



2020-114: Identifying new diversity and developing genomic resources for brome grass (*Bromus* spp.) forage crop breeding

Brome grass plays a large role in the grasslands spread throughout Saskatchewan and North America. It produces high forage yields in short growing seasons that are ideal for grass and haying.

While researchers such as Bruce Coulman and others throughout Canada and the US have bred various types of brome grass, there is a lot of genetic complexity in the type of plant that has made breeding complex, and slowed additional work.

Dr. Sharpe and Dr. Biligetu are working together to use the Oxford Nanopore Technology to provide plant breeding advancements that have assisted canola, barley, and durum crops. They will use seeds from the U of S as well as the USDA to better understand and characterize genetics and the cellular structures of brome grass. They will then create a foundational high-quality reference genomic resource for future brome grass breeding. This will then help them develop more breeding populations by creating novel crosses to widen the genetic diversity of breeding material.

This, in turn, will enable future brome grass breeders across the world to focus on breeding that will tolerate more stresses, such as drought or saline conditions, while also increasing yields.