

# Research finds way to double rice crops in drought-stricken areas

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University of Alberta research has yielded a way to double the output of rice crops in some of the world's poorest, most distressed areas.

Jerome Bernier, a PhD student in the U of A Department of Agricultural, Food and Nutritional Science, has found a group of genes in rice that enables a yield of up to 100 per cent more in severe drought conditions.

The discovery marks the first time this group of genes in rice has been identified, and could potentially bring relief to farmers in countries like India and Thailand, where rice crops are regularly faced with drought. Rice is the number one crop consumed by humans annually.

The results of the study were published recently in the plant sciences journal *Euphytica*. Bernier's research began four years ago and focused on upland rice, which, unlike the majority of rice crops, grows in non-flooded, dry fields. "If drought hits, the yield can drop to almost nothing," Bernier said. He conducted his research at the International Rice Research Institute in the Philippines, in conjunction with scientists there and in India.

He started with 126 genetic markers and narrowed his search to a group of genes that had the desired impact. In very severe drought conditions, rice strains with the new genes were shown to produce twice as those strains that did not have the genes. The new genes stimulate the rice plants to develop deeper roots, enabling it to access more of the water

stored in the soil.

"For subsistence farmers who rely on the crop to feed their families, this extra yield can make a world of difference," said Bernier.

Less loss to drought may also mean an increased supply of rice globally, said Dean Spaner, Bernier's project supervisor and a professor of agricultural, food and nutritional science at the U of A.

Source: University of Alberta

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