



Intervention in low guinea fowl productivity and consumption of related products in Burkina Faso

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Objectives

1. Produce fly larva and establish the optimum percentage of fly larva meal (for protein) in guinea fowl diet for growth and egg production.
2. Establish the efficacy of integrating the three practices of fly larvae production for guinea fowl feed, synchronized hatching of guinea fowl eggs by chicken hens, and egg storage with the YaiKuula over long storage times before hatching, for year-round production of healthy keets.

YaiKuula saves guinea fowl eggs for hatching

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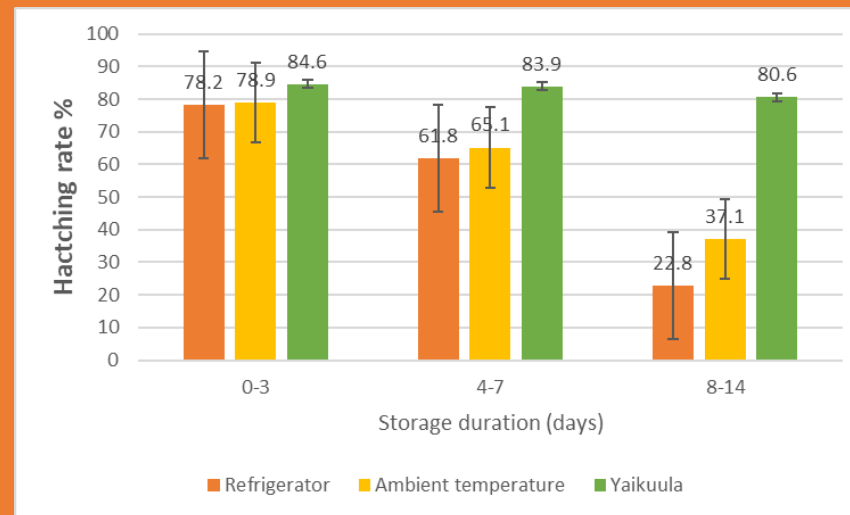
Introduction

- Poor small holder farmers often raise up to 50 heads of fowls, all species and ages combined.
- Guinea fowls lay more eggs than chicken, but are poor brooders and chicken hens are used to hatch their eggs;
- Storing the eggs at high ambient temperature results in losses, lower productivity and profitability. The need was a storage system to maintain viability until a sufficient number is reached for synchronized hatching under natural or artificial means.

Methods

1. A low-cost evaporative cooling device (YaiKuula) was developed and its efficacy test for preserving the viability of eggs for hatchability against two other storage conditions (ambient temperature and electric refrigerator). Three storage periods were tested (0-3, 4-7, and 8-14 days).
2. Viable guinea fowl eggs were simultaneously hatched by chicken hens.

YaiKuula preserves guinea fowl egg viability for hatching by chicken hens, especially for long storage (8-14 days) periods



Results

- YaiKuula storage performed better than both the negatives control (room temperature) and surprisingly the positive control (electric refrigerator).
- YaiKuula storage also outperformed the negative and positive controls with respect to early and late mortality rates. Our preliminary explanation is the comparatively high moisture content associated with the YaiKuula storage environment.

Future opportunities

- Further studies are needed to confirm the role of moisture content in the storage environment.
- Further studies are also needed to determine the best model to integrate the device in community hatchability programs.
- Usability studies are needed to fine-tune the YaiKuula design before rolling it out among the general public.



Fly larvae production on station in Burkina Faso: Effect of substrate, attractant and season on larval biomass

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Introduction

- The availability of cheap protein feed is a big issue in poultry nutrition in Burkina Faso
- The objective of this study is to contribute with fly larvae as an alternative to conventional fishmeal. More specifically, the study focused on assessing the best ways to maximize larvae production.

Methods

- 20 boxes (30 cm depth, 1 m² surface) were built for larvae production.
- 4 substrates (local beer residue, cow dung, pig litter and manure, poultry litter and manure), 3 flies' attractants (local beer, rumen fluid content, and blood), and 3 seasons (cold-dry, hot-dry, hot-humid) were tested.
- 10 kg of substrate, 2 liters of attractant and 14 liters of water were used in each box to produce the larvae.
- 27 samples of the collected dry larvae were analyzed for chemical characteristics

Recommendations

- Refine the study on the effect of attractant by testing the blood only as attractant
- Evaluate the larvae composition according to season

Future opportunities

- Formulation of feed to be tested on guinea fowl performances by combining fly larvae with other sustainable protein source of plant origin to enhance feed palatability for guinea fowl.

Poultry manure appears to be the best substrate for larvae production (Figure 1, P < 0.05)

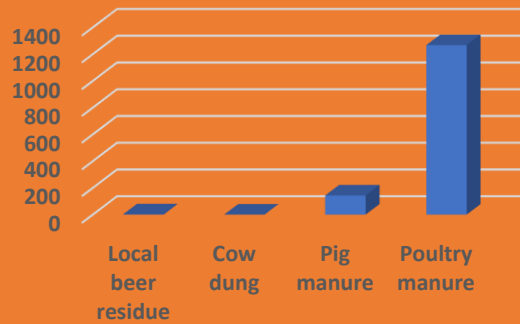


Figure 1: Effect of substrate on yield of larval biomass in grams / 26 kg of fresh material

Rumen contents mixed with blood gave the best result (P < 0.05) (Table 1)

Production was highest during the hot-dry season (P < 0.05) (Table 2)

Chemical composition of fly larvae showed an acceptable level (49.3%) of crude protein content (Table 3)



Dry fly larvae from different runs

Table 1: Effect of substrate and attractant on fly larvae production (in g/26 kg of material)

Substrate	Mean larval production (g)
Rumen content	1145 ^a
Local beer residue	1266 ^a
Rumen content + blood	2187 ^b
Control (no attractant)	1216 ^a

Table 2: Effect of season on larval biomass (LSM ± SEM) (in g/26 kg of material)

Season	Mean larval biomass (g)
Cold-dry	1691 ^{ad}
Hot-dry	716 ^{bc}
Hot-humid	1364 ^{ad}

Letters indicate level of significance

Table 3: Chemical composition of fly larvae

Composition	Percentage (%) on DM basis
Dry matter (DM)	95.6 %
Ash	16.1 %
Organic matter (OM)	83.9 %
Crude protein (CP)	49.3 %
Crude fibre (CF)	12.2 %
Acid detergent fibre (ADF)	12.9 %
Acid detergent lignin (ADL)	1.8 %
Calcium (Ca)	1.2 %
Phosphate (P)	1.5 %

Guinea fowl production: the potential for nutrition and income allocation in rural households in Burkina Faso

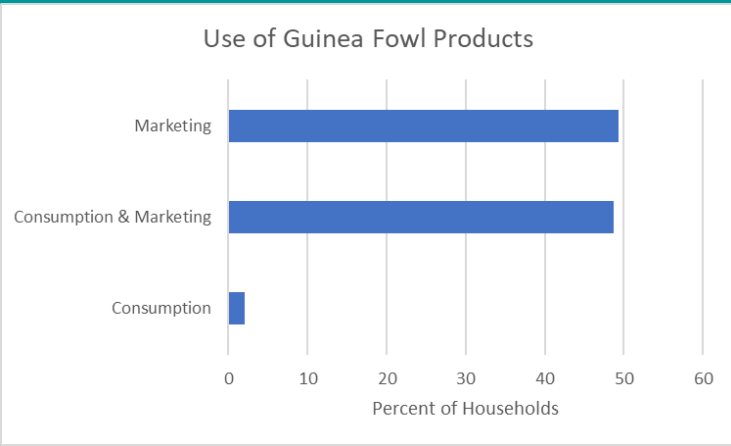
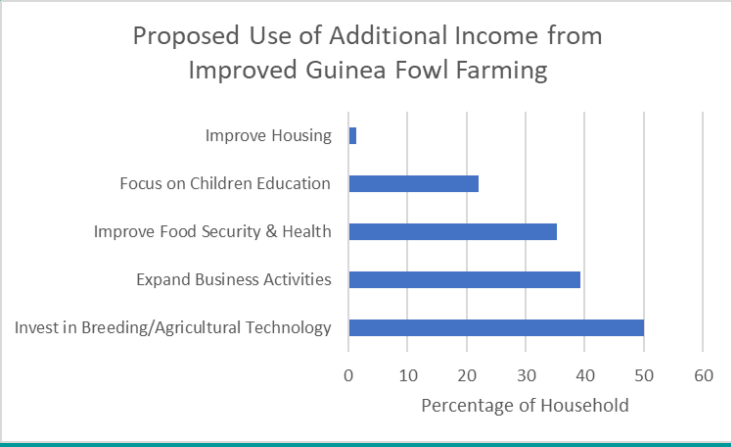
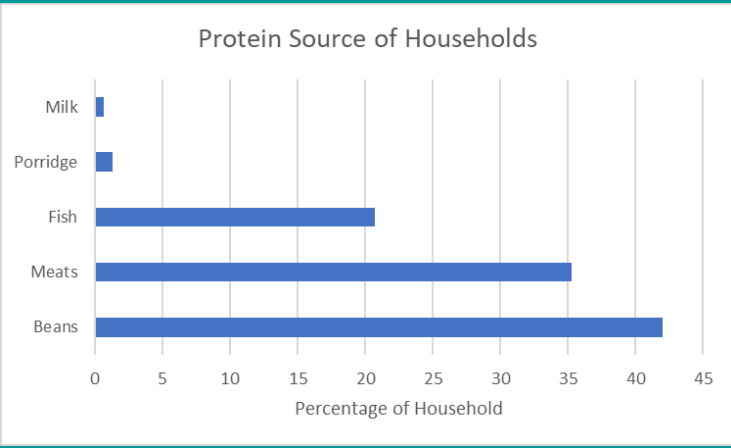
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Introduction

- Wasting and stunting continue to be a public health problem in Africa, while other countries have made important strides reducing their prevalence
- Differences in dietary intake and composition, particularly among children accounts for the disparity
- There is therefore urgent need for innovative ways that improve diet quality, especially intake of animal source protein
- This study was to understand current practices and aspirations for expanded poultry business among mothers involved in smallholder guinea fowl farming

Methods

1. The survey was administered to women from 150 households from eleven villages in Burkina Faso
2. All women were from households with younger children
3. A structured questionnaire with both closed- and open-ended questions was administered by a research staff



Results

- 98.7% of the women were either married or cohabiting
- 50% of the households had 1-3 children
- 58.7% of households reported their source of income as agriculture (crops) based, while 8.7% had their income from livestock production
- Main protein source are beans/legumes(42.0%)

Recommendations

- Encourage animal source protein in the diet, particularly for children
- Education on guinea fowl products effects on child health and development

Research gaps

- Examine how improved guinea fowl farming affects income and resource transfer within households
- Study how guinea fowl products affect nutritional and health indicators