Food and Drug Administration approval. The *Aea*-TMOF expressing *B. bassiana* strain was effective against adults and larvae, causing a decrease in fecundity and abnormal development, respectively. Whether these effects would meet the standard for commercial application is at present unknown. Further experiments examining impacts on feeding and disease transmission as well as using combinations of host molecules may lead to additional products with greater exploitability. The recent expression of a malarial sporozoite-agglutinating antibody and antimicrobial toxin in the entomopathogenic fungus *M. anisopliae* has expanded the utility of fungal biological control in limiting the spread of diseases[15]. In theory, the approach described in this report can be combined with the expression of such factors, leading to biopesticides with greater efficacy, specificity and safety. Even so, concerns regarding the field application and release of transgenic organisms and the constraints to adoption, whether economic or related to efficacy, warrant further examination.

Note: Supplementary information is available on the Nature Biotechnology website.

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European discussion forum on transgenic tree biosafety

To the Editor:

Since the first published description of a genetically modified (GM) poplar by Fillatti and co-workers[1] in 1987, the environmental release of GM trees has spurred public debate worldwide, particularly in the context of commercialization. Although the issues raised in public discussion are similar in many countries, marked political differences have emerged in various countries as to the acceptability of field applications of GM trees, the amount of public funding devoted to GM tree research and the regulatory priorities regarding biosafety issues. Consequently, a large but diverse and fragmented body of knowledge on the environmental interactions and safety of transgenic trees and other (transgenic) organisms has been acquired over the past 25 years.

There is now an urgent need to compile, collate and analyze this scattered knowledge to create a unique platform of information related to GM trees particular to the European environment where nations seek consensus on GM issues (substantial equivalence, precautionary principle and so forth). This platform has now been created by the European Union (EU)-COST (Cooperation in Science and Technology) Action FP0905, entitled "Biosafety of forest transgenic trees: improving the scientific basis for safe tree development and implementation of EU policy directives."

The main objective of this COST action is to evaluate and substantiate scientific data relevant to the biosafety of GM trees. As a novel discussion forum, the action will therefore contribute to the scientific basis underlying future EU policy, regulation and safety assessment of GM trees. This is of particular importance, as most of the consensus documents on biosafety issues and approvals of transgenic organisms have been assembled for crop plants, not for forest trees. The information collected can be used to identify existing gaps in our knowledge and which warrant future scientific work, and to formulate scientific bases for EU policy directives that optimize development and use of GM trees so that biosafety issues are addressed.

With respect to risk assessment, perennial trees differ from agricultural crops in several important characteristics (e.g., complex ecosystems, long life cycles and domestication state). It is therefore very important to collect and collate the diverse databases on transgenic forest trees and make it available for review and synthesis and for those bodies charged with assessing safety (e.g., the European Food Safety Authority) and those institutions with responsibilities to evaluate GM trees intended for release into the environment and the marketplace (e.g., Ministries of the Environment and National Biosafety Committees).

This COST action will also expand the scientific assessment for the prioritization of new research directions to improve or develop novel tree genotypes for the worldwide increasing demand for fuel, fiber and energy. The ideal tree would be one that has a high biomass yield, grows easily in variable climate conditions and does not require high amounts of water, nutrients or aid to protect the trees' growth. Gene technology may offer the opportunity to reach some of these desired characteristics substantially faster than conventional tree breeding. The long-generation time for trees makes conventional crossing particularly impractical. Newly developed traits can also include increased pest resistance and improved post-harvest characteristics of biomass, biofuel and processability.

The COST Action FP0905 has been accepted by 26 EU countries participating in COST, one neighbor country, four non-COST countries with reciprocal agreement with COST, and three non-COST countries, for four years starting April 12, 2010 (http://www.cost-action-fp0905.eu). In the past year, additional COST countries from Latin America and Asia, and one international

organization have expressed interest in joining this COST action. To date, COST Action FP0905 is one of the top EU actions in terms of number of participating EU and non-EU countries. By integration of all these country positions, COST Action FP0905 will generate important benefits and synergies. This collaboration will be fundamental to building scientific consensus on safety issues, assisting in policy-making efforts and enabling the scientific community to respond to public concerns in a responsible way, with particular regard to socioeconomic implications, environmental impacts and other biosafety issues surrounding plantations of GM trees.

Considering that the "mission of the COST is to strengthen Europe in scientific and technical research through the support of European cooperation and interaction between research" (http://www.cost.esf.org/), the implementation of this action is an excellent instrument to stimulate a European-wide exchange and improvement of scientific knowledge on biosafety of GM trees.

As the first COST action on GM trees, it is timely, relevant and innovative, especially in the context of the existing debate in Europe on cultivation and commercialization of GM plants, given the increasing role that engineered crops and trees are seen to have in mitigating climate change and environmental phytoremediation. A wide exchange of scientific knowledge has now been initiated globally that provides a unique opportunity to develop a common scientific baseline for biosafety research and development of engineered trees. Parties interested in joining or taking part in the COST action FP0905 activities should e-mail the chair of the action, Cristina Vettori (cristina.vettori@cnr.it).

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Factors influencing agbiotech adoption and development in sub-Saharan Africa

To the Editor:

Despite the technical knowledge available for improving food security in sub-Saharan Africa (SSA), only three African countries (South Africa, Egypt and Burkina Faso) have commercialized biotech crops to date[1]. An important step toward improving agbiotech development and genetically modified (GM) crop adoption is to understand the factors that affect the transition of new agbiotech products from the product development stage, through commercialization to the hands of farmers and ultimate consumption by the population. As part of a broader study on a social audit preparation for the Water Efficient Maize for Africa Project, we conducted 91 interviews with agbiotech stakeholders from a diverse range of groups within five SSA countries (**Supplementary Methods**). Analysis of the recordings of these interviews revealed four recurring factors that appear to influence agbiotech development in SSA: communication, culture and religion, capacity building and commercialization (**Fig. 1**). We expand in more detail on these factors below.

The first issue mentioned in the interviews is that poor communication is affecting agbiotech adoption. The majority of stakeholders interviewed identified a limited understanding of GM crops by the public as a major challenge to improving public perception of the technology for successful development and adoption of agbiotech in SSA. Indeed, one stakeholder stated, "My understanding is that a number of people, including politicians and some decision makers, do not know really what GM is." Elitism in reporting and ineffective and inaccurate communication by the media and other stakeholder groups were described as barriers to appropriate information sharing and informed public perception.

Stakeholders from the media and research institutions found information sharing with grassroots communities to be elitist. One study participant from the media suggested that the modes of communication used may be "a little bit above the common man." A need for "barefoot extension officers" was suggested by one government official as was the usefulness of grassroots approaches, to ensure the lay person is well informed about the multiple facets of agbiotech products and issues surrounding GM technology.

Similarly, it was mentioned by a research officer that the producers of knowledge around the technology, the scientists, may not be communicating information effectively: "...probably scientists will not be good communicators when it comes to talking or playing with farmer's psychology."

The impact of negative perceptions shared about agbiotech among stakeholders was discussed mainly by government regulatory and biotech awareness organizations, who considered anti-GM crops lobbyists and some nongovernment organizations (NGOs) as major challengers to the acceptance of agbiotech in SSA. Environmentalists and stakeholders from anti-GM crops groups confirmed this, expressing their concerns that the introduction of agbiotech will threaten the survival of indigenous crops and affect biodiversity. Other stakeholders drew attention to the fact that anti-GM crops groups have the capacity for widespread dissemination of information at the grassroots level and can spread misinformation and create extensive public concern and distrust for agbiotech initiatives.

Another unifying concern among interviewees was the issue of capacity building. Agbiotech stakeholders, particularly from regulatory institutions in Kenya, Uganda, Mozambique and Tanzania,