

Geneticists offer clues to better rice, tomato crops

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Closeup of *S. pennellii*. Credit: Raimund Knauf and Alexander Vogel

Scientists on Sunday laid bare the genetic codes of African rice and a type of wild tomato, data they said should help breed more resilient

crops.

Teams detailed the genome sequences of the two plant species in separate papers in the journal *Nature Genetics*.

"As the world population is projected to increase from 7.1 billion to over nine billion by 2050, plant biologists must forge a second green revolution with the creation of crops that have two to three times the current yield with reduced inputs (ie less water, fertilizers and pesticides)," said the [rice](#) research paper.

"Rice will have a key role in helping to solve the problem of how to feed nine billion people."

African rice, scientific name *Oryza glaberrima*, is more drought resistant than the much more common Asian species (*Oryza sativa*).

In unravelling its genomic signature, an international team of geneticists established that African rice was domesticated from a wild species in a region next to the Niger river about 3,000 years ago—some 7,000 years after the domestication of Asian rice.

While more work is needed to pinpoint the individual stress-resistant genes, the team said publication of the genome presented "an unprecedented opportunity" for breeding new varieties of high-yield, drought-resistant crops.

The second study, into the inedible, wild South American tomato *Solanum pennellii*, managed to identify key genes linked to dehydration resistance, fruit development and ripening.

The species is already used to improve the cultivated common tomato, *Solanum lycopersicum*, through interbreeding.

The new data may help breed even tastier, more stress-tolerant tomatoes, said the study authors.

More information: *Nature Genetics* [DOI: 10.1038/ng.3046](https://doi.org/10.1038/ng.3046)

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