Agro-dealers as Information Agents: Insights on Gender and Inclusion

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Webinar series Bridging Gender Research and Causal Inference in Agri-Food Systems

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Motivation

- Emerging evidence has shown that agro-dealers can act as information agents for new, improved varieties (Kariuki et al., 2025; Dar et al., 2020)

  - Interventions (information and incentives) that resulted in changes in AD behavior

  - Changes in AD behavior translated to changes in farmer behavior (ADs can influence farmers' behavior)

- However, gender and social inclusion considerations in how ADs interact with different farmers are unknown

  - Women farmers visit shops to buy seed (about half of farmers in two of our studies implemented at retail were females (Kariuki et al., 2025; Ndegwa et al., 2025)

  - ADs must put effort and time into influencing farmers to new products

  - Likelihood of putting more effort towards farmers whom they **perceive** as more likely to change

➢ ***Exploratory study to document how agro-dealers perceive and interact with different farmer types***

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Research Questions

- How do agro-dealers perceive the likelihood of adoption of new maize varieties by farmers with different characteristics (i.e., sex, age, seed purchase volume)?

- To what extent are agro-dealers likely to recommend new maize varieties to different types of farmers?

- How do agro-dealers interact with male versus female maize seed customers?

Study design

Study population and sample

- Four counties in Eastern Kenya: Murang'a, Machakos, Meru, and Tharaka-Nithi.

- Sample: 342 agro-dealers.

- Part of an RCT testing the role of a price discount to agro-dealers on sales and stocking of specific new hybrids (referred to here as promoted varieties)

Data sources

- Agro-dealer surveys: respondents and shop-level characteristics.

- Vignette experiment: agrodealer perceptions

- Mystery shopper experiment: agrodealer behavior

2023	Activity
Jan	Agro-dealer listing
Feb	Baseline survey Implementation of the intervention
Mar	Mystery shopper experiment (Seed selling season)
Nov	Endline survey & Vignette experiment

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Vignette experiment

Step 1: Hypothetical new variety

• Agro-dealers shown a short Swahili-language video with simple animations illustrating the key features of *a* hypothetical new maize variety***** suited to the study region
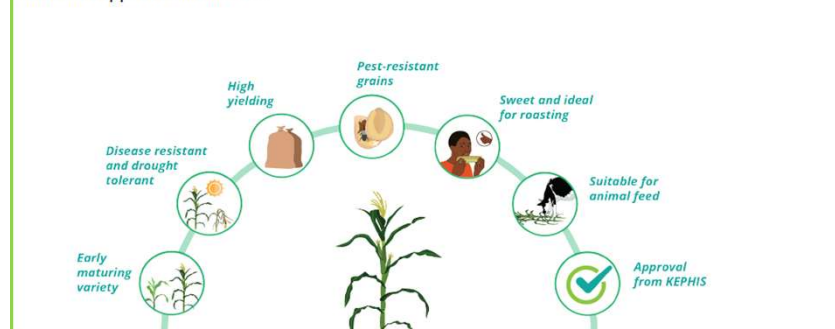
Step 2: Vignettes of different farmer types

• Farmer profiles in the form of vignettes
  • Sex (male/female),
  • Age (younger (under 35) /older (over 45))
  • Seed purchase amount (1 or 5 packets (2kgs/packet))

• 8 unique profiles/vignettes (2 × 2 × 2 = 8)

• Each agro-dealer was **randomly assigned 3 vignettes**

Step 3: Agrodealer perceptions assessed

• Agro-dealers asked two questions:
  • How likely is this farmer to try the new maize variety?
  • How likely are you to recommend the new variety to this farmer?
  • Responses were given on a five-point Likert scale, from 1 (Very unlikely) to 5 (Very likely).

Simulizi

Imagine kwamba shirika la utafiti nchini Kenya hivi majuzi lilitengeneza aina mpya ya mahindi yenye sifa zifuatazo: ni aina inayokomaa mapema (inakomaa kati ya miezi 3-4), Inastahimili magonjwa na kustahimili ukame, nafaka zake zinastahimili wadudu, ni tamu wakati unaila hasa kama mahindi choma. Zaidi ya hayo, inafaa kwa chakula cha mifugo kwani mti wake na matawi yake hubakia green kwa muda mrefu baada ya kuvuna. Aina hii ya mahindi imefanyiwa majaribio na watafiti na Huduma ya Ukaguzi wa Afya ya Mimea ya Kenya (KEPHIS) na imeonekana kuwa bora zaidi kuliko zile hybrids zingine za zamani. Hii mbegu imekuwa approved na KEPHIS.

High yielding
Pest-resistant grains
Sweet and ideal for roasting
Disease resistant and drought tolerant
Suitable for animal feed
Early maturing variety
Approval from KEPHIS

Mary
Female
Young (Under 35 years)
Normally buys 1 packet

5. Mary ni mwanamke, ambaye ni kijana aliye na umri wa chini ya miaka 35. Kwa kawaida, yeye hununua pakiti 1 ya mbegu za mahindi kwa msimu mkuu wa kupanda. Mary ni mkulima tu wa kawaida katika eneo hili, ukiangalia mbinu zake za kilimo na mavuno ambayo anapata kila msimu.

James
Male
Young (Under 35 years)
Normally buys 5 packets

2. James ni mwanaume, ambaye ni kijana aliye na umri wa chini ya miaka 35. Kwa kawaida, yeye hununua pakiti 5 za mbegu za mahindi kwa msimu mkuu wa kupanda. James ni mkulima tu wa kawaida katika eneo hili, ukiangalia mbinu zake za kilimo na mavuno ambayo anapata kila msimu.

*The description is for an existing product, but we did not mention the name

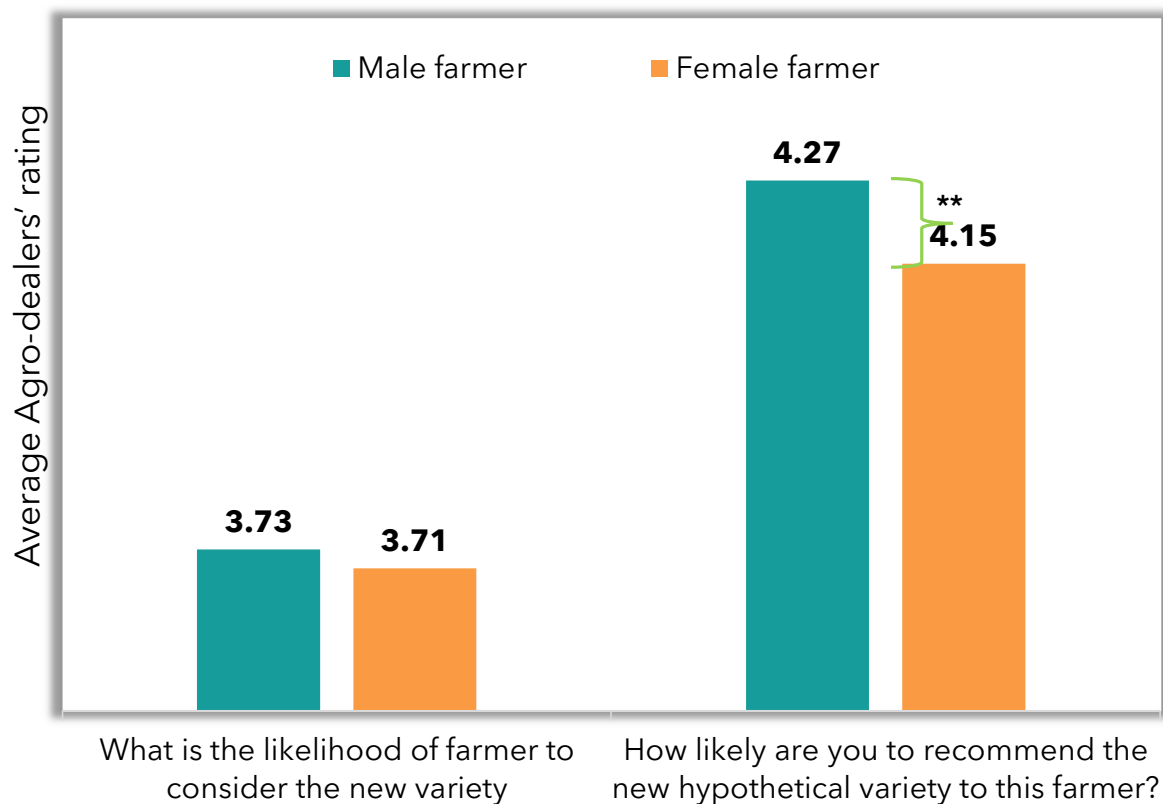**CIMMYT** | CGIAR

Mystery shopper experiment

- 13 trained enumerators (9 women)
- Each agro-dealer shop was visited **3 times (scenarios)**
  - Different enumerator per visit; no repeat visits by the same enumerator
- Structured assignment of visits to prevent contamination
- Standardized scripts and trained responses
  - Pre-assigned farm characteristics and randomly selected village locations for consistency if asked by the agro-dealer

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Agro-dealer Perceptions of Different Farmer Profiles: Results from a Vignette Experiment

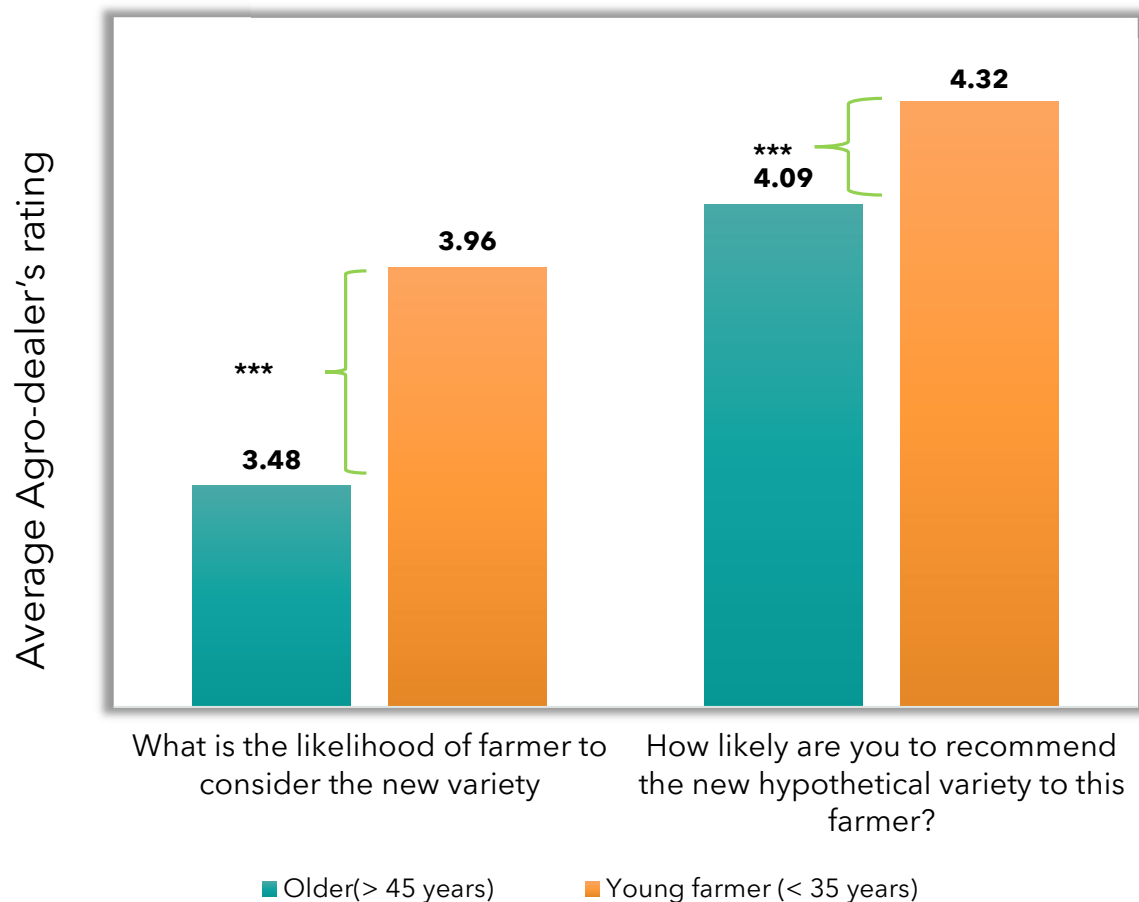# AD's perceptions by gender of vignette farmer

- Agro-dealers perceive female farmers as less likely adopters of a new variety

  A negative relationship though not statistically significant (**Meologit** coefficient **-0.11**(0.12)**; Feologit -0.11** (0.14)

- Agro-dealers self-reported they were less likely to recommend the new maize variety to female farmers **(Meologit** -0.34**(0.15), Feologit -0.40**(0.17))
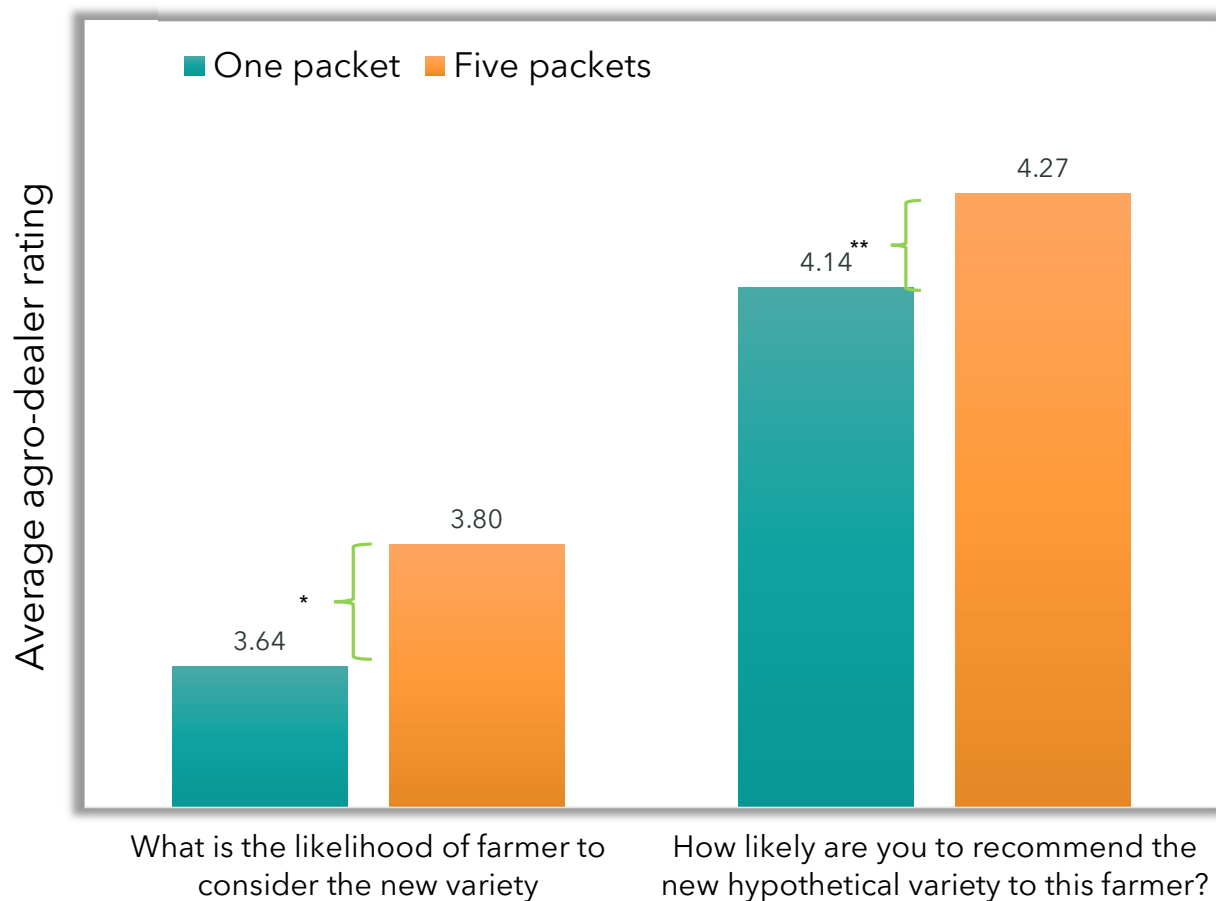
AD's perceptions by age of the vignette farmer

Average Agro-dealer's rating

3.48 *** 3.96

4.09 *** 4.32

What is the likelihood of farmer to consider the new variety

How likely are you to recommend the new hypothetical variety to this farmer?

■ Older(> 45 years)   ■ Young farmer (< 35 years)

- Agro-dealers perceive younger farmers as more likely adopters of new variety (**Meologit 0.84***(0.15); Feologit 0.91***(0.16)**)

- Agro-dealers self reported they are more likely to recommend to a younger farmer than a farmer > 45 years (**Meologit 0.69***(0.16); Feologit 0.74***(0.20)**)

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AD's perception by volume of seed vignette farmer intends to buy

Average agro-dealer rating

- One packet
- Five packets

3.64   3.80*

4.14**   4.27

What is the likelihood of farmer to consider the new variety

How likely are you to recommend the new hypothetical variety to this farmer?
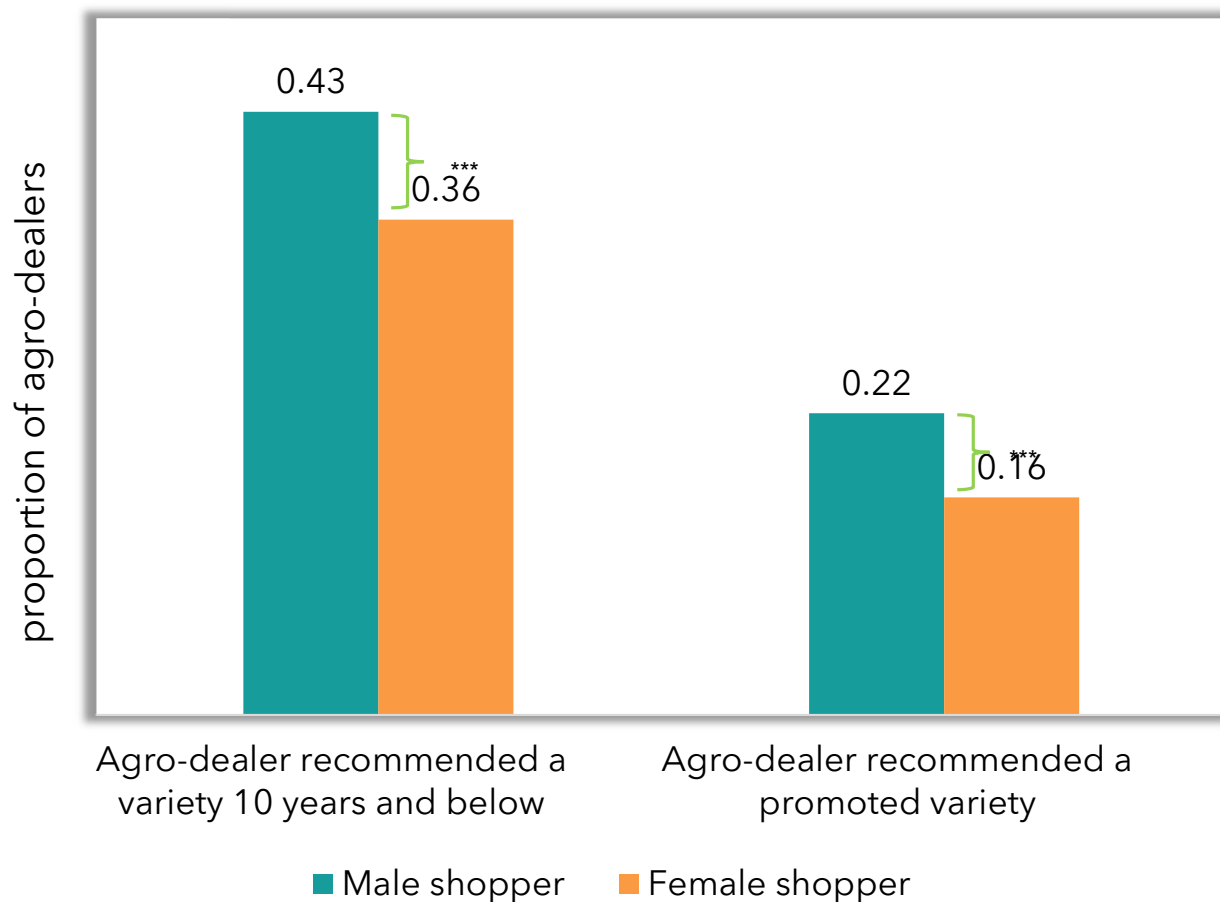
- Agro-dealers perceive farmers intending to buy five packets (versus one) as more likely adopters **(Meologit 0.22 (0.15), Feologit 0.27*(0.16))**

- They were also more likely to recommend the new variety to them **(Meologit 0.31*(0.16) , Feologit 0.44**(0.21))**

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Evidence of Gender Bias in Agro-Dealer Behavior Towards famers - a Mystery Shoppers experiment
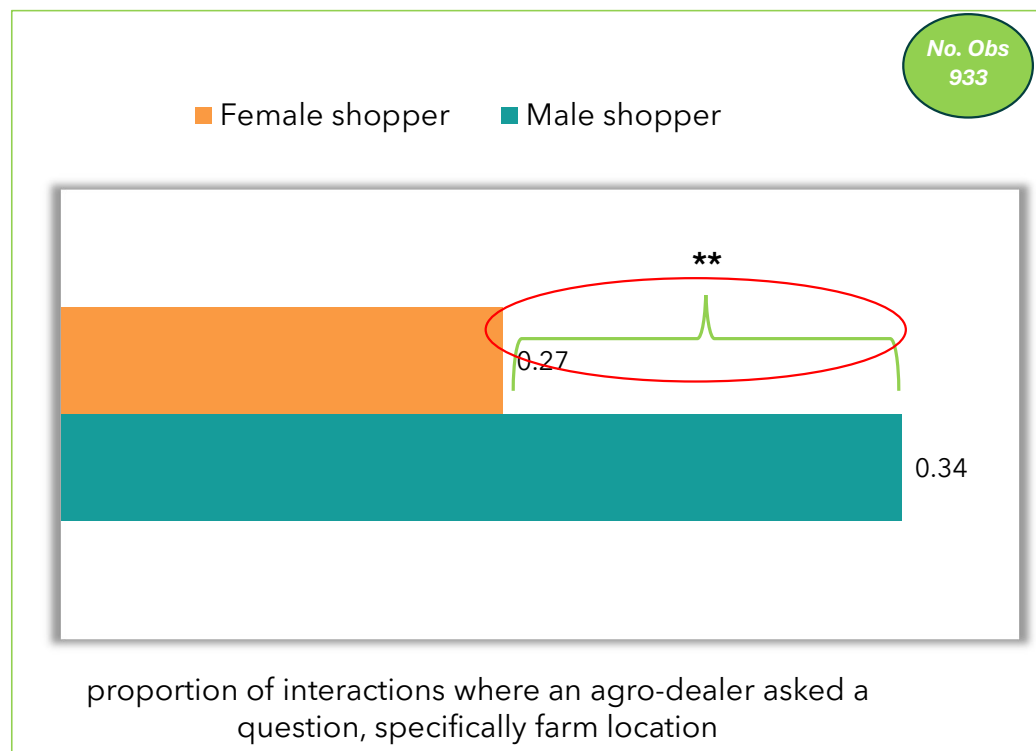
Agro-dealer variety recommendation by gender of mystery shopper

proportion of agro-dealers

0.43
0.36 ***

0.22
0.16 ***

Agro-dealer recommended a variety 10 years and below

Agro-dealer recommended a promoted variety

■ Male shopper   ■ Female shopper

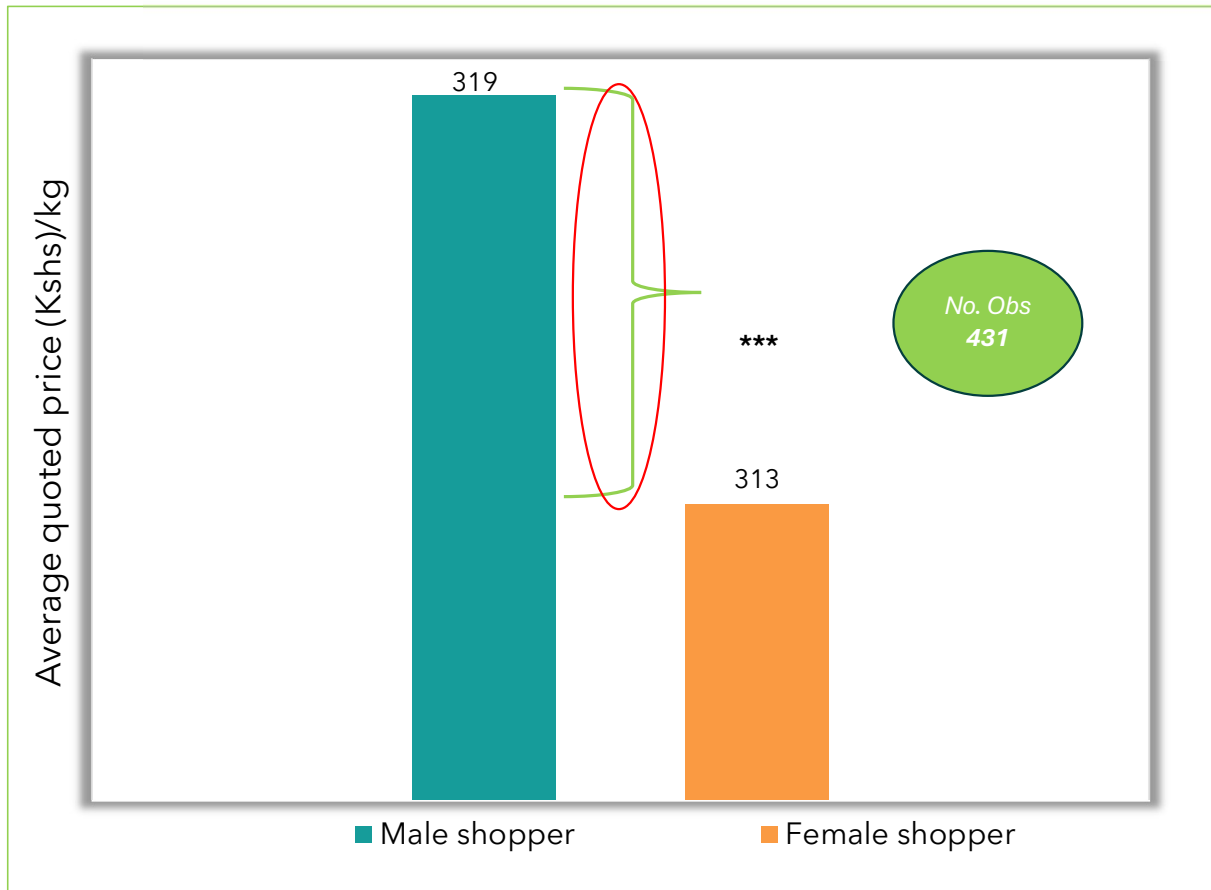Women were significantly less likely to be recommended:-

- Varieties 10 years and below (RE model **-0.071**** (0.034), FE model coefficients –**0.116***** (0.039)) and,

- Promoted varieties (RE -**0.069*****(0.026) **:** FE – **0.122*****(0.029))

Proportion of Interactions with Mystery shopper where an Agro-dealer Asked Questions

No. Obs 933

Female shopper ■ Male shopper

**

0.27

0.34

proportion of interactions where an agro-dealer asked a question, specifically farm location

- Female shoppers were less likely to be asked any questions (esp farm location) by agro-dealers, indicating reduced engagement *(RE model -0.064**(0.032); FE model -0.084**(0.035))*

Average buying price (kshs) of per kg of maize seed by gender of mystery shopper

Female shoppers were quoted significantly lower prices per kg (REs model coefficients -**5.46***** (1.93); MEs model -**2.83**(2.54))

Could this be an indication that ADs' perceive female farmers to have less purchasing powers? or less likely to change to new varieties? thus quoting lower prices

Time agro-dealer spends interacting with shopper (seconds)

- Women experienced shorter interaction times meaning agro-dealers invested less effort in providing advice compared to their male counterparts

- (Log transformed coefficients RE model –0.092*(0.054); FE model –0.34***(0.06))

Conclusion

- **Measuring Bias**: Mystery shopper and vignette experiments are powerful tools to measure agro-dealer biases in information provision and technology dissemination.

  - Mystery shopper a useful method to objectively measure outcome variables

- While agro-dealers have the potential to effectively promote new technologies, their commercial interests may drive a selective focus on farmers they perceive as more persuadable, potentially limiting the reach to specific groups.

- To address this gap, agro-dealer-led extension models should be complemented with other extension approaches that prioritize equitable and inclusive access to agricultural innovations

- Further research :

  - Mystery shopper beyond gender

  - Moving beyond exploratory study to more rigorous study e.g varying profile of the mystery shopper

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Thank you for your interest!

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