

Farmers Willingness to Pay for an Irrigation Scheduling Tool and the Constraint on Information

T Foster*

Department of Mechanical, Aerospace & Civil Engineering, University of Manchester, Manchester, UK

Abstract

Due to climate change, water scarcity and the need for more water resources are growing in Sub-Saharan Africa (SSA). However, smallholder farmers may be unable to effectively manage irrigation water for sustainable crop production due to a lack of information and access to irrigation scheduling decision support tools. Wetting Front Detector (WFD) is one of the simple, low-cost, and user-friendly soil water monitoring tools that have been developed to overcome the complexity of irrigation scheduling. However, the tools' commercial viability is contingent on effective demand for the services. The Wetting Front Detector's (WFD) information has an impact on farmers' willingness to pay (WTP), according to this study. First, we find that 98% of farmers reported a WTP higher than zero and that approximately 57% of farmers have information regarding the WFD. Second, although most farmers are willing to pay a small fee for the WFD, they are extremely price-sensitive. Thirdly, after taking into account differences between irrigation communities, irrigation data increases farmers' WTP for WFD by \$6. According to a heterogeneity analysis, women, young people, and those with high incomes have higher WTP than men, adults, and those with low incomes. The findings suggest that future adoption will rise as a result of price subsidies and increased awareness of the new irrigation scheduling tool.

Keywords: Willingness to pay • Lack of information • Irrigation scheduling software

Introduction

Do farmers in developing nations prefer to invest in irrigation scheduling tools that monitor soil water levels to traditional irrigation methods? Farmers, researchers, practitioners of development, and policymakers all have important questions regarding the quantity and timing of the application of water to farmers' fields. The use of water and upkeep costs of irrigation infrastructure are associated with irrigated farming. Understanding farmers' context and willingness to pay (WTP) for a low-cost irrigation tool, the wetting front detector (WFD), as well as the policy environment's ability to facilitate technology adoption may help development practitioners design, educate, and disseminate new technologies and tools.

Discussion

Due to the fact that rain-fed agriculture is used by a lot of farmers in Sub-Saharan Africa (SSA) and irrigation is a way to adapt to climate change, demand for irrigation is growing. As the world's population grows, so does the need for sustainable food production. As a result, there must be more land for agriculture and more irrigation water needed to meet the growing demand. Irrigation agriculture uses about 70% of the world's water, and the threat of climate change is expected to increase that share even more. As a result, practitioners of development have developed programs to raise awareness of effective irrigation systems and low-cost irrigation scheduling tools in order to help smallholder farmers make the best irrigation decisions

in order to maximize water use efficiency and boost productivity. Even though these tools are being promoted, little is known about how information encourages users to use them, especially in Ghana. Northern Ghana (Upper East Region) is a one-of-a-kind instance due to its monomodal rainfall and prolonged drought. Poverty is very high in the area. Despite its effectiveness, the WFD tool is more expensive than the conventional method of irrigation. This is likely to discourage adoption, particularly among farmers with limited resources. This suggests that farmers' adoption of technology is likely to vary [1,2].

The three primary research questions pertaining to farmers' adoption of the new irrigation tool and WTP are the focus of this paper: 1) Is the new tool in high demand? 2) What factors affect how easily people can access information about the tool? 3) How does the tool's information influence farmers' willingness to pay? Our study relied on a survey of irrigation farmers in rural Ghana who participated in an on-farm demonstration of the irrigation tool and expressed their WTP to answer these research questions. However, due to a lack of funds to participate in auctions, the farmers' WTP were based on their stated preferences. None of the people who watched the demonstrations had used the irrigation tool before. Despite numerous studies on technology adoption, farmers' WTP for WFD is poorly understood. The majority of studies only provided estimates of farmers' WTP for irrigation without actually examining irrigation scheduling [3-5].

Conclusion

Who utilized a contingent valuation approach to estimate farmers' WTP for the adoption of the Chameleon soil moisture monitoring tool in South-Eastern Africa. They discovered that the tool was in high demand, and WTP was being influenced by things like household characteristics, the effect of the neighborhood, the cost of irrigation, knowledge of how to use the tool, and its advantages. There are two main contributions from our study. First, we estimated the demand for WFD across a diverse sample in our study. The demand for irrigation tools was not estimated in any of the previous studies examined. We discover that farmers with information on water management are more price-sensitive than farmers without it. Implementing development projects that focus on new agricultural technologies and tools can be made less expensive with the help of the findings' technology targeting guidance. Second, the empirical findings of our research shed light on how farmers'

*Address for Correspondence: T Foster, Department of Mechanical, Aerospace & Civil Engineering, University of Manchester, Manchester, UK, E-mail: pierfranco.foster23@mail.las.ac.cn

Copyright: © 2023 Foster T. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Received: 02 January 2023, Manuscript No. idse-23-88368; **Editor assigned:** 05 January 2023, PreQC No. P-88368; **Reviewed:** 16 January 2023, QC No. Q-88368; **Revised:** 21 January 2023, Manuscript No. R-88368; **Published:** 30 January 2023, DOI: 10.37421/2168-9768.2023.12.366

WTP are affected by a new irrigation scheduling tool and the factors that influence access to information. According to our findings, access to information is influenced by socioeconomic, institutional, and geographical factors, as is farmers' WTP for WFD.

Acknowledgement

None.

Conflict of Interest

None.

References

1. Jaiswal, Mukherjee, J. Krishnamurthy and R. Saxena. "Role of remote sensing and GIS techniques for generation of groundwater prospect zones towards rural development an approach." *Int J Remote Sens* 24 (2003): 993-1008.
2. Jay, Krishana and Suyash Kumar Singh. "Delineating groundwater potential zones in a hard-rock terrain using geospatial tool." *Hydrol Sci J* 58 (2013): 213-233.
3. Fashae, Olutoyin A., Moshood N. Tijani, Abel O. Talabi and Oluwatola I Adedeji. "Delineation of groundwater potential zones in the crystalline basement terrain of SW-Nigeria: an integrated GIS and remote sensing approach." *Appl Water Sci* 4 (2014): 19-38.
4. Gogu, Radu Constantin, Vincent Hallet and Alain Dassargues. "Comparison of aquifer vulnerability assessment techniques. Application to the Néblon river basin (Belgium)." *Environ Earth Sci* 44 (2003): 881-892.
5. Paramita, Roy, Chakraborty Rabin and Subodh Chandra Pal. "Groundwater Vulnerability Assessment Using Random Forest Approach in a Water Stressed Paddy Cultivated Region of West Bengal, India." *Groundwater Geochemistry: Pollution and Remediation Methods* (2021): 392-410.

How to cite this article: Foster, T. "Farmers willingness to pay for an irrigation scheduling tool and the constraint on information." *Irrigat Drainage Sys Eng* 12 (2023): 366.