RAFI COMMUNIQUE

RURAL ADVANCEMENT FOUNDATION INTERNATIONAL

December, 1993

This end-of-the-year *Communiqué* provides brief updates on some of the topics covered in past issues of the *RAFI Communiqué* , and also takes a look at RAFI programme activities in 1993.

Communiqué Updates

Human Genome Diversity Project: (Please refer to "Patents, Indigenous Peoples and Human Genetic Diversity," *RAFI Communiqué*, May, 1993). Earlier this year, RAFI criticized the US-based Human Genome Diversity Project (HGDP) for its plans to collect DNA samples from up to 700 unique populations of indigenous peoples scattered around the world at a cost of (US) $23-25 million over five years. Plans for the HGDP were underway without the knowledge or participation of indigenous peoples' organizations. Despite the potential value of human genetic diversity for medical research, RAFI pointed out that products or processes derived from human genes may be patented and commercialized with little or no benefit accruing to the people and communities from whom they were taken.

These concerns became shockingly real when RAFI discovered a patent claim by the US. Secretary of Commerce on the cell line of a 26-year old Guaymi Indian woman from Panama. The Guaymi General Congress, which represents Panama's largest indigenous population, and the World Council of Indigenous Peoples, protested the patent claim in the US, and took their concerns to a United Nations meeting in Geneva.

In early November the Green Party of the European Parliament introduced a resolution condemning the patenting of biological material from indigenous peoples, and called for a complete halt to the Human Genome Diversity Project until patent and other issues are resolved.

As a result of the international protest, the US government abandoned its patent claim on the Guaymi Indian cell line in November, 1993.

The next *RAFI Communiqué* will feature a full account of the Guaymi patent and further updates on the Human Genome Diversity Project.

Rubber: (Please refer to "Biotechnology and Natural Rubber," *RAFI Communiqué*, June, 1991). Industry, government and university researchers in the United States continue to develop domestic rubber sources that will be "comparable to or better than that produced by the Malaysian rubber tree." The US imports (US) $1 billion worth of rubber annually. (*Industrial Bioprocessing*, September, 1993, p. 1). A researcher at the University of Southern Mississippi has developed new rubber products from the guayule plant (native to Mexico and the southwestern US). Dr. Shelby Thames has reportedly devised methods of converting low-molecular-weight guayule rubber into several economically attractive products.

Castor Oil: (Please refer to "Biotechnology and Castor Oil," *RAFI Communiqué*, Jan.-Feb., 1990.) A consortium of companies has committed more than (US) $1.2 million to Mycogen Plant Sciences of San Diego, California for the purpose of commercializing lesquerella (a desert shrub native to northern Mexico and southwestern US). The goal is to develop a domestic substitute for imported castor oil. Seeds of the lesquerella plant contain high levels of hydroxy fatty acids, which could be used to manufacture specialty plastics, industrial nylons, lubricants, and high-value cosmetics. US. imports of castor oil are valued at about $30 million. The world's leading exporters of castor oil are Brazil, India and China.

Pyrethrum: As a result of information published in RAFI's June, 1992 *Communiqué*, "Genetic Engineering of Pyrethrins: Early Warning for East African Pyrethrum Farmers," the Dutch government has proposed to undertake a comprehensive "pyrethrum substitution study" to assist Kenyan

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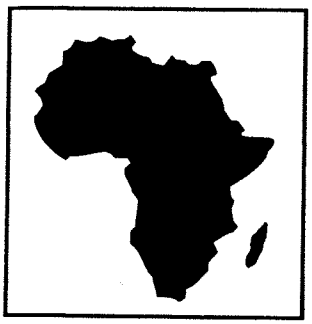
policy makers in assessing problems, opportunities and impacts arising from the potential commercialization of cell culture pyrethrum technology.



US Patents Awarded on Materials Derived from African Plants: Monellin and Thaumatin: Scientists from Lucky Biotech and the University of California received US. Patent 5,234,834 for all fruit, seeds and vegetables that have been genetically engineered to contain super-sweet natural proteins from monellin and thaumatin (*Thaumatococcus daniellii)*, plants of African origin that have been used for centuries by African people as a sweetener and flavour enhancer. In the US alone, the market for low-calorie sweeteners is (US) $900 million per annum. For more information, refer to "Biotechnology and Natural Sweeteners," *RAFI Communiqué*, February, 1987.

Endod: (Please refer to *RAFI Communiqué*, March, 1993, "Endod: A Case Study of the Use of African Indigenous Knowledge to Address Global Health and Environmental Problems"). Scientists from the US.-based University of Toledo have received US. patent 5,252,330 for the use of Endod to control zebra mussels. Endod (*Phytolacca dodecandra*), commonly known as the African soapberry plant, is a perennial that has been selected and cultivated for centuries in many parts of Africa, where its berries are used as a laundry soap and shampoo.

Citrus: Molecular scientists from the US Department of Agriculture have successfully isolated a gene from citrus (trifoliate orange) for the first time. According to *Ag Consultant* (Fall, 1993) this breakthrough is a major step towards being able to genetically engineer citrus plants for desirable traits such as cold hardiness and disease resistance. RAFI will continue to monitor these developments, the subject of a future Communiqué.

Bovine Growth Hormone: After nearly a decade of controversy and strong opposition from family farm organizations and consumer groups, the US Food and Drug Administration approved the use of Monsanto's bovine growth hormone (a genetically engineered hormone that dramatically increases milk production in cows) in the US on 5 November. (Please refer to *RAFI Communiqués*, September, 1986 and October, 1990). The US government approved the product despite a ban on BGH in Australia and the European Union.

Despite heated controversy and unresolved questions about BGH in the industrialized world, BGH has been aggressively tested and marketed in many areas of the developing world, including: Mexico, Brazil, Costa Rica, Czechoslovakia, South Africa, India, Pakistan, former USSR, Zimbabwe, Zambia, Tunisia, Egypt, Malaysia, China, and Nigeria.

Genetically Engineered Human Milk Proteins: (Please refer to RAFI's June, 1993 *Communiqué*, "Biotechnology Company Will Sell Bio-Engineered Human Proteins to Infant Formula Manufacturers." A new agreement between Nestec (the research division of Nestle) and Galagen (Minnesota, USA) will "hasten the worldwide commercialization of biopharmaceutical products made from milk proteins" (*Industrial Bioprocessing*, July, 1993). The company's long range plans include developing and commercializing products derived from the milk of transgenic animals.

Bio-Piracy and Neem: Seeds, leaves, bark and oil of the neem tree have dozens of traditional uses in India and parts of Africa where the tree has been used as a source of natural insecticides and medicines for generations. Neem-based products, now patented in the industrialized world, find new markets: Agridyne Technologies (Salt Lake City, Utah, USA) is the first company in the US to receive government approval to sell neem-based bioinsecticides on food and feed crops. The company has also applied for registration of neem-based bioinsecticides in Italy, France, Spain, the Netherlands, and 14 Latin American countries. In Japan, Showa Biochemical markets a neem-based insect repellent effective against cockroaches, mites and moths. Showa also markets an herbal neem product for gastrointestinal problems. To date, most patented neem products are based on neem-seed extracts imported from India. For information about the anti-patent neem campaign to protect indigenous knowledge of Indian farmers, contact: Research Foundation for Science, Technology and Natural Resource Policy, A-60, Hauz Khas, New Delhi 110 016, India.

Who Owns *Bt* ? (Please refer to *RAFI Communiqué*, "Microbial Insecticides: Special Focus on *Bacillus Thuringiensis*," January, 1989). Plant Genetic Systems (PGS) of Belgium has received

extremely broad patents covering all plants genetically engineered to contain any *Bt* gene or *Bt* gene construct controlling any lepidopeteran insects. *Bt* is a naturally-occurring bacteria containing insecticidal toxins. PGS has a large portfolio of patents on *Bt,* in both Europe and the US. Meanwhile, Ecogen (Pennsylvania, USA) is testing *Bt* -based biopesticides in China, and is collaborating with Huazhong Agricultural University in Wuhan in evaluating over 1,000 insecticidal *Bt* strains found in China.

Potato Blight: (Please refer to "Emerging Technologies for Potato," *RAFI Communiqué*, September, 1992). A new and more virulent form of late blight fungus, the blight that triggered the Irish Potato Famine of the 1840s, is threatening potato crops around the world. According to the Consultative Group on International Agricultural Research, the late blight fungus originated in Mexico and is spreading to other countries through "improved" potato seeds developed in Europe from contaminated Mexican potatoes. Dr. Hubert Zandstra, Director of the International Potato Centre is calling for emergency breeding programmes to create blight resistant potatoes. According to Zandstra, the new blight jeopardizes current international efforts to reduce the amount of agrochemicals on potatoes. Potatoes receive more agricultural chemicals than any other food crop, and next to wheat, they are the fastest growing staple crop in the developing world.

DID YOU KNOW??

Approximately one-third of all permits for environmental release of genetically modified plants/organisms in the United States (1987 through October 28, 1993) went to Monsanto. The company is a major agrochemical corporation, ranked #171 in *Fortune* Magazine's list of the world's largest industrial corporations.

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Together, the following five corporations account for 67 percent of all environmental release permits issued during the same period in the US: Monsanto, Calgene, Pioneer, Upjohn, and Dupont.

A New Publication of Interest to RAFI Communiqué Readers: The U.S.-based Union of Concerned Scientists has just released "Perils Amidst the Promise: Ecological Risks of Transgenic Crops in a Global Market," by Jane Rissler and Margaret Mellon. The report concludes that commercialization of transgenic crops poses serious environmental risks, including threats to global centres of crop genetic diversity. It recommends a ban on commercialization of transgenic crops in the US until a strong government program is in place that assures risk assessment and control of all transgenic crops and gives adequate consideration to centres of crop genetic diversity worldwide. The report recommends that transgenic seeds exported from the US should bear labels stating that approval of the seeds under US law carries no implication of safe use in other countries. The report also calls on the United Nations to develop international biosafety protocols to ensure that developing nations can protect against the risks of genetically engineered crops. To order, contact: Jane Rissler, Union of Concerned Scientists, 1616 P St., NW, Washington, DC. 20036 USA. Price: (US) $12.00 includes postage. Discount may be requested for Third World NGOs.

RAFI Program Highlights

Biodiversity Follow-Through: Over the past year, RAFI has followed the development of the Biodversity Convention closely. Ken Shipley participated in a series of expert panels established by UNEP to consider outstanding issues related to the Convention. The panels met twice, in Nairobi and Montreal. Jean Christie attended the Geneva meetings of governments held in October to review progress on the Convention. Also, RAFI worked together with GRAIN to bring the implications of the Convention to the FAO Commission on Plant Genetic Resources in Rome in April. The Commission celebrated the tenth anniversary of its founding and made preparations to develop its international undertaking into a possible legally-binding protocol to the Convention. Pat Mooney represented RAFI at the Commission meetings.

The Crucible Project on Intellectual Property Rights: In response to very rapid developments in the area of intellectual property rights over life forms, RAFI worked with other partners to convene an international working group in 1993 to develop a series of non-consensus policy options in this area for government and institutional decision makers.

Working group meetings were held in Rome, Uppsala, Ottawa and Bern between April and

November 1993. Meetings were chaired by Geoff Hawtin, Director General of the International Board of Plant Genetic Resources, and involved about 30 people from governments, the seed and biotechnology industries, representatives from the International Agricultural Research Centres and NGOs and peoples organizations, from South and North. Participants from the RAFI Board of Directors included Sven Hamrell, Erskine Childers, Amir Jamal, Camila Montecinos and Rene Salazar. RAFI's role (Pat Mooney and Beverly Cross have taken the lead on this initiative) has been to develop the programme, prepare background discussion papers, undertake research and manage the actual meetings.

The Crucible Project is now nearing completion. A final drafting session was held in Rome in late November. Once finalized, 14,000 copies of the report will be produced in English, with additional copies in French, Spanish and Arabic. RAFI believes that the document will be useful in upcoming meetings of the FAO Commission on Plant Genetic Resources, and the first meeting of the Contracting Parties to the Biodiversity Convention.

Funding for The Crucible Project has come from IDRC (Canada), SAREC (Sweden), DGIS (The Netherlands), SDC (Switzerland) and ACIAR (Australia). Upcoming issues of the RAFI Communiqué will provide information on how to order copies of "The Crucible" report.

The Conservation and Development of Indigenous Knowledge in the Context of Intellectual Property Systems: Pat Mooney recently completed a major report for the United Nations Development Programme on the implications of intellectual property rights for indigenous peoples. The report contains a review of the current state of life patenting, with new research on the North/South implications of microbial genetic resources. The UNDP plans to publish a shortened version of the report. As a result of this work, RAFI has been asked to advise UNDP on a new experimental programme involving indigenous people in Guyana.

In related work, Hope Shand participated on a panel discussion at the United Nations Conference on Human Rights in Vienna on the topic of "Biodiversity, Patents and Indigenous Peoples." Copies of her paper are available from RAFI: P.O. Box 655, Pittsboro, NC 27312 USA.

Community Biodiversity Development and Conservation Project: During the course of the year RAFI has worked with southern partners and northern institutions on a 4-year, $4 million dollar study designed to evaluate and improve community-based germplasm conservation and enhancement. Participants in the programme include representatives from CLADES in Chile, PGRC in Ethiopia, CGEN in the Netherlands, NORAGRIC in Norway, SEARICE in the Philippines, ENDA Zimbabwe, GRAIN and RAFI.

World Food Day: The topic of the United Nations' Food and Agriculture Organization (FAO) 1993 World Food Day was "Harvesting Nature's Diversity." Hope Shand authored the FAO's official document, a popularly styled booklet on the importance of plant, animal, forest and aquatic genetic resources.

Pat Mooney spoke at a World Food Day seminar titled "Sharing Nature's Diversity" in Dublin, hosted by the Irish Freedom from Hunger Campaign. Hope Shand was one of four panelists appearing on a satellite teleconference, "Seeds of Conflict," broadcast throughout the Western Hemisphere, sponsored by the U.S. World Food Day office.

Biotechnology Networks: Jean Christie addressed a conference in Harare in May organized by the Biotechnology Forum of Zimbabwe. She spoke on the potential negative effects of biotechnology on the South. Pat Mooney attended an international meeting hosted by the U.S.-based Biotechnology Working Group in Switzerland. Hope Shand spoke at a conference on agricultural biotechnology hosted by Mexican government and industry in Monterrey.

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