Genetically modified rice could withstand the ravages of climate change

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A team of scientists from 12 universities in eight countries is working to develop a new strain of hyperefficient, drought-resistant rice known as C4. It produces a greater yield in warmer temperatures while using less water. As a result of this increased efficiency, this rice also has greater drought resistance. “C4 plants grow in hotter, drier areas,” says Julian Hibberd, a professor at Cambridge University. “They have a better tolerance for periods of low water supply.”
If successful, C4 rice could revolutionize a planet in which a steadily changing climate is putting the world’s food supply at risk. “A stable supply of food in emerging economies would be an incredible boost to the global economy,” says Hibberd. “It could also create greater societal stability worldwide.”

But there is at least one catch: Rice cultivation is a massive contributor to climate change.
Methane is the most potent greenhouse gas in the atmosphere because of its ability to trap heat within the atmosphere, producing 21 times as much global warming as CO2. And up to 17 percent of global methane emissions come from rice cultivation.

Jansson is part of a group, from the Swedish University of Agricultural Sciences, working to solve this problem by creating a rice plant that produces less methane (…) Test results so far are positive.

“It’s potentially huge,” says Jansson. “If we have a rice that can produce more food for the population at the same time as reducing methane, it would be an incredible breakthrough.” Excited as they are, the scientists are cautious and admit that it will likely be 10 to 15 years before these strains are commercially available, even if all the testing goes according to plan.

A major challenge facing both studies is increasing worldwide skepticism of genetically modified organism foods. “If there is something viable that could be commercialized, the concern would be around the unintended consequences,” says Megan Westgate, executive director of the Non-GMO Project, a U.S.-based nonprofit. “It’s justified that consumers are concerned to know what the impact will be on the environment and on human health.”

Scientists are keenly aware of the concern. Jansson says that “so far we have not seen any negative impact on the environment.” However, he admits that “if there are negative effects on human consumption or the environment, we need to identify those and mitigate them.”

But another major concern for Westgate and others from the anti-GMO movement is what happens when corporate players become involved. Monsanto, the American biotechnology company involved in numerous lawsuits over the health and environmental effects of its products, is their boogeyman. “The biggest problem with corporate involvement is specifically around the patenting and what that does to food sovereignty,” says Westgate. “When corporations have control of the genetic sequencing of our major foods, it becomes very problematic.”

In fact, the International Rice Research Institute’s Quick admits that if C4 rice becomes commercially viable, “only large agri-businesses would have the capacity to distribute it properly.” However, he is adamant that he and his team would negotiate so that developing countries would be free from the intellectual property laws that govern this kind of genetic patenting.

Ultimately, most scientists feel that the potential benefits of the C4 rice project work far outweigh any potentially negative consequences. “We are doing this as a humanitarian project to stop world hunger,” Langdale says. “At the end of the day, if someone is starving, would they rather eat genetically modified rice or nothing at all?”

(600 words)