Consumer Preference and Willingness to Pay for Egg Attributes from Hen Fed Insect-based Feed in Kiambu County, Kenya

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Introduction

- The use of insect based feed aims at improving poultry production, consumer driven demand for these products is a key aspect in contributing to its uptake.
- To inform the notion, consumer survey was carried out to collect preference and willingness to pay.
- Understanding preferences of consumers for bundle of egg attributes will facilitate effective production using insect-based feed.

Fig 1. Choice card

Egg characteristics	Egg 1	Egg 2	None
Size	Large	Medium	
Yolk colour	Pale yellow	Golden yellow	
Feed type	Black soldier fly larvae	Conventional	
Price	10	14	
	I would buy option A ☐	I would buy option B ☐	I would neither buy option A or B ☐

Methods and Materials

- A survey was conducted in market areas and households in 2020, 200 respondents were randomly selected to represent egg consumers in Kiambu County.
- A semi-structured questionnaire was prepared and used to collect information through personal interviews by trained enumerators.
- The questionnaire collected information on household and institutional characteristics and CBCA on consumers' preferences on egg attributes (fig 1).

Results

Table 1. Random parameter logit estimates for consumer preferences for egg attributes .

Attributes	Coefficient	Standard error	P value
Price	-0.167	0.046	0.000***
Small	1.450	0.203	0.000***
Large	0.918	0.197	0.000***
Golden yellow yolk	1.912	0.163	0.000***
BSF based feed	0.893	0.140	0.000***
Derived standard deviations of parameter distributions			
Small	0.062	0.171	0.719
Large	-0.302	0.229	0.188
Golden yellow yolk	0.715	0.146	0.000***
BSF based feed	1.131	0.122	0.000***
Log likelihood	-918.38		
Adjusted Pseudo-R^2	0.3930		
n (respondents)	200		
Number of observations	4800		

- The statistically significant standard deviations show that consumers have heterogenous preference for eggs produced from hens fed on BSF based feed.
- The price coefficient was negative as expected, this indicates that increased demand.
- The positive significant preference for BSF based feed
- All the attributes were significant hence suitable for this study.
- The price attribute coefficient estimate is significant and with the expected negative sign.

Conclusions

- There is a positive preference for eggs produced from hens fed on insect based feed.
- The consumers have heterogenous preferences that might be influenced by other factors.
- There is a need for sensitization on the alternative sources of protein

Table 2. Estimated Willingness to Pay

	MWTP	lower limit	upper limit
Attributes			
small	8.70	3.56	13.84
large	5.51	0.94	10.08
Golden yellow	11.47	5.55	17.40
BSF	5.36	1.37	9.35

Table 3. Perception of attributes.

Variable	Percentage of responses(n=200)
Willingness to consume	70.5
Awareness of use insects in poultry feed	65
Relative importance of egg attributes	
Price	86
Size	79
Type of feed used	70.5
Yolk colour	57.5

Consumers are willing to pay higher amounts Kshs 6 to 18) per egg for golden yolk eggs compared to any other attribute.

Consumers were willing to pay more for smaller eggs than larger eggs (Tab. 2)

There was a positive WTP for all attributes (Tab. 2)

Up to 65 percent of the consumers were aware of the use of insects in poultry feed. (Tab. 3)

Generally, 70.5 percent of the respondents were willing to consume the eggs (Tab. 3)

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