

STATE OF UTAH
Annual Report for Calendar Year 2019
to the W-6 Technical Committee
Compiled by Kevin B. Jensen

Germplasm Activities of Shaun Bushman - Order # 311189, 315078, 314585, 317177 (*Poa pratensis*, *Poa annua*, and *Poa supina*)

Use: Characterizing the annual vs. perennial growth habit of these accessions by re-sequencing vernalization genes, and sequencing the whole genome of one of the accessions.

Report: I received four orders from NPGS: one of several Kentucky bluegrass accessions, two of several *Poa annua* accessions, and a last one of the remaining *Poa annua* and select *supina* accessions. All were germinated on damp towels and transplanted into pots. Sufficient germination occurred for all accessions, but none had germination above 80%. My Kentucky bluegrass accessions were transplanted to a field setting to compare against selected materials as a check. All *Poa annua* and *supina* accessions were tested for vernalization requirement and will be subjected to gene expression tests of vernalization genes. At this point no publications have been submitted using these accessions, but this should happen in the next year or two.

Germplasm Activities of Daniel Winkler - Order # 313118, 313207, 314431 (*Chylismia claviformis* subsp. *aurantiaca*, *Mentzelia albicaulis*, *Oenothera pallida*, *Artemisia ludoviciana*, *Achillea millefolium*, *Rhus aromatica* var. *trilobata*, *Chylismia claviformis* subsp. *claviformis*, *Rhus aromatica* var. *trilobata*, *Helianthus annuus*, *Helianthus annuus*)

Use: Botanical/taxonomic investigations. Research use notes - We are testing germination responses of these species to elevated ozone levels.

Report: No report submitted

Germplasm Activities of David Nielson - Order # 309189 (*Malus domestica*, *Malus hybr.*)

Report: No report submitted

Germplasm Activities of Aaron Carlisle – Order # 294943

Use: Public education- these are for a research garden, to help discover better methods for propagation, germination and food sustainability. For this we are asking for this wide variety of seeds and starts. Thank you. Hopefully we will be able to create a better agriculture system that will help with food sustainability for entire neighborhoods.

Report: No report submitted.

Germplasm Activities of Douglas Cook – Order # 314809 (*Zea mays* subsp. *mays*)

Use: Other. Research use notes - Test-crosses to evaluate the hypothesis that stalk geometry is more predictive of stalk strength than other factors.

Report: Approximately 40 varieties of maize were requested for creating test-cross hybrids (see table on the next page). The tester inbreds were B73 and PH39.

Observations: Germination rate for the B73 seed was less than 50%. The P39 seed had a nearly 100% germination rate. Some other varieties had low germination rates, but notes were not retained.

Outcomes: Approximately 50 hybrids were created. However, because B73 seeds had a low germination rate, this experiment was not carried through to completion.

Germplasm Activities of Eric Barnes - Order # 315415 (*Solanum tuberosum* subsp. *andigenum*, *Solanum tuberosum* subsp. *tuberosum*, *Solanum berthaultii*)

Use: Varietal Development – Breeding. Research use notes - My objective is to broaden breeding lines of potatoes for better flavor, more variety, better adaptability and resistance. My focus is on home gardeners and specialty markets. I spent some time in southern Chile years ago and hope to capture some of that flavor in future breeding lines.

Report: No report submitted

Germplasm Activities of Guangyan Feng - Order # 309651 (*Elymus nutans*, *Eragrostis spectabilis*, *Agropyron cristatum* subsp. *brandzae*, *Agropyron cristatum*, *Medicago sativa* subsp. *falcata*, *Elymus confusus*, *Elymus bakeri*, *Elymus antiquus*, *Elymus sibiricus*, *Agropyron cristatum* var. *pectinatum*)

Use: Genetic studies. Research use notes - Morphological diversity at Seedling Stage.

Report: Bad email address

Germplasm Activities of Haifeng Xing - Order #309651, 309652 (*Hedysarum coronarium*, *Onobrychis viciifolia*, *Onobrychis crista-galli*, *Trifolium repens*, *Trifolium ambiguum*, *Trifolium hybr.*, *Trifolium pratense*, *Patellifolia webbiana*)

Use: Chemistry. Research use notes - Nutritional quality analysis; Botanical/taxonomic investigations. Research use notes - In our study, we will estimate the growth and environmental suitability of these germplasms. The conclusion of our research will help to better understanding of leguminous forage under different environmental stresses such as drought and high temperature in US. Thank you very much!

Report: Bad email address

Germplasm Activities of Haixia Zhang – Order # 309451 (*Trifolium hirtum*)

Use: Genetic studies. Research use notes - Effects of Low Temperature Treatment on Photosynthetic Parameters at Seedling Stage.

Report: Bad email address

Germplasm Activities of James Cane – Order # 313126 (*Glycine max*)

Use: I have been planning experiments for this summer that will evaluate leaf choices made by nesting leaf-pulping and leaf-cutting bees.

Report: No report submitted

Germplasm Activities of Larry Howell - Order # 313263 (*Malus domestica*)

Report: No report submitted

Germplasm Activities of Lihao Zhang – Order # 309668, 310327 (*Trifolium repens*, *Trifolium patens*, *Trifolium nigrescens*)

Use: Chemistry. Research use notes - Study on Nitrogen Fixation Ability of Seedlings.

Report: Bad email address

Germplasm Activities of Mark Anderson - Order # 314228 (*Malus domestica*)

Report: No report submitted

Germplasm Activities of Melodie Weller - Order # 317666 (*Glycine max*)

Use: Plant Pathological investigations. Research use notes - Our research will focus on detection of a pathogen signature dating back to 1990 in randomly selected seeds to evaluate when pathogen was introduced into US soybeans.

Report: No report submitted

Germplasm Activities of Nate Abbott - Order # 312542, 312543, 312545 (*Begonia acetosa*, *Begonia fernandoi-costae*, *Begonia hispida* var. *cucullifera*, *Begonia paleata*, *Begonia coccinea*, *Begonia sanguinea*, *Begonia fernandoi-costae*, *Begonia friburgensis*, *Begonia Juliana*, *Begonia soli-mutata*, *Begonia listada*, *Begonia dichotoma*, *Begonia echinosepala* var. *elongatifolia*, *Begonia foliosa* var. *miniate*, *Begonia conchifolia*, *Begonia heracleifolia*, *Begonia mazae*, *Begonia imperialis*, *Begonia foliosa* var. *miniate*, *Begonia integerrima*, *Begonia plebeja*, *Begonia hydrocotylifolia*, *Begonia thiemei*, *Begonia carolineifolia*, *Begonia manicata*, *Begonia kellermanii*, *Begonia heracleifolia*, *Begonia cubensis*, *Begonia luxurians*, *Begonia egregia*, *Begonia subvillosa*, *Begonia schmidtiana*, *Begonia obliqua*, *Begonia odorata*, *Begonia fischeri*, *Begonia aconitifolia*, *Begonia venosa*, *Begonia integerrima*, *Begonia*

herbacea, Begonia dichroa, Begonia glabra, Begonia ulmifolia, Begonia wollnyi, Begonia subvillosa, Begonia albopicta, Begonia convolvulacea)

Use: Public education, demonstrations. Research use notes - I am the senior horticulturist at the Loveland Living Planet Aquarium a nonprofit aquarium in Draper Utah. I am looking at expanding my plant collection for our Journey to South America exhibit which is a walk through rainforest jungle which I would like to populate with neotropical species such as these to make the exhibit more representative and educational of the types of plant materials found in South America. Research notes - These plants will be used in our Journey to South America exhibit which is a walk-through jungle to provide an in-depth educational experience. Research use notes - I am wanting to add more Begonia species to our South American Rainforest Exhibit

Report: <https://www.facebook.com/thelivingplanetaquarium/videos/654818831959080/>

Germplasm Activities of Orson Boyce - Order # 310992 (*Hordeum vulgare subsp. vulgare, Avena sativa, Avena fatua*)

Use: Genetic studies. Research use notes - New Plant Material and research for yields

Report: No report submitted

Germplasm Activities of Rick Jellen - Order # 315008 (*Avena sativa*)

Use: Genetic studies. Research use notes - We are studying genes involved in oil production.

Report: We are growing *Avena* germplasm (specifically, four accessions) for whole-genome sequencing. One accession is *A. sativa*; the second is *A. sativa* ssp. *nuda*; the third is *A. fatua*; and the fourth is the synthetic hexaploid 'Amagalon'. We have no data yet to report.

Germplasm Activities of Robert Fetzer - Order # 313014 (*Malus domestica, Malus hybr.*)

Report: No report submitted

Germplasm Activities of Shane Getz - Order # 311088, 314605, 314762, 314763, 315042 (*Avena sativa, Agropyron fragile, Zea mays subsp. mays*)

Use: Genetic studies. Research use notes - plant breeding

Report: No report submitted

Germplasm Activities of Yuxiang Wang - Order # 309147, 309678, 310336, 313930, 314692 (*Monarda luteola, Euphorbia falcata, Trifolium fragiferum, Agrostis stolonifera, Trifolium echinatum, Trifolium repens, Trifolium patens, Trifolium nigrescens*)

Use: Genetic studies. Research use notes - Study on turf performance; Botanical/taxonomic investigations. Research use notes - Ornamental evaluation; Genetic studies. Research use notes - Comparison of Cold Resistance in Seedling Stage.

Report: No report submitted