

LIVING COLLECTIONS MANAGEMENT POLICY

Updated and Approved: November 28, 2017

Previously Updated and Approved:
November, 2013
November, 2008

Collections Management Policy

Living Collections

Scope of Collections

The purpose of this Collections Management Policy is to ensure that the Living Collections are well managed, now and into the future. The Living Collections (including the seed herbarium) at Denver Botanic Gardens are principally composed of plant species, subspecies, varieties and formae (and their later derivatives and cultivars) that support Denver Botanic Gardens' mission of *connecting people with plants, especially plants from the Rocky Mountain Region and similar regions around the world*. Collections showcase the use of right plants in the right place, educating the public about horticulture in the semi-arid, steppe climate of the Rocky Mountain and Plains regions. The diverse collections ranging from alpine to tropical plants fulfill the mission through education and conservation messages, and by "providing delight and enlightenment to everyone". Viable seeds and propagules of plant species, subspecies, varieties and formae (and their later derivatives and cultivars) are stored for trials and future propagation.

Authority

The living collections fall under the purview of the Gardens and Conservation Committee, consisting of appointed Board members, the Gardens' CEO, and Director of Horticulture. The overall implementation and evaluation of the living collections policy (and related plan) is overseen by the Director of Horticulture, Associate Director of Horticulture/Plant Records and the Curators of specific collections.

Ethics Regarding Collections Stewardship and Management

Activities related to the development, management, and use of the living collections must comply with all relevant local, state, federal, and international laws. A few such laws are listed as examples under the section Laws below. Individuals acquiring plant material are responsible for researching current access laws and quarantines governing the collection, movement, and distribution of plants within and outside the US and acquiring pertinent permits. Acquired taxa will fall under the ownership of Denver Botanic Gardens, held in public trust for the benefit of present and future generations. All acquired taxa are evaluated for their potential invasiveness. In the event invasive or potentially invasive plants are retained for their scientific value, they will be appropriately labelled and additional management procedures are put into place for containment purposes. No such plants will be distributed for horticultural use, but may be distributed to researchers investigating invasion biology.

Under the International Plant Exchange Network (IPEN), plants acquired through *Index Seminum* are transferred solely to Denver Botanic Gardens and not to the individual making the request. Under no circumstances are they to be distributed to employees, volunteers or board members without consent from the collections origin institutions and the Director of Horticulture. Employees, volunteers and Trustees are not allowed to keep or store personal plant material at the Gardens. This would create a conflict of interest in staff time, space and resources. Plant material, preserved specimens, or any portion of the collections are to be used solely for education, research, or horticulture display and are not for personal use.

Acquisition

In compliance with the Convention on Biological Diversity, plants may be acquired for permanent or temporary display through exchange, loan, purchase from private or commercial sources, responsible collection from the wild, gifts or *Index Seminum*. Any illegally collected or obtained plants will not knowingly be accepted.

Plants obtained for horticultural research and evaluation, or restoration work, will be acquired according to the standards set by the evaluator/researcher as long as they meet the purpose of the evaluation/research and abide

by the invasive plant policy (Appendices A, B & C). These plants will be accessioned even though they may be for temporary use.

Accessioning

All plants acquired for permanent collection, conservation or research/evaluation shall be accessioned. Plants or collections on short-term loan to DBG (less than 6 months) and plants acquired for plant sales will not be accessioned. Annuals will be accessioned when they are planted in the gardens and will be deaccessioned upon their removal at the end of the growing season.

All plants will be accessioned upon delivery, even if the final location is not determined and the plant will temporarily reside in the greenhouse or nursery. When moved and planted, the Horticulture staff will immediately inform Plant Records.

Deaccessioning

Denver Botanic Gardens' horticulture staff members may recommend that a plant be de-accessioned. The supervisor and Director of Horticulture should approve the individual plant deaccession. The plants removed should be immediately recorded on the "Change of Plant Status" form that is then submitted to Plant Records. Potential major deaccessions that would include large specimens, numbers of plants, or entire collections will be submitted by the Director of Horticulture to the Gardens & Conservation Committee for recommendation to Board of Trustees.

Disposal

Plants that have been de-accessioned and divisions of accessioned plant material may be held on premises for use in Denver Botanic Gardens' annual plant sale. Funds acquired through sale will be used for the betterment of the collections. At regular intervals, surplus plants will be assessed by Propagator and Director of Horticulture and excess may be dispersed to staff and volunteers or other appropriate parties. However, plant material received by employees, volunteers or other appropriate parties is for personal use only and is not for resale. Plants acquired through *Index Seminum* or special agreement will not be dispersed without the consent of the Director of Horticulture.

Documentation

When a taxon is brought into Denver Botanic Gardens, accurate information will be provided for records, including full plant name and cultivar (scientific), source of plant (nursery or wild collected data), date of receipt, location and date of planting in the Garden. Accession records of horticultural specimens and plants propagated at DBG to be used in restoration will be entered and stored in a centralized database system. Living, permanent collections are surveyed and added into a centralized mapping system. Entered data will be backed up nightly by the computer network and stored at onsite and offsite locations. The recorded information is continuously updated with details such as plant characteristics, blooming nature, ecology, evaluation notes, collection, propagation and herbarium information (as applicable). Records of plants used in non-horticultural research are the responsibility of the Director of Research and Conservation.

Labeling is an important component of record keeping and the educational aspect of the Gardens. All permanent plants, once correctly identified, will have an aluminum accession tag. At least one instance of each taxa of the permanent collection on display will have a display label, where practical. The accession tag will contain the accession number and scientific name (including cultivar name if available). Display labels will contain the botanical name, common name if applicable, cultivar name if applicable, and family name.

Inventories

Inventory of the Gardens' permanent collections is an ongoing task of horticulture and plant records staff and should focus on the continued fulfillment of the purpose of the collection, accuracy of nomenclature, recommendations for de-accessioning, growing existing collections, or acquisition of new collections.

Access

Collecting plant material from displays and living collections including seeds, cuttings, scion wood or seedlings by staff, educators, nurseries, and researchers must be approved in advance with the execution of the Material Transfer Agreement: Living Collections Access and Distribution Form (Appendix D). Collection of plant material from living collections for any reason is to be approved by the Director of Horticulture, and carried out only under the direction of appropriate staff member.

Exchanges, Loans and Exhibitions

Living plants, including seeds, obtained via exchanges with other gardens and institutions must meet the purpose of the collection and shall be accepted with the approval of the Director of Horticulture. Loans and temporary exhibits of plants shall meet the requirements of this policy and will be accepted or granted by the Director of Horticulture.

Distribution to Plant Select®

Seeds, cuttings and/or tissue culture propagules from our collections will be distributed to Plant Select members for the purpose of research and evaluation for future introduction. The Seed Distribution Policy is described in Appendix E. All recipients of germplasm material will sign the License Agreement for Research, Cultivar Development & Evaluation (Appendix F).

Laws

A few policies and regulations that staff embarking on plant exploration and wild collection should familiarize themselves with include:

- USDA Animal and Plant Health Service (APHIS) permits such as PPQ Form 587 (permit to import plant or plant products) and others as relevant to the work being conducted.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) – Provisions under the CITES provide a legal framework regulating the trade of endangered plant and animal species that are commercially exploited (<https://www.cites.org/eng/disc/what.php>).
- Convention of Biological Diversity (CBD) - The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding (<https://www.cbd.int/>).
- The Nagoya Protocol on Access and Benefit Sharing of the CBD - The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity is an international agreement which aims at sharing the benefits arising from the utilization of genetic resources in a fair and equitable way, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding, thereby contributing to the conservation of biological diversity and the sustainable use of its components (<https://www.cbd.int/abs/>).

In addition to these international rules and regulations, staff need to also familiarize themselves with the importation and exportation laws of the countries involved and proper permits acquired before embarking on plant exploration. For local collecting, permits from local land owners (such as BLM, USDA Forest Service,

etc.) should be acquired and rules pertaining to the land adhered to. Collecting should be done only of those species that are listed on the permit.

Gifts

Plants and/or collections will be accepted as gifts only if they meet the purpose of the collection and are in compliance with the Convention on Biological Diversity. Donated plants should have provenance and a properly identified name including cultivar name if appropriate. Any illegally collected or obtained plants will not knowingly be accepted. The donor may place no restrictions on gifts of plant material. An in-kind donation form will be given to the donor, and a copy will be submitted to the Development Department. Denver Botanic Gardens encourages gifts of plants to be accompanied by sufficient endowment to provide long-term maintenance. As much as possible, donated plants will be used in displays, however, Denver Botanic Gardens has the right to sell or de-accession any gifts. Under IRS regulations Denver Botanic Gardens will not make monetary appraisal of gifts.

Care and Maintenance

The living collections are cared for on a daily basis by following sound horticultural plant care practices as prescribed in the Horticulture Procedures Manual.

Risk Management

Due to the nature of living collections, exposure to weather-related damage to plants are unavoidable. But, wherever possible (such as brushing off snow from tree limbs during early fall snow storm, etc.), horticultural best management practices will be followed. Refer to Denver Botanic Gardens Disaster Plan (September, 2007) for information regarding emergency instructions. Off-site backups of electronic collections databases will be maintained to ensure data is preserved in the event on-site information is destroyed or lost.

Invasive Plant Policy

Denver Botanic Gardens is dedicated to the prevention of introduction of new invasive species as well as the understanding and management of existing plant pests. As a result, Denver Botanic Gardens will do the following relative to the introduction of new species:

1. All laws on importation and quarantine of plant materials across political boundaries and rules pertaining to the Colorado Noxious Weed Act (35-5.5-101 through 119, CRS 2003) will be followed.
2. No plants listed by the Colorado Department of Agriculture (CDA) Plant Industry Division as invasive weeds will be planted unless for educational purpose and clearly marked as such and with CDA approval. Plants to be used in the collection will follow Denver Botanic Gardens Known Weed Action Plan (Appendix A).
3. All new plant introductions that are not widely available or tested in the trade will be screened and evaluated for their invasive potential prior to being accepted into the collection or as part of any Denver Botanic Gardens sponsored program. Adaptations to climate change will be monitored on a regular basis to evaluate invasive potential.
4. Plant material identified as an invasive species that are to be destroyed will be properly disposed of and will not be sold at the annual plant sale or dispersed to the public.
5. Denver Botanic Gardens is a signatory of the Voluntary Codes of Conduct (VCC aka St. Louis Declaration Codes of Conduct) for Botanic Gardens and Arboreta (see Appendix C). As such, we adhere to the highest industry standard to prevent new plant invasions and assist in the effort to control existing plant invasions.

APPENDIX

- A. Denver Botanic Gardens Known Weed Action Plan
- B. Noxious Weed Information Form
- C. St. Louis Code of Conduct
- D. Material Transfer Agreement: Living Collections Access and Distribution Form
- E. Plant Select Seed distribution for research and trialing policy
- F. Plant Select License Agreement for Research, Cultivar Development & Evaluation

APPENDIX A

Denver Botanic Gardens Known Weed Action Plan

Purpose: In 2005, the Gardens endorsed the St. Louis Declaration on Invasive Species voluntary codes of conduct for Botanic Gardens and Arboreta. As part of this, the Gardens agreed to consider removing invasive species from plant collections. If a decision is made to retain an invasive plant, the Gardens must ensure its control and provide strong interpretation to the public explaining the risk and its function in the garden.

Criteria for Species Selection: All species that appear on either the Colorado Noxious Weed List or Watch List or the Federal Noxious Weed List will be required to have an assessment using the Weed Action Plan. All species lists will be reviewed and updated annually.

Plan Management: A Weed Advisory Panel will be responsible for the annual review and maintenance of the species lists and enforcement of the Weed Action Plan, including any required safety management plans. The Panel is also responsible for approving interpretation and coordinating the production and placement of signs. The Weed Advisory Panel will include at least one member of the Horticulture Department and at least one member of the Research Department.

Interpretation: If a species on the weed list is kept on display at the Gardens, it must have interpretation. This interpretation must include the risks this species poses as a weed (including the origin, mechanisms of harm, and need for prevention and control), the significance of the species (i.e., the reason for keeping it on display), and non-invasive alternative species, if available.

Decision Tree:

1. Does the horticulturist responsible for the species want to remove the species from display?
 - a. Yes.....Species is removed
 - b. No.....Go to 2

2. Is there a risk the species could spread outside Gardens' property? (It is the responsibility of the horticulturist responsible for the species to provide sufficient evidence that based on current knowledge we do not expect this species to spread)
 - a. Yes.....Go to 3
 - b. No.....Go to 4

3. Has a Management Plan to safely maintain the species without spread been approved by the Weed Advisory Panel?
 - a. Yes.....Go to 4.
 - b. No.....Responsible Horticulturist proposes Management Plan or species is removed.

4. Does the horticulturist responsible for the species want to create interpretation for the species?
 - a. Yes.....Interpretation form must be completed and turned into the Weed Advisory Panel for review. Go to 5.
 - b. No.....Species is removed

5. Does the Weed Advisory Panel agree with the justification for interpretation provided on the form?
 - a. Yes.....Species can remain on display and interpretation will be provided following the guidelines in the Interpretation section.
 - b. No.....Go to 6.

6. Does the horticulturist responsible for the species want to contest the Weed Advisory Panel decision?
 - a. Yes.....Got to 7.
 - b. No.....Species is removed

7. Do the Directors of Horticulture and Research agree with the Weed Advisory Panel decision to remove the species?
 - a. Yes.....Species is removed
 - b. No.....Species may remain on display with interpretation, a management plan (optional) and documentation for the reasons for keeping it on display.

APPENDIX B

Noxious Weed Information Form

Species Name	_____	Requester	_____
	_____	Department	_____
Variety or cultivar	_____	Title	_____
	_____	Date	_____

Please fill out the known information about this species to the best of your knowledge.

Is this species listed as Noxious Weed in Colorado? If yes, what is its classification?

Is this species on the internal Denver Botanic Gardens watch list?

Is the plant currently on display in the garden? If not, are there plans to put it on display?

Where is the plant on display currently (or where is it planned to be on display)?

Do you wish to keep the species on display even though it is a noxious weed? *The requestor is responsible for providing information for interpretation if the species is kept on display

What are the dispersal mechanisms for this species?

Is there risk the species could spread outside of Garden's property via reproductive or vegetative propagules?
(please provide any available evidence for our knowledge of its inability to spread)

Does a management plan exist to prevent spreading of this species outside of Garden's property?

Can this species be purchased for personal use?

What is the horticultural, agricultural, scientific, and/or educational value of keeping this species on display?

APPENDIX C

Voluntary Codes of Conduct for Botanic Gardens and Arboreta

St. Louis Declaration Codes of Conduct <http://www.centerforplantconservation.org/invasives/>; adopted by Denver Botanic Gardens 2005

- Conduct an institution-wide review examining all departments and activities that provide opportunities to stem the proliferation of invasive species and inform visitors. For example, review or write a collections policy that addresses this issue; examine such activities as seed sales, plant sales, bookstore offerings, wreath-making workshops, etc.
- Avoid introducing invasive plants by establishing an invasive plant assessment procedure. Predictive risk assessments are desirable, and should also include responsible monitoring on the garden site or through partnerships with other institutions. Institutions should be aware of both direct and indirect effects of plant introduction, such as biological interference in gene flow, disruption of pollinator relationships.
- Consider removing invasive species from plant collections. If a decision is made to retain an invasive plant, ensure its control and provide strong interpretation to the public explaining the risk and its function in the garden.
- Seek to control harmful invasive species in natural areas managed by the garden and assist others in controlling them on their property, when possible.
- Promote non-invasive alternative plants or, when possible, help develop non-invasive alternatives through plant selection or breeding.
- If your institution participates in seed or plant distribution, including through Index Seminum, do not distribute known invasive plants except for bona-fide research purposes, and consider the consequences of distribution outside your biogeographic region. Consider a statement of caution attached to species that appear to be potentially invasive but have not been fully evaluated.
- Increase public awareness about invasive plants. Inform why they are a problem, including the origin, mechanisms of harm, and need for prevention and control. Work with the local nursery and seed industries to assist the public in environmentally safe gardening and sales. Horticulture education programs, such as those at universities, should also be included in education and outreach efforts. Encourage the public to evaluate what they do in their own practices and gardens.
- Participate in developing, implementing, or supporting national, regional, or local early warning systems for immediate reporting and control. Participate also in the creation of regional lists of concern.
- Botanical gardens should try to become informed about invasiveness of their species in other biogeographic regions, and this information should be compiled and shared in a manner accessible to all.
- Become partners with other organizations in the management of harmful invasive species.
- Follow all laws on importation, exportation, quarantine and distribution of plant materials across political boundaries, including foreign countries. Be sensitive to conventions and treaties that deal with this issue, and encourage affiliated organizations (plant societies, garden clubs, etc.) to do the same.

APPENDIX D

**Material Transfer Agreement
Living Collections Access and Distribution Form**

User Information (To be filled out by or on behalf of primary user)

Today's Date: _____	Proposed Date of Collection: _____	
Name: _____	Telephone #: _____	
Position: _____	Email Address: _____	
Organization: _____		
Mailing or shipping address: _____		

_____	_____	_____
City	State/Country	Zip
FedEx Account # (if applicable) _____		

Collection use:

Project Description (please attach an addendum if needed)

Please note any additional requirements/requests for collection or shipping:

Use/Project Type (check one or more box)

- Breeding/Hybridization
- Conservation Research
- Horticultural Display
- Horticultural Research
- Molecular Research
- Propagation
- Research (other) _____
- Teaching
- Other _____

Is there an intent to commercialize? No Yes (if yes, this will serve as a conditional agreement, with a new agreement drawn up for commercial use)

Plant Records Staff Use Only

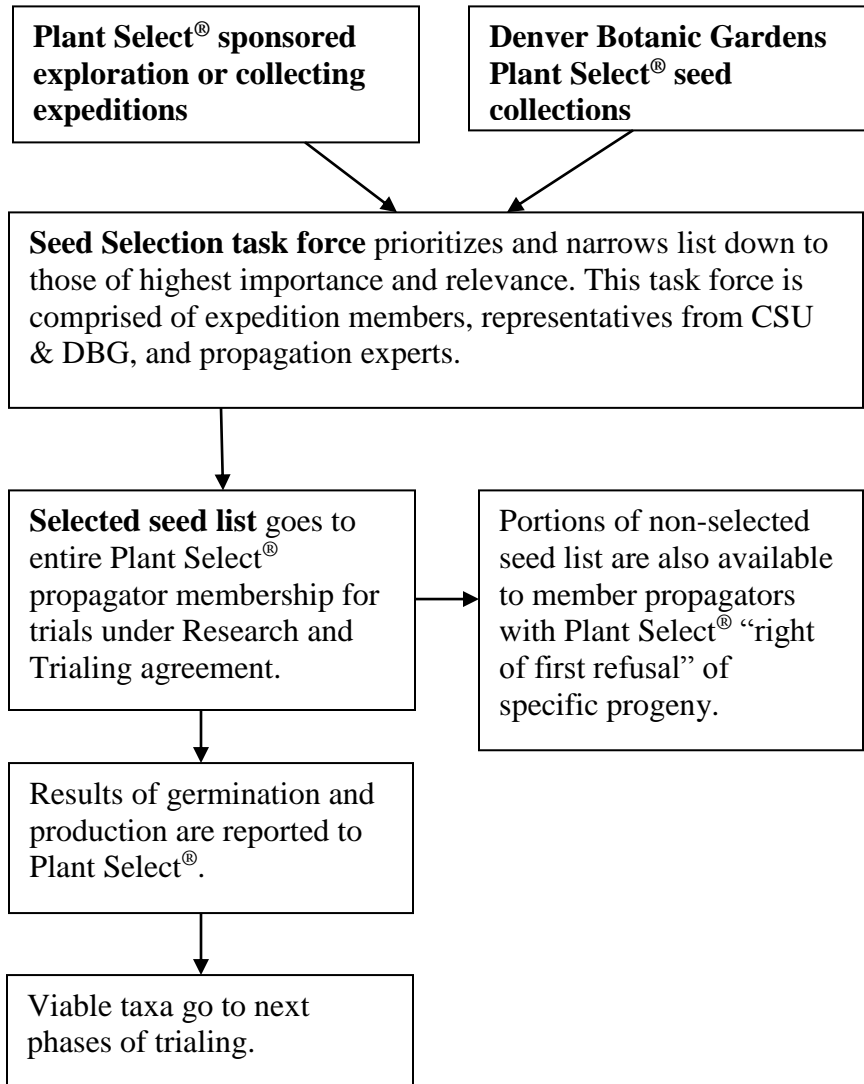
Source Number:	Shipment Number(s):
Date entered:	Staff Contact:

APPENDIX E

Proposed April 4, 2011

Re: Seed distribution for research & trialing

Proposed policy: A sub-committee of Plant Select® will review each seed list and narrow it down to a “selected” list containing a “reasonable” number of taxa for member propagators to test. Other seeds collected that do not make the “selected” list will also be available to propagator members with no obligation to report results. If, however, something superior develops from these seeds, Plant Select® will have the “right of first refusal.” If Plant Select® is not interested in pursuing for the program, then those plants may be sold by the grower with no further obligation to Plant Select®.





License Agreement for Research, Cultivar Development & Evaluation

This License Agreement is made between Plant Select[®], a Colorado non-profit corporation, and

Contact Person _____
Organization _____
Address _____
City, State, Zip Code _____
Telephone _____
FAX _____
E-mail _____

hereinafter called "Licensee."

1. Licensee is____ a member in good standing with Plant Select[®], or____ a research or educational facility (the membership requirement will be waived for a research or educational facility). [Check as applicable.]

2. Plant Select[®] grants Licensee the non-exclusive, non-divisible, non-transferable and non-assignable license (A) to Plant Select[®] plants and/or propagules listed in Exhibit I (including cuttings, seeds, spores, grafts, budding, tissue cultures, etc.), herein called the "Licensed Plants," solely and only for garden use, as a basic research subject, for field/greenhouse testing, or for product evaluation and (B) to intellectual property rights of Plant Select[®], including trademarks, copyrights and patents, related to the Licensed Plants to the extent necessary for Licensee to conduct its activities pursuant to the license granted under the preceding (A). Licensee agrees that the Licensed Plants shall be used only for the purposes described in the preceding (A). With respect to the intellectual property rights of Plant Select[®],

Licensee acknowledges Plant Select[®] proprietary rights and agrees not to do, or to suffer to be done, any act or thing which would impair the rights of Plant Select[®]. It is understood that Licensee, including any parent or subsidiary of Licensee, shall not acquire, nor shall claim, any title or right adverse to the proprietary rights of Plant Select[®] by reason of the license granted to the Licensee hereunder.

Additionally, Licensee agrees that all selections conducted upon the licensed plants are and shall be the sole property of Plant Select[®].

Licensee shall have no right to sublicense or otherwise use or transfer any rights of Licensee to any Licensed Plant unless specific arrangements are made in writing with Plant Select®.

3. Licensee agrees that all results from any manipulation of Licensed Plants listed in Exhibit I, including mutagenic, tissue culture, molecular or cellular techniques, conducted during the terms of this Agreement must be reported to Plant Select® in writing and shall be owned exclusively without question by Plant Select®. All results from such manipulations shall be maintained by the Licensee until instructions for handling are received from Plant Select®.

4. Licensee agrees that all selections conducted upon the Licensed Plants are and shall be the sole property of Plant Select®.

5. Licensee agrees no seeds, or plant parts of the Licensed Plants, will be distributed to a third party without the prior written authorization of Plant Select®.

6. This Agreement constitutes the entire agreement between the parties with respect to the subject matter of this Agreement and supersedes any prior agreement, written or oral, between Plant Select® and Licensee with respect to the subject matter of this Agreement. No amendment or modification of this Agreement shall be made except in writing signed by both parties.

7. Unless sooner terminated by one party upon giving 90 days prior written notice to the other party, the term of this Agreement is for five (5) years following the effective date of the Agreement and shall be effective as to each plant and/or propagule licensed to Licensee under this Agreement. This Agreement may be renewed for an additional period upon written agreement by Plant Select® and Licensee. Licensee will destroy or return plant(s) and propagules licensed under this Agreement when this Agreement terminates.

8. Any unused or unwanted plants and propagules are to be either returned to Plant Select® or to be destroyed.

9. This Agreement has been entered into in the State of Colorado and shall be governed by and construed in accordance with the laws of the State of Colorado.

10. Any notice required or permitted to be given by either party to the other is given in accordance with this Agreement if it is in writing and mailed to either Plant Select® or Licensee by certified mail addressed to the intended recipient at its address contained in this Agreement or to such other address as the recipient may furnish to the other party for purposes of receiving notices under this Agreement.

11. This Agreement may not be assigned by Licensee without the prior written consent of Plant Select®, which may withhold its consent for any or no reason. This Agreement shall be binding upon the respective parties, their successors and permitted assigns.

ATTACHMENTS: Exhibit I: List of plants and/or propagules requested attached.

IN SIGNING OF THIS AGREEMENT, the parties have hereunto executed this agreement effective on this day for the attached plants and/or propagules.

AGREED

LICENSEE

PLANT SELECT®

Organization: _____

By: _____

By: _____

(signature)

Ross Shrigley, Executive Director

c/o Colorado State University

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