TWN Third World Network
www.twn.my

Briefing Paper 91

March 2017

IRRI seeks patents on yield-boosting gene taken from Indonesian farmers' rice

by Edward Hammond

In a move that seems guaranteed to anger farmers and civil society organizations, the International Rice Research Institute (IRRI) in Los Baños, Philippines is seeking patents on a valuable yield-boosting gene identified in a farmers' variety ("landrace") of rice held in the Institute's international genebank.

Public details of the certain-to-be-controversial case are scant, but some facts are known, including:

- In 2014, IRRI and JIRCAS, Japan's international agricultural research agency, filed an international patent application on a yield-boosting rice gene called "SPIKE".[1] IRRI and JIRCAS have also filed for national patents in at least Brazil, China, India, the Philippines, Thailand, the US and Vietnam.[2]

- The source of SPIKE is an Indonesian farmers' variety of rice named "Daringan"[3] that is in IRRI's genebank.[4] Daringan (IRGC 17446) is held by IRRI in trust for the world's farmers and is part of the Multilateral System (MLS) of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).[5]

- IRRI's patent applications appear to violate the Consultative Group on International Agricultural Research's (CGIAR) intellectual property policy.[6] Yet the applications are proceeding because "the CGIAR Consortium deemed IRRI's justifications for the national filings to be acceptable."[7] (The justifications have not been disclosed.)

IRRI researchers claim that the Indonesian SPIKE gene boosts yields in commercial indica rice varieties by as much as 36%.[8] If such dramatic increases play out in reality, SPIKE will be of high economic and agronomic value for rice farmers across the world.

IRRI had announced the identification of SPIKE with great fanfare back in 2013,[9] but the Institute did not then disclose that it was filing

Address: 131 Jalan Macalister, 10400 Penang, MALAYSIA **Tel**: 60-4-2266728/2266159 **Fax**: 60-4-2264505
E-mail: twn@twnetwork.org **Website**: www.twn.my

for patent, and few would have suspected that IRRI would do so, since the SPIKE gene was identified in a farmers' variety in IRRI's genebank.

Although IRRI's quaint online material transfers database indicates that Daringan is part of the ITPGRFA MLS, more precise details about its origin are unavailable. That is because the IRRI researchers and their JIRCAS collaborators have not described Daringan's origin in any detail in their publications.

IRRI's lack of forthright presentation of details on where SPIKE comes from includes failure to indicate important information in IRRI's international patent application. The application identifies Daringan as the source but does not say Indonesia is the country of origin. Nor does IRRI's patent application disclose that Daringan is an in-trust accession from the IRRI genebank that is part of the ITPGRFA Multilateral System.[10]

CGIAR and IRRI have detailed explaining to do

Farmers' organizations and civil society groups will strenuously object to IRRI patenting a gene sequence from a farmers' variety at all, especially a sequence from an in-trust variety in IRRI's genebank. The fairness and propriety of intellectual property claims over farmers' genetic resources in international genebanks like IRRI's have been hotly debated for more than two decades, and genebanks like IRRI have been expected to refrain from patenting MLS seeds, of which they are caretakers, not owners.

Certainly, if Syngenta, Monsanto or another seed company were to openly file to patent a gene from an in-trust variety, the company would likely face fierce civil society criticism and stiff opposition from governments that are Parties to the ITPGRFA.

So why is CGIAR allowing IRRI to violate its intellectual property policies? What could justify such a break from standing rules and the dangerous precedent of a CGIAR centre mining farmers' varieties for patents? Does IRRI seek to profit? Why has IRRI been tight-lipped about its patent applications? If IRRI does profit from its claims, how did it appoint itself the financial beneficiary of genetic resources held to benefit farmers, particularly small farmers in developing countries, like the ones who bred Daringan? Has the Indonesian government been informed, and has it granted its approval for IRRI's claims?

And what will be the reaction of the ITPGRFA, the Treaty whose Multilateral System is supposed to deliver benefits to small farmers and to ensure that the CGIAR genebanks and other MLS seeds are not captured by proprietary interests? Benefit sharing under the ITPGRFA is generally acknowledged as failing, and is the subject of ongoing negotiations that many insiders regard to be tightly linked to the Treaty's future viability. If key institutions entrusted with overseeing MLS seeds like IRRI are patenting their genebank holdings rather than protecting them from privatization, it bodes quite badly for the future of the MLS.

Questions about IRRI's claims over SPIKE are likely to be raised at upcoming meetings at the UN Food and Agriculture Organization (FAO), including its Working Group on Enhancing the Functioning of the Multilateral System, which meets on 13 to 17 March 2017, and the Governing Body of the ITPGRFA, which meets later this year.

CGIAR and IRRI officials, if they have a case to make, would do well to thoroughly explain their actions. They would do even better to promptly abandon their proprietary claims.

Edward Hammond directs Prickly Research (www.pricklyresearch.com), a research and writing consultancy based in Austin, Texas, USA. He has worked on biodiversity and infectious disease issues since 1994. From 1999 to 2008, Hammond directed the Sunshine Project, an international non-governmental organization specializing in biological weapons control. Hammond was Programme Officer for the Rural Advancement Foundation International (now the ETC Group) from 1995 to 1999. He holds MS and MA degrees from the University of Texas at Austin, where he was an Inter-American Foundation Masters Fellow.

Notes

1. WO2014118636. Breeding Methods for Enhanced Grain Yield and Related Materials and Methods.

2. CGIAR 2016. CGIAR Intellectual Assets Management Report 2015, p. 16. URL: http://library.cgiar.org/bitstream/handle/10947/4372/2015%20CGIAR%20IA%20Report.pdf

3. Fujita D et al. 2013. NAL1 allele from a rice landrace greatly increases yield in modern indica cultivars. *PNAS* 110(51): 20431-20436.

4. IRRI 2017. List of Outgoing SMTAs (database). URL for IRGC 17446 (Daringan) passport data: http://smta.irri.org/smta/listPassportData.do?&germplasmId=322912&method=listPassportData

5. See IRRI passport data for Daringan at URL above.

6. CGIAR 2016.

7. CGIAR 2016.

8. IRRI 2013. Gene discovery leads way to more rice (press release). 2 December. URL: http://irri.org/news/media-releases/gene-discovery-leads-way-to-more-rice

9. IRRI 2013.

10. See WO2014118636.