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## Farmer-led rice breeding of climate resilient rice

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### Abstract

In many communities in the Philippines, farmers face increasing levels of climate related unpredictability aggravated by economic and political risks that further heighten farmers vulnerability risks. For the farmer organisation MASIPAG, resiliency is a long-term process that builds on the interdependence of technical, social, and political realities on the ground. Since 1988, Masipag has collected and maintained more than 1,000 old traditional rice varieties and 1,085 improved varieties have been bred by farmers and by staff of the Masipag back-up farms.

Among the farmer breeders Pepito B. Babasa (PBB) was one of the most popular rice breeders living near Lake Bato in Camarines Sur. The area has highly variable rainfall ranging from 1900 to 3800mm that is mainly caused by an average of 10 typhoons that cross the area annually. These storms cause strong levels of flooding with a high risk of total crop failure. Several of the PBBs varieties can cope with these exorbitant stresses. In his lifetime, Pepito Babasa has produced 33 farmer-bred lines and out of these he made more than 150 selections for a multitude of different needs based on the discussions within his farmer community and the wider Masipag network.

For example, one of his top varieties PBB 401 was found drought resistant in 3 provinces, and additionally lodging and pest resistant in another province outside his own farm. Other PBB lines were identified to be drought and saltwater tolerant, especially in Negros Occidental. Furthermore, Mr. Babasa was able to develop seed conservation techniques that allow farmers to have rice seeds available anytime. Consequently, farmers no longer need to worry about seed availability after typhoons, since more seed is available and also the system of Masipag backup farms helps to provide seed in case of case of extreme weather calamities.

Overall, the Masipag network identified a total of 114 local rice varieties with specific climate related resilience properties, thereof the following number of varieties are resilient to lodging and wind (39), flood tolerance (8), drought tolerance (33), pest and disease resistance (9) and salt water tolerance (3).

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