Responsible Use: Forest Biotechnology Principles

An Initiative of the Institute of Forest Biotechnology to protect the future of our forests

Initiative Title: Responsible Use: Forest Biotechnology Principles

Organization: Institute of Forest Biotechnology
920 Main Campus Drive, Suite 101
Raleigh, NC 27606
www.forestbiotech.org / www.responsibleuse.org

Phase	**Beginning**	**Budget**
I	January 1, 2008	$ xxxx
II	TBD	$ xxxx
III	TBD	$ TBD

Manager Contact Information
Adam Costanza - President
P: 919.424.4464
E: adam.costanza@forestbiotech.org

Susan McCord – Executive Director
P: 919.424-4461
E: susan.mccord@forestbiotech.org

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Note:
Many of the pages in this draft initiative description are severable from the whole document and contain contact information on the bottom.

Abstract: Biotechnology is a being used as a tool to grow trees with special characteristics. When used responsibly, society and the environment can benefit from advanced tree breeding technologies, such as genetic engineering, to protect threatened species, remove contaminants from soil, and grow more products on less land. Genetically modified papaya and plum trees are being grown in the environment today, as are poplar trees in China. The next five years will be a time of rapid expansion for biotech trees throughout the world. These trees will be grown for fiber, food, fuel, and lumber production, but there are no long-term principles for their stewardship. Society needs a mechanism to determine which uses of this technology will bring benefit, and which might cause harm. Without Responsible Use principles, long-term management of these trees may never be addressed. Through science, dialogue, stewardship, and education, we can enhance the benefits of these trees while minimizing any risks.

Responsible Use: Forest Biotechnology Principles

An Initiative of the Institute of Forest Biotechnology to protect the future of our forests

The world needs principles for responsible uses of biotech trees

We are protecting the future of our forests. The Institute of Forest Biotechnology (IFB) will manage the development of Responsible Use principles for biotech trees by working with outside stakeholders, Initiative Sponsors, and Forest Biotechnology Partners. Currently, there are no internationally applicable principles that can ensure the long-term stewardship of biotech trees. Sustainable forest management schemes, government regulatory mechanisms, schools, and voluntary programs all need these principles as part of a program to protect the future of our forests.

Biotech Trees:
The IFB defines biotech trees as those developed using asexual propagation (commonly known as cloning), or genetic engineering (also called genetic modification).

While three genetically modified tree species, papaya, plum, and poplar, have legally been planted in the U.S. and China, there is an immediate need for principles that delineate the responsible uses of these and biotech trees of the future. The planting of advanced trees around the world will be unprecedented in the next five years. Demand for cellulosic fuels, renewable fiber, and building material, the need to grow disease resistant fruit trees, and the imperative to combat invasive species while mitigating a changing climate continue to put unprecedented resources into genetic tree research. When used responsibly, these technologies can improve growth rates and physical properties of trees. Forest biotechnologies can help relieve pressure on natural forests and grow healthier trees without negatively affecting our environment. But if used inappropriately, these technologies have the potential to harm ecosystems and society as a whole. Sustainable forest management mechanisms are a critical part of a plan to ensure trees are used to enhance the environment and provide renewable forest products for generations to come. Responsible Use principles are another critical part of this plan. Biotech trees are already being used today, yet every stewardship program in existence lacks detailed information about how to use these advanced trees responsibly.

The Institute of Forest Biotechnology will fill this void

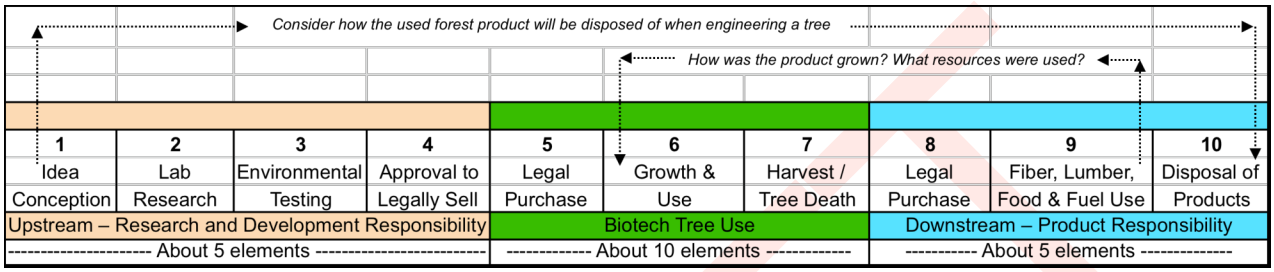
The IFB will manage the development of Responsible Use principles for biotech trees in a highly transparent, multi-stakeholder driven process. The Responsible Use initiative:

- Includes the entire value chain of biotech trees with principle-based verifiable elements
- Is highly transparent and multi-stakeholder driven
- Will increase assurance that forest biotechnologies are being used responsibly
- Will create teaching material to educate young students; forest stewards of the future
- Can not be used in place of sustainable forestry practices because it is not a certification scheme; but could be used to compliment other certification mechanisms
- Is designed to evolve with the science of biotechnology, societal demands on trees, and sustainable resource management techniques

This initiative will give society a set of principles that delineate what are responsible uses of biotech trees, and what are not. Users of the principles may include, but are not explicitly limited to: forest product companies, forest owners, purpose grown cellulosic forest fuel companies, government agencies, research and development organizations, nurseries, orchard owners, users of biotech tree products, private individuals, and organizations operating in countries where biotech trees are on the cusp of commercial use. Anyone interested in the long-term stewardship of biotech trees, or the future of our forests, will find these principles critically important.

Scope

The Responsible Use principles for biotech trees will encompass the entire value chain from idea conception, to disposal of products. Three discrete stages are identified relative to the planting and use of biotech trees: upstream, use, and downstream. It is critical that each stakeholder involved in the 10 value chain steps recognize the effects of decisions made elsewhere in the process.



Process steps in the biotech tree value chain:

Upstream – Research and Development Responsibility
1. Idea Conception: The beginning of the entire process
2. Lab Research: Testing ideas in a highly controlled, indoor environment. This step covers most lab and bench-scale work up to the point of planting a tree outside.
3. Environmental Testing: Testing trees outdoors in 'real-world' conditions while under strict control to keep genetic material from leaving the test site.
4. Approval to Legally Sell: This step is referring to situations where developers of biotech trees are given authority to sell the trees to another party that will plant and grow the trees in the environment without the need for strict control over genetic material.

Biotech Tree Use
5. Legal Purchase: This step begins with the legal purchase of biotech trees.
6. Growth and Use: Planting and growing biotech trees in the environment without the need for strict control over genetic material.
7. Harvest or Tree Death: The last step in the use stage is defined by tree death. The end of tree growth marks the end of issues associated with living genetic material.

Downstream – Product Responsibility
8. Legal Purchase: This step begins the product responsibility stage defined by the legal purchase or transfer of material produced by a biotech tree.
9. Fiber, Lumber, Food and Fuel Use: The in-use step of the forest product.
10. Disposal of Products: The last step in the value chain of biotech trees and encompasses disposal of forest products after their usable life.

The principles will be based on discrete elements that correspond to a step in the value chain. The total number of elements will be kept as concise as possible while still providing the structure needed to implement each one effectively and verify that the principle has been followed. Initial stakeholder feedback suggests that approximately 10 verifiable elements for the use stage and five elements for both the upstream and downstream stages are desirable.

The principles are intended to be flexible and not restrict innovation. While some aspects may be prescriptive, the overall intent is to produce verifiable performance-based criteria.

Educational Outreach

Forest biotechnology can be highly technical from a scientific standpoint. Extensive dialogue with a wide range of stakeholders shows that some uses of forest biotechnology are more controversial than others. At the same time that the tools of biotechnology are advancing to give us powerful tools to improve the health and resilience of our forests, our workforce of forest stewards is shrinking.

The IFB will work with educators to combine the work products and lessons learned from the Responsible Use initiative into a packaged teaching tool. This education module will target high school students and teach some of the basic science of biotechnology in forests, new technologies that can give forests resilience against changing climates, and scenarios that maximize social and environmental benefits by using biotech trees responsibly.

Though a professional educator will develop the ultimate approach and final product of this educational outreach component, the IFB plans to make the resulting material available online for wide dissemination and permanent availability to educators around the world at no charge.

The IFB is well suited to accomplish this aspect of the initiative because of its history with Project Learning Tree and the vast educational outreach capacities of its Forest Biotechnology Partnership. The IFB will leverage this Partnership and its universities that have established mechanisms to work with high school teachers to create this educational material.

The IFB will query its Partner universities in 2008 to determine the most effective mechanism already in place to expedite creation of the educational module. Working with a Partner university and high school teacher/s the module will be developed and tested in 2009. Translating the module into Portuguese and Spanish will give it a broader applicability in countries that may soon be using biotech trees. The module will be disseminated in as many languages as feasible and available for use no later than the launch of the first 'live' Responsible Use principles.

Please contact the IFB for additional information regarding the educational outreach component of the Responsible Use initiative.

Adam Costanza – President

P: (+1) 919.424.4464
E: adam.costanza@forestbiotech.org

Susan McCord - Executive Director

P: (+1) 919.424.4461
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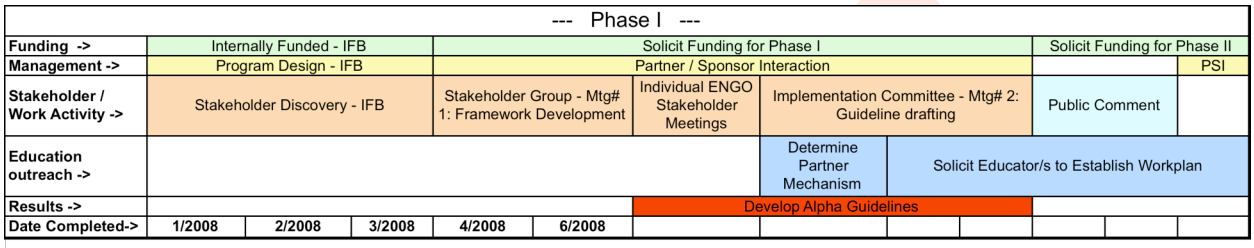
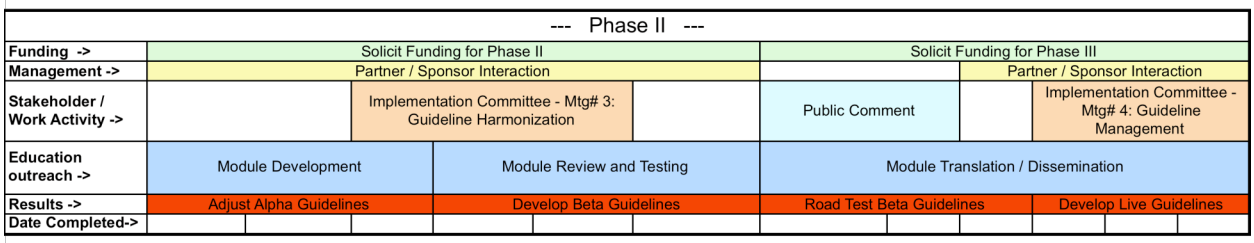
Timeline

The Responsible Use initiative will be managed by the Institute of Forest Biotechnology to be accomplished in three phases. The first two phases will require approximately one year each. The third phase will begin when the final set of principles is launched and the management framework of the initiative is complete. Initial feedback from stakeholders and internal scheduling puts the release of a first set of principles based on verifiable elements in early 2010. This aggressive schedule is contingent upon adequate stakeholder interaction and funding. It is reasonable to believe the principles could be developed sooner or later than currently planned. The timeline below shows the relative process for this initiative with additional information about the three phases further below.





Phase I (Alpha): An Implementation committee of experts from a broad stakeholder group will be convened. This committee will begin to consolidate the range of input gathered. Lead Editors will be chosen to work with the IFB, initiative sponsors, and the Forest Biotechnology Partnership to create a beta set of principles. The mechanism for the educational module will be determined and a work plan developed by a chosen educator. The beta set of principles will be given to a very broad set of stakeholders for feedback. The committee will also develop an approach for testing the principles in the next phase.

Phase II (Beta): Principles will be tested in applications as close to real-world uses as are available at the time. Results from these tests will be used to determine how to adjust the elements to be most effective. A set of operational principles will be produced and commented on by stakeholders. The educational module will be developed and tested to improve its effectiveness in teaching. The module will be translated and disseminated. The IFB and committees will develop a management plan for evolving the principles over time.

Phase III (Live): Participants will be sought to use the set of principles and provide feedback for ongoing adjustments. The educational module will be available online. This timeline, which is subject to revision as the initiative progresses, allows two years to create a live set. The IFB will continue to manage stakeholder interactions and update the principles.

Transparency

The entire process of developing the Responsible Use principles will be as transparent as possible without divulging proprietary information or details that would compromise the process of creating principles that benefit the environment and society.

All relevant material will be made available online at www.responsibleuse.org Public comments will be solicited electronically at that website as well during specific periods in the process. Stakeholders will be engaged from the five sectors of academia, tree growers and users, pubic interest, environmental organizations, and government. The IFB will pursue input from each of these stakeholder groups to ensure a balanced process. A broad spectrum of targeted stakeholders will be engaged from the beginning and surveys will be sent to additional parties if it is deemed necessary to get adequately broad input.

Initiative Management

The IFB is uniquely able to achieve the goals of this initiative. It is the only non-profit organization in the world to address the risks and benefits of forest biotechnologies, which include genetic engineering of trees. The IFB has the largest network of experts in this burgeoning field. In line with the IFB's other initiatives, the Responsible Use principles will focus on the social, ecological, and economic benefits and risks of using biotech trees.

The IFB has primary responsibility for the management of the Responsible Use initiative. The Implementation Committee's Lead Editor group and the IFB will create the Responsible Use Forest Biotechnology Principles. Input from a broad set of stakeholders and the general public will be addressed by the Implementation Committee and the IFB in a strong bottom-up process. Top-down management will include the IFB's Forest Biotechnology Partnership and Initiative Sponsors. The overall process will be highly collaborative and transparent as depicted below:

Sponsor Information

Sponsors of this initiative will remain involved in the ongoing activities of stakeholder engagement throughout the entire development of the principles. Sponsors play a central role in all of the Institute's initiatives by funding the science, dialogue, and stewardship activities necessary to support the responsible use of forest biotechnology.

The process and the development of the Responsible Use principles will be highly transparent. Sponsors will have access to interim work products and will be invited to each meeting of the initiative. Sponsors will not have more influence on the final elements than other key stakeholders, but they will have timely information and access to in-work products and draft material that is necessary for management of the initiative.

Some of the benefits of sponsoring the Responsible Use initiative include:

- Initiative ideas from sponsors will be addressed directly by the IFB or its Board of Directors throughout the development of the principles.
- Sponsors operate in a strategic planning role to the IFB on initiatives and organizational strategy.
- Sponsors will become Forest Biotechnology Partners at no additional cost with all the benefits and rights of other Partners of the IFB. The Partnership is international in scope and highly collaborative in approach. Organizations formally linked through the Partnership have direct access to the world's largest forest biotechnology information network in this burgeoning field. Please visit www.partners.forestbiotech.org for more information about the Forest Biotechnology Partnership.

While special circumstances are carefully considered, sponsorship levels start at $50,000 per year for this initiative.

The Institute of Forest Biotechnology reserves the right to discontinue interaction with sponsors at its discretion.

Please contact us for additional information about sponsoring the Responsible Use initiative, or about the management role of Initiative Sponsors with the IFB.

Adam Costanza – President

P: (+1) 919.424.4464
E: adam.costanza@forestbiotech.org

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Strategic Committees

The Institute of Forest Biotechnology uses ad-hoc committees to quickly gather information and feedback from key stakeholders. Ad-hoc strategic committees will be formed and immediately dissolved after the specific meeting as needed by the IFB to achieve the goals outlined in this initiative description.

Update Note: The initial stakeholder meeting of the Responsible Use initiative was a strategic meeting to begin framing the initiative on April 3, 2008 at the North Carolina Biotechnology Center in Research Triangle Park, North Carolina. Please visit www.responsibleuse.org for more information about this strategic meeting.

Implementation Committee

The implementation committee of the Responsible Use initiative will have the responsibility of assimilating information from all stakeholders and electing Lead Editors to write the principles. The committee will be comprised of experts filling the matrix below as completely as possible adhering to the regional and expertise areas targeted:

Country & Expertise	North America	South America	Europe	Africa	Asia
Academia					
Tree Growers / Tree Users					
Public Interest					
Environmental					
Government					
Merit Selected*					
The IFB	Staff				

** Merit selected individuals can be from any area of expertise*
- Blue boxes represent individuals that are also Lead Editors

If it is not feasible to find a person from a given region and area of expertise willing to participate on the committee, the IFB will seek representation from another region. If fully filled, there will be a maximum of 31 members on the Committee (30 plus the IFB). There must be a minimum of 20 members for adequately balanced representation.

Committee members will be chosen based on nominations by the IFB and the Forest Biotechnology Partnership to best balance representation on the committee. From this list of up to 30 selected individuals, six will be elected by the committee itself to form a Lead Editor group. This group plus the IFB, for a total of seven editors, will write the principles with extensive input from the entire Implementation Committee. The Lead Editors will be composed of one individual from each of the areas of expertise and adjust composition over time to achieve maximum effectiveness.

The IFB reserves the right to adjust composition of the Implementation Committee and Lead Editor group at its discretion.

Implementation Committee Position Description

Committee members will be responsible for developing the written principles of the Responsible Use initiative. Members will be chosen from each continent if possible and from five areas of expertise that includes: academia, tree growers and users, public interest, environmental, and government. There will be another expert from each continent that is selected based on their unique expertise and abilities to achieve the goals of the committee as described in more detail below.

Tasks of the Implementation Committee include the following:

- Work for the effective development of Responsible Use principles. Meaning, that only constructive and collegial work toward developing useful principles and adhering to the spirit of the Responsible Use initiative is appropriate.
- Consolidate suggestions from multiple stakeholders, public comment, and surveys.
- Participate in committee meetings in person or via electronic means.
- Meet deadlines for committee work products.
- Nominate six committee members, one from each area of expertise, to act as Lead Editors along with the IFB.
- Serve as liaisons to promote the development and use of the principles in their sphere of influence.

If a member fails to meet these requirements, they will be removed from the committee at the discretion of the IFB.

Implementation Committee members will not be financially compensated for their efforts. However, travel expenses for Implementation Committee members will be covered by the IFB for the international meeting currently planned for 2009. This meeting will most likely be held in South America where some of the first biotech trees are expected to be planted and used on a large scale.

If you are interested in being considered for a position on the Implementation Committee, please email a letter of intent to Adam Costanza or Susan McCord along with your resume, current area of focus, and any other pertinent information. The IFB in conjunction with its Forest Biotechnology Partners and Initiative Sponsors will decide on committee members on a rolling basis. The list of current Implementation Committee members is available online at: www.responsibleuse.org

Please contact us for additional information regarding the Responsible Use Implementation Committee.

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P: (+1) 919.424.4464
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Meetings and Work Products

Meetings will be designed to address needs as the initiative progresses. Based on initial stakeholder interactions and the current timeline, we anticipate four to six in-person meetings over two years to complete this initiative.

Update Note: The initial stakeholder meeting of the Responsible Use initiative was a strategic meeting to begin framing the initiative on April 3, 2008 at the North Carolina Biotechnology Center in Research Triangle Park, North Carolina. Please visit www.responsibleuse.org for more information about this strategic meeting.

The majority of these meetings will be a combination of gathering stakeholder input and Implementation Committee work. The first such meeting will require two days to gather the necessary input from environmental, public interest, and academic organizations. Implementation Committee members able to attend this meeting will help incorporate input into the alpha set.

Iterative work between the Implementation Committee, the IFB, Initiative Sponsors, the Forest Biotechnology Partnership, the public, and targeted stakeholders will produce the various draft principles previously described. In the early stage of Phase II, approximately half way through the guideline development process, a large international meeting will be held. This meeting will mark the beginning of the beta guideline development process. International input is critical to developing principles that are globally applicable. Having a pivotal meeting outside the U.S. will bring this initiative to a broader set of stakeholders.

Testing the beta principles in real-world situations, or as close as possible at the time, will give the Implementation Committee the feedback necessary to create a live set of principles. The live principles will be made available after a comment period and final approval.

The educational outreach portion of the initiative will begin in Phase I. The IFB will work with educators to combine the work products and lessons learned from the Responsible Use initiative into an education module targeted at high school students. The IFB its Partners and Initiative Sponsors will determine the most effective mechanism already in place to expedite creation of the educational module. The module will be disseminated in as many languages as feasible and available for use no later than the launch of the first 'live' Responsible Use principles.

The ongoing management of the Responsible Use principles will be determined by a strategic committee to be called near the end of Phase II. Initial stakeholder feedback suggests that a revision period of three to five years would be adequate. The pace of biotechnology research in trees, the speed at which biotech trees are adopted on public and private lands, and the scale at which these trees are used globally will affect how often the principles will need to be revisited.

Additional information about upcoming meetings will be available at www.responsibleuse.org as will meeting material after meetings are held and work products available to the public.

Responsible Use Initiative 2-Year Budget

Please contact us for additional information about the Responsible Use initiative budget.

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P: (+1) 919.424.4464
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