

WIPO-UPOV/SYM/03/14

ORIGINAL: English

DATE: September 25, 2003



WORLD INTELLECTUAL
PROPERTY ORGANIZATION



INTERNATIONAL UNION
FOR THE PROTECTION OF
NEW VARIETIES OF PLANTS

**WIPO-UPOV SYMPOSIUM ON
INTELLECTUAL PROPERTY RIGHTS
IN PLANT BIOTECHNOLOGY**

organized by
the World Intellectual Property Organization (WIPO)
and
the International Union for the Protection of
New Varieties of Plants (UPOV)

Geneva, October 24, 2003

IRRI: THE EXPERIENCE OF AN INTERNATIONAL PUBLIC RESEARCH INSTITUTE

*Ms. Thanda Wai, Intellectual Property Rights Specialist,
International Rice Research Institute (IRRI), Laguna, Philippines*

IRRI: THE EXPERIENCE OF AN INTERNATIONAL PUBLIC RESEARCH INSTITUTE

Introduction

The International Rice Research Institute (IRRI) is one of 16 research centers that constitute the Consultative Group on International Agricultural Research (CGIAR), which was founded in 1971. Although many of IRRI's research programs and collaborators are found in Asia, IRRI's mandate is global in scope. IRRI's mission statement is to "improve the well-being of present and future generations of rice farmers and consumers, particularly those with low incomes."

Research Activities

IRRI engages in a variety of research activities including traditional plant breeding, biotechnology, water and nutrient management, agricultural engineering, and social sciences. Our mission is to produce international public goods (IPGs), which are products and technologies that are made accessible to the public.

- Examples of traditional plant breeding include efforts to increase yield and nutritional qualities of rice (e.g. high iron), incorporating traits for plant disease resistance (e.g. resistance to rice blast, rice tungro virus, among many others), and breeding for resistance to abiotic stress (e.g. drought and salinity tolerance).
- Biotechnology projects include improving the expression and stability of transgenes that express Provitamin A or the Xa21 gene for rice blast resistance to functional genomics and allelic mining.
- The water sciences group works on methods of growing rice using less water and breeding for aerobic rice, i.e. that grows well on dry land. An important contribution of the nutrient management group is the Leaf Color Chart, which is a chart showing different degrees of greenness expressed by rice plant leaves. The farmer matches the color of the rice plant leaves in the field to the color on the chart and makes a decision whether to apply nitrogen and how much. This simple invention saves farmers a great deal of money and materials spent on chemical fertilizers, as well as helping to mitigate the effects of applying chemical fertilizers on the environment.
- Agricultural engineering was a major focus of research at IRRI at one time. This group tested commercially available farm equipment and routinely made improvements. This unit has since been cut back and now concentrates more on solving problems associated with postharvest storage of rice and testing for nutritional quality of the rice grain.
- The Social Sciences Division works on projects from analyzing the economic impact attributed to growing improved varieties of rice to the Geographic Information Systems (GIS) group.

The various types of research partners include Ministries of Agriculture, universities, research institutes, among others.

Access to research materials is obtained in various ways. In terms of having access to germplasm and plant varieties for further breeding, IRRI has over 100,000 accessions in the Gene Bank, as well as an active exchange and contribution program of rice seed, such as INGER (International Network for the Genetic Evaluation of Rice). More than 80,000 accessions in the IRRI Genebank are Food and Agriculture Organization of the United Nations (FAO)-designated. These accessions fall under the auspices of an agreement between the FAO and IRRI, such that germplasm in this collection will be made available without restriction to researchers around the world and with the understanding that no intellectual property protection is to be taken on these accessions. Materials are also received through research collaborations. Research materials for biotechnological projects come from publicly available sources and from licensing in of third-party tangible and intellectual properties. Licensed technologies are generally “research only” licenses. Few institutions, including academic research institutions and universities, are willing to give technologies royalty-free.

Issues Related to Licensing of Third Party Intellectual Properties

Major issues encountered in the licensing of third-party intellectual properties include exclusivity of licensing, the right to sub-license, and market segmentation.

- In general, the private sector will ask for exclusive licensing of technologies. IRRI cannot give such exclusivity without an exemption to give royalty-free licenses back to resource-poor farmers. This issue was not resolved in license negotiations for the rice genome sequence. Since IRRI was not willing to offer the first right of refusal to a company for any technology that may have been developed through knowledge gained from accessing the rice genome database, a decision was made not to sign the agreement. The International Rice Genome Sequencing Project was completed in December 2002. Therefore, the sequence of the entire rice genome is now publicly available to everyone without any restrictions.
- Another issue related to licensing technologies is whether sub-licenses may be issued. The advantage for IRRI to sub-license technologies is to increase the ease of transferring technologies to the national partners. These partners may not know how to approach the private sector for technologies. However, since they are familiar with IRRI, they are more likely to ask IRRI for technologies that they wish to license. While the ability to sub-license to national partners promotes technology transfer, it is also a serious responsibility, as we have to make sure that the recipient understands the terms of the agreement.
- The issue of market segmentation is a complex one. Market segmentation occurs when technologies are given only to certain territories and/or to a certain class of people (sometimes based on income). The private sector sometimes gives royalty-free licenses based on the country and also income level of the recipient. For example, in the Golden Rice™ sub-license agreement from the co-inventor Ingo Potrykus to IRRI, a royalty-free license to grow the material is given only to farmers in certain countries and to those earning less than 10,000 USD per annum. Unfortunately, the private sector has not been willing to give the same or similar terms in subsequent agreements, as it was felt that the income limit of 10,000 USD per annum was too generous. In other cases of market segmentation, royalty-free licenses are given only for countries for which there are no patent laws that would allow the owner of the technology to pursue intellectual property protection.

Two major technologies licensed in by IRRI are those for Golden Rice™ and the Xa21 gene. Components of the Golden Rice™ technology was licensed by five separate companies to the co-inventor Ingo Potrykus and in turn sub-licensed to IRRI. This technology is sub-sub-licensable to public sector institutions of specified countries. The Xa21 gene was licensed to IRRI by University of California Davis. This license is also sub-licensable.

IRRI's Policy on the Sharing of Tangible and Intellectual Properties and Issues and Factors Related Its Practice

Factors that affect the decision to protect research results depend on IPR policies and guidelines of donors as well as those of IRRI. Donors generally come in three categories: ones that do not allow intellectual property protection of the results of the research that they fund, ones that encourage IPR protection, and a third group that stays silent on the issue.

Other issues related to the management of intellectual properties at IRRI include defining the meaning of the term “related information” in the Material Transfer Agreement (MTA) for FAO-designated materials and the term “essentially derived,” evaluating the effects of reach-through rights associated with licensing-in technologies, and assessing the impact of international treaties such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) and the Convention on Biological Diversity (CBD).

IRRI's IPR policies and guidelines may be summarized as stated below.

- Germplasm and varieties obtained prior to December 29, 1993, the date of entry into force of the Convention on Biological Diversity, and those developed by IRRI are freely shared. Materials obtained after this date are shared as specified by the donor.
- Formal intellectual property protection of biotechnologies will be pursued if it is determined that is the best way to serve our clients, such as defensive patenting of critical base technologies. An example of such a technology would be a new antibiotic resistance-free method of selecting for transgenes.
- IRRI adheres to the policy of free availability of breeding lines, elite germplasm, and parental lines of hybrid rice produced in its conventional breeding program and will not seek intellectual property protection for these materials.
- In the past, when IRRI had an active agricultural engineering group, a number of improvements and new designs were patented in the Philippines with the idea of keeping the designs in the public domain. We no longer actively test and develop large agricultural equipment, nor are we pursuing any further patents on agricultural equipment. We now share engineering designs with our partners by attaching a shrink-wrap MTA, mainly to prevent the recipient from protecting the designs and preventing further sharing.
- IRRI has an active publications unit. Therefore, publications, databases, software, and media assets may be protected by copyright in accordance with normal publishing practice. Educational materials published by the IRRI Training Center may be copyrighted.

- IRRRI has obtained trademark protection for the IRRRI and IR in the Philippines and has applied for similar protection in India and China, two of the world's largest rice-growing countries.
- Trade Secrets are not used as a method of intellectual property protection, as IRRRI's function is to disseminate information and technologies.

Technology transfer is effected in different ways. Licensing of IRRRI's IP assets are limited. The use of photos from the IRRRI Photogallery is being licensed. We transfer materials (including biological, engineering designs, etc.) with a Material Transfer Agreement. IRRRI scientists write numerous publications and give many seminars. Staff members also give scientific advice and conduct field days. Both breeding materials and plant varieties are released. IRRRI's research is sometimes publicized in news releases. In the broad sense of the word "commercialization", IRRRI does commercialize from the perspective that tangible and intellectual properties and technologies are transferred to national partners and to farmers.

Future Directions

Future developments at IRRRI include determining how the terms of rice germplasm exchange will be affected when the International Treaty on Plant Genetic Resources for Food and Agriculture comes into force. There is uncertainty as to how we will exchange germplasm with non-signatory countries.

In summary, IRRRI's IPR policy and practice will remain flexible and stay in tune with the ever-changing international laws and practices.

[End of document]