



Efficiency of innovative, improved versus traditional avocado fruit pickers: Experience from the Southern Highlands, Tanzania

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Background

- Tanzania produces about 190,000 MT/year of Avocado and 11,237 MT exported in 2021 (TAHA, 2024; TanTrade, 2023).
- Southern Highlands regions; Njombe, Mbeya, Iringa and Songwe are the leading producer of commercial avocado
- Harvesting from tall trees is by hand, hitting sticks, climb-pick drop, and cut off or shaking of branches



Problem

- Most of the older avocado trees in the study area are taller and difficult to harvest
- Existing harvest practices and tools cause damage, reduce fruit quality, increase postharvest losses
- Imported harvesting tools are difficult to operate and find in local markets
- **Objective;** evaluate efficiency of Improved Avocado Fruit Picker (IAFP) for improve fruit quality at harvest and postharvest



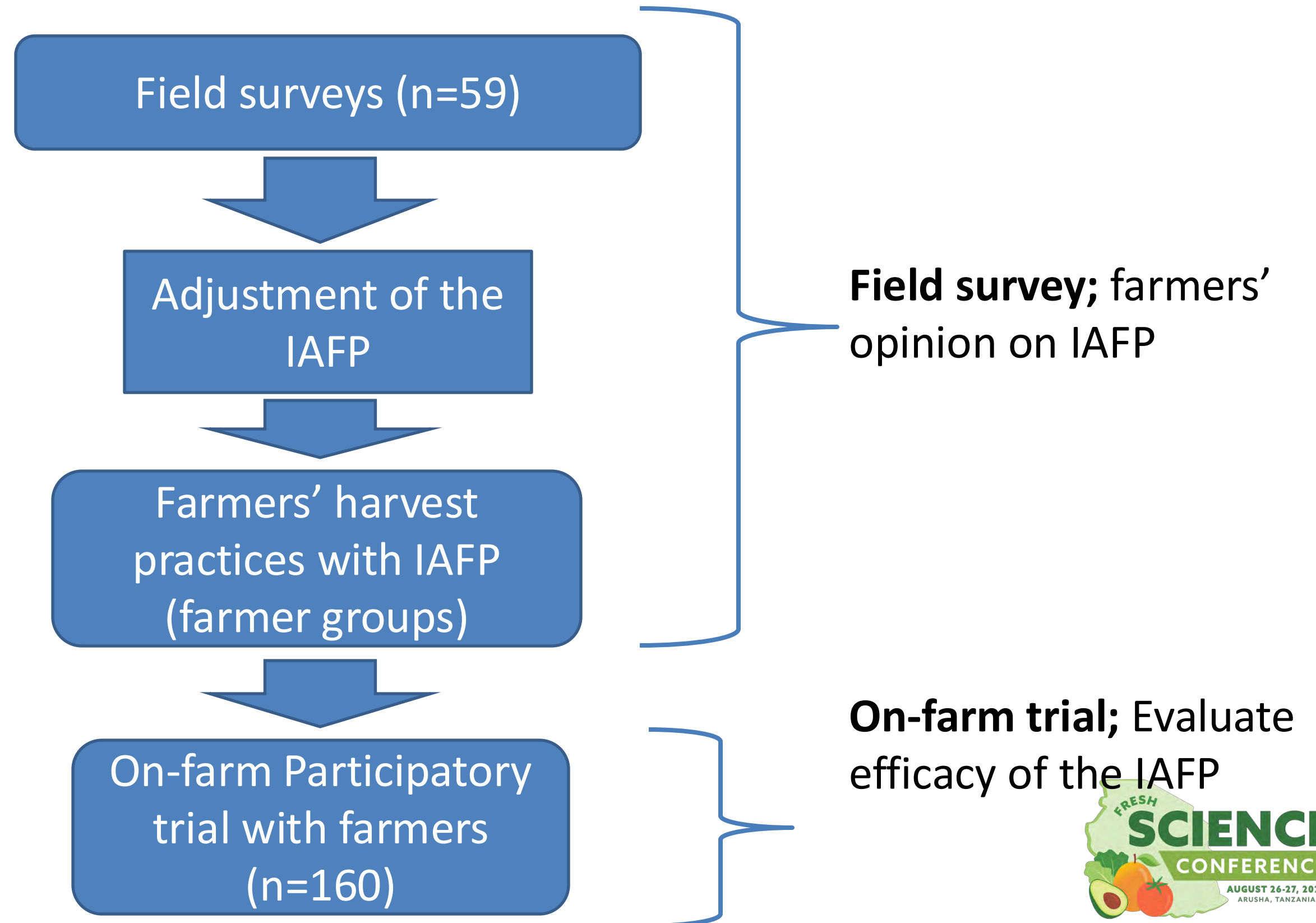
Methodology

Study area

- Busokelo DC, Rungwe DC, Mbeya DC & Mbozi DC.

Studies

- Field Surveys
- On-farm participatory trials



Methodology

Field Survey

Field surveys (n=59)



Adjustment of the IAFP
(Artisan & KIBOWAVI)



Farmers' harvest
practices with IAFP
(group of +10 members)



Methodology

Experimental Design

- One factor experiment in RCBD
- Treatments:
 - i. **Improved Avocado Fruit Picker (IAFP)**
Farmers + experienced picker
 - ii. Bamboo harvesting pole
 - iii. Hand harvesting
- District Councils;
 - Busokelo, Rungwe, Mbeya, & Mbozi

On-farm
Participatory
evaluation trial
with farmers
(n=160)



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On-farm
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Methodology

Data Collection

- Time taken to harvest 1 crate
- Number of drop-outs/ crate
- Number of damaged fruits/ crate
- Number of Fruits with stalk detachment/ crate
- Picker comfortability (1-10 scale)

On-farm
Participatory
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1



10

Very much comfortable

Very much uncomfortable

Results

Treatment	Harvest time / crate (min)	Stalk detachment/ crate (%)	Fruit drop outs (No/crate)	Picker dis- comfort (Scale 1-10)
IAFP +Experienced Picker	19.3 13.08a 4.3	2.97a	9.99a	1.00a
IAFP +Farmer	19.06b 13.4	5.45a	13.47a	1.39a
Hand picking	17.38b 15.0	1.09a	42.19b	4.11b
Bamboo pole & twist	32.44c	37.91b	38.07b	5.79c
CV%	36.4	89.8	59.4	53.7
p-value	<.001	<.001	<.001	<.001

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	Harvest time /	detachment/	outs	comfort (Scale
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Conclusion & recommendations

IAFP reduced harvest time by 41.3% (13.4 min) to 19.1min or by 59.5% (19.3 min) to 13.1min with experience over bamboo pole

IAFP reduce fruit stalk detachment by 85.5% (32.4) or 92% (34.9) with experience over bamboo pole.

IAFP reduced fruit drop by 64.6% (24.6 fruits) or 73.8% (28.1 fruits) with experience over bamboo pole. Also reduced by 68% or 76.3% with experience over hand

IAFP reduced picker discomfort by 76% (5.8 to 1.4) or 82.9% (5.8 to 1 scale) over bamboo pole. Also reduced discomfort by 65.7% (4.1 to 1.4) or 75.7% with experience over hand picking.

IAFP) is recommended for reducing harvesting time, picker discomfort, postharvest loss and improving fruit quality and hence marketing



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Thank You



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