

AG2PI SEED GRANT - PROJECT FINAL REPORT

PROJECT NAME	Cattle Genome to Herd Phenotyping for Precision Ag
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PROJECT PRINCIPAL INVESTIGATOR	TODAY'S DATE	PROJECT START DATE	DATE OF COMPLETION
Stephanie McKay	12/20/2022	05/01/2022	08/31/2022
TEAM MEMBERS (co-PI, co-I, personnel)	COLLABORATORS		
Darren Hagen, Robert Schnabel and Brenda Murdoch			

ACCOMPLISHMENTS

Please provide a short summary of the conclusions (both successes and failures) made from your project. Include a description of how this project will provide benefits to the agricultural genome to phenome community and, possibly, to a broader audience. You should include both qualitative and quantitative details, as necessary, to support your conclusions. Include a short accomplishment statement in non-technical language and do not include names.

This is not a technical report. Please keep to no more than 6-8 sentences (e.g., 1-2 sentences per point, above).

One of our initial goals was to establish a working group of scientists from different disciplines to facilitate implementation of next generation phenotyping technologies in cattle. However, we quickly realized that we first needed to form a working group of bovine genomicists with expertise in various genomic disciplines to establish the extent of existing data sets, databases, and phenotyping technologies in use. The working group met in Stillwater, OK in July 2022 and consisted of bovine genomicists with expertise in epigenetics, quantitative genetics, genome sequence and assembly and extension. An outcome of this meeting was a list of needs that if met, would warrant a successful venture into next generation phenotyping of cattle. Utilizing this information, we were able to generate a specific list of individuals from other scientific fields that we would invite into a broader working group for future endeavors. The outcomes of this meeting have provided a foundation upon which our broader working group can effectively maneuver to facilitate the successful implementation of high-throughput phenotyping in cattle realized and successful.

Products

Please list any products from this project. This may include (but not limited to) publication, concept/white paper, workshop, conference presentation, website, publicly available data or pipelines, etc. Reminder: you are required to make your products available to the broader stakeholder community using standard USDA practices, open source, FAIR, or other models.

ACTIVITY / PRODUCT	DESCRIPTION (include URL, if applicable)	OUTCOME / METRICS
Conference Presentation	Oral and poster presentation at the Visions III Star Gazing the Galaxy of Animal Genetics and Genomics conference. Ames, IA 2021.	McKay, SD, DE Hagen, RD Schnabel and BM Murdoch. 2021. The Future of Animal Genetics: Pan-Genomics, Pan-Epigenomics and High-Throughput Phenotyping. Visions III Star Gazing the Galaxy of Animal Genetics and Genomics. Ames, Iowa
Conference/Meeting	CATTLE GENOTYPING TO HERD PHENOTYPING FOR PRECISION AGRICULTURE July 21-23, 2022, Stillwater, OK.	Oral presentation at AG2PI Thinking Big Meeting

Audience

With whom has this work been targeted to and shared? Please describe how this project and its products have been disseminated to a community of interest. Include any outreach activity or information sharing as well as training or professional development opportunities provided in this project.

This work has been shared with members of the agricultural genomics community.

CHALLENGES

Changes to team

Have there been any changes to the original team membership (including collaborators) from who was included in the proposal? Please review your proposal then provide an explanation if changes were made.

No changes were made to the Team.

Other changes

Were there changes to your project, not including changes to team membership? This may include expansion or reduction in scope. If changes occurred, did these have a significant impact on expenditures? Please explain.

As stated in the accomplishments section, we were initially supposed to establish a working group comprised of people from various scientific disciplines. We quickly realized that to effectively choose people that would best fit with our group and our long term goals, we first needed to establish a bovine genomics group to clearly and concisely summarize our existing resources. If anything, these changes provided us with a better perspective of our needs that should be accomplished in order to realize the larger goal.

Challenges

Have you experienced any challenges or delays? Please provide the actions you took to resolve them, if possible.

Our meeting was initially supposed to occur at PAG, 2022. Unfortunately, PAG 2022 was cancelled due to COVID and we were not able to schedule the meeting until July 2022. We requested a no-cost extension that was granted.