was conducted over a three-year period on six beef cattle animals as they transitioned from a pasture to feedlot setting. Each of these six cattle were studied for a period of four to six weeks as researchers tried to gain an understanding of the components of the animal’s rumen (Fernando, 2010).

Commonalities were discovered in the microbial populations among the six animals examined in the study. To summarize his research in this article, Dr. Desilva and other collaborates conducted a series of both hypothesis and discovery research. They wanted to understand the micro biome of the rumen and the transition it endures as stocker cattle switch from being grass fed in wide range pastures to the high concentration grain diet that comes as an association of the feedlot (Fernando, 2010).

Because of the previous knowledge on the microbial population of the rumen whether that be fungi, parasites, or bacteria, the researchers had hypothesized that the diet which cattle were enduring in feedlot would lead to a much lesser diversity of microorganisms in comparison to grass fed beef due to their commonality in feed source but also lead to a multitude of these certain types of microorganisms. These measurements were conducted by extracting full DNA from the rumen to be able to examine the composition of its consistency. Although the previous results had well aligned with Dr. Desilva and his associate’s research, the biggest discovery of the experiment was recognizing 160 to 170 different kinds of microorganisms that were present in the rumen (Fernando, 2010).

One of the most lasting impressions of genetics that Dr. Desilva highlighted was the fast-paced changes the field is experiencing on an annual basis. This aspect would serve as something that he would change in his ruminant driven research if conducted currently. Because of the significant changes made to the field of genetics, every test ran delivers more accurate response for more affordable costs. He revealed that the statistics showed if every aspect of technology were making the aligned progression of genetics, then an airplane ride and laptop that would have cost $1500 and $1000 in 2009 respectively would have cost $6 and $4 in 2015. These expansions are exciting for the molecular life sciences world and are foreseen to continue the trend of growth in the future (Desilva, 2018).

**Conclusion**

In addition to expanding on the above research, Dr. Desilva was quick to offer advice to undergraduate students in conducting their own research. One of the biggest advices he could offer was “to read as much as you can.” By making mistakes, understanding what you are reading, and ensuring you are not conducting research already completed, students can successfully fulfill their time experimenting. By reading more as suggested, students will be able to successfully understand a wide variety of writing stories to help contribute to their overall achievement as they continue through the scientific journalism and research process to reach a publication (Desilva, 2018).

References

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