Stillwater Translational Genomics Forum 2019- genomic selection and breeding optimization

Participants:
Oklahoma State- Wheat Improvement Team and Translational Genomics Laboratory
Iowa State- Dr. William Beavis
Michigan State- Dr. Gustavo de los Campos
University of Alberta- Resilient forests: climate, pests and policy- genomic applications
University of British Columbia- Resilient forests: climate, pests and policy- genomic applications

Objectives:
Breeding, consisting of selection, crossing and evaluation, is a series of decision-making process. Under the framework of genomic selection, breeding values of all candidates are estimated by summarizing genome-wide information. Accurate estimation of breeding values for un-typed individuals has been actively investigated, breeding decisions for which individuals to select and cross, often defined by multiple, competing objectives, are still critical for the success of crop improvement. Considering long-term sustainability, breeding decisions present a classic multi-objective optimization problem, where solutions are sought to maximize genetic gain, to balance genomic diversity and the genetic connectivity to breeding target, and finally to assure market competiveness.

To date, breeding remains a numbers game, not only by the number of progeny and crosses a breeder has to create and evaluate, but also by the years of endeavor an institution must commit. Advancement made in genomic and computational technologies has facilitated a number of breeding innovations to accelerate this process, hoping to provide the best strategy to combine favorable genes with accuracy and efficiency. This technological transition has further encouraged venture capital to invest in start-ups whose main capital requirements are only computers and laboratories. Leveraging innovation and sustainability, this Forum invites leading experts in the field of predictive analysis and breeding optimization, and research effort and leadership in breeding programs, for an open discussion on how to stimulate significant forward impact through technology uptake.

February 14th: Arrival

Hotel information: Home2 Suites by Hilton. 306 E. Hall of Fame Avenue, Stillwater 74074.

Link: https://home2suites3.hilton.com/en/hotels/oklahoma/home2-suites-by-hilton-stillwater-SWOHTHT/index.html?SEO_id=GMB-HT-SWOHTHT

February 15th

09:00 – 09:30 Welcome Remarks and Project Introduction

09:30 – 10:30 Updates on Predictive Analysis

10:45 – 12:00 Discussion

12:00 – 13:15 Lunch

13:30 – 14:30 Breeding Optimization

14:45 – 15:45 Discussion

16:00 – 17:00 Dr. de los Campos – Seminar (348B NRC Roger E. Koeppe Seminar Room)