

TECHNOLOGY
TRANSFER
HANDBOOK

FOR
ARS

PLANT
BREEDERS

JULY 2008

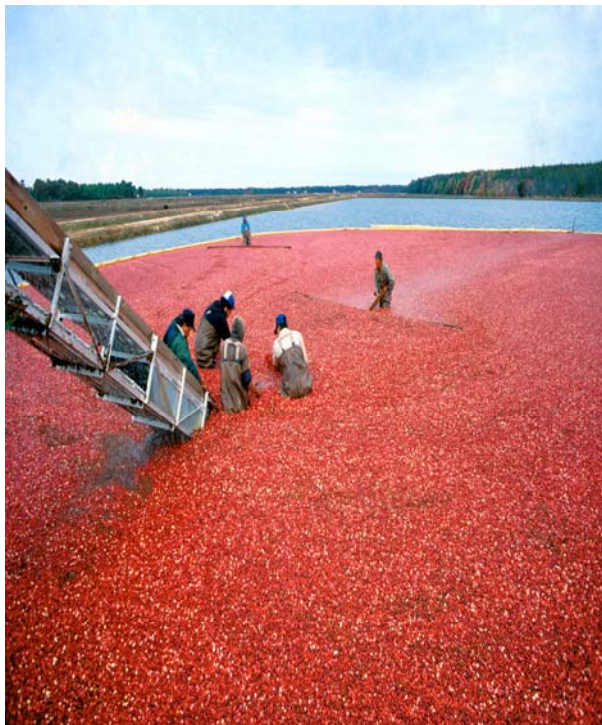


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Handbook for ARS Plant Breeders

Preface

ARS scientists have a long and successful history of genetic improvement of plants. For some crops, ARS conducts varietal development programs. For other crops, ARS researchers produce superior breeding lines that are used by public and private plant breeders to make new varieties. For some crops, ARS develops and maintains breeding populations and genetic stocks. All these research and developmental activities may be carried out solely by ARS or in partnership with Land Grant Colleges and Universities, State Agricultural Experiment Stations (AES) or the private sector.

For ARS plant genetic improvement research to have an impact, the outputs from these activities must be transferred to users outside of ARS. Historically, this has been accomplished through public release of germplasm or varieties. In more recent years, as the national and international context of plant breeding has changed, ARS has elected to obtain intellectual property (IP) rights on some varieties as a means of enhancing technology transfer.

What is the purpose of this handbook?

This electronic handbook is designed to help ARS plant breeders manage the new complexities of technology transfer of plant germplasm including new varieties, breeding lines, genetic stocks and mapping populations. It does not address the receipt or disposition of germplasm from the National Plant Germplasm System. The handbook is organized in a question and answer format to make it easy to use. It is updated annually.

What is the current ARS policy on release of plant germplasm?

ARS plant breeding programs are a very significant part of ARS' total research program with 731 new varieties and 2,987 germplasm lines having been introduced since May 1980.

It is ARS policy to publicly release new varieties and enhanced germplasm lines without IP protection. However, exceptions to this policy for certain ARS developed or co-developed varieties may be made on a case-by-case basis, if this is in the best interest of technology transfer and supports the needs of ARS customers and stakeholders. ARS has developed a process for making these decisions, which is described in this handbook.

It is ARS policy to make all new varieties and enhanced germplasm widely available to breeders throughout the world for research and developing new varieties. This applies to patented materials as well as to those materials protected by Plant Variety Protection Certificates (PVPC) or those publicly released without IP protection.

SECTION 1 – Developing and Releasing Germplasm

Who decides when germplasm is ready to release?

It is the primary responsibility of the individual ARS plant breeder to decide whether the material he/she has developed is ready for release. The main criteria for release are:

- The material represents a useful advance in genetic resources
- The material has been adequately evaluated
- And, the material offers benefits to users

Breeders discuss with their Research Leader (RL) whether germplasm meets these criteria. The decision to release is then discussed with the appropriate National Program Leader (NPL). The final decision rests with Judy St. John, Deputy Administrator, Plant Production and Protection. A list of NPLs for ARS plant breeding projects is attached as part of Appendix 1.

If the germplasm is co-developed with a university or AES, is it OKAY to submit the proposed release through the university's plant release committee?

Yes. If appropriate, it is encouraged to submit potential releases to these committees for evaluation because they may provide useful information and input. However, their decisions are not binding on ARS. After consideration by the university committee, you **MUST** enter the germplasm in the Plant Material Docket of the Licensing/Invention Section of the Agricultural Research Information System (ARIS) described below.

May I serve on a university release committee?

Yes, with your supervisor's approval you may serve on a university release committee as part of your official duties. However, you may not vote on any fiduciary matter of the university, including development or exploitation of IP, nor may you commit ARS to any particular action. Your role should be purely technical. Consult the Area Ethics Advisor for clarification on roles and responsibilities, and to ensure this outside activity has been properly documented.

Should I arrange to have germplasm evaluated by entities outside of ARS?

According to accepted standards, ARS encourages the thorough evaluation of germplasm prior to release. This helps ensure genetic stability and quality. If you are working with a university cooperator, this individual usually arranges for evaluation of the germplasm by the university on university property. For some crops, ARS participates in formal regional evaluations.

The ARS breeder should check with the Technology Transfer Coordinator (TTC) and the Extramural Agreements Specialist in their Area Office to ensure there is an existing

extramural agreement, which covers the evaluation of the germplasm. If you wish to have germplasm tested or evaluated without an existing extramural agreement, you must execute

a Material Transfer Agreement (MTA), a Plant Testing Agreement, or some other form of agreement. Your TTC will advise you on this. A list of ARS TTCs is attached as part of Appendix 1 of this handbook.

Is it okay to exchange unselected or early stage plant materials with other breeders?

This must be determined on a case-by-case basis. For many plants, this is a longstanding tradition that benefits public breeding programs. However, there may be downstream ramifications of such exchanges that are difficult to assess. Before initiating such an exchange, discuss it with your RL and NPL. Such exchanges should be documented by a formal agreement. Consult with your TTC before proceeding. Exchanges with non-public entities require additional scrutiny.

May I develop a CRADA to help develop germplasm or a new variety?

Maybe, a Cooperative Research and Development Agreement (CRADA) obligates USDA to negotiate an exclusive license to IP resulting from the agreement. ARS reviews each CRADA opportunity carefully. If you are interested in developing a CRADA, contact your RL, NPL, and TTC before proceeding.

SECTION 2 - Preparing the Release Notice

How do I prepare a release notice?

There are two different kinds of release notices. The first is when ARS has the lead (ARS initiated the concept and assumed leadership for the development of the plant material) and the second is when ARS cooperators have the lead. Sample release notices appear as Appendix 2 of this handbook.

Guidelines when ARS has the Lead

Heading

ARS should be listed first if there are cooperators and the opening sentence should be written as shown in the attached samples.

Naming of Varieties and Designations for Germplasm Lines

The ARS Deputy Administrator, Plant Protection and Production, must approve all variety names or germplasm line designations as part of the regular clearance process, but those names selected by the plant breeder are generally accepted. In preparing the notice, if desired, the term “cultivar” may be used instead of the term “variety.” If a new variety is to be named after a living person, the individual must give written permission.

When a variety name is to be used, the scientist should conduct a trademark search through the US Patent and Trademark Office (USPTO) website to make sure the

proposed name has not been trademarked. The trademark database is found at the USPTO web site (www.uspto.gov). Look for “Trademarks” on the left side menu then “Search Trademarks” for existing trademarks. If a cooperator or a prospective licensee is considering trademarking the new ARS plant variety, the breeder may consider using a numerical designation, rather than a name. This is because a variety name cannot be trademarked. For more information, contact your TTC.

Recognition of Individuals in Release Notices

Recognition of all individuals responsible for the development of new varieties or germplasm lines is required.

Origin and Description of Plant Material

The listing of parental material and a proper description of the plant material to be released are required. A statement of disease status must be included, as appropriate for that plant species. The reason for release, along with any recognized deficiencies, should be clearly stated.

Use of Scientific Names

Scientific names are generally not needed for common plant species, diseases, insects, or nematodes. However, scientific names should be used when necessary for reader clarity and understanding. Check with the Germplasm Resources Information Network (GRIN) for the appropriate scientific name.

Units of Measure

Units of measure are to be in the metric system. If desired, the equivalent English system may be shown in parentheses.

Abbreviations

Except for prescribed abbreviations for states in addresses, abbreviations (% , C, mm, g, etc.) are not to be used.

Tables and Graphs

If tables and/or graphs are considered necessary to accompany a release notice, they should be shown as an attachment rather than being included in the body of the release notice. The attachment should be sent via e-mail to the lead NPL with a copy to Jennifer Klemens, NPS Secretary, at Jennifer.klemens@ars.usda.gov. See the section below regarding entering a release in the Plant Material Docket of ARIS.

Literature Citations

Literature citations are not to be used in release notices. Release notices should be written so that the reader will not have to refer to publications for information on the plant material being released.

Requests for Plant Material

Because ARS Plant Breeders do not usually make distribution of introduced plant material directly to the public, it should be clearly stated who can request seed or propagating material of the new variety or germplasm line in question. Most materials are made available through the National Plant Germplasm System (NPES). The name and address of the individual or organization handling distribution of plant material should be clearly stated. Any limitations on the quantity of available plant material should also be clearly stated.

Request for Recognition of Source

ARS would like (but cannot demand) acknowledgement when our plant germplasm lines are used to advance agriculture. The following or similar statement should be added to the last paragraph of all releases of germplasm lines, “It is requested that appropriate recognition be made if this germplasm contributes to the development of a new breeding line or variety/cultivar.”

Deposits in the National Plant Germplasm System

The following statement is to be included in the last paragraph of each new release notice if appropriate, “Genetic material of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including development and commercialization of new varieties/cultivars.”

Date of Release

If a date of release of plant material is needed or desired, state that it will be the date of final signature. Release notices are not official until final signature in the Plant Material Docket of ARIS.

Length and Style

Most plant release notices are no longer than two pages but they can be as long as necessary to properly describe the plant material being released.

IP Protection

If ARS has filed or intends to file an application for a US Plant Patent or a Plant Variety Protection Certificate, a sentence indicating this must be added to the bottom of the release notice.

Signature Blocks

Signature blocks are no longer necessary because signatures are recorded electronically in the ARIS system described below. No release is considered final until all signatures in ARIS are complete.

Guidelines when an ARS Cooperator has the lead

ARS does not attempt to dictate style or format of release notices when ARS cooperators have the lead. However, the release notice should contain all pertinent information expected to be found in an ARS release.

Who reviews the release notice?

Your RL and NPL must review the draft release notice. E-mail the text of the release notice and any accompanying graphs and charts to your RL and NPL for comment. Once their comments have been incorporated, the release notice may be entered into the Plant Material Docket of ARIS.

Do I need to deposit the new plant materials in the National Plant Germplasm System?

To ensure that improved plant material is readily available to others, all newly released varieties and germplasm lines are to be entered into the NPGS, if it maintains that species. ARS scientists releasing plant material are to make appropriate deposits in seed or clonal repositories.

SECTION 3 – Getting Credit for Your Work

Is a Germplasm Release a publication?

No. The Official Notice of Release, which is entered into ARIS and signed by the Deputy Administrator, Plant Production and Protection is not a publication. However, publication of a plant germplasm release in a peer reviewed journal such as *Crop Science* or *HortScience* is considered an ARS publication. If you intend to publish your release in a peer reviewed journal, you do need to submit an ARS-115 in ARIS in addition to your entry in the Plants Materials Docket of ARIS. If you have questions regarding these policies consult your RL or Area Office.

How will I get credit for my work?

Each Area Director determines credit on annual performance reviews. It is recommended that Area Directors count the publication of a release notice in peer-reviewed publications as the equivalent of any other first authored peer reviewed publication for purposes of the annual performance review.

The Research Position Evaluation System(RPES) explicitly recognizes plant germplasm releases as a research output. Adoption or use of germplasm is an indication of impact.

Adoption of a new variety or widespread use of germplasm lines by breeders is also evidence of successful technology transfer.

SECTION 4- Entering Your Release in ARIS

How do I use the ARIS system?

After the draft release notice has received preliminary approval from the TTC, RL and NPL by e-mail, it should be entered into the Plant Material Docket of ARIS. Step-by-step instructions for this are attached in Appendix 3. To aid unit secretaries in entering the information into ARIS, the scientist should complete the ARIS Plant Material Docket Template attached in Appendix 4.

Each cultivar of finished variety must be entered separately into the Plant Materials Docket of ARIS. However, one or more breeding lines (enhanced germplasm) line or genetic stocks may be released in a single release notice. Indicate this in the “Variety Name or Germplasm Designation” section by giving the general name of the germplasm and inserting “Multiple release--see comments.” In the comments section list the names of all the germplasm covered in the release.

Why can't the charts and graphs in my release notice be entered in the ARIS system?

ARIS is not easily able to accept charts and graphs that are part of release notices. Send charts and graphs separately in an e-mail message to your RL, Area Director and NPL indicating that these are part of a release notice you are inputting into ARIS Plant Materials Docket. In the comments section of ARIS, note that charts or graphs have been sent separately.

What happens to my release once it is entered?

Once your unit secretary enters your information in the ARIS Plant Material Docket, it moves electronically through your RL and Area Office to the National Program Staff (NPS). There it is reviewed by the NPL for your ARS Project. Once all these levels have approved the release, Judy St. John, Deputy Administrator, Crop Production and Protection will sign it.

If the answer is “yes” to the question regarding seeking a PVPC or Plant Patent, the release is sent to the ARS Plant Variety Intellectual Property (PVIP) Committee. The PVIP committee is described below. After the committee has reached a decision, the release is returned the Deputy Administrator for signature. If the committee recommends IP protection be pursued, it is then routed electronically to Martha Steinbock, Deputy Assistant Administrator, and Office of Technology Transfer (OTT) for final signature.

How do I know when it is approved?

You may track your release in the Plant Material Docket by checking its status in ARIS.

What happens if it is a joint release with a cooperator?

If ARS is making a joint release with a cooperator and taking the lead in the release, then NPS will send it to each of the cooperating institutions for signature. The NPS secretary, Maureen Whalen, will track this process. Once all parties have signed the release notice, it will be returned to you, with a copy sent to the Area Director. If you wish to check on the status of a joint release, please contact Jennifer Klemens at Jennifer.klemens@ars.usda.gov.

If ARS is not the lead institution, but wants to join in a release, do I need to enter it into ARIS?

Yes. Ask the cooperating institution to send the release notice to you and then enter it into the ARIS Plant Materials Docket as described above. State in the comment section, ARS is not the lead institution. Send the hard copy of the release notice to Ms. Wilburn in NPS. If the Area Office receives a hard copy of a release notice that has not been entered into ARIS, they should send you a copy so to enter it into ARIS. Send the original to Ms. Wilburn.

Do I enter a new plant variety that is a CRADA invention in ARIS?

Yes. Follow the steps listed above; checking the box indicating that the release is a CRADA Subject Invention. Also, answer yes to the question ““Is this plant material a candidate for variety protection (PVPC and/or Plant Patent)?”

SECTION 5 -Obtaining Intellectual Property Rights for Plant Varieties

What if I am interested in obtaining IP protection for a new variety?

If you believe a new variety may be a candidate for a Plant Variety Protection Certificate, a Plant Patent, and/or for foreign protection, answer “yes” in ARIS box that queries “Is this plant material a candidate for variety protection (PVPC and/or Plant Patent)?” Any person who reviews your ARIS entry may also change the answer to this query to “yes.” If you are unsure, answer “yes.” This will flag your variety for discussion by the ARS Plant Variety Intellectual Property Committee (PVIP) described below. If you answer “yes” you will be prompted by ARIS to answer a number of questions, which provide information to help the Committee make a recommendation about IP protection.

What if I am interested in obtaining a PVPC so the variety will be grown only as Certified Seed, but intend to make a public release?

Currently the ARIS Plant Material Docket does not have a box for this choice. Answer “yes” to the question noted above, and add to the comments section a note indicating you are interested in obtaining a PVPC only for the purposes of seed certification.

How do I gather information to help me answer the ARIS Plant Material Docket questions?

If you believe IP protection may be indicated for your new variety, you should discuss this with your TTC, cooperators, stakeholders, and customers. Try to gather information and understand why they believe IP protection would or would not be beneficial. Do not make any commitments on behalf of ARS. You are encouraged to share the information in this handbook with cooperators, stakeholders, and customers so that they may understand the ARS process.

What types of IP Protection are available for plants?

There are many forms of IP available for the protection of plants and plant materials. If it is decided by ARS that IP Protection is desired, it is ARS policy to seek either a Plant Variety Protection Certificate (PVPC) (Seed) or a U.S. Plant Patent (**for more information on PVPC and plant Patents see p.14**). ARS does not normally seek utility patent protection on new varieties. A PVPC is issued by the U.S. Department of Agriculture (USDA) Office of Plant Variety Protection Office (PVPO) as authorized by the Plant Variety Protection Act (7 U.S.C. §§2321 et.seq.) This Act may be downloaded from the PVPO website, <http://www.ams.usda.gov/science/PVPO>. A U.S. Plant Patent is issued by the U.S. Patent and Trademark Office (USPTO) as authorized by the Plant Patent Act 35U.S.C.§§161-164. Information on Plant Patents may be obtained from the ARS Patent Advisor. A list of ARS Patent Advisors is attached as part of Appendix 1.

Can I get a utility patent on my plant materials?

Although it is possible in certain cases to obtain utility patents on new varieties and breeding lines, ARS policy does not usually seek this type of protection. It is ARS policy to make all new varieties and enhanced germplasm widely available to breeders throughout the world for the purpose of developing new varieties. Normally, there is no reason to seek a utility patent to restrict breeding on new varieties or breeding lines.

What is the difference between a PVPC and Plant Patent?

There are many legal differences between these types of IP. In addition to other legal differences, a PVPC is used to protect a sexually (seed) reproducing plant, a tuber propagated plant, or F1 hybrids of a sexually reproducing plant. To obtain a PVPC, a variety must be new (for most plants this means publicly available for less than one year in the US and less than four years in a foreign country), clearly distinct from all other varieties,

uniform, and stable. Wheat, corn, cotton, and potatoes are examples of crops that can be protected by a PVPC.

A US Plant Patent is used to protect a single plant (and its parts) having a common characteristic and its clones. The plant must be asexually reproducing, new and distinct. It is ARS policy that ARS patented plant varieties be made available for breeding. Grapes, oranges, and roses are examples of plants that can be protected by a U.S. Plant Patent.

How about foreign IP protection?

There is no such thing as a worldwide Plant Patent or PVPC. Instead, each country has its own system of IP protection. Many countries issue Plant Breeders' Rights (PBR), which conform to the International Union for Protection of New Plant Varieties (UPOV). ARS enhanced germplasm which is publically released should be made available to all international breeders. In certain cases, ARS will seek PBR for some protected varieties in specific countries. This decision is made by OTT based on licensing interest. Thus, you do not need to fill in the International PBR tab in the Plant Material Docket of ARIS. If you believe there is a need for foreign protection of a new cultivar/finished variety, please discuss this with your TTC and indicate it in the comment section of the ARIS Plant Material Docket.

What about newly cloned plant genes or cloned genetic markers?

These types of inventions are outside the scope of this handbook. Consult your ARS Patent Advisor.

Who owns the new variety or germplasm lines I produce?

Your plant materials are the tangible property of the U.S. Government. You should not distribute them without authorization. If you leave ARS, you must leave these materials behind.

If ARS obtains IP rights on a variety you develop, you are required to assign these rights to the U.S. Government as represented by the Secretary of Agriculture. In the case of a PVPC, see the section below regarding filling out the PVPC application. In the case of a US Plant Patent, the ARS Patent Advisor will provide assignment forms you must sign.

What if the plant variety is developed with a cooperator?

Determining if a cooperator is a co-owner of plant materials is a legal determination made by OTT. You will be consulted in making this determination. Generally, for a cooperator to be a co-owner, a cooperator's employee must be a co-breeder of a new variety, someone who has made an intellectual contribution to the development of the new plant variety.

If a university or Agricultural Experiment Station joins ARS in a release, does that mean they are a co-owner?

Not necessarily. A university or AES may join in a release because its employees have tested a new variety, provided physical resources such as greenhouse space, or because a state crop improvement association may wish to play a role in propagation and distribution. These types of activities do not constitute “breeding.” Thus the cooperator would not be a co-owner. Co-ownership is a legal determination made by OTT on a case-by-case basis.

Does the ARS breeder get to decide if IP Protection will be sought?

No. The ARS breeder may make a recommendation about seeking or not seeking IP protection in the ARIS Plant Material Docket. This is an Agency decision, which is made through the process described below.

Who decides if ARS should seek IP protection on a new variety?

The Plant Variety Intellectual Property Committee (PVIP) described below receives each ARIS Plant Material Docket entry where the box asking if a PVPC or a Plant Patent should be considered is marked “Yes.” Except for CRADA inventions, which are approved for IP protection without PVIP committee review. Varieties may be referred to the PVIP committee at the request of NPS or OTT. The Committee makes a recommendation to Judy St. John, the Deputy Administrator, Plant Production and Protection, and to Rick Brenner, Assistant Administrator, OTT, who makes the final decision.

What is the PVIP Committee and how does it work?

The Plant Variety Intellectual Property Committee (PVIP) is co-chaired by Gail Wisler, NPL, and Martha Steinbock, Deputy Assistant Administrator, OTT. June Blalock, Licensing Coordinator, OTT, is a permanent member of the committee. The remainder of the voting committee members change depending on the variety being considered. The remaining voting members are the TTC, RL, Area Director (or his/her designee), NPL, and the Patent Advisor (if it is a patentable crop). The committee works by consensus. All members must agree that IP protection is desirable.

When does the PVIP meet?

The committee meets quarterly by teleconference.

What is the role of the breeder in the PVIP committee process?

The breeder will be invited to address the committee and asked to present their variety for discussion. This includes describing the variety and its advantages over existing varieties. The breeder will be asked to explicitly address the questions, which are part of the ARIS Plant Materials Docket. These are designed to provide relevant information to the committee members. The questions are:

- If co-owned, has the co-owner already expressed a favorable opinion about seeking protection?
 - Do we (or our co-owner) have experience with protecting and/or licensing this type of plant? If so, has this helped facilitate technology transfer?
 - Are there specific characteristics of this variety that make protection desirable?
 - Have commercial seed companies or nurseries expressed an interest in marketing and producing the variety for sale?
 - Who are the U.S. end users (stakeholders) of this variety? Have they been consulted yet? If so, do they favor protection?
-
- Would seeking protection enhance the competitiveness of U.S. growers in world markets and/or help level the playing field internationally?
 - Could seeking protection and licensing this variety impact negatively the ability of our breeders to access foreign germplasm?
 - In general, would seeking protection enhance technology transfer for this variety?

The committee members may ask the breeder questions. After this exchange of information, the breeder will be asked to leave the meeting (or hang up on the call) and the committee will deliberate in private.

How will I know what the committee decides?

The committee will issue a memo stating its recommendation. You will receive an e-mail copy of this memo. Possible decisions of the committee are:

- Defer a decision until more information is obtained. The committee will send a memo to the breeder identifying exactly what type of information is needed, OR
- Recommend filing a Plant Patent or PVPC Application and Licensing, OR
- Recommend for PVPC and public release by university partner, OR
- Recommend public release

The committee may also:

- Recommend for filing for Plant Breeder's Rights and list the countries of interest.

If the committee recommends that the variety be protected by a US plant patent, how will this be handled?

If the committee recommends that the new variety be protected by a US Plant Patent, the case will be automatically sent to the docket of an ARS Patent Advisor. You will be informed of this by e-mail. The ARS Patent Advisor will contact you to discuss the data requirements for a plant patent. A list of information generally required for a plant patent is attached as Appendix 6. There is no need for additional review by an ARS patent committee.

If the variety is co-owned, the Patent Advisor will coordinate the patent application process with the co-owner. When the Patent Advisor begins working on the case, they will contact

you and ask you for the information needed to prepare the patent application. The Patent Advisor will prepare the application and submit it to the USPTO. Your research unit must pay for the filing fee. The Patent Advisor will prosecute the case and keep track of the responses from the USPTO. When the patent is issued (which can take as long as several years), you will be informed in writing.

What happens if the committee recommends the variety be protected by a PVPC?

You will need to prepare the PVPC application. Download the application from the PVPO website: <http://www.ams.usda.gov/science/PVPO/PVP> and read the instructions carefully. You will need to use very specific language regarding ownership in blocks (1) (10) and on Exhibit E & F. Samples of how to fill out these blocks and Exhibit E & F for ARS solely-owned and jointly-owned varieties are attached as Appendix 5. If you have trouble filling in the form electronically, you may fill it in legible hand printing and OTT will enter the information for you. For assistance, please contact Tom Moreland at Thomas.Moreland@ars.usda.gov.

Do not sign the form. *Only Rick Brenner, Assistant Administrator, OTT is authorized to sign PVPC applications for ARS.* Send the completed application and all the Exhibits by traceable overnight courier to:

Dr. Richard J. Brenner
Assistant Administrator – OTT
USDA-ARS
5601 Sunnyside Avenue, Room 4-1156
Beltsville, MD 20705-5131
Tel. (301) 504-6905

Who Pays the Fees for a PVP or Plant Patent?

Your Unit pays the filing fee for either a PVPC or Plant Patent. (See below for instructions). OTT pays all other fees.

How is this handled administratively?

For PVPCs do not send payment or seed samples with your application. When OTT receives your application, OTT checks to make sure the PVIP committee approved your release before filing a PVPC application. OTT also reviews the application to make sure it is completed accurately. If everything is OK, Rick Brenner, Assistant Administrator will sign the application and return it to you.

If the application is for a co-owned variety, OTT will obtain the signature of the co-owner before the application is returned to you. After the signed form is returned to you, it is your

responsibility to send the application to the PVPC Office along with the required fee from your ARS project funds. The Patent Advisor will advise you about paying for the application fee to the USPTO for a plant patent application.

Who handles the licensing of an ARS variety?

Licensing of ARS solely-owned or jointly-owned varieties is handled by the Licensing Section of OTT. The licensing process is covered by U.S. Federal Law and must be carried out according to ARS policies and procedures. You may obtain information about the licensing process from your TTC, the ARS website at <http://www.ars.usda.gov/business/docs.htm?docid=768> or directly from the licensing section of OTT by calling (301) 504-5989. Please refer all persons who contact you about licensing to the OTT licensing section.

Do ARS breeders receive a share of license income?

Yes. U.S. Federal Law and ARS policies require that license income be shared with ARS breeders as an incentive award. ARS breeders collectively divide the first \$2,000 of license income received by ARS each year for each licensed variety, plus twenty-five percent (25%) of any income over the first \$2,000, up to a maximum of \$150,000 per breeder per year. If a variety is jointly-owned, the license income will first be divided between ARS and the co-owner, and then ARS will distribute its share of the license income to its breeders as previously stated. It is up to the co-owner to determine how to distribute its share of the revenue to its breeders.

In accordance with U.S. Federal Law, the balance of the license income received by ARS is used to cover expenses for a variety of technology transfer activities. Such expenses may include patent filing and prosecution costs; costs associated with the administration of patent activities; licensing and administrative expenses; rewards to employees for technology transfer activities, including annual ARS technology transfer awards; and expenses for any other activities that increase the potential for technology transfer. Research units do not receive any license income, ARS breeders may not personally receive license income from any source other than USDA.

Appendix 1

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Appendix 2

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WASHINGTON, D.C. 20250

AND

UNIVERSITY OF FLORIDA COLLEGE OF AGRICULTURE
FLORIDA AGRICULTURAL EXPERIMENT STATIONS

NOTICE TO NURSEYMEN OF THE NAMING AND RELEASE FOR PROPAGATION OF EUDORA MUSCADINE GRAPE

The Agricultural Research Service, United States Department of Agriculture and the University of Florida College of Agriculture and the Florida Agricultural Experiment Stations announce the naming and release to nurserymen for propagation the muscadine grape 'Eudora'.

Eudora, tested as CD8-67, was selected at Leesburg, Florida, in 1981 by J.A. Mortensen from a cross between 'Fry' and 'Southland'. Plants of Eudora are vigorous and productive, and in South Mississippi yields are comparable to the most productive cultivars. Flowers are pistillate and produce medium-large, round, firm, purple-skinned berries with high sugar content, excellent eating quality and flavor. Skin texture is moderately tough but flavorful and edible and pulp is only moderately muscelagenous. Berries contain an average of 3.2 seeds per berry. Testing indicates that skins of 'Eudora' possess high concentrations of ellagic acid, a potent antioxidant, greater than that found in many other muscadine grape cultivars. Less than half of ripe berries have wet picking scars and berries store well under refrigeration with little shrinkage or shriveling. Some berry clusters are tight and suitable for cluster harvesting and packaging in clamshells. Ripening occurs from late August through late September in the Gulf-Coast Region. 'Eudora' has not shown symptoms of Pierce's disease, and has shown good resistance to various fruit rot organisms.

'Eudora' is recommended as a fresh market grape for both dooryard and commercial use. Since flowers of 'Eudora' are pistillate, it must be interplanted with other perfect flowered or self-fertile muscadine grape cultivars to facilitate pollination and fruit set. 'Eudora' is readily propagated from softwood cuttings under mist during June - July, and may also be propagated via layerage.

A limited supply of one-year old potted plants is available for distribution to bonified nurserymen, and will be prorated to nurseries if demand exceeds supply. Written requests for plants should be sent to Dr. Stephen Stringer, USDA-ARS Thad Cochran Southern Horticulture Laboratory, P.O. Box 287, Poplarville, MS. 39470.

Genetic materials of this release will be deposited in the National Plant Germplasm Repository at

Davis, CA., where it will be available for research purposes and commercial development.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WASHINGTON, D.C.

and

BEEET SUGAR DEVELOPMENT FOUNDATION DENVER, COLORADO

NOTICE OF RELEASE OF EL53 SUGARBEET GERMPLOSM WITH SMOOTH-ROOT AND IMPROVED
RESISTANCE TO RHIZOCTONIA CROWN AND ROOT ROT

The Agricultural Research Service of the U.S. Department of Agriculture and the Beet Sugar Development Foundation announce the joint release of EL53 sugarbeet germplasm substantially derived from previously released smooth-rooted, low soil tare germplasm releases with two cycles of selection for freedom from crown and root rot disease caused by *Rhizoctonia solani* KUhn (AG2~2). Previous low soil tare releases have been uniformly susceptible to *Rhizoctonia* crown and root rot, and the moderately resistant germplasm EL52 was used as a source of resistance during the development of EL53. EL53 was developed at the USDA-ARS Sugarbeet and Bean Research Unit, East Lansing, Michigan by J.M. McGrath. EL53 has shown good agronomic performance, and it is expected to be a resource for developing low soil tare parental lines for hybrid cultivars with economically recoverable levels of sucrose.

EL53 is diploid self-sterile with predominantly red hypocotyls (>80% red), and segregates for monogerm seed type as well as the smooth-root trait. EL53 has a complex pedigree involving seven previously released smooth-root germplasm lines, two unreleased smooth-root breeding populations, and three traditional East Lansing germplasm releases. Most (59%) of EL53's parentage stems from smooth rooted materials. Specifically, contributors and their proportional contribution to EL53 areas follows: SR80 (PI 607898) 6%- SR87 (PI 607899), 12%; SR94 (PI 598076) 6%; SR95 (PI 1603947) 3%- SR96 (PI 628272), 3%- SR97 (PI 628273) 3%; EL0204 (PI 1632750), 9%; EL50 (PI 598073), 9%; EL52 (PI 628274) 15%, and USH20 (PI 631354), 18%. Two breeding populations were also used: 99119-00 (3%) and 99J31..QO (12%). These two breeding populations were derived from mother roots simultaneously selected at East Lansing over two cycles for smooth-root and *Rhizoctonia* Crown and root rot resistance, originating from separate F2 populations of crosses between 95H07 and S5B 1 ~R25, respectively.

EL53 was selected solely under conditions promoting development of *Rhizoctonia* crown and root rot in the East Lansing disease nurseries in 2001 (Test OIEL31) and 2002 (Test O2ELA3). In 2001, 33 roots were selected in the proportions indicated above randomly inter-pollinated in the greenhouse and seed harvested from individual plant. The 33 roots were selected from within a four-fold replicated completely randomized block with 14 entries. The average stand count 30 days after inoculation with millet-infested *Rhizoctonia solani* AG2-2 was 8.8 plants per plot (Root Mean Square Error = 6.0). Thus, the selection intensity was ca. 6.25% of plants surviving after inoculation. This seed increase was designated OIB024. In 2002, seed from each individual plant harvest was planted to a single 24-foot long row, and selections were taken from 26 of the original 33 progeny lines evaluated for resistance in the 2D02 *Rhizoctonia* nursery. Seventy-six roots were selected solely

on freedom of crown and root rot symptoms, and randomly divided in two groups of 38 roots each. The final stand at harvest and selection was 332 plants, thus the selection pressure was 23% of surviving plants. The first group of 38 roots was intercrossed in the 2003 greenhouse, designated 02B094, and this seed was increased at the West Coast Beet Seed Co. in Salem, OR (designated WC040022). The other 38 roots were randomly inter-pollinated in a plot in St. Johns, MI during the summer of 2003, and this seed was designated 03B017. EL53 has been tested as O1B024, 02B094, and 03B017.

EL53 is moderately resistant to *Rhizoctonia* crown and root rot. *Cercospora* leaf spot and *Aphanomyces* diseases as evaluated over two years (2005 only for *Aphanomyces*) in the USDA-ARS, Ft. Collins and

Betaseed, Shakopee, MN disease nurseries in 2004 and 2005. In all cases, EL53 was more susceptible, but not significantly different from, the moderately resistant check, or in the case of the *Aphanomyces* nursery where the resistant check was: not scored, EL53 was better out not significantly different from the moderately susceptible check. in each year considered separately. EL53 was evaluated for agronomic performance at the Saginaw Valley Bean and Beet Farm (Saginaw, MI) in 2003, 2004, and 2005. Over an EL53 showed 91 % of the sugar content (16.1 % vs. 18.1 %). 105% of the harvested root yield (2L9 vs, 20.9 tons per acre). and 92% of the sugar yield per acre (6509 VS. 7080 lbs. sucrose) of the check varieties El7 and B5736, averaged over the three years. EL53 has excellent emergence and stand persistence.

EL53 is being released as a germplasm source for breeders to use in developing parental lines combining smooth rootedness with higher levels of *Rhizoctonia* crown and root rot resistance than is currently available in smooth-root material. EL53 also contains a series of useful characters at low allele frequencies derived from EL53's components, such as those necessary to breed for seed parent used to create cytoplasmic male mediated hybrids as well as the Rzl source of rhizomania resistance. Seed will be available for use by writing to Dr. J. Mitchell McGrath, USDA-ARS; 494 PSSB, Michigan State University, East Lansing, MI 48824-1325. Efforts of Drs. L. Hanson and L. Panella of the USDA-ARS. J. Miner and M. Rekoske of Betaseed, Inc., and T. Duckert and T. Koppin at East Lansing. In providing valuable disease nursery and agronomic testing assistance is gratefully acknowledged. Genetic material of this release has been deposited in the National Plant Germplasm System where it will be available for research purposes, including development and commercialization of new cultivars. It is requested that the author be notified if this germplasm contributes to the development of a new breeding line or cultivar.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WASHINGTON, D.C.

And

CALIFORNIA AGRICULTURAL EXPERIMENT STATION
UNIVERSITY OF CALIFORNIA DAVIS
DAVIS, CALIFORNIA

NOTICE OF RELEASE OF ICEBERG GERMPLOSM WITH RESISTANCE TO VERTICILLIUM WILT

The Agricultural Research Service, United States Department of Agriculture and the University of California - Davis announce the release of three breeding lines of lettuce (*Lactuca sativa* L.). Lines RH05-336, RH05-0339 and RH05-Q340 are F9 iceberg type lettuce breeding lines with resistance to Verticillium wilt caused by *V. dahliae*. They have partially covered heads with medium-dark-green and crisp textured leaves. Seeds are black. These breeding lines were selected from the cross La Brillante x Pacific. Resistance is derived from La Brillante, a Batavia type lettuce cultivar with resistance to race 1 of *V. dahliae*. These breeding lines are the first iceberg type lettuce with resistance to Verticillium wilt but are not suitable for commercial production. They should be used as parents for further development of Verticillium wilt cultivars.

Verticillium wilt of lettuce is a major concern to the California lettuce industry, which is a 1 billion dollar industry in the Salinas, Valley in Monterey County, CA alone. The pathogen *Verticillium dahliae*, is a soil-borne fungus that can colonize the vascular tissues of a broad range of plants. This fungus was first identified as a pathogen on lettuce in 1995 in the central coast of California (Subbarao et al., 1997). Since the initial discovery, *V. dahliae* isolates pathogenic on lettuce have been found throughout Monterey and Santa Cruz counties.

Symptoms of Verticillium wilt first appear on the basal leaves as areas of chlorosis and angular necrotic lesions along the leaf margins prior to wilting. These foliar symptoms progress acropetally, eventually leading to plant death. Other key foliar symptoms include stunting, defoliation and other developmental abnormalities. Prior to the onset of foliar symptoms the vascular discoloration of root and stem tissue, revealed by vertical sectioning of the plant, are the only other diagnostic features available. These disease symptoms are most devastating to iceberg cultivars, since the lower leaves envelope the entire head and essentially suffocate the plant as the disease progresses. Verticillium wilt symptoms in lettuce are absent until they near harvest maturity or initiate reproductive growth, at which time an entire lettuce crop can be lost within one week (Subbarao, et al 1997). Plants which succumb to *V. dahliae* produce large quantities of microsclerotia that can persist in the soil for 10-15 years.

05-0336, RH05-0339, and RH05-0340 were selected from the cross La Brillante x Pacific. The Verticillium wilt resistance in these breeding lines is derived from La Brillante, which is a yellow-green Batavia type lettuce cultivar that is not used for commercial production. The origin of La Brillante is unknown.

Two races of *V. dahliae* isolates from lettuce are reported, of which La Brillante is resistant to race 1 and susceptible to race 2 (Vallad et al., 2006). Pacific is a modern iceberg type cultivar developed by the USDA and adapted for coastal California production conditions (Ryder Robinson, 1991). Pacific is susceptible to races 1 and 2 of *V. dahliae*.

Rh5-0336, RHO5-0339, and RH05-0340 were developed by selecting for horticultural characteristics and the absence of foliar and root symptoms in experiments conducted in *V. dahliae* infested field sites. Using this approach, single plant selections were made using the pedigree method of breeding through 6 generations of self pollination. In 2006, resistance was evaluated in RH05-0336, RH05-0339, RH05-0340, Pacific, and

La Brillante in infested field experiments with 3 replications. The breeding lines were in P7 and F8 generations respectively. Both trials were maintained using standard cultural practices for coastal California lettuce production. Approximately 1 week past market maturity, disease incidence was determined by evaluating root and foliar symptoms of *Verticillium* wilt on 10 plants per plot. In 2005, the disease incidence for Pacific was 20%. No disease was found in La Brillante, RH05-0336, RHO5-0339, and RH05-0340. In 2006, the disease incidence was 47% in Pacific and 5% in La Brillante. The disease incidence in RHO5-0336, RH05-0339, and RH05-0340 was 3%, 0%, and 0% respectively. In both years, Pacific had significantly more disease than La Brillante, RH05-0336, RH05-0339, and RH05-0340 ($P < 0.01$). La Brillante, RH05-0336, RHO5-0339, and RHO5-0340 were not significantly different from each other. Other than *Verticillium* wilt RH05-0336, RHO5-0339, and RHO5-0340 have not been characterized their reaction to other lettuce pathogens or their propensity for physiological defects. While these breeding lines are the first iceberg type lettuce with *Verticillium* wilt resistance, they lack the necessary yield and quality needed for commercial production. Therefore, they are intended to be used as parents to develop *Verticillium* wilt resistant cultivars.

Limited samples of seed are available for distribution to all interested parties for research purposes, including the development and commercialization of new cultivars. Samples will also be deposited in the National Plant Germplasm system. It is requested that appropriate recognition be made if the breeding lines contribute to research or the development of new germplasm, breeding lines, or cultivars. Written request should be sent to Dr. Ryan Hayes, USDA-ARS, 1636 E. Alisal St., Salinas, CA 93905.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WASHINGTON, D. C. 20250

NOTICE OF RELEASE OF DOWNY MILDEW RESISTANT GREEN SPROUTING BROCCOLI
INBRED LINE USVL089

The Agricultural Research Service Department of Agriculture, announces the release of the green-sprouting broccoli (*Brassica oleracea* L., Italica Group) inbred line USVL089. This inbred line provides a uniform and true-breeding source of resistance to downy mildew incited by *Peronospora parasitica*. USVL089 was selected at the U.S. Vegetable Laboratory, Charleston, S.C. by Dr. Mark W. Farnham, Research Geneticist.

USVL089 is a doubled-haploid line that was derived from anther cultures of the hybrid cultivar Everest. USVL089 exhibits a relatively high level of homozygosity compared to conventional inbred lines of broccoli, which typically undergo up to seven or eight generations of inbreeding. USVL089 is self-incompatible and must be self-pollinated (bud pollinated) to reproduce the line by seed.

In artificial inoculation studies. USVL089 is highly resistant to downy mildew at both the seedling cotyledon stage and the 3-to 4-true leaf stage. In field studies. USVL089 has exhibited a high level of resistance to downy mildew from cotyledon stage through the mature head stage. The downy mildew resistance of USVL089 is effective when the line is inoculated with *P. parasitica* isolates sampled from different U.S. geographic locations, including California and South Carolina.

Inheritance studies published by Farnham et al. (*Euphytica* 128:405-407,2002) indicate that a single dominant gene controls the resistance expressed by USVL089. Hybrids made using USVL089 as a parent express the same high level of resistance. Giovanelli et al. (*J Amer. Soc. Hort. Sci.* 127:597-601. 2002) developed 1U1U described several sequence characterized amplified region (SCAR) DNA markers linked to this single dominant gene. These SCAR markers can be used to indirectly select for downy mildew resistant lines in a population segregating for the dominant gene present in USVL089.

Typical of many inbreds, USVL089 has relatively small stature compared to hybrids such as Marathon or Liberty. USVL089 exhibits early to midseason maturity, producing a single head of broccoli in 70-80 days after transplanting in autumn environments where it is best adapted. USVL089 will produce a single head in 60 to 70 days after transplanting in spring environments, but it is poorly adapted to any conditions wherein relatively high temperatures (e.g., greater than 28C) occur as heads mature.

Heads harvested from this inbred have a slight dome shape and medium head size. USVL089 also exhibits a lack of lateral branches on the main stem of the plant. Evaluations of harvested heads; from hybrids formed by crossing USVL089 with other ARS inbreds indicates USVL089 can combine well in specific cases to produce hybrids that have high quality head production. USVL089 is best suited as a source of

downy mildew resistance that can readily be transferred to new breeding populations.

Small quantities of USVL089 seed produced by hand self - pollinations may be obtained from Dr. Mark W. Farnham, U.S. Vegetable Laboratory, 2700 Savannah Highway, Charleston, SC 294144. The genetic materials of this release will be deposited in the National Plant Germplasm system where they will be available for research purposes, including for development and commercialization of new cultivars. It is requested that appropriate recognition be made if this ed line contributes to the development of a new breeding line or hybrid.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WASHINGTON, D.C.

NOTICE OF RELEASE OF RUSSIAN WHEAT APHID-RESISTANT, 6-ROWED, SPRING MALTING
BARLEY GERMPLASM LINES

The Wheat, Peanut and Other Field Crops Research Unit, Agricultural Research Service, Stillwater, Oklahoma, and the Small Grains and Potato Germplasm Research Unit, Agricultural Research Service, Aberdeen, Idaho, announce the release of nineteen spring, 6-rowed, malting barley (*Hordeum vulgare* L.) germplasm, STARS 0601B (PI 642887), STARS 0602B (PI 642888), STARS 0603B (PI 642889), STARS 0604B (PI 642890), STARS 0605B (PI 642891), STARS 0606B (PI 642892), STARS 0607B (PI 642893), STARS 0608B (PI 642894), STARS 0609B (PI 642895), STARS 0610B (PI 642895), STARS 0611B (PI 642897), STARS 0612B (PI 642898), STARS 0613B (PI 642899), STARS 0614B (PI 642900), STARS 0615B (PI 642901), STARS 0616B (PI 642902), STARS 0617B (PI 642903), STARS 0618B (PI 642904), and STARS 0619B (PI 642905) for breeding and experimental purposes. Scientists participating in their development were Dolores W. Mornhinweg and Phil Bregitzer.

Eighteen of these germplasm are highly resistant and one is moderately resistant (Table 1) to the Russian wheat aphid (RWA), *Diruaphis noxia* (Mordvilko), when seedlings are tested in the greenhouse with greenhouse-reared RWA colonies. The major component of resistance in these lines is tolerance. Even while supporting high RWA populations, leaves of highly resistant germplasm lines do not roll or streak in response to RWA, and therefore yield reduction due to head trapping and chlorosis of susceptible cultivars does not occur in these lines. Moderately resistant lines characteristically roll and streak with RWA feeding and will have some yield reduction due to chlorosis and leaf rolling, yet they do not incur as great a yield loss as susceptible cultivars. Lines that are rated moderately resistant but do not roll have a high incidence of chlorosis that can also reduce yield by a reduction in grain fill. Moderately resistant lines are valuable as potential genetically different sources of resistance.

Screening of the entire USDA-ARS National Small Grains Collection of *Hordeum vulgare* in the greenhouse by the USDA-ARS in Stillwater, OK, resulted in the identification of 109 accessions with resistance to RWA ranging from resistant (1 - 3) to moderately resistant (4 - 5) on Webster's scale of 1 - 9 (1 - resistant, 9 = susceptible). One hundred nine unadapted RWA, resistant germplasm lines were developed from these accessions. Two spring germplasm lines were released to breeders immediately (STARS 9309B and STARS 9577B), while all 109 lines entered a backcross breeding program in Stillwater to develop RWA-resistant germplasm lines in backgrounds adapted to all barley-growing areas of the USA where RWA is a potential threat. These adapted germplasm lines should have little negative effect on elite lines when utilized by breeders.

Each of these germplasm releases was developed by backcrossing an unadapted spring barley germplasm line (Table 1) as a male 3 times to a 6-rowed, spring malting barley cultivar. Backcross progeny were screened for each generation, and only resistant plants were used in the next backcross. BC3F1 plants from each cross were increased to obtain BC3F2, and 100 BC3F2:F3 individuals were grown in the greenhouse. Seed from these plants were grown in the field as plant rows in Aberdeen, ID, and evaluated for agronomics, compared to the susceptible recurrent parent. Selected lines were grown in replicated yield trials for at least 2 years in Aberdeen, and the best performers in each resistant background were selected for release. Each line was tested for homozygous resistance to RWA1 and seed from homozygous plants was increased in the field and greenhouse. A final screening for homozygous resistance was done prior to bulking of seed for each germplasm release.

Field performance of each line relative to the recurrent parent in the absence of RWA can be found in Table I, along with seedling resistance rating, resistance source, and accession source. These lines are very competitive with the recurrent parent, even in the absence of aphids.

Genetic materials of this release will be deposited in the National Plant Germplasm System where these materials will be available for research purposes, including development and commercialization of new materials. It is requested that appropriate recognition of the source be given when these germplasm lines contribute to research or the development of improved line.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WASHINGTON, D.C. 20250

and

NORTH CAROLINA AGRICULTURAL RESEARCH SERVICE

North Carolina State University
Raleigh, North Carolina 27695-7643

NOTICE OF RELEASE OF 'N8001' SOYBEAN

The Agricultural Research Service of the United States Department of Agriculture and the North Carolina Agriculture Research Service announce the release of a new soybean [*Glycine max* L. Merr.] variety N8001. It has excellent yield potential. Twenty-five percent of its parentage is exotic germplasm. Few soybean cultivars produced in USA have this level of diversity, and thus its release broadens the genetic base of soybean cultivars. It is a determinate group VIII maturity soybean variety adapted to the southern USA (30^o to 35th N latitude) or wherever MG VIII varieties are produced. N8001 was developed by Dr. Thomas E. Carter, Jr., Research Geneticist, USDA-ARS, Raleigh, North Carolina.

N8001 is an F4-derived selection from the cross of USDA variety 'N7001' and 'Cook' N7001 was derived by crossing USDA breeding line, N77~114, to a landrace from Japan, Plant Introduction 41 6937. The PI 416937 appears distinctly differ from the previous ancestors of North American soybean in that it has much larger leaves and a more prolific rooting system. N7001 was the first public Cultivar released in USA with this PI in its pedigree. Cook was derived from the cross of cultivar 'Braxton' and 'Young'. The F1 seeds of N8001 were produced in 1994 at Clayton, NC, and fl plants were grown during the following winter at the USDA-ARS Tropical Agriculture Research Station (TARS), Isabela, PR. The F2 and F3 generations were advanced using the single seed descent breeding method at Clayton, NC in 1995 and at TARS during the following winter. In 1996, individual F4 plants were grown and harvested at Jackson Springs, NC. Approximately 173 F4 plants were grown in progeny rows at Clayton, NC in 1997. Approximately 100 of these progeny rows were entered into replicated yield trials in NC during 1998. The bulked harvest of progeny row N97-9612 was designated as N8001. N8001 is a full sib of USDA maturity Group VII cultivar N7002.

During 2002, [-2D05, N800] was evaluated in 14 environments of the North Carolina State University Official Variety Trials. N8001 matured j day earlier than Cook. Cook is a cultivar adapted to NC. The plant height of N8001 (102 cm) was very similar to that of Cook (101 cm). Plant lodging was rated using a scale of 1-5, where 1 is no lodging and 5 is completely lodged at maturity. The plant lodging rating of N8001 (1.6) was similar to Cook (1.9). Yield of N8001 (2,949 kg ha⁻¹) was 183 kg ha⁻¹ greater than Cook (2,766 kg ha⁻¹). N8001 was evaluated at 48 environments in the USDA-ARS Southern Region Uniform Group VIII Test during 2000 - 2005. The maturity of N8001 was similar to that of Cook, the standard control cultivar for the USDA-ARS Southern Region Uniform Group VIII Test. The plant height of N8001 was equal to Cook (89 cm). N8001 (2.0) lodged similarly to Cook (2.1). Yield of N8001 (2999 kg ha⁻¹) was 217 kg ha⁻¹ greater than Cook (2,782 kg ha⁻¹). The 100- seed weight of N8001 (14.8 g) was similar to Cook (15.2 g). Seed protein content of N8001 (410 g kg⁻¹) lower than that of Cook (418 g kg⁻¹), on a zero moisture basis. N8001 had less seed oil content (190 g kg⁻¹) than Cook (193 g kg⁻¹).

N8001 has purple flowers~ gray pubescence, tan pod wall color at maturity, and glossy yellow seeds with imperfect black hilum. In USDA regional tests, N8001 was rated resistant to Soybean Mosaic Virus and stem canker (*Diaporthe phaseolorum* var. *caulivora*). It was rated susceptible to soybean cyst (*Heterodera glycines* Ichinohe) and root knot (*Meloidogyne incognita* and *M. arenaria*) nematodes. In USDA trials in NC, N8001 was rated resistant to bacterial pustule (*Xanthomonas axonopodia* pv. *glycines*) and forage leaf spot (*Cercospora sojina* K. Hara), N8001 also resisted pod-shattering after maturity, even with extensively delayed harvest, based on field observations in NC.

Small seed quantities of N8001 will be available for research purposes from Dr. Thomas E. Carter, Jr., 3127 Ligon St. Raleigh, NC 27607, 919-513-1480, tommy.Carter@ncsu.edu. It is requested that appropriate recognition be made if N8001 contributes to the development of a germplasm line or cultivar. Seed will also be deposited in the National Center for Genetic Resources Preservation and National Plant Germplasm System.

MISSISSIPPI AGRICULTURAL AND FORESTRY EXPERIMENT STATION
 AGRICULTURAL RESEARCH SERVICE.
 MISSISSIPPI STATE UNIVERSITY, MISSISSIPPI STATE

And

COTTON INCORPORATED CARY, NORTH CAROLINA

And

THE UNITED STATES DEPARTMENT OF AGRICULTURE
 AGRICULTURAL RESEARCH SERVICE WASHINGTON, D.C.

NOTICE OF RELEASE OF SIX ROOT -KNOT NEMATODE RESISTANT UPLAND
 COTTON GERMPLASM LINES

Mississippi Agricultural and Forestry Experiment Station, The Agricultural Research Service, United States Department of Agriculture, and Cotton Incorporated announce the release of six germplasm lines of upland cotton. MS-10RKN, MS-24RKN, MS-30RKN, MS-33RKN, MS-35RKN, AND MS-37RKN that have good yield and fiber quality combined with resistance to, root-knot nematode (RKN). The nematode resistance is from the Auburn 634 source. These lines provide public and private breeders with germplasm resources with resistance to root-knot nematode and acceptable yield and fiber quality for the mid-south and southeastern United States.

All six lines were developed using M240 RNR as the nematode resistant parental line, and it was crossed one or more times with different commercial cultivars or related elite breeding lines followed by selection. The pedigrees are:

MS-01RKN=, SG404/(M240/SG501); MS-24RKN=(M240/SG125)/SG125:
 MS-30RKN= DES21 1-39/{M240/SG 125}; MS-33RKN=SG501I(M240/SG125):
 MS-35RKN=(DES119/M240)/DES119; MS-37RKN=(DES119/M240)/DES119:

Performance data over four environments for yield evaluations and two greenhouse RKN evaluations show that the RKN gall index for the six lines ranged from 2.0 to 2.7 whereas the gall index on the RKN resistant check M315 was 1.8~ the susceptible RKN check M& was 4.0, and the resistant cultivar check Acala Nemx was 2.5. Each of the six lines had significantly less wilted plants (2-12%) than Rowden (48 - 63%). The susceptible check cultivar, in the Tallasse, AL RKN/Fusarium Wilt Nursery in 2005, Yield and yield components on the six lines were equal to or better than Stoneville 474 (ST 474), the agronomic cultivar check. Bon size for the lines ranged from 4.96 to 5.27g with ST474 being 4,82g. Four lines had significantly heavier bolls than ST 474. Lint percentage for the lines ranged from 40.3 to 42.1% with ST474 being 43.6%. All lines had lint percentage significantly lower than the high lint percentage cultivar ST 474. Lint yield ranged from 827 to 1016 kg/ha with ST 474 being 858. No line was significantly different in yield from ST474. Fiber properties (HVI) were equal to or superior to St474. Micronaire ranged from 4.9 to 5.1, with ST at 5.3. All lines had significantly lower micronaire than ST474. Fiber length ranged from 28.3 to 29 mm with ST474 at 28.6. No lines had fiber length significantly different from ST474. Strength ranged from 279 to 303kNm/kg with ST474 being 286kNm/kg. One line had significantly greater fiber strength than ST474.

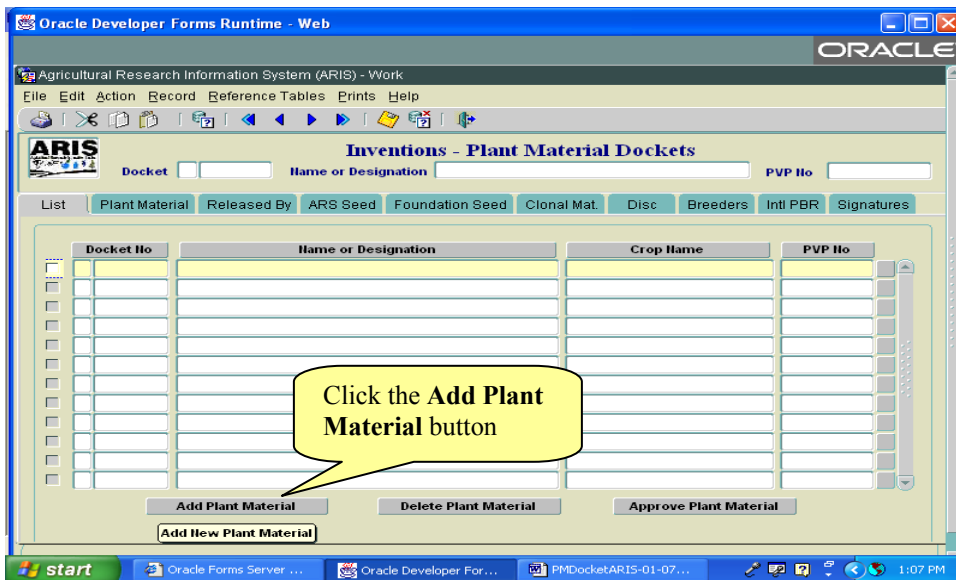
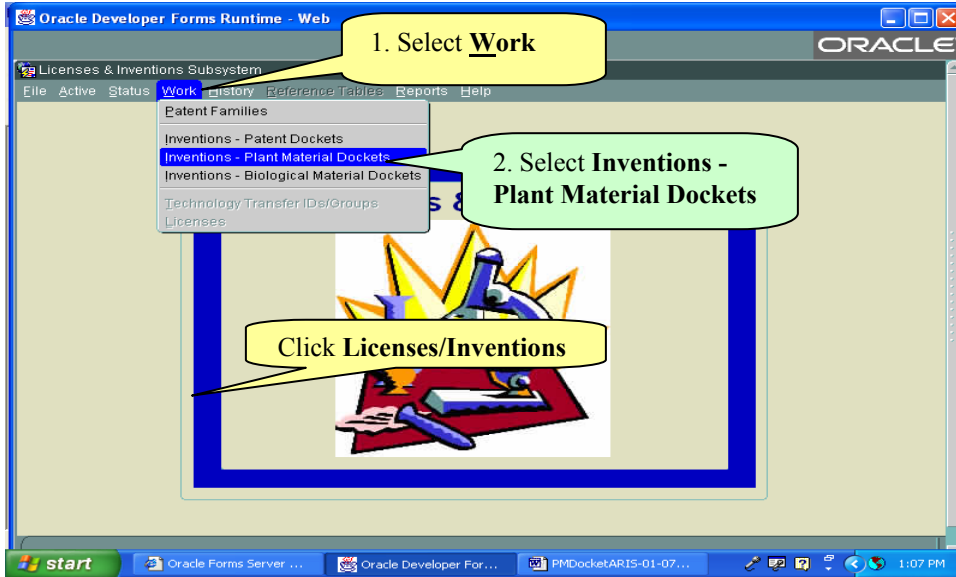
The breeding research for these lines was led by Roy G. Creech (Retired) of Mississippi Agricultural and Forestry Experiment Station. Evaluation and selection of final lines for release were made by Johnie N. Jenkins, Jack C. McCarty, and Russell Hayes of the Agricultural Research Service and Roy G. Creech, John B. Creech and Daniel L. Haire of Mississippi Agricultural and Forestry Experiment Station. Partial funding for the development and valuation of these lines was furnished by Cotton Incorporated.

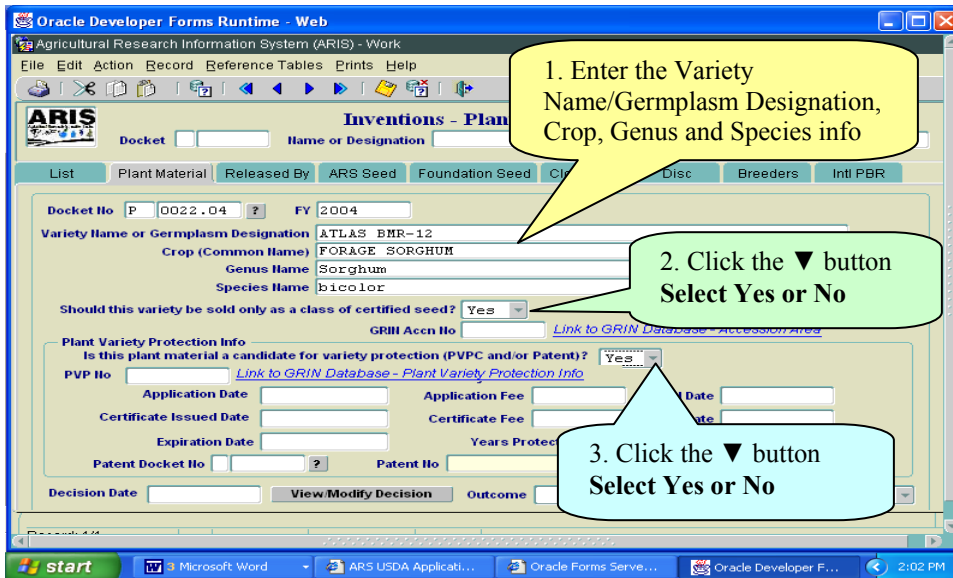
Small quantities of seed are available to cotton breeders, geneticists, and other research personnel upon written request to; Johnie N. Jenkins, USDA. ARS, Crop Science Research Laboratory. Box 5367, Mississippi State, MS 39762. It is requested that appropriate recognition of the source be given when these germplasm lines contribute to the development of a new, breeding line, hybrid or cultivar. Genetic material of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including, development and commercialization of new cultivars.

Appendix 3

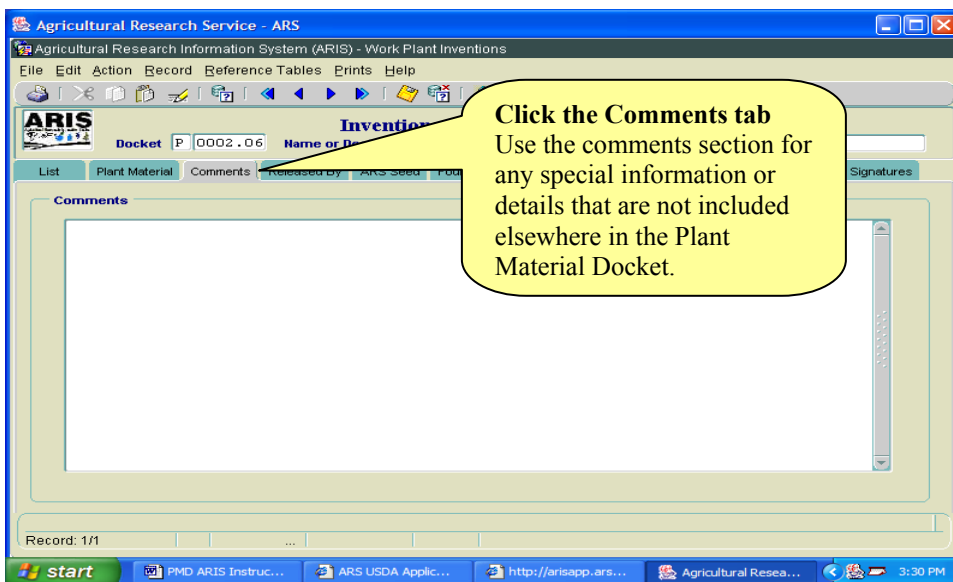
TIPS:

- Title, Phone and Fax numbers, and Email addresses are needed for all Breeders listed on a report.
- OTT will complete information related to Plant Variety Protection.
- Only one ARS employee may be designated as the Primary Contact.
- Question #6: List countries where there might be an International Market for the Plant Material, or if the Plant Material has been sent to a foreign country for testing or breeding.
- The Intl PBR section is restricted to HQ/OTT use. It does not apply to the response in Question #6.
- There is no line limitation to the responses for Questions 1 – 6. Use the copy/paste feature of Word (Use Ctrl C (copy) and Ctrl V (paste), instead of the copy/paste icons in ARIS).
- Look for SAVE buttons at the bottom of some screens. The Save icon at the top of the screen will not work whenever there is a SAVE button located within a screen.
- Always highlight the line of information you want to select or delete. Check boxes do not exist for marking and defining selections (as in other ARIS modules).
- Use the View/Modify feature when changes are necessary within the different data components. The system does not allow for "unchecking" and "checking" once a selection is made (such as Primary Contact identification).
- Only one Project Number can be selected when filing a Plant Material Docket report.
- There are two data bases used for ARS employees: Current and Former. Select • Both when searching for an employee who may have recently retired from ARS. It takes time for employees to be revised from Active to Obsolete in the Personnel database, which is where the information is generated.

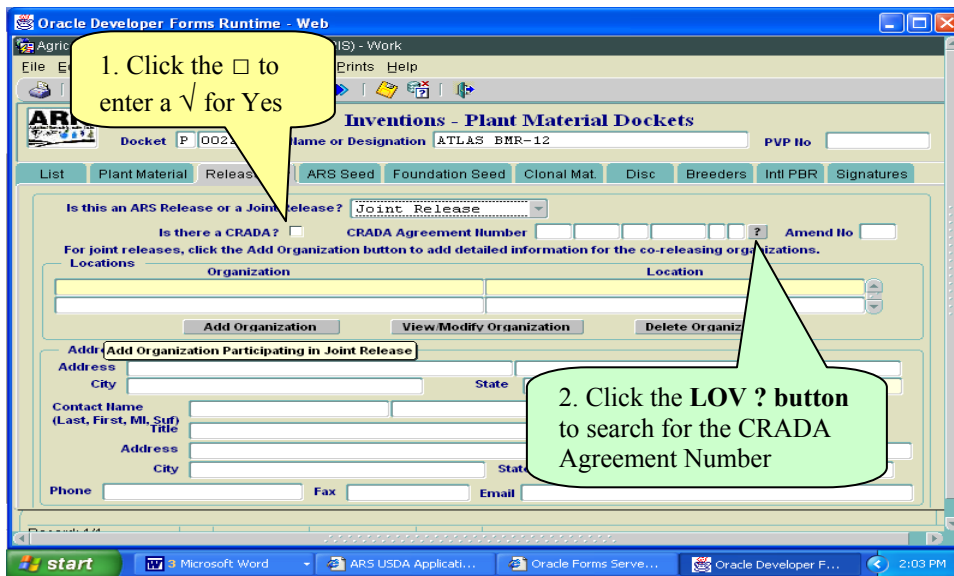
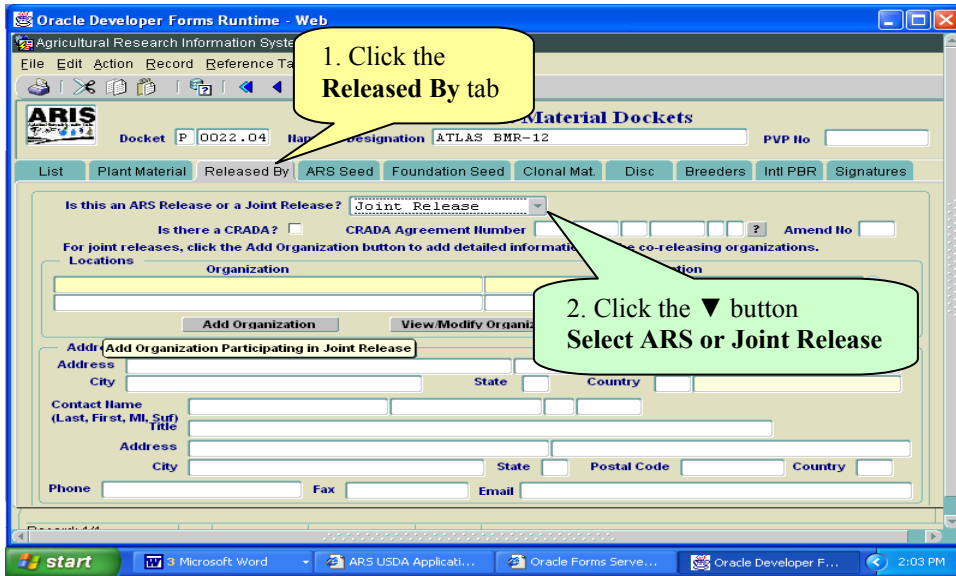




- ◆ Docket No. and FY will automatically default into their respective blocks when the screen is saved
- ◆ OTT staff will complete the remaining data entry blocks in the Plant Variety Protection Info section



- ARS Release/Joint Release is a required field. It cannot be blank.
- FOR AN ARS ONLY RELEASE:**
- ◆ Select ARS Release and leave the remaining blocks on this screen empty.
 - ◆ Click on the **ARS Seed** tab to continue
- If the CRADA Agreement Number is not applicable, but it is a Joint Release:**
- Go to Page 5 instructions.



Oracle Developer Forms Runtime - Web
Agricultural Research Information System (ARIS) - Work
File Edit Action Record Reference Tables Prints Help

ARIS
Docket P 0020.04 Name or Designation

List Plant TINS CRADA Agreements

Is this an Find 583K9500845%

For joint re Locations

Agmnt	No			FY	Title
58	1935	0	0156	M	1993 NOVEL BIOPOLY
58	32U4	0	0090		1990 RFLP MAP FOR C
58	32U4	0	0090		1990 PREVENTATIVES
58	32U4	0	0092		1990 CONSTRUCTION
58	32U4	0	0093		1990 THE EFFECT OF P
58	32U4	0	0094		1990 RFLP MAP FOR C
58	32U4	0	0095		
58	32U4	0	0096		
58	32U4	0	0097		
58	32U4	0	0098		
58	32U4	0	0099		

Find Find OK Cancel

Phone Fax Email

Choices in list: 1180
Record: 1/1

start PMDocketARIS-01-... ARS USDA Applicati... Oracle Forms Serve... Oracle Developer F... 3:37 PM

Oracle Developer Forms Runtime - Web
Agricultural Research Information System (ARIS) - Work
File Edit Action Record Reference Tables Prints Help

ARIS
Docket P 0020.04 Name or Designation MONGERM SUGARBEET GERMLASM PVP Ho

List Plant TINS CRADA Agreements

Is this an Find 58%

For joint re Locations

Agmnt	No			FY	Title
58	3K95	0	0845	2004	MODIFICATION OF C

Find Find OK Cancel

Phone Fax Email

Choices in list: 1 (Choices in full list: 1180)
Record: 1/1

start PMDocketARIS-01-... ARS USDA Applicati... Oracle Forms Serve... Oracle Developer F... 3:37 PM

The screenshot shows the Oracle Developer Forms Runtime - Web interface for the Agricultural Research Information System (ARIS). The main window title is "Inventions - Plant Material Dockets". The "Docket" field contains "P 0022.04" and the "Name or Designation" is "ATLAS BMR-12". The "View/Modify Organization" button is highlighted with a yellow callout box that says "Click the View/Modify Organization button". Below this button, the "Organization" field is filled with "UNIVERSITY OF NEBRASKA" and the "Location" is "Agricultural Research Division". The "Address/Contact" section includes fields for "Address", "City", "State", "Country", "Contact Name", "Title", "Phone", "Fax", and "Email". The "Address" field contains "Institute of Agriculture and Natural Resources 207 AGH, East Campus", "City" is "LINCOLN", "State" is "NE", "Country" is "US", "Contact Name" is "NELSON", "First Name" is "DARRELL", "Middle Name" is "W.", "Title" is "DEAN", "Address" is "Institute of Agriculture and Natural Resources 207 AGH, East Campus", "City" is "LINCOLN", "State" is "NE", "Postal Code" is "68583-0704", and "Country" is "US".

View/Modify Organization: Allows for revisions or corrections to the information previously entered, such as adding phone and fax numbers or an Email address.

The screenshot shows the Oracle Developer Forms Runtime - Web interface for the Agricultural Research Information System (ARIS). The main window title is "Inventions - Plant Material Dockets". The "Joint Release Organization" section is active. The "Plant Docket No" field contains "P 0022.04". The "Location Info" section includes fields for "Organization", "Location", "Address", "City", "State", "Country", "Contact Info", "Last Name", "First Name", "Middle Name", "Suffix", "Title", "Address", "City", "State", "Postal Code", "Country", "Phone", "Fax", and "Email". The "Organization" field contains "UNIVERSITY OF NEBRASKA", "Location" is "Agricultural Research Division", "Address" is "Institute of Agriculture and Natural Resources 207 AGH, East Campus", "City" is "LINCOLN", "State" is "NE", "Country" is "US", "Contact Info" is "NELSON", "First Name" is "DARRELL", "Middle Name" is "W.", "Suffix" is "", "Title" is "DEAN", "Address" is "Institute of Agriculture and Natural Resources 207 AGH, East Campus", "City" is "LINCOLN", "State" is "NE", "Postal Code" is "68583-0704", "Country" is "US", "Phone" is "402-472-2045", "Fax" is "402-472-9071", and "Email" is empty. The "Save" button is highlighted with a yellow callout box that says "Click the SAVE button".

Modification example to the left shows adding the Phone and Fax #'s for the Contact person for the Joint Releasing Org.

1. Click the ARS Seed tab

2. Enter the ARS Location, Address, City, State, Country

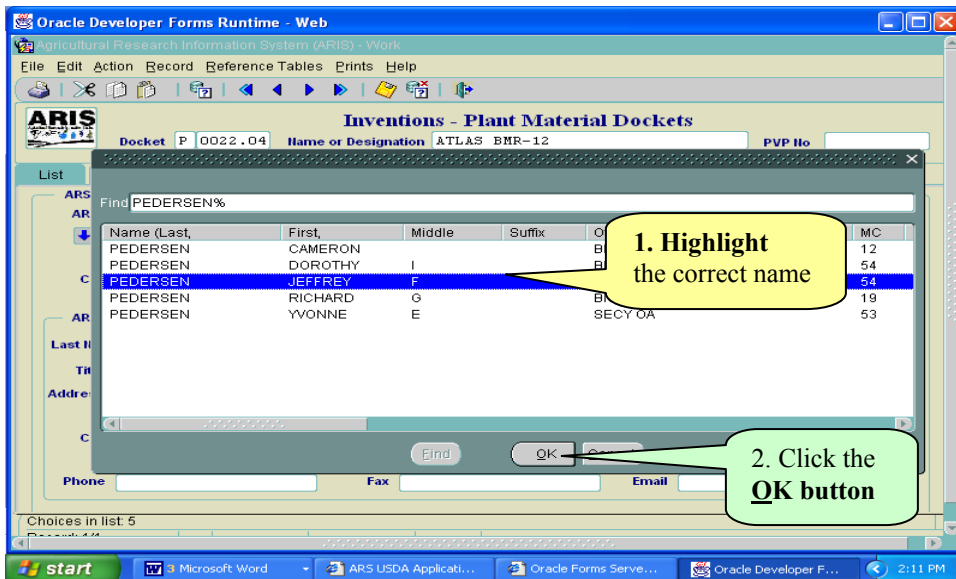
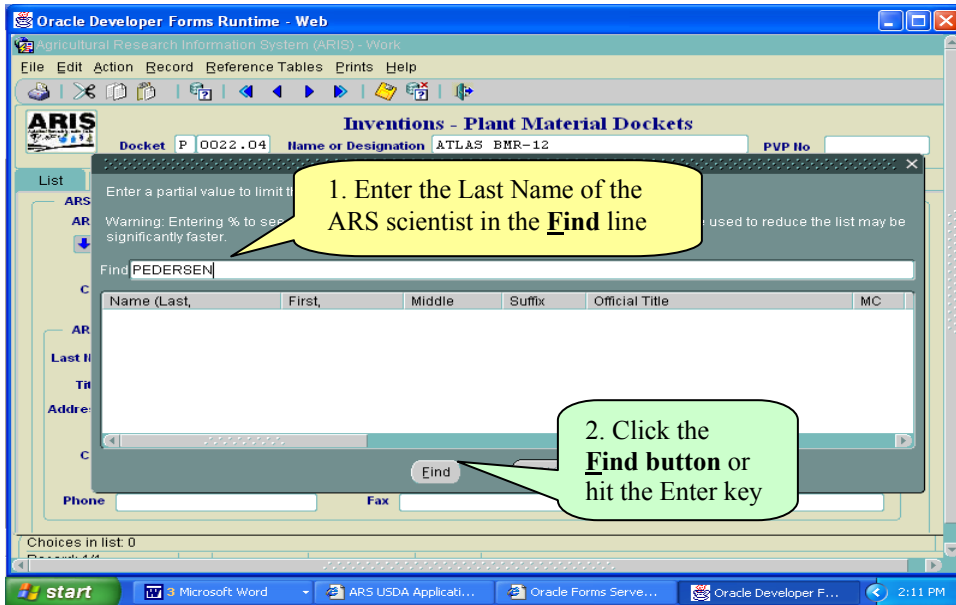
3. Click the ▼ Address button to copy the Address info into the Contact Info section below. **OR**
It will also default into the address blocks upon selection of the ARS employee.

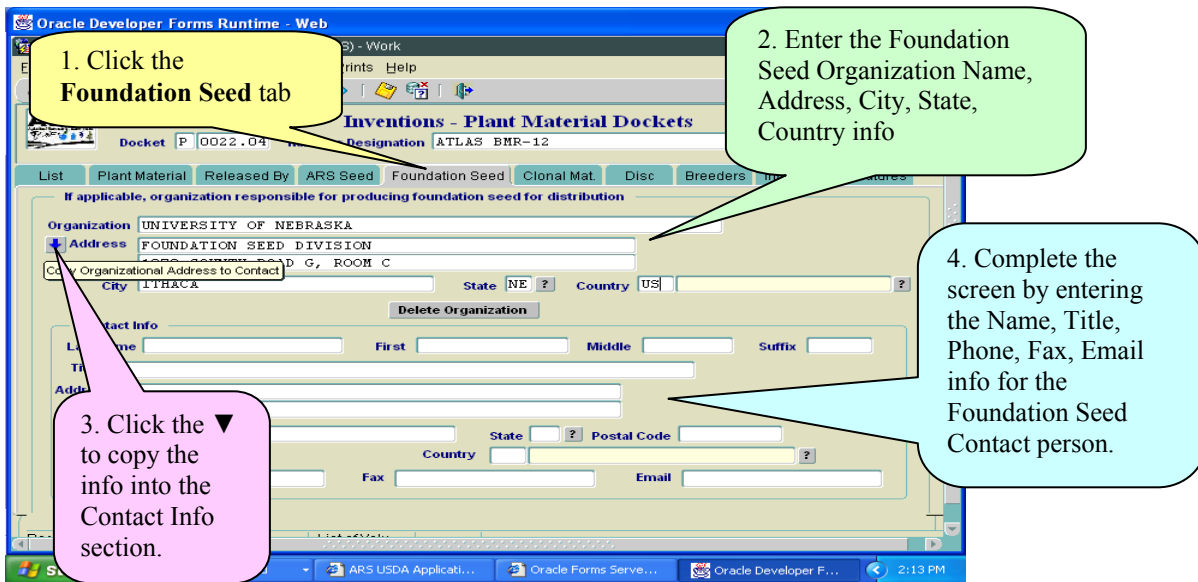
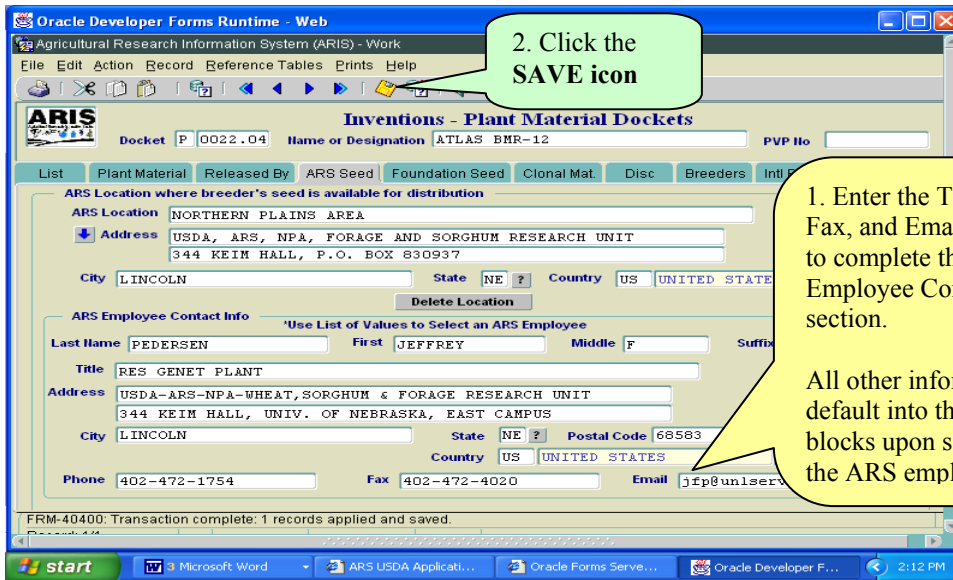
Click the **LOV ?** button to search for the ARS employee who will be the Primary Contact for this release

Look Up ARS Employee

Only one ARS employee may be designated and entered as the Primary Contact.

NOTE: *The LOV ? button must be used to identify the ARS employee.* Attempting to enter the First/Last Name will result in an error message screen.





1. Click the **Clonal Mat.** tab

2. Enter the ARS Location, Address, City, State, Country info

3. Click the ▼ to copy the Address info into the Contact Info section. **OR** Complete the screen by identifying and selecting the ARS Contact (enter Title, Phone, Fax, Email).

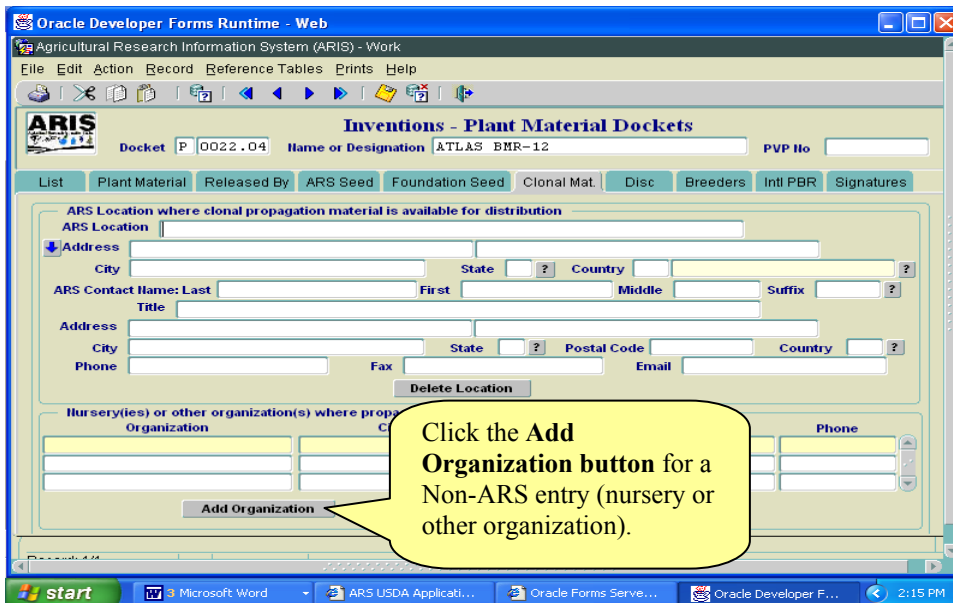
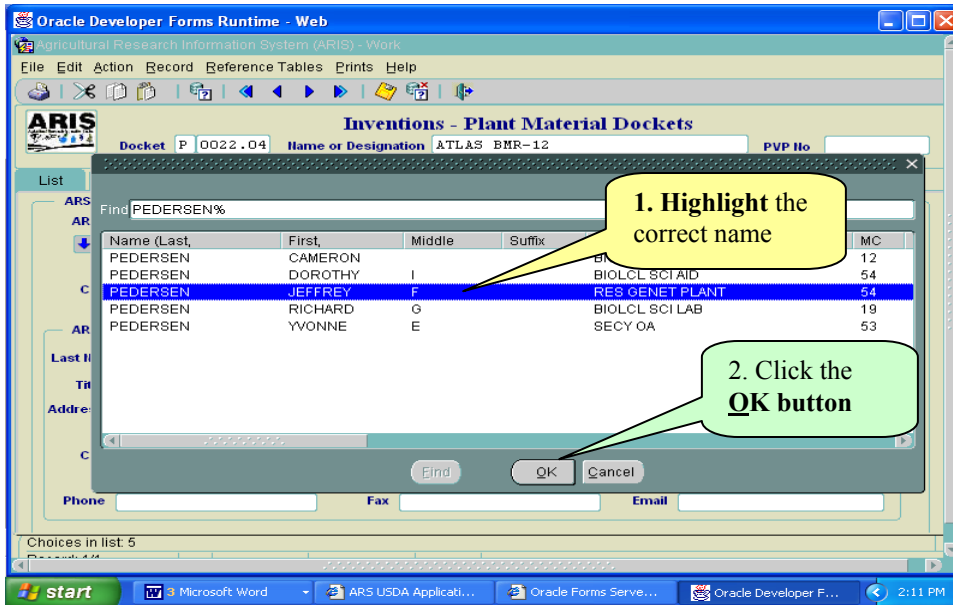
4. Click on **LOV ?** button to search for the ARS Contact

The screenshot shows the 'Plant Material Dockets' form in Oracle Developer Forms Runtime. The 'Clonal Mat.' tab is selected. The form includes fields for 'ARS Location', 'Address', 'ARS Contact', and 'Nursery(ies) or other organization(s) where'. A 'LOV ?' button is visible next to the 'Country' field.

1. Enter the Last Name of the ARS scientist in the Find line

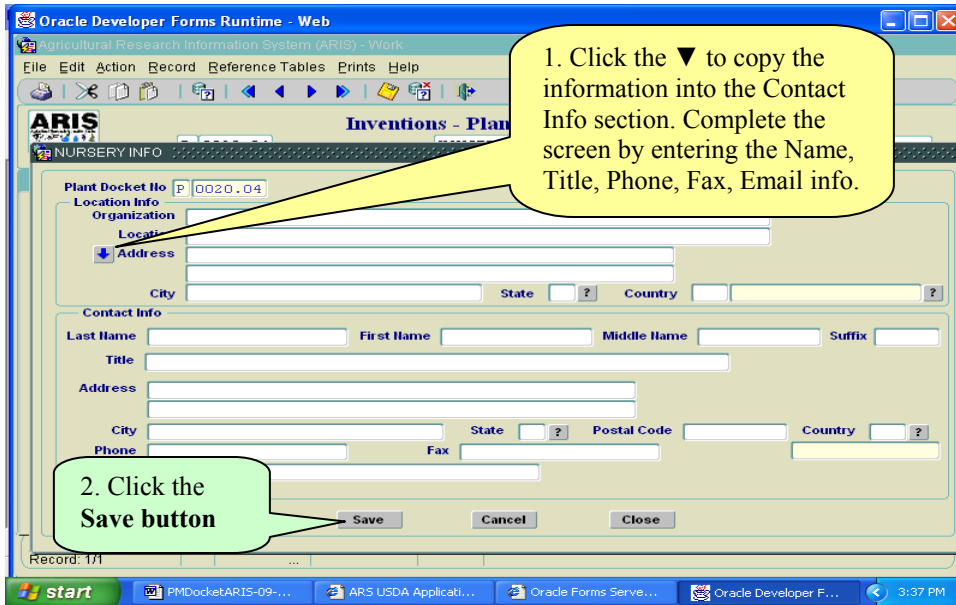
2. Click the **Find** button or hit the Enter key

The screenshot shows a search dialog box titled 'Find' with a 'Find' field containing 'PEDERSEN'. Below the field is a table with columns: Name (Last), First, Middle, Suffix, Official Title, MC. The 'Find' button is highlighted.

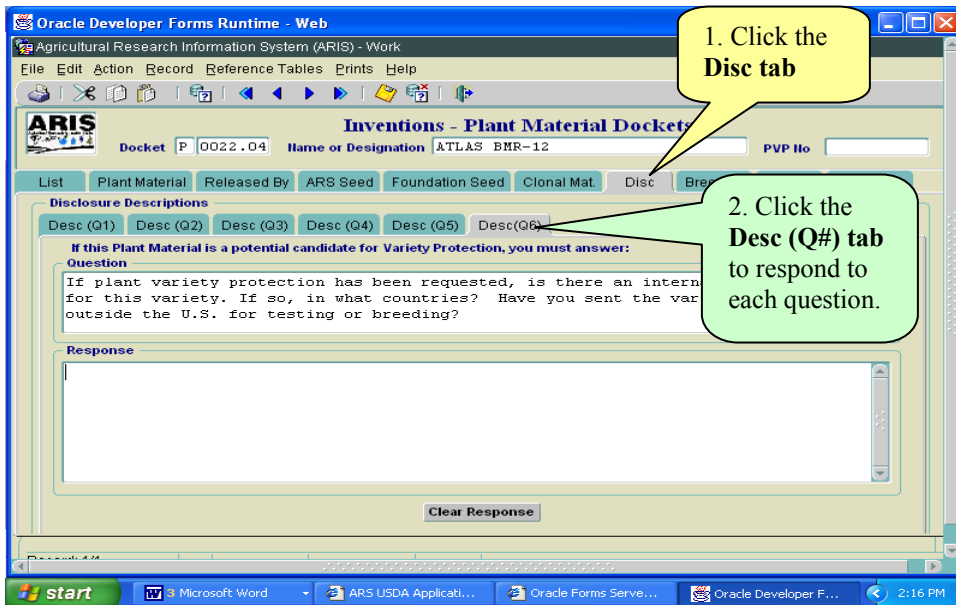


NOTE: Complete the ARS Location section (top part of the screen) **ONLY** if ARS is holding the clonal propagation material.

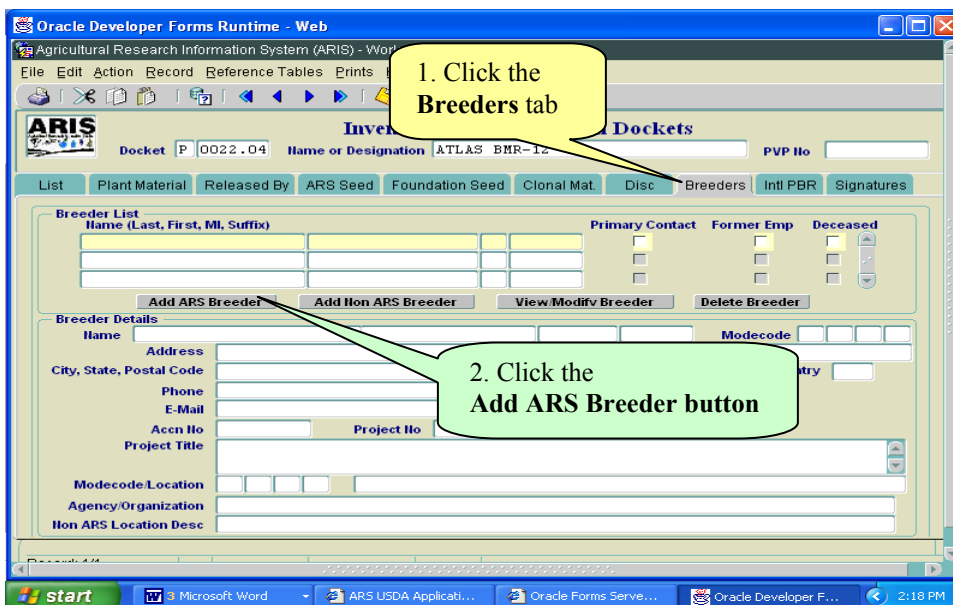
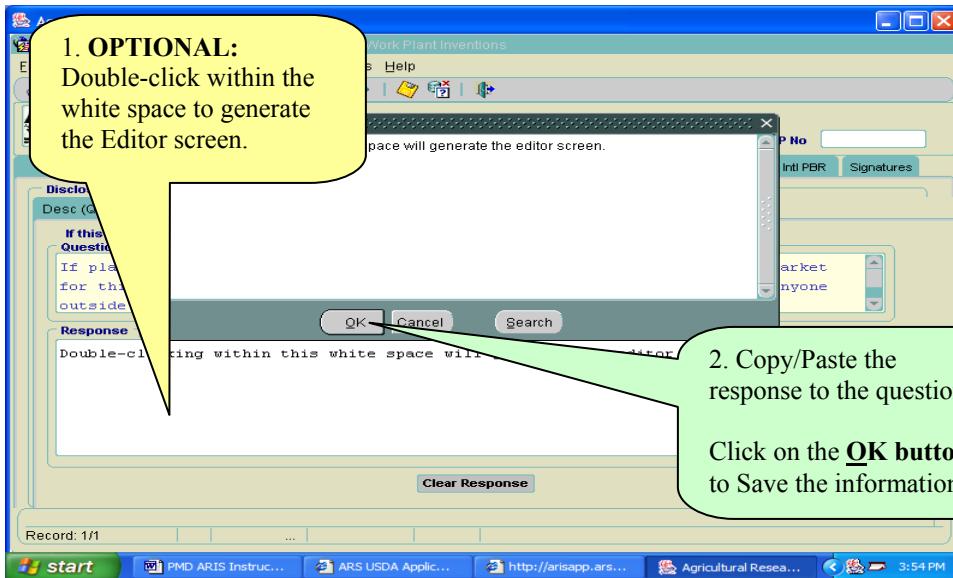
If a nursery or other organization is holding the clonal propagation material: Complete the lower portion of this screen with their information.



- Enter the non-ARS Nursery/Organization Name, Address, City, State, and Country.
- Enter the Name, Title, Phone, Fax, and Email information for the contact person at the Nursery or other Organization.



- Answer Questions 1-6 by using the Copy/Paste feature from a Word document.
- There is no line limitation in any of the response blocks.
- Click the **Save icon** at the top of the screen after entering the response for each Question.



Oracle Developer Forms Runtime - Web
Agricultural Research Information System (ARIS) - Work
ARS Breeder Information

Enter information for ARS Employee:
Agency/Organization: ARS
Breeder's Full Name: []
Primary Contact? Former Employee? Deceased
Inventor's Modocode: [] [] [] []
Address: [] [] [] [] [] [] [] [] [] []
City: [] State: [] Postal Code: [] [] []
Country: [] [] [] []
Phone: [] Fax Number: []
E-Mail: []
Select Project (REQUIRED)
Acqn No: [] Project No: [] [] [] [] []
Project Title: [] [] [] [] [] [] [] [] [] []
Project Modocode: [] [] [] [] [] [] [] [] [] []

Buttons: Save, Cancel, Close

Taskbar: start, Microsoft Word, ARS USDA Applicati..., Oracle Forms Serve..., Oracle Developer F..., 2:18 PM

Click the **LOV ? button** to search for the Primary ARS Breeder to be entered

Oracle Developer Forms Runtime - Web
Agricultural Research Information System (ARIS) - Work
ARS Employee Query

Last Name: PEDERSEN First Name: JEFFREY
 Current Employee Former Employee Both Status Date: [] [] [] []
Area Modocode: [] Location Modocode: [] Modocode 3: [] Modocode 4: []
Grade: [] Series Code: []
Official Title: []
Buttons: Search, Clear, Cancel

ARS Employee List

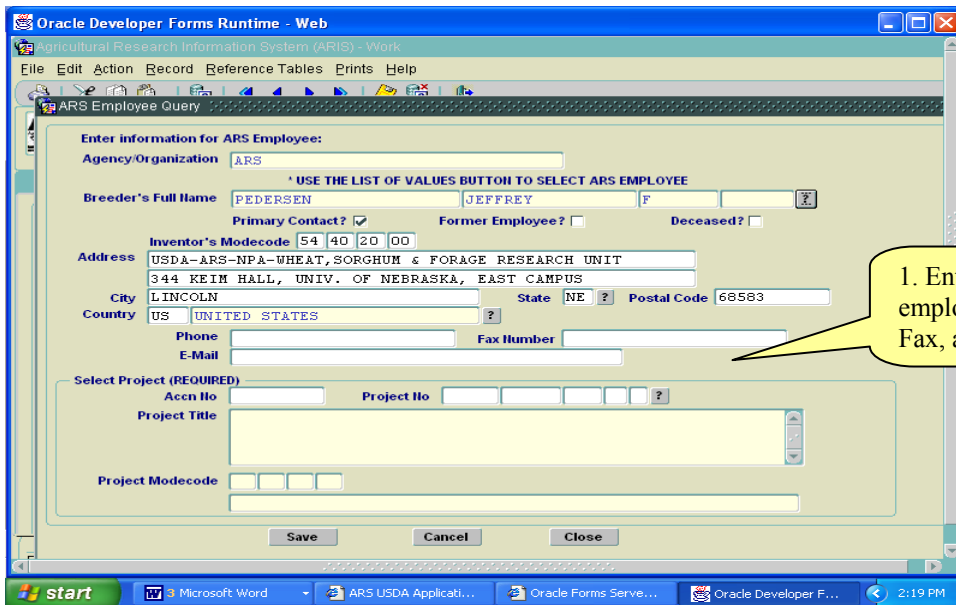
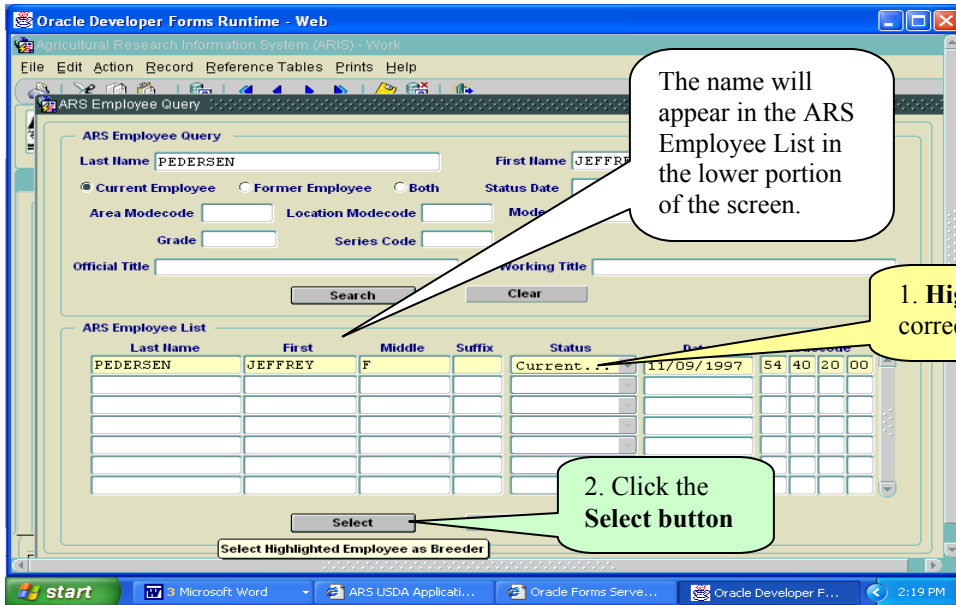
Last Name	First	Middle	Suffix	Status

Taskbar: start, Microsoft Word, ARS USDA Applicati..., Oracle Forms Serve..., Oracle Developer F..., 2:18 PM

1. Enter the Last Name and First Name

2. Click the Search button

TIP: Selecting **Both** will search for Current **and** Former employees.
Using the Mode Code numbers, Grade, Series, Official Title, etc. is optional. The database search will work without that info.



Oracle Developer Forms Runtime - Web
Agricultural Research Information System (ARIS) - Work
ARS Employee Query

Enter information for ARS Employee:
Agency/Organization: ARS
Breeder's Full Name: PEDERSEN, JEFFREY
Primary Contact? Former Employee? Deceased?
Inventor's Modecode: 54 40 20 00
Address: USDA-ARS-NPA-WHEAT, SORGHUM & FORAGE RESEARCH UNIT
344 KEIM HALL, UNIV. OF NEBRASKA, EAST CAMPUS
City: LINCOLN State: NE Postal Code: 68583
Country: US UNITED STATES
Phone: 402-472-1754 Fax Number: 402-472-4020
E-Mail: jfp@unlserve.unl.edu

Select Project (REQUIRED)
Accn No: Project No: ?
Project Title: Look up AccnProject No for ARS Employee
Project Modecode:

Save Cancel Close

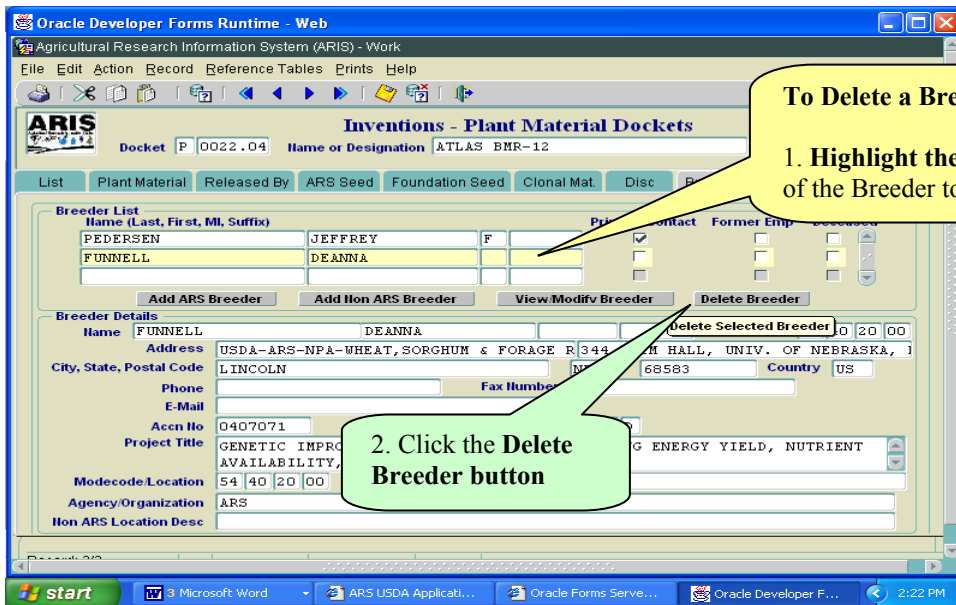
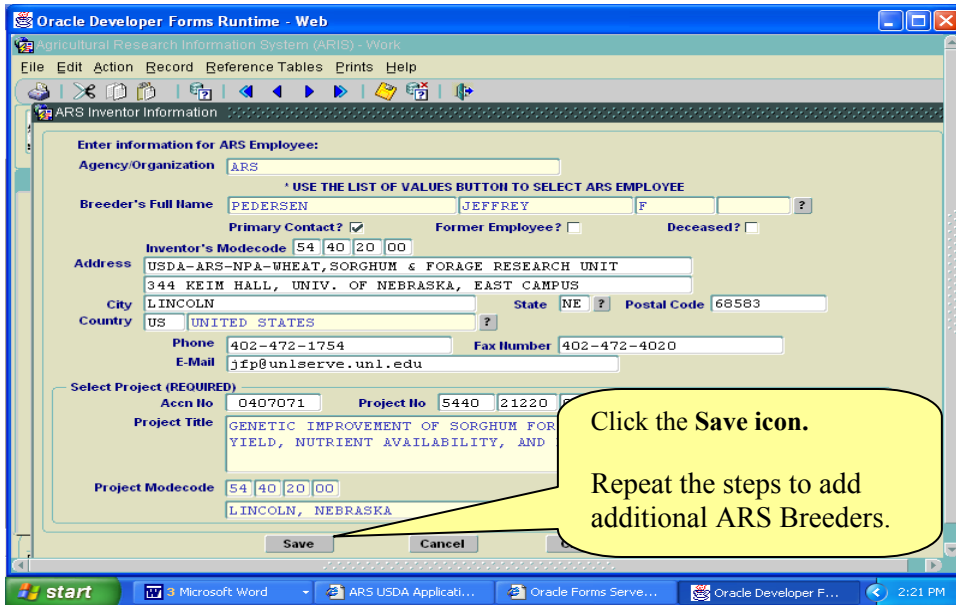
Oracle Developer Forms Runtime - Web
Agricultural Research Information System (ARIS) - Work
ARS Employee Query

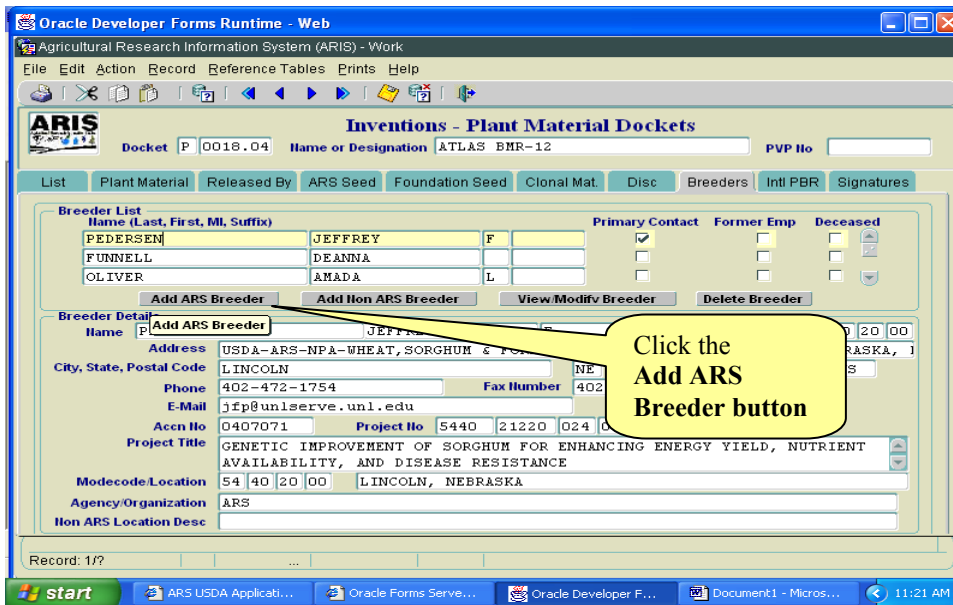
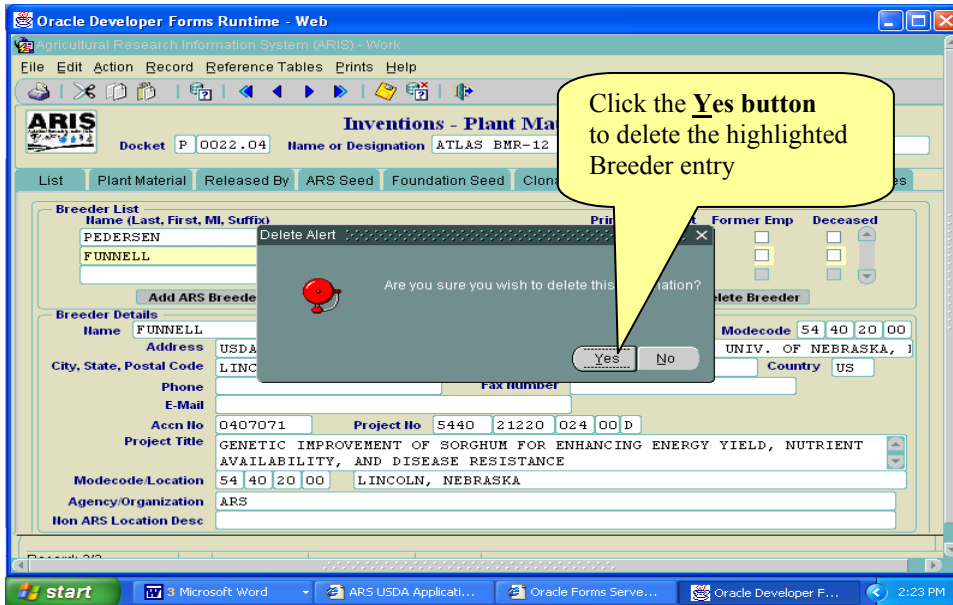
Project Query
Area Modecode: Location Modecode: Modecode 3:
Project No: End: Status:
First Name: JEFFREY
Search Clear

Project List

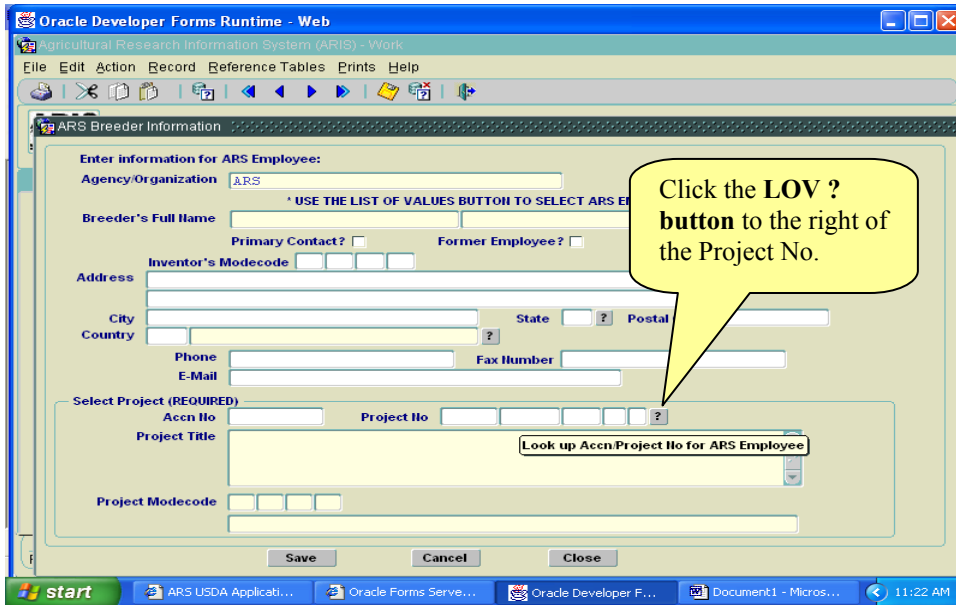
Project No	Modecode	Prj Title	Status Code	Start Date	Term Date
5440 21220 024 00 D	54 40 20 00	GENETIC IMPROVEM	Active	04/11/2003	04/10/2008

Select
Select Highlighted Project as Inventor's Project

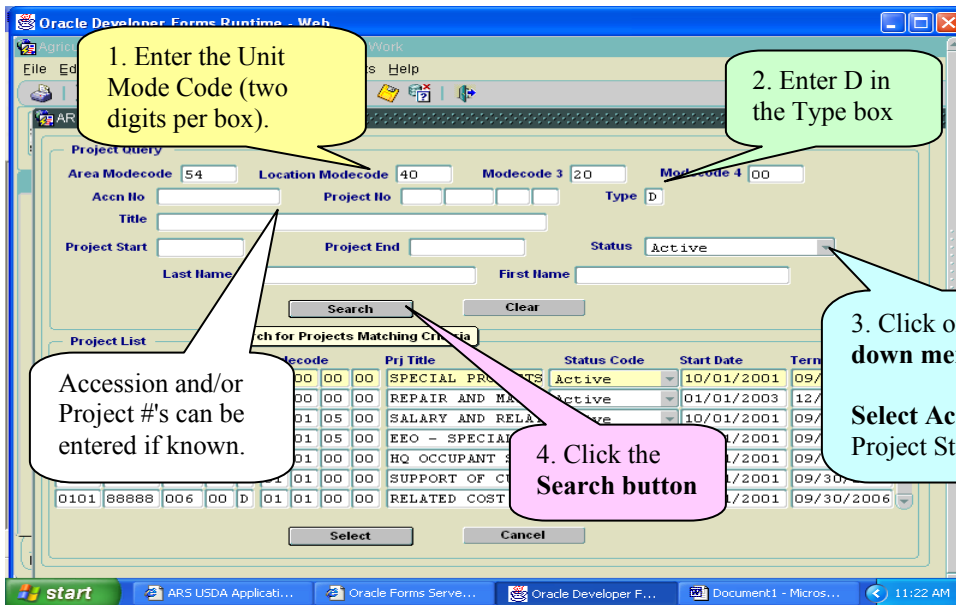




SPECIAL STEPS:
 To add an ARS employee to the Breeder list who is **not** a Cat. 1, 4, or 6 (i.e., Lab Tech)



TIP: The project number **must** be identified and selected **PRIOR** to entering the info for the Non-Cat. 1, 4, or 6 ARS employee. (i.e., Lab Tech)



Project Query

Area Modecode: 54 Location Modecode: 40 Modecode 3: 20 Modecode 4: 00

Accn No: Project No: Type: D

Project Start: Project End: Status: Active

Last Name: First Name:

Search Clear

Project No	Modecode	Prj Title	Status Code	Start Date	Term Date
5440	21000 021 00 D 54 40 20 00	IMPROVED PLANTS	Active	11/06/2002	11/05/2007
5440	21000 025 00 D 54 40 20 00	GENETIC IMPROVEM	Active	05/31/2003	05/30/2008
5440	21220 024 00 D 54 40 20 00	GENETIC IMPROVEM	Active	04/11/2003	04/10/2008
5440	22000 022 00 D 54 40 20 00	WHEAT VIRUS GENE	Active	10/30/2002	10/29/2007

Select

2. Click the Select button

A list of the Active D projects under the Unit's mode code will appear.

1. Highlight the correct Project No.

Enter information for ARS Employee:

Agency/Organization: ARS

Breeder's Full Name: ?

Primary Contact? Former Employee? Deceased

Look up ARS Employee

Address: City: State: Postal Code: Country: Phone: Fax Number: E-Mail:

Select Project (REQUIRED)

Accn No: 0407071 Project No: 5440 21220 024 00 D

Project Title: GENETIC IMPROVEMENT OF SORGHUM FOR ENHANCING ENERGY YIELD, NUTRIENT AVAILABILITY, AND DISEASE RESISTANCE

Project Modecode: 54 40 20 00

Save Cancel Close

1. Click the LOV ? button to the right of the Breeder's Full Name line.

The screenshot shows the 'ARS Employee Query' form in Oracle Developer Forms Runtime. The 'Last Name' field contains 'TOY' and the 'First Name' field contains 'JOHN'. The 'Current Employee' radio button is selected. Below the form is an empty table with columns: Last Name, First, Middle, Suffix, Status, Date, and Modecode. A yellow callout bubble points to the 'Last Name' and 'First Name' fields with the text: '1. Enter the ARS Employee's Last and First Name'. A green callout bubble points to the 'Search' button with the text: '2. Click the Search button'. A white callout bubble with a black border points to the 'Both' radio button with the text: 'TIP: When • Both is marked it will search the database for Current and Former employees.'

The screenshot shows the 'ARS Employee Query' form with search results. The 'Last Name' field contains 'TOY' and the 'First Name' field contains 'JOHN'. The 'Current Employee' radio button is selected. The table below has one row highlighted in yellow with the following data: Last Name: TOY, First: JOHN, Middle: J, Suffix: , Status: Current..., Date: 06/26/1994, Modecode: 54 40 20 00. A yellow callout bubble points to the highlighted row with the text: '1. Highlight the employee'. A green callout bubble points to the 'Select' button with the text: '2. Click the Select button'. At the bottom of the form, there is a button labeled 'Select Highlighted Employee as Breeder'.

Oracle Developer Forms Runtime - Web
Agricultural Research Information System (ARIS) - Work
ARS Employee Query

Enter information for ARS Employee:

Agency/Organization: ARS

Breeder's Full Name: TOY, JOHN

Address: USDA-ARS-NPA-WHEAT, SORGHUM & FORAGE RESEARCH UNIT
344 KEIM HALL, UNIV. OF NEBRASKA, EAST CAMPUS

City: LINCOLN, State: NE, Postal Code: 68583

Phone: 402-472-7845, Fax Number: 402-472-4020, E-Mail: jjt@unlserve.unl.edu

Project Title: GENETIC IMPROVEMENT OF SORGHUM FOR ENHANCING ENERGY YIELD, NUTRIENT AVAILABILITY, AND DISEASE RESISTANCE

Buttons: Save, Save Record and Exit

1. Enter the Employee's Phone, Fax, and Email

2. Click the Save icon

Oracle Developer Forms Runtime - Web
Agricultural Research Information System (ARIS) - Work
Inventions - Plan

Name (Last, First, MI, Suffix)	Primary Contact	Former Emp	Deceased
PEDERSEN, JEFFREY	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FUNNELL, DEANNA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Buttons: Add ARS Breeder, Add Non-ARS Breeder, View/Modify Breeder, Delete Breeder

Click on the Add Non-ARS Breeder button if applicable

A screenshot of the ARIS 'Non-ARS Breeder Information' form. The form is titled 'Enter information for Non-ARS Employee (enter Lead Breeder first):'. It contains several input fields: Agency/Organization, Non-ARS Location Desc, Breeder's Last Name, First Name, Middle Name, Suffix Name, Address, City, State, Postal Code, Country, Phone, and Email. There are also checkboxes for 'Primary Contact?' and 'Deceased?'. At the bottom of the form are 'Save' and 'Cancel' buttons. A yellow callout box with the text 'Click the Save button' points to the 'Save' button. The window title is 'Agricultural Research Service - ARS' and the menu bar includes 'File', 'Edit', 'Action', 'Record', 'Reference Tables', 'Prints', and 'Help'.

Complete the information requested on this screen for Non-ARS Breeders.

A screenshot of the ARIS 'Breeder List' table. The table has columns for Name (Last, First, MI, Suffix), Primary Contact, Former Emp, and Deceased. The rows listed are OLIVER AMADA L, GRANT RICK J, and TOY JOHN J. Below the table is a 'Breeder Details' form for the selected breeder, TOY JOHN. The details form includes fields for Name, Address, City, State, Postal Code, Phone, E-Mail, Accn No, Project No, Project Title, Modecode, Location, Agency/Organization, and Non-ARS Location Desc. The window title is 'Oracle Developer Forms Runtime - Web' and the menu bar includes 'File', 'Edit', 'Action', 'Record', 'Reference Tables', 'Prints', and 'Help'.

The screen to the left appears listing all Breeders names and information. Use the scroll bar to the right to review each entry for accuracy. Modify/Delete by highlighting the desired name and clicking the applicable action button.

DO NOT use the Intl PBR tab, it is restricted to OTT data entry.

NOTE: This serves a separate purpose from the response given in Question #6 in the Desc tab section.

1. Click the **Signature** tab.

The screenshot shows the Oracle Developer Forms Runtime - Web interface for the Agricultural Research Information System (ARIS) - Work. The title is "Inventions - Plant Material Dockets". The Docket is P 0022.04 and the Name or Designation is ATLAS BMR-12. The Signatures tab is selected, showing a table with columns for Country Filed, Application No, Date Filed, P No, Certificate Date, and Comments. A "Delete PBR Record" button is visible at the bottom.

1. Enter the Research Leader or CD/LD/DAD name and date.

2. Click on the . A will appear in the Approve box.

3. Click the **Approve/Disapprove** button to save and release to the next approval level.

NOTE: The Save icon at the top of the screen does not work on this application.

The screenshot shows the approval section of the application. It includes fields for Title, Sig Code, Name (Last, First, MI, Suffix), and Date. There are checkboxes for "Approve" and "Disapprove" for each role. Roles listed include Research Leader, CD/LD/DAD, Area Director, Headquarters (IPS Plant Materials Coord), Deputy Asst Admin, OTT, and Associate Deputy Admin. Buttons for "Clear Signature" and "Approve/Disapprove" are at the bottom.

Appendix 4

Agricultural Research Service
Agricultural Research Information System
Inventions-Plant Material Dockets Disclosure

Variety Name or Germplasm Designation:

Crop (Common Name):

Genus Name:

Species Name:

Certified Seed? (Y/N):

PVP No.:

CRADA:

1. Was this plant material developed in cooperation with a university experiment station or another organization? What resources were contributed by the cooperator. e.g. technicians, breeders, land, facilities, services, test date, etc. List all cooperator employees who were directly involved in the breeding and selection of this material.

2. Provide a full description of the plant material to be released. Please include the complete text of the proposed release notice. Detailed are instructions available.

3. Discuss who is expected to use the released plant material, and how they will use it. What public or private organizations have requested this material for research, breeding, or testing purposes? Have you consulted with any commodity groups?

4. List any publications and/or public use of this plant material. Has the material been provided to anyone outside of USDA for field testing purposes? Have seeds, cuttings, fruit, or other materials been sold by cooperators?

5. If plant variety protection has been requested, explain how such protection will facilitate technology transfer, which would otherwise not occur if the variety is publicly released. Does the variety have any special characteristics that would make protection desirable, e.g., niche market use, transgenic incorporates proprietary technology owned by others, requires identity preservation, etc.

6. If plant variety protection has been requested, is there an international market for this variety? If so, in what countries? Have you sent the variety to anyone outside the U.S. for testing or breeding?

IF YOU ARE A USDA EMPLOYEE, By signing this form you acknowledge that:

a. The invention described herein (1) was made during working hours, or (2) was made with a contribution by the Government of facilities, equipment, materials, funds, or information, or of time or services of other Government employees on official duty, or (3) bears a direct relation to, and/or was made in consequences of your official duties. (If it meets NONE of these criteria, contact the Office of General Counsel and do NOT sign this form.)

b. You may be entitled to foreign rights in the invention, and foreign rights may be jeopardized by publishing or disclosing the invention before a patent application is filed in the U.S. Patent and Trademark Office.

Inventors:

Inventor Name:
Address1:
Address2:
City, State, Postal Code:
Country:

Inventor Name:
Address1:
Address2:
City, State, Postal Code:
Country:

Telephone Number:
Fax Number:
E-mail:
Series:

Telephone Number:
Fax Number:
E-mail:
Series:

Agency or Company:
If ARS Agency, Project Number:
If Company, Location:

Agency or Company:
If ARS Agency, Project Number:
If Company, Location:

Inventor Name:
Address1:
Address2:
City, State, Postal Code:
Country:

Inventor Name:
Address1:
Address2:
City, State, Postal Code:
Country:

Telephone Number:
Fax Number:
E-mail:
Series:

Telephone Number:
Fax Number:
E-mail:
Series:

Agency or Company:
If ARS Agency, Project Number:
If Company, Location:

Agency or Company:
If ARS Agency, Project Number:
If Company, Location:

Recommend:

Date:

Approval

RL:
CD/LD/DAD:
AD:

Approve/Concur:

NPS Plant Material
Coord:
Deputy Admin:
Deputy Asst Admin,
OTT:

Appendix 5

Information (Please Read)

The following forms are in the OTT PVP Share Point site: The PVP application forms for ARS solely owned varieties, varieties jointly owned by ARS and a University that will be filed by ARS and varieties jointly owned by ARS and a University that will be filed by the University. These forms are word documents that have been converted from PDFs. They are not perfect to fill out but are better than the old PDFs. I would recommend that you use the forms from the Share Point folder and not the ones listed below as they did not copy completely. You will be forwarded Share Point access information if your variety is accepted for a PVP application. (If you only want to write in the information and send them to me that will be fine also) The information in **blue** can be deleted when the document is completed. The information in **red** is the information you will need to add or check to insure it is correct. If you have any questions please do not hesitate to call me at 301-504-4838 or Thomas.moreland@ars.usda.gov.

If you have or know of a company interested in applying for a license for this variety they should contact:

Ms. June Blalock
Technology Licensing Program Coordinator
USDA, Agricultural Research Service
Office of Technology Transfer
5601 Sunnyside Avenue
Beltsville, Maryland 20705-5131
Telephone: 301-504-5989
Facsimile: 301-504-5060

NOTE: The application part 2 is for general information. Information is only needed if questions 22, 23 or 24 are answered "YES". This application must be attached to page 1 application when submitted to the PVP Office.

Application Part 2 (For all Applications)

GENERAL INSTRUCTIONS: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for \$4,382 (\$518 filing fee and \$3,864 examination fee), payable to "Treasurer of the United States" (*See Section 97.6 of the Regulations and Rules of Practice*). **NEW:** With the application for a seed reproduced variety or by direct deposit soon after filing, the applicant must provide at least 3,000 viable untreated seeds of the variety *per se*, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to reproduce the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one COPY for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. DO NOT use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of \$768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or *owner's* representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (*See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.*)

Plant Variety Protection Office
 Telephone: (301) 504-5518 FAX: (301) 504-5291
 General E-mail: PVPOmail@usda.gov
 Homepage: <http://www.ams.usda.gov/science/pvpo/PVPindex.htm>

SPECIFIC INSTRUCTIONS:

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, Seed Regulatory and Testing Branch, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870. <http://www.ams.usda.gov/lsg/seed.htm> .

ITEM 19a. Give:

- (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
- (2) the details of subsequent stages of selection and multiplication;
- (3) evidence of uniformity and stability; and
- (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

- (1) identify these varieties and state all differences objectively;
- (2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
- (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.

19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant MAY NOT reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (*See Regulations and Rules of Practice, Section 97.103.*)

23. See Sections 41,42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.

24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

22. CONTINUED FROM FRONT (*Please provide a statement as to the limitation and sequence of generations that may be certified.*)

23. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U. S. or other countries.)*

24. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety*

is protected by intellectual property right (Plant Breeder's Right or Patent).)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TOO).

To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S. w., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TOO). USDA is an equal opportunity provider and employer.

ST-470 (02-06) designed by the Plan! Variety Protection Office using Word 2003.

Declaration ARS Solely Owned

REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved OMB NO

0581-0055

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, researching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U. S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY PLANT
VARIETY PROTECTION OFFICE BELTSVILLE, MD 20705

EXHIBIT F DECLARATION REGARDING DEPOSIT

U.S. Government as Represented by the Secretary of Agriculture	1400 Independence Ave., SW Washington D.C. 20250	TEMPORARY OR EXPERIMENTAL DESIGNATION
		VARIETY NAME OR NUMBER
NAME OF ARS Breeder	Location where seed may be obtained	FOR OFFICIAL USE ONLY
		PVPO NUMBER

SAMPLE COPY ARS SOLELY OWNED Appendix 5

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Signature

Date

Declaration Jointly Owned ARS Files

REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved OMB NO

0581-0055

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, researching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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T0 file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY PLANT
VARIETY PROTECTION OFFICE BELTSVILLE, MD 20705

EXHIBIT F DECLARATION REGARDING DEPOSIT

U.S. Government as Represented by the Secretary of Agriculture	1400 Independence Ave., SW Washington D.C. 20250	TEMPORARY OR EXPERIMENTAL DESIGNATION
		VARIETY NAME OR NUMBER
NAME OF ARS Breeder	Location where seed may be obtained	FOR OFFICIAL USE ONLY
		PVPO NUMBER

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Signature

Date

Declaration jointly Owned University Files

REPRODUCE LOCALLY. Include form number and date on all reproductions.
0581-0055

Form Approved OMB NO

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, researching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY PLANT VARIETY PROTECTION OFFICE BELTSVILLE, MD 20705

EXHIBIT F DECLARATION REGARDING DEPOSIT

University Information	University Address	TEMPORARY OR EXPERIMENTAL DESIGNATION
		VARIETY NAME OR NUMBER
NAME OF University Breeder	Location where seed may be obtained	FOR OFFICIAL USE ONLY
		PVPO NUMBER

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Signature

Date

U.S. DEPARTMENT OF AGRICULTURE **APPENDIX 5**
 AGRICULTURAL MARKETING SERVICE
 SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE
 APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The Following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER The U. S. Government as represented by the Secretary of Agriculture		2. TEMPORARY DESIGNATION OR <i>(Name or number)</i>	3. VARIETY NAME <i>(Name or Number)</i>
4. ADDRESS <i>(Street and No., or R..F.D. No., City, State, and ZIP Code, and Country)</i> 1400 Independence Ave., SW Washington D.C. 20250		5. TELEPHONE <i>(include area code)</i> (301) 504-6905	FOR OFFICIAL USE ONLY PVPO NUMBER
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION <i>(corporation, partnership, association, etc.)</i> U.S. Government		6. FAX <i>(include area code)</i> (301)504-5060	FILING DATE
8. IF INCORPORATED, GIVE STATE OF INCORPORATION N/A		9. DATE OF INCORPORATION N/A	

**SAMPLE COPY
Solely Owned**

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*

(Insert Lead ARS Breeder's Information)

**Richard J. Brenner
USDA, ARS, OTT
5601 Sunnyside Ave.
Beltsville, MD 20705-5131**

FILING AND EXAMINATION FEES:

F
E
S
R
E
C
E
I
V
E
D
\$
DATE
\$
DATE

CERTIFICATION FEE:

11. TELEPHONE (Include area code) (Insert ARS Breeder's number)	12. FAX (Include area code) (Insert ARS Breeder's fax)	13. E-MAIL (ARS Breeder's E-mail)
14. CROP KIND <i>(Common Name)</i> (Insert)	16. FAMILY NAME <i>(Botanical)</i> (Insert)	18. DOES THE VARIETY CONTAIN ANY TRANSGENES? <i>(OPTIONAL)</i> 0 YES X NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.
15. GENUS AND SPECIES NAME OF CROP (Insert)	17. IS THE VARIETY A FIRST GENERATION HYBRID? 0 YES X NO	20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? <i>(See Section 83(a) of the Plant Variety Protection Act)</i> 0 YES X NO <i>(If "no", go to item 23)</i>
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED <i>(Follow instructions on reverse)</i> <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety <i>(Optional)</i> <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner(s) Ownership <input checked="" type="checkbox"/> Exhibit F. Declaration Regarding Deposit <input checked="" type="checkbox"/> Voucher Sample <i>(3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)</i> 0 Filing and Examination Fee (\$4,382), made payable to "Treasurer of the United States" <i>(Mail to the Plant Variety Protection Office)</i>		21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? 0 YES 0 NO IF YES, WHICH CLASSES? 0 FOUNDATION 0 REGISTERED 0 CERTIFIED
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? 0 YES X NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. <i>(Please use space indicated on reverse.)</i>		22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? 0 YES 0 NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. D FOUNDATION D REGISTERED D CERTIFIED <i>(If additional explanation is necessary, please use the space indicated on the reverse.)</i>
24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT <i>(PLANT BREEDER'S RIGHT OR PA TENT)?</i> 0 YES X NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. <i>(Please use space indicated on reverse.)</i>		

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER

SIGNATURE OF OWNER

NAME <i>(Please print or type)</i> Richard J. Brenner		NAME <i>(Please print or type)</i>	
CAPACITY OR TITLE Assistant Administrator, ARS	DATE <i>Current Date</i>	CAPACITY OR TITLE	DATE

(See reverse for instructions and information collection burden statement)

ST-470 (02-06) designed by the Plant Variety Protection Office using Word 2003.

U.S. DEPARTMENT OF AGRICULTURE **Appendix 5**
 AGRICULTURAL MARKETING SERVICE
 SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
 (Instructions and information collection burden statement on reverse)

The Following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER The U. S. Government as represented by the Secretary of Agriculture and U. S. University name		2. TEMPORARY DESIGNATION OR (Name or number)	3. VARIETY NAME (Name or Number)
4. ADDRESS (Street and No., or R..F.D. No., City, State, and ZIP Code, and Country) 1400 Independence Ave., SW Washington D.C. 20250 <i>University Address</i>		5. TELEPHONE (include area code) (301) 504-6905	FOR OFFICIAL USE ONLY
		6. FAX (include area code) (301)504-5060	PVPO NUMBER
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) U.S. Government	8. IF INCORPORATED, GIVE STATE OF INCORPORATION N/A	9. DATE OF INCORPORATION N/A	FILING DATE

SAMPLE COPY
 Jointly Owned ARS Submits

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers)		FILING AND EXAMINATION FEES:
(Insert Lead ARS Breeder's Information) Richard J. Brenner USDA, ARS, OTT 5601 Sunnyside Ave. Beltsville, MD 20705-5131	University Rep's name and address	F E S R E C E I V E D
		\$ DATE
		CERTIFICATION FEE: \$ DATE

11. TELEPHONE (Include area code) (Insert ARS Breeder's number)	12. FAX (Include area code) (Insert ARS Breeder's fax)	13. E-MAIL (ARS Breeder's E-mail)
14. CROP KIND (Common Name) (Insert)	16. FAMILY NAME (Botanical) (Insert)	18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) 0 YES X NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.
15. GENUS AND SPECIES NAME OF CROP (Insert)	17. IS THE VARIETY A FIRST GENERATION HYBRID? 0 YES X NO	20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) 0YES (If "yes", answer items 21 and 22 below) X NO (If "no", go to item 23)
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner(s) Ownership <input checked="" type="checkbox"/> Exhibit F. Declaration Regarding Deposit <input checked="" type="checkbox"/> Voucher Sample (3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) <input type="checkbox"/> Filing and Examination Fee (\$4,382), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)		21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? 0 YES 0 NO IF YES, WHICH CLASSES? 0 FOUNDATION 0 REGISTERED 0 CERTIFIED
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? 0 YES X NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)		22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? 0 YES 0 NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. D FOUNDATION D REGISTERED D CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)
		24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? 0 YES X NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.
 Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
NAME <i>(Please print or type)</i> Richard J. Brenner		NAME <i>(Please print or type)</i> University's Signatory's Name	
CAPACITY OR TITLE Assistant Administrator, ARS	DATE <i>Current Date</i>	CAPACITY OR TITLE <i>(University's)</i>	DATE

(See reverse for instructions and information collection burden statement)

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U.S. DEPARTMENT OF AGRICULTURE [Appendix 5](#)
 AGRICULTURAL MARKETING SERVICE
 SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The Following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER University Name and The U. S. Government as represented by the Secretary of Agriculture		2. TEMPORARY DESIGNATION OR <i>(Name or number)</i>	3. VARIETY NAME <i>(Name or Number)</i>
4. ADDRESS <i>(Street and No., or R..F.D. No., City, State, and ZIP Code, and Country)</i> University address 1400 Independence Ave., SW Washington D.C. 20250		5. TELEPHONE <i>(include area code)</i> (301) 504-6905	FOR OFFICIAL USE ONLY PVPO NUMBER
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION <i>(corporation, partnership, association, etc.)</i> U.S. Government		6. FAX <i>(include area code)</i> (301)504-5060	FILING DATE
8. IF INCORPORATED, GIVE STATE OF INCORPORATION N/A		9. DATE OF INCORPORATION N/A	

SAMPLE COPY

Jointly Owned Univ. Submits

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. <i>(First person listed will receive all papers)</i>		FILING AND EXAMINATION FEES:	
(Insert University's Information)	(Insert Lead ARS Breeder's Information)	Richard J. Brenner USDA, ARS, OTT 5601 Sunnyside Ave. Beltsville, MD 20705-5131	F E E S R E C E I V E D \$ DATE
			CERTIFICATION FEE: \$ DATE

11. TELEPHONE <i>(Include area code)</i> (Insert University lead Breeder's number)	12. FAX <i>(Include area code)</i> (Insert University Breeder's fax)	13. E-MAIL (University Breeder's E-mail)
14. CROP KIND <i>(Common Name)</i> (Insert)	16. FAMILY NAME <i>(Botanical)</i> (Insert)	18. DOES THE VARIETY CONTAIN ANY TRANSGENES? <i>(OPTIONAL)</i> 0 YES X NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.
15. GENUS AND SPECIES NAME OF CROP (Insert)	17. IS THE VARIETY A FIRST GENERATION HYBRID? 0 YES X NO	

19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED <i>(Follow instructions on reverse)</i> <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety <i>(Optional)</i> <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner(s) Ownership <input checked="" type="checkbox"/> Exhibit F. Declaration Regarding Deposit <input checked="" type="checkbox"/> Voucher Sample <i>(3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)</i> <input type="checkbox"/> Filing and Examination Fee (\$4,382), made payable to "Treasurer of the United States" <i>(Mail to the Plant Variety Protection Office)</i>	20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? <i>(See Section 83(a) of the Plant Variety Protection Act)</i> 0 YES X NO <i>(If "no", go to item 23)</i>
	21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? 0 YES 0 NO IF YES, WHICH CLASSES? 0 FOUNDATION 0 REGISTERED 0 CERTIFIED
	22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? 0 YES 0 NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. D FOUNDATION D REGISTERED D CERTIFIED <i>(If additional explanation is necessary, please use the space indicated on the reverse.)</i>

23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? 0 YES X NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. <i>(Please use space indicated on reverse.)</i>	24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT <i>(PLANT BREEDER'S RIGHT OR PATENT)</i> ? 0 YES X NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. <i>(Please use space indicated on reverse.)</i>
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25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
NAME <i>(Please print or type)</i> University Signatory		NAME <i>(Please print or type)</i> Richard J. Brenner	
CAPACITY OR TITLE <i>University Signatory Title</i>	DATE <i>Current Date</i>	CAPACITY OR TITLE Assistant Administrator, ARS	DATE

(See reverse for instructions and information collection burden statement)

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REPRODUCE LOCALLY. Include form number and edition date on all reproductions.

FORM APPROVED OMB N 0581-0055.

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE		Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).	
EXHIBIT E STATEMENT OF THE BASIS OF OWNERSHIP			
1. NAME OF APPLICANT(S) U. S. Government as represented by the Secretary of Agriculture		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER Name or number	3. VARIETY NAME Name or number
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) 1400 Independence Ave., SW Washington D.C. 20205		5. TELEPHONE (include area code) (301) 504-6905	6. FAX (include area code) (301) 504-5060
SAMPLE - ARS SOLELY OWNED Appendix 5		7. PVPO NUMBER	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate Block. If no, please explain. YES NO
9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country. YES NO
10. Is the applicant the original owner? YES NO If no, please answer one of the following:
- a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
YES NO If no, give name of country
- b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
YES NO If no, give name of country
11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):
 "This Variety is owned by USDA/ARS" **Provide additional information as needed.**

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41 (a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs, services and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

