

Extended Abstract

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Paper/Poster Title	Multiple Food Standards and Firms' Exporting: The case of Apple industry in South Africa
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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	<i>200 words max</i>
<p>Adoption of food standards (FSs) may allow firms to send a strong signal to global buyers, facilitating access to international markets. Yet, we know little about whether firms that adopt multiple FSs benefit from increased exports. Drawing on signalling theory and the resource-based view (RBV) of the firm, we argue that of the firms that adopt multiple FSs, only those that also develop the unique internal resources and capabilities related to integrated pest management (IPM) are able to increase their exports. Based on a mixed method approach, which includes econometric analysis of 89 apple farms and qualitative assessment of 32 interviews in South Africa, we offer evidence suggesting that adopting multiple FSs increases export growth only when their adoption is complemented with specific IPM practices. We argue that this positive complementary effect is due to tacit and unique capabilities (e.g., knowledge about pest biology, technology, and the capability to adapt and integrate distinct pest control methods) that growers develop while applying IPM practices to ensure food safety. While these capabilities are invisible to global buyers, adoption of multiple FSs allows firms to emit a stronger signal and in doing so, to communicate their unique invisible capabilities (i.e., IPM).</p>	
Keywords	Food Standards, Integrated Pest Management, Export growth, South Africa, Mixed-method analysis.
JEL Code	Environment and ecology (Q5)
Introduction	<i>100 – 250 words</i>
<p>FSs serve as governance tools adopted by firms aiming to tackle pressing sustainability challenges in agricultural markets, including food safety, environmental impact, and social considerations. However, it remains uncertain whether multiple FSs promote or hinder trade. This is important especially for food exporters from developing countries. This is because asymmetric information is more pronounced in trade between developed and developing countries compared to trade within similar regions, where norms regarding food safety and quality are comparable. This discrepancy may amplify the significance of FSs for the exports of developing countries. Drawing on insights from the signalling theory and the RBV of the firm, we posit that adoption of a single FS may allow firms to send a signal to global buyers, facilitating access to international markets. Yet, we question whether adoption of multiple FSs will boost exports further. In an era of deregulation, the proliferation of FSs effectively</p>	

addresses environmental and social sustainability challenges. However, it falls short in ensuring food safety and safeguarding the associated health benefits for the consumers. We argue that only firms that develop internal resources and capabilities related to IPM can increase their exports by adopting multiple FSs and this occurs because IPM entails *tacit and unique capabilities* (e.g., knowledge about pest biology, technology, and the capability to adapt and integrate distinct pest control methods) that ensure food safety, yet it is *invisible* to global buyers.

Methodology

100 – 250 words

We test the above-mentioned arguments using a mixed method approach, which is based on econometric analysis that draws on novel survey data for 89 apple farms in South Africa and a qualitative assessment of 31 in depth interviews. The quantitative analysis relies on data from a self-administered socio-economic survey conducted among apple producers situated in the Western Cape region of South Africa, which is an important area for deciduous fruit production in the country.

The survey data adhered to a standardised structure and were collected by one of the authors and two trained research assistants specialising in survey data collection. In addition to the survey questionnaire, the research team sought respondents' willingness to address additional, non-survey questions to supplement the survey with qualitative insights. Subsequently, 31 producers expressed their willingness to contribute further qualitative information through face-to-face interviews. These supplementary interviews, each lasting additional 30 minutes to 1 hour, were recorded for subsequent analysis. Therefore, the qualitative analysis in this study is grounded in the additional insights gathered during the face-to-face interactions with both producers and key stakeholders.

Results

100 – 250 words

We are at the data analysis stage at the time of writing this abstract therefore, the results are preliminary and not definitive. Nevertheless, the results indicate that of the firms that adopt multiple FSs, only those that also develop the unique internal resources and capabilities related to IPM are able to increase their exports. The positive effect of complementarity on export growth is more apparent and statistically significant only when FSs adoption is complemented with i) cultural control practices i.e., release of sterile insects and planting cover crops to attract beneficial insects and ii) prevention practices i.e., release of beneficial insects and using sticky traps or Pheromone traps.

Discussion and Conclusion

100 – 250 words

The RBV contends that organizations can gain a competitive advantage by leveraging their unique bundle of practical and technical knowledge, skills, competencies, and practices. Signalling theory suggests that organizations can communicate internal qualities, such as the ability to utilize unique resources, to external stakeholders. For fruit growers, adopting multiple FSs and implementing IPM practices serves as a

strategic approach to develop internal qualities and showcase their commitment to addressing environmental impacts.

In our research, we explored whether the adoption of multiple FSs and IPM practices contributes to the exportable growth of farms. The findings reveal that simply adopting additional FSs, beyond industry standards, does not guarantee positive outcomes. Effective exportable growth requires a combination of multiple FSs and diverse IPM practices. Interestingly, while FS adoption serves as a communication tool to signal a commitment to food quality and safety, it alone does not significantly impact exportable growth.

The study highlights the importance of integrating various IPM practices, which, unlike FSs, are not employed as signals or communicated through marketing channels. The real value in enhancing exportable growth lies in adopting different types of IPM practices that help growers address issues relating to food safety and quality. Consequently, we suggest that environmental and agricultural policies should incentivize the adoption of diverse IPM practices and provide opportunities for growers to communicate their environmental stewardship, thereby fostering a more comprehensive approach to sustainable agriculture.