Anticipating Responsible Innovation: Genetically-Modified Trees and Conceptualizations of Technological and Regulatory Futures

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The Institute of Forest Bioscience was founded to promote forest biotechnology in a responsible manner, cognizant of the mistakes and challenges that developers of genetically modified crops have faced over the last twenty years. As a non-governmental organization, their normative commitment are to "science, dialogue, and stewardship," and they have developed programs to engage with academic scientists, corporate developers, regulators, political representatives, and laypersons. In a sense, they embody an effort to achieve responsible innovation in an anticipatory way. Preliminary interviews suggest that they actively anticipate regulatory and public responses to potential technologies, and they work with experts to manage those responses in ways that promote "responsible use" (their term) of forest biotechnology.

We focus on GM trees for several reasons. First, GM trees represent a technological and regulatory extension of well-established agricultural biotechnologies. Existing techniques of genetic engineering and existing frameworks for the governance of GM plants form a landscape upon which GM trees may take root. New scientific, cultural, and political issues will undoubtedly arise, but these are less "out there" than other GM technologies in the pipeline - making this a strong case for studying anticipatory processes. Second, GM trees offer intriguing comparisons across specific technological applications. On one hand, efforts are underway to rescue the American chestnut from extinction through genetic modification - a project with conservation/cultural goals. On the other hand, much of the research in GM trees focuses on improving feedstocks for biofuel applications - projects with clear commercial relevance that could mirror the R&D and intellectual property pathways of existing agricultural biotechnologies. Third, GM trees offer the opportunity for comparison of research occurring in industrial, academic, and hybrid settings, which could contribute to broad debates about how the context of research impacts scientific practice.

In this paper we analyze the Institute of Forest Bioscience (formerly Institute of Forest Biotechnology) programs and activities through the lens of scholarship on anticipatory governance and responsible innovation. Our data come from interviews with IFB staff, interviews with affiliated scientists, analysis of formal IFB documents, and a review of media coverage of IFB activities.