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From: Loren Rieseberg (University of British Columbia), John Burke (University of Georgia), and Nicolas Langlade (INRA)

Subject: New project on the Genomics of Abiotic Stress Resistance in Sunflower

Next week, Genome Canada will be announcing the funding of 11 new large-scale applied genome projects in the general areas of agriculture, fisheries, and aquaculture, including a proposal we submitted on the Genomics of Abiotic Stress in Wild and Cultivated Sunflowers (attached). The main applied goals of the proposal are to (1) identify suitable stress resistance alleles for use in sunflower breeding programs and potentially for improvement of other oilseeds, especially soybean; (2) Develop and characterize multi-species mapping populations to efficiently deliver these alleles to sunflower breeders in both the public and private sector, and (3) Extend the central data mining and analysis resource we have previously developed for sunflower as part of the Sunflower Genomic Resources Consortium, to which both Pioneer and Syngenta contribute. The project builds on a successful NSF Plant Genome grant and includes co-funding from NSF, Genome BC, INRA, the Crop Trust, Advanta, Biogemma, KWS, NuSeeds, and SAP.

We were wondering if you would be interested in collaborating on this new project? Genome Canada strongly encourages collaborations with the private sector, and several public and private sector breeding programs (Advanta, Biogemma, Dow, KWS, NuSeeds, and the USDA) are already involved through their participation in the development of the multi-species mapping populations. However, Pioneer and Syngenta are arguably the most capable of exploiting the information and resources that will be developed from the project.

Also, while Genome Canada did provide generous funding for the project, two critical experiments were cut because the research was going to be conducted outside of Canada (Genome Canada is reluctant to fund research outside of Canada). These are the high-throughput drought phenotyping of the multi-species mapping population at the California's Desert Research & Extension Center (Activity 3.2, pp. 27-28 of the proposal), and the genome editing in soybean (Activity 4.2, p. 29), which is to be carried out in Wayne Parrott's lab at U. Georgia. Thus, we are

searching for support for these two experiments. The experiments are proposed for years 3 and 4 of the project) (2018-2019) and will cost circa US\$200K each. Please let us know if you would be interested in supporting either (or both) experiments.

We view the proposed research to be pre-competitive (see Intellectual Property strategy, p. 51), and all data will be made publicly available upon publication. However, collaborators will have early access to information and germplasm from the project. In addition, there maybe opportunities to obtain patent protection on resistance alleles that have been modified to enhance efficacy (p. 51).

We would be grateful if you could assess whether the proposed collaboration would be of interest to your companies and we will be ready to answer your questions.