Application and Examples of Best Practices in IP Management: The Donald Danforth Plant Science Center

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ABSTRACT

An independent nonprofit research institution, the Donald Danforth Plant Science Center has an international mission to address global challenges in human health, nutrition, agricultural sustainability, and the environment. The Danforth Center contributes to fulfilling this mission through collaborative research, training, and capacity building. As part of this objective, the Office of Technology Management and Scientific Partnerships at the Danforth Center, lead by the author of this chapter, has emerged as a leader in developing and implementing terms for humanitarian access to technology and has been actively involved in licensing enabling technologies for humanitarian projects. These activities include active participation and support for the creation of PIPRA, among other nonprofit organizations. The current chapter discusses the Danforth Center's philosophy with respect to the protection and sharing of IP (intellectual property) rights, the reservation of rights for humanitarian projects, and best practices to enhance and maximize value creation through technology licensing. The chapter provides examples of the Danforth Center's best practices and model documents for the establishment of interinstitutional and international collaborations and scientific partnerships. Included with the chapter are specific examples of the Danforth Center's humanitarian-use language, interinstitutional agreements, nonasserts, enabling technology licenses, memorandums of understanding (MOUs), and other framework documents.

1. INTRODUCTION

Founded in 1998, the Donald Danforth Plant Science Center (Danforth Center) is a not-for-profit research institute with a global vision to improve the human condition through plant science. This vision is exemplified in the Danforth Center's logo "Discover, Enlighten, Share and Nourish." Research at the Danforth Center includes efforts to enhance the nutritional content of plants, improve human health and well being, increase agricultural production for a sustainable food supply, preserve and renew our environment, and build scientific capacity and thereby contribute to economic growth in the developing nations of the world. The Danforth Center is built on the principles of collaboration and sharing. The center attains its goals through collaborations and scientific partnerships and continuously offers opportunities for scientific exchange and training, capacity building, technology transfer, and translational research.

2. THE DANFORTH CENTER AND IP RIGHTS

To begin, I would like to describe the Danforth Center's general philosophy regarding intellectual property (IP) and then, more specifically, address our philosophy on reservation of rights for humanitarian use. My individual philosophy is to protect and maintain the Danforth Center's IP rights to maximize value and potential for application while equally respecting the IP rights of others. We, at the center, expect in return no less

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than the same values and respect of our intellectual property. Inherent in this philosophy is the innate understanding that the center shall not violate or infringe the IP rights or misuse the materials and rights entrusted to the Danforth Center, even if the actions would involve no illegalities.

The Danforth Center's policies and objectives regarding intellectual property are consistent with those of the Public Intellectual Property Resource for Agriculture (PIPRA), which are to promote the management of intellectual property related to agriculture and to achieve freedom to utilize agricultural innovations for research, commercial use, economic development, specialty crops, and humanitarian purposes. In line with these objectives, the Danforth Center encourages the development of research innovations for use in agriculture while also retaining rights needed to fulfill the mission of research and product development for the broader public benefit. The center seeks to facilitate access to enabling technologies for research and commercial use and/or humanitarian purposes by our scientific collaborators and the international scientific community and work to identify strategies that effectively achieve these objectives.

3. THE DANFORTH CENTER: VISION AND PHILOSOPHY

3.1 *The vision*

The Office of Scientific Partnerships is a preferred and valued partner for plant-science research and collaboration, recognized and respected internationally for its research integrity and innovative policies and practices for the protection, management, and stewardship of intellectual property rights. The office strives to be:

- a world-class provider and developer of novel cutting-edge solutions seeking to meet global challenges in agriculture, the environment, and human and animal health and nutrition
- an engine and catalyst for economic growth and the creation of wealth and value from the intellectual and human capital and a return on the research investment of the Danforth Center
- a recognized leader at facilitating national and international research collaborations and public–private partnerships that bring the world closer together.

In all agreements between the Danforth Center and public and/or private institutions, the Danforth Center strives to reserve and protect the IP rights conceived and reduced to practice directly by Danforth Center staff or jointly with researchers from partnering institutions.

3.2 *The Danforth Center and developing countries*

An integral part of the center's philosophy relates to the desire to be able to share in the benefits of research and discovery endeavors with developing nations. This includes providing assurances that all parties benefit from the intellectual property developed through the center's collaborations and scientific partnerships. To ensure that the Danforth Center retains and maintains the rights to use technology developed by Danforth Center researchers or through collaborations, the center includes a section in sponsored-research and license agreements that provides for the reservation of rights to use technology developed for the benefit of poor and underserved peoples of the developing nations. Under these provisions, the Danforth Center and our cooperators retain the rights to develop, have developed, produce, have produced, distribute and/or have distributed (in other words commercialize) the products of our basic and applied research and our joint collaborative research and to share this freely with partnering organizations in developing countries.

In each agreement, the detailed terms may be modified to reflect the interests and needs of the parties and to achieve a mutually beneficial relationship. The terms of licensing reflect our interest in maximizing the opportunities to capture and create value from our intellectual pursuits and ensure that the benefits of our scientific research will benefit the broader international community, especially addressing grand challenges in health, nutrition, and the environment in developing countries.

This philosophy is exemplified by the center's policy not to grant broad worldwide exclusive licenses to its technology that could limit the center's ability to create the maximum benefit from any intellectual property conceived by the researchers and through collaborative research projects, as well as from any technology developed through these activities. Instead, the center grants only nonexclusive or limited exclusive licenses and, further, restricts the license rights granted to specific and/or limited fields-of-use, specific crops, and specific territories. Thus, the center retains the maximum opportunity to exploit the technology.

3.3 *Facilitating access to new technologies*

Traditionally, technology transfer and IP rights in agriculture have centered around intensive agriculture in the developed countries and reflect the commercial forces and drivers that dictate a focus on commercially relevant agricultural priorities and targets for commercial crops in the developed nations. From these research activities, new technologies are developed including enabling and platform technologies, which may have relevance in addressing needs in the developing world. Access to this "developed country technology" has been the target of many foundations and organizations focused on humanitarian efforts and programs. These programs aim to facilitate transfer of the technology to developing countries, including making IP rights and materials available to these countries. PIPRA and other groups are playing a key role in facilitating access to such technologies, while still protecting the IP assets of the inventor's institution for use in commercial agriculture, both for major crops and for minor or specialty crops.

The goals of much of the Danforth Center's research and the research of the center's scientific partners seek to address specific agronomic and nutritional targets of the highest priority and importance in developing countries that offer the greatest potential benefit to resource-poor subsistence farmers in these countries. These targets include increasing the yield of staple crops, decreasing the need for chemical pesticides in agriculture, increasing crop resistance to pests and pathogens, increasing tolerance to abiotic stresses such as drought, salinity and cold, increasing food quality and food safety, and enhancing nutritional content of staple and subsistence crops. From the results of our research and our research partnerships, intellectual property may be created that also has commercial value in the developed nations.

4. GLOBAL PERSPECTIVE

Value is enhanced by retaining the rights and options to apply and to make the technology available in as many ways, in as many applications, in as many markets, and in as many territories as possible. To accomplish this, the center does not generally grant options for an exclusive and/or worldwide license to Danforth Center or to joint intellectual property. Our policy and practices encourage granting options to license and licenses on a nonexclusive basis to use, make, and sell products incorporating the technology and to further segment and limit these licenses to specific applications of the technology, to specific fields-of-use, and to specific territories. In the latter case, these may actually provide limited and defined exclusivity to the licensee. The use of nonexclusive licenses or limited licenses enables the broadest application of the technology and does not prematurely limit the benefits of the technology either for humanitarian or commercial use.

Unfortunately, access to innovative and enabling technologies is too frequently restricted by the granting of exclusive and often worldwide options and licenses to the private sector. Such restrictive terms mean that promising technologies may be inaccessible to address developing country needs. In some cases the technology may be shelved to prevent access by competitors, while in other cases access may be hindered by fiduciary, liability, and stewardship considerations. The need for indemnification and technology stewardship frequently forms a major barrier restricting open access to enabling and platform technologies. As part of the activities of the Danforth Center, the staff is attempting to find innovative strategies to reduce these barriers and to facilitate access to technology for both humanitarian and commercial purposes.

Box 1 represent examples of general language for a reservation of IP rights for humanitarian purposes (with a specific focus on developing countries) incorporated by the Danforth Center into its research and license agreements (specific language was taken from sponsored research agreements and/or license agreements).

Agreements must also provide for the indemnification of technology providers and for technology stewardship. Here is an excellent example:

Agreement Relating to COMPANY Patent Rights and to PROJECT/TRAIT Between COMPANY and the Donald Danforth Plant Science Center:

5.1 Danforth Center agrees to indemnify and hold COMPANY and its employees, directors, officers and agents harmless against any and all claims, losses, liabilities or expenses (including court costs and reasonable fees for attorneys and other professionals) on account of any injury or death of persons or damage to property to third parties or to COMPANY caused by, arising or alleged to arise out of Danforth Center's or DEVELOPING COUNTRY COLLABORATING INSTITUTION's activities under or in connection with this Agreement. Such right of indemnification under this Agreement shall be in addition to, rather than to the exclusion of, the rights of COMPANY at law or in equity. The

Box 1: Danforth Center's Reservation of IP Rights for Humanitarian Purposes

Terms from the Article on Intellectual Property:

DANFORTH CENTER shall retain the right to use Danforth Center IP and Joint IP for both academic and commercial research purposes, which shall include the right to use such technology for the benefit of countries eligible for International Development Association funds as reported in the most recent World Bank Annual Report ("Developing Countries"). Such use of any Danforth Center IP and/or Joint IP for such humanitarian purposes shall require sixty (60) days written notice to SPONSOR of DANFORTH CENTER's intent to so use such Danforth Center IP and/or Joint IP.

Terms from the Article on Grant of Rights:

DANFORTH CENTER and SPONSOR shall diligently and in good faith negotiate the terms of any such license(s), provided, (a) any such license shall contain the terms set forth in Appendix [__], attached hereto, and (b) the parties shall in good faith negotiate provisions for preserving the availability of Danforth Center IP and/or Joint IP for meeting the needs of Developing Countries. Such option shall extend, on a patent application by patent application basis, for one (1) year after the filing of a utility patent application to protect Danforth Center IP and/or Joint IP, or for one (1) year from the termination of this Agreement, whichever is sooner (the "Option Period"), and may be exercised at any time during such period by SPONSOR in its sole discretion.

Terms from the Article on Options and Licenses:

Humanitarian Use Clause and Research Exemption. Notwithstanding anything herein to the contrary, the Parties agree that each of the Parties shall have and retain the right under Project Information and Project Patents to use Project Information for research purposes. In the case of Danforth Center this right shall be limited to the right to use such technology in research by or under the control of Danforth Center for the benefit of countries eligible for International Development Association funds as reported in the most recent World Bank Annual Report ("Developing Countries"), and the right to work with other not-for-profit Third Parties in connection with such research, and to publish the results of such research subject to the confidentiality, nonuse and nondisclosure provisions of this Agreement, provided that, Danforth Center shall grant no rights under the results of such research to any Third Party. Each Party shall provide the other Party at least sixty (60) days prior written notice of its intention so to use any Project Information.

provisions of this paragraph will survive the term or termination of this Agreement for any reason.

5. TECHNOLOGY TRANSFER

To understand the Danforth Center philosophy regarding technology transfer, it is critical to keep in mind that the driving objective is to facilitate and enable access to technology and materials. Therefore, within this context, several examples of different agreements that facilitate such access and enable the center's ability to share its technologies with collaborators and others are of specific interest. Pertinent examples include approaches for facilitating/enabling technology access, such as the *enabling technology license* and the *letter of nonassert*. In addition, although generic material transfer agreements (MTAs) are commonly available, an example is included here, as some of the specific terms are useful when there are limitations on the transfer of enabling technologies or grant-back rights to the technology provider.

Before considering any detail regarding specific strategies and practices to facilitate access to enabling technologies, the following should be noted: According to U.S. Patent Law, without the explicit right or grant of license to do so, the transfer by an entity within the United States of patented materials (that is, product or process inventions protected by a U. S. patent) or components thereof that could be used to reconstruct the patented technology to another party, even if this party is in a country in which the materials are not patented, might constitute an act of infringement by the provider, but not necessarily the recipient, of the patent rights of the patent holder. However, this possibility depends on whether, or not, pertinent patent rights have been exhausted via legitimate sale of the patented item(s). Thus, this issue needs to be carefully considered with respect to any transfer of tangible property pursuant to an MTA (that is, the omnipresent possibility of third-party IP rights embedded in the transferred materials, for example patent rights). In some cases, MTA's may have grant-back obligations based on requirements of the provider or third party requirements.

Examples of these more-restrictive MTA requirements are provided below:

- Research Materials represent a significant investment on the part of Danforth and/or Providers and are considered proprietary to Danforth and/or Providers. Recipient therefore agrees to retain control over this Research Material and further agrees not to transfer the Research Materials to third parties without advance written approval of Danforth. Under no circumstances should materials be transferred outside the United States or to an agent acting on behalf of a foreign country, except as permitted by U.S. export control laws. Recipient agrees to give Danforth reasonable advance written notice of any proposed transfer of Research Materials outside the United States or to an agent acting on behalf of a foreign country. Danforth reserves the right to distribute the Research Material to others and to use it for its own purposes. Nothing in this Agreement will prevent Recipient from engaging in any activity with regard to material that is obtained from a source other than Danforth.
- The Research Materials will be used for internal research purposes only and specifically for the Research Project as described above and in detail in the Description of Research Project, appended hereto and incorporated herein.
- Recipient will provide Danforth with a written semi-annual report ("Research Report") of the progress and results of the Research Project and the Recipient's experience in using Research Materials. The Research Report shall be due six (6) months from the ***Effective*** Date of this Agreement and every six (6) months thereafter with a final report due upon termination of this Agreement. Each Research Report should be provided to the attention of Dr. Karel R. Schubert, at the address included herein. Danforth may compile information contained in such Research Report for distribution among the members of the Consortium with appropriate attribution and acknowledgement.

- Nothing in this Agreement is intended to prevent publication of results of Recipient's research. Recipient will provide to Danforth, at least sixty (60) days in advance of submission or disclosure, an electronic copy for review of any abstract, presentation or manuscript describing the progress or results of the Research Project or Recipient's use of the Research Materials ("Publication") to be submitted for publication or otherwise publicly disclosed. Danforth agrees to a timely review of such proposed Publication by Recipient disclosing any confidential information of Danforth and/or Providers, as defined herein, and/or any Improvement (as defined in Section 9 hereof) for which Danforth and/or Provider may wish to seek intellectual property protection. Recipient agrees to remove, at Danforth's sole request, any confidential information and to delay publication for up to an additional thirty (30) days to permit filing for intellectual property protection on any Improvement. Public disclosures of research results will acknowledge Danforth's and/or Provider's contribution of Research Materials, in the accepted style, as appropriate under the circumstances. While Danforth does not transfer ownership of the Research Materials to Recipient, should Recipient's use of Research Materials result in patentable inventions, Recipient agrees to promptly provide Danforth with an enabling disclosure at least thirty (30) days prior to submission for public disclosure for Recipient and Danforth to determine the need to seek statutory protection.
- Recipient may make modifications or enhancements ("Improvements") to Research Materials during the course of the Research Project. Recipient understands and agrees to promptly notify Danforth of any such Improvements of Research Materials (whether or not patentable) that Recipient makes to Research Materials within no more than ninety (90) days of making such Improvement and to keep Danforth timely informed of any applications to obtain intellectual property protection to the extent claiming such Improvements. Such notification may be through (i) submission of the required semi-annual Research Reports to Danforth; (ii) through submission of Publications to Danforth for review; or (iii) through written notification to Danforth.
- In consideration of the contribution of Research Materials, Recipient grants to Danforth a royalty-free license, with the right to grant sublicenses to make and use such Improvement, and products and processes developed from or incorporating such Improvement for internal research purposes.
- Recipient grants to Danforth an option, for one (1) year following Danforth's receipt of written notification of an Improvement, to obtain a royalty bearing nonexclusive commercial license, with the right to grant sublicenses to make, use, import, offer for sale, or sell products, and processes incorporating such Improvement. The terms of the license will be negotiated with diligence and in good faith among and between the Parties at the time Danforth, at its sole discretion, elects to exercise its option. The Danforth is under no obligation to negotiate or enter into any definitive agreement with Recipient with respect to licensing.

6. PARTNERSHIPS AND IP RIGHTS

This sections explains the center's philosophy regarding the creation of scientific partnerships, collaborations, and alliances and provides some of the key elements of these agreements as they relate to IP rights and humanitarian use. Most research collaborations start with the signing of a general memorandum of understanding and agreement (MOA) between the parties (Box 2). These agreements are generally nonbinding and reflect the intent of the parties to enter into more definitive agreements. The key elements of these agreements include the statement of purpose and the intent of the parties to enter into more definitive agreements. Examples of two such generic MOA's are provided as supporting materials. Also included is

Box 2: Extracts of a General Memorandum of Understanding between an Institution and the Danforth Center

Considering:

1. Recent contacts established between the two organizations;
2. The expressed desire by the authorities of both organizations to establish long-term, fruitful collaboration in fields of common interest including improvement of cassava and sweet potato.
3. The anticipated benefits of such collaboration promoting agricultural research-for-development in Sub-Saharan Africa, among others, through advances in applied plant biotechnology and the exchange of scientists and students, hence broadening the relative expertise of each organization;
4. The prospects and mutual benefits from the potential expansion of our respective expertise as well as our financial resources base.

The Parties agree as follows:

Article 1: INSTITUTION and Danforth Center (the "Parties") agree to explore opportunities for funding of collaborative projects, and once funding opportunities are identified, to jointly develop proposals for scientific research, development, and technology transfer in areas of interest for sustainable agriculture and development in Sub-Saharan Africa.

Article 2: Each one of the parties involved can initiate the search for request for proposals, and the development of such a proposal.

Article 3: This memorandum of understanding does not prevent any party from initiating and finalizing separate bilateral (or multilateral) agreements with other institutions. Nonetheless, both parties may continue to inform each other, as appropriate, about separate collaborative agreements in areas of mutual interest.

Article 4: Each one of the collaborative projects developed under this memorandum of understanding (the "MOU") will be the subject of a specific addendum to this MOU, where the resources and responsibilities of each party or partner will be clearly defined.

Article 5: Each organization will designate a member of the institution's staff to be responsible for the management and completion of each specific project. The development of any proposal will be a joint effort where full participation between scientists from both institutions is expected.

Article 6: As projects are jointly developed, both organizations will endeavor to successfully complete the collaborative research project.

Article 7: Pending availability of funds, and to the extent possible, both organizations will promote exchange of relevant technologies and interaction and cooperation amongst personnel from each organization.

Article 8: To the extent possible, each organization will grant visiting scientists, students and trainees from the other partner institution all facilities, privileges and responsibilities that it normally grants to its own personnel, students and trainees.

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a general letter of intent used for the creation of a multi-institutional alliance or partnership.

At the Danforth Center, the next stage in the development of a scientific partnership and research collaboration between different institutions is the creation of an interinstitutional agreement (IIA) to serve as a broader umbrella agreement. The IIA provides background information on the interests of the participating organizations and general information on the purpose of the collaboration. The IIA generally does not include details about specific projects individuals are involved in, as these details are covered in subsequent, more-definitive agreements. The IIA does provide details on the general principles of confidentiality, ownership and rights of the parties, IP management practices and IP protection, financial considerations including sharing of patent costs, publications and authorship, the use of marks and publicity, handling of disputes, and the sharing of value derived from jointly created intellectual property along with other general terms.

As IP rights and ownership are essential considerations of any such agreement, the center's philosophy, as expressed in all such agreements, is that the parties, whether public or private, involved in the collaboration and pursuant to the creation of joint IP rights shall jointly own such intellectual property (with the relevant limitations of joint ownership) and shall share equally in any value created through the use and/or licensing of such technology, unless the parties mutually agree (either beforehand or

Box 2 (continued)

Article 9: The Danforth Center is not a degree-granting institution. When the exchange involves students who are interested in enrolling in coursework as part of a degree program within a local institution with the intent of obtaining an academic degree, the candidates must comply with the normal conditions of admission and candidacy within said degree-granting institution for the stated degree.

Article 10: All rights to data, including laboratory and field notebooks, and material contained in such notebooks, and research results (including formal or informal reports) and products ensuing from partnership projects between both parties, shall belong jointly to INSTITUTION and the Danforth Center.

Article 11: Both parties consider that excluding others from accessing research products and results from their joint research-for-development is contradictory to their mandate and mission. Therefore, INSTITUTION and the Danforth Center agree not to secure patents or plant breeders' rights from their partnership research unless such protection is deemed necessary to keep these materials or technologies available and freely accessible to its beneficiaries.

Article 12: Each of the parties reserve the rights to develop and commercialize the products and results from their joint research for use by small farmers.

Article 13: This memorandum of understanding will be effective upon signature by designated representatives from both organizations.

Article 14: This memorandum of understanding will be effective for a period of three years and will be renewed for the same period upon mutual consent of both parties.

Article 15: This memorandum of understanding can be modified, discontinued, or cancelled, by written notification of either party, at least six months prior to the effective date of suspension. If specific projects are ongoing at that time, the terms for their termination will be negotiated.

subsequent to the invention) to a different formula for value sharing based on, for example, differences in the intellectual and/or financial contributions of each party and/or the party's employees. It is inherent in these agreements that the terms for any value sharing between the institutions and their inventors will be determined by the respective institutions and will be revenues and royalties that will be split and distributed according to defined principles and formulas of the inventors' parent organization. The parties also agree to define the strategy and lead organization for the management of the intellectual property, including filing, prosecution, and maintenance of patents, marketing and licensing the technology, and how costs for protecting intellectual property will be shared. These key general practices and considerations are addressed upfront in the umbrella agreement and then specific details and/or modifications may be incorporated into the subsequent, definitive project-specific agreements.

An example of the generic IIA used by the Danforth Center is included in its entirety in the supplemental materials.[1] Excerpts from this generic IIA are represented in Box 3 at the end of the chapter, as they relate to some of these key elements. These excerpted, sample articles provide an overview of how such a document forms the basis for the general umbrella agreement and forms the framework for specific agreements. As such these sections can thereby be incorporated into the specific agreements. Once a technology is developed, a nonconfidential disclosure may be developed to aid in marketing joint technology. An example of a nonconfidential disclosure is included in the supplemental materials.

7. CONCLUSIONS

The Danforth Center regards its role in international development as a critical component of its overall mission, which categorically involves promoting the transfer of technological innovations arising out of the R&D efforts at the Danforth Center to developing countries around the globe. Protecting and managing intellectual property, regardless of whether it is owned by the Danforth Center, its partners/collaborators, or other third-parties, is interwoven into this process of technology transfer. Thus, IP rights, managed effectively, efficiently, and strategically, represent a mechanism for facilitating this process. Within this context, individuals at the Danforth Center have strived to organize and then implement an integrated, comprehensive and adaptable system for best practices in managing IP rights. The examples of agreements presented in this chapter are a manifestation of this system. They provide practical examples that other institutions might wish to emulate. ■

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1 The following agreements from the Danforth Center are available on www.ipHandbook.org:

- MOU Examples
- Alliance Letter of Intent
- Enabling Technology License
- Letter of Nonassert (LONA)
- Interinstitutional Agreement (IIA)
- Nonconfidential Disclosure

Box 3: Excerpts from an Interinstitutional Agreement

Article 1. Purpose and Scope of Agreement

1.1. The purpose of this Agreement is to provide a contractual framework to govern collaborative research projects and other forms of collaboration undertaken by the Danforth Center and Collaborating Institution and is intended to apply in the absence of separate agreements between the Institutions governing specific cases.

1.2. In the event of any conflict or inconsistency between the provisions of this Agreement and the provisions of a separate agreement between the Institutions governing a specific matter, the provisions of such separate agreement shall control with respect to such matter.

Article 2. Definitions

"Developing Countries" means the countries eligible for International Development Association funds as reported in the most-recent World Bank Annual Report as of the date applicable to such determination, or the substantively equivalent designation by the World Bank if such report is no longer published.

"Joint Intellectual Property" means any Intellectual Property made or obtained jointly by Researchers of both the Danforth Center and Collaborating Institution or jointly owned by both Institutions by agreement or under applicable law.

Article 3. Material Transfer

3.1. From time to time a Researcher at either Institution may wish to request from the other Institution the transfer of certain Research Information or Research Material for research purposes. Both Institutions agree to use their reasonable efforts to cause each such request to be made by and to their respective Technology Management Offices and in accordance with such procedures and forms of written agreements as each Institution may establish from time to time for transferring material to, or receiving material from, another institution. In the event of any conflict or inconsistency between the terms of this Article and any separate written agreement between the Institutions that pertains specifically to a particular transfer of Research Information or Research Material, the terms of such separate agreement shall control with respect to that particular transfer of Research Information or Research Material.

3.2. In the event that, notwithstanding the foregoing, Research Information or Research Material is in fact transferred at any time from one Institution (the "Provider") to the other Institution (the "Recipient") without a written agreement between the Institutions relating specifically to such transfer, the terms of this Article shall govern each such transfer.

3.3. The Recipient shall have a nonexclusive, royalty-free license to use the Research Information or Research Material only in connection with academic and noncommercial research conducted by the Recipient. Research Material shall not be used in humans. The Recipient shall comply with all applicable laws, rules and regulations applicable to the use and handling of the Research Information and Research Material.

3.4. The Recipient shall not transfer the Research Information or Research Material to a third party except for academic and noncommercial research and the Recipient agrees to promptly notify the Provider of each such transfer.

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Box 3 (continued)

Article 4. Confidential Information

4.1. In the event that Research Information or Research Material is also Confidential Information as defined above, then the provisions of this Article shall apply to such Confidential Information, notwithstanding the provisions of Article 3 with respect to Research Information and Research Material.

4.2. Each Institution agrees to use its reasonable efforts to obtain, or to assist the other Institution in obtaining, from each Researcher, employee and contractor of such Institution who receives Confidential Information from the other Institution, an agreement that such Researcher, employee or contractor: (a) will maintain such Confidential Information in the confidence normally accorded to internal confidential materials of the Researcher's own Institution, but in any event using not less than reasonable care; (b) will not use the Confidential Information for any purpose other than academic and noncommercial research at such Researcher's own Institution; (c) will not disclose the Confidential Information to others, other than to other Researchers at such Researcher's own Institution, making them aware of the confidentiality obligations under this Agreement; and (d) will not make any copies of the Confidential Information composed of Research Materials without the other Institution's prior written permission.

4.3. It is also agreed that each Institution will return or destroy the Confidential Information received from the other Institution within 60 days after the disclosing Institution so requests. Notwithstanding the foregoing, each Institution shall be entitled to keep one copy of the other Institution's Confidential Information which must thereafter be restricted to use for legal purposes as a record of the Confidential Information returned under this Agreement.

Article 5. Ownership of Intellectual Property

5.1. Rights to all Danforth Intellectual Property shall vest according to the policies of the Danforth Center relating to such Danforth Intellectual Property.

5.2. Rights to all Collaborating Institution Intellectual Property shall vest according to the policies of Collaborating Institution relating to such University Intellectual Property.

5.3. All Joint Intellectual Property shall vest according to applicable principles of United States law and the policies of the respective Institutions as applicable to the legal interests and rights of each such Institution in and to such Joint Intellectual Property.

Article 6. Patents and Other Protection of Intellectual Property

6.1. The Danforth Center shall be responsible for all decisions and costs relating to the preparation, filing, prosecution, and maintenance of U.S. and foreign patents and patent applications and other forms of protection with respect to Danforth Intellectual Property and for the selection and compensation of legal counsel and other representatives with respect thereto.

6.2. Collaborating Institution shall be responsible for all decisions and costs relating to the preparation, filing, prosecution, and maintenance of U.S. and foreign patents and patent applications and other forms of protection with respect to University Intellectual Property and for the selection and compensation of legal counsel and other representatives with respect thereto.

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Box 3 (continued)

Article 7. Identification of Prospects for Commercial Development

7.1. The Institutions agree to form a "Joint Marketing Team" for the purpose of collaborating in the identification and pursuit of prospects for the commercial development of Danforth Intellectual Property, University Intellectual Property and Joint Intellectual Property. The Joint Marketing Team shall have an equal number of persons appointed by the Technology Management Office of each Institution. Each Institution shall have the right to change any or all of its representatives on the Joint Marketing Team at any time and from time to time, upon written notice to the other Institution. A quorum of the Joint Marketing Team shall consist of not less than a majority of the members of the Joint Marketing Team, provided that at least an equal number of members appointed by each Institution are present.

7.2. The Joint Marketing Team shall have the following responsibilities:

(a) to stay informed on the research being conducted by Researchers at each Institution in plant biology and its application to sustainable productivity in agriculture, forestry and allied fields;

(b) to stay informed on current developments in, and prospects for, the commercial application of technologies resulting from research in the plant sciences;

(c) to evaluate the prospects for commercial development of the research in the plant sciences being conducted by the Researchers at each Institution;

(d) to identify opportunities for the commercial development of Danforth Intellectual Property, University Intellectual Property and Joint Intellectual Property, and to promptly bring such opportunities to the attention of the Technology Management Offices of the respective Institutions;

(e) to identify future research projects that could be carried out by Researchers at one or both Institutions for which there is a favorable prospect of commercial development; and

(f) to identify and pursue funding support for the conduct of such research projects by Researchers at one or both Institutions.

Article 8. License Grants and Revenue Sharing

8.1. The Danforth Center shall be responsible for all decisions and costs relating to the grant of licenses with respect to Danforth Intellectual Property and shall, as between the Institutions, be entitled to retain all revenues derived therefrom.

8.2. Collaborating Institution shall be responsible for all decisions and costs relating to the grant of licenses with respect to University Intellectual Property and shall, as between the Institutions, be entitled to retain all revenues derived therefrom.

Article 9. Reservation of Use for Research and for Developing Countries

9.1. Each Institution shall have the right to use Joint Intellectual Property for both academic and research purposes, including research conducted with corporate, governmental, or other external sponsorship.

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Box 3 (continued)

9.2. Each Institution shall have the right to use Joint Intellectual Property for the benefit of Developing Countries, and shall have a nonexclusive, royalty-free, irrevocable license, under such right, title and interest as the other Institution may have in and to the Joint Intellectual Property, to make, use, sell, offer for sale, import, or practice any Joint Intellectual Property within the Developing Countries, with the right to grant further sublicenses thereunder within the Developing Countries. The license granted hereunder includes any patent applications and issued patents claiming priority from, or the benefit of, the Joint Intellectual Property, and any reissues, extensions, substitutions, continuations, divisions, or continuations-in-part derived therefrom, or any foreign patents and patent applications corresponding thereto. In specific cases the Institutions may agree in writing to limit the license granted hereunder to specified fields of use or to one or more specified Developing Countries.

9.3. Each Institution agrees that any licenses granted by it to third parties with respect to any Joint Intellectual Property shall make provision for preserving the availability of such Joint Intellectual Property for meeting the needs of Developing Countries.

Article 10. Publications and Publicity

10.1. Recognizing each Institution's desire to publish previously unpublished Research Information, and each Institution's desire to develop the results of research for the earliest introduction to the public, each Institution agrees to submit to the other Institution copies of proposed publications or presentations as follows:

(a) each manuscript or details of each proposed public oral presentation first disclosing Joint Intellectual Property or disclosing Confidential Information of the other Institution shall be submitted to the Technology Management Office of the other Institution at least 30 days prior to submission for publication or the date of the proposed public oral presentation; and

(b) each abstract first disclosing Joint Intellectual Property or disclosing Confidential Information of the other Institution shall be submitted to the Technology Management Office of the other Institution at least 14 days prior to its submission for publication.

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10.3. The determination of the persons who are to be identified as the authors of each publication or presentation that discloses Joint Intellectual Property will be made on a case-by-case basis.

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Box 3 (continued)

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