Understanding farmers' motivations and decisions on ISFM practices

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Introduction

One of the major causes of the low yield per hectare in Ghana's cocoa production sector is a deficiency of soil nutrients (van Vliet et al., 2015). Integrated Soil Fertility Management (ISFM) is a means to enhance crop productivity while maximising agronomic efficiency of applied inputs (Vanlauwe et al., 2015), that can contribute to sustainable intensification of Ghanaian cocoa production. Despite promising potential, widespread adoption is lacking (Vanlauwe et al., 2006) due to lack of adequate knowledge of farmers' adoption behaviour towards the new technologies (Mugwe et al., 2008). A deeper understanding of practices and the rationale behind behaviour is necessary (Mwangi & Kariuki, 2015; Mugwe et al., 2008; Baffoe-Asare et al., 2013). Additionally, agricultural extension to farmers often assumes similar needs and aspirations. Research reveals there are in-fact many differences between farmers (IITA, 2019).

Research Question: **what affects farmers' decisions on the application of soil fertility management practices in cocoa production in Ghana?**

Study objectives:

- To understand farmers' motivations for growing cocoa;
- To determine and identify the incentives and constraints for farmers to (continue to) apply ISFM activities on their farms;
- To make an ISFM typology of farmers based on their motivations for cocoa and utilisation of ISFM practices.

Assessed ISFM practices: inorganic fertiliser application, organic fertiliser application, crop residue management (husk spreading), choice of tolerant (hybrid) variety, land preparation technique (proka).

Methodology and framework

- Qualitative research design: 5 background interviews with key informants and 40 semi-structured interviews with cocoa farmers (30 in Ashanti Region and 10 in Western Region), transcripted and coded.
- Qualitative analysis to identify farmers' motivations.
- ISFM utilisation stages for each practice determined through adapted framework (Brown et al., 2017) (Figure 1), with incentives and constraints.
- Typology based on motivations and current ISFM utilisation score.

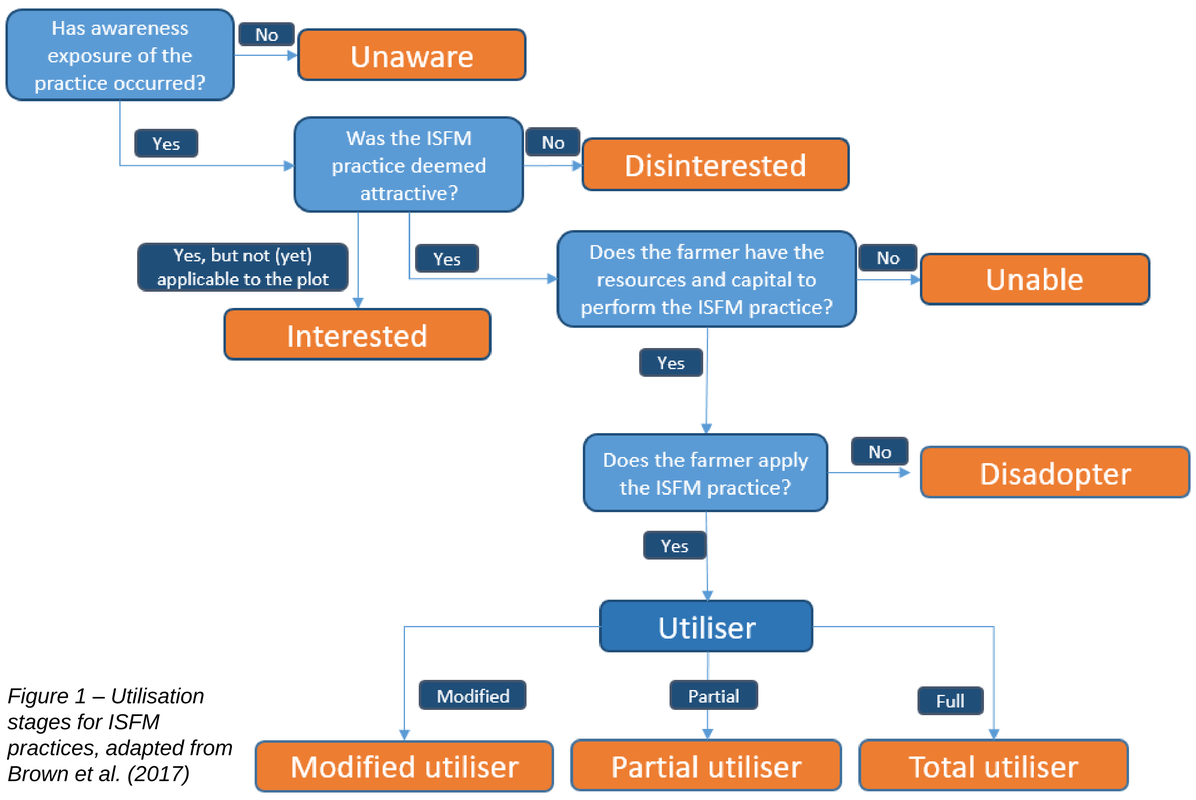

Figure 1 – Utilisation stages for ISFM practices, adapted from Brown et al. (2017)

Results

The motivations mentioned by the farmers were assembled into twelve groups which fit into three categories: passionate, practical and lack of alternative (table 1). Farmers had diverging ISFM utilisation stages for the different practices: results are demonstrated in figure 2. Additionally, a total utilisation score was determined for each individual farmer. The typology based on motivation and ISFM utilisation score is displayed in figure 3.

Table 1 – Farmers' motivations for growing cocoa

Category	Motivation	mentioned by % of farmers
Passionate (8 farmers)	Good income	20
	Support Ghana	17.5
	Be part of the cocoa farmers	15
	Family tradition	15
Practical (25 farmers)	Support my family	32.5
	Income provision	35
	Enough land available	17.5
	Longlasting crop	12.5
	Better income than oil palm	10
	Future crop	32.5
Lack of alternative (7 farmers)	School drop-out	20
	No alternative jobs available	12.5

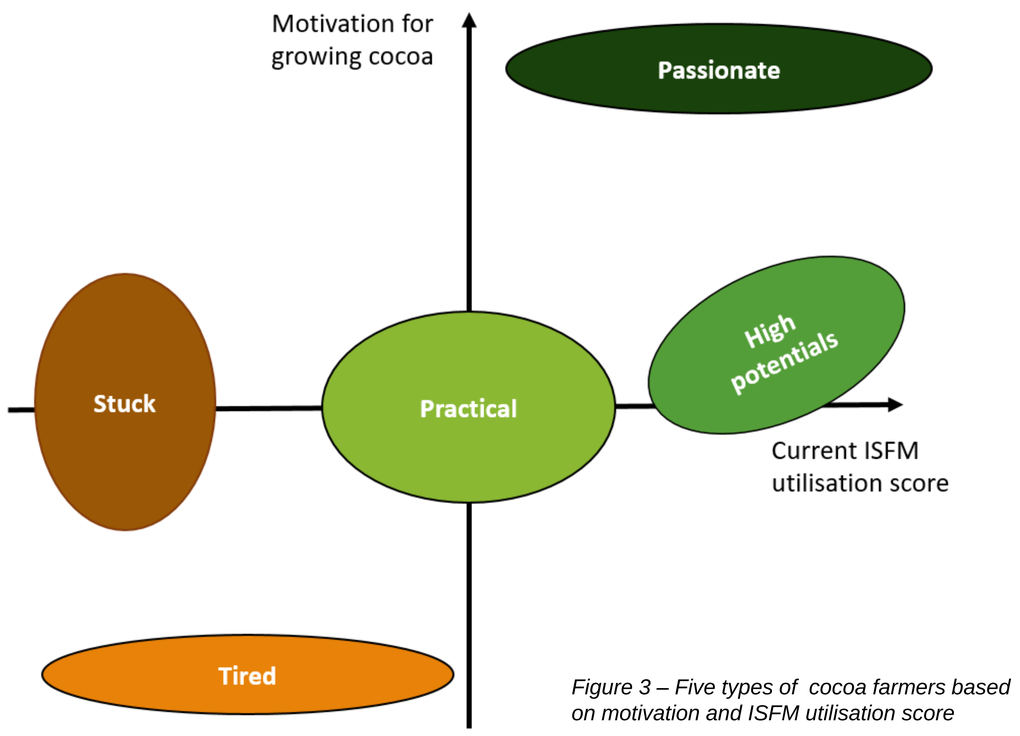

Figure 3 – Five types of cocoa farmers based on motivation and ISFM utilisation score

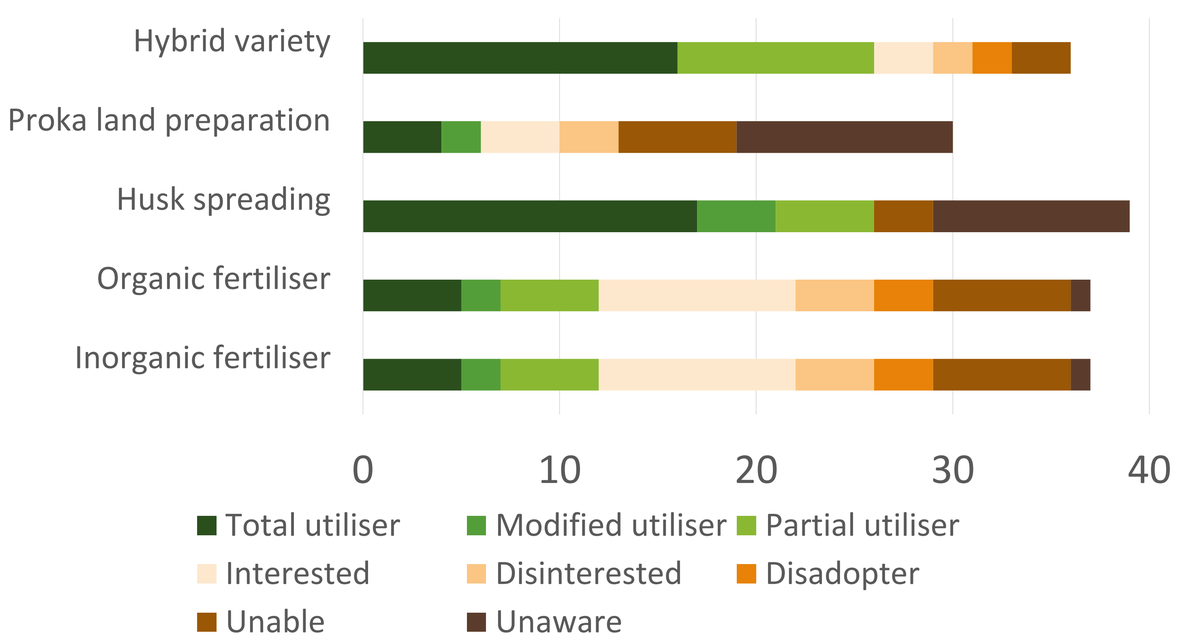

Figure 2 – Distribution of the utilisation stages over the ISFM practices

Conclusion

The typology demonstrates heterogeneity among cocoa farmers. Understanding their utilisation stages, incentives and constraints can help to shape implementation of ISFM practices for specific groups of farmers. Suggested strategies for improving ISFM utilisation of the farmers could focus to affirm the passionate, stimulate the high potentials, strengthen the practical, enable the stuck and motivate the tired.

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