

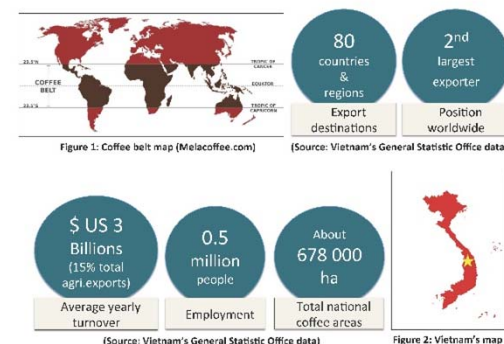


Tropentag 2021 poster award



## Introduction

- Vietnamese coffee sector has been of great significance to the global coffee market, contributing substantially to the socio-economic growth of Vietnam.



- The climate change has been seriously threatening the coffee sector, which calls Vietnam for taking actions to support smallholder farmers to adapt.
- For most coffee farmers in Vietnam, small-scale households with livelihoods primarily reliant on coffee-growing activities, expenses associated with the adaptation measures might be beyond their financial reach.

→ The impact of credit on the use of adaptation strategies (water-saving techniques and multi-cropping practices) in coffee production will be investigated in the Central Highlands (CH) of Vietnam.

## Methodology

- Objective 1:** To identify the significance level of credit access in how smallholder coffee farmers response to climate change adaptation
- Objective 2:** To identify factors affecting credit access to coffee farmers
- The use of social, cultural, and psychological factors in studying farmers' adaptive response remains relatively limited (Dang et al. 2019).
- Developing research is based on economic and psychological theories
- Selecting variables is inspired by earlier studies, e.g. Dressa et al. (2009), Gebrehiwot & Van der Veen (2013), P.K Chauke et al. (2013), and Mutyasira et al. (2018).



Figure 3: Illustration of the relationship between objectives in the research

- Data collection:
  - Time: from Feb-May 2022
  - Areas: Dak Lak & Lam Dong provinces in the CH
  - Data:
    - Quantitative data (questionnaires): ≈ 300 coffee farmers
    - Qualitative data (interview): 15-20 experts

### Objective 1:

$$\log \left( \frac{\text{Prob(Take adaptation)}}{\text{Prob(No take adaptation)}} \right) = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_h X_{ih} + \epsilon_i$$

- Explanatory variables (X): contain h variables from
  - socio-demographic variables (e.g. age, gender, etc...)
  - institutional variable (credit access)
- Dependent variables (log of odds ratio): indicate the probability of farmers' adaptive response to climate change with
  - Model 1:**  $i = 1$  (Adapt water-saving techniques)  
 $i = 0$  (No adapt)
  - Model 2:**  $i = 1$  (Adapt multi-cropping practices)  
 $i = 0$  (No adapt)

### Objective 2:

$$\log \left( \frac{\text{Prob(Take credit)}}{\text{Prob(No take credit)}} \right) = \beta_0 + \beta_1 X_{j1} + \beta_2 X_{j2} + \dots + \beta_h X_{jh} + \epsilon_j$$

- Dependent variables (log of odds ratio): indicate the probability of farmers taking credit
  - $j = 1$  (Take credit)
  - $j = 0$  (No take credit)
- Explanatory variables (X):
  - psychological variables (e.g. perception of loan repayment and loan procedures, attitude over credit risk)
  - socio-demographic variables (e.g. income, education)

## Expected outcomes

- The drivers and barriers impacting the choice of Vietnamese coffee farmers' adaptation measures, especially the importance of credit access will be identified
- Factors hindering the accessibility of credit to coffee farmers in Vietnam will be revealed

## Conclusions

- The research attempts to extend the knowledge in adaptation to climate change in Vietnam's coffee sector by:
  - Promoting the drivers and moderating the barriers of climate change adaptation process
  - Possible policy support to solve problems preventing coffee farmers from taking credit

Nguyen Phuong Anh  
Czech University of Life Sciences

Credit Access and its Impacts on Small Coffee Farmers in Climate Change Adaptation in Vietnam

### Acknowledgement:

The research is supported by Internal Grant Agency of Faculty of Tropical AgriSciences; grant number 20213102

### Contacts:

Nguyen Phuong Anh  
PhD Candidate  
Sustainable Rural Development  
nguyenp@ftz.czu.cz

Assoc. Prof. Miroslava Bavorova  
Supervisor (Head of department)  
Department of Economics and Development  
bavorova@ftz.czu.cz



**Ishrat Jahan**  
Bangladesh Agricultural University,  
Bangladesh

## Heritability and genetic evaluation of Black Bengal Goats



### Heritability and Genetic Evaluation of Black Bengal Goats for Growth Traits



Ishrat Jahan<sup>1</sup>, A.K.F.H. Bhuiyan<sup>2</sup>, M.S.A. Bhuiyan<sup>3</sup>, N.H. Desha<sup>4</sup>, M. A. Jalil<sup>5</sup>  
<sup>1,2,3</sup> Bangladesh Agricultural University (BAU), Animal Breeding and Genetics, Mymensingh, Bangladesh  
<sup>4,5</sup> Bangladesh Livestock Research Institute (BLRI), Savar, Bangladesh



#### Background and Objective

- Bangladesh has 26.07 million goats constituting 11.89% of world total goat population.
- Despite of it, there is shortage for animal protein which is a threat to national health.
- Better understanding of influencing factors and genetic principles could ensure optimal breeding and selection, thus production.
- This study estimated heritability with variance components and predicted breeding values (PBVs) of growth traits (birth weight, weaning weight and body weight at 6-month).

#### Materials and Methods

- Retrieval and collection of data (Jan, 2017 to Dec, 2020)
- Analysis with SPSS (23.0), later heritability and variance components with VCE 4.2.5 following REML fitted in individual animal model.
- Estimation of predicted breeding value with PEST program by BLUP procedure.

#### Results

- Highest predicted breeding value (PBV) was found for body weight at 6-month with a wide range of PBV for all traits (Fig. 1).
- High additive genetic variance and less environmental variance (Tab. 2)

Tab. 2: Variance components and heritability of growth traits

| Body weight at | Variance components |                  | h <sup>2</sup> (±SE) |
|----------------|---------------------|------------------|----------------------|
|                | σ <sup>2</sup> a    | σ <sup>2</sup> e |                      |
| Birth          | 0.33                | 0.005            | 0.46±0.02            |
| Weaning        | 0.69                | 0.23             | 0.42±0.05            |
| 6-month        | 1.77                | 0.17             | 0.47±0.03            |

σ<sup>2</sup>a: additive genetic variance, σ<sup>2</sup>e: environmental variance  
SE: standard error, h<sup>2</sup>= heritability

#### Acknowledgement

The authors wish to acknowledge both Department of Animal Breeding and Genetics, Bangladesh Agricultural University, Mymensingh and Bangladesh Livestock Research Institute, Savar, Dhaka for their support to conduct the study.

#### Conclusions

- Selection for better growth should be based on post-weaning body weight preferably at 6-month of age.
- Planning of kidding season would facilitate further growth.
- Improvement in production is possible through mass selection on growth traits.

#### Results

Table 1: Test of significance of various influencing factors on body weight at different ages

| Factor          | Birth weight | Weaning weight | Body weight at 6-month |
|-----------------|--------------|----------------|------------------------|
| Parity of dam   | **           | NS             | NS                     |
| Season of birth | NS           | **             | **                     |
| Type of birth   | **           | **             | **                     |
| Year of birth   | ***          | NS             | **                     |

NS: non-significant (P>0.05); \*\*: significant at P<0.01; \*\*\*: significant at P<0.001

- Birth weight differed significantly among various parity of dam, also increased with progress of parity (Tab.1).
- Kids born in winter (Nov. to Feb.) showed better growth compared to rainy (July to Oct.) and summer (Mar. to Jan.) born kids up to weaning.
- Proper nutrition supply of does during gestation period resulted in higher birth weight and pre-weaning growth of single born kids (Tab.1).
- Varying management system and climatic conditions attributed to changes in body weights in different years.

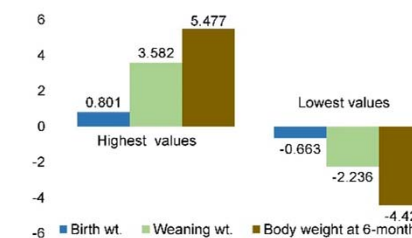


Fig. 1: Predicted breeding values (PBVs) of goats for body weight traits



**Maximilian Ibing**  
University of Kassel, Germany

## Transformation of traditional livestock systems in Ladakh



### TRANSFORMATION OF TRADITIONAL LIVESTOCK SYSTEMS UNDER LAND USE CHANGES FROM THE 1970s TO THE 2018/2019 IN LADAKH, INDIA

Maximilian Ibing<sup>1,2</sup>, Martin Wiehle<sup>2,3</sup>, Thanh Thi Nguyen<sup>2</sup>, Imke Hellwig<sup>2</sup>, Eva Schlecht<sup>1</sup>, Andreas Buerkert<sup>2</sup>

<sup>1</sup> Animal Husbandry in the Tropics and Subtropics, University of Kassel and Georg-August-University of Göttingen

<sup>2</sup> Organic Plant Production and Agroecosystems Research in the Tropics and Subtropics, University of Kassel

<sup>3</sup> Centre for International Rural Development (Tropenzentrum)

#### Background and Objective

- Ladakh in N-India is a remote region in the Himalayas
- Largely characterised by highly adapted and sustainable subsistence agriculture and nomadism
- Rapid rural-urban transformation since 1970s, assumed main driver is tourism

Goal of this study is to analyse:

- 1) Land use change processes and urbanisation
- 2) Drivers of change
- 3) Adaption mechanisms of local farmers

- Comparison of two sites: Leh (urbanized) and Diskit (rural), additionally study of local nomads

#### Materials and Methods

Three major study sites: Leh and Diskit (agro-pastoralists, Fig. 2) and Kharnak (nomads, Fig. 5)

- Structured interviews with 98 agricultural HH during 08 & 09/2019 covering agriculture, livestock, socioeconomics - for 1999 and 2019:
  - Changes in agricultural practices and socio-economic conditions over time
  - Mainly descriptive data analysis

- Remote sensing and GIS approach:

- Data from 1970s – 2000s – 2018/19
- Land use changes (LUC) and pace of urbanization

#### Results

- Agriculture:

- Increasing urbanization at the cost of agricultural areas (Fig. 1)
- From subsistence to income generation (Fig. 6)

- Livestock:

- Declining herd diversity, especially in the more urban site of Leh (Fig. 3)
- Focus on bovines, esp. cattle (milk) in urban areas and focus on goats (pashmina fibre) in rural nomadic areas (Fig. 3 & 4)

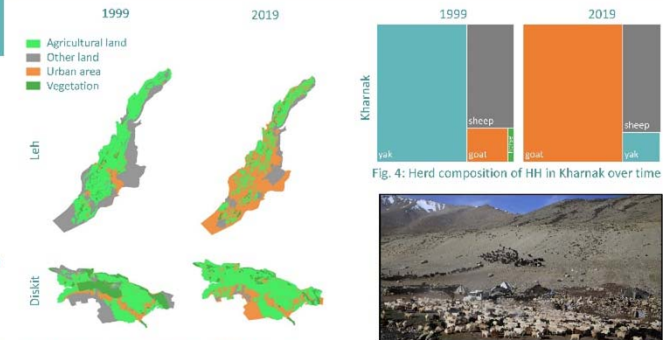


Fig. 1: Land use changes in Leh and Diskit over time

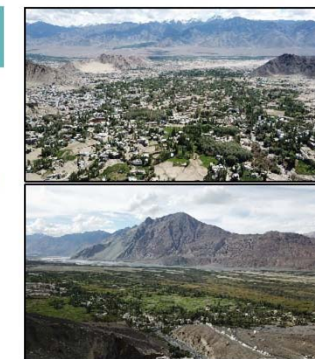


Fig. 2: Aerial photo of Leh (above) and Diskit (below)

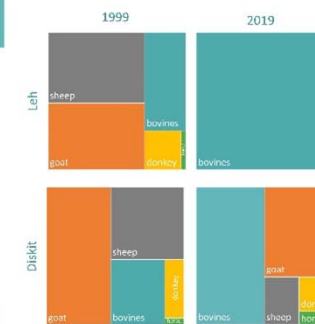


Fig. 3: Herd composition in Leh and Diskit over time

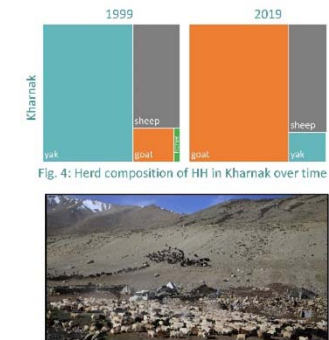


Fig. 4: Herd composition of HH in Kharnak over time

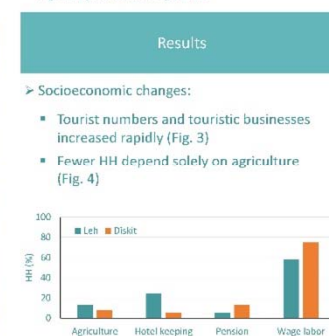


Fig. 5: Alpine nomadic pasture

#### Results

- Socioeconomic changes:

- Tourist numbers and touristic businesses increased rapidly (Fig. 3)
- Fewer HH depend solely on agriculture (Fig. 4)



Fig. 6: Most important income sources in 2019

#### Conclusions

- 1) LUC: mainly driven by urban expansion, due to tourism (new facilities) and overall economic growth – the more tourists, the more rapid urbanisation
  - 2) Drivers of change: Local infrastructure initially improved by military, later and most prominent changes due to tourism
  - 3) Adaption mechanisms: Agro-pastoralists and nomads alike change from subsistence to market-oriented practices, additionally many venture in the tourism sector whenever possible
- If these trends persist, the traditional and highly sustainable Ladakhi agriculture might vanish in the long run

#### Acknowledgements

We highly appreciate the support by local farmers, translators, officials and fellow Indian researchers who enabled the study. MI received a DAAD-funded PROMOS scholarship via University of Kassel.

**Brigitte Ruesink**  
Leibniz University Hanover, Germany


## Refugee Integration in a Zambian Settlement Setting

Introduction

### What Makes Me Want You Here?

## Refugee Integration in a Zambian Settlement Setting

- Current number of refugees at global peak
- Africa hosts millions of refugees
- Local integration of central importance
- Key integration elements: opinion and contact
- Focus: common and novel factors which affect hosts' opinion towards and contact with refugees
- Policy context is fundamental
- Pilot character within the Comprehensive Refugee Response Framework (CRRF) by United Nations



• "Mantapala refugee settlement", rural setting in northern Zambia, established early 2018

- Refugees from Democratic Republic of Congo
- Census data of 275 host households, April 2018
- Integration requirements within the CRRF
- Host society within 10-kilometer-radius
- Host-refugee-ratio: 1 to 10

Project Area

Framework

### Research Questions

[1] What are the driving forces of hosts' opinion towards refugees?  
[2] Which factors affect host communities' contact with refugees?

**Bivariate probit model on interrelation between opinion and contact**

$$Y_1^* = x_1'\beta_1 + \varepsilon_1, \quad Y_1 = 1 \text{ if } Y_1^* > 0, 0 \text{ otherwise} \quad (1)$$

$$Y_2^* = x_2'\beta_2 + \varepsilon_2, \quad Y_2 = 1 \text{ if } Y_2^* > 0, 0 \text{ otherwise} \quad (2)$$

$$E(\varepsilon_1 | x_1, x_2) = E(\varepsilon_2 | x_1, x_2) = 0 \quad (3)$$

$$\text{Var}(\varepsilon_1 | x_1, x_2) = \text{Var}(\varepsilon_2 | x_1, x_2) = 1 \quad (4)$$

$$\text{Cov}(\varepsilon_1, \varepsilon_2 | x_1, x_2) = \rho \quad (5)$$

**Model confirms opinion-contact-relationship**

3 of 4 hosts have an opinion towards refugees      9 of 10 hosts had contact with refugees

| Significant variables of the bivariate probit model                           |                           |                   | Not significant variables |                              |
|---|---------------------------|-------------------|---------------------------|------------------------------|
|   | Significance              |                   | Significance              |                              |
| <b>OPINION</b>  |                           | <b>CONTACT</b>    |                           |                              |
| Religion  | 0,531*                    | Age > 54          | -0,722*                   | Age ≤ 54                     |
| Group member  | 0,486*                    | Primary education | 0,809*                    | Secondary & higher education |
| Older people are less likely to get in touch                                  |                           |                   |                           | Social contacts              |
| Primary education increases contact   |                           |                   |                           |                              |
| Religiosity and group membership are significant factors in opinion formation |                           |                   |                           |                              |
| Savings relate to a feeling of more security                                  | Saving (ln)               | -0,072*           | Long distance             | -0,725*                      |
| Hosts' wellbeing relates to more openness                                     | Worse life satisfaction   | -0,961***         | Better life satisfaction  | 0,730*                       |
| Food insecure households feel more affected                                   | Food access               | -0,440*           |                           |                              |
| Land ownership leads to indifference towards refugees                         | Land size (ln)            | -0,281*           |                           |                              |
| Fear of livestock theft or opportunity for sale                               | Livestock possession (ln) | 0,143*            |                           |                              |
| Natural resources insignificant for initial integration purposes              |                           |                   |                           | Fish catch                   |
|   |                           |                   |                           | Firewood collection          |

1.000\*\*\*

\*Significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%, SE, robust standard error

**INTEGRATION**

**OPINION**

**CONTACT**

INDIVIDUAL

HOUSEHOLD

AGRI-CULTURE

NATURAL RESOURCE

Results

Conclusion & Highlights

### Conclusion & Highlights


Opinion and contact crucial elements in a policy integration framework

- [1] Education to support host-refugee-contact
- [2] Church communications and community-based groups to target fears/opportunities
- [3] Relevance of hosts' life satisfaction, food insecurity and ownership of land and livestock
- [4] Natural resources need critical observation

- Results useful in comparable host-refugee settings, applicable to CRRF piloting countries and helpful for UNHCR interventions
- Further research tools (quantitative and qualitative) for scientific extensions

Dr. Steven Gronau [ gronau@iuw.uni-hannover.de ], Brigitte Ruesink [ ruesink@iuw.uni-hannover.de ]  
Institute for Environmental Economics and World Trade

Acknowledgements: Article published in Sustainability 2021, 13(15), 8380.  
It was written in the context of the Leibniz Young Investigator Grant by the Leibniz University Hannover (Project: Interrelations between refugee and host communities in rural Zambia) [LYIG-08-2019-11].





Wellington Ekaya  
ILRI

## The ILRI CapDev Grand Challenge

# The ILRI CapDev Grand Challenge

## Growing Transformational Future Livestock Sector Professionals



Wellington Ekaya, Head of Capacity Development  
International Livestock Research Institute  
Email: w.ekaya@cgiar.org

### INTRODUCTION

ILRI created the CapDev Grand Challenge process to strengthen its capacity development offering to graduate students and early career researchers from national research organizations in West, Eastern and Southern Africa, East, Southeast and South Asia. Annually, the Institute hosts 100 – 150 graduate students and early career researchers within its research programs.

Launched in 2019, the process aims to equip next-generation livestock sector professionals with leadership and interpersonal skills they need to be effective research leaders, science communicators and influencers in the agriculture landscape in countries where ILRI works, and beyond. One cycle of the CapDev Grand Challenge takes 12 months. By the end of the cycle, participants are expected to be better at:

- o Informing and influencing decisionmakers
- o Working across disciplines, stakeholders and sectors
- o Delivering on leadership roles
- o Communicating science to non-technical audiences
- o Designing effective mechanisms for engaging stakeholders
- o Designing Impact Pathways

### METHODS



#### PITCHING

The CapDev Grand Challenge starts off with a 3-minute research pitching contest to a panel of six judges and a chief judge culminating in awards to top winners

#### SOFT SKILLS TRAINING

Pitching contest is followed by 10 months of softs skills training involving 10 courses and mentorship talks from global leaders in research for development

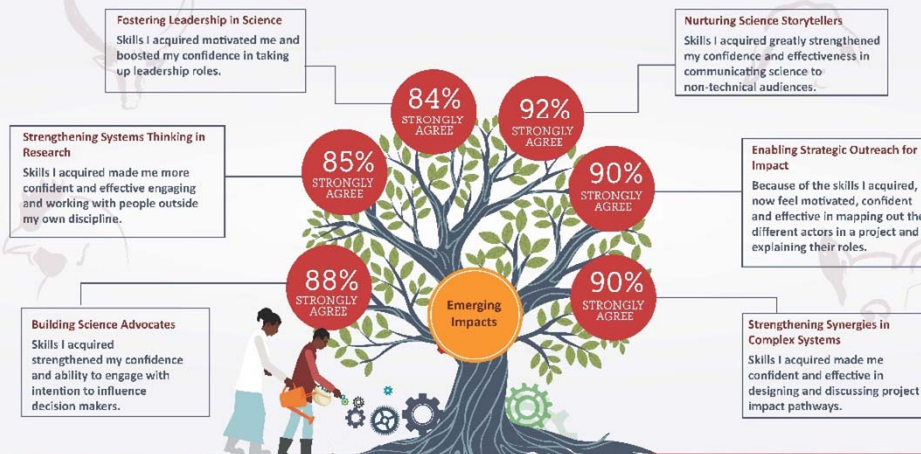
#### MENTORING

Participants apply acquired skills in their workplaces, are virtually mentored and supported to participate in international events, and to expand their networks for continued professional development

#### MONITORING AND EVALUATION

Impact is tracked through interviews, testimonials from participants, reflection workshops and online surveys

### RESULTS



### CONCLUSIONS

After 18 months of implementation, the CapDev Grand Challenge demonstrated the potential for:

- o Creating next-generation livestock sector professionals who are effective communicators, able to inform and influence decisionmakers
- o Creating systems thinkers able to contribute to agricultural research addressing global challenges in a fast-changing world
- o Fostering synergies and sustainability in complex livestock food systems
- o Catalyzing strategic outreach for accelerated impact

### TESTIMONY FROM PARTICIPANT:

Apart from equipping me with new skills, I now realize I really needed this experience for my science and technical skills to be effective in creating change. The experience has given me a totally fresh way of looking at research and how we ought to think in a systems perspective if our research findings are to create real change, and faster.

Daniel Korir, ILRI PhD Graduate Fellow – Sustainable Livestock Systems, and winner of the 2019/20 CapDev Grand Challenge



#CapDevChallenge





# Factors Explaining Purchase Choices of Packaged Child Food in Kenya and Benin

Ina Cramer<sup>1</sup>, Iris Schröter<sup>1</sup>, Diba Tabi Roba<sup>2</sup>, Georges Djohy<sup>3</sup>, Hussein Wario<sup>2</sup>, Marcus Mergenthaler<sup>1</sup>

<sup>1</sup> South Westphalia University of Applied Science, Soest, Germany <sup>2</sup> Center for Research and Development in Drylands, Marsabit, Kenya <sup>3</sup> University of Parakou, Benin

## Background

Malnutrition is often caused by caring practices that are not clearly linked to income.



## Study areas

- Marsabit, Kenya
- Parakou, Nikki & Banikoara, Benin



## Objectives

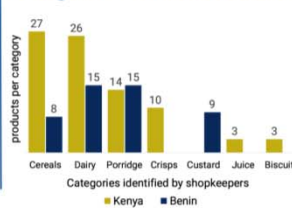
Understanding the dynamics of nutritional decision-making in child-feeding practices, including parental purchase criteria.

## Methods

Computer-assisted personal interviews with shopkeepers; Identification of categories of child food products, best-selling and unpopular products, assessment about the reasons why customers like or dislike the products.



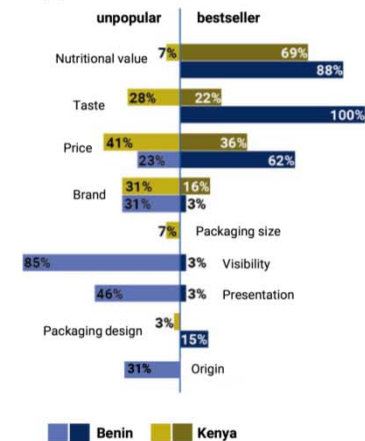
## Categories of Child Food Items



## Results and Discussion\*

### Reasons given

Frequency of reasons given to explain why a product is unpopular or a bestseller



**Nutritional value**  
most frequent reason influencing purchase decisions  
but awareness of healthy diet does not lead to results

**Brand**  
lack of purchasing power  
-> inability of replacing dissatisfactory products  
-> reliance on known & trusted brands

**Visibility & Presentation**  
purchase decisions are strongly influenced by the (lack of) visibility and presentation of products

**Packaging Size & Design**  
refers to large and expensive packaging units but not always clear, what shopkeepers had in mind

**Origin**  
mis-trust in local products due to insufficient marketing initiatives

**Taste**  
very important purchase criterion  
but best-sellers are bought not only first also because of their taste

**Price**  
very important purchase and rejection criterion  
even in subsistence marketplaces, nutritional value is rated more important than price

**Affordability: imported baby food**  
1/2 of inhabitants of Marsabit County, Kenya, can not afford a single daily serving of either baby formula or baby cereals for their infants.  
1/3 of Beninese parents cannot afford two full meals of baby formula or baby cereals per day.  
Baby formula and cereals manufactured by multinationals are for many parents unaffordable, locally manufactured alternatives are not available.

## Conclusion

Main reasons influencing purchase decisions in Northern Benin and Northern Kenya.



### Presentation, packaging design and informational cues

The results suggest, that the purchase decisions are influenced by underlying, subconscious reasons such as the packaging design of child feeding products, even when 'packaging' was rarely mentioned as a motive.

Further research directly involving customers of child food is therefore necessary to gain a deeper understanding of the influence of packaging elements on purchase decisions in Sub-Saharan Africa.



Contact information  
Ina Cramer  
South Westphalia University of Applied Science  
Department of Agricultural Economics  
cramer.ina@hswl.de

Fachhochschule  
Südwestfalen  
University of Applied Sciences

Center for Research and  
Development in Drylands



With support from  
Federal Ministry  
of Food  
and  
Agriculture  
ptble  
Forschungsbereich  
Produktionsentwicklung und  
Marketing  
By decision of the  
German Bundestag