PLANT GERMPLASM COLLECTION REPORT

USDA-ARS
FORAGE AND RANGE RESEARCH LABORATORY
LOGAN, UTAH

Foreign Travel to:
China
July 29-August 21, 1997

TITLE: Collection of Forage and Turf Germplasm from the Yili Valley Area of the Xinjiang Autonomous Region of the People's Republic of China

U.S. Participants

Douglas A. Johnson* - *Plant Physiologist
USDA-Agricultural Research Service
Logan, Utah U.S.A.

Dr. T. Austin Campbell - Research Geneticist
USDA-ARS-PSI-SARL
Beltsville, MD 20705-2350

Mr. Larry K. Holzworth
USDA-NRCS
Bozeman, MT 59715-4704

Dr. John D. Berdhal - Research Geneticist
USDA-ARS Northern Plains Research Lab
Mandan, ND 58554

GERMPLASM ACCESSIONS

SUMMARY: The objective of our trip was to make joint seed collections of forage grass and legume germplasm in northern Xinjiang for improving deteriorated rangelands in the western U.S. and P.R.C. Our collection trip focused on the Yili Valley area of west-central Xinjiang, and we were joined by scientists from Xinjiang Agricultural University in Urumqi. We traveled along the southern edge of the Junggar Basin through the counties and towns of Hutubi, Shihezi, Kuitun, Usu, Jinghe, and over the Tian Shan Mountains to Yining (Yili City). We collected primarily in three major areas of Yili Valley including the counties of Yili, Zhaosu, and Huocheng. After returning to Urumqi via the same travel route, we gave lectures on our research programs and prepared a draft Letter of Intention to Cooperate. Dr. Johnson was presented an Honorary Professorship at Xinjiang Agricultural University. We also weighed and equally

divided the seed collections. A collection list containing the Latin name, Chinese-character name, and seed weight was prepared for export approval from officials of the Xinjiang Government. We delivered our seed to officials at the Ministry of Agriculture in Beijing who obtained the necessary approvals from the Institute of Crop Germplasm Resources and Ministry of Agriculture. The seed collections were given to the Beijing Animal and Plant Quarantine Service for inspection, and we were issued a phytosanitary certificate. Out of a total of 151 collections made, we were allowed to take 137 collections to the U.S. Our seed collections were sent to the USDA Plant Germplasm Quarantine Center for processing. We will thresh, clean, and catalog the collections for incorporation into the National Plant Germplasm System.

RECOMMENDATIONS: The rangelands that we visited in the Yili Valley area of Xinjiang were typically severely overgrazed, and the only productive collecting sites were in areas saved for winter forage harvesting. These protected sites had considerable diversity of forage grass and legume species that were being mainly hand-harvested for transport to animal-wintering sheds. These winter forage harvesting areas are being gradually reduced in size because of increasing numbers of animals and the need for additional summer grazing pastures. The number of grazing animals on the rangelands of Xinjiang must be decreased to reduce severe overgrazing, which is certainly decreasing the forage diversity on these lands. Although collaborative forage collection trips were made in 1991, 1993, and 1997, additional forage collections should be made in other important rangeland areas of Xinjiang to ensure that this unique germplasm is available for future generations. Discussions with scientists at Xinjiang Agricultural University identified critical areas of mutual interest and a draft Letter of Intention to Cooperate was prepared for future signing by USDA-ARS and USDA-NRCS personnel.

Benefits of Trip: The collected forage germplasm will make an important addition to the germplasm banks of both the U.S. and P.R.C. These collected materials will be an important source of germplasm for the conservation and improvement of the forage production efficiency of both countries. In the U.S. our collections will be incorporated into the National Plant Germplasm System where they will be available to all qualified scientists and organizations, both domestic and foreign, for use in their ongoing work. Similarly, the Xinjiang Grassland Research Institute in Urumqi will make the collections available to forage scientists in P.R.C.

This trip report will be sent to cooperating scientists in P.R.C. and to interested parties in the U.S. Slide presentations by U.S. participants at Crop Germplasm Committee meetings, regional research meetings, and various seminars will inform scientists of the collection trip and opportunities for collaboration. Similar to 1991 and 1993, we had an excellent collection trip.

Acknowledgments: The success of our trip can be directly attributable to the hard work and dedication of many people both in the U.S. and P.R.C. who were involved with various phases of our trip. We would like to particularly thank Dr. Yang Zhuomeng and Mr. An Shazhou from Xinjiang Agricultural University, Mr. Sun Shengzhi from the Department of International Cooperation in the Ministry of Agriculture, and Ms. Alma Bowman from USDA-FAS-ICD-RSE for their excellent assistance.

TECHNICAL REPORT AND TRIP DETAILS

29-30 July Team members departed the U.S. and traveled to Beijing where we were met by Mr. Sun Shengzhi (Program Coordinator from the Department of International Cooperation in the P.R.C. Ministry of Agriculture and also Liaison Secretary for the U.S.-P.R.C. Joint Working Group on Agricultural Science and Technology). Seed of 15 alfalfa acessions were declared upon entry into P.R.C. Dr. Campbell had brought these upon request from Dr. Yang Zhuomeng of Xinjiang Agricultural University for conducting standardized tests for alfalfa disease screening in Xinjiang. The Beijing Animal and Plant Quarantine Service held these accessions at their airport office for evaluation, even though a U.S. phytosanitary certificate was obtained for the seed. We were told that these seed accessions would eventually be sent to Dr. Yang. We were transported to the Beijing International Hotel.

31 July Mr. Sun Shengzhi arranged and accompanied us on a visit to the Institute of Crop Germplasm Resources at the Chinese Academy of Agricultural Sciences (CAAS). We met with the following Institute staff including: Mr. Lou Xizhi (Director), Mr. Wang Shumin (Assistant Director), Mr. Cao Yongsheng (Head of Information/Documentation Department), Mr. Chen Shuping (Director of the Genebank), and several other staff members. They gave us an overview of CAAS, which is composed o 38 scientific institutes located in 15 provinces. The CAAS staff numbers more than 10,000 with about 5,500 scientists.

The CAAS Institute of Crop Germplasm Resources was founded in 1978 and is the national center for crop genetic resources research. The main functions of the Institute are to collect, conserve, characterize, evaluate, document, enhance, and utilize crop germplasm resources throughout P.R.C. The Institute has a staff of about 200 of which 70 are senior scientists and is divided into 12 laboratories including: Rice; Wheat; Corn, Sorghum, and Millet; Food Legumes; Stress Resistance Evaluation; Disease and Pest Resistance Evaluation; Germplasm Conservation; Quality Analysis; Exploration and Collection; Germplasm Introduction and Exchange; Information Management; and Special Germplasm Conservation. The Institute has wide cooperation around the world including cooperative projects with the U.S., Australia, Italy, South Korea, France, International Rice Research Institute (IRRI), and the International Center for Research in the Semiarid Tropics (ICRISAT).

We were taken on a tour of the National Genebank, which was established in 1986, and is attached to the Institute of Crop Germplasm Resources. The Genebank covers an area of 3,200 m^2, which includes space for seed processing, seed storage, and research. The processing area is used for seed drying, cleaning, weighing, fumigation, germination, and record computerization. The seed storage area has 650 m^2 with a total capacity for cold storage (-8 to -18C) of 400,000 seed accessions. Total accessions currently stored in the Genebank number 358,088. There are a total of 3,016 pasture species currently stored in the Genebank. The area for germplasm research includes space for laboratories, a conference room, and a library. Duplicate samples of seed held in long-term storage at the Institute are kept at Qinghai.

Current regulations for processing seed collected in P.R.C. require that the seed be threshed, cleaned, weighed, and a duplicate sample maintained in P.R.C. A species list with the Latin name, Chinese-character name, and seed weight of each accession is required for provincial export approval. In Beijing, the Institute of Germplasm Resources must approve the list of species followed by final approval by the Ministry of Agriculture. Seeds of forage species known

to have specific medicinal value are not allowed to be exported from P.R.C. After receiving approvals, seed must be delivered to the Beijing Animal and Plant Quarantine Service for subsequent inspection and issuance of a phytosanitary certificate.

Our team was invited to a banquet dinner, which was hosted by Mr. Gan Zuofu (Deputy Director General of the Department of International Cooperation in the P.R.C. Ministry of Agriculture). Others in attendance at the banquet included: Mr. Hu Yanan (Deputy Division Director of the Department of International Cooperation in the P.R.C. Ministry of Agriculture), Ms. Suzanne Hale (Minister-Counselor for Agricultural Affairs in the U.S. Embassy), Ms. Zhu Jie (Agricultural Assistant in the Agricultural Affairs Office of the U.S. Embassy), and Mr. Sun Shengzhi.

1 August We were transported to the Beijing Airport where we boarded our Xinjiang Airlines flight for Urumqi. Two passengers who had checked themselves and their luggage in at the airline counter did not show up on the airplane. After a 30-minute wait, all passengers on the plane had to go outside and re-claim their luggage. Airline officials were concerned about a possible bombing incident. After about a two-hour delay, we departed on our 3.5 hour flight from Beijing to Urumqi, where we were met by faculty and staff from Xinjiang Agricultural University (XAU). This included Dr. Yang Zhoumeng (Vice Director of the Research and Planning and Associate Professor in the College of Animal Science), Dr. Zhu Jingzhong Professor and Vice Dean of the College of Animal Science), and Mrs. Zhang Fenglan and Mr. Wang Weiwei (both from the Foreign Affairs Office at XAU). We were taken to the Kunlun Hotel in Urumqi.

2 August We were driven to the Central Administration Building on the campus of XAU where we met with Dr. Luo Quiujiang (Vice President of XAU), Dr. Zhu Jingzhong (Vice Dean of the College of Animal Science), Mr. An Shazhou (Associate Professor in the College of Animal Science), as well as Mrs. Zhang Fenglan, Mr. Wang Weiwei, and Dr. Yang Zhuomeng. We were given an overview of Xinjiang Agricultural University.

XAU was established in 1952 as August First Agricultural College, and its name was changed to XAU in 1995. XAU is a multi-disciplinary agricultural institution of higher learning under the administration of Xinjiang Uygur Autonomous Region. It is the main institution in Xinjiang that trains agricultural managers, research scientists, teachers, and technicians. XAU currently has an enrollment of about 6,000 students and has graduated more than 30,000 students. XAU has six colleges (Agronomy, Forestry, Animal Science, Water Hydrology and Civil Engineering, Economy and Trade, and Mechanical Engineering) and six departments (Food Science, Basic Course, Biological Sciences, Social Sciences, Language, and Sports). XAU has a total of 77 research laboratories on campus and six off-campus experimental stations. XAU has established collaborative research projects with more than 20 universities and institutions in more than 10 countries.

We discussed the importance of collecting and preserving forage germplasm resources of Xinjiang. There are a total of about 3,000 plant species in Xinjiang of which 500 are commonly used for forage. We also discussed our collection route (see attached map) and the itinerary for our collection trip with XAU faculty. We will depart Urumqi on Aug. 3 and return to Urumqi on about Aug. 15. Because of road construction on the Tian Shan Pass between Salimu Lake and Yili Valley, it will require two days to travel to Yili Valley. We will travel in two four-wheel-drive Jeep Cherokees owned by XAU.

3-4 August Our team of nine persons included the four U.S. members, Dr. Yang Zhuomeng, Mr. An Shazhou (XAU taxonomist), Mr. Wang Weiwei (XAU Foreign Relations Office), and two drivers. We traveled to Hutubi County where we met with leaders at the Hutubi Dairy Farm, the largest diary in Xinjiang and one of the most productive dairy operations in P.R.C. This farm produces more than 62,000 tons of milk annually for consumption in Urumqi, and also is one of the key dairy bull farms in P.R.C. The Farm established the Xinjiang Domestic Animal Biological Experiment Center in cooperation with the Xinjiang Academy of Animal Sciences. We were given a tour of the diary farm and shown the breeding herds. We were also shown the farm production fields which included alfalfa, maize, soybeans, sugar beets, cotton, and hops. In addition, we were taken on a tour of Junggar Grassland Ecological Experiment Station, which was established cooperatively with XAU and the Chinese Academy of Sciences. The main purpose of this station is to conduct research on the reclamation and utilization of salt-affected lands of the Junggar Basin area. We were given a tour of the station, which has 10 to 12 laboratory rooms, accommodations for researchers, animal care facilities, and land for research plots. At the Station Dr. Yang Zhuomeng is conducting various forage evaluation trials with smooth brome and alfalfa. He is also evaluating the potential of using leafcutter bees imported from Canada for increasing alfalfa seed production in Xinjiang.

We traveled along the southern edge of the Junggar Basin through the counties and towns of Manas and Shihezi to Kuitun, where we spent the night at the new Ming Zhu Lou Hotel. The next day we traveled through Usu, Jinghe, and over the Tian Shan Mountains to Yining (Yili City). Traffic over the pass was restricted to late-evening hours on alternate days because of road construction, but we were fortunate to receive special permission to travel to Yili City. In Yili City we were treated to a banquet dinner hosted by Mr. Li (Director of the Department of Animal Husbandry for Yili Prefecture).

5-15 August During our collection trip in Yili Prefecture, we were accompanied by Mr. Zhu Hetong (Vice-Director of the Department of Animal Husbandry in the prefecture). Yili Prefecture covers an area of 350,000 km^2, has a population of more than 3 million, has more than 20 nationalities living there with the Kazakh nationality the dominant nationality. Three rivers (Kax, Kunes, and Tekes) converge in the Yili Valley to form the Yili River. As a result, Yili Valley is characterized by a rich diversity of irrigated crops including wheat, barley, maize, rice, soybeans, melons, apples, peaches, pears, hops, and many vegetable crops.

Because of the intensive irrigated agriculture in the valley, grazing animals (sheep, cattle, goats, and camels) are mainly restricted to the dry, marginal foothill areas surrounding the valley. With the large human population in Yili Prefecture, there is a large demand for meat and a corresponding large number of animals. As a result, there is tremendous grazing pressure on the

mountain foothills. This has resulted in severe overgrazing with many of the desirable forage species being replaced by unpalatable ones. In the high mountain areas, lands are set aside and protected for the harvesting of winter forage; these protected sites hold a large diversity of forage grass and legume germplasm. These areas are generally fenced and are mainly hand-harvested by scythes and rakes for subsequent transport to animal-wintering sheds. We were told that these winter forage harvesting areas are being gradually reduced in size because of increasing numbers of animals and the need for additional spring, summer, and fall grazing pastures.

We collected in three primary areas within Yili Prefecture including the counties of Yili, Zhaosu, and Huocheng. The main collecting areas were the protected sites in the higher elevation mountains surrounding the valley areas that were being used for winter forage harvesting. These sites were typically about two to three hours drive from our hotels. As a result, we typically spent about 12 to 14 hours each day in the field. Because of the remote collecting locations we brought our own lunches in the field, which usually included nan (the local flat-shaped bread), jam or hot pepper spread, salted cabbage and cucumbers, and watermelon.

Zhaosu County was the best collecting area that we encountered on our trip. In Zhaosu County we were greeted by Vice-Governor Shah who guided us to the collection sites and hosted two banquets. While in Zhaosu County, we collected in the high mountain pastures of Zhaosu County Horse Breeding Farm, which is quite famous in P.R.C. and was established in 1942. The farm has 10,000 ha of grazing land and 4,000 ha of farm land. The farm has a population of 6,000 people; 2,400 horses; 26,000 sheep; and 600 cattle. The main goal of their horse breeding efforts is to increase the height of their horses. We collected quite a diversity of forage species in Zhaosu County. Of particular interest were collections of orchard grass (*Dactylis glomerata),* red clover (*Trifolium pratense*), white clover (*Trifolium repens),* native pea vine (*Lathyrus pratensis*), sainfoin (*Onobrychis viciifolia* and *O. tanaitica*), tall fescue (*Festuca arundinacea*), strawberry clover (*Trifolium fragiferum*), and yellow-flowered alfalfa (*Medicago falcata*). Other interesting species that we collected but which we were restricted from exporting from P.R.C. included *Hedysarum austrosibiricus, Sanguisorba officinalis, Orobus lutens, Roegneria fedtschenkoi,* and *Roegneria viridula*.

The high mountain pastures below Wusu Mountain belonging to Yili County also contained some excellent collecting sites. We were able to expand many of the same collections made in Zhaosu County. We had difficulty in finding forage collections in Huocheng County, which was badly overgrazed.

15-16 August Mr. Li (Director of Animal Husbandry of Yili Prefecture) was able to secure a special trip permit for us to drive during the day on the road that was being constructed on the pass over the Tian Shan Mountains. Noticeable progress had been made on the road, and the anticipated date of completion for the road is 1 Oct. 1997. Our last collection was made near Salimu Lake where we made our only collection of Russian wildrye (*Psathyrostachys juncea*). On the road between Jinghe and Usu, a spare truck tire bounced out of a passing truck bed on a washboard section of highway and slammed into the front of one of the Jeep Cherokees. The impact from the large truck tire smashed the front left side of the vehicle, causing extensive damage to the bumper, lights, grill, hood, and radiator. This required a rather lengthy stop at the Traffic Police Station in Usu for reporting the accident and obtaining verification of the vehicle

damage. Fortunately nobody was hurt in the accident. We were able to drive the vehicle and convince the truck driver to accompany us to Usu. Although the truck driver was at fault, our driver will have to return to Usu in the future to repair the vehicle there. We spent the night in Shihezi and returned to Urumqi. We checked into the brand new, four-star Yin Du Hotel in Urumqi.

17-18 August We toured the research lab of Dr. Xu Peng, who is the only professor at XAU who offers a Ph.D. program for students. Dr. Xu's laboratory has several computers dedicated to research involving the mapping of grassland resources of Xinjiang. Dr. Meng Lin, a previous student of Dr. Xu, is engaged in studies concerning the study of grassland resource types and productivity evaluations on these grasslands using remote sensing techniques. Their laboratory has some excellent digitizing and mapping equipment and has funding through both the Xinjiang and Central Governments. They have produced excellent maps of the grassland resources of Xinjiang. Dr. Xu and his colleagues are hoping that this mapping work will contribute to more sustainable management of Xinjiang's grasslands. We also toured the research laboratory of Dr. Yang Zhoumeng. Dr. Yang has an impressive array of research projects including the development of breeding and selection procedures for improving the disease and insect resistance in alfalfa, use of leafcutter bees for improving alfalfa seed production, and the transfer of tannin metabolism from sainfoin into alfalfa for reducing the incidence of bloat in alfalfa. In addition, Dr. Yang is establishing the infrastructure for seed certification to ensure the integrity of important forage cultivars in Xinjiang. We also toured the forage and turf research plots of Mr. Shi Dingsui and Mr. Ablaiti Abdueyim, professors in the College of Animal Science. Of particular interest was a hybrid *Rumex* species that is being used for forage production. This hybrid was developed by scientists in Russia, and results from forage trials in Xinjiang indicate that it can produce a yield of 169 tons of green weight/ha. Although this *Rumex* hybrid requires considerable water and fertilizer inputs, it apparently has excellent nutritional properties and regrowth characteristics.

We had a formal meeting with faculty and staff at XAU to discuss possible future collaboration. The discussions centered on research cooperation and the exchange of scientists and graduate students. The primary areas of research interaction included: 1)forage and turf grass germplasm collection, evaluation, selection, and seed production; 2) legume-rhizobial interaction in important forage legume species; and 3) molecular biology research; and 4) germplasm exchange and evaluation. We prepared a draft Letter of Intention to Cooperate that documented these proposed interactions, but because of limited time this document could not be finalized and interpreted into both Chinese and English. Final documents will be prepared and sent to all parties for signature. Because of past successful interactions with XAU faculty, Dr. Johnson was presented a special XAU certificate and medal by Mr. Ablaiti Abdureyim (Vice President of XAU) making him Honorary Professor at XAU. During our last afternoon in Urumqi, each of the American team members gave a one-hour lecture on their respective research programs to XAU faculty and members of the Xinjiang Grassland Society.

During our time in Urumqi, Mr. An Shazhou led the effort to catalog our seed collections, weigh the amount of seed in each collection, and divide the seed equally. A list was prepared that included the Chinese name, Latin name, and seed weight of each collection. This list was brought to Xinjiang authorities to obtain the necessary seed export permit. Xinjiang authorities did not allow us to take six collections including *Cynodon dactylon* (two collections), *Hedysarum austrosibiricus* (two collections), *Orobus lutens*, and *Roegneria viridula* out of Xinjiang because they apparently have special medicinal or agricultural potential. In addition, Dr. Campbell collected soil samples from the soil adjacent to each legume collection during our trip. These soil samples were intended for use in isolating infective and effective rhizobial strains for each of the legume collections. However, because a special permit for soil samples had not been obtained prior to our collection, we had to leave the soil samples with Dr. Yang Zhuomeng at XAU. It is intended that a microbiologist from XAU will come to Beltsville, MD to cooperate with Dr. Campbell and scientists at the USDA-ARS Nitrogen Fixation Laboratory in isolating rhizobial strains from these soil samples.

We were treated to excellent hospitality from our hosts throughout our visit and were invited into several homes. We also attended banquet meals sponsored by XAU, the College of Animal Science, and Dr. Xu Peng.

19-20 August We departed Urumqi for our 3.5 hour flight back to Beijing. We delivered our seed to Mr. Sun Shengzhi of the Ministry of Agriculture, and he obtained the necessary permits from the Institute of Crop Germplasm Resources in the Chinese Academy of Agricultural Sciences and the Department of Sciences and Technology in the Ministry of Agriculture. They did not allow us to take an additional eight collections out of P.R.C. including *Astragalus* spp., *Sanguisorba officinalis* (two collections), *Roegneria fedtschenkoi* (three collections), and *Allium* spp. (two collections). Mr. Sun then delivered our seed to the Beijing Animal and Plant Quarantine Service for issuance of a phytosanitary certificate. Because we did not have enough time for threshing and cleaning the seed collections in Xinjiang, we had to obtain a special permit from USDA-APHIS in Beltsville indicating that USDA-APHIS officials were aware of the potential soil and insect contamination in the seed collections. Dr. Johnson telephoned Dr. Allan Stoner at the USDA-ARS Germplasm Resources Laboratory in Beltsville, MD, who arranged to have such a permit faxed to Beijing. Just prior to departure from Beijing, officials at the Beijing Animal and Plant Quarantine Service reviewed the special permit and issued a phytosanitary certificate for our 137 seed collections. The capable assistance of Mr. Sun Shengzhi from the Ministry of Agriculture was instrumental in obtaining the necessary permits and approvals during the short time we had in Beijing.

21 August Team members departed Beijing and returned to their respective destinations. Upon arrival in Logan, our seed collections were delivered to Dr. Dawn Holzer, USDA-APHIS Plant Protection Officer at Utah State University. She inspected each of the seed packets and determined that 44 packets required fumigation treatment. These packets were shipped to the USDA-APHIS National Plant Germplasm Quarantine Center in Beltsville, MD, where they were treated. The collections have been returned to Logan where they will be threshed, cleaned, catalogued, and sent to appropriate collection curators for incorporation into the National Plant Germplasm System. Promising collections will be evaluated by team members at their respective locations.

NAMES AND ADDRESSES OF CONTACTS

Agricultural Affairs Office, Embassy of the United States, 2 Xiushui Dong jie, Jianguomenwai, Beijing, 100600, P.R.C., Phone: 86-10-6532-3431 ext. 275, Fax: 86-10-6532-2962, Email: agbeijin@pulic3.bta.net.cn

*Hale, Suzanne - Minister-Counselor

*Zhu, Jie - Chinese Agricultural Assistant

Department of International Cooperation, Ministry of Agriculture, 11 Nongzhanguan Nanli, Beijing, 100026, P.R.C., Phone: 86-10-6419-2478, Fax: 86-10-6419-2451

*Gan, Zuofu - Deputy Director General

*Hu, Yanan - Deputy Division Director

*Sun, Shengzhi - Program Coordinator, Liaison Secretary of the U.S.-P.R.C. Joint Working Group on Agricultural Science and Technology

Institute of Crop Germplasm Resources, Chinese Academy of Agricultural Sciences, 30 Baishiqiao Road, Beijing, 100081, P.R.C., Phone: 86-10-6218-6678, Fax: 86-10-6218-6629, Email: caas@mimi.cnc.ac.cn

*Lou, Xizhi - Director, Professor

*Chen, Shuping - Head of the National Gene Bank, Professor

*Cao, Yongsheng - Head of Information/Documentation Department

*Wang, Shumin - Assistant Director, Associate Professor

Xinjiang Agricultural University, 42 Nanchang Road, Urumqi, 830052, P.R.C., Phone: 86-991-4523-001, Fax: 86-991-4520-159

*Xu Peng - Past President, Professor (grassland science) in the College of Animal Science, Vice Chairman of Standing Committee of People's Congress of Xinjiang, Chairman of Xinjiang Association for Science and Technology, Director of the Grassland Resources Institute of Xinjiang

*Ablaiti, Abdureyim - Vice President, Associate Professor (grassland science) in the College of Animal Science

*Luo, Qiujiang - Vice President, Professor (ruminant nutrition) in the College of Animal Science

*Yang, Zhuomeng - Vice Director of Research and Planning, Associate Professor (plant breeding) in the College of Animal Science

*Zhu, Jingzhong - Vice Dean and Professor in the College of Animal Science

*Shi, Dingsui - Professor (grassland science) in the College of Animal Science

*An, Shazhou - Associate Professor (taxonomy) in the Grassland Science Department

*Zhang, Fenglan - Vice Director of the Foreign Affairs Office

*Ma, Yongmei - Interpreter in the Foreign Affairs Office

*Wang, Weiwei - Foreign Affairs Office

Table 1. Species list and number of accessions collected in Xinjiang and brought back to the U.S. in 1997.	
Agropyron cristatum	4
Agrostis gigantea	8
Allium coeruleum	1
Allium kaschianum	1
Alopecurus pratensis	2
Bothriochola ischaemum	1
Bromus inermis	4
Dactylis glomerata	5
Elymus dahuricus	9
Elymus sibiricus	1
Festuca arundinacea	6
Festuca ovina	3
Festuca rubra	2
Helictotrichon hookeri	1
Helictotrichon mongolicum	1
Hordeum bogdanii	3
Hordeum vulgare	1
Lathyrus pratensis	5
Lathyrus spp.	1
Lotus frondosus	1

Medicago falcata	7
Medicago lupulina	1
Medicago media	1
Medicago sativa	3
Medicago transsilvanica	1
Melilotus alba	1
Melilotus officinalis	1
Onobrychis tanaitica	5
Onobrychis viciifolia	1
Phleum phleoides	3
Phleum pratense	3
Poa angustifolia	3
Poa lipskyi	1
Poa palustris	1
Poa relaxa	1
Psthyrostachys juncea	1
Roegneria abolinii	1
Roegneria gmelinii	3
Stipa capillata	1
Trifolium fragiferum	5
Trifolium lupinaster	2
Trifolium repens	8
Vicia tenuifolia	1
Vicia villosa	3
TOTAL	137