Excerpt from "Genetic Resources Conservation Program Annual Report 1985-1986". 1986. P.E. McGuire and C.O. Qualset, eds. Report No. 1, University of California Genetic Resources Conservation Program, Davis CA. 30 p.

PROJECTS FUNDED

Brief abstracts are presented here for each project funded. In the next annual report, a status report will be given for each collection with a statement of how these collections can be best conserved for perpetuity.

PLANTS

Tomato Genetics Stock Center

8601 PRINCIPAL INVESTIGATOR: Charles M. Rick, Vegetable Crops - Davis

RESOURCE: The Tomato Genetics Stock Center comprises approximately 2,550 accessions which include about 850 monogenic mutant lines, about 800 accessions of linkage testers, genetic stocks, chromosomal variants, standard lines, primitive cultivars, and Latin American cultivars of *Lycopersicon esculentum* (cultivated tomato), and about 900 accessions of related wild species: nine of *Lycopersicon* and four of *Solanum*.

SUPPORT: General assistance and supplies were provided to the Tomato Genetics Stock Center to support the continuing activities of accessioning, maintenance, evaluation, inventory and documentation, and distribution. Lists of available stocks are issued annually in Reports of the Tomato Genetics Cooperative. Such lists are also made available on request to investigators who do not have access to the Reports.

Cucurbita Germplasm Collection

8602 PRINCIPAL INVESTIGATOR: Laura C. Merrick, Vegetable Crops - Davis

RESOURCE: The collection comprises approximately 600 accessions which are either landraces or wild or weedy species related to the cultivated species of *Cucurbita*. The material is primarily of Mexican origin, from approximately 30 states, as well as from five countries of Central America, four countries of South America, and several locations in the United States and Asia. Over 500 genetic lines from experimental, interspecific F_1 and F_2 crosses and backcrosses among wild and cultivated species of *Cucurbita* are also included. Most of the seed accessions are originally from collection expeditions conducted during the period 1979-1985, although some of the accessions are older. Approximately 130 of the accessions have been increased. In addition, the USDA Whitaker cucurbit collection, housed in California but currently inactive, will be inventoried as part of this project. It comprises approximately 300 accessions but their status and amount of seed is not known.

SUPPORT: General assistance and supplies were provided for a detailed inventory of the collection which will compile passport data, number of seed available, species identification, history of the accessions in experimental programs, evaluation and characterization data, record of duplication in other gene banks, and date and availability of seed from the latest seed increase for each accession. The inventory will be available on request from the principal investigator and GRCP.

Medicago and *Trifolium* Genetic Stocks

8603 PRINCIPAL INVESTIGATOR: Larry R. Teuber, Agronomy and Range Science - Davis

RESOURCE: The collection of *Medicago* and *Trifolium* was amassed by Dr. E. H. Stanford over his career at Davis. Some entries have selection histories for resistance to nematodes and dwarf disease, for seed yield, and for persistence. Another portion of the collection represents original plant introductions, many of which are still in the pod, from California species of *Medicago* as well as foreign taxa. Many of these entries have been either lost or adulterated in the national collection. The remaining entries are genetic markers for which Dr. Stanford determined the inheritance. No other sources for these markers are available.

SUPPORT: General assistance and supplies were provided to inventory and, by means of Dr. Stanford's records and those of the national collection, determine the status of individual entries. Letters have been sent to alfalfa scientists inquiring if additional sources of the marker lines exist, then methods of rescuing the genetic stocks will be determined. Priority will be placed on increase in reproductive isolation of the entries that are no longer available through the national collection. Genetic markers will be described and increased also to facilitate development of germplasm possessing these traits in high frequency for future use in breeding programs. A completed inventory of available germplasm will be distributed through the normal channels of the Department of Agronomy and Range Science at UC Davis and the North American Alfalfa Improvement Conference.

Wheat Genetic Stocks

8604 PRINCIPAL INVESTIGATOR: Jan Dvorak, Agronomy and Range Science - Davis

RESOURCE: The collection of several hundred cytogenetic stocks of wheat is comprised of additions and substitutions of whole chromosomes and telosomes from *Lophopyrum elongatum*, *Secale cereale*, *Aegilops longissima*, *Ae. umbellulata*, *Ae. speltoides*, *Ae. tauschii*, and *Triticum monococcum* in wheat. Except for *S. cereale* and *Ae. umbellulata*, all these stocks were developed by Dr. Dvorak and his collaborators at Davis. The collection also contains monosomic, ditelosomic, double ditelosomic, tetrasomic, and nulli-tetrasomic stocks of wheat developed by E. R. Sears.

SUPPORT: General assistance, supplies, and equipment were provided to improve storage conditions for the collection. In the spring of 1986, the entire set of disomic and ditelosomic substitutions of *L. elongatum* in Chinese Spring wheat as well as two sets of Chinese Spring monosomics were increased, cytologically checked, and prepared for storage. Once stored they will be accessed only when working collections are depleted, when seed is requested by other workers, or when growout is necessary due to length of storage. Identity of stocks will be monitored at growout intervals. Ultimately the entire collection will be readied for storage. The collection will be catalogued on computer files along with relevant accession, generation, source, and chromosomal identity information. Material will be distributed as requested to investigators in California (and elsewhere) if no conflict of research interest exists.

Rescue of Endangered Fruit and Nut Collections

8605 PRINCIPAL INVESTIGATORS: Dan Parfitt, Chair, Kay Ryugo, Gale McGranahan, Jim Beutel, Dale Kester, Pomology - Davis

RESOURCE: The collections consist of filbert, pecan, pistachio, persimmon, *Prunus*, walnut, pear, and almond stocks. These have accumulated as research resources and teaching collections and many are unique.

SUPPORT: Supplies and equipment were provided for the preservation of these collections by consolidation and, where necessary, repropagation. The filbert, pecan, pistachio, and persimmon collections will be maintained in place but pruned to return them to health. A selection of *Prunus* cultivars representing a range of genotypes and phenotypes will be made and repropagated on virus-free rootstocks. A new area for the walnut collection will be fumigated in preparation for planting rootstocks for the ultimate repropagation of the walnut cultivars. A portion of the pear collection will be moved also. The almond collections will be inventoried and divided into breeding materials, base germplasm to be propagated for entry into the National Clonal Plant Germplasm Repository, and cultivars to be maintained in the renewed Pomology Department collection. This latter group is estimated to be about 300 to 400 selections.

African Petalloid Monocots

8606 PRINCIPAL INVESTIGATOR: Harold Koopowitz, Arboretum - Irvine

RESOURCE: The collection consists of 82 species of African petalloid monocots considered to be "at risk" by the Threatened Plants Committee of the Botanic Gardens Conservation Coordinating Body, a branch of the International Union for the Conservation of Nature and Natural Resources. Many of these 82 species are of horticultural potential and can be used for breeding ornamentals; several are also related to important cut flower crop plants.

SUPPORT: General assistance and supplies were provided for aid in the continued maintenance and distribution of these species. This is labor intensive since several can be propagated only from seed which often requires hand pollination. An inventory of the species maintained and their status will be prepared.

Relocation of Endangered Grape Germplasm

8607 PRINCIPAL INVESTIGATORS: Carole Meredith and Cornelius Ough, Viticulture and Enology - Davis

RESOURCE: The collection consists of F_1 plants from crosses between accessions of *Vitis vinifera* with *V. rotundifolia*, first and second backcrosses between these F_1's and *V. vinifera*, various breeding selections from intraspecific *V. vinifera* crosses, and a number of *V. vinifera* tetraploids. The parental plants were collected by Dr. H. Olmo from various parts of the world and most are already contained in the National Clonal Germplasm Repository at Davis. The derived breeding materials are not in the purview of the Repository, but are very valuable resources for future breeding programs as sources of pest and disease resistance and fruit quality characteristics. Many of them have already been used in published work.

SUPPORT: General assistance and supplies were provided to the Department to reorganize, consolidate, and relocate the collection. An inventory will be prepared and made available to the Genetic Resources Conservation Program.

Daucus carota L. Tissue Culture Lines

8608 PRINCIPAL INVESTIGATOR: Z. Renee Sung, Plant Pathology - Berkeley

RESOURCE: The collection consists of 160 cell lines, including biochemical and developmental variants isolated from tissue cultures of cultivated carrot (*Daucus carota*) and wild carrot (Queen Anne's lace). The collection of biochemical variants has been an asset for basic studies in biochemistry, cellular and developmental processes, and genetic engineering of higher plants.

SUPPORT: A growth chamber was provided for stock maintenance and plant regeneration necessary for the continued maintenance and screening of the cultures. An inventory of the maintained cell lines and their characteristics will be made available to researchers.

Seed Saving Project

8619 PRINCIPAL INVESTIGATORS: Nancy Cherniss and Zea Sonnabend, Student Farm - Davis

RESOURCE: The Seed Saving Project is an organization engaged in locating and preserving vegetable varieties which are locally adapted, heirloom varieties, or endangered. The group has an education function with a demonstration garden, speakers and workshops, and a newsletter directed to publicizing the need for germplasm conservation.

SUPPORT: General assistance and supplies were provided for gardening activities and seed storage.

ANIMALS

Cryopreservation of Embryos and Semen from Mammalian and Avian Genetic Stocks
8609 PRINCIPAL INVESTIGATORS: G. Eric Bradford, Tom R. Famula, Gary B. Anderson, Juan F. Medrano, Animal Science and Hans Abplanalp, Ursula K. Abbott, Frank X. Ogasawara, Avian Sciences - Davis

RESOURCES: (1) A collection of mice genotypes includes selected lines and a control having been maintained as closed lines for 70 to 90 generations and two mutant lines, high growth and dwarf. The selected lines have been used extensively for studies of the physiology and endocrinology of growth, the estrous cycle, ovulation rate, and all stages of prenatal development and are established as a model system for such work.

(2) A collection of sheep lines of the Targhee breed consisting of a control, a line selected for multiple births, and two lines selected for high 120-day weight.

(3) A collection of chicken genotypes including highly inbred lines developed over the last 30 years and used as experimental material nationwide, a series of congenic lines comprising 15 haplotypes of the major histocompatibility complex which are the major supply of types conferring disease resistance or susceptibility, and mutant lines such as dwarfing and limb, skin, and feather mutants.

SUPPORT: A controlled-rate portable freezer and liquid nitrogen storage tanks and general assistance were provided for low temperature storage (cryopreservation) of mice and sheep embryos and chicken semen. Cryopreservation of the sheep and mice embryos offers a means to preserve the stocks against possible loss, to free the stocks of disease, to permit reestablishment of the lines in the future even if they cannot be maintained continuously as breeding populations, and to permit transfer of these lines to other research centers. The chicken stocks must currently be maintained by annually breeding live birds. Freezing of semen will avoid this annual breeding as well as preserve these stocks free from diseases., Material from the collections well be available to researchers in the departments involved and to others elsewhere for collaborative research. The collections will be recorded and publicized through the Genetic Resources Conservation Program as well as the relevant newsletters or genetic stock registries.

Drosophila Genetic Stocks

8610 PRINCIPAL INVESTIGATOR: Melvin M. Green, Genetics - Davis
COLLABORATORS: George Lefevre, CSU-Northridge, Edward B. Lewis, California Institute of Technology

RESOURCE: The genetic stocks of various species of *Drosophila* are from three major collections not duplicated elsewhere. The collections have accumulated during the careers of three researchers, two of whom have retired and the third is near retirement. These stocks are used in teaching and research at several institutions in California as well as others in the United States and other countries. No provisions have been made for the continued maintenance of these stocks following retirement of these workers.

SUPPORT: Supplies were provided for maintenance of the stocks for an interim period while the collections are consolidated and plans are made for their future support.

Domestic Rainbow Trout, *Salmo gairdneri*

8611 PRINCIPAL INVESTIGATOR: Graham A.E. Gall, Animal Science - Davis

RESOURCE: Two domestic stocks and an inbred line of rainbow trout have been used primarily for research. Considerable information has been published which can only be verified and expanded if the stocks remain intact. The domestic stocks are two of only six stocks in existence in California. The physical system used for trout also supports the only domestic stock of Sacramento River white sturgeon maintained by a public institution.

SUPPORT: Equipment was provided including a new energy-efficient pump, capable of continuous operation necessary to provide continuous circulation of water without the interference of the unavoidable interruptions inherent in the existing supply.

Domestic White Sturgeon, *Acipenser transmontanus*

8612 PRINCIPAL INVESTIGATORS: Serge I. Doroshov and Graham A.E. Gall, Animal Science - Davis

RESOURCE: The collection consists of domestic white sturgeon stocks unique for the state and nation. The domestication of this fish and maintenance of a functional domestic broodstock will improve cultivation of sturgeon and reduce the negative impact of present aquaculture activities on the wild fish. The stocks are important for current investigations into the reproductive cycle of this fish and into the possibility of controlling reproductive processes in captivity by the administration of exogenous hormones and drugs. Such research on domestic stocks adds important knowledge to the reproductive physiology and genetics of white sturgeon as a species. The progeny of domestic fish can be used for selective breeding and for stocking in some wild environments to meet the increasing demands on the sport fishery in California.

SUPPORT: The equipment provided is a large tank and hatching and juvenile-rearing facilities. These complement existing equipment in the Animal Science Department Fish Hatchery facility.

Genetic Stocks of *Apis mellifera* (Honey Bees)

8613 PRINCIPAL INVESTIGATOR: Christine Y.S. Peng, Entomology - Davis

RESOURCE: The collection consists of five mutant lines of honey bee: cordovan, black, white eye, diminutive wing, and chartreuse. The mutant lines were originally obtained by H. Laidlaw of the Entomology Department, UC Davis prior to his retirement. Even though part of the collection was transferred to the USDA Bee Stock Center, most of the mutant lines were lost during the past ten years. The extant lines in Dr.Peng's laboratory are part of the original collection and some are the only known representatives.

SUPPORT: General assistance and supplies were provided for construction and maintenance of hives and feed needed for propagating the stocks. Research on bee semen cryopreservation will be facilitated by collaborative use of a controlled-rate freezer provided by the National Clonal Germplasm Repository at UC Davis.

Genetic Stocks of Freshwater Snail (*Biomphalaria glabrata*)

8614 PRINCIPAL INVESTIGATOR: David S. Woodruff, Biology - San Diego

RESOURCE: This species of snail is the intermediate host of human blood flukes (*Schistosoma*) which debilitate over 200 million people. The collection consists of about 30 genetically defined stocks of snails derived by field collecting and a long-term selective breeding program. Each stock is characterized on the basis of phenotypic and genetic markers and genetically based differences in parasite compatibility. The collection was begun by Dr. C. S. Richards with National Institute of Health support, but this support ceased upon his retirement. Some National Science Foundation support was obtained, but it expired in 1986. Some selected stocks are being maintained privately. These native and inbred stocks are invaluable tools in basic research aimed at controlling schistosomiasis that is being carried out at several UC and other California campuses.

SUPPORT: General assistance and supplies were provided for interim aid in maintenance of selected stocks until a long term solution can be found. This support also makes possible continued characterization of the stocks for genetic variablilty. An inventory of the collection and an announcement of availability of founding samples will be published in appropriate journals.

MICROBIAL ORGANISMS

Ultra-Low Temperature Preservation of Aquatic Fungi

8615 PRINCIPAL INVESTIGATOR: John Taylor, Botany - Berkeley

RESOURCE: The collections of living fungi and algal cultures consist of more than 400 species representing all six classes of fungi as well as a diverse collection of more than 200 species of fresh and salt water algae currently housed in the UC Berkeley Microgarden. The Microgarden has an international reputation as a source of cultures, particularly aquatic fungi. Many of the fungal and algal cultures were isolated in California, including several of the rare, acid-forming aquatic fungi. Cultures are supplied to other California institutions for instructional and research purposes. Malfunctions of the 25-year-old environmental rooms and cooling facilities endanger the collections.

SUPPORT: The equipment provided includes a programmable freezing unit, a liquid nitrogen storage system, and liquid nitrogen. This low temperature system will provide safe backup storage of cultures.

Cryopreservation of *Phytophthora* Species

8616 PRINCIPAL INVESTIGATOR: Mike Coffey, Plant Pathology - Riverside

RESOURCE: The collection of phytopathogenic fungi (*Phytophthora* species) originated with the work and research interests of Professor Zentmyer, now retired. It includes 41 species of *Phytophthora*, representing the majority of the species currently identified. It includes about 300 isolates from the four species which cause major problems in California agriculture. This collection is a major resource for research into the biology, pathology, ecology, and taxonomy of this important genus. The current maintenance practice requires culturing the isolates which is a time and space intensive procedure.

SUPPORT: General assistance and supplies were provided to aid in the development of a cryogenic preservation system to streamline the maintenance procedure by avoiding the routine transfer at six to twelve-month intervals of thousands of cultures. The support is for the transfer of the collection from the culture system to the cryogenic system. The collection will be documented with an inventory and a record of all scientific information available on each culture.

Collections of Yeast and Yeast-like Organisms

8617 PRINCIPAL INVESTIGATOR: Michael J. Lewis, Food Science and Technology - Davis

RESOURCE: The collection of yeast and yeast-like organisms has been a source of materials and information for such California agricultural industries as food processing and preservation, dairying, wood and paper processing, medical/veterinary science, biotechnology, brewing, wine-making, and other industrial fermentations. It includes a group of wild yeasts isolated from many habitats in the world which are of benefit for studies on genetics, evolution, physiology, and biochemistry. The collection, which now numbers around 5000 strains, is endangered by the retirement of three researchers, the diversity of the collection, changes in research focus, and shortage of support funds.

SUPPORT: General assistance, equipment, and supplies were provided for the inventory, consolidation, and transfer to long-term storage of the collection. The support of a microcomputer permits editing and tabulating data associated with the holdings, producing a public database. Other equipment and personnel support allows the strains to be culled, subcultured, verified, consolidated, and then preserved by freeze-drying or other means of long-term storage. Long-term storage will reduce the need for support funds and culling and inventory will increase the collection's utility as well as remove redundancy in acquisition.

Phytopathogenic Bacteria

8618 PRINCIPAL INVESTIGATOR: Milton N. Schroth, Plant Pathology - Berkeley

RESOURCE: The International Collection of Phytopathogenic Bacteria originated with the work of Morton P. Starr, at UC Davis, now retired, and consists of thousands of bacterial strains. The collection is unique and is the principal source of strains for taxonomic work, teaching, and other research.

SUPPORT: The collection was transferred from Dr. Starr to the Department of Plant Pathology in Berkeley in May 1986. A technician has been trained to work with all of the procedures necessary to maintain a culture collection. Half of the collection has now been examined, recultured, and stored at -70°C. Two -70°C freezers were purchased for storage purposes. This type of storage makes it easier to send cultures on request since it is not necessary to make and send lyophils of cultures. For future support of the collection plans are being made with the California Department of Food and Agriculture which may lead to partial support because of mutual needs and a grant proposal is being drafted to the National Science Foundation.

APPENDIX I - Composition of *ad hoc* Advisory Group, November 25, 1985

H. Abplanalp	Avian Sciences	UC Davis
D.W. Anderson	Wildlife & Fisheries Biology	UC Davis
G.B. Anderson	Animal Science	UC Davis
H. Ferris	Nematology	UC Davis
G.A.E. Gall	Animal Science	UC Davis
S.K. Jain	Agronomy and Range Science	UC Davis
H. Koopowitz	Arboretum	UC Irvine
D.E. Parfitt	Pomology	UC Davis
M. Race	Office of Vice President ANR	UC
D.J. Raski	Nematology	UC Davis
C.M. Rick	Vegetable Crops	UC Davis
D.Y. Rosenberg	Calif. Dept. of Food & Agric.	Sacramento
J.N. Rutger	USDA/ARS and Agronomy & Range Science	UC Davis
M.N. Schroth	Plant Pathology	UC Berkeley
R.W. Touchberry	Animal Science	UC Davis

Additional representatives from UC Berkeley and UC Riverside were invited, but could not attend.

APPENDIX II - Format for Imperiled Collections Survey

UNIVERSITY OF CALIFORNIA
GENETIC RESOURCES CONSERVATION PROGRAM

Imperiled or Endangered Germplasm or
Genetic Stock Collections Survey*

Please return one form for each collection identified as needing immediate attention for conservation.

Name of species or taxonomic group:

Approximate scope of the collection:

Current curator or contact person:

*Name:*_____ *Department:*_____

*Campus:*_____ *Telephone:*_____

Salient features of the collection:

Please return this form by December 20, 1985, or telephone information to:

Calvin O. Qualset
UC Genetic Resources Conservation Program
Agricultural and Environmental Sciences
Dean's Office, 228 Mrak Hall
UC Davis, CA 95616 or Phone: (916) 752-0819

**Imperiled or Endangered Collections can be animal, plant, or microbial species that are a significant biological resource that is in danger of being lost in the near future. It may be currently held in the University of California or elsewhere if it is believed to be an important entity for conservation in California.*

APPENDIX III - Format for 1985-86 Proposals

UNIVERSITY OF CALIFORNIA

GENETIC RESOURCES CONSERVATION PROGRAM

One function of the GRCP is to provide short-term assistance in the preservation of collections of germplasm and genetic stocks critical to California. Some of the existing collections urgently need attention; it is the intent of the GRCP to provide assistance to rescue imperiled or endangered collections. Such assistance will initially be in the form of grants to departments, laboratories, or individuals who will take responsibility for endangered collections. It is expected that collections to be assisted will be maintained and will be accessible to researchers. Reports documenting work enabled by the GRCP, including an inventory of the collections, will be required.

Proposals are being accepted now and must be submitted **no later than February 11, 1986** for funding for the period March 1 - June 30, 1986. Investigators may also include in their budget request the needs for July 1, 1986 - June 30, 1987.

The attached format should be followed when preparing proposals. **Submit five copies of the proposals** to:

Calvin O.Qualset, Director
Genetic Resources Conservation Program
Dean's Office
College of Agricultural and Environmental Sciences
University of California
Davis, California 95616
(916) 752-0819

UNIVERSITY OF CALIFORNIA
GENETIC RESOURCES CONSERVATION PROGRAM
IMPERILED COLLECTION PROPOSAL FORMAT

Include all of the following items in each proposal:

I. Identification

- A. Principal Investigator(s): Name, Address, Telephone Number.
- B. Name of species or other taxonomic group (or other appropriate identification).
- C. Scope of the collection.
- D. Brief history of the collection.
- E. Current status of the collection.

II. Rationale

- A. Significance to California of the collection.
- B. Factor(s) endangering the existence of the collection.

III. Objectives and Procedures

- A. Description of proposed activity.
- B. Description and justification of any requested supplies and equipment.
- C. Description of activities and objectives of any personnel to be funded.
- D. Description of how the collection will be documented and be accessible to users.
- E. Anticipated long-range problems.

IV. Supplemental Information

- A. Have other funding sources for the preservation of the collection been investigated?
- B. Is the collection duplicated elsewhere?
- C. How will access to the collection be assured?

V. Budget - Itemize support requested in the following categories:

	March 1, 1986 - June 30, 1986	July 1, 1986 - June 30, 1987
1. General Assistance		
2. Supplies and Expense		
3. Equipment		
4. Other		
5. Total		

APPENDIX IV - 1984 High Priority Example List

HIGH PRIORITY EXAMPLES OF SPECIES FOR GENETIC RESOURCES CONSERVATION FOR CALIFORNIA*

ANIMALS

Avian species
- California quail
- Coastal marsh non-game birds
- Chicken research stocks†

Mammalian species
- Mice research stocks†
- Sheep research stocks†
- Cattle breeds with unique phenotypes
- Bighorn sheep
- Tule elk
- Salt marsh harvest mouse

Nematode species

Arthropod species
- Honey bees†
- Predatory mite

Amphibian species

Reptilian species
- Island night lizard

Aquatic species
- Pacific salmon
- Rainbow trout†
- Abalone

PLANTS

Forest tree species
- Radiata pine
- Coast redwood
- Guadalupe Island cypress

Range and wildland species
- Rose clover
- Slender wild oat
- Beach strawberry
- Meadowfoam

Agronomic crop species
- Wheat†
- Rice
- Alfalfa†
- Blackeye pea

Vegetable crop species
- Brassicas
- Tomatoes†
- Cucurbits†

Horticultural species
- Grape†
- Almond†
- Walnut†
- Citrus
- Pistachio†
- Chrysanthemum

MICROORGANISMS

- Plant viruses
- Pathogenic and nonpathogenic fungi†
- Yeasts†

*This list was presented at the Symposium and Workshop on Genetic Resources Conservation for California, Napa, California, April 5, 6, and 7, 1984.

†Endangered collections involving these organisms were the subjects of grants by the GRCP in 1985-86.

APPENDIX V - Summary of 1985-86 Expenditure of Funds

	Item		Amount	Percent of total
A.	Agriculture & Natural Resources Overhead		$12,500	5.00
B.	Davis Management Office		85,135	34.06
	1. Salaries	$32,768		13.11
	2. Furnishings	15,393		6.16
	3. Equipment	23,210		9.28
	4. Supplies and Expenses	4,639		1.86
	5. Travel	1,259		0.50
	6. Programmatic			
	Potato Collection	1,000		0.40
	Promotional/Education*	6,866		2.75
C.	Grants†		152,364	60.95
	TOTAL		$250,000	

*Includes Seed Saving Project, Student Farm, Davis (GRCP #8619).
†18 grants at $3,000 to $21,300 for an average of $8,465 per grant.