

# Aussie grass could hold key to addressing world food shortage

March 11 2014, by Rose Trapnell

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QUT scientists say a native Australian grass found around Charleville in Queensland could hold the key to ensuring the long-term viability of a crop critical to world food security.

Deputy Director of QUT's Centre for Tropical Crops and Biocommodities, Professor Sagadevan Mundree, said rice is one of the most important staple foods throughout the world but salinity and drought stresses were putting the crop's long-term future under enormous pressure.

Professor Mundree heads a team of scientists working in partnership with scientists in India to determine whether strategies adopted by the Australian native resurrection grass could be used to genetically improve abiotic stress tolerance in rice.

"Current rice varieties are heavily dependent on fresh water," Professor Mundree said.

"However it is commonly accepted that the salinization of soils is a growing problem globally. In addition, the lower and erratic rainfall pattern has resulted in major reductions in crop productivity, including rice.

"Salinity and drought stresses often go hand in hand and both sound the death knell for [rice production](#). Rice, which is also a grass, finds salt toxic.

"There is an urgent need to develop more resilient varieties of rice that can cope with less water and are more tolerant of salinity stress."

Professor Mundree also said the world's population was expected to reach 8.32 billion by 2025, and it was currently estimated that one-third of that population would suffer from severe food and water scarcity.

He said Australia was strategically positioned to work with the world's major rice-growing nations to develop a solution.

"QUT has developed a strategic partnership with the International Centre for Genetic Engineering and Biotechnology (ICGEB) in New Delhi and the Tamil Nadu Agriculture University (TNAU) in Coimbatore in Southern India," he said.

"TNAU recently celebrated 100 years of research on rice and has a global reputation for its work. The ICGEB is one of three key international centres in the world addressing global food security issues, with the other two being in Cape Town, South Africa and Trieste, Italy.

"Here at QUT we have already isolated genes from the Australian resurrection grass that would be used to enhance stress tolerance in rice.

"Now we will work to get a better molecular understanding of how the drought-tolerant gene works and prepare it for transfer into rice by our Indian partners.

"The native Australian grass is called a "resurrection plant" because it can tolerate extreme environmental stresses, including severe drought, salinity, high temperature and high light-intensity stresses for prolonged periods and resurrect within 24-72 hours upon rehydration.

"We are very confident that we will be able to harness this death-defying

property and provide rice varieties that will help sustain the growing world population in the midst of global warming."

Professor Mundree said the three-year project had already attracted interest from companies keen to see a demonstration of stress-tolerant [rice](#).

Provided by Queensland University of Technology

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