

A Cornucopia of Diversity: U.S. Germplasm Accessions Worthy of Future Research.

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The USDA-ARS National Temperate Forage Legume Germplasm Resources Unit is responsible for over 12,000 accessions of alfalfa, annual medic, perennial clover and trefoil germplasm. Germplasm has been acquired from around the world for over a century, collected by plant explorers or donated by agricultural institutes and botanical gardens. Historically, the collection played a pivotal role in forage production by providing plant material that set the stage for breeders to develop the highly adapted, disease and insect resistant cultivars that farmers use today. Although modern plant breeders continue to use the collections, the majority of current seed requests come from scientists studying a broad range of topics. The objective of this paper is to focus on the diversity of the U.S. collection, highlighting outstanding but little known sub-collections that merit closer study. A second objective is to show users how they can find and request this material on the internet using the Germplasm Resources Information Network (GRIN) (www.ars-grin.gov/npgs).

The U.S. collection is widely recognized for having seed available of almost all the species in the genera *Trifolium* and *Medicago*, (228 and 78 species respectively). Not as widely recognized, is our extensive collections of species that are being developed into new crops. In the genus *Medicago*, we have a large collection of *M. ruthenica*, a potential new perennial forage species. We also have annual medic species that are available in large enough quantities to support farm-scale research. In the past 100 years there have been over 75 collection trips that have focused on *Medicago*, *Trifolium* and other forage legumes. Many of these trips collected unique material that deserves further research. For example, we have extensive and well documented collections of alfalfa landraces collected in places such as South America (1948, 1981), Turkey (1948, 1952, 1981) and Morocco (1983). In the 1980's, collections were made in Canada, North Dakota, Idaho and Montana from 25-50 year old stands of Cossack, Rambler and Grimm. Using today's molecular techniques, this set of germplasm might provide useful insights into environmental adaptation. Through out the collection you can find general comments that suggest accessions may be valuable for green manure, resistance to disease and insects, adapted to adverse edaphic conditions, or as ornamentals.

The key to finding interesting accessions is to know how to use GRIN. GRIN can be queried a number of different ways. Not only are there a number of predefined queries available to users, but GRIN now has the capacity to carry out general key word text queries. Evaluation and observation data can be queried, as can taxonomy data. As curator of the USDA *Medicago*, perennial *Trifolium* and *Lotus* germplasm collections, my job is to help you identify germplasm that meets the unique criteria of your research projects. Please don't hesitate to contact me at stephanie.greene@ars.usda.gov