

**NRSP/IR BUDGET REQUESTS -- ATTACHMENT I
ACCOMPLISHMENTS CY2001**

**NRSP-6: Introduction, Classification, Preservation, Evaluation and Distribution of
tuber-bearing *Solanum* species germplasm.**

Introduction:

Important progress was made in building the collection. We incorporated unique germplasm from VIR (Russian) genebank, Bolivia and the USA.

Classification: Dr. Spooner continues to resolve problems in taxonomic classification that impede efficient documentation and use of the germplasm. Insights gained from these studies will allow accessions to be assigned stable species names based on empirical differences.

Preservation: The usual work for maintenance of top quality *Solanum* germplasm at NRSP-6 was continued. Germination tests were done on new seed and on others on a 5-year rotation. Virus tests were done on new seeds and the in vitro clonal stocks. Seed increases were done in the spring, fall and summer. RAPD markers were used to assess several aspects of the status and dynamics of genetic diversity in the genebank.

Evaluation was continued in house or with collaborators specializing in the particular trait: Combining frost tolerance with good tuber type, tuber calcium, tuber and foliar glycoalkaloids, late blight, antioxidants and hormone mutants.

Distribution: NRSP-6 distributed 6,099 units of seed, 302 tuber families and 1,197 in vitro stocks to clientele in 20 states of the United States and 15 other countries.

Intergenebank Collaboration: Research to determine the equivalence of presumed duplicate populations held in different genebanks was published and additional work to compare duplicates with respect to nematode resistance was initiated. An intergenebank meeting was planned for 2002 in Hamburg, Germany.

For specific areas of accomplishment, see Appendix listing recent publications and presentations.

NRSP/IR BUDGET REQUESTS -- ATTACHMENT II
GOALS CY2002

**NRSP-6: Introduction, Classification, Preservation, Evaluation and Distribution of
tuber-bearing *Solanum* species germplasm.**

Introduction: We will continue 2001's success in identifying elite late blight breeding stocks and test genetics of resistance. We will strengthen our collaborative ties with other genebanks. We expect to receive and assimilate materials from Bolivia and Russia.

Classification: Experiments to better understand species boundaries will continue.

Preservation: Efforts to identify less expensive, easier, and more reliable ways to grow and increase potato germplasm will continue. Samples of new germplasm will be transferred to NSSL and/or the University of Wisconsin for backup. Rigorous disease prevention and monitoring practices (mainly for viruses) will be continued. We will continue bacterial ring rot screening as a health monitoring protocol for the in vitro collection. We will continue research to measure the status and dynamics of genetic diversity in the genebank pursuant to preventing its loss during preservation.

Evaluation: We will continue evaluating potato germplasm for frost tolerance, glycoalkaloids, tuber calcium accumulation, hormone mutants, antioxidants, late blight, nematodes and other characteristics that impact the continued success of the potato crop. Evaluation is a high priority for the genebank, since it is the key to mining the value of the germplasm in which we have invested so much effort for preservation. We will continue work to find ways to manipulate tuberization for screening tuber traits.

Distribution: Potato is the world's most important vegetable crop, and the genebank at Sturgeon Bay is the world's most comprehensive and accessible collection. Germplasm and technical assistance for researchers and breeders will continue to be rapidly and impartially available here.

Intergenebank Collaboration: The cooperative intergenebank project will continue to use RAPDs to assess the dynamics of genetic diversity in model US species. We will complete work to compare reputed duplicates from the CIP and US collections. We will compare nematode resistance in the US and VIR collections.

NRSP-6 Appendix
JUSTIFICATION
For 3% SALARY increase in FY 2003

The need is increasing: The size of the collection and associated labor, supplies and upkeep are rising rapidly. This combined with the flat budgets we have received in the past several years means we are “losing ground.” We ask that this problem at least be *partially* offset by a **3% increase for salaries in FY 2003**.

NRSP/IR BUDGET REQUESTS

SUMMARY

NRSP-6: Interregional Potato Introduction Project

Description	Multistate Research Funding						Other Sources of Funding			
	Authorized FY 2001		Authorized ^a FY 2002		Proposed ^b FY 2003		Authorized FY 2002		Proposed ^c FY 2003	
	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE
Salaries	94,497	3.3	97,804	3.3	100,739	3.3	146,885	3.1	154,229	3.1
Fringe Benefits (Salary Only)	30,632		30,632		31,551		58,754		61,692	
Wages (+ wage fringe)	3,553		3,677		3,677		0		0	
Travel	6,600		6,000		6,000		8,000		8,400	
Supplies	18,721		16,500		16,500		0		0	
Maintenance	7,572		6,962		6,961		0		0	
Equipment/Capital Imp.	0		0		0		0		0	
UW Contribution (est.)	0		0		0		66,700		70,035	
TOTAL	161,575		161,575		165,428		280,339		294,356	

^a 3.5% salary increases

^b 3.0% increase for salaries-- see Appendix: JUSTIFICATION

^c estimated up to 5% increase

NRSP-6 BUDGET REQUEST**NRSP-6: Interregional Potato Introduction Project**

DETAILED INFORMATION ON POSITIONS, SALARIES, AND FRINGE BENEFITS

SALARIES	Multistate Research Funding						Other Sources of Funding			
	Authorized ^a FY 2001		Authorized ^b FY 2002		Requested FY 2003		Authorized FY 2002		Requested FY 2003	
	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE
Admin. Project Assistant	25,104	0.6	25,983	0.6	26,762	0.6	17,322	0.4	17,842	0.4
Technician (Specialist)	31,224	1.0	32,317	1.0	33,286	1.0	0		0	
Technician	17,082	1.0	17,680	1.0	18,210	1.0	0		0	
Gardener	5,824	0.2	6,028	0.2	6,209	0.2	24,111	0.8	24,834	0.8
½ Research Assistant	15,792	0.5	16,345	0.5	16,835	0.5	0		0	
Secretary / Clerical	0		0		0		16,102	0.6	16,585	0.6
ARS Research Leader	0		0		0		7,350	0.1	7,571	0.1
ARS Geneticist / Proj. Leader	0		0		0		52,000	0.8	53,560	0.8
ARS Research Botanist	0		0		0		30,000	0.4	30,900	0.4
Total Salaries	95,026		98,353		101,302		146,885		151,292	
Fringe Benefits (Salaries only)	30,632		30,632		30,632		58,754		60,517	
TOTAL	125,658	3.3	128,985	3.3	131,934	3.3	205,639	3.1	211,809	3.1

FY 2000-2001 % Salary increase 6.0%

FY 2002 Salary increase approved by institution = 3.5%, requested and denied RRF increase = 3.0%

FY 2003 Salary increase by institution..... at least 4.2%

^a actual

^b at 3.5% increase

APPENDIX

Recent Publications and Presentations of Project Personnel

Bamberg, J. B., S. D. Kiru and A. H. del Rio. 2001. Comparison of reputed duplicate populations in the Russian and US potato genebanks using RAPD markers. *Am J. Potato Res.* 78: 365-369.

AH del Rio, JB Bamberg, Z Huaman, A Salas, SE Vega. 2001. Association of eco-geographical variables and genetic variation in native wild US potato populations determined by RAPD markers. *Crop Science* 41:870-878.

Douches, D. S., J. B. Bamberg, W. Kirk, K. Jastrzebski, B. a. Niemira, J. Coombs, D. A. Biognin, and K. J. Fletcher. 2001. Evaluation of wild *Solanum* species for resistance to the US-8 genotype of *Phytophthora infestans* utilizing a fine-screening technique. *Am J. Potato Res.* 78:159-165.

Bamberg, J. B. and A. H. del Rio. 2000. Genetic shifts in potato genebank populations by unintentional seedling selection. Report to the North Central Regional -84 Potato Genetics Technical Meeting. Des Plaines, IL, Dec 7, 2000.

Huaman, Z., R. Hoekstra, and J. Bamberg. 2000. The intergenebank potato database and the dimensions of available wild potato germplasm. *Am J. Potato Res.* 77:353-362.

Vega, S., J. Palta and J. Bamberg. 2000. Variability in the rate of cold acclimation and deacclimation among tuber-bearing *Solanum* (potato) species. *J. Am. Soc. Hort. Sci.* 125:205-211.

Alfonso H. del Rio & John B. Bamberg. 2000. RAPD markers efficiently distinguish heterogenous populations of wild potato (*Solanum*). *Genetic Resources and Crop Evolution.* 47:115-121.

Bamberg, J. 2000. Germination of gibberellin sensitive *Solanum* (potato) botanical seeds soaked in GA3 and re-dried. *Am. J. Potato Res.* 77:201-202.

Bamberg, J., C. Singsit, A. H. del Rio and E. B. Radcliffe. 2000. RAPD Analysis of Genetic Diversity in *Solanum* Populations to Predict the Need for Fine Screening. *Am. J. Potato Res.* 77:275-278.