ANNUAL REPORT FOR CALENDAR YEAR 2010
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Joseph Postman, Pome Fruit Curator conducts one of NCGR's many tours for undergraduate students. Jim Oliphant, Greenhouse manager, looks on from the background. Photo by Kim Hummer.

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Sukalya Poothong, GRA, Horticulture
Sugae Wada, GRA, Horticulture
Michael Dossett, GRA, Horticulture

Collaborator
Francis J. Lawrence
Maxine Thompson
Melvin Westwood

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Corvallis Major Accomplishments for 2010

Service

- We received 670 plant requests and 6,914 items were shipped in 2010. Provided 1054 tissue culture accessions to requestors and to NCGRP in Ft. Collins.
- NCGR staff hosted an open house with Oregon State University Department of Horticulture and the Horticultural Crops Research Unit on 16-17 July 2010. More than 200 public attendees toured the Lewis Brown Horticultural Research Farm and the blueberry collections.
- NCGR scientists collaborated with Hilo on the evaluation of new ‘ōhelo berry cultivars for fruit production and as foliage ornamentals.
- NCGR staff convened a 4 day symposium on plant genetic resources and workshops on Unappreciated Pome Fruits and on Molecular Markers in Horticultural Crops at the International Horticultural Congress, Lisboa, Portugal, in August 2010.
- Organized a colloquium on ‘Applications of Molecular Markers to Horticultural Crops’ where also presented results of work on SNP detection in blueberry.
- Developed a two-day ‘fingerprinting’ hands-on workshop for High School teachers through Science Education Partnerships (SEPS) for a 2-credit Workshop ‘Advances in Biology Workshop for High School Teachers’
- Transferred a protocol for cryopreservation of blueberry accessions to NCGRP
- Developed a seed identification handbook for blackberry processors.
- Completed 1st year of a 3 year rejuvenation effort in the NCGR *Pyrus* and *Corylus* collections including pruning, labeling, and irrigation improvements.
- Collected disease incidence observations in the *Pyrus* and *Cydonia* collections for scab, Fabraea leafspot, rust, Pseudomonas blossom blast and fire blight.
- Collected bloom/pollen phenology data in *Corylus* and *Cydonia*, and fruit maturity data for *Cydonia*. Captured stem and catkin images for core *Corylus* collection, leaf images for *Rubus* and species *Fragaria* collections, flower images for core *Fragaria* species, leaf images for *Paeonia*, and stem+flower images for about half the *Mentha* collection.
- In collaboration with NCGRP (Fort Collins, CO) evaluated dormant-bud cryogenic storage procedure for *Pyrus*, *Vaccinium* and *Corylus*

Research

- Implemented use of methylation sensitive amplification polymorphism (MSAP) for evaluation of genetic stability of cryopreserved ‘ōhelo (*Vaccinium reticulatum*).
- Implemented use of high resolution melting to identify sequence variant markers (INDELS, SNPs) in black raspberry and diploid strawberry.
- Finished genotyping 90 quince accessions and identified possible sources of resistance to three different fungal diseases.
- Determined the iron and nitrogen requirements of pear tissue cultures.
- Determined that room temperature storage causes dormancy of ‘ōhelo seed and that dormancy can be broken by storage in liquid nitrogen.
- Determined the cold storage and cryopreservation requirements of ‘ōhelo (*Vaccinium reticulatum*) cultivars.
- Evaluated *Cydonia* core collection for cold hardiness. Identified 13 very cold-hardy genotypes.

Administrative Overview

Staffing Changes

Because the Corvallis genebank base funding is so limited, we were required to put in our budget planning (ARMP) that without additional new funding, we could not support the number of permanent full time staff members and should any retire, and that we would reduce staff through attrition. Our IT Specialist, Mr. Doug Cook (photo, right), retired as of February 28, 2011. We truly wish Doug excellent seas and fine weather as he takes off on his sailboat to the South Pacific Islands.

Those of us back at the Corvallis genebank have now lost that permanent position due to lack of funding. This has required a shift in our computer database management strategy. We have hired Mr. Randy Cram, recent graduate from Oregon State University Computer Science Department, as a temporary 180 day position as a stop -gap data manager. The two curators, Joseph Postman and Kim Hummer are picking up additional accession management activity. The greenhouse, field, and distribution staff members will be trained on GRIN and will be moving their inventory management activity to GRIN from local databases during the course of the next year. Our goal is to be fully operational on GRIN as our primary database as GRIN GLOBAL comes on-line.

Our scientists actively sought funding from many non-base sources and were able to support term, part time and student technical staff for scientific research projects. We are thankful for these new grants. These non-base funds are really making a difference in continuing our capacity and productivity.

EEO/CR/Outreach

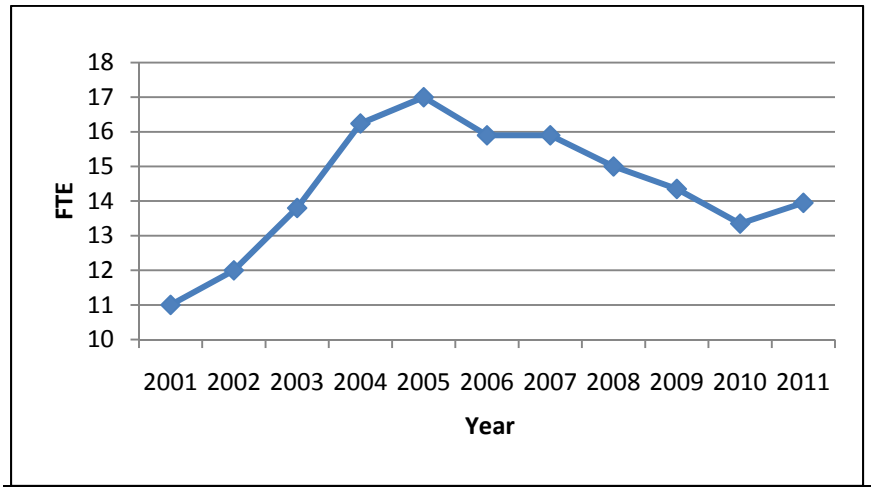
- Kim Hummer received the USDA ARS Administrators Outreach, Diversity, and Equal Opportunity Award for 2010; and the Pacific West Area Administrators Outreach, Diversity, and Equal Opportunity Award for 2010.
- Through a Research Support Agreement with Oregon State University three female and two male graduate students were trained. During the winter, 15 disabled high school students (program was funded through local school district grant) were trained in greenhouse management activities.
- During the winter an additional 3 disabled individuals from a local private organization (Work Unlimited) were trained in strawberry greenhouse activities.
- Three disabled individuals have temporary federal technical appointments on our staff.

Budget and Fiscal

Our base funding for Corvallis has remained at about $1.4 million since 2004.

Our scientists have had success in obtaining supplemental non-base funding. This non-base funding has increased to about one fourth of our total funding. New grants, such as the CSREES Specialty Crop Research Initiative provide additional opportunities to form coalitions with agricultural and horticultural industries as well as national and international scientists to focus on research that provides answers to specific priority questions. Our scientists have been successful in obtaining this non-base funding to supplement our activities at the Repository. Additional grants such as germplasm evaluation support were also received.

Budget and Staffing at the NCGR Corvallis

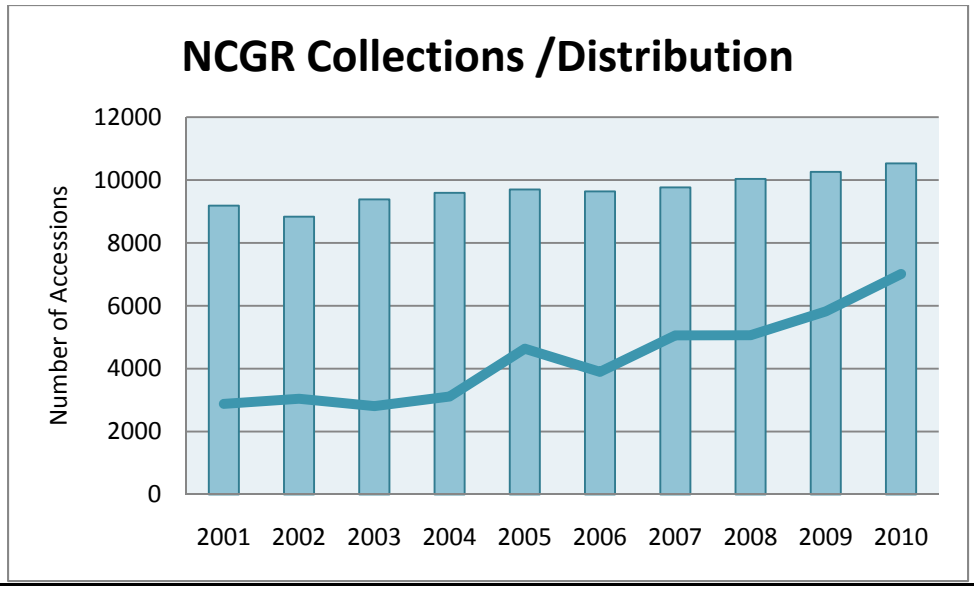


Staffing supported by Federal base funds.

View from the Front Office

Recently large funding sources are recognizing that the security of the worlds food supply depends on the conservation of plant genetic resources. Support for the Svalbard World Seed Bank and other major world genebank funding is well under the promised level. We understand that the President's proposed budget for 2011 includes increase for preservation of plant genetic resources, yet, the Palmer Arctic and Subarctic Plant Gene Bank is proposed to be closed as of 30 September 2011. Gene banks are long term projects so we are continuing to perform our day to day operations as best we can within the budget. We will look to Congress for passing a budget that allows for and promotes conservation of invaluable plant genetic resources and strongly hope for continuation of genetic resource preservation at Palmer, Alaska.

We are encouraged by efforts of the National Clean Plant Network. Joseph Postman is our unit's and the NPGS representative on this important committee. This committee will have grant possibilities for the improvement of plant health in tree fruit, hop, and in the berry crops. We will be working closely with these NCPN groups to improve health of foundation material for horticultural industry use.



Vertical bars represent the amount of accessions in the collection at the end of the calendar year. The line indicates the number of accessions distributed within that calendar year.

NCGR Corvallis -2010 Summaries

	Accession Summary (1)			Inventory Summary (2)				Received in 2010 (3)	
Genus	Accessions	Taxa	Countries	Seedlots*	Field	GH/SH	TC	Seedlots	Plants
Actinidia	196	26	9	37	129	59	0	0	4
Amelanchier	103	15	10	54	19	3	0	0	9
Castanea?	79	5	7	0	0	7	0	0	0
Chaenomeles	13	4	3	2	7	11	0	0	4
Corylus	715	21	39	35	704	137	61	17	47
Cydonia	138	2	19	21	126	37	5	1	25
Fragaria	1728	42	38	461	200	1547	361	18	61
Humulus	625	8	21	276	293	372	97	0	2
Juglans	25	3	4	1	34	0	0	1	0
Lonicera	76	8	6	48	30	1	0	0	0
Mentha	71	18	15	0*	0	455	124	0	1
Mespilus	61	3	11	19	34	30	0	0	0
Pyrus	2094	37	59	334	1674	346	204	2	20
Ribes	513	79	30	0*	687	368	30	0	11
Rubus	1934	167	55	1301	113	864	240	6	11
Sambucus	182	20	24	120	50	5	0	0	1
Sorbus	299	60	31	172	67	21	0	0	12
Vaccinium	1495	67	33	849	347	864	152	18	3
total	10347	585	--	3730	4514	5127	1274	63	211

1 - summary statistics from GRIN 3/13/2011
2 - summary counts from local foxpro inventories 3/15/2011
3 - see appendix for list of new accessions received in 2010
* - 551 *Ribes* seedlots and 55 Mentha seedlots relocated to Palmer Alaska

Facilities
By Dennis Vandeveer, Facilities manager

We are working within the federal mandate to have "greener" operations. We continue to upgrade with T8 electronic ballasts and tubes. We are looking for an electric vehicle for farm use that can achieve a speed of 55 mph between farms. We recycled metal, plastics, paper, cardboard, used engine oil, hydraulic fluid, antifreeze and electronic equipment.

During 2010, we re-roofed the main and the headhouse buildings (photo on the left) with new membrane roofing. Additional vinyl replacement is needed on the shop building and will be repaired as funding comes available in the near future.

We replaced rotted siding and 2 x 4 supports in two screenhouses. Painting was accomplished in other screenhouses. Due to the extent of repairs needed this is an on-going project. We washed all greenhouse roofs and cleaned gutters.

We had additional new swamp cooler racks fabricated and totally rebuilt three swamp coolers. We replaced five swamp cooler motors with Green Star energy efficient motors and resealed flow hood roof ducting.

New cedar fencing protecting the seed regeneration area. This fence replaced the old *Photinia* hedge which had been harboring root weevils.

We repaired numerous HVAC and cooling systems including growth chambers. Provided training on seed germinators programming. We installed new cedar fencing adjacent to the seed planting area. This will block the wind and weed seed infiltration to the area.

Maintenance was provided for six vehicles and five tractors plus numerous pieces of farm equipment, small engines and sprayers. Although our vehicle/tractor fleet is aging, it was maintained at a 95% operational status throughout the year.

Other projects include re-striping of all parking lots to include handicapped parking, plumbing repairs, minor electrical repairs, lighting upgrades and security badge preparation and coding. We continue monitoring and adjusting the security and CCTV systems.

Molecular Genetics
By Nahla Bassil, Geneticist- Plants

Graduate Students Mentored

Wambui Njuguna, PhD student in Horticulture at Oregon State University graduated. Her work using molecular markers answered several questions in Fragaria. A reduced fingerprinting set of 4 SSRs was developed and generated unique SSR fingerprints for over 175 Fragaria samples representing 22 Fragaria species. Testing of two molecular markers linked to red stele and

anthracnose resistances identified potential sources of resistance in previously untested genotypes. Further characterization of these accessions is warranted to validate resistance and usefulness in breeding. SSR-based genetic diversity evaluation of *F. nipponica* and *F. iinumae* collected in Hokkaido, Japan (collaboration with Kim Hummer and Tom Davis) grouped them into 10 diversity clusters. Barcoding was unsuccessful for species identification in *Fragaria*. Higher diversity was obtained when using universal chloroplast SSRs but identical size fragments that had different sequences was also detected. Sequencing whole chloroplast genomes using Illumina in a final study revealed a close maternal genome relationship between *F. vesca* subsp. *bracteata* and the octoploid species and derivation of *F. vesca* from more than one source. Calculation of divergence time of Fragaria revealed young evolutionary age of the genus at 2.7 million years, and of the octoploids at 450,000 years.

Michael Dossett collecting black raspberries at Rich Mountain, South Carolina.

We are working with Dr. Chad Finn, USDA ARS Corvallis, and his PhD student, Michael Dossett, on testing the transferability of *Rubus* SSR primer pairs into black raspberry. Michael identified 27 primer pairs that appeared to generate polymorphic markers. Twenty-one of these markers were used to examine genetic diversity in 148 wild and cultivated black raspberry accessions. He has also used HRM to identify SNPs in monomorphic PCR products generated with SSR primer pairs in parents of a black raspberry mapping population. HRM of PCR amplicons, using these same primer pairs, was then used to genotype seedlings in this **mapping** population. The observed markers segregated in a Mendelian fashion based on the genotypes of the parent plants. Michael Dossett also found that the black raspberries that were collected at Rich Mountain, South Carolina, had resistance to *Verticillium* root rot.

Projects in Progress

Genetic diversity of Corylus species using trinucleotide microsatellites and universal cpSSR markers. We are using 15 trinucleotide SSR markers to fingerprint 169 *Corylus* accessions including five shrub species (*C. avellana, C. americana, C. cornuta, C. heterophylla*, and *C. sieboldiana)*, and five hazelnut tree species (*C. colurna, C. jacquemontii, C. chinensis, C. ferox* and C. *papyraceae*). Data was collected using both marker data sets and alleles generated with the cpSSR primer pairs are being sequenced to assess homoplasy. Data is being analyzed.

Genetic fingerprinting of the pear core collection. We are using multiplex PCR (Type-it Microsatellite PCR Kit™ (Qiagen, Valencia, CA) (catalogue # 206243) for fingerprinting the entire core collection using a universal fingerprinting set developed by the European Cooperative Program for Plant Genetic Resources (ECPGR). Comparison of the fingerprints of the eight reference accessions obtained from East Malling Research (EMR) to those maintained at the NCGR generated different profiles for 'Hosui'. Kate Evans (apple breeder, WSU) identified the EMR 'Hosui' as 'Shinsui'. We are analyzing this data and plan to finish fingerprinting the pear collection in summer 2011.

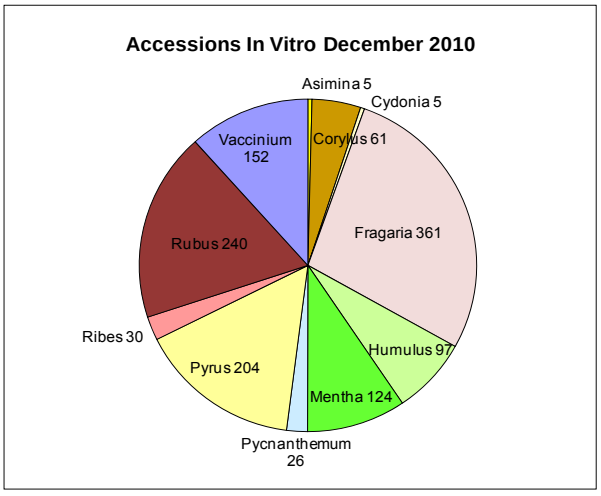
Fingerprinting of ‘ōhelo berries. SSRs from *Vaccinium corymbosum* that are transferable to the *Myrtillus* section were identified and were used to identify three ‘ōhelo berry clones from Hawaii. These same SSRs are being used to fingerprint promising selections of ‘ōhelo berry.

Developing genomic tools for blueberry. As part of an SCRI grant led by Dr. Jeannie Rowland, USDA ARS Beltsville, MD, we have synthesized 453 SSR primer pairs from EST sequences in blueberry and screened them for polymorphism in parents of a tetraploid blueberry mapping population (‘Draper’ x ‘Jewel’), diploid blueberry mapping population [(Fla4B x W8520) x W85-23], and cranberry mapping population (‘Stevens’ x 88-70). Polymorphic SSRs are shared with collaborators for constructing linkage maps in each of these crops. We have also generated short read sequences using the Illumina Genomic Analyzer for each of the blueberry mapping parents and will be developing SNPs for use in mapping.

RosBREED: Enabling marker-assisted breeding in Rosaceae. As leader of the genotyping team in an SCRI grant led by Amy Iezzoni (MSU), we developed a 9K Infinium SNP chip for apple, a 9K Infinium SNP chip in peach and a 6K Infinium SNP chip in cherry for genome-wide scans. We are actively working with the strawberry research community to develop a high throughput SNP genotyping platforms for genome-wide scanning in strawberry.

Tissue Culture and Cryopreservation

By Barbara M. Reed, Research Plant Physiologist and Jeanine DeNoma, Bio. Sci. Res. Tech.



The In-Vitro Collection

The *in-vitro* collection contains mostly the core and other highly requested accessions. Technician Jeanine DeNoma and helpers collected new accessions as plants were available. The spring and summer explanting season resulted in over 200 accessions successfully initiated into culture and cold stored. This was 71% of the accessions collected. The remainder were discarded following contaminant screening or failure to thrive. By December 1305 accessions were in culture and most were in storage. We are transferring *Pycnanthemum, Mentha* and *Ribes* to Palmer, AK as they are repropagated from our cold storage collection.

Medium Optimization for Pyrus

We continued the pear medium optimization experiments initiated with a grant from the Oregon Association of Nurseries and the Oregon Department of Agriculture.

Objective: Determine the effect of mineral nutrition on plant appearance, shoot initiation, and elongation of pear. We will determine mineral nutrient formulations that result in optimal individual responses and the best overall growth. Data taken will include shoot length, shoot multiplication, number of nodes per shoot, and a subjective rating of plant appearance (based on

industry standards). In 2008 we tested the overall mineral nutrients and found that meso elements (calcium, magnesium, phosphorous and potassium), iron and nitrogen were driving factors for many growth attributes. In 2009 we optimized the meso elements for 17 pear accessions and used this to provide an improved medium for the *in vitro* pear collection.

In 2010 we tested ammonium and nitrate amounts and ratios and iron concentrations. This data showed that nitrogen was important for overall quality, shoot number and shoot length. When tested on medium with the increased meso elements, low nitrogen produced more shoots on most genotypes, but also increased callus production and physiological disorders on some. The best concentrations of ammonium, potassium and nitrate varied with the cultivar. Iron concentrations in the medium were optimum for most pears at 1 to 1.25 X MS levels. Less than 0.75 X MS concentrations always produced clorotic shoots and pale leaves.

Growth response of *Pyrus ussuriensis* 'Hang Pa Li' grown on varying concentrations of ammonium nitrate and potassium nitrate.

Corylus Culture

We are developing improved Corylus *in vitro* culture, initiating clean cultures and identifying bacterial contaminants with funding from the Oregon Hazelnut Commission. This study involves culture of advanced selections from the OSU breeding program as well as named cultivars. Chip Hand and Barbara Reed are involved in this project.

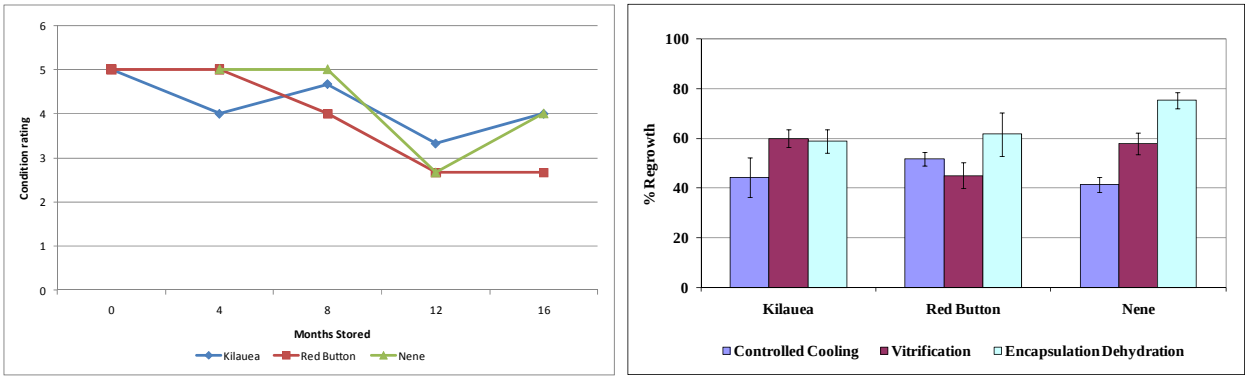
***SCRI Project*:** 'Ōhelo, *Vaccinium reticulatum*, a specialty ornamental and value added plant from Hawaii. Barbara Reed, Esther Uchendu, Sugae Wada and Jeanine DeNoma were involved in this project.

Micropropagation and medium-term storage

Micropropagation protocols were developed and transferred to a commercial lab for determining commercial procedures and acclimation. Three *in vitro*-grown 'ōhelo berry (*Vaccinium reticulatum*) cultivars; VAC 1817 (NO 6-7 Kilauea); VAC 1818 (NO 6-9 Red button) and VAC 1819 (NO 6-6 NENE) can be micropropagated and acclimated for grower use. The standard micropropagation techniques for *Vaccinium* (Reed and Abdelnour-Esquivel, 1991) worked well for the 'ōhelo berry cultures (Zee et al., 2008).

The cultivars also responded well to the *in vitro* cold storage regimen. After 8 months of storage the shoots all appeared similar in condition to their original state with high ratings. By 12 months

some decline was seen, but all the shoots were in stable condition with moderate to high ratings and most leaves were green. All of the cultivars remained in storage at 16 months.



Response of three ʻŌhelo (*Vaccinium reticulatum*) cultivars to: (left) *in vitro* cold storage – cultures rated 2 are removed for repropagation; and (right) cryopreservation with three commonly used techniques. Minimum regrowth of ≥ 40% is acceptable for long-term storage in liquid nitrogen.

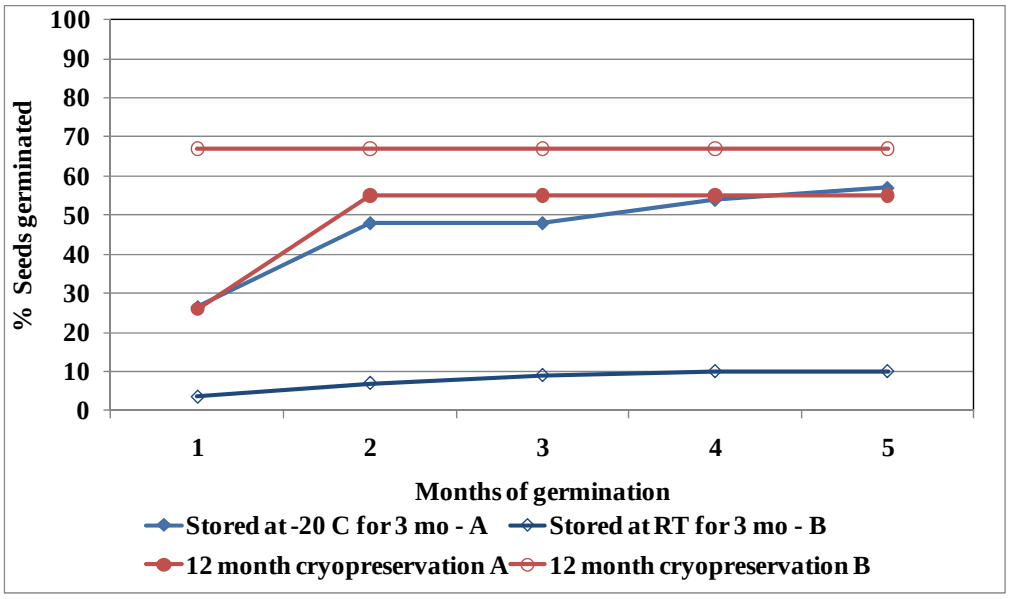
Cryopreservation of ʻŌhelo

The cryopreservation objectives for ʻōhelo plants were to determine the desiccation tolerance of the *in vitro* plantlets and to test the regrowth response of excised shoot tips on three standard cryopreservation techniques; controlled rate cooling, encapsulation dehydration, and PVS2-vitrification protocols. Shoot tips of the three cultivars were cryopreserved with encapsulation dehydration, controlled rate cooling and PVS2 vitrification following our protocols for blueberry (Uchendu and Reed, 2009). Recovery was significantly better with encapsulation dehydration than with controlled rate cooling for ʻNeneʼ but not for the other cultivars or techniques ($P<0.05$). There were no other significant differences among the cultivars and there was no significant interaction of technique and cultivar indicating that each of these techniques is adequate for the long-term storage of ʻōhelo berry. Blueberry cultivars also could be adequately stored with any of the techniques, however in that case encapsulation dehydration was superior for two of three cultivars (Uchendu and Reed, 2009). Plants were cryopreserved and sent for long-term storage at NCGRP in Ft. Collins (USDA-ARS).

Seed germination and cryopreservation

Seed germination and long-term storage were studied. ʻŌhelo berry seeds were wild collected near Hilo, Hawaii, for germplasm storage. The experiment was designed to determine if cryopreserved storage was suitable for ʻōhelo seed. Seeds were equilibrated for 24 h in a desiccator over Drierite and divided into two sets. Set A was stored at -20˚C for 3 months; Set B was stored at room temperature (~25˚C) for 3 months. Room-temperature stored ʻōhelo seed became dormant and germinated at very low rates. Germination of -20°C stored seed was >50%

and germination of 12-month cryopreserved seed of both seed groups was not significantly different from the -20 °C stored seed. The dormancy of the room-temperature stored seed was broken by cryopreservation and all of the seeds germinated by 2 months.



Germination of Ohelo (*Vaccinium reticulatum*) seed after 3 month storage at room temperature (RT) or in the -20˚C freezer, and both sets after 1 year in liquid nitrogen.

Germplasm Storage by Cryopreservation (Long-Term Storage)

Many of our *in vitro* collections (809 accessions) are backed up in cryopreservation, in collaboration with NCGRP. Some accessions were cryopreserved at NCGR and others were stored by the Vegetative Propagation Group at NCGRP from plant materials supplied by NCGR. These are the accessions in long-term storage at NCGRP at the end of 2010. Some additional accessions are also stored at NCGR.

Genus	**Accessions cryopreserved**	**Form cryopreserved**	**Technique**
Corylus	5 species	embryonic axes	desiccation
Cynodon	25	shoot tips	encapsulation-dehydration
Fragaria	208	shoot tips	vitrification
Humulus	73	shoot tips	encapsulation-dehydration
Lolium	17	shoot tips	slow cooling or e-d
Mentha	50	shoot tips	vitrification
Pycnanthemum	25	shoot tips	encapsulation-dehydration
Pyrus	180	shoot tips	slow cooling
Ribes	81	shoot tips	encapsulation-dehydration
Rubus	136	shoot tips	slow cooling
Vaccinium	9	shoot tips	encapsulation-dehydration

Pome Fruit Collections
By Joseph Postman, Curator

Genetic relationships of NCGR Cydonia collection.

Joseph Postman and Nahla Bassil evaluated 24 apple SSR primer pairs that also amplify in pear for cross-transference to quince. Nine apple primer pairs that appeared polymorphic in quince were selected and used to evaluate genetic relationships among 92 quince genotypes and 3 intergeneric pear x quince hybrids (X *Pyronia veitchii* (Trab.) Guillaumin).

The quince accessions proved to be very diverse, with only 6 sets of synonyms in addition to a group of 12 clones that could not be differentiated. 'Meech's Prolific' and 'Bourgeault' had identical fingerprints, and similar phenotypes. 'Portugiesiche Birnquitta', 'Gamboa', 'Bereczki', 'Rich' and 'Van Deman' also had identical fingerprints and similar phenotypes. Several large-fruited clones from Turkey grouped closely with the five 'Portugal' clones and also with other large-fruited quince clones from Ukraine and USA suggesting Turkish germplasm as a possible origin for the group.

Additional SSR markers may be needed for finer resolution where unique clones could not be differentiated. This study represents the first genetic identity evaluation of quince genotypes spanning much of *Cydonia*'s natural wild and cultivated geographic distribution.

Cydonia core collection Evaluation for cold hardiness.

Joseph Postman worked with Todd Einhorn (Oregon State University) during the second year of a 3 year project. Fifty clonal quince accessions with diverse origins, and seven *Pyrus* standard clones were screened monthly (Sept – March) to characterize their response to acclimation/de-acclimation conditions, determine minimum hardiness level, and identify tissue-specific sensitivity limits to sub-zero temperatures. One-year-old shoot pieces were loaded into a programmable freeze chamber, and subjected to freezing at a rate of 4° C per hour. Samples were removed following one hour at each of five treatment temperatures (0, -10, -20, -30, and -40 °C), incubated at 20 °C for one-week, sectioned transversely, and observed under a stereomicroscope. Individual tissue zones (phloem, cambium, and xylem) were rated according to the degree of oxidative browning.

The lowest exposure temperature sustained with minimum observable tissue injury (< 25 % browning) was used to report minimum hardiness level. Ambient temperatures (minimum and mean) recorded at the genebank gradually declined throughout early fall, providing good conditions for onset of cold acclimation and development of hardiness. Following cold acclimation, 25 quince accessions were capable of withstanding -30 °C without detectable levels of freeze injury. Thirteen of those were categorized as having low levels of tissue browning (likely survivability) following exposure to -40 °C.

Under our climatic conditions, none of the pear accessions tested, including four previously reported cold-hardy accessions, appeared capable of withstanding -40 °C. Sensitivity to sub-zero temperatures was similar among xylem, phloem and cambial tissue, though phloem tended to possess slightly greater hardiness during December (peak hardiness period). Several quince clones exhibited freeze tolerance equal to or greater than the current 'Old Home' x 'Farmingdale' *Pyrus* clones widely used today in the US.

Rejuvenation effort in Pyrus and Corylus

NCGR staff completed the 1st year of a 3 year rejuvenation effort in the NCGR *Pyrus* and *Corylus* collections. Trees are being hard-pruned to open up dense tree centers, remove low branches and suckers that had become an obstacle to tractor and human access, and lower tree canopies to improve access to fruit and scionwood.

Increased airflow through trees will reduce incidence of fungal diseases and improved light penetration will allow for more typical fruit production so that phenotype characterization and photo-documentation of fruit characters can resume. We removed old drip-irrigation system from 8 acre *Pyrus* germplasm collection that had been non-functional for 3 years. We repaired irrigation mainlines and risers (assisted by Joe Snead), installed new drip-lines with in-line emitters in all cultivar rows. The ability to irrigate this collection improved scionwood production.

Plant Pathology

By Joseph Postman, Plant Pathologist

Joseph Postman continued to serve on 5-member National Governing Board for USDA National Clean Plant Network. This program was established by Congress in the 2008 Farm Bill is to provide national sources of high quality asexually propagated foundation plant material free of targeted plant pathogens and pests as a collaboration between ARS, APHIS and NFIS. In 2010, the Governing Board assisted NCPN coordinator Erich Rudyj to develop a request for proposals, review submitted proposals and award more than $5 million to 13 foundation plant material centers serving 5 crop commodities.

NCGR staff collected disease incidence observations in the *Pyrus* and *Cydonia* collections for scab (pear only), Fabraea leaf spot, rust, Pseudomonas blossom blast (pear only) and fire blight (quince only). They also collected bloom/pollen phenology data in *Corylus* and *Cydonia* collections, and fruit maturity data for *Cydonia.* This information will be uploaded to GRIN as descriptor records in the observation records.

Screenhouse/Greenhouse Collection

By Missy Fix, Ag. Sci. Res. Tech. and Jim Oliphant Bio. Sci. Res. Tech.

• Continued sanitation throughout facilities with an emphasis on weed control, in plant containers, floors inside the houses, and a wide buffer zone outside the houses.

• Installed automated irrigation system for benches holding Mint collection outside of the tubehouse.
• Rafters and sidewall screens of screenhouses were spray cleaned.
• Replaced siding and dry rot support on two screenhouses
• Continued lath replacement on the screenhouses.
• Removed all non-anchored benches, shelving, etc., in order to clean and paint the headhouse. Benches were cut down or rebuilt which provided additional and more efficient work areas. The main purpose of this project was to provide workers with a clean and safe environment.

Missy Fix and Dennis Vandeveer remove plastic from screenhouses as spring comes to Corvallis.

Actinidia

Actinidia is maintained in the screenhouse, as a back-up collection; at a minimum the accessions are housed for 3 years until the field plants are established. Plants are now also being sent to NCGR Davis, California to become part of their permanent collection. From the Greenhouses cutting from 20 accessions were sent in February 2011. These accessions will continue to be maintained as back-up until they have been established at Davis. Currently, we have 59 backup accessions, there were 4 new accessions added in 2010 and 18 accessions were successfully re-propagated this last year. Ten accessions were identified as non-hardy, within this group six are identified as 'Tropical' and are housed in greenhouse 1 which provides the climate needed for these plants. The remaining four accessions were placed in greenhouse 3 which houses non-hardy genera.

Corylus

Temporary back-up trees of all new young field trees and virused clones of *Corylus* are maintained under screen. Before a new accession can be planted in the field it must be grafted and layered until the scion is on its own roots. Scionwood of core clones is also grafted and maintained in a greenhouse as needed for tissue culture source material. Currently, 27 accessions are being maintained for tissue culture.

Fragaria

All clonal accessions of *Fragaria* are maintained under screen. An additional backup set of Supercore is maintained in the greenhouse. We are continuing our 3-year re-propagation cycle using runners.

Humulus

All clonal accessions of *Humulus* are maintained in the screenhouse.

Mentha

All clonal accessions of *Mentha* were maintained under screen, with a 3-year re-propagation cycle via cuttings. This collection was transferred to ASPGRU. The backup collection was relocated to an outside growing area until these accessions are established at ASPGRU.

Pyrus

Permanent back-up trees of all non-hardy clones, virus infected clones, and temporary back-up trees of all new young field trees of *Pyrus* are maintained under screen.

Ribes

All core or non-hardy clonal accessions of *Ribes* are maintained in a tube house or greenhouse. To date, 368 accessions are maintained as part of the permanent collection in tube house, of these 154 are core accessions. Another 59 have been identified as non-cold hardy; these non-cold hardy are housed permanently in greenhouses. 31 accessions were successfully re-propagated as replacements in the collection. There are also 551 seed lots. An additional 31 accessions were re-propagated and taken to the North Farm for field planting. 17 accessions remain in quarantine awaiting virus testing. Now that the *Ribes* collection has been turned over to the ASPGRU facility, propagating for in-house replaces is no longer required. Re-propagated accessions will now be turned over for field replacement as needed. We provided 58 plants to the field collection as requested this past year. 11 new or replacement accessions were received in 2010. 44 accession cuttings from heat treated backup and in-house quarantine were sent to ASPGRU in early 2010 for establishment. The *Ribes* collection will be maintained in our tube house until permanent plants are established at the ASPGRU facility.

Rubus

All clonal accessions of Rubus are maintained under screen. Accessions from tropical, subtropical, and high latitude habitats are maintained in the greenhouse of which there are now 202 accessions. In 2010, 208 accessions were re-propagated for placement in the collection bringing the total number of accessions to 864 of which 267 are core accessions. The repository received 11 new accessions or replacements this year and six new seed lots. 268 accessions that had a screen house date of four years or older were collected and re-propagated. In 2010, 16 of these accessions were readied for placement in the collection, the remainder are in various stages of slow root growth and will probably be ready for the collection in the fall of 2011. Regarding the weak growing Rubus, six of the remaining accessions are in this group, continued efforts are made to find workable propagation for these accessions. 49 plants were repropagated and handed over for the field collection.

Jim Oliphant washes his boots coming from the field before entering the headhouse.

Vaccinium

Due to blueberry shock virus and *Phytophthora ramorum* concerns, we have established the primary collection in the screenhouse. We are growing vigorous stock plants to provide hard cutting material for distribution. We maintain under screen all core, named cultivars, and non-hardy clonal blueberry, as well as, all prostrate accessions, including lingonberry and cranberry. Additionally, we are maintaining 118 montane or non-hardy accessions in the greenhouse. All 250 core accessions have a plant under screen. Because of mixed genotypes in the cranberry collection, each crown has been given its own number. The cranberry collection is presently being analyzed using DNA fingerprint methodology.

Clonal Accessions maintained in the Greenhouses and Screenhouses as of April 2011

	Total # Accessions	Core		Available		Single Plants With No Back-Up	
		# Acc.	%	# Acc.	%	# Acc.	%
Actinidia	58	10	17	39	67	11	19
Corylus	137	36	26	79	58	41	30
Fragaria	1547	559	36	1472	95	877	57
Humulus	372	169	45	28	8	77	21
Mentha	455	54	12	447	98	325	71
Pycnanthemum	34	18	53	34	100	34	100
Pyrus	346	25	7	223	64	60	17
Ribes	368	163	44	298	81	60	16
Rubus	854	269	31	769	90	57	7
Vaccinium	873	448	51	817	94	366	42
Other[1]	130	50	38	75	58	36	28
Total	**5174**	**1801**	**35**	**4281**	**83**	**1944**	**38**

JMO 04-14-2011

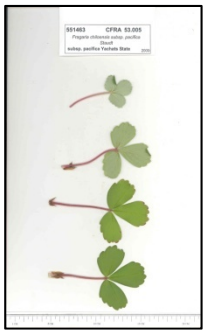
1) 1) includes: ASI, CYD, GAY, GAU, MES, PAE, SAM, SOR, and OTHINV

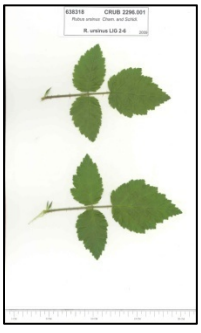
Curatorial Activities

Descriptor Information and Image Capture

Tyler Young has helped the repository through computer scanning efforts. He captured stem and catkin images for core *Corylus* collection, leaf images for *Rubus* and species *Fragaria* collections, flower images for core *Fragaria* species, leaf images for *Paeonia*, and stem+flower images for about half the *Mentha* collection. These images are being processed and will soon be uploaded as voucher records for NCGR accessions in the Germplasm Resources Information Network, GRIN, database. Examples below.

Tyler Young at his work station.





Quarantined Plants

At this time we have 149 accessions in quarantine.

Status of Quarantined Accessions at the Repository

Genus	Federal	State	In-House
Corylus	2 Post-Entry		2 NCGR
Cydonia	11 Provisional Release		
Fragaria	19 Departmental Permit		
Humulus		20 Directors Exemption	
Pyrus	49 Provisional Release		
Ribes	1 Post-Entry	16 Directors Exemption	26 NCGR
Rubus	3 Post-Entry		
Vaccinium	1 Post-Entry		
Total	85	36	28

Small Fruit CGC Activities

The University of Minnesota North Central Research and Outreach Center in Grand Rapids, MN t has a horticulture program located in USDA Zone 3. Scientists there have been collaboration with the NCGR-Corvallis on evaluation of cold-hardiness and other potentially valuable traits in strawberry germplasm. The objectives were to determine plant and fruit descriptors, cold-hardiness level, and foliar disease resistance for these strawberry accessions from Corvallis. On May 28, 2009, 34 accessions were planted to the field at the North Central Research and Outreach Center in Grand Rapids, Minnesota. These included *Fragaria iinumae, F. orientalis, F. nipponica, F. iturupensis, F. vesca, F. chiloensis, F. virginiana,* and F. x *ananassa*. *F*. x *ananassa* 'Mesabi' and 'Jewel' were also included. Runner counts and disease ratings were determined. Powdery mildew, leaf scorch/spot, and frost resistance ratings were taken. Flowering and fruiting data were collected in 2009 and 2010. This data will be uploaded into the publicly accessible database, the germplasm resources information network (GRIN) after publications have been prepared.

Specialty Nut Crop CGC Activities

Hazelnuts

Oregon State University and NCGR-Corvallis staff members have been collaborating concerning descriptive information for hazelnut. Recently morphological descriptors compiled over several years by Shawn Mehlenbacher, and molecular marker data were uploaded to GRIN.

Chestnuts

The University of Missouri and the NCGR-Corvallis have been collaborating concerning origin and descriptive information for Chestnut to be loaded to GRIN. Chestnut trees were propagated and planted in repositories at the Horticulture and Agroforestry Research Center, New Franklin, Missouri in 1996, 2002, and 2009 with additional accessions acquired annually. Trees have been pruned, fertilized, irrigated, and pests controlled following University of Missouri chestnut recommendations. For each accession, passport information was recorded and average harvest dates, yield per tree, and average nut weight for mature trees (tree age > 10 years) were calculated and averaged for the 2008, 2009, and 2010 growing seasons. These data were entered

into a spreadsheet for all accessions. The staff at the NCGR-Repository uploaded the accession, inventory, and observation records onto the publicly accessible database, the Germplasm Resources Information Network (GRIN).

North Farm
By Joe Snead, Ag. Sci. Res. Tech.

The North Farm operations have seen quite a few changes in the last year. There is now one full time technician on the farm. Two of the collections have become back up collections for other repositories. The *Ribes* field collection is a backup collection for the Palmer Alaska repository. The *Actinida* collection will be maintained by the Davis Repository in the future. The *Humilus* field planting will also be taken out soon. With pending budgetary situations more changes are surely on the way.

The North Farm Repository field collections are in good health at this time. The Minor genera collection is growing slowly, as is the species pear collection. The quince collection had been suffering from fire blight in past seasons, but two well timed organic sprays stopped the problem last summer. The backup *Ribes* and Cydonia collections are receiving fungicide treatments this spring.

The North Farm provides a large quantity of propagation material for distribution. About sixty accessions of distribution material were taken from the *Ribes* backup collection. One other request for large quantity cuttings from twenty accessions from the *Ribes* field was also filled. The *Actinida* collection had several hundred accession requested this year. The collection is moving to the Davis Repository, so hardwood cuttings were collected from the entire collection and sent to the Davis Repository. Distribution material was also collected from the *Juglans, Sorbus, Mespilus, Pyrus, Cydonia* and Intergeneric crosses.

Edible Blue Honeysuckle

The last of Dr. Maxine Thompson's *Lonicera* breeding trial was removed from the field. About 50 plants were transplanted in to an existing display planting. The old field was cleaned out and two acres were sub-soiled, plowed, worked down and planted to grass. The area is now ready for a new planting. New young plants were planted in a new *Lonicera* field planting.

Lonicera caerulea, blue honeysuckle fruit. Tart, yet tasty! Great for pies.

There continues to be a good cooperative working relationship with other local ARS research units and Oregon State University Horticulture Department. There were two graduate research plantings this last year. There were nine cooperative research projects conducted on the farm this last year. A summer farm worker was funded by several of ARS research scientists.

Management practices and philology of the North Farm are moving to 'Green' and sustainable practices. One approach being developed is "Farmscaping for Beneficials." This involves establishing habitat or plantings for beneficial insects, birds and bats. An overhead map of the

North farm was developed to illustrate where the changes are occurring. The map can be used as an educational tool in conjunction with the Peoples Garden.

Farmscaping for Beneficial Insects

Beneficial insects work as predators, parasites, and pollinators in the field situation.
The North Farm has three existing beetle banks and more are planned. Small flowering shrubs were planted in the buffer strips in the *Ribes* cultivar field. The flowering shrubs provide nectar for beneficial insects to forage on when the population of target insects is low in the *Ribes* collection. The goal is to have different plants flowering from early spring to late summer. Farmscaping for Beneficials also involves improving the bird habitat on the North Farm. Twenty bird houses were built from scrap lumber left over from a fencing project. These bird houses were placed around the farm to attract bluebirds. Last year four houses were erected and they had great success. Bluebirds eat lots of insects and are a social bird that fit into the farm setting nicely. Six nests are under construction for barn swallows that will be placed on the outside of the barn. These birds also eat lots of insects.

Raptor perches for control of western field voles were installed in areas where there are colonies of voles present. The plan is to attract American Kestrels as predators as bio-control of voles and maybe help with Western pocket gophers. Part of the solution to the vole population will be found by controlling the western pocket gophers. While gophers can have a positive effect on soil tilth, in field plantings they are destructive. When the burrow system is vacant in the field plots voles move in and further degrade the field plantings. Four nesting boxes have been built to encourage American Kestrels raise young on the farm. Two areas on the farm have been left natural as habitat. Eight acres were left unmowed this year for fuel savings and improved habitat for beneficial insects and small birds.

A bat house was constructed and was put up. A tall fiberglass light pole was given to us to put up the bat house by OSU Horticulture. The Bat house is a large one designed to house 300 bats. Research shows a 71% chance of occupation with a large house of this design.

Composting on the farm is another area where we are taking a green approach. All the brush and debris was burned annually in a large bon fire. This always produced a lot of air pollution. The burn pile has been converted into a compost pile. The bigger limbs were removed and chipped. The rest of the pile was compacted to break up the small limbs. The pile was turned once in the winter. The main composting area will be moving to old burn pile area in the coming season. The existing compost area will be worked and returned to farm land.

Presently the compost area has six piles of compost in various stages. This totals about 150 cubic yards of material which will be added to our fields. The material comes from our greenhouse operations, other ARS operations, OSU Horticulture, and our own farm operations. We also obtain pumice and dairy screenings. These materials help heat up the material which aids in the breakdown of woody material. Last year we used fifty yards of compost on *Ribes* cultivar rows and twenty five yards in the People's Garden. Chipped brush is used as mulch in out landscape beds.

People's Garden Project

In 2010 the farm crew, including Emily Bouldin and Elaine Daggett (l-r in image to the left) participated in the People's Garden program. The crew grew potatoes, corn, winter squash, peppers, and pumpkins. Almost 700 pounds was donated to the local food bank. All those who participated found it to be quite rewarding. The farm crew plans to participate again this year. This year an educational aspect will be added for visitors, explaining the aspects of Farmscaping for Beneficials.

Joe Snead, North Farm field manager, unloads squash from the People's Garden at the Linn-Benton Food Share on October 29, 2010.

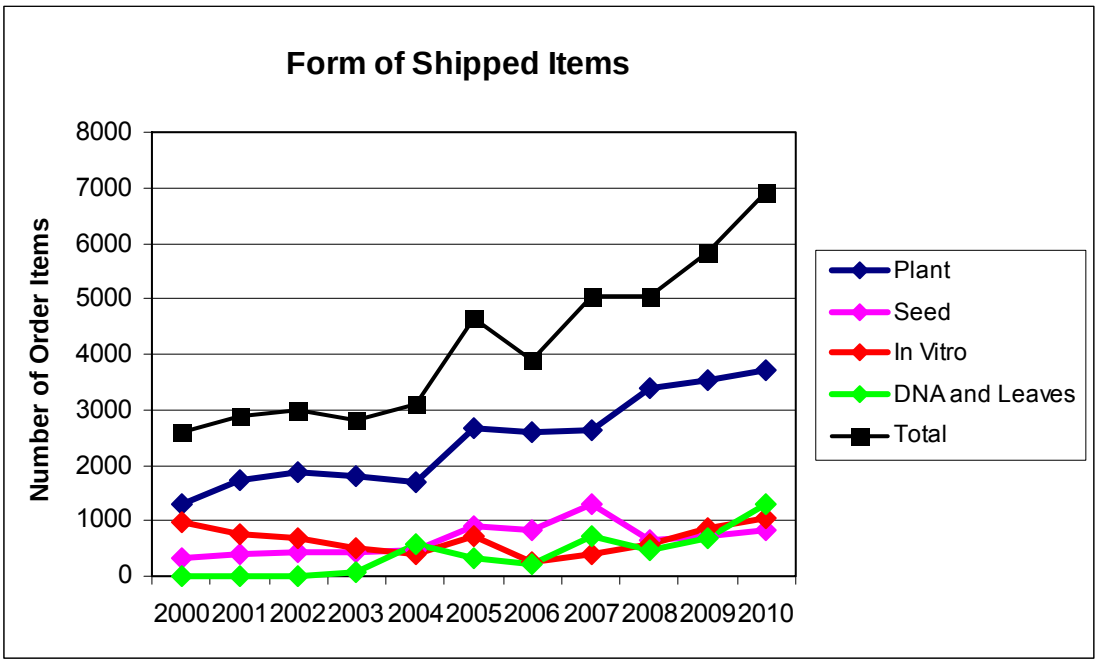
Plant Distribution
By Bruce Bartlett, Bio. Sci. Res. Tech.

2010 Highlights

- 6,914 items were shipped as seeds, cuttings, runners, scionwood, rooted plants, tissue culture and DNA. Once again this is a record for number of accessions sent.
- 85% of accessions requested in 2010 have been shipped.
- 10% of all items shipped were sent to foreign requestors to 21 countries.
- Requests for DNA samples of our accessions, in the form of DNA, lyophilized leaves and fresh leaves, were 1,315 or 19% of the total number of accessions shipped.
- 742 tissue cultured accessions were sent to the National Center for Genetic Resources and Preservation (NCGRP) in Ft. Collins, Colorado as backup. This is 76% of all tissue culture accessions shipped to domestic requestors.
- Scionwood (19.3%), DNA (19%), In Vitro (15%), Rooted Plants (12%) and Runners (5%) were the top forms sent.

The NCGR-Corvallis continues to distribute plant germplasm within the United States and at the international level. This report summarizes all items shipped in CY 2010, which includes accessions requested in 2006 up to and including 2010. At the time of this printing, we have distributed 6,229 items as seeds, cuttings, runners, scionwood, rooted plants, tissue culture and DNA in 2010. This represents 85% of the total number of items requested for 2010. Additional material will be shipped in CY 2011. An average of the number of items shipped

over the last eight years show that we ship about 90% of the total number of items requested from any given year.

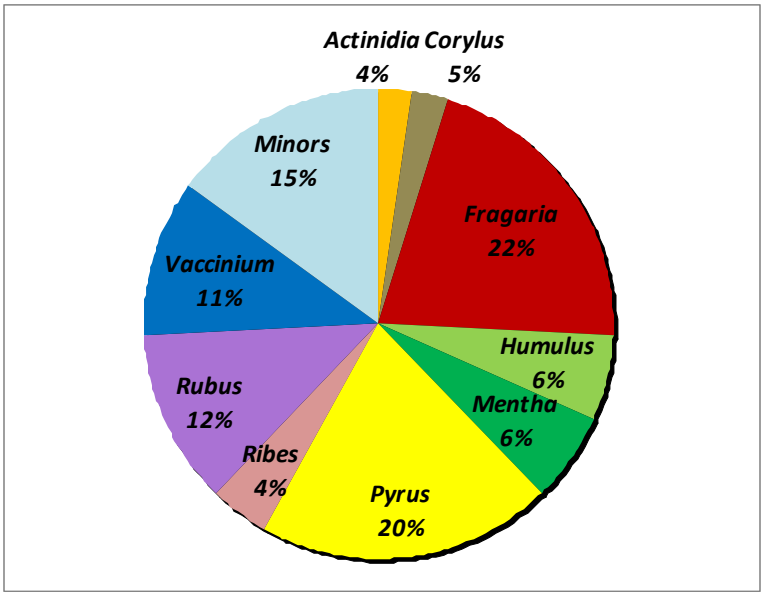


CY 2010 saw an increase in the total number of items shipped to an all time high of 6,914. This total is over 1,000 more than the amount shipped in 2009. Plants, scionwood/hardwood cuttings, in vitro cultures, and DNA (leaves) were predominant categories of material sent.

Material requested in a given year may require more than one year before the item is eventually shipped. This is because we have very diverse holdings and are a clonal facility. At times plant material needs to be propagated from our mother plants in order to have items in a form that is sufficiently large for shipping. However, an average of 90% of items requested will be shipped within two years of the original request.

Plant items of *Fragaria*, *Pyrus*, *Rubus* and *Vaccinium* were sent the most. When all plant items from minor genera are considered collectively, the group represents 15% of all items shipped. Continued interest in Hardy Kiwi Fruit (*Actinidia arguta*) accounted for 14% of all minor genera sent. Ongoing collaborative ARS research accounted for the high use of *Cydonia spp*. making up 35% of total items shipped for minor genera.

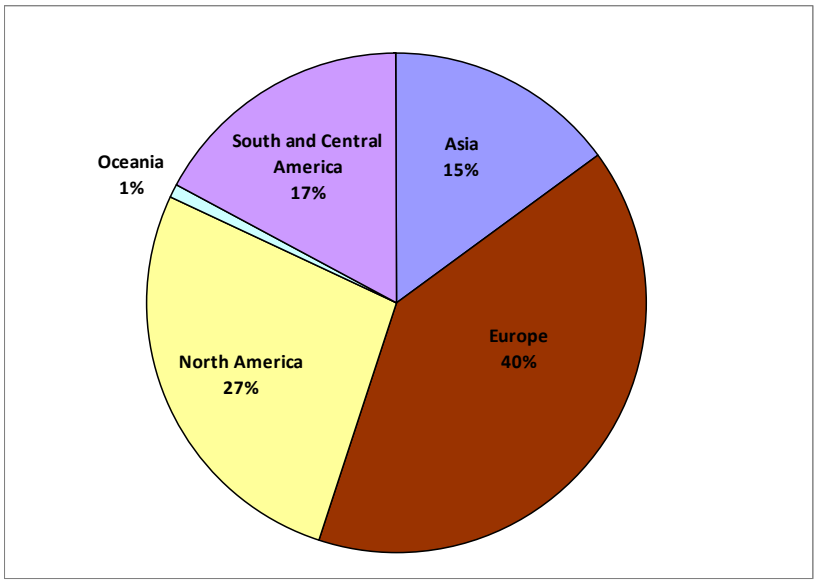
2010 Distribution by Genus



Our largest distributions were in *Fragaria* and *Pyrus* in 2010. *Rubus* and *Vaccinium* continue to hold interest for many requestors. Hardy Kiwi Fruit has now broken out of the minor category and has become a genus with major distribution activity.

We are in the process of testing our strawberry, raspberry and blackberry accessions for additional viruses, phytoplasmas, and viroids. New rules for many countries ask that these plants be tested for additional pathogens. We are in the process of having these tests performed to allow our plant material meet certification requirements when we can. *Pyrus* shipments to the EU continue to be limited to seed since material in forms other than seed are prohibited due to fire blight (*Erwinia amylovora*). Some *Pyrus* scionwood has been sent to Germany with an exception to EU rules called a 'Letter of Authority'. This material has been sent directly to a quarantine facility. Japan, South Korea, and China have not been as restrictive and therefore reflect the high numbers of *Rubus*, *Fragaria* and *Pyrus* still being sent internationally.

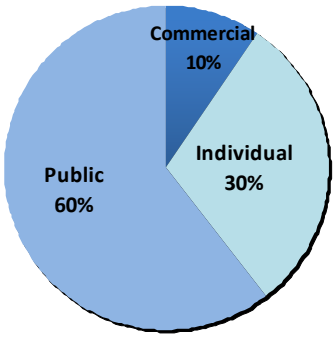
2010 Non-US Plant Distribution



During CY 2010 we shipped plant accessions to twenty two countries including the United States. By region, 90% of the material was sent within the United States. Of the foreign distribution (10%), most went to Europe including Belgium, Denmark, France, Germany, Italy, Netherlands, Spain, Sweden and the United Kingdom. Items sent to Canada (North American) represent 27% of foreign distribution. Asian distribution

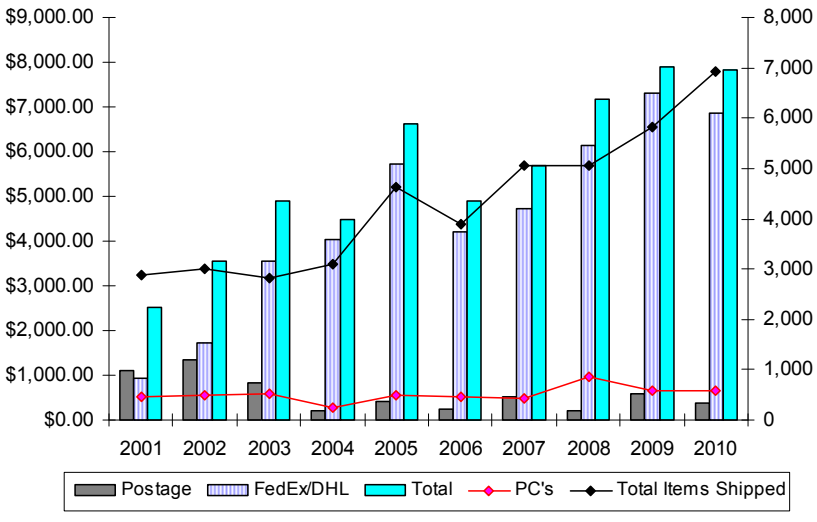
went to South Korea, China and Japan. Items were sent to New Zealand and Australia representing Oceania. South and Central American distribution was up this year over previous years (to 17% of foreign requests).

Distribution by User Group



Those organizations of individuals receiving plant material are identified by the codes established by the Germplasm Resources Information Network (GRIN). These GRIN codes can be condensed into three user groups (Public, Commercial and Individual). Domestically the Public group represents State agencies, universities (public or private), the Agricultural Research Service of USDA, other Federal agencies, and non-profit or other public organizations (botanic gardens, arboretums, societies, centers, institutes). Internationally the Public group represents similar organizations of foreign origin. The Individual group presents persons with no affiliation and Commercial group represents commercial companies domestic and international. The trend of the last few years was of increasing amounts of material being sent to individuals domestically from 36% in 2006 to 42% in 2008 and 61% in 2009. This trend was reversed in 2010 due in part to large ARS collaborative research projects such as RoseBREED with Fragaria and cold hardy work with Cydonia. Public use of material rose to 60% of items shipped in 2010, individual use dropped to 30% and Commercial use remained close to previous years at 10%.

Shipping Costs for Distribution from 2001 to 2010

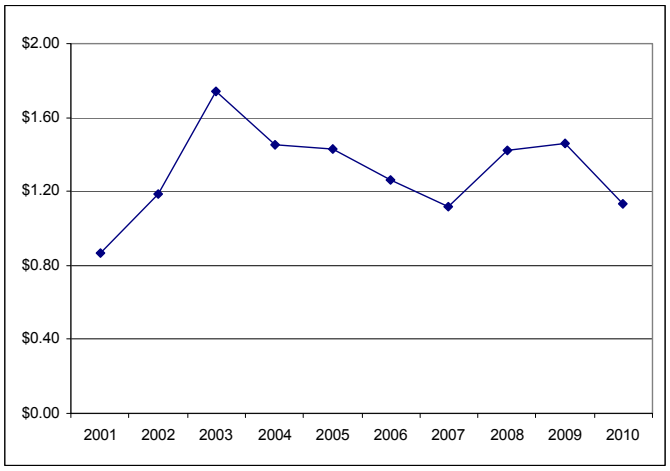


The total postage paid for domestic and international shipping was $377.36. The total cost for Federal Express/DHL was $6,860.87 and the total paid to the Oregon Department of Agriculture for Phytosanitary Certificates was $588.00. The total cost of shipping plant material in CY 2010 was $7,826.23. This total is less than last year's record high. The decrease could be due in part to some requestors paying for shipping. The cost of Phytosanitary Certificates rose from $18.00 to $21.00. This increase

was due to an APHIS application fee increase of $3.00. The ODA managed certificates remain at $18.00. The cost of the phytosanitary certificates in Oregon is much less than other US states due to a state subsidy for the very active Oregon nursery association groups.

Shipping cost per Item

We have continued a very low shipping cost per item ($1.13) on average during 2010. The average cost dropped from $1.46 in 2009 to $1.13 in 2010. This drop could be explained in part by large ARS projects where large amounts of material were shipped at low cost or hand carried with no cost.



Awards 2010
Compiled by: Yvonne Pedersen, Program Assistant

Performance Bonus Awards for the rating period of 10/1/2009-9/30/2010.

Nahla Bassil	Dennis Vandeveer
Barbara Reed	Joseph Postman
Yvonne Pedersen	Jim Oliphant
Missy Fix	Jeanine Denoma
Bruce Bartlett	Doug Cook
David Olsen	Kim Hummer

Time Off Awards for the rating period of 10/1/2009-9/30/2010.

Bruce Bartlett	Emily Bouldin
Anne-Marie Chrisman	Elaine Daggett
Missy Fix	Jim Oliphant
Jane Olson	Joe Snead
Dennis Vandeveer	

PWA Outreach, Diversity, and Equal Opportunity Award.

Kim Hummer – *For excellence in student and community outreach*

Corvallis Outreach, Diversity, and Equal Opportunity Award.

Joseph Postman -

Training 2010
Compiled by: Yvonne Pedersen, Program Assistant

Missy Fix & Joe Snead – Chemical Application Short Course, January 2010

Jim Oliphant, Joe Snead – Seminars on the Production and Maintenance of Small Fruits (credit towards pesticide applicators license renewal); January 2010
Missy Fix, Jim Oliphant, Joe Snead – Pesticide Application Training; January 2010.
Bruce Bartlett – Integrated Pest Management; February and March 2010.
Nahla Bassil – Seminar on Manager/Supervisor Excellence; May 2010.
Deb Tyson – Attended Strawberry Field Day; June 2010
Jim Oliphant – Caneberry/Blueberry Field Days; June 2010
Emily Bouldin, Jane Olson, Anne-Marie Chrisman, and Jim Oliphant – Attended Blueberry Field Day; July 2010.
All employees completed the annual AgLearn training of Information Systems Security Awareness 2010, Environmental Management System 2010.
Travel Card holders completed GovTrip training around card use, travel policy, roles of user and approver; April – June 2010.
Purchase Card holders completed Ability One training; January 2010.
Joseph Postman and Yvonne Pedersen continue to participate in the monthly ARS Site Publisher teleconference/training.

Corvallis Travel 2010
Compiled by Yvonne Pedersen, Program Assistant & Becky Sloop, Office Automation
Kim Hummer – Bodega Bay, California, to attend the Annual Walnut Research Conference (Walnut Crop Germplasm Committee Meeting); January, 2010.
Joseph Postman – Harrow, Ontario, Canada, to attend Agriculture and Agri-Food Canada Workshop (Clonal Genebank Program Review); January, 2010.
Kim Hummer – Atlanta, Georgia, to attend USDA National Plant Germplasm System Curators Workshop (presentation given: "Distribution of Clonal Genetic Resources"); February, 2010.
Joseph Postman – Atlanta, Georgia, to attend National Plant Germplasm System Curators Workshop; February, 2010.
Joseph Postman – Yakima, Washington, to attend the Washington Tree Fruit Research Review; February, 2010.
Joseph Postman – John Day, Oregon, Collaboration with the National Park Service (preservation of heritage orchard); April, 2010.
Joseph Postman – Davis, California, to participate in the annual meeting of the National Clean Plant Network (member of the NCPN governing board); May, 2010.
Kim Hummer – Janesville, Wisconsin, to attend the American Peony Society Meeting and give presentation; June, 2010.
Barbara Reed – St. Louis, Missouri, to attend the Society for In Vitro Biology / International Society for Plant Biology meeting (chair a symposium – give two invited talks and two other talks); June, 2010.
Jim Oliphant – Palmer, Alaska, Site visit to advise on greenhouse operations (also visit blue berry growers cooperating in evaluation trial); June, 2010.
Nahla Bassil – East Lansing, Michigan, Pedigree Based Analysis and meeting of RosBREED students and co-PIs; June, 2010.
Barbara Gilmore – East Lansing, Michigan, to attend workshop regarding RosBREED agreement; June, 2010.

Barbara Reed –Fairbanks, Alaska, to attend Peony Grant Development meeting (SCRI grant proposal); July, 2010.
Barbara Reed – Portland, Oregon, invited speaker for the Plant Growth Regulator Society meeting; August, 2010.
Nahla Bassil – Kalamazoo, Michigan, to attend and participate in the North American Blueberry Research and Extension Workers (NABREW) meeting; July, 2010.
Kim Hummer – Geneva, New York, to attend PGOC and TAC meetings (also included – site visit to Palmer, Alaska); July, 2010.
Kim Hummer – Fairbanks, Alaska, to collect plant samples attend a grant development meeting (also including a site visit to Palmer); July, 2010.
Nahla Bassil – Palm Desert, California, to participate in the American Society of Horticultural Sciences annual conference; August, 2010.
Joseph Postman – Riverdale, Maryland, National Clean Plant Network Governing Board (meeting to review funding proposals); August, 2010.
Barbara Reed – Lisbon, Portugal, to attend the International Horticultural Congress and post meeting tour; August, 2010.
Joseph Postman - Lisbon, Portugal, to attend the International Horticultural Congress and post meeting tour; August, 2010.
Nahla Bassil - Lisbon, Portugal, to attend the International Horticultural Congress and post meeting tour; August, 2010.
Kim Hummer – Palm Springs, California, to attend American Society for Horticultural Science meeting (give invited talk and attend Crop Germplasm Committee); August, 2010.
Kim Hummer – Lisbon, Portugal, to attend the International Horticultural Congress and post meeting tour; August, 2010.
Joseph Postman – Boise, Idaho, to represent the National Clean Plant Network at the Fruit Virus Workers Meeting; September, 2010.
Kim Hummer – Palmer, Alaska, Site visit to Arctic Subarctic Plant Gene Bank; September, 2010.
Kim Hummer – Washington, DC, to attend the National Cereal Germplasm Panel; September, 2010.
Kim Hummer – Oxnard, California, to attend NCCC-22 Meeting and Conference on Small Fruit Crop Germplasm Committee (present reports at both meetings); October, 2010.
Nahla Bassil – Capetown, South Africa, to attend the 5th International ROsaceae Genomics Conference (two oral presentations given); November, 2010.
Kim Hummer – Palmer, Alaska, Site visit to Arctic Subarctic Plant Gene Bank; December, 2010.

Contributed travel, paid for by inter/intra agency or outside private funds in accordance with FTR Chapter 304-1 "Acceptance of funds from non-federal source is in accordance with."

Visitors 2010

By: Yvonne Pedersen, Program Assistant

During Calendar Year 2010, 384 plus people came through the Repository's front door. Guests arrived in large or small groups, or as individuals. In addition to the 384 people, between 200 and 300 people attended the 2010 Open House held in July.

In July, the Open House was a combined effort between NCGR, HCRL (Hort Crops Research Lab), OSU's Department of Horticulture, and the City of Corvallis daVinci Days festival with individuals exploring the cherry research trials, vegetable breeding plots, blueberry irrigation research, berry breeding, pear collection, and taste samples of fruits of the season.

In September, the Specialty Crop Research Initiative's 'ōhelo work group met at the repository to share update information about the project.

Some groups used the Repository for their annual meetings such as the Oregon Hazelnut Commission, the Oregon Sweet Cherry Commission, and the Oregon Processed Vegetable Committee. Educational tours ranging from groups of 8 to 20 came from Willamette University, Home Orchard Society, Master Gardener Group, Oregon State University, Philomath School District, Evergreen University, various garden clubs, Corvallis School District, Linn Benton Community College, as well as the Greater Albany Public Schools to tour the facility for their horticultural experience. In addition, the Corvallis Outreach Diversity and Equal Opportunity Committee arranged a tour to visit the three ARS Corvallis units for students and others interested, to see what the other units are researching.

There were also numerous general visitors from around the world: 1 from Bulgaria, 1 from Canada, 2 from India, 2 from China, 3 from Columbia, 4 from Chile, and 6 from Poland. Also, there were graduate students working at the National Clonal Germplasm Repository from Kenya and Thailand and one visiting scientist from Japan.

Publications Submitted in 2010
Compiled by: Yvonne Pedersen, Program Assistant

Bassil, Nahla, 2010. Microsatellite Markers: Valuable in *Vaccinium* L. http://nabrew.anr.msu.edu/uploads/files/9/Programbooklet.pdf NABREW Meeting Abstract. 2010:36.

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APPENDIX

New Accessions (inventory samples) received in 2010:

accession number	inventory number	type	date rec.	Taxon	plant name	origin
Actinidia (4 plants)						
CACT 283	283.001	PL	02/12/2010	Actinidia chinensis Planch.	Jia	
CACT 284	284.001	PL	02/12/2010	Actinidia chinensis Planch.	Sara	
CACT 285	285.001	PL	02/12/2010	Actinidia chinensis Planch.	Jia Male	
CACT 286	286.001	PL	02/12/2010	Actinidia deliciosa (A. Chev.) C. F. Liang & A. R. Ferguson	5D9	
Amelanchier (9 plants)						
PI 559427	77.003	PL	01/28/2010	Amelanchier alnifolia (Nutt.) Nutt. ex M. Roemer	Pembina	
PI 559428	78.003	PL	01/28/2010	Amelanchier alnifolia (Nutt.) Nutt. ex M. Roemer	Regent	
CAME 235	235.002	PL	01/28/2010	Amelanchier alnifolia (Nutt.) Nutt. ex M. Roemer	Martin	
CAME 242	242.002	PL	01/28/2010	Amelanchier alnifolia (Nutt.) Nutt. ex M. Roemer	Nelson	
PI 559428	78.004	PL	11/12/2010	Amelanchier alnifolia (Nutt.) Nutt. ex M. Roemer	Regent	
CAME 250	250.001	PL	02/05/2010	Amelanchier lamarckii F. G. Schroed.	A. lamarckii	
CAME 250	250.002	PL	02/05/2010	Amelanchier lamarckii F. G. Schroed.	A. lamarckii	
CAME 251	251.001	PL	02/05/2010	Amelanchier x grandiflora Rehder	A. x grandiflora	
CAME 251	251.002	PL	02/05/2010	Amelanchier x grandiflora Rehder	A. x grandiflora	
Chaenomeles (4 plants)						
CCHA 24	24.001	PL	04/29/2010	Chaenomeles speciosa (Sweet) Nakai	C. speciosa JPN-2009-091	Japan

CCHA 24	24.002	PL	04/29/2010	Chaenomeles speciosa (Sweet) Nakai	C. speciosa JPN-2009-091	Japan
CCHA 24	24.003	PL	04/29/2010	Chaenomeles speciosa (Sweet) Nakai	C. speciosa JPN-2009-091	Japan
CCHA 25	25.001	PL	11/12/2010	Chaenomeles sp.	Iwai Nishiki	
Corylus (47 plants, 17 seedlots)						
CCOR 928	928.001	PL	03/19/2010	Corylus avellana L.	Zaqatala - seedling 1091.140 - Azerbaijan	Azerbaijan
CCOR 927	927.001	PL	03/23/2010	Corylus avellana L.	OSU 878.048	
CCOR 929	929.001	PL	03/19/2010	Corylus avellana L.	Qabala Market - seedling 1092.032	Azerbaijan
CCOR 930	930.001	PL	03/19/2010	Corylus avellana L.	Xacmaz seedling 1092.073 - Azerbaijan	Azerbaijan
CCOR 931	931.001	PL	03/19/2010	Corylus avellana L.	Ata Baba #1 seedling OSU 1116.012	Azerbaijan
CCOR 932	932.001	PL	03/19/2010	Corylus avellana L.	Ata Baba #2 seedling OSU 1120.052	Azerbaijan
CCOR 933	933.001	PL	03/19/2010	Corylus avellana L.	Qabala Orchards - seedling 1121.036	Azerbaijan
CCOR 934	934.001	PL	03/19/2010	Corylus avellana L.	C. avellana OSU 1089.004 - Kakheti, Georgia	Georgia
CCOR 935	935.001	PL	03/19/2010	Corylus avellana L.	Khachapura Oblate - seedling 1090.013	Georgia
CCOR 936	936.001	PL	03/19/2010	Corylus avellana L.	Khachapura Small Round #2 - seedling 1090.080	Georgia
CCOR 937	937.001	PL	03/19/2010	Corylus avellana L.	Khachapura Dark Shells #1 - seedling 1090.112	Georgia
CCOR 938	938.001	PL	03/19/2010	Corylus avellana L.	Large Round #1 - seedling 1120.025 - Georgia	Georgia
CCOR 939	939.001	PL	03/19/2010	Corylus avellana L.	Small Round #1 - seedling 1120.034 - Georgia	Georgia
CCOR 940	940.002	PL	03/19/2010	Corylus avellana L.	Large Round #2 - seedling 1133.053 - Georgia	Georgia
CCOR 941	941.001	PL	03/19/2010	Corylus avellana L.	Xacmaz - seedling 1116.059 - Azerbaijan	Azerbaijan
CCOR 930	930.002	PL	03/19/2010	Corylus avellana L.	Xacmaz seedling 1092.078 - Azerbaijan	Azerbaijan
CCOR 930	930.003	PL	03/19/2010	Corylus avellana L.	Xacmaz seedling 1092.094 - Azerbaijan	Azerbaijan
CCOR 930	930.004	PL	03/19/2010	Corylus avellana L.	Xacmaz seedling 1092.100 - Azerbaijan	Azerbaijan
CCOR 930	930.005	PL	03/19/2010	Corylus avellana L.	Xacmaz seedling 1092.108 - Azerbaijan	Azerbaijan
CCOR 934	934.002	PL	03/19/2010	Corylus avellana L.	C. avellana OSU 1089.024 - Kakheti,	Georgia

					Georgia	
CCOR 942	942.001	PL	03/19/2010	Corylus avellana L.	C. avellana OSU 1120.020 - Kakheti, Georgia	Georgia
CCOR 940	940.001	PL	03/19/2010	Corylus avellana L.	Large Round #1 - seedling 1133.036 - Georgia	Georgia
CCOR 943	943.001	PL	03/19/2010	Corylus avellana L.	C. avellana OSU 1133.009 - Kakheti, Georgia	Georgia
CCOR 932	932.002	PL	03/19/2010	Corylus avellana L.	Ata Baba #2 seedling OSU 1122.018 - Azerbaijan	Azerbaijan
CCOR 932	932.003	PL	03/19/2010	Corylus avellana L.	Ata Baba #2 seedling OSU 1122.034 - Azerbaijan	Azerbaijan
CCOR 932	932.004	PL	03/19/2010	Corylus avellana L.	Ata Baba #2 seedling OSU 1122.048 - Azerbaijan	Azerbaijan
CCOR 933	933.002	PL	03/19/2010	Corylus avellana L.	Qabala Orchards - seedling 1134.054 - Azerbaijan	Azerbaijan
CCOR 944	944.001	PL	03/19/2010	Corylus avellana L.	OSU 834.018	
CCOR 945	945.001	PL	03/19/2010	Corylus avellana L.	OSU 833.082	
CCOR 946	946.001	PL	03/19/2010	Corylus avellana L.	OSU 923.030	
CCOR 947	947.001	PL	03/19/2010	Corylus avellana L.	OSU 824.034	
CCOR 948	948.001	PL	03/19/2010	Corylus avellana L.	OSU 1180.036	
CCOR 924	924.001	PL	04/29/2010	Corylus heterophylla Fischer ex Trautv.	C. heterophylla hybrid - Iwate, Japan	Japan
CCOR 924	924.002	PL	04/29/2010	Corylus heterophylla Fischer ex Trautv.	C. heterophylla hybrid - Iwate, Japan	Japan
CCOR 924	924.003	PL	04/29/2010	Corylus heterophylla Fischer ex Trautv.	C. heterophylla hybrid - Iwate, Japan	Japan
CCOR 924	924.004	PL	04/29/2010	Corylus heterophylla Fischer ex Trautv.	C. heterophylla hybrid - Iwate, Japan	Japan
CCOR 924	924.005	PL	04/29/2010	Corylus heterophylla Fischer ex Trautv.	C. heterophylla hybrid - Iwate, Japan	Japan
CCOR 923	923.001	PL	04/29/2010	Corylus sieboldiana Bunge	C. sieboldiana - Hokkaido, Japan	Japan
CCOR 923	923.002	PL	04/29/2010	Corylus sieboldiana Bunge	C. sieboldiana - Hokkaido, Japan	Japan

CCOR 923	923.003	PL	04/29/2010	Corylus sieboldiana Bunge	C. sieboldiana - Hokkaido, Japan	Japan
CCOR 923	923.004	PL	04/29/2010	Corylus sieboldiana Bunge	C. sieboldiana - Hokkaido, Japan	Japan
CCOR 923	923.005	PL	04/29/2010	Corylus sieboldiana Bunge	C. sieboldiana - Hokkaido, Japan	Japan
CCOR 926	926.001	PL	04/29/2010	Corylus sieboldiana Bunge	C. sieboldiana - Iwate, Japan	Japan
CCOR 926	926.002	PL	04/29/2010	Corylus sieboldiana Bunge	C. sieboldiana - Iwate, Japan	Japan
CCOR 926	926.003	PL	04/29/2010	Corylus sieboldiana Bunge	C. sieboldiana - Iwate, Japan	Japan
CCOR 926	926.004	PL	04/29/2010	Corylus sieboldiana Bunge	C. sieboldiana - Iwate, Japan	Japan
CCOR 926	926.005	PL	04/29/2010	Corylus sieboldiana Bunge	C. sieboldiana - Iwate, Japan	Japan
CCOR 949	949	SD	10/08/2010	Corylus avellana L.	Khachapura O.P. - Adjara	Georgia
CCOR 950	950	SD	10/08/2010	Corylus avellana L.	Dedoplis Titi O.P.	Georgia
CCOR 951	951	SD	10/08/2010	Corylus avellana L.	C. avellana G10-106	Georgia
CCOR 952	952	SD	10/08/2010	Corylus avellana L.	C. avellana G10-107	Georgia
CCOR 953	953	SD	10/08/2010	Corylus avellana L.	Chachapura O.P. - Lagodekhi	Georgia
CCOR 954	954	SD	10/08/2010	Corylus avellana L.	C. avellana G10-109	Georgia
CCOR 955	955	SD	10/08/2010	Corylus avellana L.	C. avellana G10-110	Georgia
CCOR 956	956	SD	10/08/2010	Corylus avellana L.	Zolotoy orekh O.P.	Georgia
CCOR 957	957	SD	10/08/2010	Corylus avellana L.	Khrustala O.P.	Georgia
CCOR 958	958	SD	10/08/2010	Corylus avellana L.	Lekuri O.P.	Georgia
CCOR 959	959	SD	10/08/2010	Corylus avellana L.	Khoji Tkhili O.P.	Georgia
CCOR 960	960	SD	10/08/2010	Corylus avellana L.	C. avellana G10-115	Georgia
CCOR 961	961	SD	10/08/2010	Corylus avellana L.	Apenuri berdznula O.P.	Georgia
CCOR 962	962	SD	10/08/2010	Corylus avellana L.	Gavazuri O.P.	Georgia
CCOR 963	963	SD	10/08/2010	Corylus avellana L.	Anakliuri O.P.	Georgia
CCOR 964	964	SD	10/08/2010	Corylus avellana L.	C. avellana G10-119	Georgia
CCOR 965	965	SD	10/08/2010	Corylus colurna L.	C. colurna G10-159 - Georgia	Georgia
Cydonia (25 plants, 1 seedlot)						
CCYD 155	155.001	PL	03/04/2010	Cydonia oblonga Miller	Sayraa (Smyrna?)	Turkey
PI 655059	147.001	PL	04/29/2010	Cydonia oblonga Miller	IV-36 O.P. - Bulgaria	Bulgaria
PI 655059	147.002	PL	04/29/2010	Cydonia oblonga Miller	IV-36 O.P. - Bulgaria	Bulgaria
PI 655059	147.003	PL	04/29/2010	Cydonia oblonga Miller	IV-36 O.P. - Bulgaria	Bulgaria

CCYD 149	149.001	PL	04/29/2010	Cydonia oblonga Miller	V-7 O.P. - Bulgaria	Bulgaria
CCYD 149	149.002	PL	04/29/2010	Cydonia oblonga Miller	V-7 O.P. - Bulgaria	Bulgaria
CCYD 149	149.003	PL	04/29/2010	Cydonia oblonga Miller	V-7 O.P. - Bulgaria	Bulgaria
CCYD 146	146.001	PL	04/29/2010	Cydonia oblonga Miller	I-83 O.P. - Bulgaria	Bulgaria
CCYD 146	146.002	PL	04/29/2010	Cydonia oblonga Miller	I-83 O.P. - Bulgaria	Bulgaria
CCYD 146	146.003	PL	04/29/2010	Cydonia oblonga Miller	I-83 O.P. - Bulgaria	Bulgaria
CCYD 151	151.001	PL	04/29/2010	Cydonia oblonga Miller	VI-7 O.P. - Bulgaria	Bulgaria
CCYD 151	151.002	PL	04/29/2010	Cydonia oblonga Miller	VI-7 O.P. - Bulgaria	Bulgaria
CCYD 151	151.003	PL	04/29/2010	Cydonia oblonga Miller	VI-7 O.P. - Bulgaria	Bulgaria
CCYD 148	148.001	PL	04/29/2010	Cydonia oblonga Miller	IV-40 O.P. - Bulgaria	Bulgaria
CCYD 148	148.002	PL	04/29/2010	Cydonia oblonga Miller	IV-40 O.P. - Bulgaria	Bulgaria
CCYD 148	148.003	PL	04/29/2010	Cydonia oblonga Miller	IV-40 O.P. - Bulgaria	Bulgaria
CCYD 150	150.001	PL	04/29/2010	Cydonia oblonga Miller	V-46 O.P. - Bulgaria	Bulgaria
CCYD 150	150.002	PL	04/29/2010	Cydonia oblonga Miller	V-46 O.P. - Bulgaria	Bulgaria
CCYD 150	150.003	PL	04/29/2010	Cydonia oblonga Miller	V-46 O.P. - Bulgaria	Bulgaria
PI 655045	87.002	PL	02/25/2010	Cydonia oblonga Miller	Smyrna	Turkey
CCYD 156	156.001	PL	10/10/2010	Cydonia oblonga Miller	Variegated BA29 seedling	Oregon
CCYD 157	157.001	PL	10/10/2010	Cydonia oblonga Miller	Variegated Trentholm seedling	Oregon
CCYD 156	156.002	PL	10/10/2010	Cydonia oblonga Miller	Variegated BA29 seedling 2	United States
CCYD 156	156.003	PL	10/10/2010	Cydonia oblonga Miller	Variegated BA29 seedling 3	United States
CCYD 156	156.004	PL	10/10/2010	Cydonia oblonga Miller	Variegated BA29 seedling 4	United States
PI 660759	158	SD	11/19/2010	Pseudocydonia sinensis (Thouin) C. K. Schneid.	Pseudocydonia - Chinese Quince	
Fragaria (61 plants, 18 seedlots)						
CFRA 2051	2051.001	PL	06/03/2010	Fragaria chiloensis subsp. pacifica Staudt	F. chiloensis subsp. pacifica Lincoln Beach	United States
CFRA 2032	2032.001	PL	04/26/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata 2010-Oregon-003	Oregon
CFRA 2033	2033.001	PL	04/26/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata 2010-Oregon-004	Oregon
CFRA	2035.001	PL	05/03/2010	Fragaria vesca subsp. bracteata (A.	F. vesca subsp. bracteata 2010-06 INAC	United States

2035				Heller) Staudt		
CFRA 2036	2036.001	PL	05/17/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata KH 16-01	United States
CFRA 2040	2040.001	PL	05/17/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata KH 16-05	United States
CFRA 2042	2042.001	PL	05/17/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata KH 16-07	United States
CFRA 2043	2043.001	PL	05/17/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata KH 16-08	United States
CFRA 2045	2045.001	PL	05/24/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata KH-22-01	United States
CFRA 2046	2046.001	PL	05/24/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata KH-22-02	United States
CFRA 2047	2047.001	PL	05/24/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata KH-22-03	United States
CFRA 2060	2060.001	PL	07/06/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata KH-06-22-03	United States
CFRA 2064	2064.001	PL	07/06/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata KH-06-26-07	United States
CFRA 2064	2064.002	PL	07/06/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata KH-06-26-07	United States
CFRA 2064	2064.003	PL	07/06/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata KH-06-26-07	United States
CFRA 2087	2087.001	PL	09/20/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca bracteata KH-09-18-01	United States
CFRA 2089	2089.001	PL	10/19/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata Mt. Shasta	United States
CFRA 2090	2090.001	PL	11/09/2010	Fragaria vesca subsp. bracteata (A. Heller) Staudt	F. vesca subsp. bracteata Ashland Marathon	United States
CFRA 2075	2075.001	PL	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-04	United States
CFRA 2078	2078.001	PL	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-07	United States

CFRA 2079	2079.001	PL	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-08	United States
CFRA 2075	2075.002	PL	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-04	United States
CFRA 2075	2075.003	PL	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-04	United States
CFRA 2075	2075.004	PL	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-04	United States
CFRA 2075	2075.005	PL	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-04	United States
CFRA 2078	2078.002	PL	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-07	United States
CFRA 2078	2078.003	PL	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-07	United States
CFRA 2078	2078.004	PL	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-07	United States
CFRA 2030	2030.001	PL	04/26/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala 2010-Oregon-0O1	Oregon
CFRA 2031	2031.001	PL	04/26/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala 2010-Oregon-002	Oregon
CFRA 2034	2034.001	PL	04/26/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala 2010-Oregon-005	Oregon
CFRA 2037	2037.001	PL	05/17/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH 16-02	United States
CFRA 2038	2038.001	PL	05/17/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH 16-03	United States
CFRA 2039	2039.001	PL	05/17/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH 16-04	United States
CFRA 2041	2041.001	PL	05/17/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH 16-06	United States
CFRA 2044	2044.001	PL	05/17/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH 16-09	United States
CFRA	2059.001	PL	07/06/2010	Fragaria virginiana subsp.	F. virginiana subsp. platypetala KH-06-22-	United States

2059				platypetala (Rydb.) Staudt	02	
CFRA 2061	2061.001	PL	07/06/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH-06-26-01	United States
CFRA 2062	2062.001	PL	07/06/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH-06-26-02	United States
CFRA 2063	2063.001	PL	07/06/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH-06-26-03	United States
CFRA 2065	2065.001	PL	07/06/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH-07-03-01	United States
CFRA 2066	2066.001	PL	07/06/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH-07-03-02	United States
CFRA 2067	2067.001	PL	07/06/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH-07-03-03	United States
CFRA 2068	2068.001	PL	07/06/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH-07-03-04	United States
CFRA 2069	2069.001	PL	07/06/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH-07-03-05	United States
CFRA 2059	2059.002	PL	07/06/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana subsp. platypetala KH-06-22-02	United States
CFRA 2070	2070.001	PL	07/16/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana platypetala KH-07-15-01	United States
CFRA 2071	2071.001	PL	07/16/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana platypetala KH-07-15-02	United States
CFRA 2072	2072.001	PL	07/16/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana platypetala KH-07-15-03	United States
CFRA 2073	2073.001	PL	07/16/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana platypetala KH-07-15-04	United States
CFRA 2074	2074.001	PL	07/16/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana platypetala KH-07-15-05	United States
CFRA 2083	2083.001	PL	08/13/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana platypetala KH-08-07-01A	United States
CFRA 2083	2083.002	PL	08/13/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana platypetala KH-08-07-01B	United States

CFRA 2084	2084.001	PL	09/20/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana platypetala KH-09-17-01	United States
CFRA 2085	2085.001	PL	09/20/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana platypetala KH-09-17-02	United States
CFRA 2086	2086.001	PL	09/20/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana platypetala KH-09-17-03	United States
CFRA 2088	2088.001	PL	09/20/2010	Fragaria virginiana subsp. platypetala (Rydb.) Staudt	F. virginiana platypetala KH-09-18-02	United States
PI 660777	2048.001	PL	05/25/2010	Fragaria x ananassa Duchesne ex Rozier	Chandler	United States
PI 660778	2049.001	PL	05/25/2010	Fragaria x ananassa Duchesne ex Rozier	Oso Grande	United States
PI 660779	2050.001	PL	05/25/2010	Fragaria x ananassa Duchesne ex Rozier	Seascape	United States
CFRA 2058	2058.001	PL	07/06/2010	Fragaria x ananassa Duchesne ex Rozier	F. x ananassa cuneifolia KH-06-22-01	United States
CFRA 2053	2053	SD	06/29/2010	Fragaria iinumae Makino	F. iinumae seed composite Cluster 3	
CFRA 2054	2054	SD	06/29/2010	Fragaria iinumae Makino	F. iinumae seed composite Cluster 4	
CFRA 2055	2055	SD	06/29/2010	Fragaria iinumae Makino	F. iinumae seed composite Cluster 5	
CFRA 2052	2052	SD	06/29/2010	Fragaria nipponica Makino	F. nipponica seed composite Cluster 10	
CFRA 2056	2056	SD	06/29/2010	Fragaria nipponica Makino	F. nipponica seed composite Cluster 8	
CFRA 2057	2057	SD	06/29/2010	Fragaria nipponica Makino	F. nipponica seed composite Cluster 9	
CFRA 2092	2092	SD	12/22/2010	Fragaria vesca L.	Red Wonder	
CFRA 2093	2093	SD	12/22/2010	Fragaria vesca L.	Yellow Wonder	
CFRA	2094	SD	12/22/2010	Fragaria vesca f. alba (Ehrh.)	Hawaii 4 (F3)	

2094				Staudt		
CFRA 2095	2095	SD	12/22/2010	Fragaria vesca f. alba (Ehrh.) Staudt	Hawaii 4 (F7)	
CFRA 2029	2029	SD	04/27/2010	Fragaria vesca subsp. vesca f. alba (Ehrh.) Staudt	F. vesca f. alba HIL-2009-001	United States
CFRA 2076	2076	SD	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-05	United States
CFRA 2077	2077	SD	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-06	United States
CFRA 2080	2080	SD	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-09	United States
CFRA 2081	2081	SD	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-19-10	United States
CFRA 2082	2082	SD	07/26/2010	Fragaria virginiana subsp. glauca (S. Watson) Staudt	F. virginiana subsp. glauca KH-07-21-03	United States
PI 612486	1408	SD	06/29/2010	Fragaria virginiana subsp. grayana (Vilm. ex J. Gay) Staudt	F. virginiana subsp. grayana NC 95-19-1	United States
CFRA 2091	2091	SD	12/22/2010	Fragaria x ananassa Duchesne ex Rozier	Fresca	
Humulus (2 plants)						
CHUM 1597	**1597.001**	**PL**	**08/09/2010**	**Humulus lupulus var. lupulus**	**Scarlet**	
CHUM 1598	**1598.001**	**PL**	**08/09/2010**	**Humulus lupulus var. lupulus**	**Sterling**	
Intergeneric (1 plant)						
CIGC 5	5.002	PL	02/16/2010	×Crataegosorbus miczurinii Pojark.	Granatnaya (Sorbus x Crataegus)	
Juglans (1 seedlot)						
CJUG 74	74	SD	01/07/2010	Juglans cinerea L.	J. cinerea K-1b	Kyrgyzstan
Mentha (1 plant)						
CMEN 720	720.001	PL	06/11/2010	Mentha spicata L.	M. spicata Vietnam	Vietnam
Pyrus (20 plants, 2						

seedlots)						
Q 44169	2944.001	PL	03/04/2010	Pyrus communis L.	De Cloche	France
Q 44170	2945.001	PL	03/04/2010	Pyrus communis L.	Jaunette	France
CPYR 2946	2946.001	PL	01/22/2010	Pyrus communis L.	Beurre Crapaud	France
CPYR 2947	2947.001	PL	03/22/2010	Pyrus communis L.	Faccia della Madonna	Italy
CPYR 2948	2948.001	PL	02/02/2010	Pyrus communis L.	Mission San Carlos Pear 1	California
CPYR 2949	2949.001	PL	02/02/2010	Pyrus communis L.	Mission San Carlos Pear 2	California
CPYR 2950	2950.001	PL	02/02/2010	Pyrus communis L.	Mission San Carlos Pear 3	California
PI 641285	2799.003	PL	03/16/2010	Pyrus communis subsp. caucasica (Fed.) Browicz	P. communis subsp. caucasica ARM-02-167 - Vanadzor	Armenia
PI 641285	2799.004	PL	03/16/2010	Pyrus communis subsp. caucasica (Fed.) Browicz	P. communis subsp. caucasica ARM-02-167 - Vanadzor	Armenia
PI 641285	2799.005	PL	03/16/2010	Pyrus communis subsp. caucasica (Fed.) Browicz	P. communis subsp. caucasica ARM-02-167 - Vanadzor	Armenia
CPYR 2940	2940.001	PL	01/07/2010	Pyrus hybrid	Patricke Pear	United States
CPYR 2941	2941.001	PL	01/13/2010	Pyrus hybrid	Tennosui	United States
CPYR 2942	2942.001	PL	01/13/2010	Pyrus hybrid	Southern King	United States
CPYR 2943	2943.001	PL	01/13/2010	Pyrus hybrid	Lemate	United States
CPYP 2938	2938.001	PL	04/29/2010	Pyrus ussuriensis Maxim.	P. ussuriensis JPN-2009-148	Japan
CPYP 2938	2938.002	PL	04/29/2010	Pyrus ussuriensis Maxim.	P. ussuriensis JPN-2009-148	Japan
CPYR 2939	2939.001	PL	04/29/2010	Pyrus ussuriensis Maxim.	P. ussuriensis JPN-2009-149	Japan
CPYR 2937	2937.001	PL	04/29/2010	Pyrus ussuriensis Maxim.	P. ussuriensis JPN-2009-145	Japan
CPYR 2937	2937.002	PL	04/29/2010	Pyrus ussuriensis Maxim.	P. ussuriensis JPN-2009-145	Japan
CPYR 2937	2937.003	PL	04/29/2010	Pyrus ussuriensis Maxim.	P. ussuriensis JPN-2009-145	Japan
CPYR 2951	2951	SD	10/08/2010	Pyrus communis L.	Gldani Pear G10-120	Georgia
CPYR 2952	2952	SD	10/08/2010	Pyrus salicifolia Pallas	P. salicifolia - Georgia G10-122	Georgia
Ribes (11 plants)						
PI 660824	1416.001	PL	03/30/2010	Ribes alpinum L.	R. alpinum GE-2004-118 SG#1	Georgia
PI 660824	1416.002	PL	03/30/2010	Ribes alpinum L.	R. alpinum GE-2004-118 SG#2	Georgia
Q 44288	1627.001	PL	07/13/2010	Ribes cynosbati L.	Mountain seedling	
Q 42628	1623.001	PL	07/13/2010	Ribes nigrum L.	Malochka (Milochka?)	

Q 42630	1624.001	PL	07/13/2010	Ribes nigrum L.	Selechenskaya	
Q 42632	1625.001	PL	07/13/2010	Ribes nigrum L.	Ulibka	
Q 42633	1626.001	PL	07/13/2010	Ribes nigrum L.	Vinogradnaya	
PI 638163	1390.001	PL	03/30/2010	Ribes sachalinense (F. Schmidt) Nakai	R. sachalinense AS-03-024 SG#1	Russian Federation
PI 638175	1405.001	PL	03/30/2010	Ribes sachalinense (F. Schmidt) Nakai	R. sachalinense J79 SG#1	Japan
CRIB 1628	1628.001	PL	11/12/2010	Ribes sanguineum Pursh	Brocklebankii	
CRIB 1629	1629.001	PL	12/01/2010	Ribes uva-crispa L	Cowester	
Rubus (11 plants, 6 seedlots)						
CRUB 2574	2574.001	PL	03/03/2010	Rubus hybrid	ORUS 2547-3	
CRUB 2575	2575.001	PL	03/03/2010	Rubus hybrid	ORUS 2858-1	
CRUB 2576	2576.001	PL	03/03/2010	Rubus hybrid	ORUS 2861-1	
CRUB 2577	2577.001	PL	03/03/2010	Rubus hybrid	ORUS 2862-1	
CRUB 2578	2578.001	PL	03/03/2010	Rubus hybrid	OSC 2024	
CRUB 2581	2581.001	PL	07/13/2010	Rubus idaeus L.	Podgorina	
CRUB 2579	2579.001	PL	07/06/2010	Rubus lasiococcus A. Gray	R. lasiococcus KH 06-26-04	United States
CRUB 2554	2554.001	PL	08/19/2010	Rubus mesogaeus Focke	R. mesogaeus JPN-2009-028 SG#1	Japan
CRUB 2555	2555.001	PL	08/19/2010	Rubus mesogaeus Focke	R. mesogaeus JPN-2009-029 SG#1	Japan
CRUB 2562	2562.001	PL	08/19/2010	Rubus mesogaeus Focke	R. mesogaeus JPN-2009-097 SG#1	Japan
CRUB 2580	2580.001	PL	07/06/2010	Rubus pedatus Smith	R. pedatus KH 06-26-06	United States

CRUB 2585	2585	SD	07/26/2010	Rubus arcticus L.	R. arcticus KH-07-19-03sd	United States
Ames 10167	2582	SD	07/26/2010	Rubus parvifolius L.	R. parvifolius Iowa	United States
PI 654992	2512	SD	03/08/2010	Rubus parvus J. Buch.	New Zealand GC Bramble OP	
CRUB 2583	2583	SD	07/26/2010	Rubus strigosus Michaux	R. strigosus KH-07-19-01sd	United States
CRUB 2584	2584	SD	07/26/2010	Rubus strigosus Michaux	R. strigosus KH-07-19-02sd	United States
CRUB 2586	2586	SD	07/26/2010	Rubus strigosus Michaux	R. strigosus KH-07-21-02sd	United States
Sambucus (1 plant)						
CSAM 193	193.001	PL	11/12/2010	Sambucus nigra L.	Pyramidalis	
Sorbus (12 plants)						
CSOR 312	312.001	PL	02/16/2010	Sorbus aucuparia L.	Klosterneuburg	Germany
CSOR 313	313.001	PL	02/16/2010	Sorbus aucuparia L.	Klosterneuburg No.4	Germany
PI 635900	76.002	PL	02/16/2010	Sorbus aucuparia L.	Moravskaya	
CSOR 316	316.001	PL	02/16/2010	Sorbus aucuparia L.	Sunrise	
PI 635902	78.005	PL	02/16/2010	Sorbus aucuparia x Pyrus communis?	Rubin (Rubinovaya)	Russian Federation
CSOR 315	315.001	PL	02/16/2010	Sorbus hybrid	Russkaya	Russian Federation
CSOR 51	51.001	PL	06/01/2010	Sorbus sp.	Luther Burbank Edible Sorbus Seedling	California
CSOR 51	51.002	PL	06/01/2010	Sorbus sp.	Luther Burbank Edible Sorbus Seedling	California
CSOR 314	314.001	PL	02/16/2010	Sorbus sp.	Konzentra	
PI 635903	80.004	PL	02/16/2010	Sorbus x Aronia hybrid	Burka (×Sorbaronia fallax)	
PI 635899	75.002	PL	02/16/2010	Sorbus x Aronia hybrid	Likyornaya (×Sorbaronia fallax)	
CSOR 73	73.002	PL	02/16/2010	Sorbus x Aronia hybrid	Titan (×Sorbaronia fallax)	
Vaccinium (3 plants, 18 seedlots)						
CVAC 1876	1876.001	PL	03/12/2010	Vaccinium corymbosum L.	Ka-Bluey	
CVAC	1878.001	PL	11/12/2010	Vaccinium hybrid	Cran-Huckle	

1878						
CVAC 1879	1879.001	PL	12/01/2010	Vaccinium reticulatum Smith	N09-16	
PI 657178	1697	SD	04/06/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-006 O.P.	United States
PI 657180	1701	SD	04/06/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-013 O.P.	United States
PI 657183	1705	SD	04/06/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-019 O.P.	United States
PI 657185	1707	SD	04/06/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-021 O.P.	United States
PI 657186	1708	SD	04/06/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-022 O.P.	United States
PI 657191	1719	SD	04/06/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-035 O.P.	United States
PI 657193	1723	SD	04/06/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-039 O.P.	United States
PI 657198	1731	SD	04/06/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-047 O.P.	United States
PI 657200	1733	SD	04/06/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-049 O.P.	United States
PI 657202	1736	SD	04/06/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-052 O.P.	United States
PI 657209	1744	SD	04/06/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-060 O.P.	United States
PI 657211	1746	SD	04/06/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-062 O.P.	United States
PI 657203	1737	SD	05/18/2010	Vaccinium darrowii Camp	V. darrowii HL-2006-053 O.P.	United States
PI 657192	1721	SD	04/06/2010	Vaccinium fuscatum Aiton	V. fuscatum HL-2006-037 O.P.	United States
PI 657195	1725	SD	04/06/2010	Vaccinium fuscatum Aiton	V. fuscatum HL-2006-041 O.P.	United States
PI 657208	1742	SD	04/06/2010	Vaccinium fuscatum Aiton	V. fuscatum HL-2006-058 O.P.	United States
PI 657189	1711	SD	04/06/2010	Vaccinium myrsinites Lam.	V. myrsinites HL-2006-025 O.P.	United States
CVAC 1877	1877	SD	07/26/2010	Vaccinium uliginosum L.	V. uliginosum KH-07-21-01	United States