



**NATIONAL STRATEGIC
GERMPLASM AND CULTIVAR
COLLECTION ASSESSMENT
AND UTILIZATION PLAN:**

**Supplemental Crop and
Crop Wild Relative Collections Data**

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Information About This Document:

The reader is advised to begin first with the companion document National Strategic Germplasm and Cultivar Collection Assessment and Utilization Plan: Technical Details, Analyses, and Approaches (“Technical Details” hereafter), and then refer to the current document when it is cited by the Technical Details document, and according to your interests in data about specific crops and/or genebank units.

The Supplementary Figures (S3.1-S12) in this document provide individual crop and CWR collection data for the metrics discussed in Components 3-12 of the companion document Technical Details. The Supplementary Figures in this document are not numbered sequentially but rather according to the primary figures in the Technical Details document to which they correspond. This practice facilitates cross-references between contents of the two documents.

For each Supplementary Figure, data for crops and CWR are listed alphabetically by their common names, and information is also provided about the NPGS genebank unit that manages the specific crops and CWR, and how the crops and CWR are maintained (as seeds or clonally).

The page numbers in the current document begin with the prefix “D” (standing for “Data”) in order to distinguish the content of this document from that of the Technical Details document.

Acknowledgments:

Contributors to both the Technical Details and the current document are acknowledged on pp. 130-133 of the Technical Details document. We especially thank Stacey Estrada and Glenn Hanes for assembling and analyzing the data for the Plan, and designing the many figures in both of these documents that comprise the overall NPGS Plan.

S3.1 Expansion of NPGS PGR Collections

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			NPGS Collection Size	Annual New Acquisitions (Avg # Accessions)	Annual Growth Rate (%)	NPGS Collection Size	Annual New Acquisitions (Avg # Accessions)	Annual Growth Rate (%)	NPGS Collection Size	Annual New Acquisitions (Avg # Accessions)	Annual Growth Rate (%)
NPGS-wide			569,197	8,434	1.5%	608,384	8,846	1.5%	640,414	7,096	1.1%
Acerola	Hilo, HI (HILO)	Clonal	7	0	0.0%	7	0	0.0%	7	0	0.0%
Aegilops	Aberdeen, ID (NSGC)	Seed	2,232	1	0.0%	2,242	2	0.1%	2,252	2	0.1%
Alfalfa	Pullman, WA (W6)	Seed	4,011	3	0.1%	4,212	40	1.0%	4,422	42	1.0%
Allium	Geneva, NY (NE9)	Seed	1,194	3	0.2%	1,244	10	0.8%	1,344	20	1.5%
Allium CWR	Pullman, WA (W6)	Clonal	904	2	0.2%	914	2	0.2%	924	2	0.2%
Allium Garlic	Pullman, WA (W6)	Clonal	342	1	0.3%	347	1	0.3%	352	1	0.3%
Annona	Mayaguez, PR (MAY)	Clonal	27	4	14.8%	58	6	10.7%	65	1	2.2%
Annona Backup MAY	Miami, FL (MIA)	Clonal	18	4	22.2%	25	1	5.6%	30	1	3.3%
Apium	Geneva, NY (NE9)	Seed	248	0	0.0%	308	12	3.9%	368	12	3.3%
Apple	Geneva, NY (GEN)	Clonal	1,397	2	0.1%	1,411	3	0.2%	1,425	3	0.2%
Apple CWR	Geneva, NY (GEN)	Clonal	4,676	38	0.8%	4,814	28	0.6%	4,955	28	0.6%
Asparagus	Geneva, NY (NE9)	Seed	158	0	0.0%	258	20	7.8%	358	20	5.6%
Asters	Ames, IA (NC7)	Seed	450	8	1.8%	453	1	0.1%	448	1	0.2%
Avocado	Miami, FL (MIA)	Clonal	163	15	9.2%	238	15	6.3%	313	15	4.8%
Avocado Backup MIA	Hilo, HI (HILO)	Clonal	128	14	10.9%	170	8	4.9%	200	6	3.0%
Bambara Groundnut	Griffin, GA (S9)	Seed	98	0	0.0%	103	1	1.0%	108	1	0.9%
Bamboo	Griffin, GA (S9)	Seed	96	0	0.0%	96	0	0.0%	96	0	0.0%
Bamboo Tropical	Mayaguez, PR (MAY)	Clonal	30	2	6.7%	36	1	3.3%	40	1	2.0%
Barley	Aberdeen, ID (NSGC)	Seed	28,304	40	0.1%	28,354	10	0.0%	28,404	10	0.0%
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	3,444	20	0.6%	3,469	5	0.1%	3,494	5	0.1%
Benincasa	Geneva, NY (NE9)	Seed	31	0	0.0%	56	5	8.9%	106	10	9.4%
Brassica	Ames, IA (NC7)	Seed	2,013	0	0.0%	2,024	2	0.1%	2,029	1	0.0%
	Geneva, NY (NE9)	Seed	2,170	0	0.0%	2,245	15	0.7%	2,345	20	0.9%
Brassicaceae	Ames, IA (NC7)	Seed	1,307	25	1.9%	1,367	12	0.9%	1,427	12	0.8%
Breadfruit	Hilo, HI (HILO)	Clonal	48	1	2.9%	53	1	1.9%	58	1	1.7%
Breadfruit Backup HILO	Mayaguez, PR (MAY)	Clonal	30	3	10.0%	45	3	6.7%	55	2	3.6%
Cacao	Mayaguez, PR (MAY)	Clonal	293	10	3.4%	337	9	2.6%	390	11	2.7%
Cacao Backup MAY	Hilo, HI (HILO)	Clonal	120	12	9.8%	150	6	4.0%	170	4	2.4%
Carambola	Hilo, HI (HILO)	Clonal	25	0	0.0%	26	0	0.8%	27	0	0.7%
Castorbean	Griffin, GA (S9)	Seed	378	0	0.0%	378	0	0.0%	378	0	0.0%
Chickpea	Pullman, WA (W6)	Seed	7,048	56	0.8%	7,148	20	0.3%	7,248	20	0.3%
Cichorium	Ames, IA (NC7)	Seed	285	1	0.4%	290	1	0.3%	295	1	0.3%

Fig. S3.1 The top row of the figure, shaded light beige, reports for the total NPGS collection the number of accessions, average annual number of accessions acquired, and forecasts or goals for expansion at +5 years and +10 years. The current average annual rate (percentage) growth for the total collection, and goals for +5 years and +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the expansion rate of the individual NPGS PGR collections, the darker the lavender hue, with 0% growth the darkest.



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Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
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Citrus	Riverside, CA (RIV)	Clonal	1,518	6	0.4%	1,548	6	0.4%	1,578	6	0.4%
Clover	Griffin, GA (S9)	Seed	2,583	68	2.6%	2,923	68	2.3%	3,263	68	2.1%
	Pullman, WA (W6)	Seed	3,722	2	0.0%	3,908	37	1.0%	4,104	39	1.0%
Coffee	Hilo, HI (HILO)	Clonal	3	0	0.0%	1,000	199	19.9%	2,000	200	10.0%
Cotton	College Station, TX (COT)	Seed	9,813	51	0.5%	10,070	51	0.5%	10,370	60	0.6%
Cowpea	Griffin, GA (S9)	Seed	8,242	0	0.0%	8,267	5	0.1%	8,392	25	0.3%
Cucumis CWR	Ames, IA (NC7)	Seed	318	1	0.3%	324	1	0.4%	325	0	0.1%
Cucumis melo	Ames, IA (NC7)	Seed	3,224	1	0.0%	3,331	21	0.6%	3,438	21	0.6%
Cucumis sativus	Ames, IA (NC7)	Seed	1,401	1	0.1%	1,500	20	1.3%	1,595	19	1.2%
Cucurbita	Ames, IA (NC7)	Seed	979	1	0.1%	1,026	9	0.9%	1,072	9	0.9%
	Geneva, NY (NE9)	Seed	838	0	0.0%	863	5	0.6%	903	8	0.9%
	Griffin, GA (S9)	Seed	1,446	6	0.4%	1,475	6	0.4%	1,500	5	0.3%
	Parlier, CA (PARL)	Seed	37	1	2.7%	37	0	0.0%	37	0	0.0%
Cuphea	Ames, IA (NC7)	Seed	638	0	0.0%	638	0	0.0%	638	0	0.0%
Cynara	Geneva, NY (NE9)	Seed	27	0	0.0%	52	5	9.6%	92	8	8.7%
Date Palm	Riverside, CA (RIV)	Clonal	169	6	3.6%	199	6	3.0%	229	6	2.6%
Daucus	Ames, IA (NC7)	Seed	1,563	40	2.6%	1,613	10	0.6%	1,662	10	0.6%
Differentials	Griffin, GA (S9)	Seed	5	0	0.0%	5	0	0.0%	5	0	0.0%
Durian	Hilo, HI (HILO)	Clonal	15	1	4.0%	18	1	3.3%	20	0	2.0%
Eggplant	Griffin, GA (S9)	Seed	1,001	0	0.0%	1,025	5	0.5%	1,050	5	0.5%
Euphorbia	Ames, IA (NC7)	Seed	210	0	0.0%	207	0	0.0%	207	0	0.0%
Faba Bean	Pullman, WA (W6)	Seed	776	1	0.2%	876	20	2.3%	976	20	2.0%
Fagopyrum	Geneva, NY (NE9)	Seed	255	0	0.0%	305	10	3.3%	355	10	2.8%
Ficus	Miami, FL (MIA)	Clonal	24	2	8.3%	34	2	5.9%	44	2	4.5%
Fig	Davis, CA (DAV)	Clonal	230	0	0.0%	250	4	1.6%	275	5	1.8%
Flax	Ames, IA (NC7)	Seed	3,001	4	0.1%	3,011	2	0.1%	3,021	2	0.1%
Garcinia	Mayaguez, PR (MAY)	Clonal	26	0	0.0%	30	1	2.7%	35	1	2.9%
Gourds	Griffin, GA (S9)	Seed	483	0	0.0%	500	3	0.7%	525	5	1.0%
Grape	Davis, CA (DAV)	Clonal	3,649	8	0.2%	4,649	200	4.3%	5,649	200	3.5%
	Geneva, NY (GEN)	Clonal	802	0	0.0%	822	4	0.5%	842	4	0.5%
Grape CWR	Geneva, NY (GEN)	Clonal	612	3	0.5%	733	24	3.3%	868	27	3.1%
Grasses	Pullman, WA (W6)	Seed	22,842	120	0.5%	23,342	100	0.4%	23,842	100	0.4%
Grasses Millets	Ames, IA (NC7)	Seed	2,508	12	0.5%	2,568	12	0.5%	2,628	12	0.5%

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Grasses Warm Season	Griffin, GA (S9)	Seed	7,243	0	0.0%	7,342	20	0.3%	7,443	20	0.3%
Guar	Griffin, GA (S9)	Seed	413	1	0.2%	418	1	0.2%	423	1	0.2%
Guava	Hilo, HI (HILO)	Clonal	73	1	0.8%	75	0	0.5%	78	1	0.8%
Hazelnut	Corvallis, OR (COR)	Clonal	721	10	1.4%	775	11	1.4%	825	10	1.2%
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	105	10	9.5%	155	10	6.5%	205	10	4.9%
Hibiscus	Griffin, GA (S9)	Seed	341	0	0.0%	341	0	0.0%	341	0	0.0%
Hops	Corvallis, OR (COR)	Clonal	304	5	1.6%	329	5	1.5%	354	5	1.4%
Hops CWR	Corvallis, OR (COR)	Clonal	329	20	6.1%	429	20	4.7%	529	20	3.8%
Hylocereus	Hilo, HI (HILO)	Clonal	10	1	8.0%	11	0	1.8%	12	0	1.7%
Kiwifruit	Davis, CA (DAV)	Clonal	214	0	0.0%	214	0	0.0%	214	0	0.0%
Lagerstroemia	Miami, FL (MIA)	Clonal	34	3	8.8%	40	1	3.0%	50	2	4.0%
Lathyrus	Pullman, WA (W6)	Seed	870	0	0.0%	880	2	0.2%	890	2	0.2%
Legumes	Ames, IA (NC7)	Seed	1,305	10	0.8%	1,355	10	0.7%	1,405	10	0.7%
	Griffin, GA (S9)	Seed	3,097	3	0.1%	3,112	3	0.1%	3,127	3	0.1%
Legumes Minor Forage	Pullman, WA (W6)	Seed	1,753	20	1.2%	1,803	10	0.6%	1,828	5	0.3%
Lentil	Pullman, WA (W6)	Seed	3,179	1	0.0%	3,279	20	0.6%	3,329	10	0.3%
Lesquerella	Parlier, CA (PARL)	Seed	248	0	0.0%	248	0	0.0%	248	0	0.0%
Lettuce	Pullman, WA (W6)	Seed	2,696	23	0.9%	2,706	2	0.1%	2,716	2	0.1%
Limnanthes	Parlier, CA (PARL)	Seed	78	0	0.0%	78	0	0.0%	128	10	7.8%
Litchi	Hilo, HI (HILO)	Clonal	95	0	0.2%	97	0	0.4%	98	0	0.2%
Litchi Backup HILO	Mayaguez, PR (MAY)	Clonal	10	3	30.0%	10	0	0.0%	10	0	0.0%
	Miami, FL (MIA)	Clonal	19	3	15.8%	25	1	4.8%	30	1	3.3%
Longan	Hilo, HI (HILO)	Clonal	25	0	0.8%	27	0	1.5%	29	0	1.4%
Luffa	Griffin, GA (S9)	Seed	165	0	0.0%	180	3	1.7%	200	4	2.0%
Lupin	Pullman, WA (W6)	Seed	1,574	2	0.2%	1,599	5	0.3%	1,624	5	0.3%
Macadamia	Hilo, HI (HILO)	Clonal	46	2	4.8%	51	1	2.0%	56	1	1.8%
Maize	Ames, IA (NC7)	Seed	19,176	81	0.4%	24,781	1,121	4.5%	27,386	521	1.9%
Maize CWR	Ames, IA (NC7)	Seed	492	1	0.2%	532	8	1.5%	532	0	0.0%
Maize Genetic Stocks	Urbana, IL (GSZE)	Seed	42,411	3,000	7.1%	50,000	1,518	3.0%	55,000	1,000	1.8%
Mamey Sapote	Mayaguez, PR (MAY)	Clonal	32	3	9.4%	40	2	4.0%	45	1	2.2%
Mamey Sapote Backup MAY	Miami, FL (MIA)	Clonal	31	3	9.7%	40	2	4.5%	50	2	4.0%
Mango	Miami, FL (MIA)	Clonal	282	10	3.5%	332	10	3.0%	382	10	2.6%
Mango Backup MIA	Mayaguez, PR (MAY)	Clonal	65	5	7.7%	65	0	0.0%	65	0	0.0%

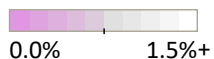
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Medicago	Pullman, WA (W6)	Seed	4,537	1	0.0%	4,764	45	1.0%	5,002	48	1.0%
Medicinals	Ames, IA (NC7)	Seed	1,084	26	2.4%	1,212	26	2.1%	1,340	26	1.9%
Millet	Griffin, GA (S9)	Seed	2,425	226	9.3%	3,555	226	6.4%	4,685	226	4.8%
Mint	Corvallis, OR (COR)	Clonal	438	5	1.1%	463	5	1.1%	478	3	0.6%
Mint CWR	Corvallis, OR (COR)	Clonal	45	2	4.4%	55	2	3.6%	65	2	3.1%
Mulberry	Davis, CA (DAV)	Clonal	72	0	0.0%	72	0	0.0%	72	0	0.0%
Mung Bean	Griffin, GA (S9)	Seed	4,222	0	0.0%	4,247	5	0.1%	4,272	5	0.1%
Musa	Mayaguez, PR (MAY)	Clonal	175	5	2.9%	210	7	3.3%	235	5	2.1%
Native Plants	Pullman, WA (W6)	Seed	8,461	1,101	13.0%	12,211	750	6.1%	13,461	250	1.9%
Numerous Crops	Beltsville, MD (NGRL)	Seed	0	500		0	1,006		0	688	
Oat	Aberdeen, ID (NSGC)	Seed	21,135	2	0.0%	21,145	2	0.0%	21,155	2	0.0%
Ocimum	Ames, IA (NC7)	Seed	106	1	0.9%	107	0	0.2%	108	0	0.2%
Okra	Griffin, GA (S9)	Seed	2,927	6	0.2%	2,957	6	0.2%	2,987	6	0.2%
Olive	Davis, CA (DAV)	Clonal	164	0	0.0%	170	1	0.7%	170	0	0.0%
Opuntia	Parlier, CA (PARL)	Clonal	281	0	0.0%	281	0	0.0%	281	0	0.0%
Ornamentals	Ames, IA (NC7)	Seed	780	9	1.2%	825	9	1.1%	870	9	1.0%
Other Crops	Geneva, NY (NE9)	Seed	279	0	0.0%	279	0	0.0%	279	0	0.0%
	Griffin, GA (S9)	Seed	163	1	0.6%	168	1	0.6%	173	1	0.6%
	Hilo, HI (HILO)	Clonal	55	2	3.3%	50	1	2.0%	60	2	3.3%
	Mayaguez, PR (MAY)	Clonal	471	10	2.1%	471	0	0.0%	471	0	0.0%
	Miami, FL (MIA)	Clonal	432	10	2.3%	482	10	2.1%	532	10	1.9%
	Parlier, CA (PARL)	Seed	72	0	0.0%	72	0	0.0%	90	4	4.0%
	Pullman, WA (W6)	Seed	4,464	104	2.3%	4,964	100	2.0%	5,464	100	1.8%
Other Crops Backup HILO	Miami, FL (MIA)	Clonal	117	3	2.6%	132	3	2.3%	147	3	2.0%
Other Crops Backup HILO	Mayaguez, PR (MAY)	Clonal	10	4	40.0%	15	1	6.7%	20	1	5.0%
Papaya	Hilo, HI (HILO)	Clonal	178	3	1.9%	183	1	0.5%	188	1	0.5%
Parthenium	Parlier, CA (PARL)	Seed	137	0	0.0%	237	20	8.4%	400	33	8.2%
Pastinaca	Ames, IA (NC7)	Seed	73	1	1.4%	82	2	2.2%	83	0	0.2%
Pea	Pullman, WA (W6)	Seed	6,193	19	0.3%	6,293	20	0.3%	6,393	20	0.3%
Pea Genetic Stocks	Pullman, WA (W6)	Seed	712	0	0.0%	717	1	0.1%	722	1	0.1%
Peach Palm	Hilo, HI (HILO)	Clonal	16	0	1.3%	17	0	1.2%	18	0	1.1%
Peanut	Griffin, GA (S9)	Seed	9,194	0	0.0%	9,219	5	0.1%	9,244	5	0.1%
Peanut CWR	Griffin, GA (S9)	Seed	559	0	0.0%	584	5	0.9%	609	5	0.8%

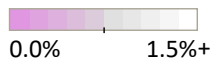
Fig. S3.1 The top row of the figure, shaded light beige, reports for the total NPGS collection the number of accessions, average annual number of accessions acquired, and forecasts or goals for expansion at +5 years and +10 years. The current average annual rate (percentage) growth for the total collection, and goals for +5 years and +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the expansion rate of the individual NPGS PGR collections, the darker the lavender hue, with 0% growth the darkest.



S3.1 Expansion of NPGS PGR Collections

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			NPGS Collection Size	Annual New Acquisitions (Avg # Accessions)	Annual Growth Rate (%)	NPGS Collection Size	Annual New Acquisitions (Avg # Accessions)	Annual Growth Rate (%)	NPGS Collection Size	Annual New Acquisitions (Avg # Accessions)	Annual Growth Rate (%)
Pears	Corvallis, OR (COR)	Clonal	1,964	10	0.5%	2,014	10	0.5%	2,064	10	0.5%
Pears CWR	Corvallis, OR (COR)	Clonal	414	10	2.4%	464	10	2.2%	514	10	1.9%
Pecan	College Station, TX (BRW)	Clonal	4,108	38	0.9%	4,300	38	0.9%	4,500	40	0.9%
Pepper	Griffin, GA (S9)	Seed	4,952	2	0.0%	5,000	10	0.2%	5,050	10	0.2%
Persimmon	Davis, CA (DAV)	Clonal	159	13	7.9%	165	1	0.7%	170	1	0.6%
Phaseolus	Pullman, WA (W6)	Seed	17,600	56	0.3%	17,740	28	0.2%	17,880	28	0.2%
Physalis	Geneva, NY (NE9)	Seed	168	0	0.0%	193	5	2.6%	218	5	2.3%
Pili Nut	Hilo, HI (HILO)	Clonal	32	0	0.6%	33	0	0.6%	34	0	0.6%
Pineapple	Hilo, HI (HILO)	Clonal	240	0	0.0%	245	1	0.4%	246	0	0.1%
Pistachio	Davis, CA (DAV)	Clonal	219	0	0.0%	270	10	3.8%	310	8	2.6%
Pomegranate	Davis, CA (DAV)	Clonal	192	0	0.0%	212	4	1.9%	212	0	0.0%
Potato	Sturgeon Bay, WI (NR6)	Seed	5,834	30	0.5%	5,984	30	0.5%	6,134	30	0.5%
Prunus	Davis, CA (DAV)	Clonal	1,677	38	2.3%	1,867	38	2.0%	2,057	38	1.8%
Pseudocereals	Ames, IA (NC7)	Seed	3,886	22	0.6%	3,996	22	0.6%	4,996	200	4.0%
Quince	Corvallis, OR (COR)	Clonal	204	2	1.0%	214	2	0.9%	224	2	0.9%
Rambutan	Hilo, HI (HILO)	Clonal	81	0	0.0%	82	0	0.2%	83	0	0.2%
Raphanus	Geneva, NY (NE9)	Seed	717	0	0.0%	792	15	1.9%	867	15	1.7%
Rhubarb	Pullman, WA (W6)	Clonal	109	0	0.0%	109	0	0.0%	109	0	0.0%
Ribes	Corvallis, OR (COR)	Clonal	692	10	1.4%	742	10	1.3%	792	10	1.3%
Ribes CWR	Corvallis, OR (COR)	Clonal	606	10	1.7%	656	10	1.5%	706	10	1.4%
Rice	Aberdeen, ID (NSGC)	Seed	19,134	35	0.2%	19,184	10	0.1%	19,234	10	0.1%
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	533	0	0.0%	558	5	0.9%	583	5	0.9%
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	32	0	0.0%	57	5	8.8%	67	2	3.0%
Rice Sativa	Stuttgart, AR (GSOR)	Seed	37,810	208	0.6%	38,810	200	0.5%	39,810	200	0.5%
Rubus	Corvallis, OR (COR)	Clonal	865	10	1.2%	915	10	1.1%	965	10	1.0%
Rubus CWR	Corvallis, OR (COR)	Clonal	1,356	10	0.7%	1,406	10	0.7%	1,456	10	0.7%
Rye	Aberdeen, ID (NSGC)	Seed	2,097	1	0.0%	2,102	1	0.0%	2,107	1	0.0%
Saccharum	Miami, FL (MIA)	Clonal	214	5	2.3%	239	5	2.1%	264	5	1.9%
Safflower	Pullman, WA (W6)	Seed	2,454	1	0.0%	2,479	5	0.2%	2,504	5	0.2%
Sapodilla	Mayaguez, PR (MAY)	Clonal	26	0	0.0%	30	1	2.7%	35	1	2.9%
Sapodilla Backup MAY	Miami, FL (MIA)	Clonal	26	3	11.5%	30	1	2.7%	35	1	2.9%
Sesame	Griffin, GA (S9)	Seed	1,213	0	0.0%	1,213	0	0.0%	1,213	0	0.0%
Simmondsia	Parlier, CA (PARL)	Clonal	325	0	0.1%	325	0	0.0%	325	0	0.0%

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S3.1 Expansion of NPGS PGR Collections

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			NPGS Collection Size	Annual New Acquisitions (Avg # Accessions)	Annual Growth Rate (%)	NPGS Collection Size	Annual New Acquisitions (Avg # Accessions)	Annual Growth Rate (%)	NPGS Collection Size	Annual New Acquisitions (Avg # Accessions)	Annual Growth Rate (%)
Solanum	Geneva, NY (NE9)	Seed	6,604	0	0.0%	6,654	10	0.2%	6,704	10	0.1%
Sorghum	Griffin, GA (S9)	Seed	45,136	1,394	3.1%	52,106	1,394	2.7%	59,076	1,394	2.4%
Soybean	Urbana, IL (SOY)	Seed	21,284	100	0.5%	23,000	343	1.5%	24,500	300	1.2%
Soybean CWR	Urbana, IL (SOY)	Seed	1,213	20	1.6%	1,363	30	2.2%	1,513	30	2.0%
Spanish Lime	Mayaguez, PR (MAY)	Clonal	34	2	5.9%	44	2	4.5%	50	1	2.4%
Spinach	Ames, IA (NC7)	Seed	413	0	0.0%	414	0	0.0%	415	0	0.0%
Strawberry	Corvallis, OR (COR)	Clonal	738	10	1.4%	788	10	1.3%	838	10	1.2%
Strawberry CWR	Corvallis, OR (COR)	Clonal	1,274	15	1.2%	1,349	15	1.1%	1,474	25	1.7%
Sugarbeet/Beet	Pullman, WA (W6)	Seed	2,754	11	0.4%	2,766	2	0.1%	2,778	2	0.1%
Sunflower	Ames, IA (NC7)	Seed	5,202	20	0.4%	5,342	28	0.5%	5,504	32	0.6%
Sweet Potato	Griffin, GA (S9)	Seed	780	2	0.3%	790	2	0.3%	800	2	0.3%
Sweet Potato CWR	Griffin, GA (S9)	Seed	459	0	0.0%	459	0	0.0%	459	0	0.0%
Tart Cherry	Geneva, NY (GEN)	Clonal	131	0	0.0%	144	3	1.8%	158	3	1.8%
Trefoil	Pullman, WA (W6)	Seed	996	2	0.2%	1,046	10	1.0%	1,098	10	1.0%
Trichosanthes	Geneva, NY (NE9)	Seed	18	0	2.2%	43	5	11.6%	93	10	10.8%
Trigonella	Pullman, WA (W6)	Seed	299	0	0.0%	309	2	0.6%	314	1	0.3%
Tripsacum	Miami, FL (MIA)	Seed	185	2	1.1%	195	2	1.0%	205	2	1.0%
Triticale	Aberdeen, ID (NSGC)	Seed	2,033	1	0.0%	2,038	1	0.0%	2,043	1	0.0%
Umbels	Ames, IA (NC7)	Seed	1,196	6	0.5%	1,226	6	0.5%	1,256	6	0.5%
Vaccinium	Corvallis, OR (COR)	Clonal	1,850	20	1.1%	1,950	20	1.0%	2,050	20	1.0%
Vaccinium CWR	Corvallis, OR (COR)	Clonal	950	20	2.1%	1,050	20	1.9%	1,150	20	1.7%
Vetch	Pullman, WA (W6)	Seed	1,862	0	0.0%	1,887	5	0.3%	1,912	5	0.3%
Vigna	Griffin, GA (S9)	Seed	493	0	0.0%	498	1	0.2%	503	1	0.2%
Walnut	Davis, CA (DAV)	Clonal	488	18	3.8%	625	27	4.4%	725	20	2.8%
Watermelon	Griffin, GA (S9)	Seed	1,909	5	0.3%	1,925	3	0.2%	1,950	5	0.3%
Wheat	Aberdeen, ID (NSGC)	Seed	56,925	100	0.2%	57,025	20	0.0%	57,125	20	0.0%
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	405	7	1.7%	415	2	0.5%	425	2	0.5%
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	958	0	0.0%	958	0	0.0%	958	0	0.0%
Winged Bean	Griffin, GA (S9)	Seed	158	0	0.0%	158	0	0.0%	158	0	0.0%
Woody Landscape	Ames, IA (NC7)	Seed	2,095	52	2.5%	2,356	52	2.2%	2,617	52	2.0%
	Washington, D.C. (USNA)	Clonal	8,368	250	3.0%	9,400	206	2.2%	10,400	200	1.9%

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S4.3a Safety Duplication of NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Duplicated	% of Collection Duplicated	Duplicated	% of Collection Duplicated	Duplicated	% of Collection Duplicated
NPGS-wide			409,910	80%	443,787	82%	473,902	83%
Acerola	Hilo, HI (HILO)	Clonal	0	0%	0	0%	0	0%
Aegilops	Aberdeen, ID (NSGC)	Seed	2,223	100%	2,274	97%	2,326	95%
Alfalfa	Pullman, WA (W6)	Seed	3,741	85%	4,046	88%	4,351	90%
Allium	Geneva, NY (NE9)	Seed	649	54%	762	61%	875	67%
Allium CWR	Pullman, WA (W6)	Clonal	317	35%	373	39%	430	43%
Allium Garlic	Pullman, WA (W6)	Clonal	113	36%	118	35%	123	35%
Annona	Mayaguez, PR (MAY)	Clonal	0	0%	1	4%	2	8%
Apium	Geneva, NY (NE9)	Seed	93	30%	108	33%	124	36%
Apple	Geneva, NY (GEN)	Clonal	2,052	73%	2,481	81%	2,910	87%
Apple CWR	Geneva, NY (GEN)	Clonal	630	35%	760	39%	889	41%
Asparagus	Geneva, NY (NE9)	Seed	14	8%	15	8%	16	8%
Asters	Ames, IA (NC7)	Seed	354	50%	391	53%	428	55%
Avocado	Miami, FL (MIA)	Clonal	0	0%	0	0%	0	0%
Bambara Groundnut	Griffin, GA (S9)	Seed	100	96%	102	94%	104	91%
Bamboo	Griffin, GA (S9)	Seed	0	0%	0	0%	0	0%
Barley	Aberdeen, ID (NSGC)	Seed	28,135	97%	29,953	98%	31,771	100%
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	6,400	77%	6,683	77%	6,966	76%
Benincasa	Geneva, NY (NE9)	Seed	12	39%	25	76%	34	100%
Brassica	Ames, IA (NC7)	Seed	1,990	96%	2,144	99%	2,278	100%
	Geneva, NY (NE9)	Seed	965	38%	1,231	46%	1,498	54%
Brassicaceae	Ames, IA (NC7)	Seed	1,177	82%	1,280	85%	1,384	87%
Breadfruit	Hilo, HI (HILO)	Clonal	5	11%	5	10%	5	9%
Cacao	Mayaguez, PR (MAY)	Clonal	0	0%	11	4%	22	7%
Carambola	Hilo, HI (HILO)	Clonal	0	0%	10	28%	11	30%
Castorbean	Griffin, GA (S9)	Seed	335	32%	373	34%	411	36%
Chickpea	Pullman, WA (W6)	Seed	6,193	88%	7,347	99%	7,763	100%
Cichorium	Ames, IA (NC7)	Seed	259	89%	307	100%	321	100%
Citrus	Riverside, CA (RIV)	Clonal	462	15%	792	23%	1,122	29%
	Griffin, GA (S9)	Seed	2,339	90%	2,439	89%	2,539	88%
Clover	Pullman, WA (W6)	Seed	2,782	74%	2,922	74%	3,062	74%
	Hilo, HI (HILO)	Clonal			25	63%	50	63%
Cotton	College Station, TX (COT)	Seed	5,792	59%	6,067	59%	6,343	59%
Cowpea	Griffin, GA (S9)	Seed	8,167	98%	8,472	97%	8,777	96%
Cucumis CWR	Ames, IA (NC7)	Seed	210	65%	236	70%	263	74%
Cucumis melo	Ames, IA (NC7)	Seed	2,586	75%	2,700	75%	2,814	74%
Cucumis sativus	Ames, IA (NC7)	Seed	1,334	84%	1,518	91%	1,701	97%
Cucurbita	Ames, IA (NC7)	Seed	827	77%	897	79%	966	82%
	Geneva, NY (NE9)	Seed	578	63%	896	92%	1,016	100%
	Griffin, GA (S9)	Seed	1,175	85%	1,206	83%	1,238	81%
	Parlier, CA (PARL)	Seed	10	24%	11	24%	11	24%
Cuphea	Ames, IA (NC7)	Seed	591	92%	637	95%	682	97%
Cynara	Geneva, NY (NE9)	Seed	3	9%	3	8%	3	8%
Date Palm	Riverside, CA (RIV)	Clonal	27	25%	20	17%	40	30%
Daucus	Ames, IA (NC7)	Seed	1,343	81%	1,599	92%	1,826	100%
Differentials	Griffin, GA (S9)	Seed	4	57%	4	58%	4	52%
Eggplant	Griffin, GA (S9)	Seed	899	89%	947	89%	996	89%

Fig. S4.3a The top row of the figure, shaded light beige, reports the numbers and percentages of the accessions in the total NPGS collection that are currently safeguarded by safety duplication at the NLGRP and the goals for such safety duplication at +5 years and at +10 years. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the percentage of accessions of the individual NPGS collections that are duplicated at the NLGRP, the darker the blue hue, with 0% duplication the darkest. Blank fields indicate that data could not be estimated. GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S4.3a Safety Duplication of NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Duplicated	% of Collection Duplicated	Duplicated	% of Collection Duplicated	Duplicated	% of Collection Duplicated
Elderberry	Corvallis, OR (COR)	Seed	28	14%	62	28%	95	40%
Euphorbia	Ames, IA (NC7)	Seed	99	47%	139	62%	179	77%
Faba Bean	Pullman, WA (W6)	Seed	505	64%	635	77%	764	89%
Fagopyrum	Geneva, NY (NE9)	Seed	254	100%	268	100%	281	100%
Ficus	Miami, FL (MIA)	Clonal	0	0%	4	5%	9	8%
Fig	Davis, CA (DAV)	Clonal	0	0%	14	7%	27	13%
Flax	Ames, IA (NC7)	Seed	2,927	97%	3,134	98%	3,335	100%
Gourds	Griffin, GA (S9)	Seed	702	87%	724	85%	747	84%
Grape	Davis, CA (DAV)	Clonal	0	0%	150	4%	300	8%
	Geneva, NY (GEN)	Clonal	0	0%	12	1%	24	2%
Grape CWR	Geneva, NY (GEN)	Clonal	0	0%	12	33%	24	60%
Grasses	Pullman, WA (W6)	Seed	18,650	77%	20,702	82%	22,754	86%
Grasses Millets	Ames, IA (NC7)	Seed	2,298	90%	2,518	93%	2,738	97%
Grasses Warm Season	Griffin, GA (S9)	Seed	8,563	81%	9,530	85%	10,497	90%
Guar	Griffin, GA (S9)	Seed	413	32%	437	32%	461	32%
Guava	Hilo, HI (HILO)	Clonal	0	0%	12	13%	34	34%
Hazelnut	Corvallis, OR (COR)	Clonal	45	5%	75	7%	115	10%
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	0	0%	30	71%	42	91%
Hibiscus	Griffin, GA (S9)	Seed	434	51%	457	51%	481	51%
Hops	Corvallis, OR (COR)	Clonal	107	28%	137	33%	164	36%
Hops CWR	Corvallis, OR (COR)	Clonal	35	13%	66	22%	97	30%
Hylocereus	Hilo, HI (HILO)	Clonal	0	0%	1	5%	1	8%
Kiwifruit	Davis, CA (DAV)	Clonal	0	0%	13	21%	25	38%
Lagerstroemia	Miami, FL (MIA)	Clonal	0	0%	0	0%	0	0%
Lathyrus	Pullman, WA (W6)	Seed	410	47%	433	47%	456	48%
Legumes	Ames, IA (NC7)	Seed	1,152	87%	1,302	94%	1,452	100%
	Griffin, GA (S9)	Seed	3,032	95%	3,198	95%	3,364	95%
Legumes Minor Forage	Pullman, WA (W6)	Seed	1,739	67%	2,099	77%	2,459	86%
Lentil	Pullman, WA (W6)	Seed	2,774	87%	2,965	89%	3,156	90%
Lesquerella	Parlier, CA (PARL)	Seed	210	91%	220	85%	230	85%
Lettuce	Pullman, WA (W6)	Seed	1,601	61%	1,809	65%	2,016	69%
Limnanthes	Parlier, CA (PARL)	Seed	72	96%	77	96%	81	97%
Litchi	Hilo, HI (HILO)	Clonal	0	0%	3	4%	6	8%
Longan	Hilo, HI (HILO)	Clonal	0	0%	0	0%	0	0%
Luffa	Griffin, GA (S9)	Seed	1	100%	1	100%	1	100%
Lupin	Pullman, WA (W6)	Seed	804	50%	871	52%	939	54%
Macadamia	Hilo, HI (HILO)	Clonal	0	0%	6	11%	12	21%
Maize	Ames, IA (NC7)	Seed	15,547	80%	16,521	81%	17,495	82%
Maize CWR	Ames, IA (NC7)	Seed	44	10%	47	10%	49	10%
Mamey Sapote	Mayaguez, PR (MAY)	Clonal	0	0%	0	0%	0	0%
Mango	Miami, FL (MIA)	Clonal	0	0%	0	0%	0	0%
Medicago	Pullman, WA (W6)	Seed	3,971	87%	4,162	87%	4,353	87%
Medicinals	Ames, IA (NC7)	Seed	790	81%	920	88%	1,049	96%
Millets	Griffin, GA (S9)	Seed	2,399	76%	2,545	77%	2,690	77%
Mint	Corvallis, OR (COR)	Clonal	109	22%	164	31%	220	38%
Mint CWR	Corvallis, OR (COR)	Clonal	46	49%	76	71%	107	90%
Mulberry	Davis, CA (DAV)	Clonal	0	0%	36	65%	60	100%

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Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Duplicated	% of Collection Duplicated	Duplicated	% of Collection Duplicated	Duplicated	% of Collection Duplicated
Mung Bean	Griffin, GA (S9)	Seed	3,928	100%	4,033	98%	4,138	96%
Musa	Mayaguez, PR (MAY)	Clonal	70	40%	120	62%	170	81%
Native Plants	Pullman, WA (W6)	Seed	8,603	92%	9,853	100%	10,322	100%
Oat	Aberdeen, ID (NSGC)	Seed	21,117	97%	22,074	97%	23,030	96%
Ocimum	Ames, IA (NC7)	Seed	148	91%	177	90%	205	100%
Okra	Griffin, GA (S9)	Seed	748	98%	768	96%	789	94%
Olive	Davis, CA (DAV)	Clonal	0	0%	10	5%	20	8%
Opuntia	Parlier, CA (PARL)	Clonal	13	4%	14	4%	15	4%
Ornamentals	Ames, IA (NC7)	Seed	591	78%	658	81%	725	85%
Other Crops	Corvallis, OR (COR)	Clonal	6	5%	8	5%	11	6%
	Geneva, NY (NE9)	Seed	1	6%	1	5%	1	5%
	Griffin, GA (S9)	Seed	51	81%	56	82%	61	85%
	Hilo, HI (HILO)	Clonal	0	0%	4	31%	7	56%
	Mayaguez, PR (MAY)	Clonal	0	0%	1	100%	1	100%
	Miami, FL (MIA)	Clonal	2	2%	5	4%	8	6%
	Parlier, CA (PARL)	Seed	175	69%	189	47%	204	49%
	Pullman, WA (W6)	Seed	920	58%	1,188	71%	1,455	83%
Papaya	Hilo, HI (HILO)	Clonal	0	0%	72	46%	100	59%
Parthenium	Parlier, CA (PARL)	Seed	44	21%	47	21%	50	21%
Pastinaca	Ames, IA (NC7)	Seed	157	66%	185	74%	212	81%
Pea	Pullman, WA (W6)	Seed	4,212	68%	4,588	71%	4,964	73%
Pea Genetic Stocks	Pullman, WA (W6)	Seed	586	82%	598	80%	609	78%
Peach Palm	Hilo, HI (HILO)	Clonal	0	0%	0	0%	0	0%
Peanut	Griffin, GA (S9)	Seed	8,690	93%	9,519	97%	10,289	100%
Peanut CWR	Griffin, GA (S9)	Seed	424	81%	501	91%	576	100%
Pears	Corvallis, OR (COR)	Clonal	283	11%	509	17%	736	23%
Pears CWR	Corvallis, OR (COR)	Clonal	15	2%	20	3%	24	3%
Pecan	College Station, TX (BRW)	Clonal	9	1%	59	4%	118	7%
Pepper	Griffin, GA (S9)	Seed	4,936	99%	5,235	100%	5,502	100%
Persimmon	Davis, CA (DAV)	Clonal	0	0%	8	5%	15	8%
Phaseolus	Pullman, WA (W6)	Seed	12,917	73%	13,613	74%	14,310	74%
Physalis	Geneva, NY (NE9)	Seed	200	54%	213	54%	227	55%
Pili Nut	Hilo, HI (HILO)	Clonal	0	0%	0	0%	0	0%
Pineapple	Hilo, HI (HILO)	Clonal	0	0%	5	2%	10	4%
Pistachio	Davis, CA (DAV)	Clonal	0	0%	8	5%	15	8%
Pomegranate	Davis, CA (DAV)	Clonal	0	0%	15	5%	30	8%
Potato	Sturgeon Bay, WI (NR6)	Seed	5,069	84%	5,748	90%	6,150	92%
Prunus	Davis, CA (DAV)	Clonal	39	3%	69	5%	137	9%
Pseudocereals	Ames, IA (NC7)	Seed	3,642	95%	4,036	100%	4,227	100%
Quince	Corvallis, OR (COR)	Clonal	3	1%	25	10%	47	18%
Rambutan	Hilo, HI (HILO)	Clonal	0	0%	3	4%	6	8%
Raphanus	Geneva, NY (NE9)	Seed	698	90%	818	100%	857	100%
Rhubarb	Pullman, WA (W6)	Clonal	3	7%	3	8%	4	8%
Ribes	Corvallis, OR (COR)	Clonal	218	24%	550	54%	882	80%
Ribes CWR	Corvallis, OR (COR)	Clonal	106	23%	144	29%	182	33%
Rice	Aberdeen, ID (NSGC)	Seed	18,526	97%	19,727	98%	20,929	99%
Rubus	Corvallis, OR (COR)	Clonal	306	21%	332	21%	357	20%

Fig. S4.3a The top row of the figure, shaded light beige, reports the numbers and percentages of the accessions in the total NPGS collection that are currently safeguarded by safety duplication at the NLGRP and the goals for such safety duplication at +5 years and at +10 years. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the percentage of accessions of the individual NPGS collections that are duplicated at the NLGRP, the darker the blue hue, with 0% duplication the darkest. Blank fields indicate that data could not be estimated. GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S4.3a Safety Duplication of NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Duplicated	% of Collection Duplicated	Duplicated	% of Collection Duplicated	Duplicated	% of Collection Duplicated
Rubus CWR	Corvallis, OR (COR)	Clonal	228	21%	260	22%	292	23%
Rye	Aberdeen, ID (NSGC)	Seed	2,092	100%	2,180	99%	2,269	98%
Saccharum	Miami, FL (MIA)	Clonal	197	14%	200	13%	204	12%
Safflower	Pullman, WA (W6)	Seed	2,375	97%	2,580	100%	2,703	100%
Sapodilla	Mayaguez, PR (MAY)	Clonal	0	0%	0	0%	0	0%
Sesame	Griffin, GA (S9)	Seed	1,212	98%	1,276	98%	1,340	98%
Simmondsia	Parlier, CA (PARL)	Clonal	74	15%	88	17%	101	19%
Solanum	Geneva, NY (NE9)	Seed	6,332	92%	6,825	95%	7,318	97%
Sorghum	Griffin, GA (S9)	Seed	44,689	92%	47,791	94%	50,895	95%
Soybean	Urbana, IL (SOY)	Seed	19,988	98%	21,331	100%	22,347	100%
Soybean CWR	Urbana, IL (SOY)	Seed	2,284	95%	2,514	100%	2,633	100%
Spanish Lime	Mayaguez, PR (MAY)	Clonal	0	0%	0	0%	0	0%
Spinach	Ames, IA (NC7)	Seed	410	98%	432	98%	453	98%
Strawberry	Corvallis, OR (COR)	Clonal	421	19%	527	22%	633	24%
Strawberry CWR	Corvallis, OR (COR)	Clonal	52	35%	92	56%	131	73%
Sugarbeet/Beet	Pullman, WA (W6)	Seed	2,093	76%	2,269	78%	2,445	81%
Sunflower	Ames, IA (NC7)	Seed	4,405	83%	5,180	93%	5,814	100%
Sweet Potato	Griffin, GA (S9)	Seed	274	26%	286	26%	299	26%
Sweet Potato CWR	Griffin, GA (S9)	Seed	405	83%	436	85%	467	87%
Tart Cherry	Geneva, NY (GEN)	Clonal	32	40%	88	100%	96	100%
Trefoil	Pullman, WA (W6)	Seed	825	81%	922	86%	1,019	91%
Trichosanthes	Geneva, NY (NE9)	Seed	5	25%	5	24%	5	24%
Trigonella	Pullman, WA (W6)	Seed	231	77%	247	79%	262	80%
Tripsacum	Miami, FL (MIA)	Seed	0	0%	0	0%	0	0%
Triticale	Aberdeen, ID (NSGC)	Seed	2,023	99%	2,133	99%	2,242	100%
Umbels	Ames, IA (NC7)	Seed	600	65%	659	67%	718	69%
Vaccinium	Corvallis, OR (COR)	Clonal	113	9%	144	11%	174	12%
Vaccinium CWR	Corvallis, OR (COR)	Clonal	224	26%	241	25%	259	24%
Vetch	Pullman, WA (W6)	Seed	842	45%	882	45%	922	45%
Vigna	Griffin, GA (S9)	Seed	656	82%	683	81%	709	81%
Walnut	Davis, CA (DAV)	Clonal	0	0%	30	3%	60	6%
Watermelon	Griffin, GA (S9)	Seed	1,854	98%	1,935	97%	2,015	97%
Wheat	Aberdeen, ID (NSGC)	Seed	56,637	99%	60,202	100%	63,186	100%
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	3,605	53%	3,670	51%	3,735	50%
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	966	99%	1,026	100%	1,075	100%
Winged Bean	Griffin, GA (S9)	Seed	82	51%	85	51%	88	50%
Woody Landscape	Ames, IA (NC7)	Seed	908	46%	1,207	56%	1,507	66%
	Washington, D.C. (USNA)	Clonal	673	5%	774	6%	875	6%

Fig. S4.3a The top row of the figure, shaded light beige, reports the numbers and percentages of the accessions in the total NPGS collection that are currently safeguarded by safety duplication at the NLGRP and the goals for such safety duplication at +5 years and at +10 years. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the percentage of accessions of the individual NPGS collections that are duplicated at the NLGRP, the darker the blue hue, with 0% duplication the darkest. Blank fields indicate that data could not be estimated. GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S4.3b Back-Up of NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Backed-Up	% of Collection Backed-Up	Backed-Up	% of Collection Backed-Up	Backed-Up	% of Collection Backed-Up
NPGS-wide			97,654	19%	150,135	28%	201,372	35%
Acerola	Hilo, HI (HILO)	Clonal	0	0%	0	0%	0	0%
Aegilops	Aberdeen, ID (NSGC)	Seed	0	0%	51	2%	103	4%
Alfalfa	Pullman, WA (W6)	Seed	1,156	26%	1,794	39%	2,433	50%
Allium	Geneva, NY (NE9)	Seed	111	9%	374	30%	637	49%
Allium CWR	Pullman, WA (W6)	Clonal	93	10%	173	18%	253	25%
Allium Garlic	Pullman, WA (W6)	Clonal	112	35%	117	35%	122	35%
Annona	Mayaguez, PR (MAY)	Clonal	0	0%	3	12%	6	21%
Apium	Geneva, NY (NE9)	Seed	34	11%	98	30%	162	47%
Apple	Geneva, NY (GEN)	Clonal	2,052	73%	2,466	80%	2,881	86%
Apple CWR	Geneva, NY (GEN)	Clonal	1	0%	66	3%	131	6%
Asparagus	Geneva, NY (NE9)	Seed	0	0%	3	2%	7	4%
Asters	Ames, IA (NC7)	Seed	58	8%	121	16%	185	24%
Avocado	Miami, FL (MIA)	Clonal	0	0%	0	0%	0	0%
Bambara Groundnut	Griffin, GA (S9)	Seed	0	0%	2	2%	4	4%
Bamboo	Griffin, GA (S9)	Seed	0	0%	0	0%	0	0%
Barley	Aberdeen, ID (NSGC)	Seed	5,226	18%	7,605	25%	9,984	31%
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	284	3%	426	5%	567	6%
Benincasa	Geneva, NY (NE9)	Seed	0	0%	14	42%	27	79%
Brassica	Ames, IA (NC7)	Seed	506	24%	870	40%	1,234	54%
	Geneva, NY (NE9)	Seed	340	13%	801	30%	1,263	45%
Brassicaceae	Ames, IA (NC7)	Seed	341	24%	473	31%	604	38%
Breadfruit	Hilo, HI (HILO)	Clonal	0	0%	0	0%	0	0%
Cacao	Mayaguez, PR (MAY)	Clonal	0	0%	7	3%	14	4%
Carambola	Hilo, HI (HILO)	Clonal	0	0%	6	18%	12	32%
Castorbean	Griffin, GA (S9)	Seed	64	6%	170	16%	276	24%
Chickpea	Pullman, WA (W6)	Seed	2,258	32%	4,248	57%	6,237	80%
Cichorium	Ames, IA (NC7)	Seed	68	23%	163	53%	258	80%
Citrus	Riverside, CA (RIV)	Clonal	462	15%	777	22%	1,092	29%
	Griffin, GA (S9)	Seed	362	14%	534	19%	707	25%
Clover	Pullman, WA (W6)	Seed	652	17%	878	22%	1,103	27%
	Hilo, HI (HILO)	Clonal			35	88%	70	88%
Cotton	College Station, TX (COT)	Seed	601	6%	1,121	11%	1,641	15%
Cowpea	Griffin, GA (S9)	Seed	2,210	27%	2,545	29%	2,881	31%
Cucumis CWR	Ames, IA (NC7)	Seed	75	23%	103	30%	131	37%
Cucumis melo	Ames, IA (NC7)	Seed	368	11%	592	16%	817	22%
Cucumis sativus	Ames, IA (NC7)	Seed	411	26%	644	39%	877	50%
Cucurbita	Ames, IA (NC7)	Seed	199	19%	279	25%	358	30%
	Geneva, NY (NE9)	Seed	123	13%	453	47%	782	77%
	Griffin, GA (S9)	Seed	40	3%	80	6%	121	8%
Cuphea	Parlier, CA (PARL)	Seed	0	0%	2	5%	4	9%
	Ames, IA (NC7)	Seed	31	5%	148	22%	266	38%
Cynara	Geneva, NY (NE9)	Seed	0	0%	0	0%	0	0%
Date Palm	Riverside, CA (RIV)	Clonal	0	0%	20	17%	40	30%
Daucus	Ames, IA (NC7)	Seed	391	24%	997	57%	1,602	88%

Fig. S4.3b The top row of the figure, shaded light beige, reports the numbers and percentages of the accessions in the total NPGS collection that are currently backed-up at the NLGRP and the goals for such back-ups at +5 years and at +10 years. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the percentage of accessions of the individual NPGS collections that are backed-up at the NLGRP, the darker the green hue, with 0% back-up the darkest. Blank fields indicate that data could not be estimated. GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S4.3b Back-Up of NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Backed-Up	% of Collection Backed-Up	Backed-Up	% of Collection Backed-Up	Backed-Up	% of Collection Backed-Up
Differentials	Griffin, GA (S9)	Seed	0	0%	0	0%	0	0%
Eggplant	Griffin, GA (S9)	Seed	161	16%	257	24%	353	32%
Elderberry	Corvallis, OR (COR)	Seed	10	5%	44	20%	77	32%
Euphorbia	Ames, IA (NC7)	Seed	13	6%	67	30%	121	52%
Faba Bean	Pullman, WA (W6)	Seed	5	1%	136	17%	268	31%
Fagopyrum	Geneva, NY (NE9)	Seed	160	63%	268	100%	281	100%
Ficus	Miami, FL (MIA)	Clonal	0	0%	2	2%	4	4%
Fig	Davis, CA (DAV)	Clonal	0	0%	11	6%	22	11%
Flax	Ames, IA (NC7)	Seed	1,185	39%	1,399	44%	1,613	48%
Gourds	Griffin, GA (S9)	Seed	29	4%	53	6%	77	9%
Grape	Davis, CA (DAV)	Clonal	0	0%	150	4%	300	8%
	Geneva, NY (GEN)	Clonal	0	0%	6	1%	12	1%
Grape CWR	Geneva, NY (GEN)	Clonal	0	0%	6	17%	12	30%
Grasses	Pullman, WA (W6)	Seed	6,144	26%	8,726	35%	11,307	43%
Grasses Millets	Ames, IA (NC7)	Seed	914	36%	1,305	48%	1,696	60%
Grasses Warm Season	Griffin, GA (S9)	Seed	433	4%	1,886	17%	3,339	29%
Guar	Griffin, GA (S9)	Seed	54	4%	105	8%	156	11%
Guava	Hilo, HI (HILO)	Clonal	0	0%	12	13%	34	34%
Hazelnut	Corvallis, OR (COR)	Clonal	5	1%	20	2%	45	4%
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	0	0%	15	36%	30	65%
Hibiscus	Griffin, GA (S9)	Seed	26	3%	96	11%	166	18%
Hops	Corvallis, OR (COR)	Clonal	90	24%	105	25%	120	27%
Hops CWR	Corvallis, OR (COR)	Clonal	0	0%	16	5%	31	9%
Hylocereus	Hilo, HI (HILO)	Clonal	0	0%	11	100%	12	100%
Kiwifruit	Davis, CA (DAV)	Clonal	0	0%	16	26%	32	48%
Lagerstroemia	Miami, FL (MIA)	Clonal	0	0%	0	0%	0	0%
Lathyrus	Pullman, WA (W6)	Seed	51	6%	78	9%	105	11%
Legumes	Ames, IA (NC7)	Seed	477	36%	906	65%	1,336	92%
	Griffin, GA (S9)	Seed	287	9%	612	18%	938	26%
Legumes Minor Forage	Pullman, WA (W6)	Seed	553	21%	931	34%	1,309	46%
Lentil	Pullman, WA (W6)	Seed	572	18%	777	23%	982	28%
Lesquerella	Parlier, CA (PARL)	Seed	61	26%	72	28%	83	31%
Lettuce	Pullman, WA (W6)	Seed	668	25%	1,159	42%	1,650	57%
Limnanthes	Parlier, CA (PARL)	Seed	33	44%	39	49%	44	52%
Litchi	Hilo, HI (HILO)	Clonal	0	0%	1	1%	2	3%
Longan	Hilo, HI (HILO)	Clonal	0	0%	0	0%	0	0%
Luffa	Griffin, GA (S9)	Seed	0	0%	0	0%	0	0%
Lupin	Pullman, WA (W6)	Seed	170	11%	241	14%	313	18%
Macadamia	Hilo, HI (HILO)	Clonal	0	0%	2	4%	4	7%
Maize	Ames, IA (NC7)	Seed	3,666	19%	5,068	25%	6,470	30%
Maize CWR	Ames, IA (NC7)	Seed	19	4%	24	5%	29	6%
Mamey Sapote	Mayaguez, PR (MAY)	Clonal	0	0%	0	0%	0	0%
Mango	Miami, FL (MIA)	Clonal	0	0%	0	0%	0	0%
Medicago	Pullman, WA (W6)	Seed	833	18%	1,207	25%	1,580	32%
Medicinals	Ames, IA (NC7)	Seed	264	27%	415	40%	566	52%

Fig. S4.3b The top row of the figure, shaded light beige, reports the numbers and percentages of the accessions in the total NPGS collection that are currently backed-up at the NLGRP and the goals for such back-ups at +5 years and at +10 years. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the percentage of accessions of the individual NPGS collections that are backed-up at the NLGRP, the darker the green hue, with 0% back-up the darkest. Blank fields indicate that data could not be estimated. GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S4.3b Back-Up of NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Backed-Up	% of Collection Backed-Up	Backed-Up	% of Collection Backed-Up	Backed-Up	% of Collection Backed-Up
Millet	Griffin, GA (S9)	Seed	226	7%	574	17%	922	26%
Mint	Corvallis, OR (COR)	Clonal	50	10%	105	20%	161	28%
Mint CWR	Corvallis, OR (COR)	Clonal	32	34%	47	44%	62	53%
Mulberry	Davis, CA (DAV)	Clonal	0	0%	36	65%	60	100%
Mung Bean	Griffin, GA (S9)	Seed	207	5%	385	9%	562	13%
Musa	Mayaguez, PR (MAY)	Clonal	31	18%	81	42%	131	62%
Native Plants	Pullman, WA (W6)	Seed	1,894	20%	6,471	66%	10,322	100%
Oat	Aberdeen, ID (NSGC)	Seed	6,588	30%	7,633	33%	8,678	36%
Ocimum	Ames, IA (NC7)	Seed	51	31%	90	46%	128	62%
Okra	Griffin, GA (S9)	Seed	21	3%	49	6%	78	9%
Olive	Davis, CA (DAV)	Clonal	0	0%	6	3%	12	5%
Opuntia	Parlier, CA (PARL)	Clonal	4	1%	5	1%	6	2%
Ornamentals	Ames, IA (NC7)	Seed	190	25%	290	36%	389	46%
Other Crops	Corvallis, OR (COR)	Clonal	0	0%	1	1%	3	2%
	Geneva, NY (NE9)	Seed	0	0%	0	0%	0	0%
	Griffin, GA (S9)	Seed	2	3%	12	18%	22	31%
	Hilo, HI (HILO)	Clonal	0	0%	3	25%	5	38%
	Mayaguez, PR (MAY)	Clonal	0	0%	1	100%	1	100%
	Miami, FL (MIA)	Clonal	2	2%	4	3%	6	4%
	Parlier, CA (PARL)	Seed	26	10%	41	10%	55	13%
	Pullman, WA (W6)	Seed	290	18%	568	34%	845	48%
Papaya	Hilo, HI (HILO)	Clonal	0	0%	73	47%	147	86%
Parthenium	Parlier, CA (PARL)	Seed	7	3%	11	5%	16	7%
Pastinaca	Ames, IA (NC7)	Seed	40	17%	89	36%	138	53%
Pea	Pullman, WA (W6)	Seed	887	14%	1,704	26%	2,522	37%
Pea Genetic Stocks	Pullman, WA (W6)	Seed	0	0%	6	1%	12	2%
Peach Palm	Hilo, HI (HILO)	Clonal	0	0%	0	0%	0	0%
Peanut	Griffin, GA (S9)	Seed	283	3%	2,759	28%	5,235	51%
Peanut CWR	Griffin, GA (S9)	Seed	1	0%	40	7%	79	14%
Pears	Corvallis, OR (COR)	Clonal	231	9%	444	15%	658	21%
Pears CWR	Corvallis, OR (COR)	Clonal	0	0%	3	0%	6	1%
Pecan	College Station, TX (BRW)	Clonal	0	0%	32	2%	64	4%
Pepper	Griffin, GA (S9)	Seed	656	13%	1,569	30%	2,483	45%
Persimmon	Davis, CA (DAV)	Clonal	0	0%	6	4%	12	7%
Phaseolus	Pullman, WA (W6)	Seed	1,193	7%	1,953	11%	2,714	14%
Physalis	Geneva, NY (NE9)	Seed	87	23%	107	27%	126	31%
Pili Nut	Hilo, HI (HILO)	Clonal	0	0%	0	0%	0	0%
Pineapple	Hilo, HI (HILO)	Clonal	0	0%	5	2%	10	4%
Pistachio	Davis, CA (DAV)	Clonal	0	0%	12	7%	24	13%
Pomegranate	Davis, CA (DAV)	Clonal	0	0%	9	3%	18	5%
Potato	Sturgeon Bay, WI (NR6)	Seed	1,520	25%	2,512	40%	3,504	53%
Prunus	Davis, CA (DAV)	Clonal	0	0%	65	5%	130	8%
Pseudocereals	Ames, IA (NC7)	Seed	732	19%	1,194	30%	1,657	39%
Quince	Corvallis, OR (COR)	Clonal	0	0%	11	5%	22	8%
Rambutan	Hilo, HI (HILO)	Clonal	0	0%	1	1%	2	3%

Fig. S4.3b The top row of the figure, shaded light beige, reports the numbers and percentages of the accessions in the total NPGS collection that are currently backed-up at the NLGRP and the goals for such back-ups at +5 years and at +10 years. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the percentage of accessions of the individual NPGS collections that are backed-up at the NLGRP, the darker the green hue, with 0% back-up the darkest. Blank fields indicate that data could not be estimated. GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S4.3b Back-Up of NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Backed-Up	% of Collection Backed-Up	Backed-Up	% of Collection Backed-Up	Backed-Up	% of Collection Backed-Up
Raphanus	Geneva, NY (NE9)	Seed	405	52%	818	100%	857	100%
Rhubarb	Pullman, WA (W6)	Clonal	0	0%	1	2%	2	4%
Ribes	Corvallis, OR (COR)	Clonal	202	22%	534	53%	866	78%
Ribes CWR	Corvallis, OR (COR)	Clonal	23	5%	62	12%	101	18%
Rice	Aberdeen, ID (NSGC)	Seed	5,055	26%	6,786	34%	8,517	40%
Rubus	Corvallis, OR (COR)	Clonal	202	14%	228	14%	253	14%
Rubus CWR	Corvallis, OR (COR)	Clonal	3	0%	35	3%	67	5%
Rye	Aberdeen, ID (NSGC)	Seed	132	6%	231	10%	329	14%
Saccharum	Miami, FL (MIA)	Clonal	25	2%	28	2%	32	2%
Safflower	Pullman, WA (W6)	Seed	1,420	58%	1,743	68%	2,067	76%
Sapodilla	Mayaguez, PR (MAY)	Clonal	0	0%	0	0%	0	0%
Sesame	Griffin, GA (S9)	Seed	583	47%	677	52%	770	57%
Simmondsia	Parlier, CA (PARL)	Clonal	1	0%	15	3%	28	5%
Solanum	Geneva, NY (NE9)	Seed	2,394	35%	2,902	40%	3,410	45%
Sorghum	Griffin, GA (S9)	Seed	9,639	20%	14,446	28%	19,253	36%
Soybean	Urbana, IL (SOY)	Seed	3,619	18%	6,533	31%	9,447	42%
Soybean CWR	Urbana, IL (SOY)	Seed	70	3%	644	26%	1,217	46%
Spanish Lime	Mayaguez, PR (MAY)	Clonal	0	0%	0	0%	0	0%
Spinach	Ames, IA (NC7)	Seed	89	21%	119	27%	148	32%
Strawberry	Corvallis, OR (COR)	Clonal	281	13%	389	16%	497	19%
Strawberry CWR	Corvallis, OR (COR)	Clonal	1	1%	28	17%	55	31%
Sugarbeet/Beet	Pullman, WA (W6)	Seed	544	20%	870	30%	1,195	39%
Sunflower	Ames, IA (NC7)	Seed	1,071	20%	1,893	34%	2,715	47%
Sweet Potato	Griffin, GA (S9)	Seed	170	16%	182	17%	195	17%
Sweet Potato CWR	Griffin, GA (S9)	Seed	6	1%	45	9%	84	16%
Tart Cherry	Geneva, NY (GEN)	Clonal	32	40%	88	100%	96	100%
Trefoil	Pullman, WA (W6)	Seed	370	36%	473	44%	576	51%
Trichosanthes	Geneva, NY (NE9)	Seed	0	0%	0	0%	0	0%
Trigonella	Pullman, WA (W6)	Seed	78	26%	94	30%	109	33%
Tripsacum	Miami, FL (MIA)	Seed	0	0%	0	0%	0	0%
Triticale	Aberdeen, ID (NSGC)	Seed	339	17%	475	22%	610	27%
Umbels	Ames, IA (NC7)	Seed	118	13%	257	26%	397	38%
Vaccinium	Corvallis, OR (COR)	Clonal	42	4%	73	6%	103	7%
Vaccinium CWR	Corvallis, OR (COR)	Clonal	2	0%	12	1%	22	2%
Vetch	Pullman, WA (W6)	Seed	290	16%	331	17%	371	18%
Vigna	Griffin, GA (S9)	Seed	77	10%	106	13%	135	15%
Walnut	Davis, CA (DAV)	Clonal	0	0%	15	2%	30	3%
Watermelon	Griffin, GA (S9)	Seed	260	14%	366	18%	473	23%
Wheat	Aberdeen, ID (NSGC)	Seed	18,923	33%	23,140	38%	27,357	43%
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	59	1%	91	1%	124	2%
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	103	11%	219	21%	336	31%
Winged Bean	Griffin, GA (S9)	Seed	1	1%	4	2%	7	4%
Woody Landscape	Ames, IA (NC7)	Seed	178	9%	489	23%	801	35%
	Washington, D.C. (USNA)	Clonal	84	1%	183	1%	282	2%

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S4.3c Annual Safety Duplication Rates for NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Annual New Duplicates (Avg # Accessions)	% of Collection Duplicated Annually	Annual New Duplicates (Avg # Accessions)	% of Collection Duplicated Annually	Annual New Duplicates (Avg # Accessions)	% of Collection Duplicated Annually
NPGS-wide			4,294	0.8%	9,077	1.7%	9,086	1.6%
Acerola	Hilo, HI (HILO)	Clonal	0	0.0%	0	0.0%	0	0.0%
Aegilops	Aberdeen, ID (NSGC)	Seed	1	0.0%	1	0.0%	1	0.0%
Alfalfa	Pullman, WA (W6)	Seed	12	0.3%	43	0.9%	75	1.5%
Allium	Geneva, NY (NE9)	Seed	19	1.6%	42	3.4%	52	4.0%
Allium CWR	Pullman, WA (W6)	Clonal	9	1.0%	11	1.2%	11	1.1%
Allium Garlic	Pullman, WA (W6)	Clonal	6	1.8%	1	0.3%	1	0.3%
Annona	Mayaguez, PR (MAY)	Clonal	0	0.0%	2	6.2%	2	5.7%
Apium	Geneva, NY (NE9)	Seed	1	0.3%	25	7.6%	25	7.2%
Apple	Geneva, NY (GEN)	Clonal	103	3.7%	86	2.8%	86	2.6%
Apple CWR	Geneva, NY (GEN)	Clonal	17	0.9%	26	1.3%	26	1.2%
Asparagus	Geneva, NY (NE9)	Seed	0	0.0%	50	27.9%	50	26.7%
Asters	Ames, IA (NC7)	Seed	0	0.0%	4	0.5%	45	5.8%
Avocado	Miami, FL (MIA)	Clonal	0	0.0%	0	0.0%	0	0.0%
Bambara Groundnut	Griffin, GA (S9)	Seed	0	0.0%	1	0.9%	1	0.9%
Barley	Aberdeen, ID (NSGC)	Seed	40	0.1%	40	0.1%	40	0.1%
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	20	0.2%	20	0.2%	20	0.2%
Benincasa	Geneva, NY (NE9)	Seed	3	8.4%	13	38.2%	13	37.1%
Brassica	Ames, IA (NC7)	Seed			85	3.9%	30	1.3%
	Geneva, NY (NE9)	Seed	42	1.7%	100	3.8%	105	3.8%
Brassicaceae	Ames, IA (NC7)	Seed	12	0.8%	15	1.0%	15	0.9%
Breadfruit	Hilo, HI (HILO)	Clonal	0	0.6%	0	0.0%	0	0.0%
Cacao	Mayaguez, PR (MAY)	Clonal	0	0.0%	2	0.8%	2	0.7%
Carambola	Hilo, HI (HILO)	Clonal	0	0.0%	2	7.1%	2	6.5%
Castorbean	Griffin, GA (S9)	Seed	0	0.0%	0	0.0%	0	0.0%
Chickpea	Pullman, WA (W6)	Seed	188	2.7%	190	2.6%	181	2.3%
Cichorium	Ames, IA (NC7)	Seed	2	0.7%	2	0.7%	2	0.6%
Citrus	Riverside, CA (RIV)	Clonal	23	0.7%	66	1.9%	66	1.7%
Clover	Griffin, GA (S9)	Seed	5	0.2%	55	2.0%	30	1.0%
	Pullman, WA (W6)	Seed	13	0.3%	228	5.8%	84	2.0%
Coffee	Hilo, HI (HILO)	Clonal			7	17.5%	7	8.8%
Cotton	College Station, TX (COT)	Seed	51	0.5%	100	1.0%	100	0.9%
Cowpea	Griffin, GA (S9)	Seed	12	0.1%	12	0.1%	12	0.1%
Cucumis CWR	Ames, IA (NC7)	Seed	2	0.6%	1	0.3%	1	0.3%
Cucumis melo	Ames, IA (NC7)	Seed	3	0.1%				
Cucumis sativus	Ames, IA (NC7)	Seed	11	0.7%	2	0.1%	2	0.1%
Cucurbita	Ames, IA (NC7)	Seed	30	2.8%	26	2.3%	26	2.2%
	Geneva, NY (NE9)	Seed	53	5.7%	80	8.2%	85	8.3%
	Griffin, GA (S9)	Seed	3	0.2%	15	1.0%	15	1.0%
	Parlier, CA (PARL)	Seed	0	0.0%	1	2.3%	1	2.2%
Cuphea	Ames, IA (NC7)	Seed			5	0.7%	5	0.7%
Cynara	Geneva, NY (NE9)	Seed	0	0.0%	5	13.5%	8	20.5%
Date Palm	Riverside, CA (RIV)	Clonal	1	1.2%	4	3.3%	4	3.0%
Daucus	Ames, IA (NC7)	Seed	14	0.8%	7	0.4%	5	0.3%
Differentials	Griffin, GA (S9)	Seed	0	0.0%	0	0.0%	0	0.0%
Eggplant	Griffin, GA (S9)	Seed	4	0.4%	4	0.4%	4	0.4%
Elderberry	Corvallis, OR (COR)	Seed	1	0.5%	7	3.2%	7	2.9%

Fig. S4.3c The top row of the figure, shaded light beige, reports for the total NPGS collection the current average annual number of accessions duplicated at the NLGRP, and goals for +5 years and +10 years. The current average annual rate (percentage) of safety duplication for the total collection, and goals for +5 years and +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the annual duplication rate of the individual NPGS collections, the darker the lavender hue, with 0% duplication rate the darkest. Blank fields indicate that data could not be estimated. GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S4.3c Annual Safety Duplication Rates for NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Annual New Duplicates (Avg # Accessions)	% of Collection Duplicated Annually	Annual New Duplicates (Avg # Accessions)	% of Collection Duplicated Annually	Annual New Duplicates (Avg # Accessions)	% of Collection Duplicated Annually
Euphorbia	Ames, IA (NC7)	Seed			5	2.2%		
Faba Bean	Pullman, WA (W6)	Seed	16	2.0%	47	5.7%	24	2.8%
Fagopyrum	Geneva, NY (NE9)	Seed	48	18.7%	76	28.4%	76	27.0%
Ficus	Miami, FL (MIA)	Clonal	0	0.0%	1	1.3%	1	1.2%
Fig	Davis, CA (DAV)	Clonal	0	0.0%	3	1.8%	3	1.7%
Flax	Ames, IA (NC7)	Seed			47	1.5%	47	1.4%
Gourds	Griffin, GA (S9)	Seed	0	0.0%	5	0.6%	5	0.6%
Grape	Davis, CA (DAV)	Clonal	0	0.0%	30	0.9%	30	0.8%
	Geneva, NY (GEN)	Clonal	0	0.0%	2	0.2%	2	0.2%
Grape CWR	Geneva, NY (GEN)	Clonal	0	0.0%	2	6.7%	2	6.0%
Grasses	Pullman, WA (W6)	Seed	194	0.8%	600	2.4%	681	2.6%
Grasses Millets	Ames, IA (NC7)	Seed	21	0.8%	50	1.9%	50	1.8%
Grasses Warm Season	Griffin, GA (S9)	Seed	10	0.1%	20	0.2%	40	0.3%
Guar	Griffin, GA (S9)	Seed	0	0.0%	0	0.0%	0	0.0%
Guava	Hilo, HI (HILO)	Clonal	0	0.0%	2	2.6%	3	3.4%
Hazelnut	Corvallis, OR (COR)	Clonal	2	0.3%	6	0.6%	7	0.6%
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	0	0.0%	6	14.3%	6	13.0%
Hibiscus	Griffin, GA (S9)	Seed	0	0.0%	0	0.0%	0	0.0%
Hops	Corvallis, OR (COR)	Clonal	5	1.4%	6	1.5%	6	1.3%
Hops CWR	Corvallis, OR (COR)	Clonal	0	0.1%	6	2.1%	6	1.9%
Hylocereus	Hilo, HI (HILO)	Clonal	0	0.0%	4	32.7%	4	30.0%
Kiwifruit	Davis, CA (DAV)	Clonal	0	0.0%	4	7.2%	4	6.6%
Lagerstroemia	Miami, FL (MIA)	Clonal	0	0.0%	0	0.0%	0	0.0%
Lathyrus	Pullman, WA (W6)	Seed	1	0.2%	40	4.4%	22	2.3%
Legumes	Ames, IA (NC7)	Seed	20	1.5%	10	0.7%	10	0.7%
	Griffin, GA (S9)	Seed	14	0.4%	14	0.4%	14	0.4%
Legumes Minor Forage	Pullman, WA (W6)	Seed	26	1.0%	30	1.1%	35	1.2%
Lentil	Pullman, WA (W6)	Seed	10	0.3%	42	1.3%	81	2.3%
Lesquerella	Parlier, CA (PARL)	Seed	0	0.0%	4	1.5%	1	0.4%
Lettuce	Pullman, WA (W6)	Seed	33	1.3%	50	1.8%	58	2.0%
Limnanthes	Parlier, CA (PARL)	Seed	0	0.0%	0	0.3%	10	11.9%
Litchi	Hilo, HI (HILO)	Clonal	0	0.0%	1	0.8%	1	0.8%
Longan	Hilo, HI (HILO)	Clonal	0	0.0%	0	0.0%	0	0.0%
Lupin	Pullman, WA (W6)	Seed	4	0.2%	80	4.8%	41	2.3%
Macadamia	Hilo, HI (HILO)	Clonal	0	0.0%	1	2.3%	1	2.1%
Maize	Ames, IA (NC7)	Seed	95	0.5%	1,030	5.0%	945	4.4%
Maize CWR	Ames, IA (NC7)	Seed	1	0.2%	19	4.1%	40	8.4%
Mamey Sapote	Mayaguez, PR (MAY)	Clonal	0	0.0%	0	0.0%	0	0.0%
Mango	Miami, FL (MIA)	Clonal	0	0.0%	0	0.0%	0	0.0%
Medicago	Pullman, WA (W6)	Seed	7	0.1%	49	1.0%	93	1.9%
Medicinals	Ames, IA (NC7)	Seed	15	1.5%	15	1.4%	15	1.4%
Millets	Griffin, GA (S9)	Seed	3	0.1%	226	6.8%	226	6.5%
Mint	Corvallis, OR (COR)	Clonal	5	1.0%	11	2.1%	11	1.9%
Mint CWR	Corvallis, OR (COR)	Clonal	2	1.8%	6	5.6%	6	5.1%
Mulberry	Davis, CA (DAV)	Clonal	0	0.0%	8	15.3%	8	14.0%
Mung Bean	Griffin, GA (S9)	Seed	0	0.0%	5	0.1%	5	0.1%
Musa	Mayaguez, PR (MAY)	Clonal	4	2.0%	10	5.2%	10	4.7%

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Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Annual New Duplicates (Avg # Accessions)	% of Collection Duplicated Annually	Annual New Duplicates (Avg # Accessions)	% of Collection Duplicated Annually	Annual New Duplicates (Avg # Accessions)	% of Collection Duplicated Annually
Native Plants	Pullman, WA (W6)	Seed	1,006	10.7%	383	3.9%	426	4.1%
Oat	Aberdeen, ID (NSGC)	Seed	2	0.0%	2	0.0%	2	0.0%
Ocimum	Ames, IA (NC7)	Seed	1	0.6%	1	0.5%	1	0.5%
Okra	Griffin, GA (S9)	Seed	2	0.3%	5	0.6%	5	0.6%
Olive	Davis, CA (DAV)	Clonal	0	0.0%	2	1.1%	2	1.0%
Opuntia	Parlier, CA (PARL)	Clonal	0	0.0%	0	0.0%	0	0.0%
Ornamentals	Ames, IA (NC7)	Seed	2	0.3%	2	0.2%	2	0.2%
Other Crops	Corvallis, OR (COR)	Clonal	0	0.0%	0	0.3%	0	0.3%
	Geneva, NY (NE9)	Seed	2	13.3%	2	10.5%	2	10.0%
	Griffin, GA (S9)	Seed	5	7.9%	5	7.4%	5	7.0%
	Hilo, HI (HILO)	Clonal	0	0.0%	1	6.1%	1	5.6%
	Mayaguez, PR (MAY)	Clonal	0	0.0%	0	24.0%	0	24.0%
	Miami, FL (MIA)	Clonal	0	0.0%	1	0.5%	1	0.5%
	Parlier, CA (PARL)	Seed	2	0.8%	3	0.7%	3	0.7%
	Pullman, WA (W6)	Seed	125	7.9%	198	11.9%	198	11.3%
Papaya	Hilo, HI (HILO)	Clonal	0	0.0%	14	9.2%	14	8.5%
Parthenium	Parlier, CA (PARL)	Seed	0	0.0%	30	13.3%	37	15.6%
Pastinaca	Ames, IA (NC7)	Seed	0	0.0%	1	0.4%	1	0.4%
Pea	Pullman, WA (W6)	Seed	38	0.6%	197	3.0%	98	1.4%
Pea Genetic Stocks	Pullman, WA (W6)	Seed	0	0.0%	13	1.7%	11	1.4%
Peach Palm	Hilo, HI (HILO)	Clonal	0	0.0%	0	0.0%	0	0.0%
Peanut	Griffin, GA (S9)	Seed	13	0.1%	13	0.1%	13	0.1%
Peanut CWR	Griffin, GA (S9)	Seed	13	2.5%	18	3.3%	22	3.8%
Pears	Corvallis, OR (COR)	Clonal	14	0.5%	45	1.5%	45	1.4%
Pears CWR	Corvallis, OR (COR)	Clonal	0	0.0%	1	0.1%	1	0.1%
Pecan	College Station, TX (BRW)	Clonal	0	0.0%	12	0.8%	12	0.7%
Pepper	Griffin, GA (S9)	Seed	8	0.2%	10	0.2%	10	0.2%
Persimmon	Davis, CA (DAV)	Clonal	0	0.0%	2	1.5%	2	1.3%
Phaseolus	Pullman, WA (W6)	Seed	37	0.2%	300	1.6%	400	2.1%
Physalis	Geneva, NY (NE9)	Seed	0	0.1%	20	5.1%	40	9.8%
Pili Nut	Hilo, HI (HILO)	Clonal	0	0.0%	0	0.0%	0	0.0%
Pineapple	Hilo, HI (HILO)	Clonal	0	0.0%	1	0.5%	1	0.4%
Pistachio	Davis, CA (DAV)	Clonal	0	0.0%	5	2.9%	5	2.7%
Pomegranate	Davis, CA (DAV)	Clonal	0	0.0%	4	1.1%	4	1.0%
Potato	Sturgeon Bay, WI (NR6)	Seed	149	2.5%	149	2.3%	149	2.2%
Prunus	Davis, CA (DAV)	Clonal	2	0.1%	13	1.0%	13	0.9%
Pseudocereals	Ames, IA (NC7)	Seed	75	2.0%	50	1.2%	50	1.2%
Quince	Corvallis, OR (COR)	Clonal	0	0.0%	4	1.8%	4	1.7%
Rambutan	Hilo, HI (HILO)	Clonal	0	0.0%	1	0.9%	1	0.8%
Raphanus	Geneva, NY (NE9)	Seed	83	10.7%	115	14.0%	115	13.4%
Rhubarb	Pullman, WA (W6)	Clonal	0	0.1%	0	0.1%	0	0.1%
Ribes	Corvallis, OR (COR)	Clonal	11	1.2%	66	6.5%	66	6.0%
Ribes CWR	Corvallis, OR (COR)	Clonal	1	0.3%	8	1.5%	8	1.4%
Rice	Aberdeen, ID (NSGC)	Seed	35	0.2%	25	0.1%	25	0.1%
Rubus	Corvallis, OR (COR)	Clonal	13	0.9%	5	0.3%	5	0.3%
Rubus CWR	Corvallis, OR (COR)	Clonal	1	0.1%	6	0.5%	6	0.5%
Rye	Aberdeen, ID (NSGC)	Seed	1	0.0%	1	0.0%	1	0.0%

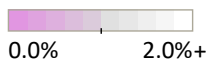
Fig. S4.3c The top row of the figure, shaded light beige, reports for the total NPGS collection the current average annual number of accessions duplicated at the NLGRP, and goals for +5 years and +10 years. The current average annual rate (percentage) of safety duplication for the total collection, and goals for +5 years and +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the annual duplication rate of the individual NPGS collections, the darker the lavender hue, with 0% duplication rate the darkest. Blank fields indicate that data could not be estimated. GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S4.3c Annual Safety Duplication Rates for NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Annual New Duplicates (Avg # Accessions)	% of Collection Duplicated Annually	Annual New Duplicates (Avg # Accessions)	% of Collection Duplicated Annually	Annual New Duplicates (Avg # Accessions)	% of Collection Duplicated Annually
Saccharum	Miami, FL (MIA)	Clonal	2	0.1%	1	0.0%	1	0.0%
Safflower	Pullman, WA (W6)	Seed	27	1.1%	62	2.4%	63	2.3%
Sapodilla	Mayaguez, PR (MAY)	Clonal	0	0.0%	0	0.0%	0	0.0%
Sesame	Griffin, GA (S9)	Seed	1	0.1%	0	0.0%	0	0.0%
Simmondsia	Parlier, CA (PARL)	Clonal	0	0.1%	3	0.5%	3	0.5%
Solanum	Geneva, NY (NE9)	Seed	4	0.1%	59	0.8%	59	0.8%
Sorghum	Griffin, GA (S9)	Seed	309	0.6%	1,423	2.8%	1,402	2.6%
Soybean	Urbana, IL (SOY)	Seed	500	2.5%	1,000	4.7%	1,000	4.5%
Soybean CWR	Urbana, IL (SOY)	Seed	20	0.8%	100	4.0%	200	7.6%
Spanish Lime	Mayaguez, PR (MAY)	Clonal	0	0.0%	0	0.0%	0	0.0%
Spinach	Ames, IA (NC7)	Seed	0	0.0%	0	0.0%	1	0.2%
Strawberry	Corvallis, OR (COR)	Clonal	30	1.3%	21	0.9%	21	0.8%
Strawberry CWR	Corvallis, OR (COR)	Clonal	7	4.4%	8	4.8%	8	4.4%
Sugarbeet/Beet	Pullman, WA (W6)	Seed	17	0.6%	60	2.1%	62	2.0%
Sunflower	Ames, IA (NC7)	Seed	251	4.7%	190	3.4%	190	3.3%
Sweet Potato	Griffin, GA (S9)	Seed	0	0.0%	0	0.0%	0	0.0%
Sweet Potato CWR	Griffin, GA (S9)	Seed	3	0.6%	10	1.9%	0	0.0%
Tart Cherry	Geneva, NY (GEN)	Clonal	2	2.0%	15	17.3%	15	15.8%
Trefoil	Pullman, WA (W6)	Seed	14	1.4%	17	1.6%	31	2.7%
Trichosanthes	Geneva, NY (NE9)	Seed	0	0.0%	10	47.6%	10	45.5%
Trigonella	Pullman, WA (W6)	Seed	20	6.7%	10	3.1%	10	3.0%
Tripsacum	Miami, FL (MIA)	Seed	0	0.0%	0	0.0%	0	0.0%
Triticale	Aberdeen, ID (NSGC)	Seed	1	0.0%	1	0.0%	1	0.0%
Umbels	Ames, IA (NC7)	Seed	6	0.7%	60	6.1%	30	2.9%
Vaccinium	Corvallis, OR (COR)	Clonal	5	0.4%	6	0.5%	6	0.4%
Vaccinium CWR	Corvallis, OR (COR)	Clonal	1	0.1%	3	0.4%	3	0.3%
Vetch	Pullman, WA (W6)	Seed	1	0.0%	100	5.1%	60	2.9%
Vigna	Griffin, GA (S9)	Seed	15	1.9%	15	1.8%	15	1.7%
Walnut	Davis, CA (DAV)	Clonal	0	0.0%	6	0.7%	6	0.6%
Watermelon	Griffin, GA (S9)	Seed	4	0.2%	5	0.3%	5	0.2%
Wheat	Aberdeen, ID (NSGC)	Seed	100	0.2%	100	0.2%	100	0.2%
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	7	0.1%	5	0.1%	5	0.1%
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	1	0.1%	1	0.1%	1	0.1%
Winged Bean	Griffin, GA (S9)	Seed	5	3.1%	10	6.0%	10	5.7%
Woody Landscape	Ames, IA (NC7)	Seed	49	2.5%	60	2.8%	60	2.6%
	Washington, D.C. (USNA)	Clonal	16	0.1%	20	0.1%	20	0.1%

Fig. S4.3c The top row of the figure, shaded light beige, reports for the total NPGS collection the current average annual number of accessions duplicated at the NLGRP, and goals for +5 years and +10 years. The current average annual rate (percentage) of safety duplication for the total collection, and goals for +5 years and +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the annual duplication rate of the individual NPGS collections, the darker the lavender hue, with 0% duplication rate the darkest. Blank fields indicate that data could not be estimated. GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S4.5 Time Needed to Reduce the Backlog of Safety Duplication for NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			MIN (Years)	Median	MAX (Years)	MIN (Years)	Median	MAX (Years)	MIN (Years)	Median	MAX (Years)
		NPGS-wide	0	15	395	0	7	60	0	5	60
Aegilops	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1
Alfalfa	Pullman, WA (W6)	Seed	21	21	21	6	4	6	1	1	1
Allium	Geneva, NY (NE9)	Seed	27	38	50	15	16	17	12	13	14
Allium CWR	Pullman, WA (W6)	Clonal	40	40	40	5	7	10	1	1	2
Allium Garlic	Pullman, WA (W6)	Clonal	0	0	0	5	5	5	5	5	5
Apium	Geneva, NY (NE9)	Seed	8	9	10	3	4	5	5	3	7
Apple	Geneva, NY (GEN)	Clonal	2		5	2		5	2		5
Apple CWR	Geneva, NY (GEN)	Clonal	5		10	2		5	2		5
Asters	Ames, IA (NC7)	Seed	1	1	1	5	5	5	5	5	5
Bambara Groundnut	Griffin, GA (S9)	Seed	3	2	3	3	2	3	3	2	3
Barley	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	2	2	2	1	1	1	1	1	1
Benincasa	Geneva, NY (NE9)	Seed	6	7	8	4	3	6	4	5	6
Brassica	Ames, IA (NC7)	Seed	1	1	1	1	1	1	1	1	1
	Geneva, NY (NE9)	Seed	35	36	37	11	14	13	10	12	12
Brassicaceae	Ames, IA (NC7)	Seed	2	2	2	2	2	2	2	2	2
Breadfruit	Hilo, HI (HILO)	Clonal	0	0	0	0	0	0	4	5	6
Cacao	Mayaguez, PR (MAY)	Clonal	1	5	5	1	3	5	1	2	5
Castorbean	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Chickpea	Pullman, WA (W6)	Seed	17	17	17	1	1	1	1	1	1
Cichorium	Ames, IA (NC7)	Seed	7	9	10	7	9	10	7	9	10
Citrus	Riverside, CA (RIV)	Clonal	19	19	19	15	15	15	11	11	11
Clover	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
	Pullman, WA (W6)	Seed	20	20	20	2	2	2	2	2	2
Coffee	Hilo, HI (HILO)	Clonal	0	0	0	20	20	20	20	20	20
Cotton	College Station, TX (COT)	Seed	20	20	20	10	10	10	5	5	5
Cowpea	Griffin, GA (S9)	Seed	3	2	3	3	2	3	3	2	3
Cucumis CWR	Ames, IA (NC7)	Seed	12	17	20	12	17	20	12	17	20
Cucumis sativus	Ames, IA (NC7)	Seed	5	8	10	5	8	10	5	8	10
Cucurbita	Ames, IA (NC7)	Seed	55	58	60	55	58	60	55	58	60
	Geneva, NY (NE9)	Seed	4	5	6	2	2	4	2	1	4
	Griffin, GA (S9)	Seed	10	10	10	5	5	5	1	1	1
	Parlier, CA (PARL)	Seed	20	20	20	15	15	15	10	10	10
Cuphea	Ames, IA (NC7)	Seed	25	25	25	22	22	22	18	18	18
Date Palm	Riverside, CA (RIV)	Clonal	28	28	28	22	22	22	19	19	19
Daucus	Ames, IA (NC7)	Seed	30	36	40	30	36	40	30	36	40
Eggplant	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Euphorbia	Ames, IA (NC7)	Seed	18	18	18	18	18	18	9	9	9
Faba Bean	Pullman, WA (W6)	Seed	13	13	13	5	5	5	1	1	1
Fagopyrum	Geneva, NY (NE9)	Seed	1	3	5	1	2	3	1	2	3
Flax	Ames, IA (NC7)	Seed	1	1	1	1	1	1	1	1	1
Grape	Davis, CA (DAV)	Clonal	20	20	20						
	Geneva, NY (GEN)	Clonal				5		10	2		5
Grape CWR	Geneva, NY (GEN)	Clonal				5		10	2		5
Grasses	Pullman, WA (W6)	Seed	18	18	18	5	5	5	1	1	1

Fig. S4.5 The top row of the figure, shaded light beige, reports for the total NPGS collection the current extreme minima, extreme maxima, and the average median number of years needed to reduce the backlog, as much as is feasible, in the safety duplication of accessions for all PGR at the NLGRP, and goals for +5 years and +10 years. The range and median number of years needed to reduce the backlog for individual NPGS PGR collections, according to the best estimate of the PGR managers, then are provided listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The more time needed to reduce the backlogs for the individual NPGS PGR collections, the darker the aqua hue. The darkest hue indicates an estimated 20+ years are needed to reduce the backlog. Many of the longest backlogs result from a current lack of effective means for duplicating the PGR, which will be the focus of applied research in this Plan. Blank fields indicate that data could not be estimated. GSOR and GSZE are excluded because of how these genetic stocks are managed.

0  20+

S4.5 Time Needed to Reduce the Backlog of Safety Duplication for NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			MIN (Years)	Median	MAX (Years)	MIN (Years)	Median	MAX (Years)	MIN (Years)	Median	MAX (Years)
Grasses Millets	Ames, IA (NC7)	Seed	1	1	1	1	1	1	1	1	1
Grasses Warm Season	Griffin, GA (S9)	Seed	2	2	2	2	2	2	2	2	2
Guar	Griffin, GA (S9)	Seed	0	0	0	0	0	0	0	0	0
Hazelnut	Corvallis, OR (COR)	Clonal	29	29	29	13	13	13	4	4	4
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	10	10	10	5	5	5	2	2	2
Hibiscus	Griffin, GA (S9)	Seed	1	1	1	1	1	1	0	0	0
Hops	Corvallis, OR (COR)	Clonal	22	22	22	10	10	10	4	4	4
Hops CWR	Corvallis, OR (COR)	Clonal	6	6	6	3	3	3	1	1	1
Lathyrus	Pullman, WA (W6)	Seed	23	23	23	7	7	7	1	1	1
Legumes	Ames, IA (NC7)	Seed	1	1	1	1	1	1	1	1	1
	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Legumes Minor Forage	Pullman, WA (W6)	Seed	30	50	70	9	9	9	4	4	4
Lentil	Pullman, WA (W6)	Seed	2	2	2	1	1	1	1	1	1
Lesquerella	Parlier, CA (PARL)	Seed	10	10	10	5	5	5	1	1	1
Lettuce	Pullman, WA (W6)	Seed	16	29	41	8	8	8	2	2	2
Limnanthes	Parlier, CA (PARL)	Seed	10	10	10	5	5	5	1	1	1
Lupin	Pullman, WA (W6)	Seed	20	20	20	11	11	11	1	1	1
Maize	Ames, IA (NC7)	Seed	0	23	67	1	3	6	2	3	6
Maize CWR	Ames, IA (NC7)	Seed	40	218	395	12	15	16	2	8	13
Maize Genetic Stocks	Urbana, IL (GSZE)	Seed	3	3	3	3	3	3	3	25	3
Medicago	Pullman, WA (W6)	Seed	10	10	10	10	10	10	3	3	3
Millets	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Mint	Corvallis, OR (COR)	Clonal	10	10	10	5	5	5	1	1	1
Mint CWR	Corvallis, OR (COR)	Clonal	6	6	6	2	2	2	1	1	1
Mung Bean	Griffin, GA (S9)	Seed	3	2	3	3	2	3	3	2	3
Musa	Mayaguez, PR (MAY)	Clonal	1	5	5	1	3	5	1	1	5
Native Plants	Pullman, WA (W6)	Seed	1	2	2	1	1	1	1	1	1
Oat	Aberdeen, ID (NSGC)	Seed	2	2	2	1	1	1	1	1	1
Ocimum	Ames, IA (NC7)	Seed	8	9	10	8	9	10	8	9	10
Opuntia	Parlier, CA (PARL)	Clonal	20	20	20	15	15	15	10	10	10
Other Crops	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
	Parlier, CA (PARL)	Seed	20	20	20	15	15	15	10	10	10
	Pullman, WA (W6)	Seed	29	29	29	4	4	4	2	2	2
Papaya	Hilo, HI (HILO)	Clonal	0	0	0	20	15	20	20	15	20
Parthenium	Parlier, CA (PARL)	Seed	10	10	10	5	5	5	1	1	1
Pastinaca	Ames, IA (NC7)	Seed	8	9	10	8	9	10	8	9	10
Pea	Pullman, WA (W6)	Seed	40	40	40	16	16	16	1	1	1
Pea Genetic Stocks	Pullman, WA (W6)	Seed	29	29	29	1	1	1	1	1	1
Peanut	Griffin, GA (S9)	Seed	2	1	2	1	1	1	1	1	1
Peanut CWR	Griffin, GA (S9)	Seed	3	2	3	3	2	3	3	2	3
Pears	Corvallis, OR (COR)	Clonal	29	29	29	20	20	20	12	12	12
Pears CWR	Corvallis, OR (COR)	Clonal	20	20	20	11	11	11	5	5	5
Pecan	College Station, TX (BRW)	Clonal	205	205	205	35	35	35	16	16	16
Pepper	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Phaseolus	Pullman, WA (W6)	Seed	42	63	84	7	7	7	2	2	2
Physalis	Geneva, NY (NE9)	Seed	19	20	21	9	10	11	9	1	11

Fig. S4.5 The top row of the figure, shaded light beige, reports for the total NPGS collection the current extreme minima, extreme maxima, and the average median number of years needed to reduce the backlog, as much as is feasible, in the safety duplication of accessions for all PGR at the NLGRP, and goals for +5 years and +10 years. The range and median number of years needed to reduce the backlog for individual NPGS PGR collections, according to the best estimate of the PGR managers, then are provided listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The more time needed to reduce the backlogs for the individual NPGS PGR collections, the darker the aqua hue. The darkest hue indicates an estimated 20+ years are needed to reduce the backlog. Many of the longest backlogs result from a current lack of effective means for duplicating the PGR, which will be the focus of applied research in this Plan. Blank fields indicate that data could not be estimated. GSOR and GSZE are excluded because of how these genetic stocks are managed.



S4.5 Time Needed to Reduce the Backlog of Safety Duplication for NPGS PGR Collections at the NLGRP

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			MIN (Years)	Median	MAX (Years)	MIN (Years)	Median	MAX (Years)	MIN (Years)	Median	MAX (Years)
Pineapple	Hilo, HI (HILO)	Clonal	0	0	0	20	20	20	20	20	20
Potato	Sturgeon Bay, WI (NR6)	Seed	5	5	5	5	5	5	5	5	5
Pseudocereals	Ames, IA (NC7)	Seed	1	1	1	1	1	1	1	1	1
Quince	Corvallis, OR (COR)	Clonal	12	12	12	6	6	6	1	1	1
Raphanus	Geneva, NY (NE9)	Seed	3	4	5	1	2	3	1	2	3
Ribes	Corvallis, OR (COR)	Clonal	10	10	10	6	6	6	2	2	2
Ribes CWR	Corvallis, OR (COR)	Clonal	11	11	11	5	5	5	1	1	1
Rice	Aberdeen, ID (NSGC)	Seed	2	2	2	1	1	1	1	1	1
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	10	10	10	8	8	8	7	7	7
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	3	3	3	2	2	2	2	2	2
Rice Sativa	Stuttgart, AR (GSOR)	Seed	4	4	4	3	3	3	3	3	3
Rubus	Corvallis, OR (COR)	Clonal	66	66	66	13	13	13	5	5	5
Rubus CWR	Corvallis, OR (COR)	Clonal	21	21	21	9	9	9	2	2	2
Rye	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1
Saccharum	Miami, FL (MIA)	Clonal	0	0	0	11	11	11	8	8	8
Safflower	Pullman, WA (W6)	Seed	2	2	2	2	2	2	1	1	1
Sesame	Griffin, GA (S9)	Seed	0	0	0	0	0	0	0	0	0
Simmondsia	Parlier, CA (PARL)	Clonal	20	20	20	15	15	15	10	10	10
Solanum	Geneva, NY (NE9)	Seed	9	10	11	7	8	9	4	5	6
Sorghum	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Soybean	Urbana, IL (SOY)	Seed	1	2	3	1	2	3	1	2	3
Soybean CWR	Urbana, IL (SOY)	Seed	1	3	5	1	3	5	1	3	5
Spinach	Ames, IA (NC7)	Seed	1	1	1	1	1	1	1	1	1
Strawberry	Corvallis, OR (COR)	Clonal	8	8	8	5	5	5	1	1	1
Strawberry CWR	Corvallis, OR (COR)	Clonal	19	19	19	13	13	13	6	6	6
Sugarbeet/Beet	Pullman, WA (W6)	Seed	25	38	50	5	5	5	1	1	1
Sunflower	Ames, IA (NC7)	Seed	3	3	3	2	2	2	2	2	2
Sweet Potato	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Sweet Potato CWR	Griffin, GA (S9)	Seed	18	9	18	5	3	5	0	0	0
Tart Cherry	Geneva, NY (GEN)	Clonal	2		5	2		5	2		5
Trefoil	Pullman, WA (W6)	Seed	10	10	10	9	9	9	2	2	2
Trigonella	Pullman, WA (W6)	Seed	4	4	4	2	2	2	1	1	1
Triticale	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1
Umbels	Ames, IA (NC7)	Seed	1	1	1	1	1	1	1	1	1
Vaccinium	Corvallis, OR (COR)	Clonal	18	18	18	9	9	9	5	5	5
Vaccinium CWR	Corvallis, OR (COR)	Clonal	36	36	36	18	18	18	6	6	6
Vetch	Pullman, WA (W6)	Seed	42	42	42	6	5	6	1	2	1
Vigna	Griffin, GA (S9)	Seed	3	2	3	3	2	3	3	2	3
Watermelon	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Wheat	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	2	2	2	1	1	1	1	1	1
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1
Winged Bean	Griffin, GA (S9)	Seed	2	2	2	2	2	2	2	2	2
Woody Landscape	Washington, D.C. (USNA)	Clonal	1	5	30	1	5	30	1	5	30

Fig. S4.5 The top row of the figure, shaded light beige, reports for the total NPGS collection the current extreme minima, extreme maxima, and the average median number of years needed to reduce the backlog, as much as is feasible, in the safety duplication of accessions for all PGR at the NLGRP, and goals for +5 years and +10 years. The range and median number of years needed to reduce the backlog for individual NPGS PGR collections, according to the best estimate of the PGR managers, then are provided listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The more time needed to reduce the backlogs for the individual NPGS PGR collections, the darker the aqua hue. The darkest hue indicates an estimated 20+ years are needed to reduce the backlog. Many of the longest backlogs result from a current lack of effective means for duplicating the PGR, which will be the focus of applied research in this Plan. Blank fields indicate that data could not be estimated. GSOR and GSZE are excluded because of how these genetic stocks are managed.

0  20+

S5.2a Annual Germination, Viability, and Longevity Testing of NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested
	NPGS-wide		23,033	4.5%	38,224	7.1%	45,146	8.1%	7,057	1.7%	19,199	4.3%	19,211	4.1%
Aegilops	Aberdeen, ID (NSGC)	Seed	0	0.0%	0	0.0%	0	0.0%	0	0.0%	89	3.9%	88	3.8%
Alfalfa	Pullman, WA (W6)	Seed	31	0.8%	360	8.5%	442	10.0%	104	2.8%	320	7.9%	322	7.4%
Allium	Geneva, NY (NE9)	Seed	73	6.1%	97	7.8%	107	8.0%	48	7.4%	72	9.5%	79	9.0%
Allium CWR	Pullman, WA (W6)	Clonal	24	2.7%	91	10.0%	92	10.0%	13	4.1%	30	8.0%	30	7.0%
Allium Garlic	Pullman, WA (W6)	Clonal							6	5.3%	1	0.8%	1	0.8%
Annona	Mayaguez, PR (MAY)	Clonal									1	90.9%	2	90.9%
Apium	Geneva, NY (NE9)	Seed	5	2.0%	29	9.4%	29	7.9%	9	9.7%	10	9.2%	11	8.9%
Apple	Geneva, NY (GEN)	Clonal	0	0.0%	100	7.1%	100	7.0%	103	5.0%	86	3.5%	86	3.0%
Apple CWR	Geneva, NY (GEN)	Clonal	0	0.0%	80	1.7%	80	1.6%	2	0.3%	49	6.4%	49	5.5%
Asparagus	Geneva, NY (NE9)	Seed	6	3.8%	56	21.7%	56	15.6%	1	7.1%	1	6.7%	1	6.3%
Asters	Ames, IA (NC7)	Seed	13	2.9%	20	4.4%	16	3.6%	11	3.1%	28	7.2%	28	6.5%
Bambara Groundnut	Griffin, GA (S9)	Seed	5	5.1%	1	1.0%	1	0.9%	0	0.0%	4	3.9%	4	3.8%
Barley	Aberdeen, ID (NSGC)	Seed	1,300	4.6%	1,300	4.6%	1,300	4.6%	248	0.9%	952	3.2%	935	2.9%
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	100	2.9%	100	2.9%	100	2.9%	0	0.0%	263	3.9%	260	3.7%
Benincasa	Geneva, NY (NE9)	Seed	1	3.2%	11	19.6%	11	10.4%	2	16.7%	3	11.9%	3	8.8%
Brassica	Ames, IA (NC7)	Seed	213	10.6%	121	6.0%	423	20.8%	61	3.1%	169	7.9%	177	7.8%
	Geneva, NY (NE9)	Seed	95	4.4%	153	6.8%	158	6.7%	63	6.5%	131	10.6%	147	9.8%
Brassicaceae	Ames, IA (NC7)	Seed	75	5.7%	138	10.1%	70	4.9%	22	1.9%	49	3.8%	48	3.5%
Breadfruit	Hilo, HI (HILO)	Clonal							0	0.0%	0	0.0%	0	0.0%
Cacao	Mayaguez, PR (MAY)	Clonal									2	18.2%	2	9.1%
Carambola	Hilo, HI (HILO)	Clonal									2	20.9%	2	18.0%
Castorbean	Griffin, GA (S9)	Seed	4	1.1%	4	1.1%	4	1.1%	13	3.9%	32	8.6%	34	8.3%
Chickpea	Pullman, WA (W6)	Seed	158	2.2%	715	10.0%	725	10.0%	380	6.1%	703	9.6%	730	9.4%
Cichorium	Ames, IA (NC7)	Seed	30	10.5%	47	16.2%	34	11.5%	16	6.2%	25	8.2%	25	7.8%
Citrus	Riverside, CA (RIV)	Clonal							23	5.0%	66	8.3%	66	5.9%
Clover	Griffin, GA (S9)	Seed	77	3.0%	87	3.0%	97	3.0%	26	1.1%	86	3.5%	85	3.3%
	Pullman, WA (W6)	Seed	22	0.6%	347	8.9%	410	10.0%	34	1.2%	107	3.7%	106	3.5%
Coffee	Hilo, HI (HILO)	Clonal									7	28.0%	7	14.0%
Cotton	College Station, TX (COT)	Seed	200	2.0%	100	1.0%	91	0.9%	79	1.4%	266	4.4%	264	4.2%

Fig. S5.2a The top row of the figure, shaded light beige, reports for the total NPGS collection the current average annual number of germination, viability, and/or longevity tests, and goals for +5 years and +10 years. The current average annual rate (percentage) of testing for the total collection, and goals for +5 years and for +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The data for testing at the NPGS genebank units other than the NLGRP are listed at the left portion of the figure, and at the NLGRP are listed at the right portion of the figure. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the rate of testing for the individual NPGS collections, the darker the mustard hue, with 0% testing rate the darkest. Blank fields indicate that data could not be estimated. BRW, DAV, GSZE, MAY, MIA, and RIV do not test viability. NLGRP data for GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S5.2a Annual Germination, Viability, and Longevity Testing of NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested
Cowpea	Griffin, GA (S9)	Seed	84	1.0%	84	1.0%	84	1.0%	18	0.2%	138	1.6%	130	1.5%
Cucumis CWR	Ames, IA (NC7)	Seed	26	8.2%	42	13.0%	37	11.4%	5	2.4%	8	3.4%	8	3.0%
Cucumis melo	Ames, IA (NC7)	Seed	129	4.0%	342	10.3%	230	6.7%	35	1.4%	117	4.3%	117	4.2%
Cucumis sativus	Ames, IA (NC7)	Seed	149	10.6%	195	13.0%	333	20.9%	40	3.0%	81	5.3%	81	4.8%
Cucurbita	Ames, IA (NC7)	Seed	78	8.0%	91	8.9%	218	20.3%	13	1.6%	27	3.0%	26	2.7%
	Geneva, NY (NE9)	Seed	47	5.6%	74	8.6%	79	8.7%	55	9.5%	78	8.7%	77	7.6%
	Griffin, GA (S9)	Seed	23	1.6%	30	2.0%	31	2.1%	5	0.4%	20	1.7%	19	1.5%
	Parlier, CA (PARL)	Seed	1	2.7%	2	5.4%	6	16.2%	0	0.0%	1	9.4%	1	8.9%
Cuphea	Ames, IA (NC7)	Seed	70	11.0%	20	3.1%	31	4.9%	12	2.0%	50	7.9%	53	7.8%
Cynara	Geneva, NY (NE9)	Seed	0	0.0%	5	9.6%	8	8.7%	0	0.0%	0	0.0%	0	0.0%
Date Palm	Riverside, CA (RIV)	Clonal							1	3.7%	4	20.0%	4	10.0%
Daucus	Ames, IA (NC7)	Seed	174	11.1%	138	8.6%	389	23.4%	109	8.1%	154	9.6%	169	9.3%
Differentials	Griffin, GA (S9)	Seed	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Eggplant	Griffin, GA (S9)	Seed	20	2.0%	10	1.0%	10	1.0%	16	1.8%	49	5.2%	49	4.9%
Elderberry	Corvallis, OR (COR)	Seed							1	3.6%	7	11.4%	7	7.4%
Euphorbia	Ames, IA (NC7)	Seed	7	3.3%	20	9.7%	11	5.3%	7	7.1%	17	12.2%	19	10.6%
Faba Bean	Pullman, WA (W6)	Seed	19	2.4%	88	10.0%	98	10.0%	16	3.2%	31	4.9%	31	4.1%
Fagopyrum	Geneva, NY (NE9)	Seed	26	10.2%	54	17.7%	54	15.2%	47	18.5%	60	22.4%	60	21.4%
Ficus	Miami, FL (MIA)	Clonal								1	23.0%	1	11.5%	
Fig	Davis, CA (DAV)	Clonal								3	22.1%	3	11.1%	
Flax	Ames, IA (NC7)	Seed	296	9.9%	147	4.9%	544	18.0%	10	0.3%	67	2.1%	64	1.9%
Gourds	Griffin, GA (S9)	Seed	4	0.8%	25	5.0%	1	0.2%	2	0.3%	10	1.4%	10	1.3%
Grape	Davis, CA (DAV)	Clonal								30	20.0%	30	10.0%	
	Geneva, NY (GEN)	Clonal	0	0.0%	32	3.9%	40	4.8%		2	16.7%	3	12.5%	
Grape CWR	Geneva, NY (GEN)	Clonal	0	0.0%	32	4.4%	77	8.9%		2	16.7%	3	12.5%	
Grasses	Pullman, WA (W6)	Seed	449	2.0%	2,334	10.0%	2,384	10.0%	392	2.1%	916	4.4%	911	4.0%
Grasses Millets	Ames, IA (NC7)	Seed	136	5.4%	86	3.3%	310	11.8%	59	2.6%	180	7.1%	181	6.6%
Grasses Warm Season	Griffin, GA (S9)	Seed	272	3.8%	272	3.7%	272	3.7%	230	2.7%	595	6.2%	596	5.7%
Guar	Griffin, GA (S9)	Seed	1	0.2%	1	0.2%	1	0.2%	8	1.9%	27	6.2%	27	5.9%
Guava	Hilo, HI (HILO)	Clonal								2	16.7%	4	11.8%	

Fig. S5.2a The top row of the figure, shaded light beige, reports for the total NPGS collection the current average annual number of germination, viability, and/or longevity tests, and goals for +5 years and +10 years. The current average annual rate (percentage) of testing for the total collection, and goals for +5 years and for +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The data for testing at the NPGS genebank units other than the NLGRP are listed at the left portion of the figure, and at the NLGRP are listed at the right portion of the figure. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the rate of testing for the individual NPGS collections, the darker the mustard hue, with 0% testing rate the darkest. Blank fields indicate that data could not be estimated. BRW, DAV, GSZE, MAY, MIA, and RIV do not test viability. NLGRP data for GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S5.2a Annual Germination, Viability, and Longevity Testing of NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested
Hazelnut	Corvallis, OR (COR)	Clonal	721	100.0%	775	100.0%	825	100.0%	2	4.4%	6	8.0%	7	6.1%
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	21	20.0%	21	13.5%	21	10.2%			6	20.0%	6	14.4%
Hibiscus	Griffin, GA (S9)	Seed	7	2.1%	7	2.1%	7	2.1%	8	1.8%	34	7.4%	36	7.5%
Hops	Corvallis, OR (COR)	Clonal	101	33.2%	109	33.1%	115	32.5%	5	4.7%	6	4.4%	6	3.7%
Hops CWR	Corvallis, OR (COR)	Clonal	20	6.1%	50	11.7%	50	9.5%	0	0.0%	8	12.1%	8	8.2%
Hylocereus	Hilo, HI (HILO)	Clonal									1	100.0%	1	100.0%
Kiwifruit	Davis, CA (DAV)	Clonal									4	31.5%	4	15.7%
Lathyrus	Pullman, WA (W6)	Seed	3	0.3%	88	10.0%	89	10.0%	3	0.7%	10	2.3%	10	2.2%
Legumes	Ames, IA (NC7)	Seed	29	2.2%	126	9.3%	101	7.2%	82	7.1%	114	8.8%	123	8.5%
	Griffin, GA (S9)	Seed	157	5.1%	86	2.8%	5	0.2%	57	1.9%	166	5.2%	165	4.9%
Legumes Minor Forage	Pullman, WA (W6)	Seed	29	1.7%	180	10.0%	183	10.0%	43	2.5%	98	4.7%	98	4.0%
Lentil	Pullman, WA (W6)	Seed	5	0.2%	320	9.8%	323	9.7%	16	0.6%	67	2.3%	65	2.1%
Lesquerella	Parlier, CA (PARL)	Seed	34	13.7%	40	16.1%	47	19.0%	0	0.0%	4	1.8%	4	1.7%
Lettuce	Pullman, WA (W6)	Seed	199	7.4%	271	10.0%	272	10.0%	87	5.4%	158	8.7%	171	8.5%
Limnanthes	Parlier, CA (PARL)	Seed	8	10.3%	12	15.4%	18	14.1%	0	0.0%	2	2.6%	2	2.5%
Litchi	Hilo, HI (HILO)	Clonal									1	33.3%	1	16.7%
Luffa	Griffin, GA (S9)	Seed	3	1.8%	3	1.7%	3	1.5%	0	0.0%	0	0.0%	0	0.0%
Lupin	Pullman, WA (W6)	Seed	26	1.7%	160	10.0%	162	10.0%	12	1.5%	22	2.5%	21	2.2%
Macadamia	Hilo, HI (HILO)	Clonal									1	16.7%	1	8.3%
Maize	Ames, IA (NC7)	Seed	986	5.1%	3,772	15.2%	4,997	18.2%	231	1.5%	602	3.6%	594	3.4%
Maize CWR	Ames, IA (NC7)	Seed	8	1.6%	101	19.0%	106	19.9%	1	2.3%	3	6.4%	3	6.1%
Medicago	Pullman, WA (W6)	Seed	50	1.1%	377	7.9%	500	10.0%	60	1.5%	193	4.6%	192	4.4%
Medicinals	Ames, IA (NC7)	Seed	72	6.6%	100	8.3%	125	9.3%	26	3.3%	47	5.1%	47	4.5%
Millet	Griffin, GA (S9)	Seed	12	0.5%	226	6.4%	226	4.8%	58	2.4%	187	7.3%	188	7.0%
Mint	Corvallis, OR (COR)	Clonal	146	33.3%	153	33.0%	156	32.6%	5	4.6%	12	7.3%	12	5.5%
Mint CWR	Corvallis, OR (COR)	Clonal	10	22.2%	0	0.0%	10	15.4%	2	4.3%	7	9.2%	7	6.6%
Mulberry	Davis, CA (DAV)	Clonal									8	22.5%	8	13.3%
Mung Bean	Griffin, GA (S9)	Seed	80	1.9%	80	1.9%	80	1.9%	25	0.6%	98	2.4%	95	2.3%
Musa	Mayaguez, PR (MAY)	Clonal							4	5.7%	10	8.3%	10	5.9%
Native Plants	Pullman, WA (W6)	Seed	395	4.7%	431	3.5%	1,347	10.0%	375	4.4%	984	10.0%	975	9.4%

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Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested
Oat	Aberdeen, ID (NSGC)	Seed	525	2.5%	525	2.5%	525	2.5%	39	0.2%	397	1.8%	379	1.6%
Ocimum	Ames, IA (NC7)	Seed	12	11.3%	6	5.6%	28	25.9%	6	4.1%	14	7.9%	14	6.8%
Okra	Griffin, GA (S9)	Seed	51	1.7%	125	4.2%	150	5.0%	4	0.5%	15	2.0%	14	1.8%
Olive	Davis, CA (DAV)	Clonal									2	20.0%	3	15.0%
Opuntia	Parlier, CA (PARL)	Clonal							0	0.0%	0	0.0%	0	0.0%
Ornamentals	Ames, IA (NC7)	Seed	66	8.5%	86	10.4%	100	11.5%	17	2.9%	40	6.1%	40	5.5%
Other Crops	Corvallis, OR (COR)	Clonal							0	0.0%	1	11.8%	1	9.1%
	Geneva, NY (NE9)	Seed	1	0.4%					0	0.0%	0	0.0%	0	0.0%
	Griffin, GA (S9)	Seed	14	8.6%	16	9.5%	16	9.2%	2	3.9%	5	9.0%	5	8.3%
	Hilo, HI (HILO)	Clonal									1	27.3%	1	13.6%
	Mayaguez, PR (MAY)	Clonal									0	0.0%	0	0.0%
	Miami, FL (MIA)	Clonal							0	0.0%	1	19.5%	1	12.1%
	Parlier, CA (PARL)	Seed							2	1.1%	7	3.7%	7	3.4%
	Pullman, WA (W6)	Seed	241	5.4%	496	10.0%	546	10.0%	27	2.9%	68	5.7%	68	4.7%
Papaya	Hilo, HI (HILO)	Clonal	12	6.7%	43	23.5%	68	36.2%			16	22.2%	16	16.0%
Parthenium	Parlier, CA (PARL)	Seed	18	13.1%	28	11.8%	40	10.0%	1	2.3%	2	4.3%	2	4.0%
Pastinaca	Ames, IA (NC7)	Seed	9	12.3%	5	6.1%	17	20.5%	9	5.7%	17	9.2%	19	9.0%
Pea	Pullman, WA (W6)	Seed	26	0.4%	629	10.0%	639	10.0%	149	3.5%	370	8.1%	394	7.9%
Pea Genetic Stocks	Pullman, WA (W6)	Seed	0	0.0%	72	10.0%	72	10.0%	0	0.0%	23	3.8%	23	3.8%
Peanut	Griffin, GA (S9)	Seed	386	4.2%	386	4.2%	386	4.2%	506	5.8%	778	8.2%	827	8.0%
Peanut CWR	Griffin, GA (S9)	Seed	31	5.5%	31	5.3%	31	5.1%	2	0.5%	19	3.8%	19	3.3%
Pears	Corvallis, OR (COR)	Clonal	10	0.5%	10	0.5%	10	0.5%	14	4.9%	45	8.8%	46	6.3%
Pears CWR	Corvallis, OR (COR)	Clonal	50	12.1%	50	10.8%	0	0.0%	0	0.0%	1	5.1%	1	4.1%
Pecan	College Station, TX (BRW)	Clonal							0	0.0%	12	20.3%	12	10.2%
Pepper	Griffin, GA (S9)	Seed	5	0.1%	5	0.1%	5	0.1%	163	3.3%	396	7.6%	413	7.5%
Persimmon	Davis, CA (DAV)	Clonal									2	26.7%	2	13.3%
Phaseolus	Pullman, WA (W6)	Seed	181	1.0%	1,774	10.0%	1,788	10.0%	64	0.5%	273	2.0%	262	1.8%
Physalis	Geneva, NY (NE9)	Seed	2	1.2%	22	11.4%	42	19.3%	3	1.5%	8	3.7%	8	3.5%
Pineapple	Hilo, HI (HILO)	Clonal									1	20.0%	1	10.0%
Pistachio	Davis, CA (DAV)	Clonal									5	66.7%	5	33.3%

Fig. S5.2a The top row of the figure, shaded light beige, reports for the total NPGS collection the current average annual number of germination, viability, and/or longevity tests, and goals for +5 years and +10 years. The current average annual rate (percentage) of testing for the total collection, and goals for +5 years and for +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The data for testing at the NPGS genebank units other than the NLGRP are listed at the left portion of the figure, and at the NLGRP are listed at the right portion of the figure. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the rate of testing for the individual NPGS collections, the darker the mustard hue, with 0% testing rate the darkest. Blank fields indicate that data could not be estimated. BRW, DAV, GSZE, MAY, MIA, and RIV do not test viability. NLGRP data for GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S5.2a Annual Germination, Viability, and Longevity Testing of NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested
Pomegranate	Davis, CA (DAV)	Clonal									4	26.7%	4	13.3%
Potato	Sturgeon Bay, WI (NR6)	Seed	1,000	17.1%	1,150	19.2%	1,300	21.2%	142	2.8%	258	4.5%	254	4.1%
Prunus	Davis, CA (DAV)	Clonal							2	5.1%	14	20.2%	14	10.3%
Pseudocereals	Ames, IA (NC7)	Seed	272	7.0%	230	5.8%	1,435	28.7%	76	2.1%	129	3.2%	126	3.0%
Quince	Corvallis, OR (COR)	Clonal	7	3.4%	10	4.7%	9	4.0%	0	0.0%	5	19.9%	5	10.6%
Rambutan	Hilo, HI (HILO)	Clonal									1	33.3%	1	16.7%
Raphanus	Geneva, NY (NE9)	Seed	20	2.8%	52	6.6%	52	6.0%	77	11.0%	111	13.6%	111	13.0%
Rhubarb	Pullman, WA (W6)	Clonal	0	0.0%	3	2.8%	7	6.4%	0	0.0%	0	0.0%	0	0.0%
Ribes	Corvallis, OR (COR)	Clonal	18	2.6%	8	1.1%	8	1.0%	11	5.0%	67	12.2%	67	7.6%
Ribes CWR	Corvallis, OR (COR)	Clonal	10	1.7%	10	1.5%	20	2.8%	2	1.9%	9	6.2%	9	4.9%
Rice	Aberdeen, ID (NSGC)	Seed	1,050	5.5%	1,050	5.5%	1,050	5.5%	227	1.2%	739	3.7%	731	3.5%
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	50	9.4%	20	3.6%	5	0.9%						
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	8	25.0%	8	14.0%	8	11.9%						
Rice Sativa	Stuttgart, AR (GSOR)	Seed	200	0.5%	100	0.3%	100	0.3%						
Rubus	Corvallis, OR (COR)	Clonal	100	11.6%	100	10.9%	100	10.4%	13	4.2%	7	2.1%	7	2.0%
Rubus CWR	Corvallis, OR (COR)	Clonal	50	3.7%	100	7.1%	150	10.3%	1	0.4%	14	5.4%	14	4.8%
Rye	Aberdeen, ID (NSGC)	Seed	122	5.8%	120	5.7%	120	5.7%	5	0.2%	39	1.8%	37	1.6%
Saccharum	Miami, FL (MIA)	Clonal							1	0.5%	7	3.5%	7	3.4%
Safflower	Pullman, WA (W6)	Seed	143	5.8%	248	10.0%	250	10.0%	53	2.2%	124	4.8%	123	4.6%
Sesame	Griffin, GA (S9)	Seed	11	0.9%	11	0.9%	11	0.9%	12	1.0%	42	3.3%	41	3.1%
Simmondsia	Parlier, CA (PARL)	Clonal	0	0.0%	10	3.1%	20	6.2%	0	0.0%	5	5.7%	5	4.9%
Solanum	Geneva, NY (NE9)	Seed	98	1.5%	153	2.3%	153	2.3%	13	0.2%	154	2.3%	149	2.0%
Sorghum	Griffin, GA (S9)	Seed	2,245	5.0%	2,605	5.0%	2,953	5.0%	762	1.7%	2,146	4.5%	2,133	4.2%
Soybean	Urbana, IL (SOY)	Seed	500	2.3%	3,000	13.0%	3,500	14.3%	470	2.4%	994	4.7%	983	4.4%
Soybean CWR	Urbana, IL (SOY)	Seed	0	0.0%	175	12.8%	176	11.6%	62	2.7%	165	6.6%	163	6.2%
Spinach	Ames, IA (NC7)	Seed	46	11.1%	107	25.8%	263	63.4%	4	1.0%	13	3.0%	13	2.9%
Strawberry	Corvallis, OR (COR)	Clonal	738	100.0%	788	100.0%	838	100.0%	15	3.6%	24	4.6%	24	3.8%
Strawberry CWR	Corvallis, OR (COR)	Clonal	50	3.9%	60	4.4%	100	6.8%	0	0.0%	9	9.8%	9	6.9%
Sugarbeet/Beet	Pullman, WA (W6)	Seed	105	3.8%	277	10.0%	278	10.0%	58	2.8%	155	6.8%	155	6.3%
Sunflower	Ames, IA (NC7)	Seed	446	8.6%	506	9.5%	768	14.0%	81	1.8%	222	4.3%	220	3.8%

Fig. S5.2a The top row of the figure, shaded light beige, reports for the total NPGS collection the current average annual number of germination, viability, and/or longevity tests, and goals for +5 years and +10 years. The current average annual rate (percentage) of testing for the total collection, and goals for +5 years and for +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The data for testing at the NPGS genebank units other than the NLGRP are listed at the left portion of the figure, and at the NLGRP are listed at the right portion of the figure. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the rate of testing for the individual NPGS collections, the darker the mustard hue, with 0% testing rate the darkest. Blank fields indicate that data could not be estimated. BRW, DAV, GSZE, MAY, MIA, and RIV do not test viability. NLGRP data for GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S5.2a Annual Germination, Viability, and Longevity Testing of NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested	Avg # Tests / Year	% of Collection Tested
Sweet Potato	Griffin, GA (S9)	Seed							13	4.7%	3	1.0%	3	1.0%
Sweet Potato CWR	Griffin, GA (S9)	Seed	13	2.8%	68	14.8%	68	14.8%	5	1.2%	15	3.4%	15	3.2%
Tart Cherry	Geneva, NY (GEN)	Clonal	2	1.5%	6	4.2%	12	7.6%	2	6.3%	15	17.0%	15	15.6%
Trefoil	Pullman, WA (W6)	Seed	16	1.6%	73	7.0%	110	10.0%	16	1.9%	30	3.3%	29	2.8%
Trichosanthes	Geneva, NY (NE9)	Seed	0	0.0%	10	23.3%	10	10.8%	0	0.0%	0	0.0%	0	0.0%
Trigonella	Pullman, WA (W6)	Seed	0	0.0%	31	10.0%	31	9.9%	0	0.0%	7	2.8%	7	2.7%
Triticale	Aberdeen, ID (NSGC)	Seed	120	5.9%	120	5.9%	120	5.9%	12	0.6%	54	2.5%	53	2.4%
Umbels	Ames, IA (NC7)	Seed	85	7.1%	117	9.5%	155	12.3%	27	4.5%	54	8.2%	58	8.1%
Vaccinium	Corvallis, OR (COR)	Clonal	185	10.0%	195	10.0%	205	10.0%	5	4.4%	7	4.9%	7	4.0%
Vaccinium CWR	Corvallis, OR (COR)	Clonal	50	5.3%	100	9.5%	120	10.4%	0	0.0%	11	4.6%	11	4.3%
Vetch	Pullman, WA (W6)	Seed	12	0.6%	177	9.4%	143	7.5%	1	0.1%	14	1.6%	14	1.5%
Vigna	Griffin, GA (S9)	Seed	35	7.1%	1	0.2%	1	0.2%	5	0.8%	11	1.6%	11	1.6%
Walnut	Davis, CA (DAV)	Clonal									6	20.0%	6	10.0%
Watermelon	Griffin, GA (S9)	Seed	40	2.1%	4	0.2%	4	0.2%	17	0.9%	47	2.4%	45	2.2%
Wheat	Aberdeen, ID (NSGC)	Seed	3,065	5.4%	3,060	5.4%	3,060	5.4%	360	0.6%	1,563	2.6%	1,520	2.4%
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	50	12.3%	50	12.0%	50	11.8%	0	0.0%	139	3.8%	137	3.7%
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	55	5.7%	55	5.7%	55	5.7%	1	0.1%	48	4.7%	47	4.4%
Winged Bean	Griffin, GA (S9)	Seed	3	1.9%	3	1.9%	3	1.9%	0	0.0%	3	3.5%	3	3.4%
Woody Landscape	Ames, IA (NC7)	Seed	58	2.8%	75	3.2%	100	3.8%	32	3.5%	76	6.3%	76	5.0%
	Washington, D.C. (USNA)	Clonal	2,750	32.9%	3,300	35.1%	3,400	32.7%	19	2.8%	30	3.9%	30	3.4%

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S5.2b Amounts and Percentages of NPGS Accessions Tested for Germination, Viability, and Longevity Recently

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested
	NPGS-wide		267,535	53%	333,538	62%	412,510	74%	186,815	46%	223,760	50%	257,166	54%
Aegilops	Aberdeen, ID (NSGC)	Seed	0	0%	0	0%	0	0%	7	0%	450	20%	883	38%
Alfalfa	Pullman, WA (W6)	Seed	308	8%	2,106	50%	4,316	98%	1,426	38%	2,570	64%	3,729	86%
Allium	Geneva, NY (NE9)	Seed	382	32%	557	45%	762	57%	379	58%	615	81%	875	100%
Allium CWR	Pullman, WA (W6)	Clonal	240	27%	457	50%	832	90%	181	57%	273	73%	368	86%
Allium Garlic	Pullman, WA (W6)	Clonal							112	99%	117	99%	123	100%
Annona	Mayaguez, PR (MAY)	Clonal								1	91%	2	91%	
Apium	Geneva, NY (NE9)	Seed	25	10%	37	12%	162	44%	87	94%	108	100%	124	100%
Apple	Geneva, NY (GEN)	Clonal	240	17%	705	50%	1,211	85%	2,052	100%	2,481	100%	2,910	100%
Apple CWR	Geneva, NY (GEN)	Clonal	231	5%	625	13%	1,000	20%	10	2%	251	33%	494	56%
Asparagus	Geneva, NY (NE9)	Seed	28	18%	42	16%	299	84%	3	21%	8	54%	13	82%
Asters	Ames, IA (NC7)	Seed	72	16%	92	20%	317	71%	201	57%	278	71%	355	83%
Bambara Groundnut	Griffin, GA (S9)	Seed	65	66%	90	87%	103	95%	0	0%	20	20%	39	38%
Barley	Aberdeen, ID (NSGC)	Seed	24,480	86%	24,500	86%	24,500	86%	10,390	37%	11,808	39%	13,064	41%
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	1,109	32%	1,000	29%	1,000	29%	766	12%	1,835	27%	2,875	41%
Benincasa	Geneva, NY (NE9)	Seed	3	10%	6	11%	59	56%	11	92%	23	91%	34	100%
Brassica	Ames, IA (NC7)	Seed	1,693	84%	260	13%	1,989	98%	771	39%	1,367	64%	2,049	90%
	Geneva, NY (NE9)	Seed	476	22%	711	32%	1,120	48%	619	64%	1,075	87%	1,492	100%
Brassicaceae	Ames, IA (NC7)	Seed	557	43%	580	42%	1,138	80%	566	48%	628	49%	685	50%
Breadfruit	Hilo, HI (HILO)	Clonal							5	100%	5	100%	5	100%
Cacao	Mayaguez, PR (MAY)	Clonal								11	100%	22	100%	
Carambola	Hilo, HI (HILO)	Clonal								10	100%	11	99%	
Castorbean	Griffin, GA (S9)	Seed	357	94%	357	94%	357	94%	266	79%	338	91%	411	100%
Chickpea	Pullman, WA (W6)	Seed	1,582	22%	3,574	50%	6,523	90%	4,936	80%	6,865	93%	7,763	100%
Cichorium	Ames, IA (NC7)	Seed	244	86%	181	62%	144	49%	112	43%	202	66%	291	91%
Citrus	Riverside, CA (RIV)	Clonal							462	100%	792	100%	1,122	100%
Clover	Griffin, GA (S9)	Seed	2,148	83%	2,426	83%	2,708	83%	671	29%	888	36%	1,092	43%
	Pullman, WA (W6)	Seed	221	6%	1,954	50%	4,005	98%	935	34%	1,169	40%	1,390	45%
Coffee	Hilo, HI (HILO)	Clonal								25	100%	50	100%	
Cotton	College Station, TX (COT)	Seed	7,856	80%	8,113	81%	8,463	82%	1,764	30%	2,525	42%	3,266	51%

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Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested
Cowpea	Griffin, GA (S9)	Seed	7,254	88%	8,242	100%	8,267	99%	3,466	42%	3,039	36%	2,538	29%
Cucumis CWR	Ames, IA (NC7)	Seed	207	65%	145	45%	142	44%	98	47%	105	44%	112	43%
Cucumis melo	Ames, IA (NC7)	Seed	1,047	32%	1,082	32%	520	15%	632	24%	1,016	38%	1,391	49%
Cucumis sativus	Ames, IA (NC7)	Seed	1,332	95%	517	34%	1,204	75%	517	39%	757	50%	997	59%
Cucurbita	Ames, IA (NC7)	Seed	723	74%	149	15%	788	74%	419	51%	418	47%	412	43%
	Geneva, NY (NE9)	Seed	237	28%	356	41%	549	61%	502	87%	729	81%	954	94%
	Griffin, GA (S9)	Seed	739	51%	1,200	81%	1,500	100%	124	11%	186	15%	238	19%
	Parlier, CA (PARL)	Seed	3	8%	7	19%	23	62%	2	20%	5	47%	9	80%
Cuphea	Ames, IA (NC7)	Seed	72	11%	26	4%	85	13%	120	20%	332	52%	573	84%
Cynara	Geneva, NY (NE9)	Seed	0	0%	0	0%	25	27%	0	0%	1	33%	1	32%
Date Palm	Riverside, CA (RIV)	Clonal							0	0%	20	100%	40	100%
Daucus	Ames, IA (NC7)	Seed	1,230	79%	331	21%	1,591	96%	1,108	83%	1,521	95%	1,826	100%
Differentials	Griffin, GA (S9)	Seed	5	100%	5	100%	5	100%	0	0%	1	25%	2	48%
Eggplant	Griffin, GA (S9)	Seed	970	97%	1,015	99%	1,040	99%	386	43%	507	54%	627	63%
Elderberry	Corvallis, OR (COR)	Seed							23	82%	52	84%	82	86%
Euphorbia	Ames, IA (NC7)	Seed	65	31%	54	26%	33	16%	50	51%	119	85%	179	100%
Faba Bean	Pullman, WA (W6)	Seed	189	24%	438	50%	879	90%	216	43%	303	48%	391	51%
Fagopyrum	Geneva, NY (NE9)	Seed	131	51%	197	65%	370	100%	249	98%	268	100%	281	100%
Ficus	Miami, FL (MIA)	Clonal								4	92%	9	100%	
Fig	Davis, CA (DAV)	Clonal								14	100%	27	100%	
Flax	Ames, IA (NC7)	Seed	2,845	95%	535	18%	2,524	84%	2,171	74%	1,806	58%	1,418	43%
Gourds	Griffin, GA (S9)	Seed	279	58%	375	75%	500	95%	112	16%	128	18%	138	18%
Grape	Davis, CA (DAV)	Clonal								150	100%	300	100%	
	Geneva, NY (GEN)	Clonal	4	0%	160	19%	360	43%		12	100%	24	100%	
Grape CWR	Geneva, NY (GEN)	Clonal	0	0%	160	22%	382	44%		12	100%	24	100%	
Grasses	Pullman, WA (W6)	Seed	4,492	20%	11,671	50%	21,478	90%	10,620	57%	11,790	57%	12,910	57%
Grasses Millets	Ames, IA (NC7)	Seed	1,136	45%	183	7%	1,304	50%	1,148	50%	1,678	67%	2,215	81%
Grasses Warm Season	Griffin, GA (S9)	Seed	6,250	86%	6,500	89%	6,800	91%	2,222	26%	4,484	47%	6,758	64%
Guar	Griffin, GA (S9)	Seed	412	100%	417	100%	422	100%	231	56%	289	66%	348	76%
Guava	Hilo, HI (HILO)	Clonal								12	100%	34	100%	

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Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested
Hazelnut	Corvallis, OR (COR)	Clonal	721	100%	775	100%	825	100%	45	100%	75	100%	115	100%
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	105	100%	155	100%	205	100%			30	100%	42	100%
Hibiscus	Griffin, GA (S9)	Seed	317	93%	317	93%	317	93%	122	28%	253	55%	399	83%
Hops	Corvallis, OR (COR)	Clonal	304	100%	329	100%	354	100%	106	99%	137	100%	164	100%
Hops CWR	Corvallis, OR (COR)	Clonal	10	3%	110	26%	360	68%	1	3%	39	59%	78	80%
Hylocereus	Hilo, HI (HILO)	Clonal								1	100%	1	100%	
Kiwifruit	Davis, CA (DAV)	Clonal								13	100%	25	98%	
Lathyrus	Pullman, WA (W6)	Seed	33	4%	440	50%	801	90%	189	46%	180	42%	167	37%
Legumes	Ames, IA (NC7)	Seed	233	18%	192	14%	267	19%	698	61%	1,043	80%	1,452	100%
	Griffin, GA (S9)	Seed	2,509	81%	2,520	81%	2,532	81%	713	24%	1,312	41%	1,906	57%
Legumes Minor Forage	Pullman, WA (W6)	Seed	292	17%	902	50%	1,645	90%	1,056	61%	1,208	58%	1,358	55%
Lentil	Pullman, WA (W6)	Seed	53	2%	1,602	49%	2,906	87%	851	31%	914	31%	956	30%
Lesquerella	Parlier, CA (PARL)	Seed	160	65%	200	81%	235	95%	118	56%	101	46%	81	35%
Lettuce	Pullman, WA (W6)	Seed	1,987	74%	2,435	90%	2,444	90%	839	52%	1,358	75%	2,011	100%
Limnanthes	Parlier, CA (PARL)	Seed	39	50%	60	77%	90	70%	59	82%	50	65%	41	50%
Litchi	Hilo, HI (HILO)	Clonal								3	100%	6	100%	
Luffa	Griffin, GA (S9)	Seed	138	84%	170	94%	190	95%	0	0%	0	0%	0	0%
Lupin	Pullman, WA (W6)	Seed	264	17%	800	50%	1,462	90%	520	65%	463	53%	400	43%
Macadamia	Hilo, HI (HILO)	Clonal								6	100%	12	100%	
Maize	Ames, IA (NC7)	Seed	7,218	38%	19,494	79%	25,542	93%	6,746	43%	7,586	46%	8,350	48%
Maize CWR	Ames, IA (NC7)	Seed	46	9%	169	32%	531	100%	21	48%	28	60%	34	69%
Medicago	Pullman, WA (W6)	Seed	496	11%	2,382	50%	4,882	98%	1,575	40%	2,034	49%	2,481	57%
Medicinals	Ames, IA (NC7)	Seed	470	43%	670	55%	870	65%	529	67%	593	64%	656	63%
Millet	Griffin, GA (S9)	Seed	2,402	99%	3,532	99%	4,638	99%	804	34%	1,481	58%	2,165	80%
Mint	Corvallis, OR (COR)	Clonal	438	100%	463	100%	478	100%	95	87%	152	92%	209	95%
Mint CWR	Corvallis, OR (COR)	Clonal	10	22%	55	100%	55	85%	32	70%	66	87%	101	95%
Mulberry	Davis, CA (DAV)	Clonal								36	100%	60	100%	
Mung Bean	Griffin, GA (S9)	Seed	3,931	93%	4,222	99%	4,247	99%	509	13%	836	21%	1,133	27%
Musa	Mayaguez, PR (MAY)	Clonal							70	100%	120	100%	170	100%
Native Plants	Pullman, WA (W6)	Seed	3,952	47%	6,106	50%	12,839	95%	5,763	67%	8,829	90%	10,322	100%

Fig. S5.2b The top row of the figure, shaded light beige, reports for the total NPGS collection the current number of accessions tested for germination, viability, and/or longevity recently (as defined by the PGR managers), and the goals for +5 years and for +10 years. The current percentage of accessions recently tested for the total collection, and goals for +5 years and for +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The data for testing at the NPGS genebank units other than the NLGRP are listed at the left portion of the figure, and at the NLGRP are listed at the right portion of the figure. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the percentage of accessions tested recently for the individual NPGS PGR collections, the darker the aqua hue, with 0% testing rate the darkest. Blank fields indicate that data could not be estimated. BRW, DAV, GSZE, MAY, MIA, and RIV do not test viability. NLGRP data for GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S5.2b Amounts and Percentages of NPGS Accessions Tested for Germination, Viability, and Longevity Recently

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested
Oat	Aberdeen, ID (NSGC)	Seed	9,128	43%	9,100	43%	9,100	43%	7,703	36%	7,214	33%	6,539	28%
Ocimum	Ames, IA (NC7)	Seed	99	93%	8	7%	122	100%	92	62%	132	75%	172	84%
Okra	Griffin, GA (S9)	Seed	1,963	67%	1,981	67%	2,001	67%	54	7%	110	14%	161	20%
Olive	Davis, CA (DAV)	Clonal								10	100%	20	100%	
Opuntia	Parlier, CA (PARL)	Clonal						12	92%	10	72%	7	48%	
Ornamentals	Ames, IA (NC7)	Seed	342	44%	442	54%	592	68%	434	73%	496	75%	559	77%
Other Crops	Corvallis, OR (COR)	Clonal						3	50%	5	59%	8	73%	
	Geneva, NY (NE9)	Seed	2	1%	7	3%		0	0%	0	0%	0	0%	
	Griffin, GA (S9)	Seed	142	87%	146	87%	150	87%	17	33%	34	61%	54	89%
	Hilo, HI (HILO)	Clonal								4	100%	7	95%	
	Mayaguez, PR (MAY)	Clonal								1	95%	1	91%	
	Miami, FL (MIA)	Clonal						2	100%	5	97%	7	85%	
	Parlier, CA (PARL)	Seed						136	78%	129	68%	121	59%	
	Pullman, WA (W6)	Seed	2,409	54%	4,464	90%	4,918	90%	603	66%	750	63%	900	62%
Papaya	Hilo, HI (HILO)	Clonal	12	7%	43	23%	68	36%			72	100%	100	100%
Parthenium	Parlier, CA (PARL)	Seed	89	65%	140	59%	200	50%	30	68%	30	64%	31	62%
Pastinaca	Ames, IA (NC7)	Seed	59	81%	17	21%	78	94%	88	56%	147	80%	212	100%
Pea	Pullman, WA (W6)	Seed	263	4%	3,146	50%	5,753	90%	2,194	52%	3,340	73%	4,727	95%
Pea Genetic Stocks	Pullman, WA (W6)	Seed	0	0%	359	50%	650	90%	0	0%	116	19%	229	38%
Peanut	Griffin, GA (S9)	Seed	8,835	96%	9,194	100%	9,219	100%	4,370	50%	6,854	72%	9,834	96%
Peanut CWR	Griffin, GA (S9)	Seed	348	62%	405	69%	585	96%	80	19%	149	30%	217	38%
Pears	Corvallis, OR (COR)	Clonal	1,914	97%	1,964	98%	2,014	98%	282	100%	509	100%	736	100%
Pears CWR	Corvallis, OR (COR)	Clonal	20	5%	270	58%	514	100%	0	0%	7	36%	15	62%
Pecan	College Station, TX (BRW)	Clonal						0	0%	59	100%	118	100%	
Pepper	Griffin, GA (S9)	Seed	4,929	100%	4,950	99%	5,000	99%	1,859	38%	3,243	62%	4,799	87%
Persimmon	Davis, CA (DAV)	Clonal								8	100%	15	100%	
Phaseolus	Pullman, WA (W6)	Seed	1,814	10%	8,870	50%	16,092	90%	5,117	40%	4,837	36%	4,450	31%
Physalis	Geneva, NY (NE9)	Seed	11	7%	21	11%	131	60%	140	70%	137	64%	133	59%
Pineapple	Hilo, HI (HILO)	Clonal								5	100%	10	100%	
Pistachio	Davis, CA (DAV)	Clonal								8	100%	15	100%	

Fig. S5.2b The top row of the figure, shaded light beige, reports for the total NPGS collection the current number of accessions tested for germination, viability, and/or longevity recently (as defined by the PGR managers), and the goals for +5 years and for +10 years. The current percentage of accessions recently tested for the total collection, and goals for +5 years and for +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The data for testing at the NPGS genebank units other than the NLGRP are listed at the left portion of the figure, and at the NLGRP are listed at the right portion of the figure. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the percentage of accessions tested recently for the individual NPGS PGR collections, the darker the aqua hue, with 0% testing rate the darkest. Blank fields indicate that data could not be estimated. BRW, DAV, GSZE, MAY, MIA, and RIV do not test viability. NLGRP data for GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S5.2b Amounts and Percentages of NPGS Accessions Tested for Germination, Viability, and Longevity Recently

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested
Pomegranate	Davis, CA (DAV)	Clonal									15	100%	30	100%
Potato	Sturgeon Bay, WI (NR6)	Seed	4,992	86%	5,142	86%	5,292	86%	2,556	50%	3,067	53%	3,538	58%
Prunus	Davis, CA (DAV)	Clonal							2	5%	69	100%	136	100%
Pseudocereals	Ames, IA (NC7)	Seed	2,201	57%	862	22%	2,975	60%	912	25%	1,265	31%	1,585	37%
Quince	Corvallis, OR (COR)	Clonal	190	93%	200	93%	215	96%	0	0%	23	91%	47	99%
Rambutan	Hilo, HI (HILO)	Clonal									3	100%	6	100%
Raphanus	Geneva, NY (NE9)	Seed	100	14%	150	19%	334	39%	679	97%	818	100%	857	100%
Rhubarb	Pullman, WA (W6)	Clonal	0	0%	15	14%	30	28%	2	67%	3	90%	4	100%
Ribes	Corvallis, OR (COR)	Clonal	600	87%	700	94%	750	95%	213	98%	546	99%	880	100%
Ribes CWR	Corvallis, OR (COR)	Clonal	50	8%	100	15%	200	28%	46	43%	77	53%	109	60%
Rice	Aberdeen, ID (NSGC)	Seed	17,167	90%	17,000	89%	17,000	88%	10,268	55%	10,664	54%	10,975	52%
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	531	100%	558	100%	583	100%						
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	16	50%	57	100%	67	100%						
Rice Sativa	Stuttgart, AR (GSOR)	Seed	4,205	11%	3,705	10%	3,205	8%						
Rubus	Corvallis, OR (COR)	Clonal	865	100%	915	100%	965	100%	260	85%	294	89%	330	92%
Rubus CWR	Corvallis, OR (COR)	Clonal	50	4%	300	21%	800	55%	13	6%	80	31%	148	51%
Rye	Aberdeen, ID (NSGC)	Seed	1,653	79%	1,650	78%	1,650	78%	228	11%	351	16%	455	20%
Saccharum	Miami, FL (MIA)	Clonal							25	13%	59	29%	92	45%
Safflower	Pullman, WA (W6)	Seed	1,425	58%	2,108	85%	2,254	90%	1,783	75%	1,829	71%	1,863	69%
Sesame	Griffin, GA (S9)	Seed	1,205	99%	1,205	99%	1,205	99%	788	65%	744	58%	692	52%
Simmondsia	Parlier, CA (PARL)	Clonal	0	0%	50	15%	100	31%	2	3%	28	32%	55	54%
Solanum	Geneva, NY (NE9)	Seed	492	7%	983	15%	1,750	26%	4,294	68%	3,682	54%	3,022	41%
Sorghum	Griffin, GA (S9)	Seed	40,993	91%	47,416	91%	53,759	91%	21,243	48%	25,144	53%	28,912	57%
Soybean	Urbana, IL (SOY)	Seed	2,000	9%	12,000	52%	12,000	49%	12,142	61%	13,209	62%	14,165	63%
Soybean CWR	Urbana, IL (SOY)	Seed	35	3%	500	37%	500	33%	1,117	49%	1,582	63%	2,032	77%
Spinach	Ames, IA (NC7)	Seed	304	74%	223	54%	291	70%	146	36%	163	38%	178	39%
Strawberry	Corvallis, OR (COR)	Clonal	738	100%	788	100%	838	100%	297	71%	415	79%	535	84%
Strawberry CWR	Corvallis, OR (COR)	Clonal	288	23%	538	40%	838	57%	3	6%	46	50%	91	69%
Sugarbeet/Beet	Pullman, WA (W6)	Seed	1,045	38%	1,383	50%	2,500	90%	1,094	52%	1,515	67%	1,940	79%
Sunflower	Ames, IA (NC7)	Seed	1,596	31%	1,750	33%	3,095	56%	2,101	48%	2,534	49%	2,949	51%

Fig. S5.2b The top row of the figure, shaded light beige, reports for the total NPGS collection the current number of accessions tested for germination, viability, and/or longevity recently (as defined by the PGR managers), and the goals for +5 years and for +10 years. The current percentage of accessions recently tested for the total collection, and goals for +5 years and for +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The data for testing at the NPGS genebank units other than the NLGRP are listed at the left portion of the figure, and at the NLGRP are listed at the right portion of the figure. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the percentage of accessions tested recently for the individual NPGS PGR collections, the darker the aqua hue, with 0% testing rate the darkest. Blank fields indicate that data could not be estimated. BRW, DAV, GSZE, MAY, MIA, and RIV do not test viability. NLGRP data for GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S5.2b Amounts and Percentages of NPGS Accessions Tested for Germination, Viability, and Longevity Recently

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested	Accession (#)	% Recently Tested
Sweet Potato	Griffin, GA (S9)	Seed							254	93%	270	94%	286	96%
Sweet Potato CWR	Griffin, GA (S9)	Seed	239	52%	454	99%	454	99%	69	17%	121	28%	170	36%
Tart Cherry	Geneva, NY (GEN)	Clonal	9	7%	29	20%	60	38%	32	100%	88	100%	96	100%
Trefoil	Pullman, WA (W6)	Seed	156	16%	523	50%	1,072	98%	565	68%	531	58%	493	48%
Trichosanthes	Geneva, NY (NE9)	Seed	0	0%	0	0%	50	54%	0	0%	1	20%	2	38%
Trigonella	Pullman, WA (W6)	Seed	0	0%	155	50%	283	90%	140	61%	132	54%	122	47%
Triticale	Aberdeen, ID (NSGC)	Seed	1,604	79%	1,600	79%	1,600	78%	560	28%	651	31%	726	32%
Umbels	Ames, IA (NC7)	Seed	650	54%	322	26%	631	50%	392	65%	537	81%	718	100%
Vaccinium	Corvallis, OR (COR)	Clonal	1,850	100%	1,950	100%	2,050	100%	97	86%	132	92%	167	96%
Vaccinium CWR	Corvallis, OR (COR)	Clonal	50	5%	300	29%	800	70%	9	4%	62	26%	115	44%
Vetch	Pullman, WA (W6)	Seed	122	7%	1,004	53%	1,720	90%	412	49%	351	40%	283	31%
Vigna	Griffin, GA (S9)	Seed	318	65%	493	99%	498	99%	121	18%	139	20%	150	21%
Walnut	Davis, CA (DAV)	Clonal									30	100%	60	100%
Watermelon	Griffin, GA (S9)	Seed	1,812	95%	1,905	99%	1,930	99%	556	30%	610	32%	651	32%
Wheat	Aberdeen, ID (NSGC)	Seed	43,247	76%	43,000	75%	43,000	75%	26,141	46%	25,551	42%	24,533	39%
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	68	17%	75	18%	75	18%	68	2%	742	20%	1,398	37%
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	791	83%	790	82%	790	82%	346	36%	474	46%	597	56%
Winged Bean	Griffin, GA (S9)	Seed	53	34%	75	47%	100	63%	19	23%	28	33%	37	42%
Woody Landscape	Ames, IA (NC7)	Seed	203	10%	300	13%	500	19%	568	63%	782	65%	1,000	66%
	Washington, D.C. (USNA)	Clonal	3,176	38%	4,500	48%	6,000	58%	427	63%	439	57%	449	51%

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S5.2c Reducing Backlogs for Germination, Viability, and Longevity Testing of NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection
	NPGS-wide		193,654	38%	133,918	25%	106,812	19%	223,022	54%	220,025	50%	216,748	46%
Aegilops	Aberdeen, ID (NSGC)	Seed	2,232	100%	2,242	100%	2,252	100%	2,216	100%	1,824	80%	1,442	62%
Alfalfa	Pullman, WA (W6)	Seed	3,703	92%	2,106	50%	442	10%	2,315	62%	1,477	37%	622	14%
Allium	Geneva, NY (NE9)	Seed	812	68%	446	36%	762	57%	270	42%	147	19%	0	0%
Allium CWR	Pullman, WA (W6)	Clonal	664	73%	457	50%	92	10%	136	43%	100	27%	62	14%
Allium Garlic	Pullman, WA (W6)	Clonal							1	1%	1	1%	1	1%
Apium	Geneva, NY (NE9)	Seed	223	90%	199	65%	55	15%	6	6%	0	0%	0	0%
Apple	Geneva, NY (GEN)	Clonal	720	52%	706	50%	213	15%	0	0%	0	0%	0	0%
Apple CWR	Geneva, NY (GEN)	Clonal	1,314	28%	1,875	39%	2,500	50%	620	98%	509	67%	396	45%
Asparagus	Geneva, NY (NE9)	Seed	130	82%	102	40%	0	0%	11	79%	7	47%	3	19%
Asters	Ames, IA (NC7)	Seed	89	20%	81	18%	62	14%	153	43%	114	29%	73	17%
Bambara Groundnut	Griffin, GA (S9)	Seed	33	34%	8	8%	5	5%	100	100%	82	80%	65	63%
Barley	Aberdeen, ID (NSGC)	Seed	3,734	13%	3,700	13%	3,700	13%	17,745	63%	18,145	61%	18,708	59%
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	2,081	60%	2,100	61%	2,100	60%	5,634	88%	4,848	73%	4,091	59%
Benincasa	Geneva, NY (NE9)	Seed	28	90%	25	45%	59	56%	1	8%	2	8%	0	0%
Brassica	Ames, IA (NC7)	Seed	4	0%	260	13%	1,989	98%	1,219	61%	778	36%	230	10%
	Geneva, NY (NE9)	Seed	1,694	78%	1,221	54%	457	19%	346	36%	157	13%	6	0%
Brassicaceae	Ames, IA (NC7)	Seed	645	49%	580	42%	226	16%	611	52%	652	51%	698	50%
Castorbean	Griffin, GA (S9)	Seed	21	6%	21	6%	21	6%	69	21%	35	9%	0	0%
Chickpea	Pullman, WA (W6)	Seed	5,466	78%	1,992	28%	725	10%	1,257	20%	482	7%	0	0%
Cichorium	Ames, IA (NC7)	Seed	1	0%	181	62%	144	49%	147	57%	104	34%	30	9%
Clover	Griffin, GA (S9)	Seed	435	17%	496	17%	554	17%	1,668	71%	1,552	64%	1,448	57%
	Pullman, WA (W6)	Seed	3,501	94%	1,954	50%	410	10%	1,847	66%	1,753	60%	1,672	55%
Cotton	College Station, TX (COT)	Seed	1,957	20%	957	10%	457	4%	4,028	70%	3,542	58%	3,076	48%
Cowpea	Griffin, GA (S9)	Seed	988	12%	568	7%	148	2%	4,701	58%	5,433	64%	6,239	71%
Cucumis CWR	Ames, IA (NC7)	Seed	2	1%	145	45%	142	44%	112	53%	131	55%	151	57%
Cucumis melo	Ames, IA (NC7)	Seed	766	24%	1,082	32%	520	15%	1,954	76%	1,684	62%	1,423	51%
Cucumis sativus	Ames, IA (NC7)	Seed	4	0%	517	34%	1,204	75%	817	61%	761	50%	705	41%
Cucurbita	Ames, IA (NC7)	Seed	9	1%	149	15%	788	74%	408	49%	479	53%	555	57%
	Geneva, NY (NE9)	Seed	601	72%	364	42%	361	40%	76	13%	167	19%	63	6%
	Griffin, GA (S9)	Seed	707	49%	350	24%	0	0%	1,051	89%	1,020	85%	1,000	81%

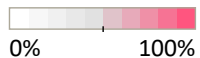
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S5.2c Reducing Backlogs for Germination, Viability, and Longevity Testing of NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection
Cucurbita	Parlier, CA (PARL)	Seed	26	70%	19	51%	1	3%	8	80%	5	47%	2	18%
Cuphea	Ames, IA (NC7)	Seed	426	67%	26	4%	85	13%	471	80%	305	48%	110	16%
Cynara	Geneva, NY (NE9)	Seed	27	100%	27	52%	2	2%	3	100%	2	65%	2	64%
Daucus	Ames, IA (NC7)	Seed	0	0%	331	21%	1,591	96%	235	17%	77	5%	0	0%
Differentials	Griffin, GA (S9)	Seed	0	0%	0	0%	0	0%	4	100%	3	74%	3	72%
Eggplant	Griffin, GA (S9)	Seed	31	3%	50	5%	50	5%	513	57%	440	46%	369	37%
Elderberry	Corvallis, OR (COR)	Seed							5	18%	10	16%	13	14%
Euphorbia	Ames, IA (NC7)	Seed	31	15%	54	26%	33	16%	49	49%	20	14%	0	0%
Faba Bean	Pullman, WA (W6)	Seed	587	76%	249	28%	98	10%	289	57%	331	52%	374	49%
Fagopyrum	Geneva, NY (NE9)	Seed	124	49%	109	36%	0	0%	5	2%	0	0%	0	0%
Flax	Ames, IA (NC7)	Seed	42	1%	535	18%	2,524	84%	756	26%	1,328	42%	1,916	57%
Gourds	Griffin, GA (S9)	Seed	204	42%	125	25%	25	5%	590	84%	596	82%	609	82%
Grape	Geneva, NY (GEN)	Clonal	11	1%	240	29%	440	52%			0	0%	0	0%
Grape CWR	Geneva, NY (GEN)	Clonal	13	2%	240	33%	468	54%			0	0%	0	0%
Grasses	Pullman, WA (W6)	Seed	18,350	80%	7,179	31%	2,384	10%	8,030	43%	8,912	43%	9,844	43%
Grasses Millets	Ames, IA (NC7)	Seed	1,094	44%	183	7%	1,304	50%	1,150	50%	840	33%	523	19%
Grasses Warm Season	Griffin, GA (S9)	Seed	993	14%	743	10%	443	6%	6,341	74%	5,046	53%	3,740	36%
Guar	Griffin, GA (S9)	Seed	1	0%	1	0%	1	0%	182	44%	148	34%	113	25%
Hibiscus	Griffin, GA (S9)	Seed	24	7%	24	7%	24	7%	312	72%	204	45%	81	17%
Hops	Corvallis, OR (COR)	Clonal	101	33%	109	33%	115	32%	1	1%	0	0%	0	0%
Hops CWR	Corvallis, OR (COR)	Clonal	319	97%	319	74%	169	32%	34	97%	27	41%	19	20%
Lathyrus	Pullman, WA (W6)	Seed	837	96%	424	48%	89	10%	221	54%	253	58%	289	63%
Legumes	Ames, IA (NC7)	Seed	825	63%	192	14%	267	19%	454	39%	260	20%	0	0%
	Griffin, GA (S9)	Seed	588	19%	431	14%	50	2%	2,319	76%	1,886	59%	1,458	43%
Legumes Minor Forage	Pullman, WA (W6)	Seed	1,461	83%	902	50%	183	10%	683	39%	891	42%	1,101	45%
Lentil	Pullman, WA (W6)	Seed	3,126	98%	1,549	47%	323	10%	1,923	69%	2,051	69%	2,200	70%
Lesquerella	Parlier, CA (PARL)	Seed	80	32%	40	16%	5	2%	92	44%	120	54%	149	65%
Lettuce	Pullman, WA (W6)	Seed	709	26%	271	10%	272	10%	762	48%	450	25%	5	0%
Limnanthes	Parlier, CA (PARL)	Seed	35	45%	14	18%	34	27%	13	18%	26	34%	40	49%
Luffa	Griffin, GA (S9)	Seed	27	16%	10	6%	10	5%	1	100%	1	98%	1	96%
Lupin	Pullman, WA (W6)	Seed	1,310	83%	535	33%	162	10%	284	35%	409	47%	539	57%

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Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
			Now		+ 5 Yrs.		+ 10 Yrs.		Now		+ 5 Yrs.		+ 10 Yrs.	
			Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection	Accession Backlog (#)	% of Collection
Maize	Ames, IA (NC7)	Seed	8,527	44%	6,437	26%	4,997	18%	8,801	57%	8,935	54%	9,145	52%
Maize CWR	Ames, IA (NC7)	Seed	130	26%	101	19%	106	20%	23	52%	19	41%	15	31%
Medicago	Pullman, WA (W6)	Seed	4,041	89%	2,382	50%	500	10%	2,396	60%	2,128	51%	1,872	43%
Medicinals	Ames, IA (NC7)	Seed	304	28%	251	21%	264	20%	261	33%	327	36%	394	38%
Millets	Griffin, GA (S9)	Seed	23	1%	226	6%	226	5%	1,595	66%	1,063	42%	525	20%
Mint	Corvallis, OR (COR)	Clonal	146	33%	153	33%	156	33%	14	13%	13	8%	11	5%
Mint CWR	Corvallis, OR (COR)	Clonal	35	78%	0	0%	10	15%	14	30%	11	14%	6	6%
Mung Bean	Griffin, GA (S9)	Seed	291	7%	25	1%	25	1%	3,419	87%	3,197	79%	3,005	73%
Native Plants	Pullman, WA (W6)	Seed	4,509	53%	6,106	50%	1,346	10%	2,840	33%	1,024	10%	0	0%
Oat	Aberdeen, ID (NSGC)	Seed	11,993	57%	11,900	56%	11,900	56%	13,414	64%	14,860	67%	16,491	72%
Ocimum	Ames, IA (NC7)	Seed	0	0%	8	7%	122	100%	56	38%	45	25%	33	16%
Okra	Griffin, GA (S9)	Seed	964	33%	125	4%	150	5%	694	93%	658	86%	628	80%
Opuntia	Parlier, CA (PARL)	Clonal							1	8%	4	29%	8	55%
Ornamentals	Ames, IA (NC7)	Seed	307	39%	128	16%	132	15%	157	27%	162	25%	166	23%
Other Crops	Corvallis, OR (COR)	Clonal							3	50%	3	35%	3	27%
	Geneva, NY (NE9)	Seed	277	99%	273	98%			1	100%	1	98%	1	96%
	Griffin, GA (S9)	Seed	21	13%	22	13%	23	13%	34	67%	22	39%	6	10%
	Miami, FL (MIA)	Clonal							0	0%	0	0%	1	12%
	Parlier, CA (PARL)	Seed							39	22%	60	32%	83	41%
	Pullman, WA (W6)	Seed	2,055	46%	1,028	21%	546	10%	317	34%	437	37%	555	38%
Papaya	Hilo, HI (HILO)	Clonal	166	93%	183	100%	185	98%			0	0%	0	0%
Parthenium	Parlier, CA (PARL)	Seed	8	6%	57	24%	160	40%	14	32%	16	34%	19	38%
Pastinaca	Ames, IA (NC7)	Seed	2	3%	17	21%	78	94%	69	44%	38	21%	0	0%
Pea	Pullman, WA (W6)	Seed	5,930	96%	2,884	46%	600	9%	2,018	48%	1,248	27%	237	5%
Pea Genetic Stocks	Pullman, WA (W6)	Seed	712	100%	359	50%	72	10%	586	100%	482	81%	381	63%
Peanut	Griffin, GA (S9)	Seed	359	4%	25	0%	25	0%	4,320	50%	2,665	28%	456	4%
Peanut CWR	Griffin, GA (S9)	Seed	211	38%	25	4%	25	4%	344	81%	352	70%	360	62%
Pears	Corvallis, OR (COR)	Clonal	50	3%	50	2%	50	2%	1	0%	0	0%	0	0%
Pears CWR	Corvallis, OR (COR)	Clonal	394	95%	194	42%	0	0%	15	100%	12	61%	9	37%
Pepper	Griffin, GA (S9)	Seed	23	0%	25	1%	25	0%	3,077	62%	1,992	38%	704	13%
Phaseolus	Pullman, WA (W6)	Seed	15,786	90%	8,870	50%	1,788	10%	7,800	60%	8,776	64%	9,860	69%

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Physalis	Geneva, NY (NE9)	Seed	157	93%	147	76%	37	17%	60	30%	76	36%	93	41%
Potato	Sturgeon Bay, WI (NR6)	Seed	5,034	86%	5,184	87%	5,334	87%	2,513	50%	2,681	47%	2,612	42%
Pseudocereals	Ames, IA (NC7)	Seed	1,387	36%	862	22%	2,975	60%	2,730	75%	2,771	69%	2,642	63%
Quince	Corvallis, OR (COR)	Clonal	14	7%	14	7%	9	4%	3	100%	2	8%	0	0%
Raphanus	Geneva, NY (NE9)	Seed	617	86%	517	65%	258	30%	19	3%	0	0%	0	0%
Rhubarb	Pullman, WA (W6)	Clonal	0	0%	27	25%	16	15%	1	33%	1	30%	0	0%
Ribes	Corvallis, OR (COR)	Clonal	92	13%	42	6%	42	5%	5	2%	5	1%	3	0%
Ribes CWR	Corvallis, OR (COR)	Clonal	556	92%	556	85%	506	72%	60	57%	67	46%	73	40%
Rice	Aberdeen, ID (NSGC)	Seed	1,602	8%	1,500	8%	1,500	8%	8,258	45%	9,063	46%	9,954	48%
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	3	1%	0	0%	0	0%						
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	16	50%	0	0%	0	0%						
Rice Sativa	Stuttgart, AR (GSOR)	Seed	500	1%	500	1%	500	1%						
Rubus	Corvallis, OR (COR)	Clonal	10	1%	10	1%	10	1%	46	15%	37	11%	28	8%
Rubus CWR	Corvallis, OR (COR)	Clonal	1,306	96%	1,106	79%	656	45%	215	94%	180	69%	144	49%
Rye	Aberdeen, ID (NSGC)	Seed	439	21%	450	21%	450	21%	1,864	89%	1,830	84%	1,814	80%
Saccharum	Miami, FL (MIA)	Clonal							172	87%	141	70%	112	55%
Safflower	Pullman, WA (W6)	Seed	1,029	42%	638	26%	250	10%	592	25%	751	29%	839	31%
Sesame	Griffin, GA (S9)	Seed	8	1%	8	1%	8	1%	424	35%	532	42%	648	48%
Simmondsia	Parlier, CA (PARL)	Clonal	186	57%	136	42%	86	26%	72	97%	59	67%	47	46%
Solanum	Geneva, NY (NE9)	Seed	6,112	93%	5,621	84%	4,854	72%	2,038	32%	3,143	46%	4,297	59%
Sorghum	Griffin, GA (S9)	Seed	4,143	9%	4,869	9%	5,316	9%	23,446	52%	22,647	47%	21,983	43%
Soybean	Urbana, IL (SOY)	Seed	19,284	91%	3,000	13%	3,500	14%	7,846	39%	8,122	38%	8,181	37%
Soybean CWR	Urbana, IL (SOY)	Seed	1,213	100%	175	13%	176	12%	1,167	51%	931	37%	601	23%
Spinach	Ames, IA (NC7)	Seed	0	0%	223	54%	291	70%	264	64%	269	62%	276	61%
Strawberry	Corvallis, OR (COR)	Clonal	0	0%	0	0%	0	0%	124	29%	113	21%	99	16%
Strawberry CWR	Corvallis, OR (COR)	Clonal	986	77%	811	60%	636	43%	49	94%	45	49%	41	31%
Sugarbeet/Beet	Pullman, WA (W6)	Seed	1,709	62%	1,383	50%	278	10%	999	48%	754	33%	505	21%
Sunflower	Ames, IA (NC7)	Seed	1,353	26%	1,750	33%	3,095	56%	2,304	52%	2,646	51%	2,865	49%
Sweet Potato	Griffin, GA (S9)	Seed							20	7%	17	6%	13	4%
Sweet Potato CWR	Griffin, GA (S9)	Seed	220	48%	5	1%	5	1%	336	83%	315	72%	296	63%
Tart Cherry	Geneva, NY (GEN)	Clonal	26	20%	55	38%	74	47%	0	0%	0	0%	0	0%

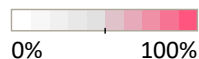
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Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units						Ft. Collins (NLGRP)					
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Trefoil	Pullman, WA (W6)	Seed	840	84%	523	50%	110	10%	260	32%	391	42%	526	52%
Trichosanthes	Geneva, NY (NE9)	Seed	18	100%	18	42%	0	0%	5	100%	4	78%	3	58%
Trigonella	Pullman, WA (W6)	Seed	299	100%	155	50%	31	10%	91	39%	115	47%	140	53%
Triticale	Aberdeen, ID (NSGC)	Seed	429	21%	430	21%	430	21%	1,463	72%	1,482	69%	1,516	68%
Umbels	Ames, IA (NC7)	Seed	108	9%	322	26%	291	23%	208	35%	122	19%	0	0%
Vaccinium	Corvallis, OR (COR)	Clonal	185	10%	195	10%	205	10%	16	14%	12	8%	7	4%
Vaccinium CWR	Corvallis, OR (COR)	Clonal	900	95%	750	71%	350	30%	215	96%	179	74%	144	56%
Vetch	Pullman, WA (W6)	Seed	1,740	93%	883	47%	192	10%	430	51%	530	60%	639	69%
Vigna	Griffin, GA (S9)	Seed	175	35%	5	1%	5	1%	535	82%	544	80%	559	79%
Watermelon	Griffin, GA (S9)	Seed	100	5%	20	1%	25	1%	1,298	70%	1,324	68%	1,364	68%
Wheat	Aberdeen, ID (NSGC)	Seed	13,468	24%	13,400	23%	13,400	23%	30,496	54%	34,650	58%	38,653	61%
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	330	81%	320	77%	320	75%	3,537	98%	2,928	80%	2,337	63%
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	158	16%	160	17%	160	17%	620	64%	552	54%	478	44%
Winged Bean	Griffin, GA (S9)	Seed	103	65%	83	53%	58	37%	63	77%	57	67%	52	59%
Woody Landscape	Ames, IA (NC7)	Seed	377	18%	496	21%	522	20%	340	37%	426	35%	506	34%
	Washington, D.C. (USNA)	Clonal	5,192	62%	4,900	52%	4,800	46%	246	37%	334	43%	425	49%

Fig. S5.2c The top row of the figure, shaded light beige, reports for the total NPGS collection the current backlogs of number of accessions that require germination, viability, and/or longevity testing, and the goals for reducing the backlogs at +5 years and +10 years. The current percentage of accessions for the total collection that require testing, and goals for reducing the backlogs in testing at +5 years and at +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The backlogs for testing at the NPGS genebank units other than the NLGRP are listed at the left portion of the figure, and at the NLGRP are listed at the right portion of the figure. The NPGS genebank units that manage the PGR collections are identified, as are whether the PGR are primarily managed as clones or as seeds. The higher the percentage of accessions for the individual NPGS PGR collections that require testing, the darker the pink hue, with 100% of the PGR collection requiring testing the darkest. Blank fields indicate that data could not be estimated. BRW, DAV, GSZE, MAY, MIA, and RIV do not test viability. NLGRP data for GSOR and GSZE are excluded because of how these genetic stocks are managed. See Fig. S3.1 for total number of accessions for each PGR collection.



S5.3 Time Needed to Reduce the Backlog of Germination, Viability, and Longevity Testing for NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units									Ft. Collins (NLGRP)								
			Now			+ 5 Yrs.			+ 10 Yrs.			Now			+ 5 Yrs.			+ 10 Yrs.		
			MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)
NPGS-wide			0	15	1,567	0	6	1,792	0	5	2,017	0	237	3,268	0	19	91	0	20	102
Aegilops	Aberdeen, ID (NSGC)	Seed	10	10	10	10	10	10	10	10	10				22	22	22	17	18	17
Alfalfa	Pullman, WA (W6)	Seed	130	130	130	6	6	6	1	1	1	30	30	30	5	5	5	2	2	2
Allium	Geneva, NY (NE9)	Seed	10	11	12	5	5	7	1	2	3	8	8	8	3	3	3	0	0	0
Allium CWR	Pullman, WA (W6)	Clonal	2	14	20	5	5	5	1	1	1	21	25	21	4	5	4	2	3	2
Allium Garlic	Pullman, WA (W6)	Clonal													21	22	21	17	17	17
Annona	Mayaguez, PR (MAY)	Clonal													0	0	0	0	0	0
Apium	Geneva, NY (NE9)	Seed	45	46	47	6	7	8	1	2	3	1	1	1	0	0	0	0	0	0
Apple	Geneva, NY (GEN)	Clonal	5	8	10	2	4	5	2	4	5				0	0	0	0	0	0
Apple CWR	Geneva, NY (GEN)	Clonal	5	8	10	2	4	5	2	4	5	654		654	75	21	75	77	16	77
Asparagus	Geneva, NY (NE9)	Seed	22	23	24	3	4	5	1	2	3	20	20	20	7	7	7	3	3	3
Asters	Ames, IA (NC7)	Seed	3	1	3	23	4	23	248	55	248	24	25	24	5	5	5	3	3	3
Bambara Groundnut	Griffin, GA (S9)	Seed	6	3	6	1	1	1	1	1	1				22	22	22	17	18	17
Barley	Aberdeen, ID (NSGC)	Seed	10	10	10	5	5	5	0	0	0	135	135	135	29	29	29	30	31	30
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	5	5	5	2	2	2	1	1	1				22	22	22	19	19	19
Benincasa	Geneva, NY (NE9)	Seed	4	5	6	3	2	5	0	6	0	2	9	2	0	4	0	0	0	0
Brassica	Ames, IA (NC7)	Seed	1,170	58	1,170	1,637	81	1,637	1,787	88	1,787	25	25	25	5	5	5	1	1	1
	Geneva, NY (NE9)	Seed	17	18	19	6	8	8	1	3	3	1	8	7	0	19	2	0	21	0
Brassicaceae	Ames, IA (NC7)	Seed	656	50	656	691	50	691	706	50	706	92	92	92	22	22	22	23	24	23
Cacao	Mayaguez, PR (MAY)	Clonal													0	0	0	0	0	0
Carambola	Hilo, HI (HILO)	Clonal													0	0	0	0	0	0
Castorbean	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1	4	4	4	1	1	1	0	0	0
Chickpea	Pullman, WA (W6)	Seed	47	47	47	9	9	9	1	1	1	6	6	6	1	1	1	0	0	0
Cichorium	Ames, IA (NC7)	Seed	2	2	2	5	5	5	7	5	7	31	74	31	6	12	6	1	4	1
Citrus	Riverside, CA (RIV)	Clonal													0	0	0	0	0	0
Clover	Griffin, GA (S9)	Seed	2	1	2	2	1	2	2	1	2	99	99	99	22	22	22	21	21	21
	Pullman, WA (W6)	Seed	168	168	168	6	6	6	1	1	1	92	92	92	21	21	21	20	20	20
Coffee	Hilo, HI (HILO)	Clonal													0	0	0	0	0	0
Cotton	College Station, TX (COT)	Seed	10	10	10	10	10	10	5	5	5	70	70	70	16	16	16	14	14	14
Cowpea	Griffin, GA (S9)	Seed	12	6	12	1	1	1	2	1	2	667	667	667	64	67	64	81	86	81
Cucumis CWR	Ames, IA (NC7)	Seed	6	6	6	6	6	6	6	6	6	152	355	152	31	50	31	35	60	35
Cucumis melo	Ames, IA (NC7)	Seed	7	9	11	7	9	11	7	9	11	76	76	76	17	17	17	14	14	14
Cucumis sativus	Ames, IA (NC7)	Seed	1	1	1	5	6	7	7	9	11	61	71	61	14	16	14	12	15	12
Cucurbita	Ames, IA (NC7)	Seed	3	3	3	3	4	6	10	14	16	177	177	177	35	36	35	41	43	41
	Geneva, NY (NE9)	Seed	12	13	14	3	5	5	1	2	3	6	28	6	0	11	0	0	4	0
	Griffin, GA (S9)	Seed	10	10	10	5	5	5	2	2	2	499	499	499	66	68	66	69	72	69
	Parlier, CA (PARL)	Seed	5	7	10	3	4	5	1	1	1	22	22	22	7	7	7	3	3	3
Cuphea	Ames, IA (NC7)	Seed	40	6	40	65	10	65	90	14	90	28	28	28	7	7	7	2	2	2
Cynara	Geneva, NY (NE9)	Seed													22	22	22	17	18	17
Daucus	Ames, IA (NC7)	Seed	3	3	3	3	4	5	16	19	21	3	3	3	1	1	1	0	0	0
Differentials	Griffin, GA (S9)	Seed													22	22	22	17	18	17
Eggplant	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1	46	46	46	11	11	11	9	9	9

Fig. S5.3 The top row of the figure, shaded light beige, reports for the total NPGS collection the current extreme minima, extreme maxima, and the average median number of years needed to reduce the backlog in testing accessions of all PGR for germination, viability, and/or longevity and goals for reducing the backlogs at +5 years and at +10 years. The range and median number of years needed to reduce the backlog for individual NPGS PGR collections, according to the best estimate of the PGR managers, then are provided listed alphabetically by their generic or crop name. The backlogs for the NPGS genebank units other than the NLGRP are listed at the left portion of the figure, and those for the NLGRP are listed at the right portion. The NPGS genebank units that manage the PGR collection are identified, as are whether the PGR are managed primarily as clones or as seeds. The more time needed to reduce the backlogs in testing for the individual NPGS PGR collections, the darker the aqua hue. The darkest hue indicates an estimated 20+ years are needed to reduce the backlog. Many of the longest backlogs result from a current lack of effective methods for testing the PGR, which will be the focus of applied research in this Plan. Blank fields indicate that data could not be estimated. BRW, DAV, GSZE, MAY, MIA, and RIV do not test viability. NLGRP data for GSOR and GSZE are excluded because of how these genetic stocks are managed.



S5.3 Time Needed to Reduce the Backlog of Germination, Viability, and Longevity Testing for NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units									Ft. Collins (NLGRP)								
			Now			+ 5 Yrs.			+ 10 Yrs.			Now			+ 5 Yrs.			+ 10 Yrs.		
			MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)
Elderberry	Corvallis, OR (COR)	Seed										419		419	20	17	20	22	19	22
Euphorbia	Ames, IA (NC7)	Seed				10	5	10	15	5	15	13	15	13	2	2	2	0	0	0
Faba Bean	Pullman, WA (W6)	Seed	5	5	5	9	9	9	6	6	6	130	686	130	27	58	27	29	66	29
Fagopyrum	Geneva, NY (NE9)	Seed	4	5	6	1	2	3	1	2	3	1	16	1	0	0	0	0	0	0
Ficus	Miami, FL (MIA)	Clonal													0	0	0	0	0	0
Fig	Davis, CA (DAV)	Clonal													0	0	0	0	0	0
Flax	Ames, IA (NC7)	Seed	1,567	52	1,567	1,792	60	1,792	2,017	67	2,017	479	479	479	47	50	47	74	80	74
Gourds	Griffin, GA (S9)	Seed	1	5	10	1	3	5	1	1	1	1,401	1,401	1,401	89	94	89	102	109	102
Grape	Geneva, NY (GEN)	Clonal	5	8	10	2	4	5	2	4	5				0	0	0	0	0	0
Grape CWR	Geneva, NY (GEN)	Clonal	5	8	10	2	4	5	2	4	5				0	0	0	0	0	0
Grasses	Pullman, WA (W6)	Seed	26	26	26	8	8	8	1	1	1	51	65	51	13	17	13	14	19	14
Grasses Millets	Ames, IA (NC7)	Seed	8	9	10	3	4	5	1	1	1	29	29	29	6	6	6	4	4	4
Grasses Warm Season	Griffin, GA (S9)	Seed	3	3	3	3	3	3	2	2	2	47	56	47	10	12	10	6	9	6
Guar	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1	29	29	29	6	6	6	5	5	5
Guava	Hilo, HI (HILO)	Clonal													0	0	0	0	0	0
Hazelnut	Corvallis, OR (COR)	Clonal													0	0	0	0	0	0
Hazelnuts CWR	Corvallis, OR (COR)	Clonal													0	0	0	0	0	0
Hibiscus	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1	29	29	29	7	7	7	3	3	3
Hops	Corvallis, OR (COR)	Clonal	1	1	1	1	1	1	1	1	1				0	0	0	0	0	0
Hops CWR	Corvallis, OR (COR)	Clonal	16	16	16	6	6	6	3	3	3				18	18	18	12	12	12
Hylocereus	Hilo, HI (HILO)	Clonal													0	0	0	0	0	0
Kiwifruit	Davis, CA (DAV)	Clonal													0	0	0	0	0	0
Lathyrus	Pullman, WA (W6)	Seed	14	14	14	5	5	5	1	1	1	233	233	233	41	43	41	49	51	49
Legumes	Ames, IA (NC7)	Seed	5	10	28	5	6	8	1	1	1	7	7	7	3	3	3	0	0	0
	Griffin, GA (S9)	Seed	2	1	2	2	1	2	2	1	2	62	62	62	13	14	13	10	10	10
Legumes Minor Forage	Pullman, WA (W6)	Seed	8	14	20	5	5	5	1	1	1	88	162	88	22	32	22	26	40	26
Lentil	Pullman, WA (W6)	Seed	26	104	26	5	5	5	1	1	1	589	589	589	64	67	64	73	77	73
Lesquerella	Parlier, CA (PARL)	Seed	3	4	5	1	2	3	1	1	1	437	437	437	52	55	52	71	75	71
Lettuce	Pullman, WA (W6)	Seed	1	12	20	2	2	2	1	1	1	11	11	11	4	4	4	0	0	0
Limnanthes	Parlier, CA (PARL)	Seed	3	4	5	1	2	3	1	2	3	62	62	62	21	22	21	34	35	34
Litchi	Hilo, HI (HILO)	Clonal													0	0	0	0	0	0
Luffa	Griffin, GA (S9)	Seed	1	2	3	1	1	1	1	1	1				22	22	22	17	18	17
Lupin	Pullman, WA (W6)	Seed	21	21	21	7	7	7	2	2	2	302	302	302	43	46	43	61	64	61
Macadamia	Hilo, HI (HILO)	Clonal													0	0	0	0	0	0
Maize	Ames, IA (NC7)	Seed	1	1	15	1	1	2	1	1	1	88	88	88	21	21	21	21	22	21
Maize CWR	Ames, IA (NC7)	Seed	1	15	28	1	1	1	1	1	1	37	37	37	8	8	8	7	7	7
Medicago	Pullman, WA (W6)	Seed	91	91	91	6	6	6	1	1	1	56	56	56	13	13	13	11	12	11
Medicinals	Ames, IA (NC7)	Seed	4	4	4	3	3	3	2	2	2	36	53	36	10	15	10	11	18	11
Millets	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1	34	34	34	6	6	6	3	3	3
Mint	Corvallis, OR (COR)	Clonal	3	3	3	3	3	3	3	3	3	301		301	0	18	0	0	14	0
Mint CWR	Corvallis, OR (COR)	Clonal	3	4	4	0	0	0	1	1	1				14	14	14	6	7	6
Mulberry	Davis, CA (DAV)	Clonal													0	0	0	0	0	0

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S5.3 Time Needed to Reduce the Backlog of Germination, Viability, and Longevity Testing for NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units									Ft. Collins (NLGRP)									
			Now			+ 5 Yrs.			+ 10 Yrs.			Now			+ 5 Yrs.			+ 10 Yrs.			
			MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	
Mung Bean	Griffin, GA (S9)	Seed	3	1	3	1	1	1	1	1	1	1	201	201	201	38	39	38	38	39	38
Native Plants	Pullman, WA (W6)	Seed	21	21	21	14	14	14	1	1	1	1	124	1,587	124	23	14	23	22	0	22
Oat	Aberdeen, ID (NSGC)	Seed	10	10	10	10	10	10	10	10	10	650	650	650	65	69	65	79	84	79	
Ocimum	Ames, IA (NC7)	Seed	1	1	1	1	1	1	2	3	3	18	24	18	3	5	3	1	4	1	
Okra	Griffin, GA (S9)	Seed	5	5	5	1	1	1	1	1	1	365	365	365	56	58	56	57	59	57	
Olive	Davis, CA (DAV)	Clonal													0	0	0	0	0	0	
Opuntia	Parlier, CA (PARL)	Clonal													32	34	32	62	67	62	
Ornamentals	Ames, IA (NC7)	Seed	5	5	5	2	2	2	3	3	3	20	21	20	5	6	5	5	6	5	
Other Crops	Corvallis, OR (COR)	Clonal													21	22	21	21	22	21	
	Geneva, NY (NE9)	Seed													22	22	22	17	18	17	
	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1	28	29	28	6	6	6	2	2	2	
	Hilo, HI (HILO)	Clonal													0	0	0	0	0	0	
	Mayaguez, PR (MAY)	Clonal													0	0	0	0	0	0	
	Miami, FL (MIA)	Clonal													13	13	13	17	18	17	
	Parlier, CA (PARL)	Seed										36	36	36	13	13	13	17	18	17	
	Pullman, WA (W6)	Seed	8	14	20	2	2	2	1	1	1	75	137	75	19	28	19	24	35	24	
Papaya	Hilo, HI (HILO)	Clonal	15	15	15	4	4	4	3	3	3	0	0	0	0	0	0	0	0	0	
Parthenium	Parlier, CA (PARL)	Seed	1	2	3	2	3	4	2	3	4	36	36	36	11	11	11	12	12	12	
Pastinaca	Ames, IA (NC7)	Seed	2	2	2	2	2	2	2	3	3	13	14	13	3	3	3	0	0	0	
Pea	Pullman, WA (W6)	Seed	50	50	50	5	5	5	1	1	1	20	20	20	4	4	4	1	1	1	
Pea Genetic Stocks	Pullman, WA (W6)	Seed	2	2	2	5	5	5	1	1	1				22	22	22	17	18	17	
Peanut	Griffin, GA (S9)	Seed	5	3	5	5	3	5	5	3	5	9	9	9	4	4	4	1	1	1	
Peanut CWR	Griffin, GA (S9)	Seed	5	3	5	1	1	1	1	1	1	3,268	3,268	3,268	91	93	91	101	99	101	
Pears	Corvallis, OR (COR)	Clonal	5	5	5	5	5	5	5	5	5				0	0	0	0	0	0	
Pears CWR	Corvallis, OR (COR)	Clonal	8	8	8	4	4	4	1	1	1				20	21	20	15	15	15	
Pecan	College Station, TX (BRW)	Clonal													0	0	0	0	0	0	
Pepper	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1	21	21	21	6	6	6	2	2	2	
Persimmon	Davis, CA (DAV)	Clonal													0	0	0	0	0	0	
Phaseolus	Pullman, WA (W6)	Seed	19	19	19	5	5	5	1	1	1	522	522	522	59	62	59	72	76	72	
Physalis	Geneva, NY (NE9)	Seed	78	79	80	20	7	22	15	1	17	41	41	41	12	13	12	15	16	15	
Pistachio	Davis, CA (DAV)	Clonal													0	0	0	0	0	0	
Pomegranate	Davis, CA (DAV)	Clonal													0	0	0	0	0	0	
Potato	Sturgeon Bay, WI (NR6)	Seed	5	5	5	5	5	5	5	5	5	94	227	94	21	37	21	20	38	20	
Prunus	Davis, CA (DAV)	Clonal													5	5	5	3	4	3	
Pseudocereals	Ames, IA (NC7)	Seed	5	6	8	1	2	3	1	1	1	200	564	200	37	64	37	37	67	37	
Quince	Corvallis, OR (COR)	Clonal	2	2	2	1	1	1	1	1	1				6	7	6	0	0	0	
Rambutan	Hilo, HI (HILO)	Clonal													0	0	0	0	0	0	
Raphanus	Geneva, NY (NE9)	Seed	30	31	32	9	10	11	4	5	6	1	60	1	0	0	0	0	0	0	
Rhubarb	Pullman, WA (W6)	Clonal	14	14	14	9	9	9	4	4	4	5	5	5	3	3	3	0	0	0	
Ribes	Corvallis, OR (COR)	Clonal	5	5	5	2	2	2	1	1	1				0	10	0	0	5	0	
Ribes CWR	Corvallis, OR (COR)	Clonal	55	55	55	27	27	27	10	10	10	286	286	286	39	40	39	40	43	40	
Rice	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1	67	67	67	17	17	17	19	19	19	

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S5.3 Time Needed to Reduce the Backlog of Germination, Viability, and Longevity Testing for NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Genebank Units									Ft. Collins (NLGRP)								
			Now			+ 5 Yrs.			+ 10 Yrs.			Now			+ 5 Yrs.			+ 10 Yrs.		
			MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	0	0	0	3	3	3	3	3	3									
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	0	0	0	1	1	1	1	1	1									
Rice Sativa	Stuttgart, AR (GSOR)	Seed	5	5	5	5	5	5	5	5	5									
Rubus	Corvallis, OR (COR)	Clonal	1	1	1	1	1	1	1	1	1				0	20	0	0	14	0
Rubus CWR	Corvallis, OR (COR)	Clonal	26	26	26	11	11	11	4	4	4				21	22	21	17	17	17
Rye	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1	770	770	770	77	81	77	83	88	83
Saccharum	Miami, FL (MIA)	Clonal													22	22	22	18	18	18
Safflower	Pullman, WA (W6)	Seed	2	2	2	5	5	5	2	2	2	30	30	30	9	9	9	10	11	10
Sesame	Griffin, GA (S9)	Seed	1	1	1	0	0	0	0	0	0	61	61	61	17	17	17	21	22	21
Simmondsia	Parlier, CA (PARL)	Clonal	10	15	20	8	9	10	3	4	5				21	21	21	16	17	16
Solanum	Geneva, NY (NE9)	Seed	60	62	63	36	37	38	31	32	33	587	587	587	51	54	51	76	81	76
Sorghum	Griffin, GA (S9)	Seed	3	3	3	3	3	3	3	3	3	57	57	57	14	40	25	13	46	32
Soybean	Urbana, IL (SOY)	Seed	3	4	5	1	1	1	1	1	1	62	62	62	15	15	15	15	15	15
Soybean CWR	Urbana, IL (SOY)	Seed	3	4	5	1	1	1	1	1	1	293		293	41	18	41	45	12	45
Spinach	Ames, IA (NC7)	Seed	1	1	1	1	1	1	1	1	2	140	140	140	29	30	29	31	32	31
Strawberry	Corvallis, OR (COR)	Clonal										295	295	295	41	39	41	37	31	37
Strawberry CWR	Corvallis, OR (COR)	Clonal	19	19	19	13	13	13	6	6	6	466	465	466	57	47	57	52	37	52
Sugarbeet/Beet	Pullman, WA (W6)	Seed	5	6	7	5	5	5	1	1	1	29	29	29	6	6	6	4	4	4
Sunflower	Ames, IA (NC7)	Seed	3	3	3	3	3	3	3	3	3	210	210	210	37	38	37	44	42	44
Sweet Potato	Griffin, GA (S9)	Seed													0	20	0	0	15	0
Sweet Potato CWR	Griffin, GA (S9)	Seed	17	9	17	5	3	5	0	0	0	174	174	174	34	35	34	33	34	33
Tart Cherry	Geneva, NY (GEN)	Clonal	5	8	10	2	4	5	2	4	5				0	0	0	0	0	0
Trefoil	Pullman, WA (W6)	Seed	64	64	64	7	7	7	1	1	1	119	190	119	28	37	28	38	52	38
Trichosanthes	Geneva, NY (NE9)	Seed													22	22	22	17	18	17
Trigonella	Pullman, WA (W6)	Seed	5	5	5	5	5	5	1	1	1				25	26	25	31	32	31
Triticale	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1	240	240	240	42	44	42	45	47	45
Umbels	Ames, IA (NC7)	Seed	1	2	3	1	1	1	1	1	2	11	11	11	3	3	3	0	0	0
Vaccinium	Corvallis, OR (COR)	Clonal	1	1	1	1	1	1	1	1	1				0	15	0	0	8	0
Vaccinium CWR	Corvallis, OR (COR)	Clonal	18	18	18	7	7	7	3	3	3				22	22	22	17	18	17
Vetch	Pullman, WA (W6)	Seed	28	28	28	5	5	5	1	1	1	2,043	2,043	2,043	73	79	73	100	108	100
Vigna	Griffin, GA (S9)	Seed	5	3	5	1	1	1	1	1	1	1,076	1,076	1,076	82	87	82	93	99	93
Walnut	Davis, CA (DAV)	Clonal													0	0	0	0	0	0
Watermelon	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1	217	217	217	40	41	40	43	45	43
Wheat	Aberdeen, ID (NSGC)	Seed	5	5	5	1	1	1	1	1	1	200	200	200	37	39	37	44	46	44
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	4	4	4	4	4	4	4	4	4				22	22	22	18	18	18
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1				22	21	22	21	19	21
Winged Bean	Griffin, GA (S9)	Seed	2	2	2	1	1	1	1	1	1				23	23	23	21	21	21
Woody Landscape	Ames, IA (NC7)	Seed	7	7	7	7	7	7	5	5	5	56	120	56	14	25	14	16	29	16
	Washington, D.C. (USNA)	Clonal	0	1	3	0	1	3	0	1	3	65	156	65	17	32	17	21	42	21

Fig. S5.3 The top row of the figure, shaded light beige, reports for the total NPGS collection the current extreme minima, extreme maxima, and the average median number of years needed to reduce the backlog in testing accessions of all PGR for germination, viability, and/or longevity and goals for reducing the backlogs at +5 years and at +10 years. The range and median number of years needed to reduce the backlog for individual NPGS PGR collections, according to the best estimate of the PGR managers, then are provided listed alphabetically by their generic or crop name. The backlogs for the NPGS genebank units other than the NLGRP are listed at the left portion of the figure, and those for the NLGRP are listed at the right portion. The NPGS genebank units that manage the PGR collection are identified, as are whether the PGR are managed primarily as clones or as seeds. The more time needed to reduce the backlogs in testing for the individual NPGS PGR collections, the darker the aqua hue. The darkest hue indicates an estimated 20+ years are needed to reduce the backlog. Many of the longest backlogs result from a current lack of effective methods for testing the PGR, which will be the focus of applied research in this Plan. Blank fields indicate that data could not be estimated. BRW, DAV, GSZE, MAY, MIA, and RIV do not test viability. NLGRP data for GSOR and GSZE are excluded because of how these genetic stocks are managed.



S6.1 Time Needed to Reduce the Backlogs of Pathogen Testing for NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)
		NPGS-wide	0	20	735	0	4	26	0	3	22
Allium Garlic	Pullman, WA (W6)	Clonal	1	1	1	1	1	1	1	1	1
Apple	Geneva, NY (GEN)	Clonal	5	5	5	3	3	3	2	2	2
Apple CWR	Geneva, NY (GEN)	Clonal	5	5	5	3	3	3	2	2	2
Cacao	Mayaguez, PR (MAY)	Clonal	1	2	5	3	1	3	4	1	4
Cacao Backup MAY	Hilo, HI (HILO)	Clonal	0	0	0	0	0	0	0	0	0
Chickpea	Pullman, WA (W6)	Seed	70	70	70	5	5	5	1	1	1
Citrus	Riverside, CA (RIV)	Clonal	1		1	1		1	1		1
Date Palm	Riverside, CA (RIV)	Clonal	0		0	5		5	5		5
Grape	Geneva, NY (GEN)	Clonal	5	5	5	3	3	3	2	2	2
Grape CWR	Geneva, NY (GEN)	Clonal	5	5	5	3	3	3	2	2	2
Hazelnut	Corvallis, OR (COR)	Clonal	0	0	0	1	1	1	1	1	1
Hops	Corvallis, OR (COR)	Clonal	3	3	3	3	3	3	1	2	2
Hops CWR	Corvallis, OR (COR)	Clonal	3	4	4	4	4	4	2	3	3
Lentil	Pullman, WA (W6)	Seed	31	31	31	5	5	5	1	1	1
Longan	Hilo, HI (HILO)	Clonal	1	1	1						
Macadamia	Hilo, HI (HILO)	Clonal	1	1	1	1	1	1	1	1	1
Maize	Ames, IA (NC7)	Seed	1	1	1	1	1	1	1	1	1
Maize CWR	Ames, IA (NC7)	Seed	1	1	1	1	1	1	1	1	1
Musa	Mayaguez, PR (MAY)	Clonal	5	5	5	5	5	5	5	5	5
Okra	Griffin, GA (S9)	Seed	0		0	0		0	0		0
Opuntia	Parlier, CA (PARL)	Clonal	5	8	10	1	1	1	1	1	1
Other Crops	Hilo, HI (HILO)	Clonal	0	0	0	0	0	0	0	0	0
Pea	Pullman, WA (W6)	Seed	30	30	30	5	5	5	5	5	5
Pears	Corvallis, OR (COR)	Clonal	1	1	1	1	1	1	1	1	1
Pecan	College Station, TX (BRW)	Clonal	10	10	10	5	5	5	0	0	0
Pepper	Griffin, GA (S9)	Seed	2	4	5	1	1	1	1	1	1
Phaseolus	Pullman, WA (W6)	Seed	46	390	735	26	26	26	22	22	22
Potato	Sturgeon Bay, WI (NR6)	Seed	10	10	10	10	10	10	10	10	10
Ribes	Corvallis, OR (COR)	Clonal	7	7	7	3	3	3	1	1	1
Rubus	Corvallis, OR (COR)	Clonal	5	5	5	5	5	5	5	5	5
Soybean	Urbana, IL (SOY)	Seed	5	5	5	1	2	2	1	2	2
Strawberry	Corvallis, OR (COR)	Clonal	5	5	5	5	5	5	5	5	5
Sweet Potato	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Tart Cherry	Geneva, NY (GEN)	Clonal	5	5	5	3	3	3	2	2	2
Vaccinium	Corvallis, OR (COR)	Clonal	5	5	5	5	5	5	4	4	4

Fig. S6.1 The top row of the figure, shaded light beige, reports for the total NPGS collection the current extreme minima, extreme maxima, and the average median number of years needed to reduce the backlog in pathogen testing accessions of all PGR, and goals for reducing the backlogs at +5 years and at +10 years. The range and median number of years needed to reduce the backlog for individual NPGS PGR collections, according to the best estimate of the PGR managers, then are provided listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The more time needed to reduce the backlogs for the individual NPGS PGR collections, the darker the aqua hue. The darkest hue indicates an estimated 20+ years are needed to reduce the backlog. Many of the longest backlogs result from a current lack of effective methods for pathogen testing the PGR, which will be the focus of applied research in this Plan. Blank fields indicate that data could not be estimated. COT, DAV, GSOR, GSZE, MIA, NE9, NGSC, and USNA do not conduct pathology testing or cannot estimate the time needed to reduce the backlog.



S6.4 Time Needed to Reduce the Backlogs for Cleaning Up NPGS PGR from Pathogens

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)
		NPGS-wide	0	25	735	0	5	29	0	3	22
Allium Garlic	Pullman, WA (W6)	Clonal	5	27	58	2	2	2	0	0	0
Apple	Geneva, NY (GEN)	Clonal	10	10	10	4	4	4	3	3	3
Apple CWR	Geneva, NY (GEN)	Clonal	10	10	10	4	4	4	3	3	3
Cacao Backup MAY	Hilo, HI (HILO)	Clonal	0	0	0	0	0	0	0	0	0
Chickpea	Pullman, WA (W6)	Seed	0	0	0	5	5	5	1	1	1
Citrus	Riverside, CA (RIV)	Clonal	54		54	29		29	15		15
Date Palm	Riverside, CA (RIV)	Clonal	0		0	5		5	5		5
Grape	Geneva, NY (GEN)	Clonal	10	10	10	4	4	4	3	3	3
Grape CWR	Geneva, NY (GEN)	Clonal	10	10	10	4	4	4	3	3	3
Hazelnut	Corvallis, OR (COR)	Clonal	0	0	0	1	1	1	1	1	1
Hops	Corvallis, OR (COR)	Clonal	30	30	30	14	14	14	4	4	4
Hops CWR	Corvallis, OR (COR)	Clonal	10	10	10	6	6	6	1	1	1
Lentil	Pullman, WA (W6)	Seed	31	31	31	1	1	1	1	1	1
Longan	Hilo, HI (HILO)	Clonal	1	1	1						
Macadamia	Hilo, HI (HILO)	Clonal	5	5	5	1	1	1	1	1	1
Opuntia	Parlier, CA (PARL)	Clonal	10	15	20	5	5	5	2	2	2
Other Crops	Hilo, HI (HILO)	Clonal	0	0	0	0	0	0	0	0	0
Pea	Pullman, WA (W6)	Seed	30	30	30	1	1	1	1	1	1
Pears	Corvallis, OR (COR)	Clonal	1	1	1	1	1	1	1	1	1
Pecan	College Station, TX (BRW)	Clonal	10	10	10	5	5	5	0	0	0
Pepper	Griffin, GA (S9)	Seed	30	30	30	5	5	5	1	1	1
Phaseolus	Pullman, WA (W6)	Seed	46	390	735	26	26	26	22	22	22
Potato	Sturgeon Bay, WI (NR6)	Seed	10	10	10	10	10	10	10	10	10
Ribes	Corvallis, OR (COR)	Clonal	40	40	40	7	7	7	3	3	3
Rubus	Corvallis, OR (COR)	Clonal	5	5	5	5	5	5	5	5	5
Soybean	Urbana, IL (SOY)	Seed	10	10	10	2	3	3	2	3	3
Strawberry	Corvallis, OR (COR)	Clonal	5	5	5	5	5	5	5	5	5
Sweet Potato	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Tart Cherry	Geneva, NY (GEN)	Clonal	5	5	5	3	3	3	3	3	3
Vaccinium	Corvallis, OR (COR)	Clonal	10	10	10	5	5	5	1	1	1

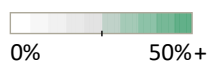
Fig. S6.4 The top row of the figure, shaded light beige, reports for the total NPGS collection the current extreme minima, extreme maxima, and the average median number of years needed to reduce the backlog in cleaning-up accessions of all PGR from pathogens, and goals for reducing the backlogs at +5 years and at +10 years. The range and median number of years needed to reduce the backlog for individual NPGS PGR collections, according to the best estimate of the PGR managers, then are provided listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The more time needed to reduce the backlogs for the individual NPGS PGR collections, the darker the teal hue. The darkest hue indicates an estimated 20+ years are needed to reduce the backlog. Many of the longest backlogs result from a current lack of effective methods for cleaning up pathogens from the PGR, which will be the focus of applied research in this Plan. Blank fields indicate that data could not be estimated. COT, DAV, GSOR, GSZE, MAY, MIA, NC7, NE9, NSGC, and USNA do not clean-up accessions from pathogens or cannot estimate the time needed to reduce the backlog.



S7.1 NPGS PGR Regeneration/Repropagation Backlogs

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Backlog (# Accessions)	% of Collection	Backlog (# Accessions)	% of Collection	Backlog (# Accessions)	% of Collection
NPGS-wide			98,842	17%	78,124	13%	59,383	9%
Acerola	Hilo, HI (HILO)	Clonal	2	29%	7	100%	7	100%
Aegilops	Aberdeen, ID (NSGC)	Seed	360	16%	200	9%	100	4%
Alfalfa	Pullman, WA (W6)	Seed	800	20%	550	13%	92	2%
Allium	Geneva, NY (NE9)	Seed	415	35%	398	32%	381	28%
Allium CWR	Pullman, WA (W6)	Clonal	428	47%	228	25%	90	10%
Allium Garlic	Pullman, WA (W6)	Clonal	342	100%	347	100%	352	100%
Annona	Mayaguez, PR (MAY)	Clonal	3	11%	5	9%	5	8%
Annona Backup MAY	Miami, FL (MIA)	Clonal	1	6%	1	4%	1	3%
Apium	Geneva, NY (NE9)	Seed	89	36%	89	29%	0	0%
Apple	Geneva, NY (GEN)	Clonal	100	7%	50	4%	50	4%
Apple CWR	Geneva, NY (GEN)	Clonal	400	9%	75	2%	75	2%
Asparagus	Geneva, NY (NE9)	Seed	125	79%	225	87%	75	21%
Asters	Ames, IA (NC7)	Seed	297	66%	277	61%	43	10%
Avocado	Miami, FL (MIA)	Clonal	163	100%	238	100%	30	10%
Avocado Backup MIA	Hilo, HI (HILO)	Clonal	0	0%	85	50%	100	50%
Bambara Groundnut	Griffin, GA (S9)	Seed	63	64%	5	5%	5	5%
Bamboo Tropical	Mayaguez, PR (MAY)	Clonal	0	0%	0	0%	0	0%
Barley	Aberdeen, ID (NSGC)	Seed	75	0%	75	0%	75	0%
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	296	9%	250	7%	250	7%
Benincasa	Geneva, NY (NE9)	Seed	18	58%	43	77%	43	41%
Brassica	Ames, IA (NC7)	Seed	321	16%	321	16%	30	1%
	Geneva, NY (NE9)	Seed	1,035	48%	894	40%	703	30%
Brassicaceae	Ames, IA (NC7)	Seed	142	11%	100	7%	65	5%
Breadfruit	Hilo, HI (HILO)	Clonal	14	29%	27	51%	29	50%
Breadfruit Backup HILO	Mayaguez, PR (MAY)	Clonal	0	0%	0	0%	0	0%
Cacao	Mayaguez, PR (MAY)	Clonal	40	14%	100	30%	200	51%
Cacao Backup MAY	Hilo, HI (HILO)	Clonal	6	5%	75	50%	85	50%
Carambola	Hilo, HI (HILO)	Clonal	1	4%	13	50%	14	52%
Castorbean	Griffin, GA (S9)	Seed	263	70%	200	53%	150	40%
Chickpea	Pullman, WA (W6)	Seed	854	12%	238	3%	181	2%
Cichorium	Ames, IA (NC7)	Seed	71	25%	36	12%	18	6%
Citrus	Riverside, CA (RIV)	Clonal	86	6%	88	6%	90	6%
Clover	Griffin, GA (S9)	Seed	577	22%	556	19%	535	16%
	Pullman, WA (W6)	Seed	1,000	27%	500	13%	84	2%
Coffee	Hilo, HI (HILO)	Clonal	1	33%	0	0%	500	25%
Cotton	College Station, TX (COT)	Seed	3,500	36%	2,100	21%	600	6%
Cowpea	Griffin, GA (S9)	Seed	1,384	17%	884	11%	384	5%
Cucumis CWR	Ames, IA (NC7)	Seed	187	59%	137	42%	87	27%
Cucumis melo	Ames, IA (NC7)	Seed	3,224	100%	3,331	100%	3,438	100%
Cucumis sativus	Ames, IA (NC7)	Seed	212	15%	112	7%	12	1%
Cucurbita	Ames, IA (NC7)	Seed	676	69%	646	63%	616	57%
	Geneva, NY (NE9)	Seed	316	38%	232	27%	138	15%
	Griffin, GA (S9)	Seed	1,012	70%	500	34%	250	17%
	Parlier, CA (PARL)	Seed	8	22%	4	11%	2	5%
Cuphea	Ames, IA (NC7)	Seed	128	20%	110	17%	92	14%
Cynara	Geneva, NY (NE9)	Seed	27	100%	52	100%	67	73%
Date Palm	Riverside, CA (RIV)	Clonal	0	0%	199	100%	229	100%
Daucus	Ames, IA (NC7)	Seed	645	41%	605	38%	565	34%
Differentials	Griffin, GA (S9)	Seed	0	0%				
Durian	Hilo, HI (HILO)	Clonal	7	47%	9	50%	10	50%
Eggplant	Griffin, GA (S9)	Seed	93	9%	25	2%	25	2%

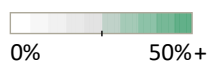
Fig. S7.1 The top light beige-shaded row shows for the total NPGS collection the backlogs in number of accessions of all PGR that currently require regeneration/repropagation and the goals for reducing the backlogs at +5 years and at +10 years. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The higher the percentage of accessions for the individual NPGS PGR collections that require regeneration/repropagation, the darker the green hue, with 50% or more of the PGR collection requiring regeneration/repropagation the darkest.



S7.1 NPGS PGR Regeneration/Repropagation Backlogs

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Backlog (# Accessions)	% of Collection	Backlog (# Accessions)	% of Collection	Backlog (# Accessions)	% of Collection
Euphorbia	Ames, IA (NC7)	Seed	108	51%	102	49%	102	49%
Faba Bean	Pullman, WA (W6)	Seed	265	34%	132	15%	24	2%
Fagopyrum	Geneva, NY (NE9)	Seed	2	1%	50	16%	100	28%
Ficus	Miami, FL (MIA)	Clonal	1	4%	1	3%	1	2%
Fig	Davis, CA (DAV)	Clonal	12	5%	5	2%	5	2%
Flax	Ames, IA (NC7)	Seed	60	2%	50	2%	40	1%
Garcinia	Mayaguez, PR (MAY)	Clonal	3	12%	3	10%	3	9%
Gourds	Griffin, GA (S9)	Seed	309	64%	200	40%	100	19%
Grape	Davis, CA (DAV)	Clonal	300	8%	1,000	22%	2,000	35%
	Geneva, NY (GEN)	Clonal	250	31%	30	4%	30	4%
Grape CWR	Geneva, NY (GEN)	Clonal	125	20%	30	4%	30	3%
Grasses	Pullman, WA (W6)	Seed	5,280	23%	2,380	10%	596	2%
Grasses Millets	Ames, IA (NC7)	Seed	200	8%	200	8%	200	8%
Grasses Warm Season	Griffin, GA (S9)	Seed	1,418	20%	1,375	19%	1,325	18%
Guar	Griffin, GA (S9)	Seed	2	0%	2	0%	2	0%
Guava	Hilo, HI (HILO)	Clonal	12	16%	38	51%	39	50%
Hazelnut	Corvallis, OR (COR)	Clonal	50	7%	54	7%	50	6%
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	50	48%	50	32%	50	24%
Hibiscus	Griffin, GA (S9)	Seed	93	27%	40	12%	20	6%
Hops	Corvallis, OR (COR)	Clonal	101	33%	109	33%	115	32%
Hops CWR	Corvallis, OR (COR)	Clonal	200	61%	229	53%	129	24%
Hylocereus	Hilo, HI (HILO)	Clonal	10	100%	11	100%	12	100%
Kiwifruit	Davis, CA (DAV)	Clonal	142	66%	85	40%	43	20%
Lagerstroemia	Miami, FL (MIA)	Clonal	1	3%	1	3%	1	2%
Lathyrus	Pullman, WA (W6)	Seed	460	53%	270	31%	80	9%
Legumes	Ames, IA (NC7)	Seed	140	11%	100	7%	50	4%
	Griffin, GA (S9)	Seed	786	25%	714	23%	607	19%
Legumes Minor Forage	Pullman, WA (W6)	Seed	484	28%	334	19%	154	8%
Lentil	Pullman, WA (W6)	Seed	184	6%	102	3%	83	2%
Lesquerella	Parlier, CA (PARL)	Seed	10	4%	5	2%	2	1%
Lettuce	Pullman, WA (W6)	Seed	1,245	46%	645	24%	398	15%
Limnanthes	Parlier, CA (PARL)	Seed	7	9%	4	5%	20	16%
Litchi	Hilo, HI (HILO)	Clonal	28	29%	49	51%	49	50%
Litchi Backup HILO	Mayaguez, PR (MAY)	Clonal	10	100%	4	40%	6	60%
	Miami, FL (MIA)	Clonal	1	5%	1	4%	1	3%
Longan	Hilo, HI (HILO)	Clonal	10	40%	14	52%	15	52%
Luffa	Griffin, GA (S9)	Seed	35	21%	15	8%	20	10%
Lupin	Pullman, WA (W6)	Seed	788	50%	413	26%	40	2%
Macadamia	Hilo, HI (HILO)	Clonal	38	83%	26	51%	28	50%
Maize	Ames, IA (NC7)	Seed	7,945	41%	5,972	24%	1,395	5%
Maize CWR	Ames, IA (NC7)	Seed	417	85%	378	71%	35	7%
Maize Genetic Stocks	Urbana, IL (GSZE)	Seed	10,000	24%	11,000	22%	12,000	22%
Mamey Sapote	Mayaguez, PR (MAY)	Clonal	2	6%	2	5%	3	7%
Mamey Sapote Backup MAY	Miami, FL (MIA)	Clonal	1	3%	1	3%	1	2%
Mango	Miami, FL (MIA)	Clonal	39	14%	46	14%	53	14%
Mango Backup MIA	Mayaguez, PR (MAY)	Clonal	6	9%	6	9%	6	9%
Medicago	Pullman, WA (W6)	Seed	900	20%	600	13%	100	2%
Medicinals	Ames, IA (NC7)	Seed	308	28%	304	25%	301	22%
Millets	Griffin, GA (S9)	Seed	294	12%	426	12%	562	12%
Mint	Corvallis, OR (COR)	Clonal	146	33%	153	33%	156	33%
Mint CWR	Corvallis, OR (COR)	Clonal	35	78%	5	9%	10	15%
Mulberry	Davis, CA (DAV)	Clonal	30	42%	20	28%	10	14%

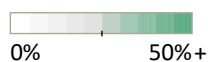
Fig. S7.1 The top light beige-shaded row shows for the total NPGS collection the backlogs in number of accessions of all PGR that currently require regeneration/repropagation and the goals for reducing the backlogs at +5 years and at +10 years. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The higher the percentage of accessions for the individual NPGS PGR collections that require regeneration/repropagation, the darker the green hue, with 50% or more of the PGR collection requiring regeneration/repropagation the darkest.



S7.1 NPGS PGR Regeneration/Repropagation Backlogs

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Backlog (# Accessions)	% of Collection	Backlog (# Accessions)	% of Collection	Backlog (# Accessions)	% of Collection
Mung Bean	Griffin, GA (S9)	Seed	416	10%	166	4%	0	0%
Musa	Mayaguez, PR (MAY)	Clonal	175	100%	210	100%	235	100%
Native Plants	Pullman, WA (W6)	Seed	0	0%	611	5%	1,346	10%
Oat	Aberdeen, ID (NSGC)	Seed	1,835	9%	1,500	7%	1,100	5%
Ocimum	Ames, IA (NC7)	Seed	46	43%	42	39%	38	35%
Okra	Griffin, GA (S9)	Seed	1,326	45%	826	28%	326	11%
Olive	Davis, CA (DAV)	Clonal	41	25%	20	12%	10	6%
Opuntia	Parlier, CA (PARL)	Clonal	281	100%	10	4%	5	2%
Ornamentals	Ames, IA (NC7)	Seed	240	31%	243	29%	246	28%
Other Crops	Geneva, NY (NE9)	Seed	276	99%	274	98%		
	Griffin, GA (S9)	Seed	31	19%	26	15%	19	11%
	Hilo, HI (HILO)	Clonal	0	0%	25	50%	30	50%
	Mayaguez, PR (MAY)	Clonal	10	2%	12	3%	15	3%
	Miami, FL (MIA)	Clonal	9	2%	25	5%	26	5%
	Parlier, CA (PARL)	Seed	21	29%	16	22%	20	22%
	Pullman, WA (W6)	Seed	2,247	50%	1,255	25%	343	6%
Other Crops Backup HILO	Miami, FL (MIA)	Clonal	117	100%	26	20%	15	10%
Other Crops Backup HILO	Mayaguez, PR (MAY)	Clonal	3	30%	5	33%	5	25%
Papaya	Hilo, HI (HILO)	Clonal	143	80%	183	100%	188	100%
Parthenium	Parlier, CA (PARL)	Seed	41	30%	90	38%	45	11%
Pastinaca	Ames, IA (NC7)	Seed	30	41%	29	35%	28	34%
Pea	Pullman, WA (W6)	Seed	1,973	32%	473	8%	98	2%
Pea Genetic Stocks	Pullman, WA (W6)	Seed	135	19%	67	9%	24	3%
Peach Palm	Hilo, HI (HILO)	Clonal	0	0%	17	100%	18	100%
Peanut	Griffin, GA (S9)	Seed	622	7%	370	4%	370	4%
Peanut CWR	Griffin, GA (S9)	Seed	122	22%	53	9%	54	9%
Pears	Corvallis, OR (COR)	Clonal	500	25%	500	25%	300	15%
Pears CWR	Corvallis, OR (COR)	Clonal	414	100%	264	57%	14	3%
Pecan	College Station, TX (BRW)	Clonal	100	2%	50	1%	0	0%
Pepper	Griffin, GA (S9)	Seed	2,000	40%	500	10%	50	1%
Persimmon	Davis, CA (DAV)	Clonal	159	100%	79	48%	0	0%
Phaseolus	Pullman, WA (W6)	Seed	4,464	25%	2,104	12%	400	2%
Physalis	Geneva, NY (NE9)	Seed	70	42%	95	49%	20	9%
Pili Nut	Hilo, HI (HILO)	Clonal	9	28%	0	0%	34	100%
Pineapple	Hilo, HI (HILO)	Clonal	240	100%	245	100%	246	100%
Pistachio	Davis, CA (DAV)	Clonal	28	13%	191	71%	0	0%
Pomegranate	Davis, CA (DAV)	Clonal	63	33%	43	20%	23	11%
Potato	Sturgeon Bay, WI (NR6)	Seed	1,345	23%	1,345	22%	1,345	22%
Prunus	Davis, CA (DAV)	Clonal	369	22%	406	22%	447	22%
Pseudocereals	Ames, IA (NC7)	Seed	500	13%	300	8%	500	10%
Quince	Corvallis, OR (COR)	Clonal	100	49%	60	28%	30	13%
Rambutan	Hilo, HI (HILO)	Clonal	22	27%	41	50%	42	51%
Raphanus	Geneva, NY (NE9)	Seed	24	3%	82	10%	150	17%
Rhubarb	Pullman, WA (W6)	Clonal	42	39%	27	25%	12	11%
Ribes	Corvallis, OR (COR)	Clonal	250	36%	250	34%	250	32%
Ribes CWR	Corvallis, OR (COR)	Clonal	556	92%	556	85%	506	72%
Rice	Aberdeen, ID (NSGC)	Seed	1,150	6%	500	3%	500	3%
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	53	10%	50	9%	50	9%
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	0	0%	25	44%	15	22%
Rice Sativa	Stuttgart, AR (GSOR)	Seed	27	0%	125	0%	125	0%
Rubus	Corvallis, OR (COR)	Clonal	100	12%	100	11%	100	10%
Rubus CWR	Corvallis, OR (COR)	Clonal	1,306	96%	1,106	79%	656	45%

Fig. S7.1 The top light beige-shaded row shows for the total NPGS collection the backlogs in number of accessions of all PGR that currently require regeneration/repropagation and the goals for reducing the backlogs at +5 years and at +10 years. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The higher the percentage of accessions for the individual NPGS PGR collections that require regeneration/repropagation, the darker the green hue, with 50% or more of the PGR collection requiring regeneration/repropagation the darkest.



S7.1 NPGS PGR Regeneration/Repropagation Backlogs

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Backlog (# Accessions)	% of Collection	Backlog (# Accessions)	% of Collection	Backlog (# Accessions)	% of Collection
Rye	Aberdeen, ID (NSGC)	Seed	50	2%	50	2%	50	2%
Saccharum	Miami, FL (MIA)	Clonal	214	100%	239	100%	264	100%
Safflower	Pullman, WA (W6)	Seed	74	3%	62	3%	62	2%
Sapodilla	Mayaguez, PR (MAY)	Clonal	4	15%	6	20%	8	23%
Sapodilla Backup MAY	Miami, FL (MIA)	Clonal	1	4%	1	3%	1	3%
Sesame	Griffin, GA (S9)	Seed	57	5%	30	2%	0	0%
Simmondsia	Parlier, CA (PARL)	Clonal	0	0%	0	0%	0	0%
Solanum	Geneva, NY (NE9)	Seed	519	8%	343	5%	117	2%
Sorghum	Griffin, GA (S9)	Seed	5,170	11%	5,732	11%	6,498	11%
Soybean	Urbana, IL (SOY)	Seed	2,400	11%	2,500	11%	1,600	7%
Soybean CWR	Urbana, IL (SOY)	Seed	250	21%	250	18%	250	17%
Spanish Lime	Mayaguez, PR (MAY)	Clonal	3	9%	6	14%	8	16%
Spinach	Ames, IA (NC7)	Seed	150	36%	100	24%	200	48%
Strawberry	Corvallis, OR (COR)	Clonal	250	34%	260	33%	260	31%
Strawberry CWR	Corvallis, OR (COR)	Clonal	274	22%	350	26%	500	34%
Sugarbeet/Beet	Pullman, WA (W6)	Seed	1,218	44%	718	26%	218	8%
Sunflower	Ames, IA (NC7)	Seed	428	8%	375	7%	335	6%
Sweet Potato	Griffin, GA (S9)	Seed	390	50%	395	50%	400	50%
Sweet Potato CWR	Griffin, GA (S9)	Seed	230	50%	114	25%	5	1%
Tart Cherry	Geneva, NY (GEN)	Clonal	50	38%	15	10%	15	9%
Trefoil	Pullman, WA (W6)	Seed	350	35%	200	19%	33	3%
Trichosanthes	Geneva, NY (NE9)	Seed	18	100%	0	0%	0	0%
Trigonella	Pullman, WA (W6)	Seed	68	23%	10	3%	10	3%
Tripsacum	Miami, FL (MIA)	Seed	185	100%	195	100%	205	100%
Triticale	Aberdeen, ID (NSGC)	Seed	120	6%	50	2%	50	2%
Umbels	Ames, IA (NC7)	Seed	550	46%	400	33%	300	24%
Vaccinium	Corvallis, OR (COR)	Clonal	185	10%	195	10%	205	10%
Vaccinium CWR	Corvallis, OR (COR)	Clonal	900	95%	750	71%	350	30%
Vetch	Pullman, WA (W6)	Seed	1,021	55%	531	28%	63	3%
Vigna	Griffin, GA (S9)	Seed	200	41%	100	20%	0	0%
Walnut	Davis, CA (DAV)	Clonal	89	18%	399	64%	0	0%
Watermelon	Griffin, GA (S9)	Seed	512	27%	250	13%	30	2%
Wheat	Aberdeen, ID (NSGC)	Seed	3,340	6%	3,400	6%	3,400	6%
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	20	5%	20	5%	20	5%
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	55	6%	55	6%	55	6%
Winged Bean	Griffin, GA (S9)	Seed	109	69%	100	63%	80	51%
Woody Landscape	Ames, IA (NC7)	Seed	1,007	48%	1,002	43%	997	38%
	Washington, D.C. (USNA)	Clonal	1,200	14%	275	3%	200	2%

Fig. S7.1 The top light beige-shaded row shows for the total NPGS collection the backlogs in number of accessions of all PGR that currently require regeneration/repropagation and the goals for reducing the backlogs at +5 years and at +10 years. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The higher the percentage of accessions for the individual NPGS PGR collections that require regeneration/repropagation, the darker the green hue, with 50% or more of the PGR collection requiring regeneration/repropagation the darkest.



S7.2 Annual Regeneration/Repropagation of NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Annually Regenerated (Avg # Accessions)	% of Collection Regenerated Annually	Annually Regenerated (Avg # Accessions)	% of Collection Regenerated Annually	Annually Regenerated (Avg # Accessions)	% of Collection Regenerated Annually
NPGS-wide			20,588	4%	23,728	4%	23,753	4%
Acerola	Hilo, HI (HILO)	Clonal	0	0%	1	14%	1	14%
Aegilops	Aberdeen, ID (NSGC)	Seed	110	5%	100	4%	100	4%
Alfalfa	Pullman, WA (W6)	Seed	50	1%	50	1%	92	2%
Allium	Geneva, NY (NE9)	Seed	13	1%	23	2%	33	2%
Allium CWR	Pullman, WA (W6)	Clonal	21	2%	40	4%	90	10%
Allium Garlic	Pullman, WA (W6)	Clonal	342	100%	347	100%	352	100%
Annona	Mayaguez, PR (MAY)	Clonal	6	22%	12	21%	13	20%
Annona Backup MAY	Miami, FL (MIA)	Clonal	0	0%	1	4%	1	3%
Apium	Geneva, NY (NE9)	Seed	12	5%	24	8%	24	7%
Apple	Geneva, NY (GEN)	Clonal	75	5%	78	6%	80	6%
Apple CWR	Geneva, NY (GEN)	Clonal	45	1%	25	1%	50	1%
Asparagus	Geneva, NY (NE9)	Seed	0	0%	50	19%	50	14%
Asters	Ames, IA (NC7)	Seed	2	0%	4	1%	45	10%
Avocado	Miami, FL (MIA)	Clonal	8	5%	48	20%	6	2%
Avocado Backup MIA	Hilo, HI (HILO)	Clonal	0	0%	17	10%	20	10%
Bambara Groundnut	Griffin, GA (S9)	Seed	5	5%	5	5%	5	5%
Bamboo Tropical	Mayaguez, PR (MAY)	Clonal	0	0%	0	0%	0	0%
Barley	Aberdeen, ID (NSGC)	Seed	1,415	5%	1,400	5%	1,400	5%
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	100	3%	100	3%	100	3%
Benincasa	Geneva, NY (NE9)	Seed	0	0%	10	18%	10	9%
Brassica	Ames, IA (NC7)	Seed	85	4%	85	4%	30	1%
	Geneva, NY (NE9)	Seed	43	2%	58	3%	63	3%
Brassicaceae	Ames, IA (NC7)	Seed	15	1%	15	1%	15	1%
Breadfruit	Hilo, HI (HILO)	Clonal	4	8%	5	9%	12	21%
Breadfruit Backup HILO	Mayaguez, PR (MAY)	Clonal	0	0%	0	0%	0	0%
Cacao	Mayaguez, PR (MAY)	Clonal	20	7%	20	6%	20	5%
Cacao Backup MAY	Hilo, HI (HILO)	Clonal	1	1%	15	10%	17	10%
Carambola	Hilo, HI (HILO)	Clonal	4	16%	3	12%	3	11%
Castorbean	Griffin, GA (S9)	Seed	7	2%	7	2%	7	2%
Chickpea	Pullman, WA (W6)	Seed	120	2%	190	3%	181	2%
Cichorium	Ames, IA (NC7)	Seed	7	2%	7	2%	3	1%
Citrus	Riverside, CA (RIV)	Clonal	86	6%	88	6%	90	6%
	Griffin, GA (S9)	Seed	21	1%	21	1%	21	1%
Clover	Pullman, WA (W6)	Seed	50	1%	100	3%	83	2%
	Hilo, HI (HILO)	Clonal	0	0%	0	0%	100	5%
Cotton	College Station, TX (COT)	Seed	350	4%	300	3%	250	2%
Cowpea	Griffin, GA (S9)	Seed	100	1%	100	1%	100	1%
Cucumis CWR	Ames, IA (NC7)	Seed	10	3%	10	3%	10	3%
Cucumis melo	Ames, IA (NC7)	Seed	50	2%			310	9%
Cucumis sativus	Ames, IA (NC7)	Seed	20	1%	20	1%	20	1%
Cucurbita	Ames, IA (NC7)	Seed	30	3%	30	3%	30	3%
	Geneva, NY (NE9)	Seed	22	3%	27	3%	32	4%
	Griffin, GA (S9)	Seed	100	7%	50	3%	25	2%
	Parlier, CA (PARL)	Seed	3	8%	3	8%	3	8%
Cuphea	Ames, IA (NC7)	Seed	13	2%	18	3%	18	3%
Cynara	Geneva, NY (NE9)	Seed	0	0%	5	10%	8	9%
Date Palm	Riverside, CA (RIV)	Clonal	0	0%	20	10%	10	4%
Daucus	Ames, IA (NC7)	Seed	40	3%	40	2%	40	2%

Fig. S7.2 The top row of the figure, shaded light beige, reports for the total NPGS collection the current average annual number of accessions regenerated/repropagated for all PGR, and goals for +5 years and +10 years. The current average annual rate (percentage) of accession regeneration/repropagation for the total collection, and goals for +5 years and for +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the rates of regeneration/repropagation for accessions of the individual NPGS PGR collections, the darker the brown hue, with 0% regeneration/repropagation rate the darkest. Blank fields indicate that data could not be estimated. See Fig. S3.1 for total number of accessions for each PGR collection.

0%  4%+

S7.2 Annual Regeneration/Repropagation of NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Annually Regenerated (Avg # Accessions)	% of Collection Regenerated Annually	Annually Regenerated (Avg # Accessions)	% of Collection Regenerated Annually	Annually Regenerated (Avg # Accessions)	% of Collection Regenerated Annually
Differentials	Griffin, GA (S9)	Seed	0	0%				
Durian	Hilo, HI (HILO)	Clonal	0	0%				
Eggplant	Griffin, GA (S9)	Seed	28	3%	50	5%	50	5%
Euphorbia	Ames, IA (NC7)	Seed	15	7%	12	6%	6	3%
Faba Bean	Pullman, WA (W6)	Seed	20	3%	47	5%	24	2%
Fagopyrum	Geneva, NY (NE9)	Seed	18	7%	28	9%	28	8%
Ficus	Miami, FL (MIA)	Clonal	0	0%	2	6%	2	5%
Fig	Davis, CA (DAV)	Clonal	46	20%	1	0%	1	0%
Flax	Ames, IA (NC7)	Seed	45	1%	47	2%	47	2%
Garcinia	Mayaguez, PR (MAY)	Clonal	1	4%	1	3%	1	3%
Gourds	Griffin, GA (S9)	Seed	25	5%	20	4%	20	4%
Grape	Davis, CA (DAV)	Clonal	250	7%	200	4%	200	4%
	Geneva, NY (GEN)	Clonal	30	4%	35	4%	40	5%
Grape CWR	Geneva, NY (GEN)	Clonal	25	4%	30	4%	35	4%
Grasses	Pullman, WA (W6)	Seed	300	1%	600	3%	529	2%
Grasses Millets	Ames, IA (NC7)	Seed	34	1%	50	2%	50	2%
Grasses Warm Season	Griffin, GA (S9)	Seed	40	1%	40	1%	40	1%
Guar	Griffin, GA (S9)	Seed	2	0%	2	0%	2	0%
Guava	Hilo, HI (HILO)	Clonal	9	12%	8	11%	8	10%
Hazelnut	Corvallis, OR (COR)	Clonal	10	1%	10	1%	10	1%
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	10	10%	10	6%	10	5%
Hibiscus	Griffin, GA (S9)	Seed	49	14%	20	6%	20	6%
Hops	Corvallis, OR (COR)	Clonal	101	33%	109	33%	115	32%
Hops CWR	Corvallis, OR (COR)	Clonal	40	12%	40	9%	40	8%
Hylocereus	Hilo, HI (HILO)	Clonal	10	100%	2	18%	2	17%
Kiwifruit	Davis, CA (DAV)	Clonal	57	27%	53	25%	53	25%
Lagerstroemia	Miami, FL (MIA)	Clonal	2	6%	2	5%	2	4%
Lathyrus	Pullman, WA (W6)	Seed	20	2%	40	5%	28	3%
Legumes	Ames, IA (NC7)	Seed	3	0%	10	1%	10	1%
	Griffin, GA (S9)	Seed	75	2%	100	3%	120	4%
Legumes Minor Forage	Pullman, WA (W6)	Seed	10	1%	30	2%	36	2%
Lentil	Pullman, WA (W6)	Seed	100	3%	20	1%	83	2%
Lesquerella	Parlier, CA (PARL)	Seed	10	4%	10	4%	10	4%
Lettuce	Pullman, WA (W6)	Seed	90	3%	120	4%	140	5%
Limnanthes	Parlier, CA (PARL)	Seed	6	8%	6	8%	12	9%
Litchi	Hilo, HI (HILO)	Clonal	11	12%	10	10%	10	10%
Litchi Backup HILO	Mayaguez, PR (MAY)	Clonal	10	100%	1	10%	1	10%
	Miami, FL (MIA)	Clonal	2	11%	2	8%	2	7%
Longan	Hilo, HI (HILO)	Clonal	0	0%	3	11%	3	10%
Luffa	Griffin, GA (S9)	Seed	2	1%	4	2%	4	2%
Lupin	Pullman, WA (W6)	Seed	40	3%	78	5%	40	2%
Macadamia	Hilo, HI (HILO)	Clonal	1	2%	5	10%	6	11%
Maize	Ames, IA (NC7)	Seed	363	2%	1,361	5%	1,856	7%
Maize CWR	Ames, IA (NC7)	Seed	2	0%	25	5%	80	15%
Maize Genetic Stocks	Urbana, IL (GSZE)	Seed	1,000	2%	1,100	2%	1,200	2%
Mamey Sapote	Mayaguez, PR (MAY)	Clonal	1	3%	1	3%	2	4%
Mamey Sapote Backup MAY	Miami, FL (MIA)	Clonal	0	0%	2	5%	2	4%
Mango	Miami, FL (MIA)	Clonal	10	4%	20	6%	30	8%
Mango Backup MIA	Mayaguez, PR (MAY)	Clonal	3	5%	3	5%	3	5%

Fig. S7.2 The top row of the figure, shaded light beige, reports for the total NPGS collection the current average annual number of accessions regenerated/repropagated for all PGR, and goals for +5 years and +10 years. The current average annual rate (percentage) of accession regeneration/repropagation for the total collection, and goals for +5 years and for +10 years also are approximated. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the rates of regeneration/repropagation for accessions of the individual NPGS PGR collections, the darker the brown hue, with 0% regeneration/repropagation rate the darkest. Blank fields indicate that data could not be estimated. See Fig. S3.1 for total number of accessions for each PGR collection.

0% 4%+

S7.2 Annual Regeneration/Repropagation of NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Annually Regenerated (Avg # Accessions)	% of Collection Regenerated Annually	Annually Regenerated (Avg # Accessions)	% of Collection Regenerated Annually	Annually Regenerated (Avg # Accessions)	% of Collection Regenerated Annually
Medicago	Pullman, WA (W6)	Seed	50	1%	60	1%	100	2%
Medicinals	Ames, IA (NC7)	Seed	16	1%	16	1%	45	3%
Millet	Griffin, GA (S9)	Seed	43	2%	85	2%	112	2%
Mint	Corvallis, OR (COR)	Clonal	146	33%	153	33%	156	33%
Mint CWR	Corvallis, OR (COR)	Clonal	10	22%	5	9%	10	15%
Mulberry	Davis, CA (DAV)	Clonal	2	3%	2	3%	2	3%
Mung Bean	Griffin, GA (S9)	Seed	50	1%	50	1%	50	1%
Musa	Mayaguez, PR (MAY)	Clonal	175	100%	210	100%	235	100%
Native Plants	Pullman, WA (W6)	Seed	0	0%	122	1%	147	1%
Oat	Aberdeen, ID (NSGC)	Seed	1,050	5%	1,050	5%	1,050	5%
Ocimum	Ames, IA (NC7)	Seed	4	4%	4	4%	4	4%
Okra	Griffin, GA (S9)	Seed	100	3%	100	3%	100	3%
Olive	Davis, CA (DAV)	Clonal	17	10%	21	12%	10	6%
Opuntia	Parlier, CA (PARL)	Clonal	0	0%	56	20%	4	1%
Ornamentals	Ames, IA (NC7)	Seed	1	0%	1	0%	30	3%
Other Crops	Geneva, NY (NE9)	Seed	0	0%				
	Griffin, GA (S9)	Seed	10	6%	10	6%	10	6%
	Hilo, HI (HILO)	Clonal	0	0%	5	10%	6	10%
	Mayaguez, PR (MAY)	Clonal	10	2%	2	0%	3	1%
	Miami, FL (MIA)	Clonal	0	0%	25	5%	26	5%
	Parlier, CA (PARL)	Seed	0	0%	2	3%	6	7%
	Pullman, WA (W6)	Seed	30	1%	248	5%	273	5%
Other Crops Backup HILO	Miami, FL (MIA)	Clonal	25	21%	2	2%	2	1%
Other Crops Backup HILO	Mayaguez, PR (MAY)	Clonal	1	10%	1	7%	1	5%
Papaya	Hilo, HI (HILO)	Clonal	9	5%	37	20%	38	20%
Parthenium	Parlier, CA (PARL)	Seed	14	10%	20	8%	20	5%
Pastinaca	Ames, IA (NC7)	Seed	1	1%	1	1%	1	1%
Pea	Pullman, WA (W6)	Seed	150	2%	197	3%	98	2%
Pea Genetic Stocks	Pullman, WA (W6)	Seed	20	3%	22	3%	24	3%
Peach Palm	Hilo, HI (HILO)	Clonal			3	18%	4	22%
Peanut	Griffin, GA (S9)	Seed	400	4%	400	4%	400	4%
Peanut CWR	Griffin, GA (S9)	Seed	10	2%	10	2%	10	2%
Pears	Corvallis, OR (COR)	Clonal	100	5%	100	5%	100	5%
Pears CWR	Corvallis, OR (COR)	Clonal	50	12%	50	11%	20	4%
Pecan	College Station, TX (BRW)	Clonal	100	2%	50	1%	0	0%
Pepper	Griffin, GA (S9)	Seed	10	0%	400	8%	400	8%
Persimmon	Davis, CA (DAV)	Clonal	70	44%	16	10%	0	0%
Phaseolus	Pullman, WA (W6)	Seed	349	2%	300	2%	400	2%
Physalis	Geneva, NY (NE9)	Seed	0	0%	20	10%	40	18%
Pili Nut	Hilo, HI (HILO)	Clonal	0	0%	0	0%	7	21%
Pineapple	Hilo, HI (HILO)	Clonal	146	61%	49	20%	49	20%
Pistachio	Davis, CA (DAV)	Clonal	6	3%	38	14%	0	0%
Pomegranate	Davis, CA (DAV)	Clonal	0	0%	4	2%	4	2%
Potato	Sturgeon Bay, WI (NR6)	Seed	1,000	17%	1,000	17%	1,000	16%
Prunus	Davis, CA (DAV)	Clonal	312	19%	312	17%	312	15%
Pseudocereals	Ames, IA (NC7)	Seed	51	1%	50	1%	50	1%
Quince	Corvallis, OR (COR)	Clonal	20	10%	12	6%	6	3%
Rambutan	Hilo, HI (HILO)	Clonal	2	2%	8	10%	8	10%
Raphanus	Geneva, NY (NE9)	Seed	17	2%	32	4%	32	4%

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0% 4%+

S7.2 Annual Regeneration/Repropagation of NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Annually Regenerated (Avg # Accessions)	% of Collection Regenerated Annually	Annually Regenerated (Avg # Accessions)	% of Collection Regenerated Annually	Annually Regenerated (Avg # Accessions)	% of Collection Regenerated Annually
Rhubarb	Pullman, WA (W6)	Clonal	20	18%	23	21%	23	21%
Ribes	Corvallis, OR (COR)	Clonal	50	7%	50	7%	50	6%
Ribes CWR	Corvallis, OR (COR)	Clonal	10	2%	20	3%	50	7%
Rice	Aberdeen, ID (NSGC)	Seed	400	2%	400	2%	400	2%
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	10	2%	10	2%	10	2%
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	0	0%	5	9%	3	4%
Rice Sativa	Stuttgart, AR (GSOR)	Seed	30	0%	25	0%	25	0%
Rubus	Corvallis, OR (COR)	Clonal	100	12%	100	11%	100	10%
Rubus CWR	Corvallis, OR (COR)	Clonal	50	4%	100	7%	150	10%
Rye	Aberdeen, ID (NSGC)	Seed	50	2%	50	2%	50	2%
Saccharum	Miami, FL (MIA)	Clonal	43	20%	48	20%	53	20%
Safflower	Pullman, WA (W6)	Seed	20	1%	62	3%	62	2%
Sapodilla	Mayaguez, PR (MAY)	Clonal	4	15%	2	7%	2	6%
Sapodilla Backup MAY	Miami, FL (MIA)	Clonal	0	0%	2	7%	2	6%
Sesame	Griffin, GA (S9)	Seed	22	2%	20	2%	20	2%
Simmondsia	Parlier, CA (PARL)	Clonal	33	10%	0	0%	0	0%
Solanum	Geneva, NY (NE9)	Seed	45	1%	55	1%	55	1%
Sorghum	Griffin, GA (S9)	Seed	1,200	3%	1,200	2%	1,200	2%
Soybean	Urbana, IL (SOY)	Seed	2,400	11%	2,500	11%	1,500	6%
Soybean CWR	Urbana, IL (SOY)	Seed	40	3%	200	15%	200	13%
Spanish Lime	Mayaguez, PR (MAY)	Clonal	3	9%	2	5%	2	4%
Spinach	Ames, IA (NC7)	Seed	11	3%	30	7%	20	5%
Strawberry	Corvallis, OR (COR)	Clonal	250	34%	260	33%	260	31%
Strawberry CWR	Corvallis, OR (COR)	Clonal	55	4%	60	4%	100	7%
Sugarbeet/Beet	Pullman, WA (W6)	Seed	37	1%	90	3%	100	4%
Sunflower	Ames, IA (NC7)	Seed	168	3%	168	3%	168	3%
Sweet Potato	Griffin, CA (S9)	Seed	390	50%	395	50%	400	50%
Sweet Potato CWR	Griffin, GA (S9)	Seed	1	0%	23	5%	23	5%
Tart Cherry	Geneva, NY (GEN)	Clonal	10	8%	15	10%	15	9%
Trefoil	Pullman, WA (W6)	Seed	30	3%	30	3%	33	3%
Trichosanthes	Geneva, NY (NE9)	Seed	0	0%	10	23%	10	11%
Trigonella	Pullman, WA (W6)	Seed	20	7%	20	6%	10	3%
Tripsacum	Miami, FL (MIA)	Seed	26	14%	27	14%	29	14%
Triticale	Aberdeen, ID (NSGC)	Seed	120	6%	50	2%	50	2%
Umbels	Ames, IA (NC7)	Seed	30	3%	60	5%	30	2%
Vaccinium	Corvallis, OR (COR)	Clonal	185	10%	195	10%	205	10%
Vaccinium CWR	Corvallis, OR (COR)	Clonal	50	5%	100	10%	120	10%
Vetch	Pullman, WA (W6)	Seed	20	1%	100	5%	60	3%
Vigna	Griffin, GA (S9)	Seed	20	4%	20	4%	5	1%
Walnut	Davis, CA (DAV)	Clonal	1	0%	80	13%	0	0%
Watermelon	Griffin, GA (S9)	Seed	50	3%	50	3%	10	1%
Wheat	Aberdeen, ID (NSGC)	Seed	3,340	6%	3,400	6%	3,400	6%
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	20	5%	20	5%	20	5%
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	55	6%	55	6%	55	6%
Winged Bean	Griffin, GA (S9)	Seed	5	3%	10	6%	20	13%
Woody Landscape	Ames, IA (NC7)	Seed	31	1%	31	1%	60	2%
	Washington, D.C. (USNA)	Clonal	225	3%	250	3%	200	2%

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0%  4%+

S7.3 Time Needed to Reduce Backlogs for Regenerating/Repropagating NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)
NPGS-wide			0	10	371	0	5	60	0	4	60
Acerola	Hilo, HI (HILO)	Clonal	0	0	0		5			5	
Aegilops	Aberdeen, ID (NSGC)	Seed	4	4	4	3	3	3	2	2	2
Alfalfa	Pullman, WA (W6)	Seed	16	16	16	11	11	11	1	1	1
Allium	Geneva, NY (NE9)	Seed	30	31	32	16	17	18	10	11	12
Allium CWR	Pullman, WA (W6)	Clonal	20	20	20	5	5	5	1	1	2
Annona	Mayaguez, PR (MAY)	Clonal	1	3	5	1	3	5	1	3	5
Annona Backup MAY	Miami, FL (MIA)	Clonal	1	3	5	1	3	5	1	3	5
Apium	Geneva, NY (NE9)	Seed	6	7	8	3	4	5	0	0	0
Apple	Geneva, NY (GEN)	Clonal		3			3			3	
Apple CWR	Geneva, NY (GEN)	Clonal		2			2			2	
Asparagus	Geneva, NY (NE9)	Seed				4	5	6	1	2	3
Asters	Ames, IA (NC7)	Seed	10	10	10	10	10	10	5	5	5
Avocado	Miami, FL (MIA)	Clonal	1	3	5	1	3	5	1	3	5
Avocado Backup MIA	Hilo, HI (HILO)	Clonal				4	5	6	4	5	6
Bambara Groundnut	Griffin, GA (S9)	Seed	12	7	12	1	1	1	1	1	1
Bamboo Tropical	Mayaguez, PR (MAY)	Clonal	0	0	0	0	0	0	0	0	0
Barley	Aberdeen, ID (NSGC)	Seed	5	5	5	2	2	2	1	1	1
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	3	3	3	3	3	3	3	3	3
Benincasa	Geneva, NY (NE9)	Seed	4	6	7	8	4	10	6	4	8
Brassica	Ames, IA (NC7)	Seed	10	10	10	5	5	5			
	Geneva, NY (NE9)	Seed	23	24	25	14	15	16	10	11	12
Brassicaceae	Ames, IA (NC7)	Seed	9	9	9	6	6	6	4	4	4
Breadfruit	Hilo, HI (HILO)	Clonal		3			9			7	
Breadfruit Backup HILO	Mayaguez, PR (MAY)	Clonal	1	1	1	1	1	1	1	1	1
Cacao	Mayaguez, PR (MAY)	Clonal	1	1	1	1	1	1	1	1	1
Cacao Backup MAY	Hilo, HI (HILO)	Clonal				4	5	6	4	5	6
Carambola	Hilo, HI (HILO)	Clonal	1	1	1	4	5	6	4	5	6
Castorbean	Griffin, GA (S9)	Seed	15	17	20	10	13	15	5	8	10
Chickpea	Pullman, WA (W6)	Seed	8	8	8	2	2	2	1	1	1
Cichorium	Ames, IA (NC7)	Seed	7	9	10	7	9	10	7	9	10
Citrus	Riverside, CA (RIV)	Clonal	1	1	1	1	1	1	1	1	1
Clover	Griffin, GA (S9)	Seed	20	15	20	15	10	15	10	5	10
	Pullman, WA (W6)	Seed	20	20	20	5	5	5	1	1	1
Coffee	Hilo, HI (HILO)	Clonal				20	20	20	20	20	20
Cotton	College Station, TX (COT)	Seed	10	10	10	5	5	5	3	3	3
Cowpea	Griffin, GA (S9)	Seed	14	7	14	1	1	1	1	1	1
Cucumis CWR	Ames, IA (NC7)	Seed	12	17	20	12	17	20	12	17	20
Cucumis sativus	Ames, IA (NC7)	Seed	5	8	10	5	8	10	5	8	10
Cucurbita	Ames, IA (NC7)	Seed	55	58	60	55	58	60	55	58	60
	Geneva, NY (NE9)	Seed	13	14	15	8	9	10	4	4	6
	Griffin, GA (S9)	Seed	10	15	20	5	8	10	1	3	5
	Parlier, CA (PARL)	Seed	3	4	5	2	3	4	1	1	1
Cuphea	Ames, IA (NC7)	Seed	25	25	25	22	22	22	18	18	18
Cynara	Geneva, NY (NE9)	Seed				9	10	11	7	8	9
Date Palm	Riverside, CA (RIV)	Clonal	1	1	1	1	1	1	1	1	1
Daucus	Ames, IA (NC7)	Seed	30	36	40	30	36	40	30	36	40
Durian	Hilo, HI (HILO)	Clonal	0	0	0	4	5	6	4	5	6
Eggplant	Griffin, GA (S9)	Seed	1	2	3	1	1	1	1	1	1
Euphorbia	Ames, IA (NC7)	Seed	18	18	18	18	18	18	9	9	9
Faba Bean	Pullman, WA (W6)	Seed	14	14	14	2	2	2	1	1	1
Fagopyrum	Geneva, NY (NE9)	Seed	1	2	3	1	2	3	3	4	5
Ficus	Miami, FL (MIA)	Clonal	1	3	5	1	3	5	1	3	5

Fig. S7.3 The top row of the figure, shaded light beige, reports for the total NPGS collection the current extreme minima, extreme maxima, and the average median number of years needed to reduce the backlogs in regenerating/repropagation accessions of all PGR, and goals for reducing the backlogs at +5 years and at +10 years. The range and median number of years needed to reduce the backlog for individual NPGS PGR collections, according to the best estimate of the PGR managers, then are provided listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The more time needed to reduce the backlogs for the individual NPGS PGR collections, the darker the aqua hue. The darkest hue indicates an estimated 20+ years are needed to reduce the backlog. Many of the longest backlogs result from a current lack of effective means for regenerating/repropagating the PGR, which will be the focus of applied research in this Plan. Blank fields indicate that data could not be estimated.



S7.3 Time Needed to Reduce Backlogs for Regenerating/Repropagating NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)
Fig	Davis, CA (DAV)	Clonal	1	1	1	1	1	1	1	1	1
Flax	Ames, IA (NC7)	Seed	6	6	6	5	5	5	4	4	4
Garcinia	Mayaguez, PR (MAY)	Clonal	1	1	1	1	1	1	1	1	1
Gourds	Griffin, GA (S9)	Seed	10	15	15	5	5	6	3	3	3
Grape	Davis, CA (DAV)	Clonal	2	2	2	2	2	2	2	2	2
	Geneva, NY (GEN)	Clonal		3			3			3	
Grape CWR	Geneva, NY (GEN)	Clonal		2			2			2	
Grasses	Pullman, WA (W6)	Seed	17	17	17	4	4	4	1	1	1
Grasses Millets	Ames, IA (NC7)	Seed	3	3	20	3	3	20	3	3	10
Grasses Warm Season	Griffin, GA (S9)	Seed	30	15	30	25	12	25	20	10	20
Guar	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Guava	Hilo, HI (HILO)	Clonal	1	1	1	4	5	6	4	5	6
Hazelnut	Corvallis, OR (COR)	Clonal	5	5	5	5	5	5	5	5	5
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	5	5	5	5	5	5	5	5	5
Hibiscus	Griffin, GA (S9)	Seed	3	2	3	2	1	2	1	1	1
Hops	Corvallis, OR (COR)	Clonal	3	3	3	3	3	3	3	3	3
Hops CWR	Corvallis, OR (COR)	Clonal	8	8	8	5	5	5	2	2	2
Hylocereus	Hilo, HI (HILO)	Clonal	1	1	1	1	2	2	1	2	2
Kiwifruit	Davis, CA (DAV)	Clonal	3	3	3	2	2	2	1	1	1
Lagerstroemia	Miami, FL (MIA)	Clonal	1	3	5	1	3	5	1	3	5
Lathyrus	Pullman, WA (W6)	Seed	23	23	23	7	7	7	1	1	1
Legumes	Ames, IA (NC7)	Seed	3	5	20	3	10	20	3	10	20
	Griffin, GA (S9)	Seed	15	10	15	10	5	10	5	2	5
Legumes Minor Forage	Pullman, WA (W6)	Seed	30	50	70	9	9	9	4	4	4
Lentil	Pullman, WA (W6)	Seed	4	4	4	4	4	4	1	1	1
Lesquerella	Parlier, CA (PARL)	Seed	2	3	4	1	2	3	1	1	1
Lettuce	Pullman, WA (W6)	Seed	7	33	73	12	12	12	7	7	7
Limnanthes	Parlier, CA (PARL)	Seed	2	3	4	1	2	3	2	3	4
Litchi	Hilo, HI (HILO)	Clonal	3	2	3	4	5	6	4	5	6
Litchi Backup HILO	Mayaguez, PR (MAY)	Clonal	1	4	7	1	4	7	1	4	7
	Miami, FL (MIA)	Clonal	1	3	5	1	3	5	1	3	5
Longan	Hilo, HI (HILO)	Clonal	50	50	50	4	5	6	4	5	6
Luffa	Griffin, GA (S9)	Seed	12	15	12	5	5	6	3	3	3
Lupin	Pullman, WA (W6)	Seed	20	20	20	5	5	5	1	1	1
Macadamia	Hilo, HI (HILO)	Clonal	36	36	36	4	5	6	4	5	6
Maize	Ames, IA (NC7)	Seed	1	10	74	1	3	10	1	1	1
Maize CWR	Ames, IA (NC7)	Seed	46	209	371	7	12	17	1	7	13
Maize Genetic Stocks	Urbana, IL (GSZE)	Seed	10	10	10	10	10	10	10	10	10
Mamey Sapote	Mayaguez, PR (MAY)	Clonal	1	1	1	1	1	1	1	1	1
Mamey Sapote Backup MAY	Miami, FL (MIA)	Clonal	1	3	5	1	3	5	1	3	5
Mango	Miami, FL (MIA)	Clonal	1	3	5	1	3	5	1	3	5
Mango Backup MIA	Mayaguez, PR (MAY)	Clonal	1	1	1	1	1	1	1	1	1
Medicago	Pullman, WA (W6)	Seed	10	10	10	10	10	10	1	1	1
Medicinals	Ames, IA (NC7)	Seed	19	2	19						
Millets	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Mint	Corvallis, OR (COR)	Clonal	3	3	3	3	3	3	3	3	3
Mint CWR	Corvallis, OR (COR)	Clonal	3	3	3	1	1	1	1	1	1
Mulberry	Davis, CA (DAV)	Clonal	2	2	2	2	2	2	2	2	2
Mung Bean	Griffin, GA (S9)	Seed	8	4	8	1	1	1	1	1	1
Musa	Mayaguez, PR (MAY)	Clonal	1	1	1	1	1	1	1	1	1
Native Plants	Pullman, WA (W6)	Seed	0	0	0	1	1	1	1	1	1
Oat	Aberdeen, ID (NSGC)	Seed	1	2	2	1	2	2	1	2	2
Ocimum	Ames, IA (NC7)	Seed	8	9	10	8	9	10	8	9	10

Fig. S7.3 The top row of the figure, shaded light beige, reports for the total NPGS collection the current extreme minima, extreme maxima, and the average median number of years needed to reduce the backlogs in regenerating/repropagation accessions of all PGR, and goals for reducing the backlogs at +5 years and at +10 years. The range and median number of years needed to reduce the backlog for individual NPGS PGR collections, according to the best estimate of the PGR managers, then are provided listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The more time needed to reduce the backlogs for the individual NPGS PGR collections, the darker the aqua hue. The darkest hue indicates an estimated 20+ years are needed to reduce the backlog. Many of the longest backlogs result from a current lack of effective means for regenerating/repropagating the PGR, which will be the focus of applied research in this Plan. Blank fields indicate that data could not be estimated.



S7.3 Time Needed to Reduce Backlogs for Regenerating/Repropagating NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)
Okra	Griffin, GA (S9)	Seed	15	15	15	10	10	10	5	5	5
Olive	Davis, CA (DAV)	Clonal	2	2	2	2	2	2	2	2	2
Opuntia	Parlier, CA (PARL)	Clonal	3	4	5	2	3	4	1	2	3
Ornamentals	Ames, IA (NC7)	Seed	25	2	25						
Other Crops	Griffin, GA (S9)	Seed	3	1	3	1	1	1	1	1	1
	Hilo, HI (HILO)	Clonal				4	5	6	4	5	6
	Miami, FL (MIA)	Clonal	1	3	5	1	3	5	1	3	5
	Parlier, CA (PARL)	Seed	10	15	20	8	10	12	4	6	8
	Pullman, WA (W6)	Seed	75	75	75	6	6	6	2	2	2
Other Crops Backup HILO	Miami, FL (MIA)	Clonal	1	1	1	1	1	1	1	1	1
Other Crops Backup HILO	Mayaguez, PR (MAY)	Clonal	1	4	7	1	4	7	1	4	7
Papaya	Hilo, HI (HILO)	Clonal	15	15	15	5	6	7	5	6	7
Parthenium	Parlier, CA (PARL)	Seed	5	8	10	8	10	12	4	5	6
Pastinaca	Ames, IA (NC7)	Seed	8	9	10	8	9	10	8	9	10
Pea	Pullman, WA (W6)	Seed	13	13	13	2	2	2	1	1	1
Pea Genetic Stocks	Pullman, WA (W6)	Seed	7	7	7	3	3	3	1	1	1
Peach Palm	Hilo, HI (HILO)	Clonal				8	9	10	8	9	10
Peanut	Griffin, GA (S9)	Seed	2	1	2	1	1	1	1	1	1
Peanut CWR	Griffin, GA (S9)	Seed	5	3	5	5	3	5	5	3	5
Pears	Corvallis, OR (COR)	Clonal	7	7	7	2	2	2	1	1	1
Pears CWR	Corvallis, OR (COR)	Clonal	5	5	5	5	5	5	1	1	1
Pecan	College Station, TX (BRW)	Clonal	10	10	10	5	5	5	0	0	0
Pepper	Griffin, GA (S9)	Seed	20	20	20	2	3	4	1	2	2
Persimmon	Davis, CA (DAV)	Clonal	2	2	2	2	2	2	2	2	2
Phaseolus	Pullman, WA (W6)	Seed	6	51	95	5	5	5	1	1	1
Physalis	Geneva, NY (NE9)	Seed	10	10	10	4	5	6	1	2	3
Pili Nut	Hilo, HI (HILO)	Clonal	23	23	23	10	15	20	10	15	20
Pineapple	Hilo, HI (HILO)	Clonal	2	2	2	2	2	2	2	2	2
Pistachio	Davis, CA (DAV)	Clonal	2	2	2	2	2	2	2	2	2
Pomegranate	Davis, CA (DAV)	Clonal	2	2	2	2	2	2	2	2	2
Potato	Sturgeon Bay, WI (NR6)	Seed	0	0	0	0	0	0	0	0	0
Prunus	Davis, CA (DAV)	Clonal	2	2	3	2	2	3	2	2	3
Pseudocereals	Ames, IA (NC7)	Seed	3	5	10	3	10	20	3	10	10
Quince	Corvallis, OR (COR)	Clonal	2	2	2	1	1	1	1	1	1
Rambutan	Hilo, HI (HILO)	Clonal	10	10	10	4	5	6	4	5	6
Raphanus	Geneva, NY (NE9)	Seed	1	2	3	2	3	4	4	5	6
Rhubarb	Pullman, WA (W6)	Clonal	14	14	14	9	9	9	4	4	4
Ribes	Corvallis, OR (COR)	Clonal	5	5	5	5	5	5	5	5	5
Ribes CWR	Corvallis, OR (COR)	Clonal	55	55	55	27	27	27	10	10	10
Rice	Aberdeen, ID (NSGC)	Seed	3	3	3	2	2	2	2	2	2
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	2	2	2	2	2	2	2	2	2
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	1	1	1	1	1	1	1	1	1
Rice Sativa	Stuttgart, AR (GSOR)	Seed	1	1	1	2	2	2	2	2	2
Rubus	Corvallis, OR (COR)	Clonal	1	1	1	1	1	1	1	1	1
Rubus CWR	Corvallis, OR (COR)	Clonal	27	27	27	11	11	11	4	4	4
Rye	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1
Saccharum	Miami, FL (MIA)	Clonal	1	1	1	1	1	1	1	1	1
Safflower	Pullman, WA (W6)	Seed	2	2	2	2	2	2	1	1	1
Sapodilla	Mayaguez, PR (MAY)	Clonal	1	1	1	1	1	1	1	1	1
Sapodilla Backup MAY	Miami, FL (MIA)	Clonal	1	3	5	1	3	5	1	3	5
Sesame	Griffin, GA (S9)	Seed	6	3	6	0	0	0	0	0	0
Simmondsia	Parlier, CA (PARL)	Clonal	0	0	0	0	0	0	0	0	0
Solanum	Geneva, NY (NE9)	Seed	10	11	12	5	6	7	1	2	3

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S7.3 Time Needed to Reduce Backlogs for Regenerating/Repropagating NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)	MIN (# Years)	Median	MAX (# Years)
Sorghum	Griffin, GA (S9)	Seed	4	4	4	4	4	4	4	4	4
Soybean	Urbana, IL (SOY)	Seed	1	1	1	1	1	1	1	1	1
Soybean CWR	Urbana, IL (SOY)	Seed	1	1	2	1	1	2	1	1	2
Spanish Lime	Mayaguez, PR (MAY)	Clonal	1	1	1	1	1	1	1	1	1
Spinach	Ames, IA (NC7)	Seed	5	6	10	2	3	5	5	6	10
Strawberry	Corvallis, OR (COR)	Clonal	3	3	3	3	3	3	3	3	3
Strawberry CWR	Corvallis, OR (COR)	Clonal	5	5	5	6	6	6	5	5	5
Sugarbeet/Beet	Pullman, WA (W6)	Seed	33	33	33	7	7	7	2	2	2
Sunflower	Ames, IA (NC7)	Seed	1	1	1	1	1	1	1	1	1
Sweet Potato	Griffin, GA (S9)	Seed	1	1	1	1	1	1	1	1	1
Sweet Potato CWR	Griffin, GA (S9)	Seed	230	115	230	10	5	10	5	3	5
Tart Cherry	Geneva, NY (GEN)	Clonal		3			3			3	
Trefoil	Pullman, WA (W6)	Seed	10	10	10	7	7	7	1	1	1
Trichosanthes	Geneva, NY (NE9)	Seed	3	0	5	3	0	5	3	0	5
Trigonella	Pullman, WA (W6)	Seed	4	4	4	1	1	1	1	1	1
Tripsacum	Miami, FL (MIA)	Seed	1	1	1	1	1	1	1	1	1
Triticale	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1
Umbels	Ames, IA (NC7)	Seed	5	6	30	5	6	30	5	6	30
Vaccinium	Corvallis, OR (COR)	Clonal	10	10	10	10	10	10	10	10	10
Vaccinium CWR	Corvallis, OR (COR)	Clonal	18	18	18	8	8	8	3	3	3
Vetch	Pullman, WA (W6)	Seed	51	51	51	5	5	5	1	1	1
Vigna	Griffin, GA (S9)	Seed	10	5	10	1	1	1	1	1	1
Walnut	Davis, CA (DAV)	Clonal	2	2	2	2	2	2	2	2	2
Watermelon	Griffin, GA (S9)	Seed	5	5	5	1	1	1	1	1	1
Wheat	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	1	1	1	1	1	1	1	1	1
Winged Bean	Griffin, GA (S9)	Seed	5	2	5	3	1	3	1	1	1
Woody Landscape	Ames, IA (NC7)	Seed	33	12	33						
	Washington, D.C. (USNA)	Clonal	1	10	30	1	10	30	1	10	30

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S8b Availability of NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Available Accessions (#)	% of Collection	Available Accessions (#)	% of Collection	Available Accessions (#)	% of Collection
NPGS-wide			497,649	87%	550,322	90%	596,721	93%
Acerola	Hilo, HI (HILO)	Clonal	7	100%	7	100%	7	100%
Aegilops	Aberdeen, ID (NSGC)	Seed	1,809	81%	1,900	85%	2,000	89%
Alfalfa	Pullman, WA (W6)	Seed	3,665	91%	3,917	93%	4,201	95%
Allium	Geneva, NY (NE9)	Seed	779	65%	846	68%	963	72%
Allium CWR	Pullman, WA (W6)	Clonal	426	47%	688	75%	902	98%
Allium Garlic	Pullman, WA (W6)	Clonal	303	89%	305	88%	316	90%
Annona	Mayaguez, PR (MAY)	Clonal	15	56%	35	60%	65	100%
Annona Backup MAY	Miami, FL (MIA)	Clonal	18	100%	25	100%	30	100%
Apium	Geneva, NY (NE9)	Seed	159	64%	219	71%	339	92%
Apple	Geneva, NY (GEN)	Clonal	1,261	90%	1,324	94%	1,390	98%
Apple CWR	Geneva, NY (GEN)	Clonal	1,017	22%	1,119	23%	1,231	25%
Asparagus	Geneva, NY (NE9)	Seed	33	21%	33	13%	283	79%
Asters	Ames, IA (NC7)	Seed	157	35%	167	37%	177	40%
Avocado	Miami, FL (MIA)	Clonal	163	100%	238	100%	313	100%
Avocado Backup MIA	Hilo, HI (HILO)	Clonal	0	0%	25	15%	50	25%
Bambara Groundnut	Griffin, GA (S9)	Seed	35	36%	98	95%	103	95%
Bamboo	Griffin, GA (S9)	Seed	96	100%	96	100%	96	100%
Bamboo Tropical	Mayaguez, PR (MAY)	Clonal	13	43%	36	100%	40	100%
Barley	Aberdeen, ID (NSGC)	Seed	28,021	99%	28,200	99%	28,300	100%
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	3,154	92%	3,150	91%	3,150	90%
Benincasa	Geneva, NY (NE9)	Seed	13	42%	13	23%	63	59%
Brassica	Ames, IA (NC7)	Seed	1,692	84%	2,000	99%	2,015	99%
	Geneva, NY (NE9)	Seed	1,135	52%	1,351	60%	1,642	70%
Brassicaceae	Ames, IA (NC7)	Seed	1,164	89%	1,244	91%	1,324	93%
Breadfruit	Hilo, HI (HILO)	Clonal	48	100%	48	91%	53	91%
Breadfruit Backup HILO	Mayaguez, PR (MAY)	Clonal	10	33%	45	100%	55	100%
Cacao	Mayaguez, PR (MAY)	Clonal	220	75%	293	87%	337	86%
Cacao Backup MAY	Hilo, HI (HILO)	Clonal	19	16%	25	17%	30	18%
Carambola	Hilo, HI (HILO)	Clonal	25	100%	26	100%	27	100%
Castorbean	Griffin, GA (S9)	Seed	115	30%	122	32%	129	34%
Chickpea	Pullman, WA (W6)	Seed	6,534	93%	7,128	100%	7,228	100%
Cichorium	Ames, IA (NC7)	Seed	244	86%	259	89%	265	90%
Citrus	Riverside, CA (RIV)	Clonal	1,518	100%	1,548	100%	1,378	87%
	Griffin, GA (S9)	Seed	2,006	78%	2,346	80%	2,686	82%
Clover	Pullman, WA (W6)	Seed	2,707	73%	3,000	77%	3,420	83%
	Hilo, HI (HILO)	Clonal	0	0%	100	10%	200	10%
Coffee	Hilo, HI (HILO)	Clonal	0	0%	100	10%	200	10%
Cotton	College Station, TX (CO..)	Seed	6,764	69%	7,856	78%	8,113	78%
Cowpea	Griffin, GA (S9)	Seed	6,858	83%	8,242	100%	8,267	99%
Cucumis CWR	Ames, IA (NC7)	Seed	208	65%	222	69%	239	74%
Cucumis melo	Ames, IA (NC7)	Seed	1,946	60%	1,900	57%	1,900	55%
Cucumis sativus	Ames, IA (NC7)	Seed	1,335	95%	1,358	91%	1,372	86%
Cucurbita	Ames, IA (NC7)	Seed	732	75%	763	74%	783	73%

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S8b Availability of NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Available Accessions (#)	% of Collection	Available Accessions (#)	% of Collection	Available Accessions (#)	% of Collection
Cucurbita	Geneva, NY (NE9)	Seed	522	62%	631	73%	765	85%
	Griffin, GA (S9)	Seed	472	33%	950	64%	1,050	70%
	Parlier, CA (PARL)	Seed	29	78%	33	89%	35	95%
Cuphea	Ames, IA (NC7)	Seed	510	80%	510	80%	510	80%
Cynara	Geneva, NY (NE9)	Seed	0	0%	0	0%	25	27%
Date Palm	Riverside, CA (RIV)	Clonal	169	100%	199	100%	229	100%
Daucus	Ames, IA (NC7)	Seed	1,226	78%	1,282	79%	1,344	81%
Differentials	Griffin, GA (S9)	Seed	5	100%	5	100%	5	100%
Durian	Hilo, HI (HILO)	Clonal	15	100%	15	83%	18	90%
Eggplant	Griffin, GA (S9)	Seed	929	93%	1,015	99%	1,040	99%
Euphorbia	Ames, IA (NC7)	Seed	102	49%	118	57%	118	57%
Faba Bean	Pullman, WA (W6)	Seed	576	74%	876	100%	976	100%
Fagopyrum	Geneva, NY (NE9)	Seed	253	99%	255	84%	255	72%
Ficus	Miami, FL (MIA)	Clonal	24	100%	34	100%	44	100%
Fig	Davis, CA (DAV)	Clonal	149	65%	250	100%	275	100%
Flax	Ames, IA (NC7)	Seed	2,941	98%	2,951	98%	2,961	98%
Garcinia	Mayaguez, PR (MAY)	Clonal	26	100%	30	100%	35	100%
Gourds	Griffin, GA (S9)	Seed	181	37%	275	55%	375	71%
Grape	Davis, CA (DAV)	Clonal	3,649	100%	4,649	100%	5,649	100%
	Geneva, NY (GEN)	Clonal	659	82%	758	92%	835	99%
Grape CWR	Geneva, NY (GEN)	Clonal	309	50%	355	48%	445	51%
Grasses	Pullman, WA (W6)	Seed	17,734	78%	20,735	89%	23,735	100%
Grasses Millets	Ames, IA (NC7)	Seed	2,285	91%	2,412	94%	2,588	98%
Grasses Warm Season	Griffin, GA (S9)	Seed	5,825	80%	6,025	82%	6,225	84%
Guar	Griffin, GA (S9)	Seed	411	100%	416	100%	421	100%
Guava	Hilo, HI (HILO)	Clonal	73	100%	75	100%	78	100%
Hazelnut	Corvallis, OR (COR)	Clonal	721	100%	775	100%	825	100%
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	105	100%	155	100%	205	100%
Hibiscus	Griffin, GA (S9)	Seed	248	73%	248	73%	248	73%
Hops	Corvallis, OR (COR)	Clonal	300	99%	329	100%	350	99%
Hops CWR	Corvallis, OR (COR)	Clonal	300	91%	380	89%	450	85%
Hylocereus	Hilo, HI (HILO)	Clonal	8	80%	11	100%	12	100%
Kiwifruit	Davis, CA (DAV)	Clonal	111	52%	150	70%	192	90%
Lagerstroemia	Miami, FL (MIA)	Clonal	34	100%	49	100%	64	100%
Lathyrus	Pullman, WA (W6)	Seed	509	59%	709	81%	890	100%
Legumes	Ames, IA (NC7)	Seed	1,056	81%	1,138	84%	1,208	86%
	Griffin, GA (S9)	Seed	2,358	76%	2,373	76%	2,388	76%
Legumes Minor Forage	Pullman, WA (W6)	Seed	1,264	72%	1,434	80%	1,604	88%
Lentil	Pullman, WA (W6)	Seed	2,998	94%	3,204	98%	3,229	97%
Lesquerella	Parlier, CA (PARL)	Seed	238	96%	243	98%	245	99%
Lettuce	Pullman, WA (W6)	Seed	1,452	54%	2,175	80%	2,420	89%
Limnanthes	Parlier, CA (PARL)	Seed	71	91%	74	95%	108	84%
Litchi	Hilo, HI (HILO)	Clonal	95	100%	97	100%	98	100%

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Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Available Accessions (#)	% of Collection	Available Accessions (#)	% of Collection	Available Accessions (#)	% of Collection
Litchi Backup HILO	Miami, FL (MIA)	Clonal	19	100%	25	100%	30	100%
Longan	Hilo, HI (HILO)	Clonal	24	96%	27	100%	29	100%
Luffa	Griffin, GA (S9)	Seed	133	81%	150	83%	170	85%
Lupin	Pullman, WA (W6)	Seed	797	51%	1,197	75%	1,597	98%
Macadamia	Hilo, HI (HILO)	Clonal	46	100%	51	100%	56	100%
Maize	Ames, IA (NC7)	Seed	14,711	77%	18,022	73%	25,204	92%
Maize CWR	Ames, IA (NC7)	Seed	83	17%	64	12%	426	80%
Maize Genetic Stocks	Urbana, IL (GSZE)	Seed	42,411	100%	50,000	100%	55,000	100%
Mamey Sapote	Mayaguez, PR (MAY)	Clonal	32	100%	40	100%	45	100%
Mamey Sapote Backup MAY	Miami, FL (MIA)	Clonal	31	100%	40	100%	50	100%
Mango	Miami, FL (MIA)	Clonal	252	89%	302	91%	352	92%
Medicago	Pullman, WA (W6)	Seed	4,213	93%	4,225	89%	4,320	86%
Medicinals	Ames, IA (NC7)	Seed	776	72%	774	64%	1,200	90%
Millets	Griffin, GA (S9)	Seed	2,342	97%	3,472	98%	4,602	98%
Mint	Corvallis, OR (COR)	Clonal	400	91%	425	92%	475	99%
Mint CWR	Corvallis, OR (COR)	Clonal	40	89%	50	91%	60	92%
Mulberry	Davis, CA (DAV)	Clonal	43	60%	72	100%	72	100%
Mung Bean	Griffin, GA (S9)	Seed	3,806	90%	4,222	99%	4,247	99%
Musa	Mayaguez, PR (MAY)	Clonal	126	72%	185	88%	210	89%
Native Plants	Pullman, WA (W6)	Seed	6,378	75%	9,769	80%	12,114	90%
Oat	Aberdeen, ID (NSGC)	Seed	20,862	99%	20,900	99%	21,000	99%
Ocimum	Ames, IA (NC7)	Seed	99	93%	101	94%	101	94%
Okra	Griffin, GA (S9)	Seed	1,688	58%	2,180	74%	2,700	90%
Olive	Davis, CA (DAV)	Clonal	130	79%	150	88%	170	100%
Opuntia	Parlier, CA (PARL)	Clonal	191	68%	261	93%	271	96%
Ornamentals	Ames, IA (NC7)	Seed	540	69%	531	64%	800	92%
	Geneva, NY (NE9)	Seed	3	1%	5	2%	10	4%
	Griffin, GA (S9)	Seed	132	81%	137	82%	142	82%
	Hilo, HI (HILO)	Clonal	0	0%	25	50%	30	50%
	Mayaguez, PR (MAY)	Clonal	326	69%	326	69%	326	69%
	Miami, FL (MIA)	Clonal	432	100%	482	100%	532	100%
	Parlier, CA (PARL)	Seed	51	71%	56	78%	70	78%
Other Crops	Pullman, WA (W6)	Seed	2,750	62%	3,990	80%	5,355	98%
Other Crops Backup HILO	Miami, FL (MIA)	Clonal	117	100%	119	90%	147	100%
Papaya	Hilo, HI (HILO)	Clonal	54	30%	55	30%	60	32%
Parthenium	Parlier, CA (PARL)	Seed	96	70%	147	62%	355	89%
Pastinaca	Ames, IA (NC7)	Seed	58	79%	60	73%	62	75%
Pea	Pullman, WA (W6)	Seed	4,783	77%	6,283	100%	6,393	100%
Pea Genetic Stocks	Pullman, WA (W6)	Seed	559	79%	717	100%	722	100%
Peach Palm	Hilo, HI (HILO)	Clonal	15	94%	17	100%	18	100%
Peanut	Griffin, GA (S9)	Seed	8,572	93%	9,194	100%	9,219	100%
Peanut CWR	Griffin, GA (S9)	Seed	437	78%	559	96%	584	96%
Pears	Corvallis, OR (COR)	Clonal	1,900	97%	1,950	97%	2,000	97%

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S8b Availability of NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Available Accessions (#)	% of Collection	Available Accessions (#)	% of Collection	Available Accessions (#)	% of Collection
Pears CWR	Corvallis, OR (COR)	Clonal	400	97%	450	97%	475	92%
Pecan	College Station, TX (BR..)	Clonal	0	0%	100	2%	200	4%
Pepper	Griffin, GA (S9)	Seed	4,869	98%	4,879	98%	4,889	97%
Persimmon	Davis, CA (DAV)	Clonal	68	43%	68	41%	160	94%
Phaseolus	Pullman, WA (W6)	Seed	13,088	74%	15,588	88%	17,852	100%
Physalis	Geneva, NY (NE9)	Seed	98	58%	98	51%	198	91%
Pili Nut	Hilo, HI (HILO)	Clonal	32	100%	33	100%	34	100%
Pineapple	Hilo, HI (HILO)	Clonal	184	77%	245	100%	246	100%
Pistachio	Davis, CA (DAV)	Clonal	170	78%	170	63%	310	100%
Pomegranate	Davis, CA (DAV)	Clonal	143	74%	163	77%	183	86%
Potato	Sturgeon Bay, WI (NR6)	Seed	5,659	97%	5,809	97%	5,959	97%
Prunus	Davis, CA (DAV)	Clonal	1,369	82%	1,558	83%	1,748	85%
Pseudocereals	Ames, IA (NC7)	Seed	3,588	92%	3,712	93%	3,607	72%
Quince	Corvallis, OR (COR)	Clonal	143	70%	150	70%	157	70%
Rambutan	Hilo, HI (HILO)	Clonal	81	100%	82	100%	83	100%
Raphanus	Geneva, NY (NE9)	Seed	693	97%	710	90%	717	83%
Rhubarb	Pullman, WA (W6)	Clonal	67	61%	82	75%	97	89%
Ribes	Corvallis, OR (COR)	Clonal	690	100%	740	100%	790	100%
Ribes CWR	Corvallis, OR (COR)	Clonal	500	83%	650	99%	700	99%
Rice	Aberdeen, ID (NSGC)	Seed	18,255	95%	18,500	96%	18,750	97%
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	533	100%	554	99%	575	99%
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	32	100%	50	88%	60	90%
Rice Sativa	Stuttgart, AR (GSOR)	Seed	35,608	94%	37,287	96%	38,052	96%
Rubus	Corvallis, OR (COR)	Clonal	860	99%	900	98%	945	98%
Rubus CWR	Corvallis, OR (COR)	Clonal	1,350	100%	1,390	99%	1,400	96%
Rye	Aberdeen, ID (NSGC)	Seed	2,038	97%	2,040	97%	2,050	97%
Saccharum	Miami, FL (MIA)	Clonal	214	100%	239	100%	264	100%
Safflower	Pullman, WA (W6)	Seed	2,374	97%	2,479	100%	2,504	100%
Sapodilla	Mayaguez, PR (MAY)	Clonal	26	100%	36	100%	50	100%
Sapodilla Backup MAY	Miami, FL (MIA)	Clonal	26	100%	41	100%	56	100%
Sesame	Griffin, GA (S9)	Seed	1,158	95%	1,175	97%	1,213	100%
Simmondsia	Parlier, CA (PARL)	Clonal	186	57%	325	100%	325	100%
Solanum	Geneva, NY (NE9)	Seed	6,085	92%	6,311	95%	6,587	98%
Sorghum	Griffin, GA (S9)	Seed	40,757	90%	47,727	92%	54,697	93%
Soybean	Urbana, IL (SOY)	Seed	20,998	99%	22,500	98%	24,000	98%
Soybean CWR	Urbana, IL (SOY)	Seed	1,110	92%	1,300	95%	1,500	99%
Spanish Lime	Mayaguez, PR (MAY)	Clonal	0	0%	44	100%	50	100%
Spinach	Ames, IA (NC7)	Seed	314	76%	331	80%	373	90%
Strawberry	Corvallis, OR (COR)	Clonal	738	100%	788	100%	838	100%
Strawberry CWR	Corvallis, OR (COR)	Clonal	1,274	100%	1,349	100%	1,474	100%
Sugarbeet/Beet	Pullman, WA (W6)	Seed	1,898	69%	2,198	79%	2,498	90%
Sunflower	Ames, IA (NC7)	Seed	4,366	84%	4,554	85%	5,184	94%
Sweet Potato	Griffin, GA (S9)	Seed	751	96%	761	96%	771	96%

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S8b Availability of NPGS Accessions

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Available Accessions (#)	% of Collection	Available Accessions (#)	% of Collection	Available Accessions (#)	% of Collection
Sweet Potato CWR	Griffin, GA (S9)	Seed	229	50%	454	99%	454	99%
Tart Cherry	Geneva, NY (GEN)	Clonal	76	58%	87	60%	101	64%
Trefoil	Pullman, WA (W6)	Seed	833	84%	900	86%	990	90%
Trichosanthes	Geneva, NY (NE9)	Seed	0	0%	50	100%	100	100%
Trigonella	Pullman, WA (W6)	Seed	237	79%	309	100%	314	100%
Tripsacum	Miami, FL (MIA)	Seed	185	100%	195	100%	205	100%
Triticale	Aberdeen, ID (NSGC)	Seed	2,018	99%	2,020	99%	2,030	99%
Umbels	Ames, IA (NC7)	Seed	759	63%	858	70%	942	75%
Vaccinium	Corvallis, OR (COR)	Clonal	1,800	97%	1,850	95%	1,900	93%
Vaccinium CWR	Corvallis, OR (COR)	Clonal	940	99%	1,000	95%	1,100	96%
Vetch	Pullman, WA (W6)	Seed	987	53%	1,487	79%	1,882	98%
Vigna	Griffin, GA (S9)	Seed	293	59%	493	99%	498	99%
Walnut	Davis, CA (DAV)	Clonal	314	64%	525	84%	725	100%
Watermelon	Griffin, GA (S9)	Seed	1,403	73%	1,825	95%	1,930	99%
Wheat	Aberdeen, ID (NSGC)	Seed	56,454	99%	56,500	99%	56,600	99%
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	50	12%	50	12%	50	12%
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	949	99%	950	99%	950	99%
Winged Bean	Griffin, GA (S9)	Seed	49	31%	49	31%	49	31%
Woody Landscape	Ames, IA (NC7)	Seed	1,088	52%	1,082	46%	1,500	57%
	Washington, D.C. (USN..)	Clonal	8,368	100%	9,400	100%	10,400	100%

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S8c Annual Distribution of NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			Units (Avg #/ Year)	Accessions (Avg #/ Year)	% of Collection	Units (Avg #/ Year)	Accessions (Avg #/ Year)	% of Collection	Units (Avg #/ Year)	Accessions (Avg #/ Year)	% of Collection
NPGS-wide			319,158	118,947	21%	347,329	128,086	21%	365,708	134,355	21%
Acerola	Hilo, HI (HILO)	Clonal	8	6	86%	1	7	100%	1	7	100%
Aegilops	Aberdeen, ID (NSGC)	Seed	1,126	312	14%	1,300	350	16%	1,400	400	18%
Alfalfa	Pullman, WA (W6)	Seed	3,078	711	18%	3,232	750	18%	3,394	800	18%
Allium	Geneva, NY (NE9)	Seed	1,217	583	49%	1,338	589	47%	1,472	595	44%
Allium CWR	Pullman, WA (W6)	Clonal	364	85	9%	364	84	9%	364	84	9%
Allium Garlic	Pullman, WA (W6)	Clonal	322	56	16%	330	60	17%	340	65	18%
Annona	Mayaguez, PR (MAY)	Clonal	49	14	52%	51	14	24%	54	16	25%
Annona Backup MAY	Miami, FL (MIA)	Clonal	70	12	67%		17	68%		20	67%
Apium	Geneva, NY (NE9)	Seed	148	114	46%	163	115	37%	179	116	32%
Apple	Geneva, NY (GEN)	Clonal	4,110	1,008	72%	4,000	1,250	89%	4,000	1,300	91%
Apple CWR	Geneva, NY (GEN)	Clonal	2,065	725	16%	2,250	800	17%	2,250	850	17%
Asparagus	Geneva, NY (NE9)	Seed	51	30	19%	56	30	12%	62	30	8%
Asters	Ames, IA (NC7)	Seed	50	45	10%	55	47	10%	59	53	12%
Avocado	Miami, FL (MIA)	Clonal	673	35	21%	950	50	21%	1,254	66	21%
Avocado Backup MIA	Hilo, HI (HILO)	Clonal	0	0	0%	4	20	12%	5	25	13%
Bambara Groundnut	Griffin, GA (S9)	Seed	49	14	14%	137	40	39%	144	42	39%
Bamboo	Griffin, GA (S9)	Seed	4	4	4%	4	4	4%	4	4	4%
Bamboo Tropical	Mayaguez, PR (MAY)	Clonal	22	6	20%	23	6	17%	24	6	15%
Barley	Aberdeen, ID (NSGC)	Seed	5,026	2,825	10%	5,200	2,900	10%	5,300	3,000	11%
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	202	150	4%	200	150	4%	200	150	4%
Benincasa	Geneva, NY (NE9)	Seed	23	12	39%	25	12	21%	27	12	11%
Brassica	Ames, IA (NC7)	Seed	4,111	1,730	86%	4,058	1,747	86%	4,167	1,859	92%
	Geneva, NY (NE9)	Seed	2,594	1,109	51%	2,853	1,120	50%	3,139	1,131	48%
Brassicaceae	Ames, IA (NC7)	Seed	1,104	555	42%	1,458	706	52%	1,651	796	56%
Breadfruit	Hilo, HI (HILO)	Clonal	4	12	25%	5	15	28%	5	20	34%
Breadfruit Backup HILO	Mayaguez, PR (MAY)	Clonal	50	2	7%	50	2	4%	50	2	4%
Cacao	Mayaguez, PR (MAY)	Clonal	2,941	191	65%	3,235	210	62%	3,559	231	59%
Cacao Backup MAY	Hilo, HI (HILO)	Clonal	2	5	4%	2	10	7%	4	20	12%
Carambola	Hilo, HI (HILO)	Clonal	9	10	40%	12	12	46%	15	15	56%
Castorbean	Griffin, GA (S9)	Seed	258	144	38%	258	144	38%	258	144	38%
Chickpea	Pullman, WA (W6)	Seed	2,640	916	13%	2,902	1,007	14%	3,191	1,107	15%

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S8c Annual Distribution of NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			Units (Avg #/ Year)	Accessions (Avg #/ Year)	% of Collection	Units (Avg #/ Year)	Accessions (Avg #/ Year)	% of Collection	Units (Avg #/ Year)	Accessions (Avg #/ Year)	% of Collection
Cichorium	Ames, IA (NC7)	Seed	323	126	44%	337	145	50%	38	166	56%
Citrus	Riverside, CA (RIV)	Clonal	30,000	500	33%	32,000	525	34%	34,000	550	35%
Clover	Griffin, GA (S9)	Seed	461	482	19%	461	482	16%	461	482	15%
	Pullman, WA (W6)	Seed	705	378	10%	722	378	10%	740	378	9%
Coffee	Hilo, HI (HILO)	Clonal	0	0	0%	4	20	2%	100	500	25%
Cotton	College Station, TX (COT)	Seed	2,200	2,200	22%	1,600	1,600	16%	1,200	1,200	12%
Cowpea	Griffin, GA (S9)	Seed	2,480	2,372	29%	2,980	2,390	29%	2,990	2,397	29%
Cucumis CWR	Ames, IA (NC7)	Seed	252	151	47%	260	147	45%	288	162	50%
Cucumis melo	Ames, IA (NC7)	Seed	2,159	1,530	47%	1,075	876	26%	911	746	22%
Cucumis sativus	Ames, IA (NC7)	Seed	1,835	939	67%	1,979	1,141	76%	2,025	1,190	75%
	Ames, IA (NC7)	Seed	662	421	43%	1,088	570	56%	1,208	630	59%
Cucurbita	Geneva, NY (NE9)	Seed	770	404	48%	847	408	47%	932	412	46%
	Griffin, GA (S9)	Seed	811	384	27%	1,000	600	41%	1,250	750	50%
	Parlier, CA (PARL)	Seed	24	14	38%	25	15	41%	27	16	43%
Cuphea	Ames, IA (NC7)	Seed	17	16	3%	17	17	3%	15	15	2%
Cynara	Geneva, NY (NE9)	Seed	0	0	0%	0	0	0%	0	0	0%
Date Palm	Riverside, CA (RIV)	Clonal	0	30	18%	0	35	18%	0	40	17%
Daucus	Ames, IA (NC7)	Seed	3,046	958	61%	3,895	922	57%	4,316	925	56%
Differentials	Griffin, GA (S9)	Seed	15	1	20%	15	1	20%	15	1	20%
Durian	Hilo, HI (HILO)	Clonal	0	0	0%	15	3	17%	25	5	25%
Eggplant	Griffin, GA (S9)	Seed	647	860	86%	680	900	88%	720	950	90%
Euphorbia	Ames, IA (NC7)	Seed	24	21	10%	31	27	13%	34	31	15%
Faba Bean	Pullman, WA (W6)	Seed	737	119	15%	811	129	15%	892	142	15%
Fagopyrum	Geneva, NY (NE9)	Seed	508	203	80%	559	205	67%	615	207	58%
Ficus	Miami, FL (MIA)	Clonal	57	15	63%	84	21	62%	112	28	64%
Fig	Davis, CA (DAV)	Clonal	1,919	28	12%	1,900	30	12%	1,900	35	13%
Flax	Ames, IA (NC7)	Seed	423	332	11%	698	589	20%	799	675	22%
Garcinia	Mayaguez, PR (MAY)	Clonal	65	18	69%	69	19	63%	72	20	57%
Gourds	Griffin, GA (S9)	Seed	396	188	39%	420	200	40%	450	250	48%
Grape	Davis, CA (DAV)	Clonal	7,074	466	13%	7,075	480	10%	7,075	485	9%
	Geneva, NY (GEN)	Clonal	508	287	36%	1,000	350	43%	1,500	400	48%
Grape CWR	Geneva, NY (GEN)	Clonal	284	133	22%	500	175	24%	1,000	225	26%

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S8c Annual Distribution of NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			Units (Avg #/ Year)	Accessions (Avg #/ Year)	% of Collection	Units (Avg #/ Year)	Accessions (Avg #/ Year)	% of Collection	Units (Avg #/ Year)	Accessions (Avg #/ Year)	% of Collection
Grasses	Pullman, WA (W6)	Seed	6,695	2,401	11%	7,029	2,521	11%	7,380	2,646	11%
Grasses Millets	Ames, IA (NC7)	Seed	1,447	1,171	47%	1,429	1,074	42%	1,606	1,203	46%
Grasses Warm Season	Griffin, GA (S9)	Seed	1,346	1,686	23%	1,346	1,686	23%	1,346	1,686	23%
Guar	Griffin, GA (S9)	Seed	428	165	40%	428	165	39%	428	165	39%
Guava	Hilo, HI (HILO)	Clonal	3	49	67%	3	50	67%	5	52	67%
Hazelnut	Corvallis, OR (COR)	Clonal	260	130	18%	280	140	18%	300	150	18%
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	80	40	38%	100	50	32%	100	50	24%
Hibiscus	Griffin, GA (S9)	Seed	487	278	82%	487	278	82%	487	278	82%
Hops	Corvallis, OR (COR)	Clonal	2	200	66%	2	250	76%	2	300	85%
Hops CWR	Corvallis, OR (COR)	Clonal	25	150	46%	26	200	47%	27	250	47%
Hylocereus	Hilo, HI (HILO)	Clonal	2	2	20%	2	2	18%	2	3	25%
Kiwifruit	Davis, CA (DAV)	Clonal	744	33	15%	800	40	19%	900	50	23%
Lagerstroemia	Miami, FL (MIA)	Clonal	1,243	26	76%	1,488	31	78%	1,824	38	76%
Lathyrus	Pullman, WA (W6)	Seed	241	91	10%	253	95	11%	266	100	11%
Legumes	Ames, IA (NC7)	Seed	173	152	12%	251	203	15%	244	194	14%
	Griffin, GA (S9)	Seed	939	801	26%	939	801	26%	939	801	26%
Legumes Minor Forage	Pullman, WA (W6)	Seed	418	159	9%	417	159	9%	417	159	9%
Lentil	Pullman, WA (W6)	Seed	1,515	449	14%	1,665	498	15%	1,831	548	16%
Lesquerella	Parlier, CA (PARL)	Seed	72	59	24%	75	62	25%	79	65	26%
Lettuce	Pullman, WA (W6)	Seed	24,206	386	14%	24,206	385	14%	24,206	385	14%
Limnanthes	Parlier, CA (PARL)	Seed	37	31	40%	39	33	42%	41	35	27%
Litchi	Hilo, HI (HILO)	Clonal	2	14	15%	5	15	15%	5	16	16%
Litchi Backup HILO	Miami, FL (MIA)	Clonal	83	7	37%	108	9	36%	132	11	37%
Longan	Hilo, HI (HILO)	Clonal	7	7	28%	7	8	30%	8	8	28%
Luffa	Griffin, GA (S9)	Seed	114	137	83%	125	150	83%	150	170	85%
Lupin	Pullman, WA (W6)	Seed	593	138	9%	605	144	9%	620	151	9%
Macadamia	Hilo, HI (HILO)	Clonal	3	16	35%	3	17	33%	3	17	30%
Maize	Ames, IA (NC7)	Seed	16,518	5,355	28%	20,773	6,091	25%	24,406	6,753	25%
Maize CWR	Ames, IA (NC7)	Seed	304	84	17%	412	124	23%	464	138	26%
Maize Genetic Stocks	Urbana, IL (GSZE)	Seed	6,876	5,500	13%	7,000	5,600	11%	7,000	5,600	10%
Mamey Sapote	Mayaguez, PR (MAY)	Clonal	7	19	59%	8	20	50%	8	21	47%
Mamey Sapote Backup MAY	Miami, FL (MIA)	Clonal	98	13	42%	152	19	48%	168	21	42%

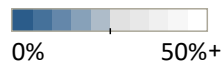
Fig. S8c The top row of the figure, shaded light beige, reports for the total NPGS collection the current average number of “units” (e.g., seed packets, budwood, tubers) and accessions distributed annually, and projections for +5 years and +10 years. The current percentage of accessions distributed from the total collection, and projections for +5 years and for +10 years also are provided. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the average percentage of accessions distributed annually from the individual NPGS PGR collections, the darker the blue hue, with 0% distribution percentage the darkest. Blank fields indicate that data could not be estimated. See Fig. S3.1 for total number of accessions for each PGR collection.



S8c Annual Distribution of NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			Units (Avg #/Year)	Accessions (Avg #/Year)	% of Collection	Units (Avg #/Year)	Accessions (Avg #/Year)	% of Collection	Units (Avg #/Year)	Accessions (Avg #/Year)	% of Collection
Mango	Miami, FL (MIA)	Clonal	1,368	224	79%	2,029	262	79%	1,845	302	79%
Medicago	Pullman, WA (W6)	Seed	923	378	8%	946	378	8%	969	378	8%
Medicinals	Ames, IA (NC7)	Seed	315	214	20%	509	325	27%	582	370	28%
Millets	Griffin, GA (S9)	Seed	1,967	1,786	74%	1,967	1,786	50%	1,967	1,786	38%
Mint	Corvallis, OR (COR)	Clonal	2	218	50%	2	240	52%	2	250	52%
Mint CWR	Corvallis, OR (COR)	Clonal	25	10	22%	25	15	27%	25	20	31%
Mulberry	Davis, CA (DAV)	Clonal	673	9	13%	680	12	17%	700	15	21%
Mung Bean	Griffin, GA (S9)	Seed	2,690	647	15%	2,984	718	17%	3,002	722	17%
Musa	Mayaguez, PR (MAY)	Clonal	338	148	85%	372	163	78%	409	179	76%
Native Plants	Pullman, WA (W6)	Seed	461	272	3%	495	393	3%	545	434	3%
Oat	Aberdeen, ID (NSGC)	Seed	3,875	2,340	11%	3,900	2,300	11%	3,900	2,300	11%
Ocimum	Ames, IA (NC7)	Seed	288	98	92%	376	100	93%	427	100	93%
Okra	Griffin, GA (S9)	Seed	1,396	1,214	41%	1,500	1,325	45%	1,650	1,500	50%
Olive	Davis, CA (DAV)	Clonal	1,460	29	18%	1,500	35	21%	1,600	40	24%
Opuntia	Parlier, CA (PARL)	Clonal	50	38	14%	52	40	14%	55	42	15%
Ornamentals	Ames, IA (NC7)	Seed	118	102	13%	155	126	15%	176	143	16%
	Geneva, NY (NE9)	Seed	6	3	1%	6	3	1%	7	3	1%
	Griffin, GA (S9)	Seed	84	74	45%	84	74	44%	84	74	43%
	Hilo, HI (HILO)	Clonal	0	0	0%	4	20	40%	6	30	50%
	Mayaguez, PR (MAY)	Clonal	570	157	33%	599	165	35%	628	181	38%
Other Crops	Miami, FL (MIA)	Clonal	395	103	24%	440	116	24%	485	127	24%
	Parlier, CA (PARL)	Seed	14	10	14%	14	11	15%	15	11	12%
	Pullman, WA (W6)	Seed	1,022	324	7%	1,022	324	7%	1,022	324	6%
	Miami, FL (MIA)	Clonal	157	51	44%	157	51	39%	195	63	43%
Other Crops Backup HILO	Miami, FL (MIA)	Clonal	157	51	44%	157	51	39%	195	63	43%
Papaya	Hilo, HI (HILO)	Clonal	25	62	35%	13	65	36%	14	70	37%
Parthenium	Parlier, CA (PARL)	Seed	199	70	51%	209	73	31%	220	77	19%
Pastinaca	Ames, IA (NC7)	Seed	23	21	29%	38	29	35%	44	34	41%
Pea	Pullman, WA (W6)	Seed	4,371	957	15%	4,808	1,052	17%	5,288	1,157	18%
Pea Genetic Stocks	Pullman, WA (W6)	Seed	42	35	5%	42	35	5%	42	35	5%
Peach Palm	Hilo, HI (HILO)	Clonal	3	2	13%	1	3	18%	1	3	17%
Peanut	Griffin, GA (S9)	Seed	5,031	3,171	34%	5,396	3,400	37%	5,410	3,411	37%
Peanut CWR	Griffin, GA (S9)	Seed	310	96	17%	396	122	21%	414	128	21%

Fig. S8c The top row of the figure, shaded light beige, reports for the total NPGS collection the current average number of “units” (e.g., seed packets, budwood, tubers) and accessions distributed annually, and projections for +5 years and +10 years. The current percentage of accessions distributed from the total collection, and projections for +5 years and for +10 years also are provided. The same information then is provided for individual NPGS PGR collections, listed alphabetically by their generic or crop name. The NPGS genebank units that manage the PGR collections, or their back-ups are identified, as are whether the PGR are managed primarily as clones or as seeds. The lower the average percentage of accessions distributed annually from the individual NPGS PGR collections, the darker the blue hue, with 0% distribution percentage the darkest. Blank fields indicate that data could not be estimated. See Fig. S3.1 for total number of accessions for each PGR collection.



S8c Annual Distribution of NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			Units (Avg #/ Year)	Accessions (Avg #/ Year)	% of Collection	Units (Avg #/ Year)	Accessions (Avg #/ Year)	% of Collection	Units (Avg #/ Year)	Accessions (Avg #/ Year)	% of Collection
Pears	Corvallis, OR (COR)	Clonal	2	1,000	51%	2	1,030	51%	2	1,050	51%
Pears CWR	Corvallis, OR (COR)	Clonal	25	99	24%	25	120	26%	25	150	29%
Pecan	College Station, TX (BRW)	Clonal	25	0	0%	50	50	1%	100	100	2%
Pepper	Griffin, GA (S9)	Seed	5,195	4,431	89%	5,500	4,500	90%	6,000	5,000	99%
Persimmon	Davis, CA (DAV)	Clonal	1,509	14	9%	1,550	15	9%	1,600	25	15%
Phaseolus	Pullman, WA (W6)	Seed	6,059	2,019	11%	8,700	3,500	20%	6,059	2,018	11%
Physalis	Geneva, NY (NE9)	Seed	143	83	49%	157	84	44%	173	85	39%
Pili Nut	Hilo, HI (HILO)	Clonal	3	3	9%	1	5	15%	1	7	21%
Pineapple	Hilo, HI (HILO)	Clonal	5	124	52%	25	124	51%	25	124	50%
Pistachio	Davis, CA (DAV)	Clonal	700	40	18%	720	50	19%	750	60	19%
Pomegranate	Davis, CA (DAV)	Clonal	1,666	29	15%	1,650	35	17%	1,700	40	19%
Potato	Sturgeon Bay, WI (NR6)	Seed	12,511	2,533	43%	12,511	2,533	42%	12,511	2,533	41%
Prunus	Davis, CA (DAV)	Clonal	6,837	235	14%	6,837	235	13%	6,837	235	11%
Pseudocereals	Ames, IA (NC7)	Seed	4,325	2,071	53%	4,543	2,228	56%	5,139	2,522	50%
Quince	Corvallis, OR (COR)	Clonal	266	133	65%	270	135	63%	280	140	63%
Rambutan	Hilo, HI (HILO)	Clonal	7	47	58%	10	48	59%	10	48	58%
Raphanus	Geneva, NY (NE9)	Seed	833	556	78%	917	562	71%	1,008	567	65%
Rhubarb	Pullman, WA (W6)	Clonal	73	11	10%	72	11	10%	72	11	10%
Ribes	Corvallis, OR (COR)	Clonal	2	230	33%	2	250	34%	2	275	35%
Ribes CWR	Corvallis, OR (COR)	Clonal	25	50	8%	25	100	15%	25	110	16%
Rice	Aberdeen, ID (NSGC)	Seed	1,341	836	4%	1,500	900	5%	1,500	900	5%
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	41	110	21%	45	115	21%	50	120	21%
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	6	4	13%	6	5	9%	6	5	7%
Rice Sativa	Stuttgart, AR (GSOR)	Seed	9,161	3,500	9%	9,300	3,700	10%	9,500	3,900	10%
Rubus	Corvallis, OR (COR)	Clonal	2	840	97%	3	880	96%	4	920	95%
Rubus CWR	Corvallis, OR (COR)	Clonal	25	600	44%	25	650	46%	25	700	48%
Rye	Aberdeen, ID (NSGC)	Seed	2,039	690	33%	2,100	700	33%	2,100	700	33%
Saccharum	Miami, FL (MIA)	Clonal	611	88	41%	686	98	41%	756	108	41%
Safflower	Pullman, WA (W6)	Seed	1,136	478	19%	1,193	501	20%	1,252	526	21%
Sapodilla	Mayaguez, PR (MAY)	Clonal	8	4	15%	9	4	13%	9	4	11%
Sapodilla Backup MAY	Miami, FL (MIA)	Clonal	36	3	12%	48	4	13%	48	4	11%
Sesame	Griffin, GA (S9)	Seed	657	384	32%	657	384	32%	657	384	32%

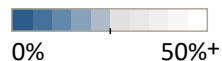
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S8c Annual Distribution of NPGS PGR

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now			+ 5 Yrs.			+ 10 Yrs.		
			Units (Avg #/Year)	Accessions (Avg #/Year)	% of Collection	Units (Avg #/Year)	Accessions (Avg #/Year)	% of Collection	Units (Avg #/Year)	Accessions (Avg #/Year)	% of Collection
Simmondsia	Parlier, CA (PARL)	Clonal	36	17	5%	38	18	6%	40	19	6%
Solanum	Geneva, NY (NE9)	Seed	3,324	2,352	36%	3,656	2,376	36%	4,022	2,400	36%
Sorghum	Griffin, GA (S9)	Seed	12,016	5,270	12%	12,016	5,270	10%	12,016	5,270	9%
Soybean	Urbana, IL (SOY)	Seed	22,000	11,000	52%	30,000	14,000	61%	35,000	16,000	65%
Soybean CWR	Urbana, IL (SOY)	Seed	436	330	27%	700	600	44%	900	800	53%
Spanish Lime	Mayaguez, PR (MAY)	Clonal	7	0	0%	120	11	25%	250	12	24%
Spinach	Ames, IA (NC7)	Seed	410	410	99%	410	410	99%	410	410	99%
Strawberry	Corvallis, OR (COR)	Clonal	2	738	100%	2	788	100%	2	838	100%
Strawberry CWR	Corvallis, OR (COR)	Clonal	2	700	55%	2	750	56%	2	800	54%
Sugarbeet/Beet	Pullman, WA (W6)	Seed	1,419	370	13%	1,419	369	13%	1,419	369	13%
Sunflower	Ames, IA (NC7)	Seed	9,184	4,446	85%	9,406	4,554	85%	9,683	4,702	85%
Sweet Potato	Griffin, GA (S9)	Seed	169	221	28%	169	222	28%	169	224	28%
Sweet Potato CWR	Griffin, GA (S9)	Seed	121	133	29%	121	133	29%	121	133	29%
Tart Cherry	Geneva, NY (GEN)	Clonal	146	61	47%	200	70	49%	300	80	51%
Trefoil	Pullman, WA (W6)	Seed	354	132	13%	363	132	13%	372	132	12%
Trichosanthes	Geneva, NY (NE9)	Seed	0	0	0%	0	0	0%	0	0	0%
Trigonella	Pullman, WA (W6)	Seed	259	50	17%	259	50	16%	259	50	16%
Tripsacum	Miami, FL (MIA)	Seed	61	6	3%	61	6	3%	61	6	3%
Triticale	Aberdeen, ID (NSGC)	Seed	2,445	669	33%	2,450	700	34%	2,450	700	34%
Umbels	Ames, IA (NC7)	Seed	551	288	24%	665	327	27%	745	374	30%
Vaccinium	Corvallis, OR (COR)	Clonal	2	890	48%	2	900	46%	2	960	47%
Vaccinium CWR	Corvallis, OR (COR)	Clonal	25	100	11%	25	200	19%	25	300	26%
Vetch	Pullman, WA (W6)	Seed	574	178	10%	602	187	10%	632	196	10%
Vigna	Griffin, GA (S9)	Seed	219	126	26%	368	212	43%	372	214	43%
Walnut	Davis, CA (DAV)	Clonal	986	91	19%	1,200	100	16%	1,500	120	17%
Watermelon	Griffin, GA (S9)	Seed	3,907	1,278	67%	4,100	1,450	75%	4,300	1,650	85%
Wheat	Aberdeen, ID (NSGC)	Seed	20,271	9,287	16%	21,000	9,500	17%	22,000	10,000	18%
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	245	30	7%	250	30	7%	250	30	7%
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	99	76	8%	100	75	8%	100	75	8%
Winged Bean	Griffin, GA (S9)	Seed	26	41	26%	26	41	26%	26	41	26%
Woody Landscape	Ames, IA (NC7)	Seed	362	169	8%	363	200	8%	399	227	9%
	Washington, D.C. (USNA)	Clonal	285	634	8%	250	500	5%	250	500	5%

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S10.1 Genotypic Characterization Data Currently Maintained Within or Directly Linked to GRIN-Global, and Projections by PGR Managers for +5 and +10 Years

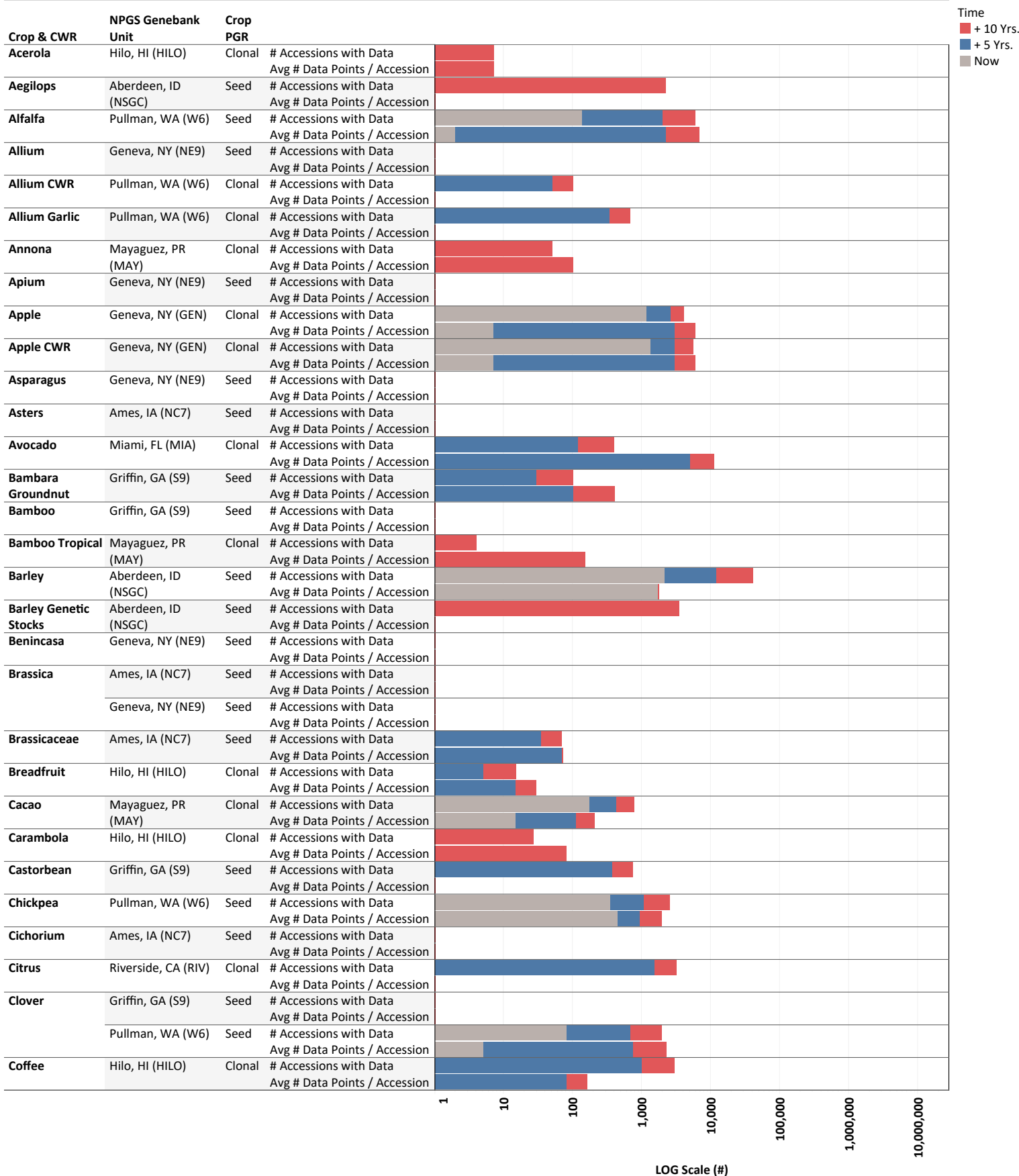


Fig. S10.1 Genotypic characterization data maintained within or directly linked to GRIN-Global are depicted for accessions of the NPGS PGR collections. The PGR are listed alphabetically by their generic or crop names. The NPGS genebank unit that manages each of the PGR is identified, as are whether the PGR are managed primarily as clones or seeds. For each PGR, the top horizontal bar provides the number of accessions with genotypic characterization data maintained within or directly linked to GRIN-Global. For each PGR, the bottom horizontal bar provides the average number of genotypic characterization datapoints per accession maintained within or directly linked to GRIN-Global. The current numbers of accessions with data and datapoints are shown by gray bars, goals for +5 years by blue bars, and goals for +10 years by rust red bars. The PGR managers from NPGS genebank units estimated the goals for +5 and +10 years based on the current capacities and approaches for genotypic characterization. Component 10 of the Plan describes an alternative approach that will be implemented to generate many more genotypic characterization data than are estimated here for all the NPGS PGR. The scale for the graph is logarithmic because of the wide variability in the magnitudes of the numbers of genotypic characterization datapoints and accessions. See Fig. S3.1 for total number of accessions for each PGR collection.

S10.1 Genotypic Characterization Data Currently Maintained Within or Directly Linked to GRIN-Global, and Projections by PGR Managers for +5 and +10 Years

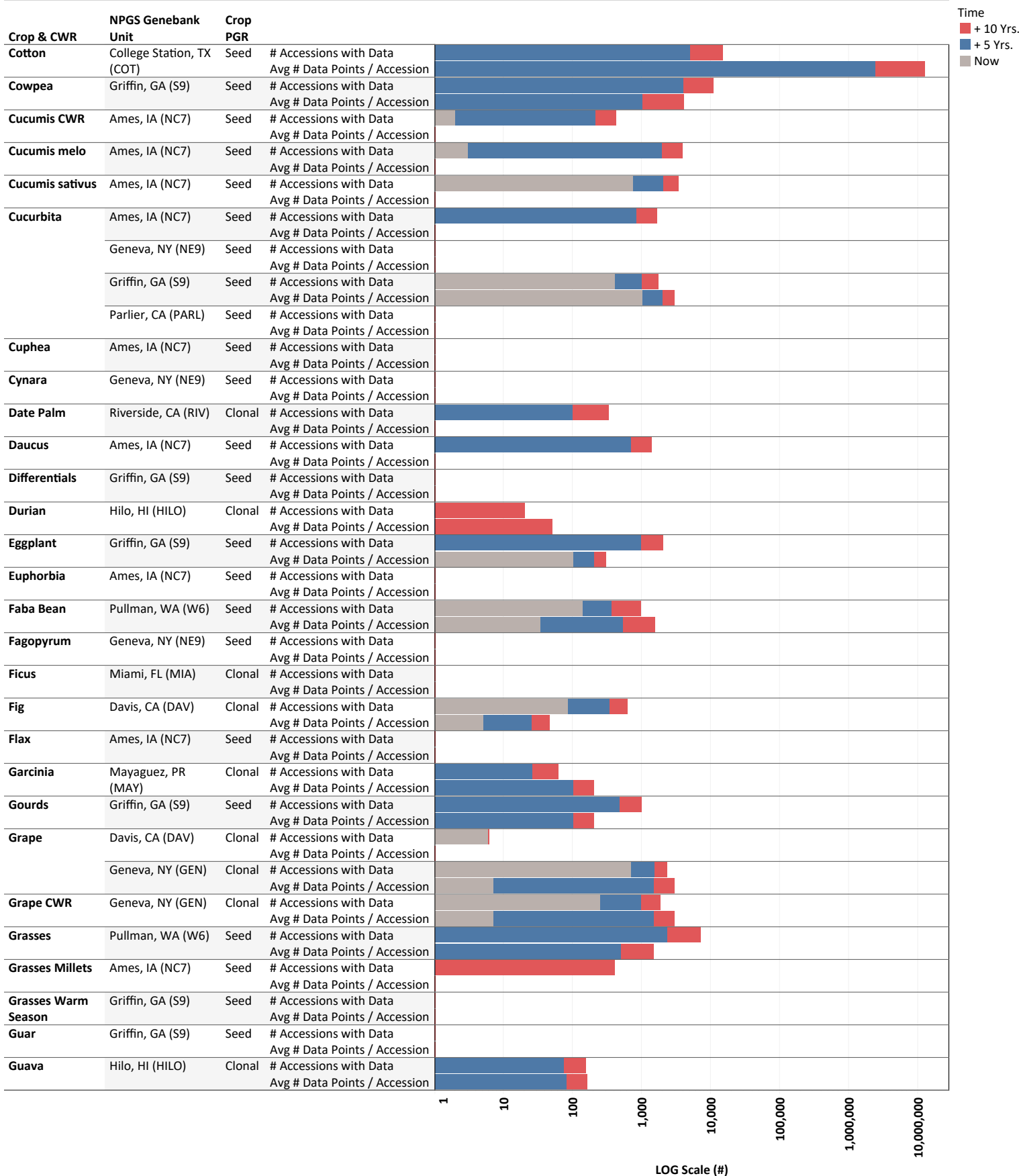


Fig. S10.1 Genotypic characterization data maintained within or directly linked to GRIN-Global are depicted for accessions of the NPGS PGR collections. The PGR are listed alphabetically by their generic or crop names. The NPGS genebank unit that manages each of the PGR is identified, as are whether the PGR are managed primarily as clones or seeds. For each PGR, the top horizontal bar provides the number of accessions with genotypic characterization data maintained within or directly linked to GRIN-Global. For each PGR, the bottom horizontal bar provides the average number of genotypic characterization datapoints per accession maintained within or directly linked to GRIN-Global. The current numbers of accessions with data and datapoints are shown by gray bars, goals for +5 years by blue bars, and goals for +10 years by rust red bars. The PGR managers from NPGS genebank units estimated the goals for +5 and +10 years based on the current capacities and approaches for genotypic characterization. Component 10 of the Plan describes an alternative approach that will be implemented to generate many more genotypic characterization data than are estimated here for all the NPGS PGR. The scale for the graph is logarithmic because of the wide variability in the magnitudes of the numbers of genotypic characterization datapoints and accessions. See Fig. S3.1 for total number of accessions for each PGR collection.

S10.1 Genotypic Characterization Data Currently Maintained Within or Directly Linked to GRIN-Global, and Projections by PGR Managers for +5 and +10 Years

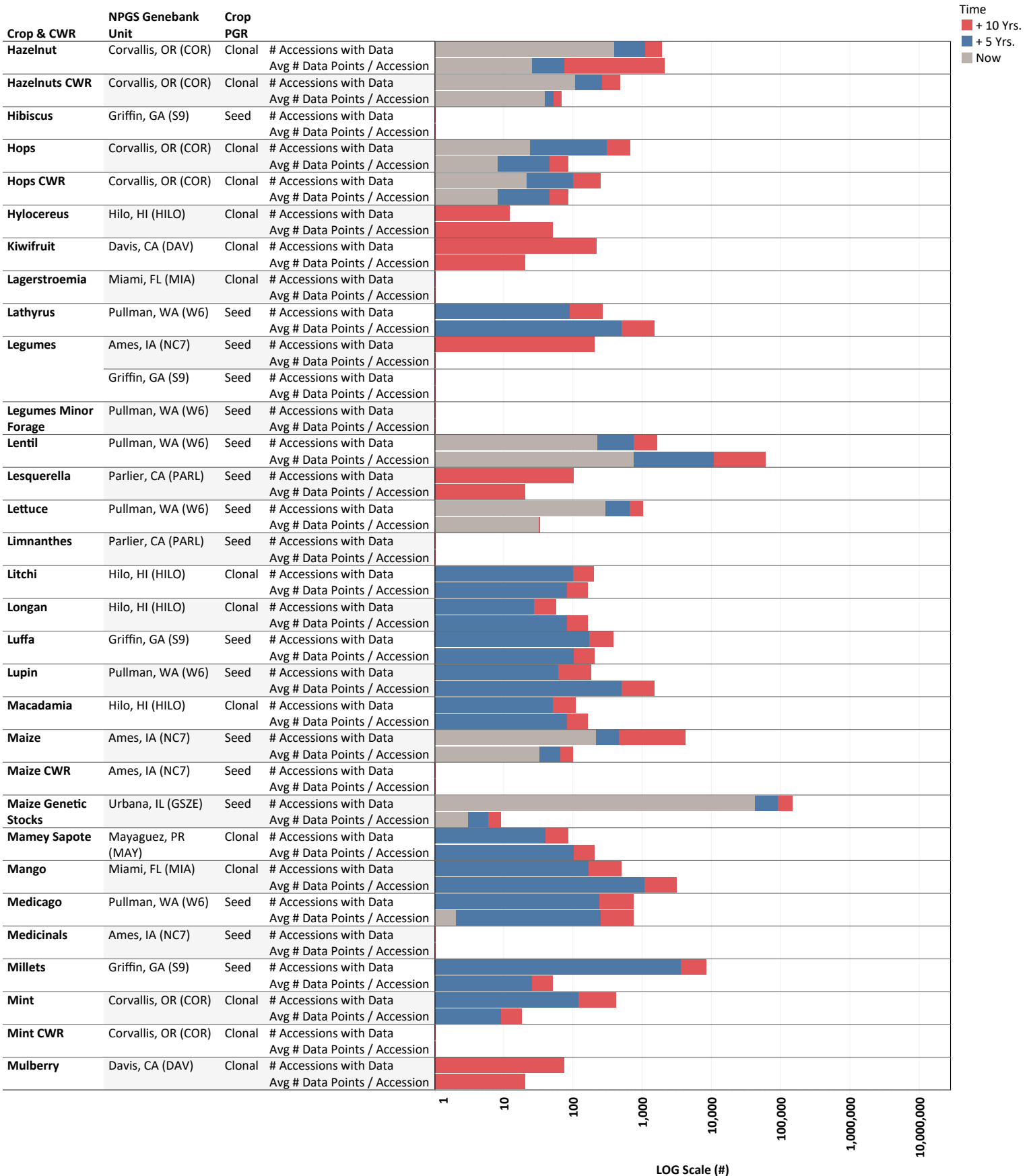


Fig. S10.1 Genotypic characterization data maintained within or directly linked to GRIN-Global are depicted for accessions of the NPGS PGR collections. The PGR are listed alphabetically by their generic or crop names. The NPGS genebank unit that manages each of the PGR is identified, as are whether the PGR are managed primarily as clones or seeds. For each PGR, the top horizontal bar provides the number of accessions with genotypic characterization data maintained within or directly linked to GRIN-Global. For each PGR, the bottom horizontal bar provides the average number of genotypic characterization datapoints per accession maintained within or directly linked to GRIN-Global. The current numbers of accessions with data and datapoints are shown by gray bars, goals for +5 years by blue bars, and goals for +10 years by rust red bars. The PGR managers from NPGS genebank units estimated the goals for +5 and +10 years based on the current capacities and approaches for genotypic characterization. Component 10 of the Plan describes an alternative approach that will be implemented to generate many more genotypic characterization data than are estimated here for all the NPGS PGR. The scale for the graph is logarithmic because of the wide variability in the magnitudes of the numbers of genotypic characterization datapoints and accessions. See Fig. S3.1 for total number of accessions for each PGR collection.

S10.1 Genotypic Characterization Data Currently Maintained Within or Directly Linked to GRIN-Global, and Projections by PGR Managers for +5 and +10 Years

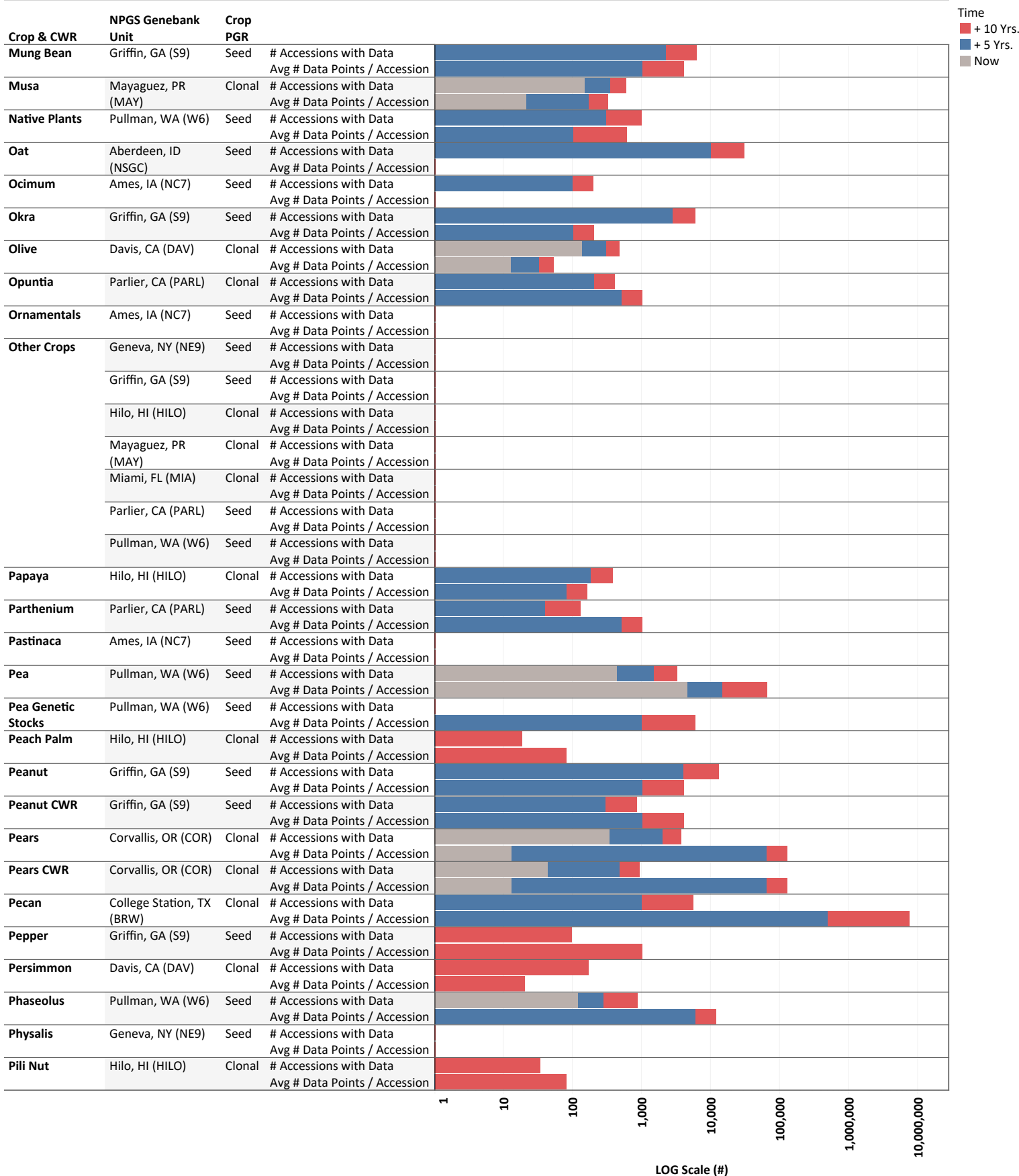


Fig. S10.1 Genotypic characterization data maintained within or directly linked to GRIN-Global are depicted for accessions of the NPGS PGR collections. The PGR are listed alphabetically by their generic or crop names. The NPGS genebank unit that manages each of the PGR is identified, as are whether the PGR are managed primarily as clones or seeds. For each PGR, the top horizontal bar provides the number of accessions with genotypic characterization data maintained within or directly linked to GRIN-Global. For each PGR, the bottom horizontal bar provides the average number of genotypic characterization datapoints per accession maintained within or directly linked to GRIN-Global. The current numbers of accessions with data and datapoints are shown by gray bars, goals for +5 years by blue bars, and goals for +10 years by rust red bars. The PGR managers from NPGS genebank units estimated the goals for +5 and +10 years based on the current capacities and approaches for genotypic characterization. Component 10 of the Plan describes an alternative approach that will be implemented to generate many more genotypic characterization data than are estimated here for all the NPGS PGR. The scale for the graph is logarithmic because of the wide variability in the magnitudes of the numbers of genotypic characterization datapoints and accessions. See Fig. S3.1 for total number of accessions for each PGR collection.

S10.1 Genotypic Characterization Data Currently Maintained Within or Directly Linked to GRIN-Global, and Projections by PGR Managers for +5 and +10 Years

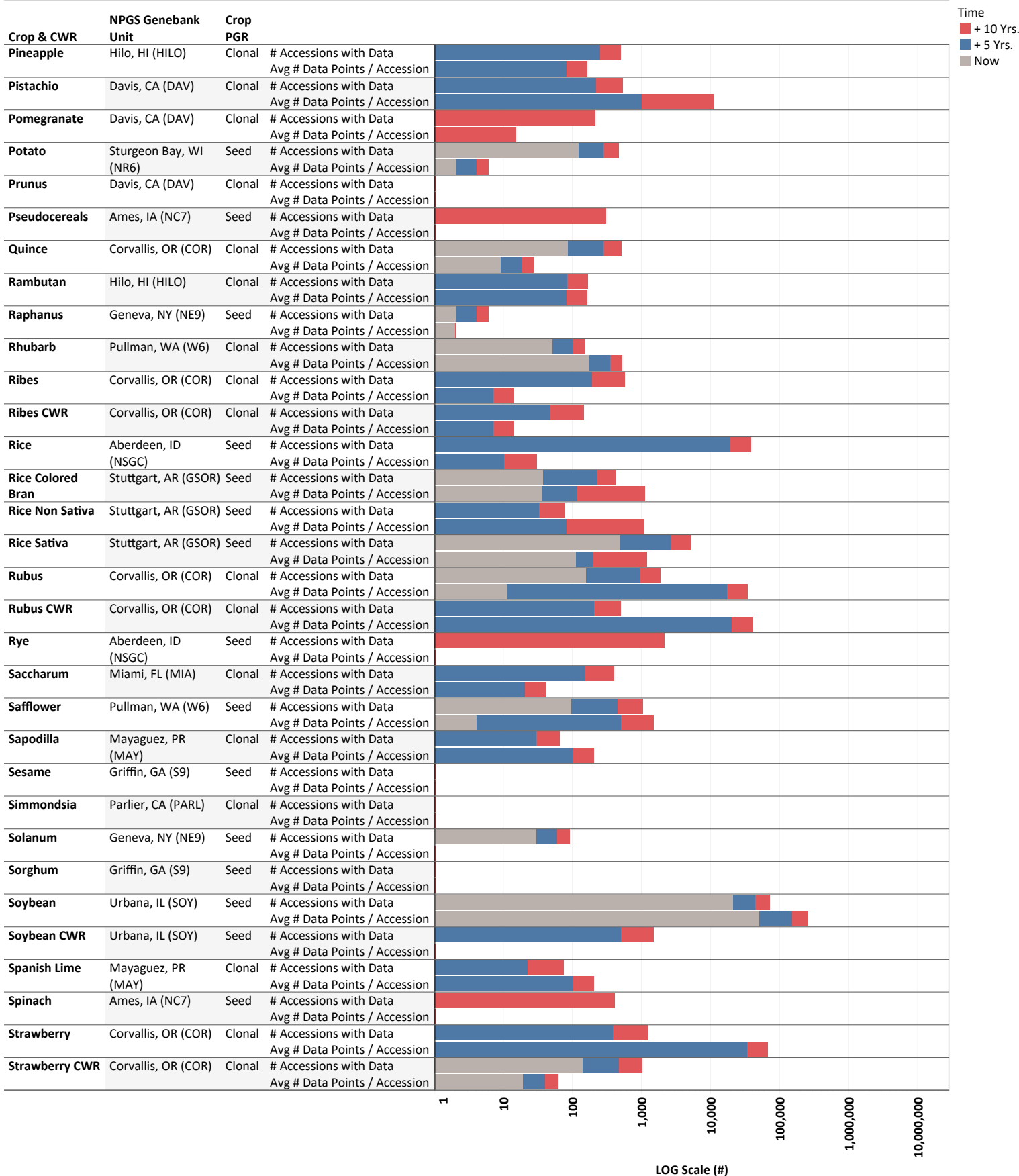


Fig. S10.1 Genotypic characterization data maintained within or directly linked to GRIN-Global are depicted for accessions of the NPGS PGR collections. The PGR are listed alphabetically by their generic or crop names. The NPGS genebank unit that manages each of the PGR is identified, as are whether the PGR are managed primarily as clones or seeds. For each PGR, the top horizontal bar provides the number of accessions with genotypic characterization data maintained within or directly linked to GRIN-Global. For each PGR, the bottom horizontal bar provides the average number of genotypic characterization datapoints per accession maintained within or directly linked to GRIN-Global. The current numbers of accessions with data and datapoints are shown by gray bars, goals for +5 years by blue bars, and goals for +10 years by rust red bars. The PGR managers from NPGS genebank units estimated the goals for +5 and +10 years based on the current capacities and approaches for genotypic characterization. Component 10 of the Plan describes an alternative approach that will be implemented to generate many more genotypic characterization data than are estimated here for all the NPGS PGR. The scale for the graph is logarithmic because of the wide variability in the magnitudes of the numbers of genotypic characterization datapoints and accessions. See Fig. S3.1 for total number of accessions for each PGR collection.

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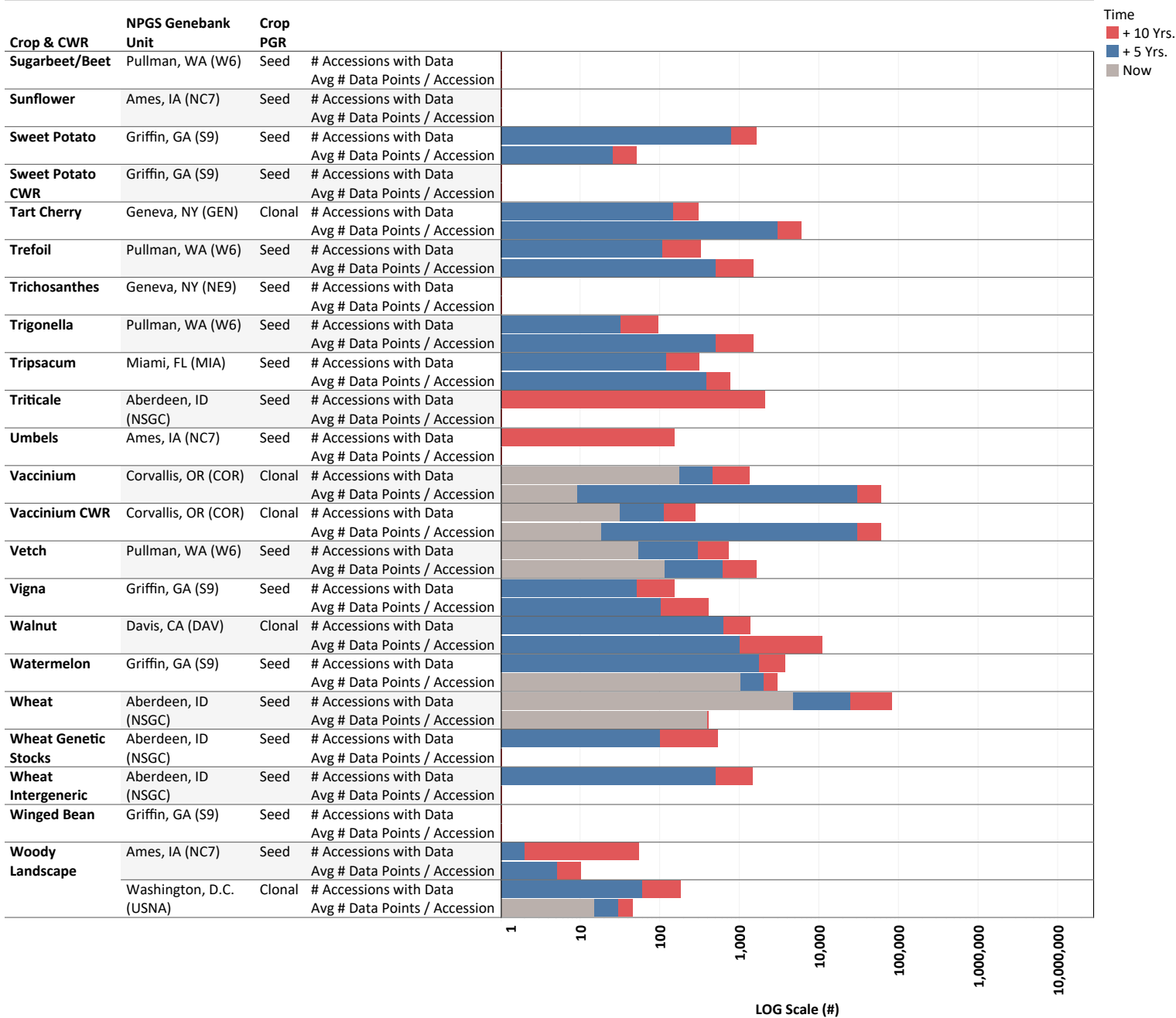


Fig. S10.1 Genotypic characterization data maintained within or directly linked to GRIN-Global are depicted for accessions of the NPGS PGR collections. The PGR are listed alphabetically by their generic or crop names. The NPGS genebank unit that manages each of the PGR is identified, as are whether the PGR are managed primarily as clones or seeds. For each PGR, the top horizontal bar provides the number of accessions with genotypic characterization data maintained within or directly linked to GRIN-Global. For each PGR, the bottom horizontal bar provides the average number of genotypic characterization datapoints per accession maintained within or directly linked to GRIN-Global. The current numbers of accessions with data and datapoints are shown by gray bars, goals for +5 years by blue bars, and goals for +10 years by rust red bars. The PGR managers from NPGS genebank units estimated the goals for +5 and +10 years based on the current capacities and approaches for genotypic characterization. Component 10 of the Plan describes an alternative approach that will be implemented to generate many more genotypic characterization data than are estimated here for all the NPGS PGR. The scale for the graph is logarithmic because of the wide variability in the magnitudes of the numbers of genotypic characterization datapoints and accessions. See Fig. S3.1 for total number of accessions for each PGR collection.

S11.1 Accessions with Phenotypic Evaluation Data Currently Maintained Within GRIN-Global or Directly Linked to Corresponding Data in GRIN-Global and the Average Number of Datapoints per Accession for Crops and CWR Maintained by the NPGS

Crop & CWR	NPGS Genebank Unit	Crop PGR	Accessions with Evaluation Data (#)	% of Collection	Avg # Datapoints per Accession
NPGS-wide			391,280	69%	20
Acerola	Hilo, HI (HILO)	Clonal	0	0%	0
Aegilops	Aberdeen, ID (NSGC)	Seed	1,379	62%	2
Alfalfa	Pullman, WA (W6)	Seed	3,803	95%	17
Allium	Geneva, NY (NE9)	Seed	502	42%	7
Allium CWR	Pullman, WA (W6)	Clonal	606	67%	6
Allium Garlic	Pullman, WA (W6)	Clonal	268	78%	48
Annona	Mayaguez, PR (MAY)	Clonal	6	22%	9
Apium	Geneva, NY (NE9)	Seed	89	36%	5
Apple	Geneva, NY (GEN)	Clonal	1,363	98%	31
Apple CWR	Geneva, NY (GEN)	Clonal	1,373	29%	30
Asparagus	Geneva, NY (NE9)	Seed	0	0%	0
Asters	Ames, IA (NC7)	Seed	4	1%	6
Avocado	Miami, FL (MIA)	Clonal	0	0%	12
Bambara Groundnut	Griffin, GA (S9)	Seed	40	41%	2
Bamboo	Griffin, GA (S9)	Seed	91	95%	7
Bamboo Tropical	Mayaguez, PR (MAY)	Clonal	25	83%	49
Barley	Aberdeen, ID (NSGC)	Seed	27,680	98%	24
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	3,310	96%	2
Benincasa	Geneva, NY (NE9)	Seed	0	0%	0
Brassica	Ames, IA (NC7)	Seed	1,997	99%	20
	Geneva, NY (NE9)	Seed	590	27%	5
Brassicaceae	Ames, IA (NC7)	Seed	888	68%	8
Breadfruit	Hilo, HI (HILO)	Clonal	22	46%	34
Cacao	Mayaguez, PR (MAY)	Clonal	174	59%	11
Carambola	Hilo, HI (HILO)	Clonal	24	96%	50
Castorbean	Griffin, GA (S9)	Seed	310	82%	8
Chickpea	Pullman, WA (W6)	Seed	6,794	96%	17
Cichorium	Ames, IA (NC7)	Seed	258	91%	16
Citrus	Riverside, CA (RIV)	Clonal	800	53%	29
Clover	Griffin, GA (S9)	Seed	2,039	79%	52
	Pullman, WA (W6)	Seed	2,794	75%	10
Coffee	Hilo, HI (HILO)	Clonal	0	0%	0
Cotton	College Station, TX (COT)	Seed	7,856	80%	12
Cowpea	Griffin, GA (S9)	Seed	7,081	86%	4
Cucumis CWR	Ames, IA (NC7)	Seed	149	47%	2
Cucumis melo	Ames, IA (NC7)	Seed	2,526	78%	2
Cucumis sativus	Ames, IA (NC7)	Seed	1,050	75%	21
	Ames, IA (NC7)	Seed	149	15%	2
	Geneva, NY (NE9)	Seed	425	51%	7
	Griffin, GA (S9)	Seed	775	54%	6
Cucurbita	Parlier, CA (PARL)	Seed	0	0%	0
	Ames, IA (NC7)	Seed	152	24%	12
Cuphea	Geneva, NY (NE9)	Seed	0	0%	0
Cynara	Geneva, NY (NE9)	Seed	0	0%	0
Date Palm	Riverside, CA (RIV)	Clonal	0	0%	0
Daucus	Ames, IA (NC7)	Seed	996	64%	17

Fig. S11.1 The top row of Fig. 11.1 shaded light beige depicts the current number and percentage of NPGS accessions with phenotypic evaluation data maintained within GRIN-Global or directly linked to corresponding data in GRIN-Global and the average number of phenotypic evaluation datapoints per accession for all 183 crops and CWR. The same information is then provided for individual crops and CWR. The darker the blue hue, the lower the percentage of accessions within the crop or CWR with phenotypic evaluation data, with the darkest hue 0% accessions with such data. See Fig. S3.1 for total number of accessions for each PGR collection.



S11.1 Accessions with Phenotypic Evaluation Data Currently Maintained Within GRIN-Global or Directly Linked to Corresponding Data in GRIN-Global and the Average Number of Datapoints per Accession for Crops and CWR Maintained by the NPGS

Crop & CWR	NPGS Genebank Unit	Crop PGR	Accessions with Evaluation Data (#)	% of Collection	Avg # Datapoints per Accession
Differentials	Griffin, GA (S9)	Seed	5	100%	
Durian	Hilo, HI (HILO)	Clonal	0	0%	0
Eggplant	Griffin, GA (S9)	Seed	814	81%	4
Faba Bean	Pullman, WA (W6)	Seed	762	98%	31
Fagopyrum	Geneva, NY (NE9)	Seed	16	6%	0
Ficus	Miami, FL (MIA)	Clonal	0	0%	0
Fig	Davis, CA (DAV)	Clonal	126	55%	25
Flax	Ames, IA (NC7)	Seed	2,908	97%	24
Garcinia	Mayaguez, PR (MAY)	Clonal	0	0%	0
Gourds	Griffin, GA (S9)	Seed	190	39%	6
Grape	Davis, CA (DAV)	Clonal	1,628	45%	33
	Geneva, NY (GEN)	Clonal	683	85%	6
Grape CWR	Geneva, NY (GEN)	Clonal	335	55%	7
Grasses	Pullman, WA (W6)	Seed	17,677	77%	8
Grasses Millets	Ames, IA (NC7)	Seed	2,432	97%	4
Grasses Warm Season	Griffin, GA (S9)	Seed	3,427	47%	12
Guar	Griffin, GA (S9)	Seed	404	98%	13
Guava	Hilo, HI (HILO)	Clonal	39	53%	71
Hazelnut	Corvallis, OR (COR)	Clonal	237	33%	25
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	10	10%	25
Hibiscus	Griffin, GA (S9)	Seed	36	11%	6
Hops	Corvallis, OR (COR)	Clonal	50	16%	15
Hops CWR	Corvallis, OR (COR)	Clonal	10	3%	15
Hylocereus	Hilo, HI (HILO)	Clonal	0	0%	0
Kiwifruit	Davis, CA (DAV)	Clonal	171	80%	32
Lagerstroemia	Miami, FL (MIA)	Clonal	0	0%	0
Lathyrus	Pullman, WA (W6)	Seed	633	73%	4
Legumes	Ames, IA (NC7)	Seed	1,240	95%	3
	Griffin, GA (S9)	Seed	1,438	46%	18
Legumes Minor Forage	Pullman, WA (W6)	Seed	1,345	77%	1
Lentil	Pullman, WA (W6)	Seed	3,144	99%	14
Lesquerella	Parlier, CA (PARL)	Seed	127	51%	62
Lettuce	Pullman, WA (W6)	Seed	2,553	95%	7
Limnathes	Parlier, CA (PARL)	Seed	56	72%	54
Litchi	Hilo, HI (HILO)	Clonal	58	61%	62
Longan	Hilo, HI (HILO)	Clonal	18	72%	36
Luffa	Griffin, GA (S9)	Seed	57	35%	4
Lupin	Pullman, WA (W6)	Seed	1,159	74%	5
Macadamia	Hilo, HI (HILO)	Clonal	20	43%	21
Maize	Ames, IA (NC7)	Seed	16,503	86%	121
Maize CWR	Ames, IA (NC7)	Seed	94	19%	2
Maize Genetic Stocks	Urbana, IL (GSZE)	Seed	5,442	13%	2
Mamey Sapote	Mayaguez, PR (MAY)	Clonal	26	81%	12
Mango	Miami, FL (MIA)	Clonal	86	30%	17
Medicago	Pullman, WA (W6)	Seed	4,217	93%	15
Medicinals	Ames, IA (NC7)	Seed	457	42%	11

Fig. S11.1 The top row of Fig. 11.1 shaded light beige depicts the current number and percentage of NPGS accessions with phenotypic evaluation data maintained within GRIN-Global or directly linked to corresponding data in GRIN-Global and the average number of phenotypic evaluation datapoints per accession for all 183 crops and CWR. The same information is then provided for individual crops and CWR. The darker the blue hue, the lower the percentage of accessions within the crop or CWR with phenotypic evaluation data, with the darkest hue 0% accessions with such data. See Fig. S3.1 for total number of accessions for each PGR collection.



S11.1 Accessions with Phenotypic Evaluation Data Currently Maintained Within GRIN-Global or Directly Linked to Corresponding Data in GRIN-Global and the Average Number of Datapoints per Accession for Crops and CWR Maintained by the NPGS

Crop & CWR	NPGS Genebank Unit	Crop PGR	Accessions with Evaluation Data (#)	% of Collection	Avg # Datapoints per Accession
Millet	Griffin, GA (S9)	Seed	2,332	96%	10
Mint	Corvallis, OR (COR)	Clonal	273	62%	30
Mint CWR	Corvallis, OR (COR)	Clonal	10	22%	30
Mulberry	Davis, CA (DAV)	Clonal	52	72%	82
Mung Bean	Griffin, GA (S9)	Seed	3,869	92%	4
Musa	Mayaguez, PR (MAY)	Clonal	143	82%	50
Native Plants	Pullman, WA (W6)	Seed	6	0%	1
Oat	Aberdeen, ID (NSGC)	Seed	10,900	52%	11
Ocimum	Ames, IA (NC7)	Seed	79	75%	4
Okra	Griffin, GA (S9)	Seed	614	21%	6
Olive	Davis, CA (DAV)	Clonal	141	86%	144
Opuntia	Parlier, CA (PARL)	Clonal	157	56%	18
Ornamentals	Ames, IA (NC7)	Seed	101	13%	0
Other Crops	Geneva, NY (NE9)	Seed	0	0%	0
	Griffin, GA (S9)	Seed	94	58%	6
	Miami, FL (MIA)	Clonal	3	1%	14
	Parlier, CA (PARL)	Seed	0	0%	0
	Pullman, WA (W6)	Seed	1,582	35%	1
Papaya	Hilo, HI (HILO)	Clonal	42	24%	24
Parthenium	Parlier, CA (PARL)	Seed	0	0%	0
Pastinaca	Ames, IA (NC7)	Seed	1	1%	1
Pea	Pullman, WA (W6)	Seed	5,867	95%	30
Pea Genetic Stocks	Pullman, WA (W6)	Seed	697	98%	19
Peach Palm	Hilo, HI (HILO)	Clonal	12	75%	63
Peanut	Griffin, GA (S9)	Seed	8,648	94%	24
Peanut CWR	Griffin, GA (S9)	Seed	271	48%	5
Pears	Corvallis, OR (COR)	Clonal	1,700	87%	50
Pears CWR	Corvallis, OR (COR)	Clonal	64	15%	50
Pecan	College Station, TX (BRW)	Clonal	700	17%	18
Pepper	Griffin, GA (S9)	Seed	3,510	71%	20
Persimmon	Davis, CA (DAV)	Clonal	69	43%	21
Phaseolus	Pullman, WA (W6)	Seed	17,481	99%	17
Physalis	Geneva, NY (NE9)	Seed	0	0%	0
Pili Nut	Hilo, HI (HILO)	Clonal	5	16%	74
Pineapple	Hilo, HI (HILO)	Clonal	172	72%	55
Pistachio	Davis, CA (DAV)	Clonal	181	83%	6
Pomegranate	Davis, CA (DAV)	Clonal	23	12%	1
Potato	Sturgeon Bay, WI (NR6)	Seed	5,656	97%	14
Prunus	Davis, CA (DAV)	Clonal	1,023	61%	11
Pseudocereals	Ames, IA (NC7)	Seed	3,788	97%	15
Quince	Corvallis, OR (COR)	Clonal	132	65%	50
Rambutan	Hilo, HI (HILO)	Clonal	33	41%	55
Raphanus	Geneva, NY (NE9)	Seed	493	69%	15
Rhubarb	Pullman, WA (W6)	Clonal	48	44%	29
Ribes	Corvallis, OR (COR)	Clonal	600	87%	50
Ribes CWR	Corvallis, OR (COR)	Clonal	100	17%	50

Fig. S11.1 The top row of Fig. 11.1 shaded light beige depicts the current number and percentage of NPGS accessions with phenotypic evaluation data maintained within GRIN-Global or directly linked to corresponding data in GRIN-Global and the average number of phenotypic evaluation datapoints per accession for all 183 crops and CWR. The same information is then provided for individual crops and CWR. The darker the blue hue, the lower the percentage of accessions within the crop or CWR with phenotypic evaluation data, with the darkest hue 0% accessions with such data. See Fig. S3.1 for total number of accessions for each PGR collection.



S11.1 Accessions with Phenotypic Evaluation Data Currently Maintained Within GRIN-Global or Directly Linked to Corresponding Data in GRIN-Global and the Average Number of Datapoints per Accession for Crops and CWR Maintained by the NPGS

Crop & CWR	NPGS Genebank Unit	Crop PGR	Accessions with Evaluation Data (#)	% of Collection	Avg # Datapoints per Accession
Rice	Aberdeen, ID (NSGC)	Seed	18,915	99%	20
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	533	100%	15
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	28	88%	12
Rice Sativa	Stuttgart, AR (GSOR)	Seed	4,784	13%	15
Rubus	Corvallis, OR (COR)	Clonal	565	65%	50
Rubus CWR	Corvallis, OR (COR)	Clonal	300	22%	50
Rye	Aberdeen, ID (NSGC)	Seed	2,092	100%	2
Saccharum	Miami, FL (MIA)	Clonal	198	93%	61
Safflower	Pullman, WA (W6)	Seed	2,447	100%	56
Sapodilla	Mayaguez, PR (MAY)	Clonal	24	92%	12
Sesame	Griffin, GA (S9)	Seed	1,019	84%	10
Simmondsia	Parlier, CA (PARL)	Clonal	97	30%	5
Solanum	Geneva, NY (NE9)	Seed	5,819	88%	23
Sorghum	Griffin, GA (S9)	Seed	36,849	82%	27
Soybean	Urbana, IL (SOY)	Seed	20,561	97%	37
Soybean CWR	Urbana, IL (SOY)	Seed	1,019	84%	8
Spanish Lime	Mayaguez, PR (MAY)	Clonal	34	100%	10
Spinach	Ames, IA (NC7)	Seed	403	98%	20
Strawberry	Corvallis, OR (COR)	Clonal	538	73%	70
Strawberry CWR	Corvallis, OR (COR)	Clonal	200	16%	70
Sugarbeet/Beet	Pullman, WA (W6)	Seed	2,706	98%	14
Sunflower	Ames, IA (NC7)	Seed	3,764	72%	108
Sweet Potato	Griffin, GA (S9)	Seed	338	43%	34
Sweet Potato CWR	Griffin, GA (S9)	Seed	1	0%	34
Tart Cherry	Geneva, NY (GEN)	Clonal	61	47%	13
Trefoil	Pullman, WA (W6)	Seed	885	89%	10
Trichosanthes	Geneva, NY (NE9)	Seed	5	28%	1
Trigonella	Pullman, WA (W6)	Seed	246	82%	5
Tripsacum	Miami, FL (MIA)	Seed	0	0%	0
Triticale	Aberdeen, ID (NSGC)	Seed	2,032	100%	2
Umbels	Ames, IA (NC7)	Seed	1,146	96%	5
Vaccinium	Corvallis, OR (COR)	Clonal	603	33%	50
Vaccinium CWR	Corvallis, OR (COR)	Clonal	10	1%	50
Vetch	Pullman, WA (W6)	Seed	1,472	79%	4
Vigna	Griffin, GA (S9)	Seed	314	64%	4
Walnut	Davis, CA (DAV)	Clonal	60	12%	31
Watermelon	Griffin, GA (S9)	Seed	1,805	95%	8
Wheat	Aberdeen, ID (NSGC)	Seed	56,851	100%	30
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	0	0%	0
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	956	100%	2
Winged Bean	Griffin, GA (S9)	Seed	40	25%	2
Woody Landscape	Ames, IA (NC7)	Seed	867	41%	4
	Washington, D.C. (USNA)	Clonal	0	0%	10

Fig. S11.1 The top row of Fig. 11.1 shaded light beige depicts the current number and percentage of NPGS accessions with phenotypic evaluation data maintained within GRIN-Global or directly linked to corresponding data in GRIN-Global and the average number of phenotypic evaluation datapoints per accession for all 183 crops and CWR. The same information is then provided for individual crops and CWR. The darker the blue hue, the lower the percentage of accessions within the crop or CWR with phenotypic evaluation data, with the darkest hue 0% accessions with such data. See Fig. S3.1 for total number of accessions for each PGR collection.



S11.2 Average Number and Percentage of Accessions Annually Evaluated Phenotypically with Data Incorporated into GRIN-Global or Directly Linked to Corresponding Data in GRIN-Global

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Accessions Annually Evaluated (Avg #)	% of Collection Annually Evaluated	Accessions Annually Evaluated (Avg #)	% of Collection Annually Evaluated	Accessions Annually Evaluated (Avg #)	% of Collection Annually Evaluated
NPGS-wide			16,344	2.9%	26,809	4.4%	32,803	5.2%
Acerola	Hilo, HI (HILO)	Clonal	0	0.0%	1	20.0%	1	20.0%
Aegilops	Aberdeen, ID (NSGC)	Seed	50	2.2%	200	8.9%	200	8.9%
Alfalfa	Pullman, WA (W6)	Seed	10	0.3%	300	7.1%	345	7.8%
Allium	Geneva, NY (NE9)	Seed	13	1.1%	23	1.9%	33	2.5%
Allium CWR	Pullman, WA (W6)	Clonal	6	0.6%	40	4.4%	50	5.4%
Allium Garlic	Pullman, WA (W6)	Clonal	46	13.3%	6	1.7%	10	2.8%
Annona	Mayaguez, PR (MAY)	Clonal	0	0.0%	6	10.3%	7	10.8%
Apium	Geneva, NY (NE9)	Seed	0	0.0%	24	7.8%	24	6.5%
Apple	Geneva, NY (GEN)	Clonal	15	1.1%	25	1.8%	25	1.8%
Apple CWR	Geneva, NY (GEN)	Clonal	30	0.6%	45	0.9%	75	1.5%
Asparagus	Geneva, NY (NE9)	Seed	0	0.0%	50	19.4%	50	14.0%
Asters	Ames, IA (NC7)	Seed	2	0.4%	4	0.9%	45	10.0%
Avocado	Miami, FL (MIA)	Clonal	83	50.9%	121	50.8%	159	50.8%
Bambara Groundnut	Griffin, GA (S9)	Seed	8	8.2%	8	7.8%	8	7.4%
Bamboo	Griffin, GA (S9)	Seed	0	0.0%	0	0.0%	0	0.0%
Bamboo Tropical	Mayaguez, PR (MAY)	Clonal	0	0.0%	5	13.9%	5	12.5%
Barley	Aberdeen, ID (NSGC)	Seed	1,400	4.9%	1,500	5.3%	1,500	5.3%
Barley Genetic Stocks	Aberdeen, ID (NSGC)	Seed	100	2.9%	100	2.9%	100	2.9%
Benincasa	Geneva, NY (NE9)	Seed	0	0.0%	10	17.9%	10	9.4%
Brassica	Ames, IA (NC7)	Seed	85	4.2%	85	4.2%	85	4.2%
	Geneva, NY (NE9)	Seed	43	2.0%	58	2.6%	63	2.7%
Brassicaceae	Ames, IA (NC7)	Seed	15	1.1%	15	1.1%	15	1.1%
Breadfruit	Hilo, HI (HILO)	Clonal	0	0.0%	12	22.6%	15	25.9%
Cacao	Mayaguez, PR (MAY)	Clonal	95	32.4%	95	28.2%	77	19.7%
Carambola	Hilo, HI (HILO)	Clonal	0	0.0%	5	20.0%	5	20.0%
Castorbean	Griffin, GA (S9)	Seed	7	1.9%	7	1.9%	7	1.9%
Chickpea	Pullman, WA (W6)	Seed	277	3.9%	190	2.7%	242	3.3%
Cichorium	Ames, IA (NC7)	Seed	0	0.0%	1	0.3%	1	0.3%
Citrus	Riverside, CA (RIV)	Clonal	15	1.0%	50	3.2%	80	5.1%
	Griffin, GA (S9)	Seed	20	0.8%	20	0.7%	20	0.6%
Clover	Pullman, WA (W6)	Seed	40	1.1%	280	7.2%	315	7.7%
Coffee	Hilo, HI (HILO)	Clonal	0	0.0%	10	1.0%	20	1.0%
Cotton	College Station, TX (COT)	Seed	300	3.1%	250	2.5%	250	2.4%
Cowpea	Griffin, GA (S9)	Seed	100	1.2%	100	1.2%	100	1.2%
Cucumis CWR	Ames, IA (NC7)	Seed	10	3.1%	0	0.0%	8	2.5%
Cucumis melo	Ames, IA (NC7)	Seed	0	0.0%	0	0.0%	0	0.0%

Fig. S11.2 The top row, shaded in light beige, shows the overall average number and percentage of accessions across the entire NPGS that currently are annually evaluated phenotypically. Goals for increasing the numbers and percentages of accessions evaluated by +5 and +10 years are provided. The same information is then provided for individual crops and CWR. The darker the lavender hue, the lower the percentage of accessions for each crop or CWR that are annually evaluated, with 0% accessions annually evaluated the darkest. See Fig. S3.1 for total number of accessions for each PGR collection. Across all 183 NPGS crops or CWR, an average of 92 accessions per crop or CWR are currently annually evaluated with goals of annually evaluating 152 and 186 accessions per crop or CWR at +5 Years and +10 years, respectively. NPGS PGR managers provided goals for the numbers and percentages at +5 and +10 years, based on current approaches and capacities for phenotypic evaluations. Component 11 of this Plan describes alternative approaches that will be implemented to generate substantially more phenotypic evaluation data for all NPGS PGR.



S11.2 Average Number and Percentage of Accessions Annually Evaluated Phenotypically with Data Incorporated into GRIN-Global or Directly Linked to Corresponding Data in GRIN-Global

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Accessions Annually Evaluated (Avg #)	% of Collection Annually Evaluated	Accessions Annually Evaluated (Avg #)	% of Collection Annually Evaluated	Accessions Annually Evaluated (Avg #)	% of Collection Annually Evaluated
Cucumis sativus	Ames, IA (NC7)	Seed	30	2.1%	0	0.0%	39	2.4%
Cucurbita	Ames, IA (NC7)	Seed	28	2.9%	0	0.0%	17	1.6%
	Geneva, NY (NE9)	Seed	22	2.6%	27	3.1%	32	3.5%
	Griffin, GA (S9)	Seed	5	0.3%	5	0.3%	5	0.3%
	Parlier, CA (PARL)	Seed	0	0.0%	0	0.0%	0	0.0%
Cuphea	Ames, IA (NC7)	Seed			10	1.6%	10	1.6%
Cynara	Geneva, NY (NE9)	Seed	0	0.0%	5	9.6%	8	8.7%
Date Palm	Riverside, CA (RIV)	Clonal	0	0.0%	10	5.0%	10	4.4%
Daucus	Ames, IA (NC7)	Seed	0	0.0%				
Differentials	Griffin, GA (S9)	Seed	0	0.0%	0	0.0%	0	0.0%
Durian	Hilo, HI (HILO)	Clonal	0	0.0%	4	20.0%	4	20.0%
Eggplant	Griffin, GA (S9)	Seed	1	0.1%	90	8.8%	90	8.6%
Faba Bean	Pullman, WA (W6)	Seed	66	8.5%	28	3.2%	33	3.4%
Fagopyrum	Geneva, NY (NE9)	Seed	18	7.1%	28	9.2%	28	7.9%
Ficus	Miami, FL (MIA)	Clonal	0	0.0%	0	0.0%	0	0.0%
Fig	Davis, CA (DAV)	Clonal	0	0.0%	50	20.0%	55	20.0%
Flax	Ames, IA (NC7)	Seed	45	1.5%	47	1.6%	47	1.6%
Garcinia	Mayaguez, PR (MAY)	Clonal	0	0.0%	2	6.7%	3	8.6%
Gourds	Griffin, GA (S9)	Seed	0	0.0%	20	4.0%	20	3.8%
Grape	Davis, CA (DAV)	Clonal	150	4.1%	150	3.2%	150	2.7%
	Geneva, NY (GEN)	Clonal	0	0.0%	30	3.6%	30	3.6%
Grape CWR	Geneva, NY (GEN)	Clonal	0	0.0%	30	4.1%	30	3.5%
Grasses	Pullman, WA (W6)	Seed	194	0.8%	600	2.6%	596	2.5%
Grasses Millets	Ames, IA (NC7)	Seed	40	1.6%	40	1.6%	100	3.8%
Grasses Warm Season	Griffin, GA (S9)	Seed	40	0.6%	40	0.5%	40	0.5%
Guar	Griffin, GA (S9)	Seed	5	1.2%	10	2.4%	15	3.5%
Guava	Hilo, HI (HILO)	Clonal	0	0.0%	9	12.0%	10	12.8%
Hazelnut	Corvallis, OR (COR)	Clonal	50	6.9%	50	6.5%	10	1.2%
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	20	19.0%	20	12.9%	10	4.9%
Hibiscus	Griffin, GA (S9)	Seed	49	14.4%	20	5.9%	20	5.9%
Hops	Corvallis, OR (COR)	Clonal	20	6.6%	20	6.1%	20	5.6%
Hops CWR	Corvallis, OR (COR)	Clonal	20	6.1%	20	4.7%	20	3.8%
Hylocereus	Hilo, HI (HILO)	Clonal	0	0.0%	0	0.0%	1	8.3%
Kiwifruit	Davis, CA (DAV)	Clonal	0	0.0%	200	93.5%	214	100.0%
Lagerstroemia	Miami, FL (MIA)	Clonal	0	0.0%	0	0.0%	0	0.0%
Lathyrus	Pullman, WA (W6)	Seed	8	0.9%	25	2.8%	28	3.1%
Legumes	Ames, IA (NC7)	Seed	3	0.2%	3	0.2%	3	0.2%

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			Accessions Annually Evaluated (Avg #)	% of Collection Annually Evaluated	Accessions Annually Evaluated (Avg #)	% of Collection Annually Evaluated	Accessions Annually Evaluated (Avg #)	% of Collection Annually Evaluated
Legumes	Griffin, GA (S9)	Seed	75	2.4%	100	3.2%	100	3.2%
Legumes Minor Forage	Pullman, WA (W6)	Seed	47	2.7%	30	1.7%	36	2.0%
Lentil	Pullman, WA (W6)	Seed	70	2.2%	102	3.1%	83	2.5%
Lesquerella	Parlier, CA (PARL)	Seed	0	0.0%	0	0.0%	0	0.0%
Lettuce	Pullman, WA (W6)	Seed	401	14.9%	35	1.3%	45	1.7%
Limnanthes	Parlier, CA (PARL)	Seed	0	0.0%	0	0.0%	0	0.0%
Litchi	Hilo, HI (HILO)	Clonal	12	13.1%	12	12.8%	13	13.3%
Longan	Hilo, HI (HILO)	Clonal	4	14.4%	5	17.0%	5	17.2%
Luffa	Griffin, GA (S9)	Seed	0	0.0%	3	1.7%	4	2.0%
Lupin	Pullman, WA (W6)	Seed	51	3.2%	78	4.9%	51	3.1%
Macadamia	Hilo, HI (HILO)	Clonal	4	8.7%	4	7.8%	5	8.9%
Maize	Ames, IA (NC7)	Seed	779	4.1%	1,361	5.5%	1,856	6.8%
Maize Genetic Stocks	Urbana, IL (GSZE)	Seed	1,000	2.4%	1,100	2.2%	1,200	2.2%
Mamey Sapote	Mayaguez, PR (MAY)	Clonal	0	0.0%	3	7.5%	1	2.2%
Mango	Miami, FL (MIA)	Clonal	86	30.5%	276	83.1%	317	83.0%
Medicago	Pullman, WA (W6)	Seed	16	0.4%	325	6.8%	375	7.5%
Medicinals	Ames, IA (NC7)	Seed	2	0.2%	2	0.2%	50	3.7%
Millets	Griffin, GA (S9)	Seed	22	0.9%	22	0.6%	22	0.5%
Mint	Corvallis, OR (COR)	Clonal	20	4.6%	20	4.3%	20	4.2%
Mint CWR	Corvallis, OR (COR)	Clonal	20	44.4%	20	36.4%	20	30.8%
Mulberry	Davis, CA (DAV)	Clonal	0	0.0%	0	0.0%	14	20.0%
Mung Bean	Griffin, GA (S9)	Seed	50	1.2%	50	1.2%	50	1.2%
Musa	Mayaguez, PR (MAY)	Clonal	10	5.7%	10	4.8%	10	4.3%
Native Plants	Pullman, WA (W6)	Seed	0	0.0%	1,832	15.0%	2,019	15.0%
Oat	Aberdeen, ID (NSGC)	Seed	1,050	5.0%	1,050	5.0%	1,050	5.0%
Ocimum	Ames, IA (NC7)	Seed	0	0.0%	0	0.0%	0	0.0%
Okra	Griffin, GA (S9)	Seed	100	3.4%	100	3.4%	100	3.3%
Olive	Davis, CA (DAV)	Clonal	0	0.0%	34	20.0%	34	20.0%
Opuntia	Parlier, CA (PARL)	Clonal	0	0.0%	0	0.0%	0	0.0%
Ornamentals	Ames, IA (NC7)	Seed	0	0.0%	0	0.0%	50	5.7%
	Geneva, NY (NE9)	Seed	0	0.0%				
	Griffin, GA (S9)	Seed	10	6.1%	10	6.0%	10	5.8%
Other Crops	Miami, FL (MIA)	Clonal	88	20.4%	96	19.9%	106	19.9%
	Parlier, CA (PARL)	Seed	0	0.0%	0	0.0%	0	0.0%
	Pullman, WA (W6)	Seed	0	0.0%	128	2.6%	135	2.5%
Papaya	Hilo, HI (HILO)	Clonal	1	0.6%	9	4.9%	10	5.3%
Parthenium	Parlier, CA (PARL)	Seed	0	0.0%	10	4.2%	6	1.5%

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Pastinaca	Ames, IA (NC7)	Seed	1	1.4%	10	12.2%	4	4.8%
Pea	Pullman, WA (W6)	Seed	214	3.4%	197	3.1%	202	3.2%
Pea Genetic Stocks	Pullman, WA (W6)	Seed	9	1.3%	22	3.1%	24	3.3%
Peach Palm	Hilo, HI (HILO)	Clonal	0	1.3%	2	14.1%	3	14.4%
Peanut	Griffin, GA (S9)	Seed	342	3.7%	350	3.8%	350	3.8%
Peanut CWR	Griffin, GA (S9)	Seed	25	4.5%	50	8.6%	50	8.2%
Pears	Corvallis, OR (COR)	Clonal	50	2.5%	50	2.5%	50	2.4%
Pears CWR	Corvallis, OR (COR)	Clonal	50	12.1%	50	10.8%	50	9.7%
Pecan	College Station, TX (BRW)	Clonal	0	0.0%	4,300	100.0%	4,500	100.0%
Pepper	Griffin, GA (S9)	Seed	20	0.4%	400	8.0%	400	7.9%
Persimmon	Davis, CA (DAV)	Clonal	0	0.0%	0	0.0%	34	20.0%
Phaseolus	Pullman, WA (W6)	Seed	70	0.4%	380	2.1%	475	2.7%
Physalis	Geneva, NY (NE9)	Seed	0	0.0%	20	10.4%	40	18.3%
Pili Nut	Hilo, HI (HILO)	Clonal	0	0.0%	1	4.2%	2	5.9%
Pineapple	Hilo, HI (HILO)	Clonal	146	60.8%	146	59.6%	146	59.3%
Pistachio	Davis, CA (DAV)	Clonal	0	0.0%	200	74.1%	250	80.6%
Pomegranate	Davis, CA (DAV)	Clonal	0	0.0%	0	0.0%	42	20.0%
Potato	Sturgeon Bay, WI (NR6)	Seed	565	9.7%	565	9.4%	565	9.2%
Prunus	Davis, CA (DAV)	Clonal	40	2.4%				
Pseudocereals	Ames, IA (NC7)	Seed	51	1.3%	51	1.3%	51	1.0%
Quince	Corvallis, OR (COR)	Clonal	20	9.8%	20	9.3%	20	8.9%
Rambutan	Hilo, HI (HILO)	Clonal	1	1.5%	20	24.4%	40	48.2%
Raphanus	Geneva, NY (NE9)	Seed	17	2.3%	32	4.0%	32	3.7%
Rhubarb	Pullman, WA (W6)	Clonal	0	0.0%	3	2.8%	5	4.6%
Ribes	Corvallis, OR (COR)	Clonal	20	2.9%	20	2.7%	20	2.5%
Ribes CWR	Corvallis, OR (COR)	Clonal	20	3.3%	20	3.0%	20	2.8%
Rice	Aberdeen, ID (NSGC)	Seed	400	2.1%	1,000	5.2%	5,000	26.0%
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	20	3.8%	5	0.9%	5	0.9%
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	1	3.1%	4	7.0%	3	4.5%
Rice Sativa	Stuttgart, AR (GSOR)	Seed	27	0.1%	20	0.1%	20	0.1%
Rubus	Corvallis, OR (COR)	Clonal	50	5.8%	50	5.5%	50	5.2%
Rubus CWR	Corvallis, OR (COR)	Clonal	50	3.7%	50	3.6%	50	3.4%
Rye	Aberdeen, ID (NSGC)	Seed	50	2.4%	100	4.8%	100	4.7%
Saccharum	Miami, FL (MIA)	Clonal	0	0.0%	20	8.4%	20	7.6%
Safflower	Pullman, WA (W6)	Seed	284	11.6%	118	4.8%	119	4.8%
Sapodilla	Mayaguez, PR (MAY)	Clonal	24	92.3%	2	6.7%	2	5.7%
Sesame	Griffin, GA (S9)	Seed	20	1.6%	20	1.6%	20	1.6%

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Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Accessions Annually Evaluated (Avg #)	% of Collection Annually Evaluated	Accessions Annually Evaluated (Avg #)	% of Collection Annually Evaluated	Accessions Annually Evaluated (Avg #)	% of Collection Annually Evaluated
Simmondsia	Parlier, CA (PARL)	Clonal	0	0.0%	0	0.0%	0	0.0%
Solanum	Geneva, NY (NE9)	Seed	45	0.7%	55	0.8%	55	0.8%
Sorghum	Griffin, GA (S9)	Seed	1,200	2.7%	1,200	2.3%	1,200	2.0%
Soybean	Urbana, IL (SOY)	Seed	500	2.3%	500	2.2%	500	2.0%
Soybean CWR	Urbana, IL (SOY)	Seed	10	0.8%	100	7.3%	100	6.6%
Spanish Lime	Mayaguez, PR (MAY)	Clonal	34	100.0%	2	4.5%	2	4.0%
Spinach	Ames, IA (NC7)	Seed	2	0.5%	2	0.5%	2	0.5%
Strawberry	Corvallis, OR (COR)	Clonal	20	2.7%	20	2.5%	20	2.4%
Strawberry CWR	Corvallis, OR (COR)	Clonal	20	1.6%	20	1.5%	20	1.4%
Sugarbeet/Beet	Pullman, WA (W6)	Seed	489	17.8%	90	3.3%	100	3.6%
Sunflower	Ames, IA (NC7)	Seed	168	3.2%	168	3.1%	168	3.1%
Sweet Potato	Griffin, GA (S9)	Seed	0	0.0%	0	0.0%	0	0.0%
Sweet Potato CWR	Griffin, GA (S9)	Seed	0	0.0%	0	0.0%	0	0.0%
Tart Cherry	Geneva, NY (GEN)	Clonal	0	0.0%	50	34.7%	50	31.6%
Trefoil	Pullman, WA (W6)	Seed	26	2.6%	87	8.3%	105	9.6%
Trichosanthes	Geneva, NY (NE9)	Seed	0	0.0%	10	23.3%	10	10.8%
Trigonella	Pullman, WA (W6)	Seed	0	0.1%	20	6.5%	10	3.2%
Tripsacum	Miami, FL (MIA)	Seed	0	0.0%	0	0.0%	0	0.0%
Triticale	Aberdeen, ID (NSGC)	Seed	120	5.9%	120	5.9%	120	5.9%
Umbels	Ames, IA (NC7)	Seed	30	2.5%	60	4.9%	40	3.2%
Vaccinium	Corvallis, OR (COR)	Clonal	50	2.7%	50	2.6%	50	2.4%
Vaccinium CWR	Corvallis, OR (COR)	Clonal	50	5.3%	50	4.8%	50	4.3%
Vetch	Pullman, WA (W6)	Seed	3	0.2%	100	5.3%	70	3.7%
Vigna	Griffin, GA (S9)	Seed	18	3.7%	20	4.0%	20	4.0%
Walnut	Davis, CA (DAV)	Clonal	0	0.0%	125	20.0%	145	20.0%
Watermelon	Griffin, GA (S9)	Seed	10	0.5%	10	0.5%	50	2.6%
Wheat	Aberdeen, ID (NSGC)	Seed	3,340	5.9%	3,400	6.0%	3,500	6.1%
Wheat Genetic Stocks	Aberdeen, ID (NSGC)	Seed	20	4.9%	20	4.8%	20	4.7%
Wheat Intergeneric	Aberdeen, ID (NSGC)	Seed	55	5.7%	55	5.7%	55	5.7%
Winged Bean	Griffin, GA (S9)	Seed	5	3.2%	10	6.3%	20	12.7%
Woody Landscape	Ames, IA (NC7)	Seed	39	1.9%	39	1.7%	50	1.9%
	Washington, D.C. (USNA)	Clonal	0	0.0%	60	0.6%	60	0.6%

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S12 Genetic Enhancement/Pre-Breeding and Breeding Programs Conducted at or in Close Collaboration with NPGS Genebank Units

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Genetic Enhancement/Pre-Breeding Program	Breeding Program	Genetic Enhancement/Pre-Breeding Program	Breeding Program	Genetic Enhancement/Pre-Breeding Program	Breeding Program
NPGS-wide			117	123	146	137	148	142
Alfalfa	Pullman, WA (W6)	Seed	3	0	3	0	3	0
Allium	Geneva, NY (NE9)	Seed	1	1	1	1	1	1
Annona	Mayaguez, PR (MAY)	Clonal	0	0	1	0	1	0
Apple CWR	Geneva, NY (GEN)	Clonal	0	0	1	0	1	0
Cacao	Mayaguez, PR (MAY)	Clonal	2	1	2	1	2	1
Chickpea	Pullman, WA (W6)	Seed	2	1	2	2	2	2
Citrus	Riverside, CA (RIV)	Clonal	0	2	1	2	1	2
Clover	Pullman, WA (W6)	Seed	0	0	1	0	1	0
Coffee	Hilo, HI (HILO)	Clonal	0	0	2	2	2	2
Cotton	College Station, TX (COT)	Seed	2	3	2	3	2	3
Cowpea	Griffin, GA (S9)	Seed			1	1	1	1
Date Palm	Riverside, CA (RIV)	Clonal	0	0	0	1	0	1
Faba Bean	Pullman, WA (W6)	Seed	1	1	1	1	1	1
Grape	Davis, CA (DAV)	Clonal	0	3	0	3	0	3
Grape CWR	Geneva, NY (GEN)	Clonal	0	0	1	0	1	0
Grasses	Pullman, WA (W6)	Seed	0	0	1	1	1	1
Hazelnut	Corvallis, OR (COR)	Clonal	3	3	3	3	3	3
Hazelnuts CWR	Corvallis, OR (COR)	Clonal	3	3	3	3	3	3
Hops	Corvallis, OR (COR)	Clonal	8	8	8	8	8	8
Hops CWR	Corvallis, OR (COR)	Clonal	8	8	8	8	8	8
Hyalocereus	Hilo, HI (HILO)	Clonal	0	0	0	0	0	1
Lentil	Pullman, WA (W6)	Seed	2	2	2	2	2	2
Luffa	Griffin, GA (S9)	Seed	1	0	1	0	1	0
Lupin	Pullman, WA (W6)	Seed	0	0	1	1	1	1
Macadamia	Hilo, HI (HILO)	Clonal	0	0	1	0	1	1
Maize	Ames, IA (NC7)	Seed	1		1		1	
Mango	Miami, FL (MIA)	Clonal	0	0	2	1	2	1
Mint	Corvallis, OR (COR)	Clonal	2	2	2	2	2	2
Mint CWR	Corvallis, OR (COR)	Clonal	2	2	2	2	2	2
Mung Bean	Griffin, GA (S9)	Seed			1	1	1	1
Native Plants	Pullman, WA (W6)	Seed	0	0	1	0	1	0
Papaya	Hilo, HI (HILO)	Clonal	0	1	1	1	1	1
Parthenium	Parlier, CA (PARL)	Seed	0	0	1	0	0	0
Pea	Pullman, WA (W6)	Seed	3	2	4	3	4	3
Peanut	Griffin, GA (S9)	Seed	0	0	2	2	4	4
Peanut CWR	Griffin, GA (S9)	Seed	0	0	3	3	4	4
Pears	Corvallis, OR (COR)	Clonal	3	3	3	3	3	3
Pears CWR	Corvallis, OR (COR)	Clonal	3	3	3	3	3	3
Pecan	College Station, TX (BRW)	Clonal	1	1	1	1	1	1
Pepper	Griffin, GA (S9)	Seed	1		1		1	
Phaseolus	Pullman, WA (W6)	Seed	0	0	1	0	1	0
Pineapple	Hilo, HI (HILO)	Clonal	0	0	0	1	0	1
Pistachio	Davis, CA (DAV)	Clonal	0	1	0	1	0	1
Potato	Sturgeon Bay, WI (NR6)	Seed	2	2	0	0	0	0
Prunus	Davis, CA (DAV)	Clonal	0	4	0		0	
Pseudocereals	Ames, IA (NC7)	Seed	1	1	1	1	1	1

Fig. S12 The top row of Fig. S12, shaded in light beige, shows total numbers of genetic enhancement/pre-breeding programs and breeding programs currently conducted at or in close collaboration with NPGS genebank units, and estimates for +5 years and +10 years. The same information is provided for individual crops and CWR. The darker the red hue (with the darkest hue 5+ programs), the more such programs are conducted at or in close collaboration with individual NPGS genebank units.

Based on current approaches and capacities, NPGS PGR managers provided estimates for the number of such programs that their genebank units could conduct or collaborate with at +5 and +10 years. Component 12 of this Plan describes an alternative approach that would implement genetic enhancement/pre-breeding programs for as many as 100 major crops, either conducted by or in close collaboration with individual NPGS genebank units. GSZE and NSGC do not anticipate that any genetic enhancement/pre-breeding or breeding programs will be conducted at or in close collaboration with those genebank units. Crops and CWR with no collaborative programs are not shown. Blank fields indicate that data could not be estimated.



S12 Genetic Enhancement/Pre-Breeding and Breeding Programs Conducted at or in Close Collaboration with NPGS Genebank Units

Crop & CWR	NPGS Genebank Unit	Crop PGR	Now		+ 5 Yrs.		+ 10 Yrs.	
			Genetic Enhancement/Pre-Breeding Program	Breeding Program	Genetic Enhancement/Pre-Breeding Program	Breeding Program	Genetic Enhancement/Pre-Breeding Program	Breeding Program
Quince	Corvallis, OR (COR)	Clonal	0	1	0	1	0	1
Ribes	Corvallis, OR (COR)	Clonal	1	1	1	1	1	1
Ribes CWR	Corvallis, OR (COR)	Clonal	1	1	1	1	1	1
Rice Colored Bran	Stuttgart, AR (GSOR)	Seed	2		3		4	
Rice Non Sativa	Stuttgart, AR (GSOR)	Seed	1		1		1	
Rice Sativa	Stuttgart, AR (GSOR)	Seed	8	1	8	1	8	1
Rubus	Corvallis, OR (COR)	Clonal	5	5	5	5	5	5
Rubus CWR	Corvallis, OR (COR)	Clonal	5	5	5	5	5	5
Saccharum	Miami, FL (MIA)	Clonal	0	2	0	2	0	2
Safflower	Pullman, WA (W6)	Seed	1	1	1	1	1	1
Soybean	Urbana, IL (SOY)	Seed	1	1	1	1	1	1
Soybean CWR	Urbana, IL (SOY)	Seed	1	0	1	0	1	0
Strawberry	Corvallis, OR (COR)	Clonal	10	10	10	10	10	10
Strawberry CWR	Corvallis, OR (COR)	Clonal	10	10	10	10	10	10
Sunflower	Ames, IA (NC7)	Seed	1		1			
Tart Cherry	Geneva, NY (GEN)	Clonal	0	0	1	0	1	0
Trefoil	Pullman, WA (W6)	Seed	0	0	1	0	1	0
Trigonella	Pullman, WA (W6)	Seed	0	0	1	1	1	1
Vaccinium	Corvallis, OR (COR)	Clonal	5	10	5	10	5	10
Vaccinium CWR	Corvallis, OR (COR)	Clonal	5	10	5	10	5	10
Vetch	Pullman, WA (W6)	Seed	1	1	2	2	2	2
Walnut	Davis, CA (DAV)	Clonal	0	1	0	1	0	1
Watermelon	Griffin, GA (S9)	Seed	1	1	1	1	1	1
Woody Landscape	Ames, IA (NC7)	Seed		2		2		2
	Washington, D.C. (USNA)	Clonal	2	2	4	4	4	4

Fig. S12 The top row of Fig. S12, shaded in light beige, shows total numbers of genetic enhancement/pre-breeding programs and breeding programs currently conducted at or in close collaboration with NPGS genebank units, and estimates for +5 years and +10 years. The same information is provided for individual crops and CWR. The darker the red hue (with the darkest hue 5+ programs), the more such programs are conducted at or in close collaboration with individual NPGS genebank units.

Based on current approaches and capacities, NPGS PGR managers provided estimates for the number of such programs that their genebank units could conduct or collaborate with at +5 and +10 years. Component 12 of this Plan describes an alternative approach that would implement genetic enhancement/pre-breeding programs for as many as 100 major crops, either conducted by or in close collaboration with individual NPGS genebank units. GSZE and NSGC do not anticipate that any genetic enhancement/pre-breeding or breeding programs will be conducted at or in close collaboration with those genebank units. Crops and CWR with no collaborative programs are not shown. Blank fields indicate that data could not be estimated.

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