New research sheds light on the reluctance of farmers to adopt new technologies

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Research from the University of Kent's School of Economics sheds new light on a long-standing obstacle to improving agricultural productivity in developing countries: the reluctance of small-scale farmers to adopt

modern technologies because of the risks associated with them.

The paper, published in Science Direct, examined the relationship between attitudes towards risk among small-scale aquafarmers in Ghana and the time they take to adopt new technologies that reduce traditional risks, including; poor weather conditions, aquatic predators and poor hygiene.

The researchers conducted a series of psychological experiments with aquafarmers in 30 villages in four regions in southern Ghana to measure their aversion to risk and willingness to take gambles. They also recorded the aquafarmers' adoption of three innovative technologies recently introduced to Ghana: predator-proof floating cages for fish; a nutrient-rich fish feed; and a fast-growing, disease-resistant breed of tilapia fish.

Results showed that aversion to traditional production risks accelerated the adoption of all three technologies. However, adoption of floating cages was slower due to the significant upfront financial investment required, making small-scale experimentation with the technology impractical. The study also found that once aquafarmers in a community have started using the cages, the aversion by others to take the risk was further reduced.

Based on their findings, the study's authors advocate providing practical information about new agricultural technologies and information about positive returns from their adoption with the help and encouragement of regional extension agents to encourage the adoption of new agricultural technologies by small-scale farmers in developing countries.

Dr. Adelina Gschwandtner, Senior Lecturer in Economics and Principle Investigator, said: 'These findings may have significant consequences beyond Africa and onto the global agricultural sector. Addressing traditional perceptions with this new understanding of the potential to

reduce risk by adopting new ideas, methods, and technologies, may broaden how business ventures are viewed and conducted in the future. This in turn may help agricultural ventures in developing nations become secure and allow them to flourish.'

More information: Christian Crentsil et al, The effects of risk and ambiguity aversion on technology adoption: Evidence from aquaculture in Ghana, *Journal of Economic Behavior & Organization* (2020). DOI: 10.1016/j.jebo.2020.07.035

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