NRSP/IR BUDGET REQUESTS -- ATTACHMENT I
ACCOMPLISHMENTS CY2000
NRSP-6: Introduction, Classification, Preservation, Evaluation and Distribution of tuber-bearing *Solanum* species germplasm.

Introduction:
Important progress was made in building the collection. We negotiated for import of unique germplasm from the VIR (Russian) genebank and the Polish potato breeding station.

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. Found a new way to encourage seed formation on recalcitrant populations.

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: A total of 8,433 units of germplasm were distributed in 116 orders, 1/3 of which were foreign.

Intergenebank Collaboration: Research to determine the equivalence of presumed duplicate populations held in different genebanks was completed.

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

NRSP/IR BUDGET REQUESTS -- ATTACHMENT II
GOALS CY2001
NRSP-6: Introduction, Classification, Preservation, Evaluation and Distribution of tuber-bearing *Solanum* species germplasm.

Introduction: We will continue efforts to identify 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 Peru, Russia, and Poland.

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, aphid resistance 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.

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 compare reputed duplicates from the CIP and US collections. See Appendix for specific projects in progress.

NRSP-6 Appendix

JUSTIFICATION

For 3% SALARY increase in FY 2002

The need is increasing: The size of the collection and associated labor, supplies and upkeep are rising rapidly. We have received flat budgets for the past three years and that money now buys less, since in 2000, Classified employees got a 3% raise, and Academic Staff about an 8% raise.

We propose a **3% increase for salary and labor in FY 2002**.

NRSP/IR BUDGET REQUESTS

SUMMARY

NRSP-6: Interregional Potato Introduction Project

Description	Multistate Research Funding						Other Sources of Funding			
	Authorized FY 2000		Authorized [a] FY 2001		Proposed [b] FY 2002		Authorized FY 2001		Proposed[c] FY 2002	
	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE
Salaries	90,817	3.3	95,063	3.3	97,915		128,380	3.1	134,799	3.1
Fringe Benefits (Salary Only)	28,040		30,800		31,724		41,097		43,152	
Wages (+ wage fringe)	12,000		12,000		10,300		0		0	
Travel	4,014		1,000		1,000		8,663		8,000	
Supplies	15,569		18,000		25,068		0		0	
Maintenance	11,491		5,068		0		0		0	
Equipment/Capital Imp.	0		0		0		0		0	
UW Contribution (est.)	0		0		0		63,525		66,700	
TOTAL	161,931		161,931		166,007		241,665		252,651	

[a] No increase authorized but we will have to pay this much due to nondiscretionary staff raises.

[b] 3.0% base salary and labor increase -- see Appendix: JUSTIFICATION

[c] estimated up to 5% increase

Attachment III

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 2000		Authorized[a] FY 2001		Requested FY 2002		Authorized FY 2001		Requested FY 2002	
	Dol1ars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE	Dollars	FTE
Admin. Project Assistant	23,076	0.6	25,103	0.6	25,856	0.6	14,224	0.4	14,935	0.4
Technician (Specialist)	28,824	1.0	31,221	1.0	32,158	1.0	0		0	
Technician	16,146	1.0	17,107	1.0	17,620	1.0	0		0	
Gardener	5,512	0.2	5,840	0.2	6,015	0.2	22,048	0.8	23,150	0.8
½ Research Assistant	17,259	0.5	15,792	0.5	16,266	0.5	0		0	
Secretary / Clerical	0						15,335	0.6	16,102	0.6
ARS Research Leader	0						7,000	0.1	7,350	0.1
ARS Geneticist / Proj. Leader	0						39,081	0.8	41,035	0.8
ARS Research Botanist	0						24,500	0.4	25,725	0.4
Total Salaries	90,817		95,063		97,915		122,188		128,297	
Fringe Benefits (Salaries only)	28,040		30,800		31,724		39,140		41,097	
TOTAL	118,857	3.3	125,863	3.3	129,639	3.3	161,328	3.1	169,394	3.1

FY 1999-2000 % Salary increase 3-8%
FY 2002 Anticipated (requested) RRF Salary increase....3%
[a] actual and projected spending

APPENDIX IV
Recent Publications and Presentations of Project Personnel
(examples of subject areas in which we are active)

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.

Chen, Y-K, J. Bamberg & J Palta. 1999. Expression of Freezing Tolerance in the Interspecific F1 and Somatic Hybrids of Potatoes. Theor Appl Genet. 98:955-04.

Chen, Y-K., J. Palta & J. Bamberg. 1999. Freezing Tolerance and Tuber production in Self and Backcross Progenies Derived from Somatic Hybrids between Solanum tuberosum L. and S. commersonii Dun. Theor Appl Genet.

Chen, Y-K., J. Palta, J. Bamberg, H. Kim, G. Haberlach & J. Helgeson. 1999. Expressions of nonacclimated freezing tolerance and cold accclimation capacity in somatic hybrids between hardy wild Solanum species and cultivated potatoes. Euphytica 107:1-8.

Bamberg, J.B., A.H. del Rio, and M.W. Martin. 1997. Expanding the geographical representation of *ex situ* germplasm samples of wild *Solanum jamesii* and *S. fendleri* from the USA. Am. Potato J. 74(6):416-417. (Abstract).

Bamberg, J. 1999. Dependence on exogenous gibberellin for seed germination in *Solanum acaule* Bitter and other *Solanum* (potato) species. Am. J. Potato Res. 76:351.

Bamberg, J. 1999. Screening for gibberellin deficiency mutants in *Solanum tuberosum* ssp. *andigena* Am. J. Potato Res. 76:321,

Bamberg, J. 1999. Wild potatoes on public lands of the Southwest. NRSP-6 brochure.

Bamberg, J., A. H. del Rio & Z. Huaman. Intergenebank Cooperation in Genetic Diversity Conservation Research. Proceedings of the Global Conference on Potato, New Delhi, India, Dec. 6-12, 1999.

Bamberg, J., Max Martin and J. P. Palta. Segregation of tuber calcium in an F2 family of extreme parents. Bamberg, (Astr.: NCR-84, 1998) .

Bamberg, J.B., D.J. Ormrod, and W.E. Fry. 1997. Screening wild *Solanum* germplasm for resistance to late blight. Am. Potato J. 74(6):417. (Abstract).

del Rio, A H, JB Bamberg, Z Huaman, A Salas, SE Vega. Association of eco-geographical variables and genetic variation in native wild US potato populations determined by RAPD markers. (accepted Crop Science).

Douches, D., J. B. Bamberg, W. Kirk, K. Jastrzebski, B. A. Niemira, J. Coombs, D. A. Bisognin, K. Walters-Flecher. Fine Screening Wild Solanum Species For Resistance To The US-8 Genotype of *Phytophora infestans*. Am J. Potato Res. (accepted)

Errebhi, M., Rosen, C., Lauer, F., Martin, M., Bamberg, J. 1999. Evaluation of tuber-bearing Solanum species for nitrogen use efficiency and biomass partitioning. Am J. Potato Res. 76:143-152.

Thill, C., E. Radcliffe, D. Ragsdale, R. Hanneman, Jr., J. Bamberg. The identification of aphid resistant 4x potato germplasm for use in breeding. (PAA 1999 published abst.)

Budg02B.doc

February 7, 2001

Ms. Madelyn Alt
UW - 240 G Ag Hall
1450 Linden Drive
Madison, WI 53706

Madelyn,

As usual, I put the updated budget tables into the WORD template I already have in my computer. It looks like the sheets you faxed are the same as always. If you see any problems, however, let me know.

As mentioned before, the most important part of this is the request for 3% increase in salary and labor (that was already submitted in response to Dr. Lower's request last September).

Thanks.

Sincerely,

John Bamberg
Project Leader