

Finnish research partnering with Africa to foster food and nutrition security & agribusiness.

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Africa Agribusiness Forum/Food Business Summit
Seinäjoki, 14 June 2016



Luke in a nutshell

- Natural Resources Institute Finland (Luke) is a research and expert organization with expertise in renewable natural resources and sustainable food production.
- Luke provides innovative solutions for new business opportunities based on natural resources.
- Our strengths are in sustainable production and use of natural resources and thorough knowledge of bio-based raw materials.





Our vision

A society built on sustainable bioeconomy. Our expertise creates a knowledge-base for sustainable growth and well-being.

Global megatrends

Sufficiency of bio-based raw-materials — Global climate-change — Circular economy — Biodiversity and sustainability of natural resources — Blurring boundaries between industrial sectors — Population growth in developing countries — Population ageing in the developed countries

Our vision

Natural Resources Institute Finland is a research and expert organisation. The institute promotes bioeconomy and sustainable use of natural resources.

Research focus



Boreal green bioeconomy

Blue bioeconomy

Innovative food chain

Natural resources economy in the society

Authority and expert services

Strategic goals



New biobased products and business opportunities



Productivity by digitalization



Healthier food profitably



Regional vitality by circular economy



Welfare from immaterial values

Our values



Trust and transparency



Strength from collaboration



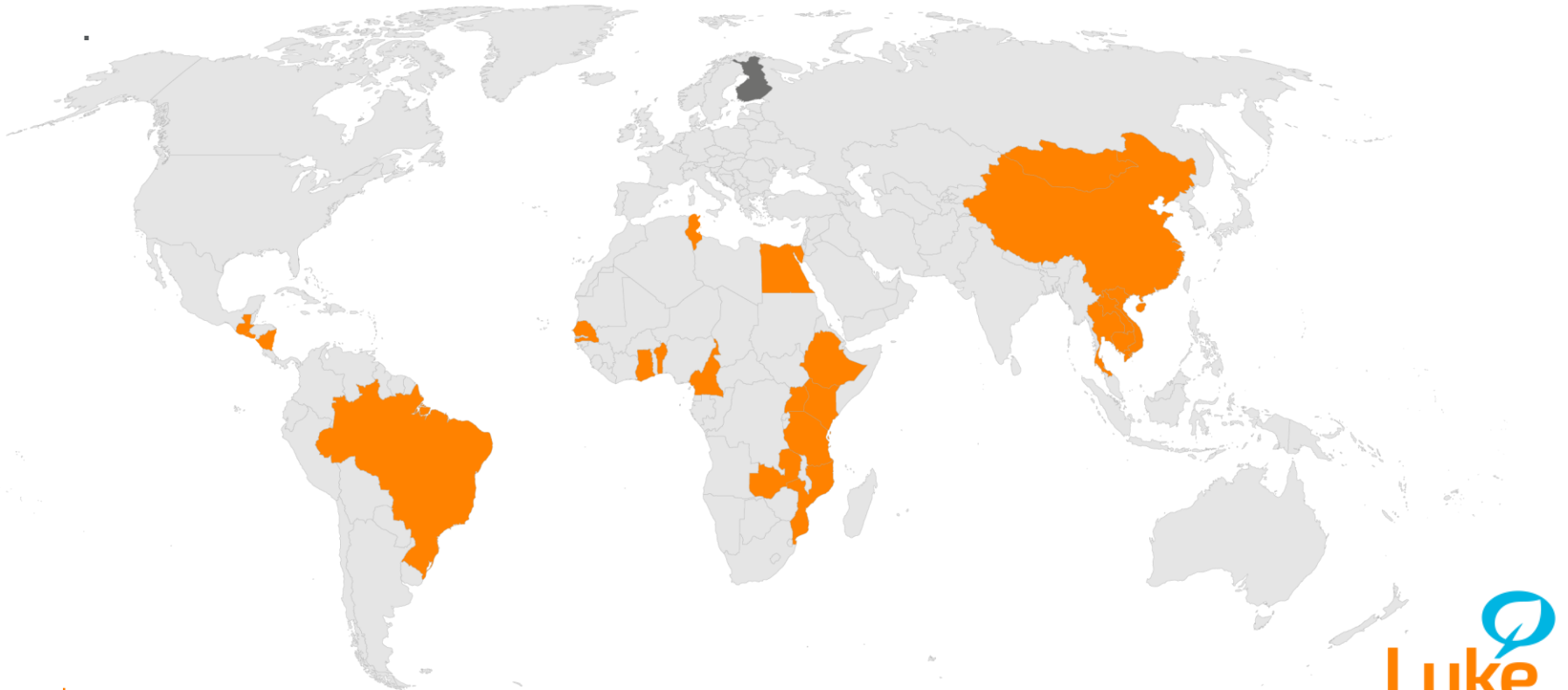
Customer orientation



Smart actions

Luke in the developing world

- Besides being a key partner in numerous European projects, Luke is partnering actively in R4D projects such as FoodAfrica, PROIntensAfrica and other projects
- We address global challenges and provide sustainable and innovative solutions for demanding problems connected e.g. with food safety, sustainable agriculture and forestry.



Helping Africa to become food secure

FoodAfrica

FoodAfrica

Improving Food Security in West and East Africa through Capacity Building in Research and Information Dissemination

- Agriculture is important for food security and livelihood of Sub-Saharan Africa. It is the largest industry in SSA and employs a large proportion of population.
- FoodAfrica is a research and development programme enhancing food security in six African countries
 - Coordinated by Luke
 - Partners include four CGIAR centres, two Finnish universities, and African partners
 - Ministry for Foreign Affairs is the main donor
 - Provides new knowledge and tools for researchers, decision makers and farmers



PROIntensAfrica is an initiative (H2020 CSA) to develop a long-term Europe-Africa research and innovation partnership on sustainable intensification of African agro-food systems

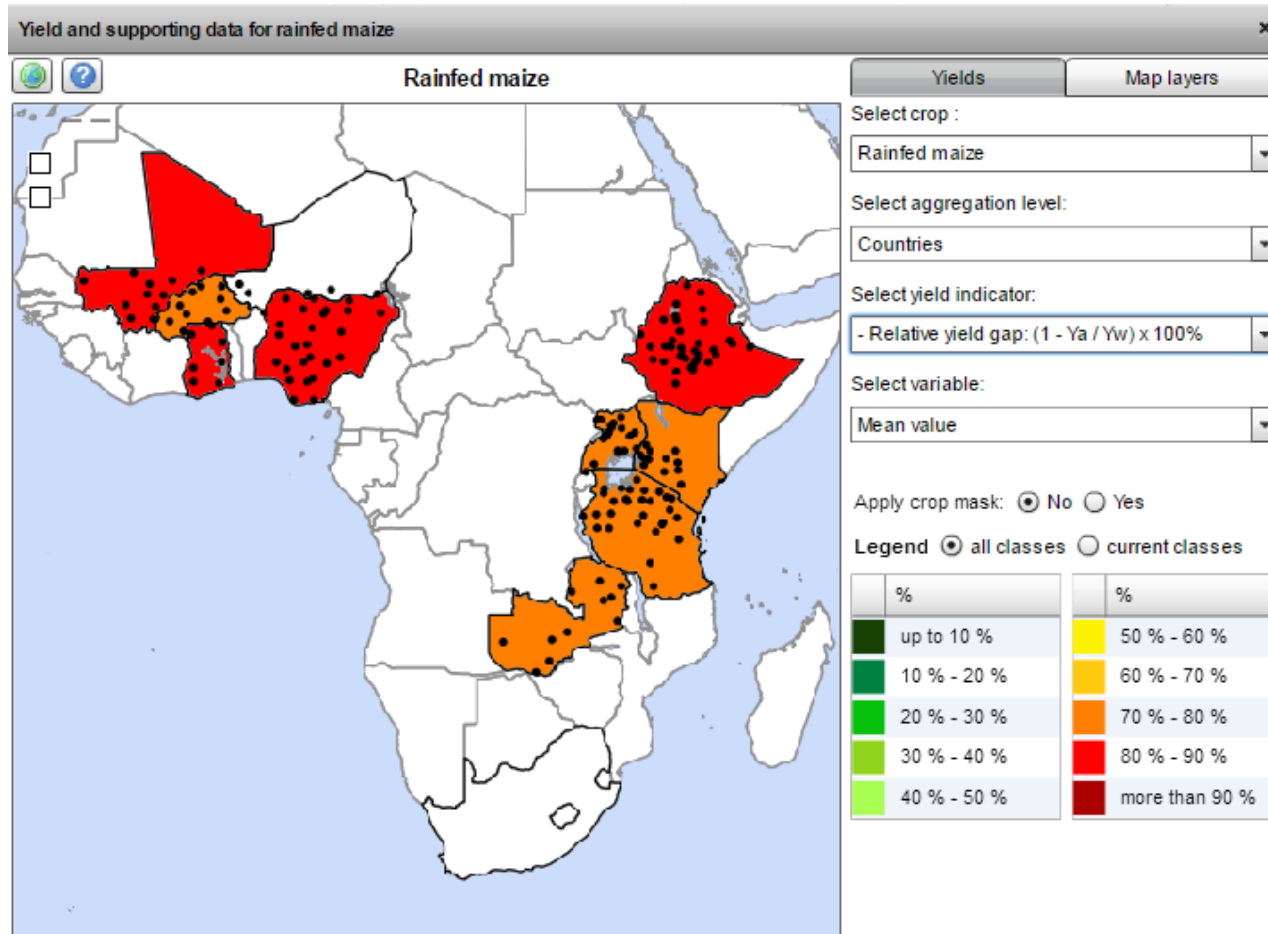


Four examples on partnerships

1. Mapping soil micronutrients

Challenge: Africa uses a small proportion of its' yield potential

Water-limited yield gap (%) for rainfed maize in Africa



To view data details: Click on the map.

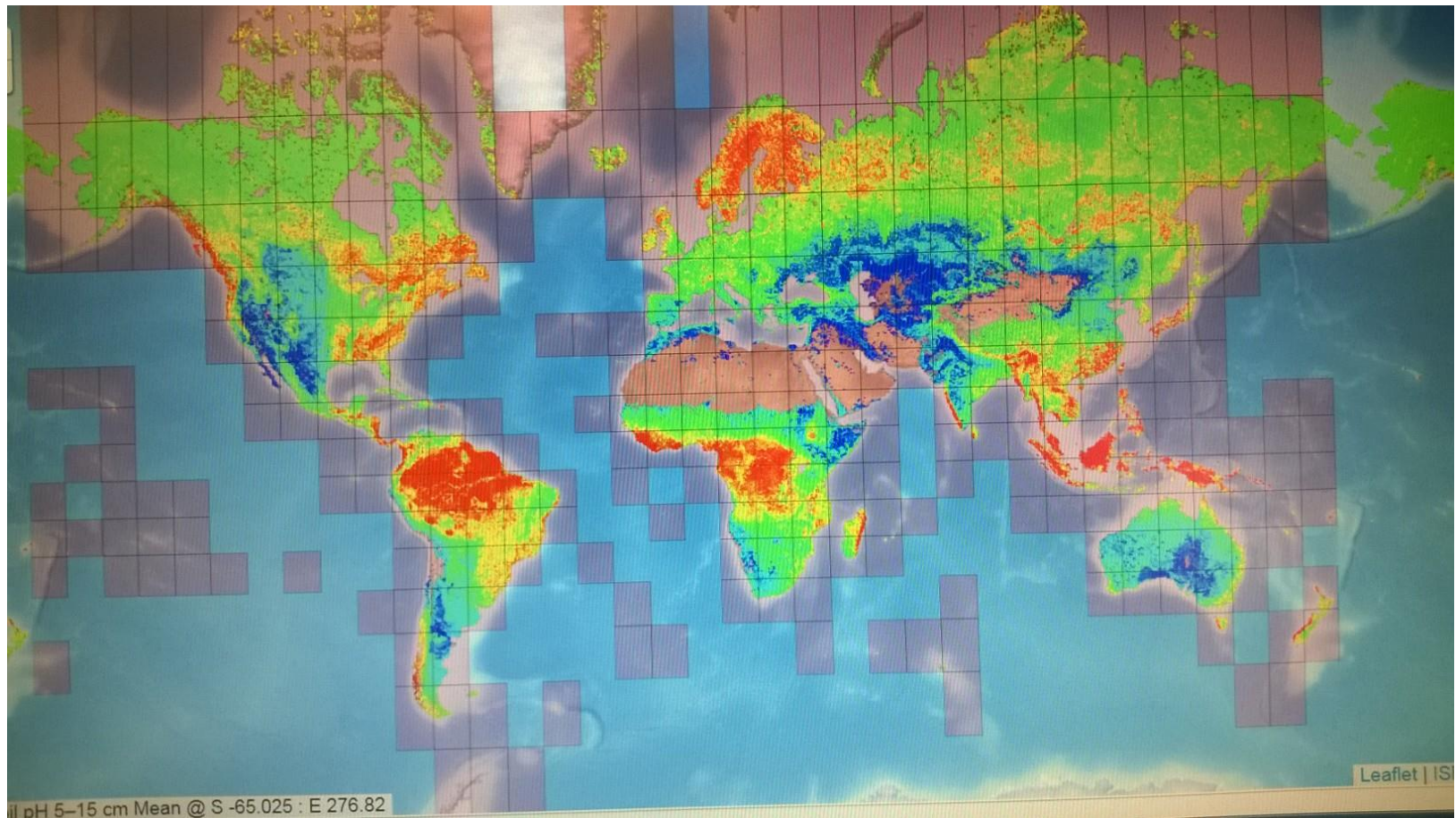
Source: Global Yield Gap Atlas (<http://www.yieldgap.org>)

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Mapping Soil Micronutrients

- Poor yields are largely due to inadequate use of inputs
- Efforts to diagnose, survey and manage soil nutrient deficiencies in Sub-Saharan Africa have been insufficient
 - Inadequate human and laboratory capacity
 - No cost-effective diagnostic methods to be applied at large
- ➔ More than 1,700 soil samples were analysed around Africa to show that African soil lacks many vital micronutrients!
- ➔ Rapid and low cost analytical methods and interpretation tools for diagnosing soil and plant micronutrient deficiencies
- Links to an ICI project on soil minerals
- Potential to collaborate with business to improve application of fertilizers and soil conditioners, and thus yields, in Africa
- Utilises Finnish expertise in soil sciences

Acid soils (red colour) exist in Finland and Africa
Liming is a prerequisite for full use of fertilizer nutrients



Source: www.isric.org

Lime crushing station in Ethiopia

- For instance, some lime quarries exist in Ethiopia but their technology is very primitive and capacity is low
- There is also cement industry



Four examples on partnerships

2. Developing cattle breeding in Senegal

Breeding cattle that is best suited to Senegal

- Household profit from keeping different breeds and cross-breeds of dairy cattle in low-input, agro-pastoral systems
- Farmers lack information on the relative performance of different breed-types
- ➔ Partnering with animal breeding and veterinarians to provide advice and find the most appropriate solutions
- ➔ Assessing the trade-offs, benefits and costs of keeping indigenous breeds and crosses of these with newly introduced breeds
- ➔ Creating a business model

<https://senegaldairy.wordpress.com/2014/06/01/video-update-en/>

Good

Genetics

- Measuring milk yield & weighing animals
- Use & improve AI
- Best-suited breeds
- Cross-breeding



Improved
livelihood

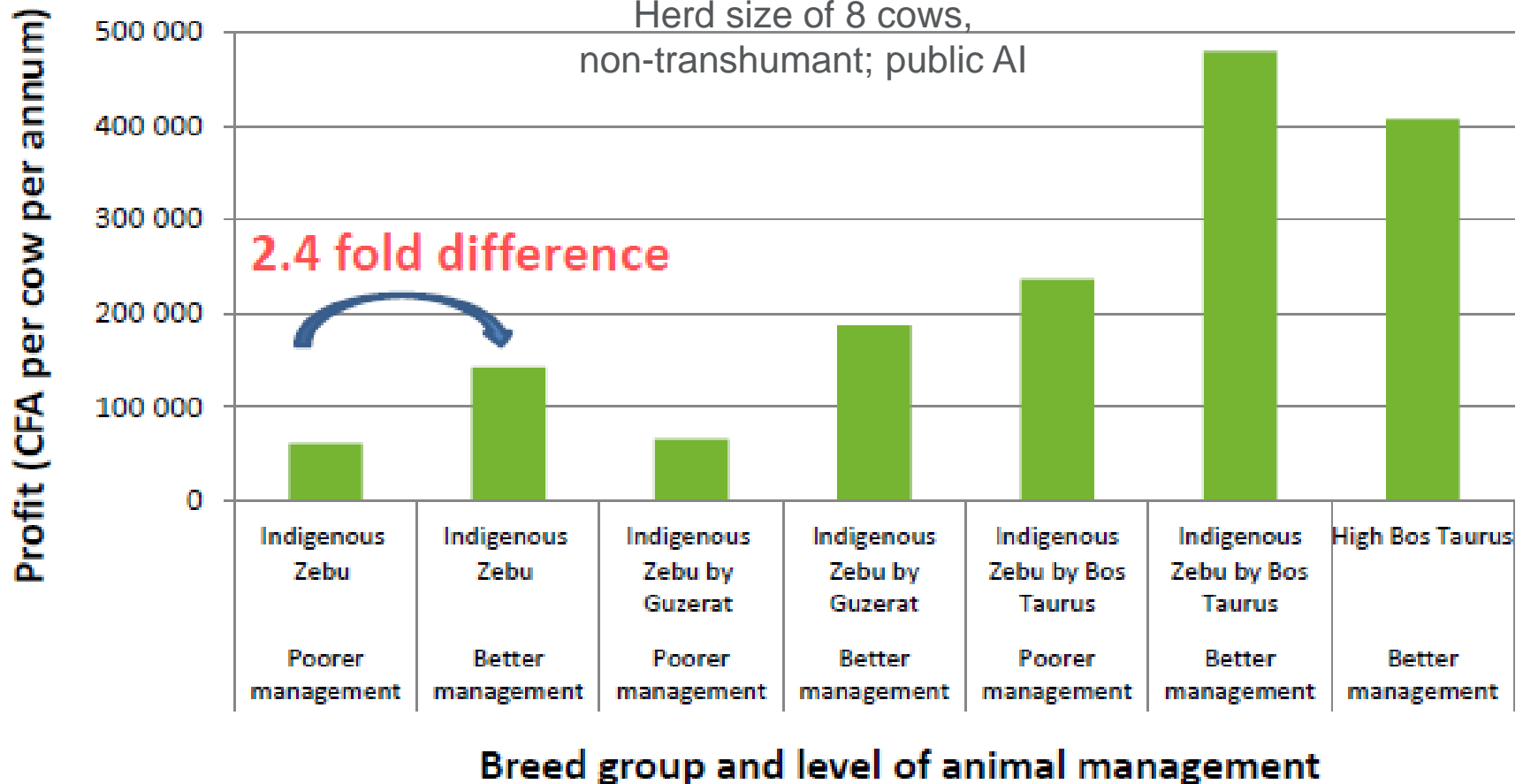
Good

Management

- Animal health care
- Fodder preservation, collection & storage
- Housing and feeds
- Access to inputs

Household income from keeping different breeds

8.0 fold difference!



Four examples on partnerships

3. Controlling mycotoxins in Kenya

Controlling mycotoxins in maize and milk in Kenya

- **Aflatoxins** are poisonous chemicals produced by molds
 - Molds can grow in soil, vegetation and grains
 - In some Kenyan regions up to 50% maize is contaminated
 - Yield losses and disease in humans and animals
- In collaboration with local companies, meteorological office and local researchers, FoodAfrica has studied...
 - Ways reduce Aflatoxins e.g. by improving maize drying and storage and producing risk forecasts
 - Price premiums that the consumers would be willing to pay for certified aflatoxin-free products
 - Farmers' willingness to pay for drying service

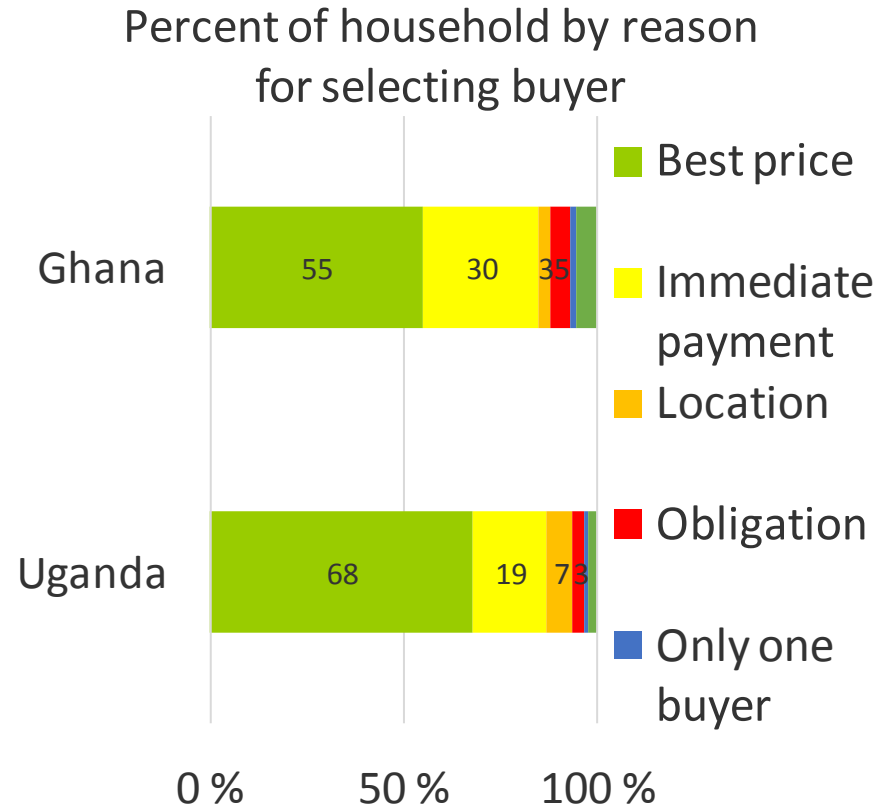


Four examples on partnerships

4. Using ICT to disseminate information to farmers in Uganda and Ghana

Using mobile communication to deliver market and advisory information to farmers in Uganda and Ghana

1. Problem: Less than half of farmers feel well informed about markets
2. No good sources of information are available
3. Most farmers own a mobile phone
4. They don't use phones to obtain market info (only 25% use)
5. Competitive markets exist



Developing ways to advice farmers

- FoodAfrica is collaborating with two service providers to quantify how large the **benefits** are?
 - They operate systems to collect and disseminate information
 - How to best provide the information?
 - How much farmers are willing to pay for the service?



Thank you!

For further information, please visit at:

www.luke.fi/en

www.luke.fi/foodafrica

<http://www.intensafrica.org/>