

SHARING THE WORLD'S ELITE RICE BREEDING AND GENETIC RESOURCES

Ma. Concepcion U. Toledo, Glenn Patrick M. Alejar, Franco G. Nazareno and Edilberto D. Redoña,
International Network for Genetic Evaluation of Rice (INGER), Plant Breeding, Genetics and Biotechnology Division,
International Rice Research Institute, DAPO Box 7777, Metro Manila, Philippines
Telephone: +63 (2) 580-5600 ext. 2341/2288; Fax: +63 (2) 580-5699
E-mail: e.redona@cgiar.org

Abstract

The International Network for Genetic Evaluation of Rice (INGER) is a 32-year old partnership among National Agricultural Research and Extension Systems (NARES) of the world's major rice growing countries and International Agricultural Research Centers (IARCs) such as the International Rice Research Institute (IRRI), Africa Rice Center (WARDA), International Institute for Tropical Agriculture (IITA), Centro Internacional de Agricultura Tropical (CIAT), and International Center for Agricultural Research in the Dry Areas (ICARDA). Established in 1975 as the International Rice Testing Program, INGER has become a regular component and a constant and reliable source of elite breeding material for NARES' and IARC's rice improvement programs. The primary mechanism has been the assembly into different INGER nursery types of the genetically diverse materials contributed by IARC and NARES breeders each year. To date, INGER has received more than 23,000 unique breeding lines, nearly 60% from NARES. These nursery sets are then evaluated under different rice ecosystems or biotic and abiotic stresses by cooperating scientists in more than 80 countries. Since 1975, more than 48,000 test entries and 2.63 million seed samples have been shared worldwide through more than 30 types of nurseries. In addition, since 2005, some 37,495 seed samples of breeding lines produced by IRRI's Plant Breeding, Genetics, and Biotechnology Division (PBGB) have also been shared with some 50 countries through the PBGB Centralized Seed Stocks (CSS) unit that is combined with INGER. The best of these breeding materials have found their way into NARES breeding programs and farmers, either as varieties released directly to farmers or as parents used in hybridization programs. For example, thousands of INGER nursery entries have been selected for yield testing, resulting in 667 varieties being directly released in 62 countries to farmers, without any further breeding effort. This mode of utilization shortens the time required for variety development and saves NARES resources since it precludes pre-breeding work. The economic value for each directly-released INGER entry, for example, has been estimated at US\$ 2.5 million. Moreover, INGER entries from 68 countries have also been used in 51 countries for developing more than 18,000 new crosses aimed at developing new inbred lines and hybrid rice combinations. In recent years, however, INGER's core tradition of unrestricted germplasm and information sharing has been constrained by global developments in the fields of intellectual property (IP) and plant variety protection (PVP). With IRRI and INGER implementing the use of the Standard Material Transfer Agreement of the International Treaty of Plant Genetic Resources for Food and Agriculture since January 14, 2007, new opportunities have been opened for incorporating benefit sharing and IP protection dimensions into INGER's mechanisms. This, plus advances in genomics, information and communications technology, and computational and analytical power, if harnessed in a coordinated manner, could transform INGER into the world's *modern global network for the multilateral access, sharing, and utilization of elite germplasm and associated knowledge* for the benefit of the world's rice scientific and farming communities.