

PARIS, Aug 9, 2006 (AFP) - An international team of geneticists has pinpointed a gene that can help save rice plants from disastrous floods, according to their study, published Thursday in the British science journal Nature.

The gene allows plants to survive complete immersion in water for up to two weeks, they say. Rice plants need lots of water in which to grow, but if they are submerged can be wrecked within a week. Flooding of this kind costs farmers in South and Southeast Asia more than a billion dollars a year, while in North Korea floods in the mid-1990s caused a famine in which aid groups say some two million people died.

However, some strains are known to be highly tolerant to being drowned, thanks to a genetic sequence called Sub1 -- for Submergence 1 -- located on chromosome 9 of the plant's genome. But not all plants with Sub1 have the soak-resistant quality. Gene sleuths led by David Mackill of the International Rice Research Institute (IRRI) in the Philippines have discovered that the laurels belong to a specific variant of Sub1, which they have called Sub1A-1. Just a single "letter" in the genetic code made Sub1A-1 so special, they found. To test their discovery, they inserted Sub1A-1 into a submergence-intolerant strain of rice plant, and found that it bounced back to life after 11 days under water. The findings have big ramifications for Asia, which faces the task of feeding a fast-growing population while each year more agricultural acreage is sacrificed for urbanisation. Another risk is climate change, which scientists fear will inflict abrupt changes in rainfall patterns. There are around 120,000 varieties of rice, which have been bred to meet demands ranging from high yield, resistance to disease, enhanced nutritional value and taste. Rice production has doubled in the past 40 years, mainly thanks to "semi-dwarf" varieties that were introduced in the late 1960s in the so-called Green Revolution, and hybrid rice strains that were introduced in the mid-1970s.