

Extended Abstract

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Paper/Poster Title	Do agro-input dealers care about pesticide risk reduction: Evidence from a choice experiment in Uganda
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Abstract prepared for presentation at the 98th Annual Conference of The Agricultural Economics Society will be held at The University of Edinburgh, UK, 18th - 20th March 2024.

Abstract	200 words max
<p>In this article, we assess agro-input dealers' perspectives on the concept of a voluntary certification scheme aimed at promoting safer plant protection products and reducing pesticide risks. Using survey data from 557 agro-input dealers in Uganda and a discrete choice experiment, we find that the proposed certification scheme is significantly valued by agro-input dealers, particularly for its potential to provide training opportunities and ensure safety to human health and the environment. Agro-input dealers have a positive attitude towards a certification scheme that restricts the sale of high-risk pesticide products, especially if it stimulates additional income-generating opportunities. A heterogeneous analysis shows that preferences for voluntary certification attributes are influenced by certification experience, agro-dealership experience, business ownership status and incidence of acute pesticide poisoning. Overall, the findings demonstrate that agro-input dealers are conscious of pesticide risks to human and environmental health and are keen to participate in a certification scheme promoting safer plant protection products.</p>	
Keywords	Agro-input dealers, Certification, Pesticides, Environmental sustainability, Choice experiment.
JEL Code	C9, Q1, Q5, Q12
Introduction	100 – 250 words
<p>While pesticides are essential for crop protection and food security, they pose serious risks to human health and the environment. Agro-input dealers can play an important role in mitigating pesticide risks, given that they are a major source of pesticides and plant health information for many developing-country farmers. While a few previous studies have investigated agro-dealers' role in pesticide risk reduction, they focussed mostly on pesticide knowledge and practices of agro-dealers and the advice they give to farmers. In the current study, we assess if agro-dealers would be willing to shift from the sale of high- to lower-risk plant protection products and contribute to pesticide risk reduction through a voluntary certification scheme. We analyse the relative importance of different design features, including potential requirements and benefits of the certification scheme. We also explore if preferences for the voluntary certification scheme are influenced by agro-dealer characteristics, such as certification experience, gender, location and prior knowledge of IPM. Finally, we estimate agro-dealers' willingness to pay (WTP) to reduce environmental and health risks posed by pesticides. Our study contributes to the literature on individual preferences for pesticide-reduction or agri-environmental schemes. Previous studies have largely focused on farmers, while we focus on agro-input dealers who sell pesticides to farmers. Methodologically, we extend the application of discrete choice experiment (DCE) to agro-dealers—an important yet often-overlooked group in pesticide risk reduction research.</p>	

Methodology	100 – 250 words
<p>The data used in this study came from a representative survey of 557 agro-dealers in Uganda, where there are an estimated 3000 agro-dealers (Mabaya et al., 2018). The survey was conducted in November–December 2021 across all the four administrative regions and 10 sub-regions of Uganda. All selected agro-input shops were visited for face-to-face interviews with agro-dealers who regularly attend to customers. The interviews were conducted by a team of 15 local enumerators who were trained by the researchers. Data were collected using a tablet-based questionnaire programmed on Open Data Kit platform. The questionnaire captured information on agro-dealers’ socio-demographic characteristics, shop characteristics, attitudes towards mandatory and voluntary certification, awareness of biopesticides and IPM, membership in agro-dealer associations, and a DCE to elicit agro-dealer preferences for voluntary certification attributes. The attributes included in the DCE were pesticide-sale model, training requirement, quality control, expected income effect, health and environmental risks, and investment costs. We used mixed logit models to estimate agro-dealers’ preferences for voluntary certification scheme attributes. The agro-input dealers’ WTP for the certification attributes is estimated as the marginal rate of substitution between the various attributes and the investment costs attribute.</p>	
Results	100 – 250 words
<p>The analysis showed that agro-dealers consider the concept of a voluntary certification scheme to promote lower-risk plant protection products relevant, as it can help improve their business while ensuring safety for people and the environment. Agro-dealers have a positive attitude towards a shift from the sale of registered products to selling only registered lower-risk products, particularly when combined with having the capacity to provide plant health diagnostic and advisory services to their customers. They also strongly value a certification scheme that provides training opportunities, but dislike unannounced inspection of shops for checking compliance with quality requirements. In addition, they have a positive preference for a voluntary certification scheme that provides income benefits, but they demonstrate a much stronger preference for reducing the health and environmental risks associated with pesticides. We also found evidence that including additional income-generating opportunities, such as the provision of pest diagnostic and advisory services, would be essential to be able to attract already certified agro-dealers to participate in a voluntary certification scheme aiming at restricting the sale of high-risk products.</p>	
Discussion and Conclusion	100 – 250 words
<p>Our results are generally comparable to previous studies showing that the willingness of farmers to pay to avoid pesticide risks or to adopt safer alternatives to pesticides is greatly influenced by concerns about the health and/ or environmental risks of pesticides. Overall, our findings imply that the concept of a voluntary sustainability certification for agro-dealers is greatly valued, particularly for its potential to provide training opportunities and ensure safety to human health and the environment. Thus, the design of an agro-dealer certification scheme to promote safer crop protection products and achieve pesticide risk reduction goals is worth pursuing. Given that the promotion of lower-risk pesticide products can generate positive externalities, agro-dealers could be nudged to participate in the IPM-oriented certification scheme through monetary incentives, as is the case of agri-environment and payments for environmental services schemes for farmers. In the case of Uganda, it would be useful to explore the possibility of incorporating some desirable attributes of the voluntary certification scheme, such as training on lower-risk plant protection products and IPM into the country’s mandatory certification course for agro-dealers, as these are currently missing in the training curriculum.</p>	