John Sheehy

Independently minded plant physiologist who envisaged a 'turbo-charged' rice that would avert hunger in a more populous world

By 2050 more than a billion people may owe their lives to John Sheehy, not that they will know. The supermarket shelves should still be plentifully stocked with rice, leaving no hint of what might have been had Sheehy not envisaged a way to increase yields of the crop by 50 per cent, in line with the growth in the number of people who depend on it every day.

Sheehy worked for the International Rice Research Institute (IRRI), an organisation in the Philippines that developed higher yielding varieties of the crop from the 1960s onwards. By the 1990s, however, similar increases in yields were becoming rare. When he arrived at IRRI as a systems modeller in 1995, there were high hopes that a new variety of rice, with a thick and sturdy stem, might increase yields by 50 per cent. Sheehy found, however, that this variety was not only more vulnerable to pests, it did not even have a higher yield.

He concluded that the factor limiting the plant's yield was not its capacity to carry more grains, but its ability to take in the energy to grow them. Maize turns air, sun and water into energy 50 per cent more efficiently than rice. He began looking for a way to breed a "turbo-charged" rice that employed the same process as maize. Not only would such a variety be higher yielding, it would also fare better in a changing climate.

In 1999 he invited plant physiologists from around the world to join him in the Philippines for a workshop about his plan, although it ended with the conclusion that the required gene-sequencing technology was as yet too expensive. Sheehy, however, stuck to his cause. At a workshop in 2006, he convinced the directors of IRRI to support an analysis of its feasibility.

Sheehy knew that the project could last decades, long past his retirement, and would require a large infusion of funds. So he went to Seattle to sell his idea to the Bill & Melinda Gates Foundation, returning with a pledge of $20 million.

Not having studied rice plants before, he was an unusual choice

He led the first stage of the project, which focused on the large-scale genetic screening of rice plants. In 2009 he retired, but the project continues, having moved to the University of Oxford. Jane Langdale, the present co-ordinator, estimates that with the resources now available the project could achieve its aim in 20 years.

Sheehy, however, believed that the project would progress at the speed society required, saying in 2013 that "if we do hit major food production starvation issues, then much more money will flow into this kind of research and our progress would be accelerated".

John Sheehy was born in Swindon, Wiltshire, in 1942, the son of Bernard Sheehy, an accountant clerk for British Railways, and his wife, Josephine (née O'Connor), a nurse. His family moved to Newport, Wales, after the war and he attended St Illtyd's Catholic High School, Cardiff. Noticing his love of books, his mother encouraged him to go to Aberystwyth University, where he studied physics, graduating in 1965.

He completed his MSc in 1967 on the telemetry of electrocardiograms from athletes, before deciding to retrain as a plant scientist at the Welsh Plant Breeding Station, from which he gained his PhD in 1971.

That same year he married Gaynor Bellis, a teacher whom he had met in freshers week at Aberystwyth. The couple had two daughters: Rhiannon, a piano teacher; and Isabel, who worked for the publisher Harper Collins. As a child Isabel was embarrassed to say her father was a scientist for fear of conjuring an image of frazzled hair and crooked spectacles, but he was not at all like that. A sociable man, Sheehy rarely talked about his work with friends.

ARIEL JAVELLANA/IRRI

John Sheehy in the Philippines in 2005

He joined the Grassland Research Institute near Reading, investigating ways to increase the yield of grassland legumes, but left shortly before the institute's closure in 1992. He then set up a consulting company and lectured part-time at Buckinghamshire College. In 1995 he applied to be a systems modeller at IRRI in the Philippines. Gaynor would visit him in the school holidays.

Not having studied rice before, he was an unusual choice for the role. On arrival he found the institute rather hidebound; some senior figures did not appreciate what his background in physics could add to their work and were apparently annoyed to discover that he was not a yes man. Sheehy on the other hand was irritated by the politics of the institute, but he enjoyed the sense of shared purpose.

Although he worked harder there than ever before, he always made sure his work did not become his life. While in the Philippines he took up golf, which provided a welcome chance to befriend local people. He was keen to give back to the local community and each year he would take his employees at the institute out for a Christmas lunch. On several occasions he agreed to lend money to locals — small change to him, but for them a roof over their heads.

He loved wine, jazz and a good book. Rugby was a passion. Having grown up in Wales with Irish ancestry, and then moved to England, he always had someone to cheer in the Six Nations. In his younger days he was a coach at Marlow Rugby Club, where at the bar or on the pitch, nobody would mistake him for the "mad" scientist of Isabel's imagining.

John Sheehy, plant physiologist, was born on October 9, 1942. He died of illness related to Parkinson's disease on June 7, 2019, aged 76