State of Arizona Annual Report for Calendar Year 2020
to the W6 Technical Advisory Committee

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Summary or requests: For calendar year 2020, 49 Arizona residents received 2,657 items in 86 orders from 15 National Plant Germplasm System (NPGS) repositories/stations (Appendix I, Figure 1). Of the 86 orders 95.3% were for less than 100 items and 4.7% were larger orders (Appedix I, Figure 2) Recipients included requestors from universities (5 U of A, 1 ASU), USDA (2), private research groups, commercial firms and seed companies (6), and non-profit organizations (1). The largest category of requestors were unaffiliated individuals (45). The germplasm material was used primarily for research (63%), then Education (27%), other (5.8%) and undisclosed (3.5%). Intended uses for the germplasm included primarily breeding and varietal development, genetic research, pathological investigations, and entomology research. Many smaller requests were for educational purposes to include class instruction and public education/demonstrations.

Diversity of requested germplasm: Recipients received 77 different species in the form of seed (91.6%) and other plant materials (8.4%). *Glycine max*, *Triticum turgidum* subsp. *durum* and *X Triticosecale* spp. Were the top requested species (Appendix II). Of 49 requestors, 10% (5) provided feedback regarding the germplasm they received (Appendix II).

Quality of Germplasm: A request for feedback was sent to the 49 recipients, all of whom provided a valid email address. Of these, 5 responded with information on the quality of materials and how they were utilized (Appendix III). All materials were received in good condition. Four recipients had germinated or rooted materials at the time of reporting. Of these, three reported success (though one only planted 10 days prior), one recipient had no success with germination or rooting (*Fragaria X ananassa*) and the remaining recipient will plant this fall (*Cucumis, Citrullus*).

Publications: No publications that included NPGS materials received in 2020 were reported from Arizona recipients queried.

Notable requests/requestors (some responded to our email while others did not, so I summarized others based on their "Intended Use" comments):

The largest orders came from **Arizona Plant Breeders** (Colleen Roseborough), with 1300 accession for wheat and barley crossing blocks. This same requestor was also the most prominent in 2019. This requestor did respond to our email and stated that the material is very useful for their crossing blocks, but due to being unadapted to the climate there, the plants tends to lodge.

Hussein Abdel-Haleem with the **USDA, ARS, U.S. Arid Land Agricultural Research Center**, Maricopa, Arizona received ~700 accessions of soybeans intended "to discover traits related to drought and high heat stresses under naturally high drought/heat environments and identify the alleles/genes controlling those traits and explore yield stability under those stress conditions, to identify elite germplasm with high yield stability.

The **University of Arizona** had 5 requestors, with one requestor providing feedback: Dr. William Duke Pauli is screening wild relatives of cotton to investigate hydraulic traits that are agronomically productive in their environment to compare with cultivated material.

Yasushi Tokairin of **American Takii Inc**. (Home - American Takii), Yuma Research Station received 2 accessions of *Cucumis melo* subsp. *melo*, 3 *Cucumis pustulatus* and 2 *Citrullus lanatus*. The material will be sown this year, and they will select for disease resistance and make crosses.

Terry Berke, Head of R & D, **Curry Seed & Chile Co** curryseedandchile.com/website/ContactUs.html received 3 accessions of *Helianthus annuus* and responded to our request for information. However, they had only planted the seeds 10 days prior to responding. They did get 80% germination. They intend to breed for a large-seeded sunflower seed variety or hybrid for confections.

Kanin Routson of **Stoic Cider** (http://stoiccider.com) in Prescott, AZ will add requested accessions "to an on-going research project to trial *Malus spp*. and cultivars for local climate adaptation to the central Arizona high desert. Fruit characteristics will also be evaluated for use in hard cider production. Accessions that exhibit desirable traits for cider or climate will be evaluated for commercial production in the local hard cider industry or utilized in fruit breeding for hard cider."

Lucy Snyder of **USDA-ARS**, Tucson ordered 45 accessions of *Brassica rapa* and *Brassica napus* to identify those with pollen fatty acid composition (C18:3 and C18:2) ideal for honeybee nutrition.

Stephanie Slinski of the **University of Arizona** is screening wild lettuce species for sources of resistance to Fusarium *oxysporum* f.sp. *lactuca* and *Bremia lactucae*. Additionally, they are looking for new sources of resistance to Fusarium wilt of lettuce for public and private breeding programs