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PRESS RELEASE (2026/07/24)

Plasma Agriculture makes strides towards super-seeding conventional methods

Researchers review the latest results and understanding of mechanisms behind this new field of research where seeds show higher yields and resilience following flash treatment in low-temperature plasma

Every once in a while, the sun unleashes powerful flares and coronal mass ejections which hurl plasma and energetic particles into space. On the infant Earth, this solar activity drove cascades of atmospheric chemical reactions that may have helped form the building blocks of life. More recently, scientists have discovered that applying plasma to seeds in a controlled way can trigger similar activity to make them faster-growing and more resilient.

In a review published in the *Journal of Advanced Research,* Professor Kenji Ishikawa at Nagoya University and Professor Kazunori Koga from Kyushu University's Faculty of Information Science and Electrical Engineering have compiled a comprehensive review of this new field—termed "Plasma Agriculture"—a potential sustainable solution to address global food shortage. The team synthesized data from over 30 crop species to find that in more than two-thirds of reported studies, well-tuned plasma treatments boost seed vigor or yield, while the remaining cases show neutral or even negative effects when the dose is not properly controlled.

The full release can be found here:
https://en.nagoya-u.ac.jp/news/articles/plasma-agriculture-makes-strides-towards-super-seeding-conventional-methods/

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For more information about this research, see Sunlight to Plasma: Mimicking nature's light for smarter agriculture and crop production," Pankaj Attri, Kenji Ishikawa, Kazunori Koga, *Journal of Advanced Research,* https://doi.org/10.1016/j.jare.2026.06.015

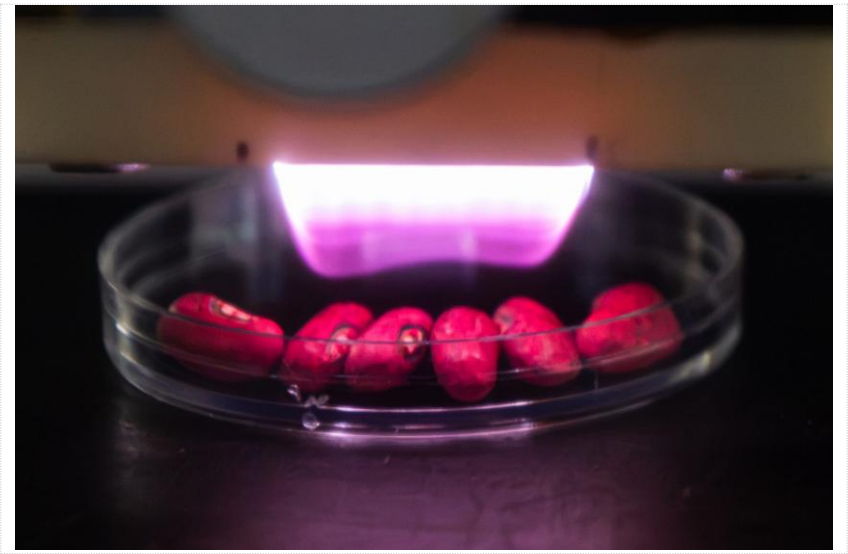

Fig. 1. Yardlong Bean (Vigna unguiculata var. sesquipedalis) seeds undergoing treatment under low-temperature plasma.
(Sumeet Kulkarni/Nagoya University)

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