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NIGERIAN AGRICULTURAL POLICY PROJECT

Taking food safety research beyond academia: Some experiences from the Nigeria Agricultural Policy Project



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Food safety as and integral element of food systems transformation and economic development

- **Nutrition and food safety are inextricably linked particularly in places where food supplies are uncertain.**

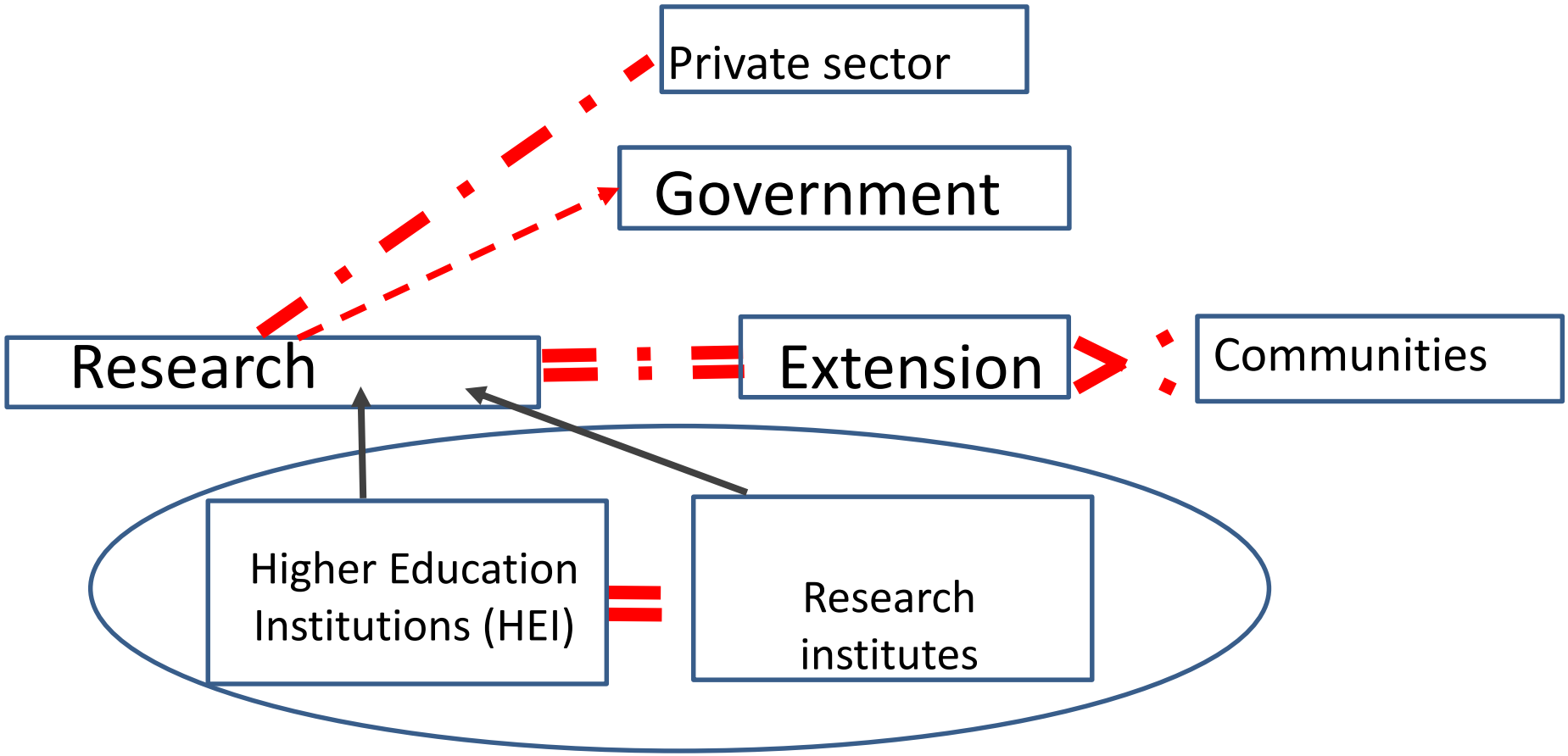
- When food is scarce or perceived to be scarce, hygiene, safety and nutrition are often ignored as people shift to less nutritious diets and consume more 'unsafe foods' — in which chemical, microbiological, zoonotic and other hazards pose a health risk (WHO, https://www.who.int/foodsafety/areas_work/nutrition/en/)

- Unsafe food, whether arising from low quality supply systems or inadequate treatment and preparation, increases the risk of foodborne infections such as diarrhea and aflatoxicosis (WHO, https://www.who.int/foodsafety/areas_work/nutrition/en/)

- These infections usually have a higher impact on the poor and populations of poor nutritional status.

Source: WHO Estimates of the Global Burden of Foodborne Diseases. 2015.

Quick observations …



Research on Aflatoxins along the maize value chain in Nigeria…

- **Aflatoxin - toxins produced by fungi knowns as Aspergillus spp which frequently contaminate maize (and peanuts), mainly in countries with high temperature and humidity** (Paterson and Lima, 2017).

- High doses can result in severe liver damage, edema and even death. **Aflatoxins are associated with inducing adverse immune system and growth effects in animals** (Bondy and Pestka, 2000), growth impairment in children (Khlangwiset et al. 2011) **and risks of prematurity and pregnancy loss** (Smith et al. 2017).

- Potential negative effects of the toxins are exacerbated because these toxins are not visible to the consumer

- **Limited enforcement of regulations associated with aflatoxins** and no market-based solution to provide aflatoxin-safe maize to consumers.

Some studies supported by the Policy Project…

1. The occurrence and co-occurrence of aflatoxin and fumonisin along the maize value chain in southwest Nigeria (2019). Food and Chemical Toxicology. 129, 458-465 by Liverpool-Tasie L.S.O, Saha Turna N, Ademola O, Obadina A, Wu F

2. Food Safety in the Rapid Transformation of Food Systems in Africa: Aflatoxins along the Maize Value Chain. Feed the Future Innovation Lab for Food Security Policy Research Paper 90. East Lansing: Michigan State University. + Ademola,O. Liverpool-Tasie, L.S.O, and Adewale Obadina. (2017).

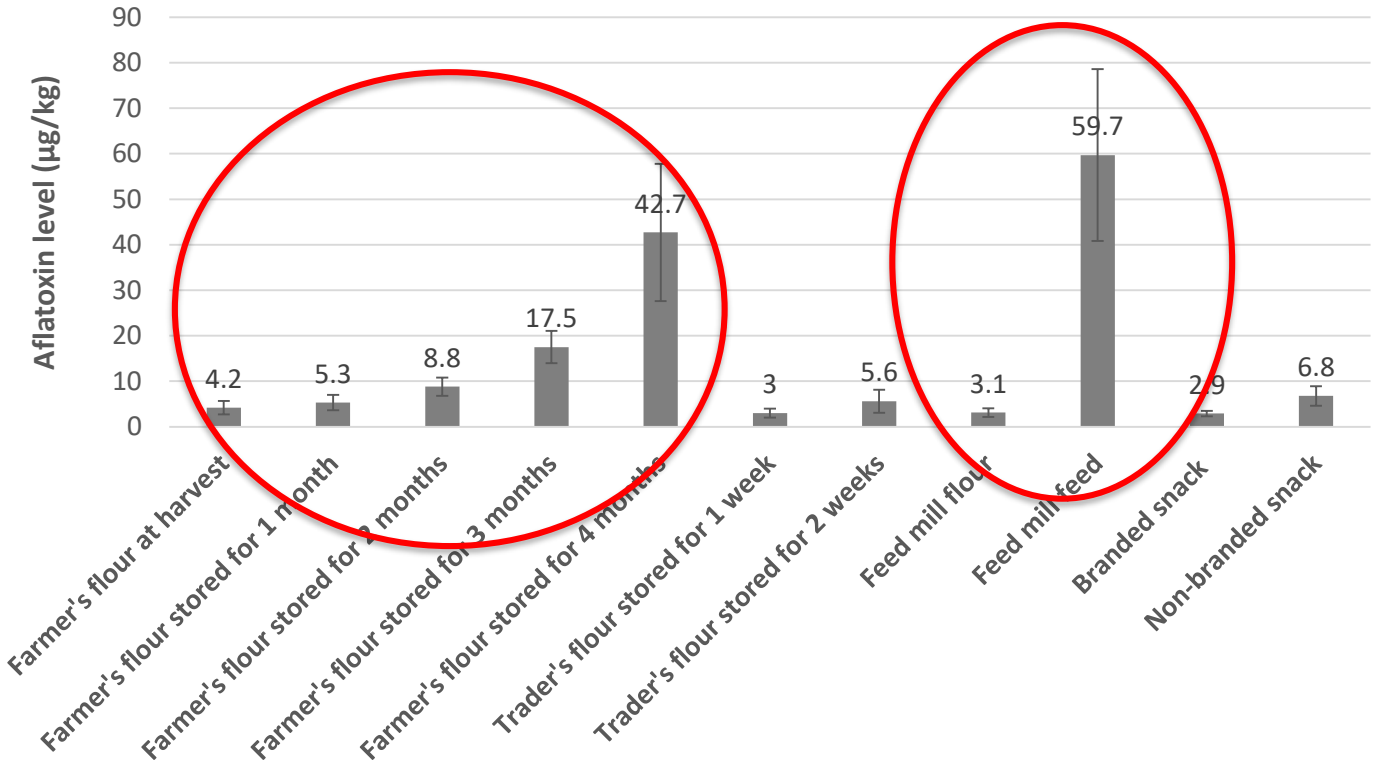
3. Introducing safety labels in complex food supply chains: Evidence from a choice experiment in Nigeria. Sanou, A. Liverpool-Tasie, L.S.O., Caputo and V., Kerr, J.

4. The effect of time preferences on the willingness to pay for aflatoxin maize based food products. Parkhi, C, Liverpool-Tasie and Caputo, V.

5. The Effect of Processing Practices on Mycotoxin Reduction in Maize Based Products: Evidence from Lactic Acid Fermentation in Southwest Nigeria. Oluwatoyin Ademola, Lenis Saweda O. Liverpool-Tasie, Adewale Obadina, Nikita Saha Turna, Felicia Wu, 2018. Feed the Future Innovation Lab for Food Security Policy Research Paper 116

Key findings…

Confirmed aflatoxin contamination along the maize value chain in south west Nigeria…



In Nigeria, Aflatoxin contamination in maize extends beyond production to storage and final maize-based human and animal food products

Adequately addressing aflatoxin contamination requires consideration of the entire maize value chain as well as associated value chains such as animal feed

Key findings from choice experiments…

There are potential market mechanisms that could be introduced in Nigeria

- **Nigerian consumers respond to information about the health effects of aflatoxin**
- **Maize traders in Nigeria respond to the attributes that their consumers care about**
- **Thus the introduction of an aflatoxin certification scheme could be implemented in Nigeria**
- **Given the low level of awareness about aflatoxin such a policy should be preceded or accompanied by an information campaign as a** campaign would increase awareness and demand for aflatoxin safe products.
- **However, there is still a strong need for regulation enforcement**

KEY CONCLUSIONS…

- Producing safe food is not simply a tool for boosting agriculture or trade — it is an essential ingredient for public health.

- **In Nigeria, we need an integrated approach to food where food safety and nutrition are systematically introduced into mainstream food system policies and interventions**.

- Food safety is complex but critical and addressing food safety issues requires a multi-sectorial approach."
  - It requires multi-disciplinary research that must be communicated to multiple stakeholders

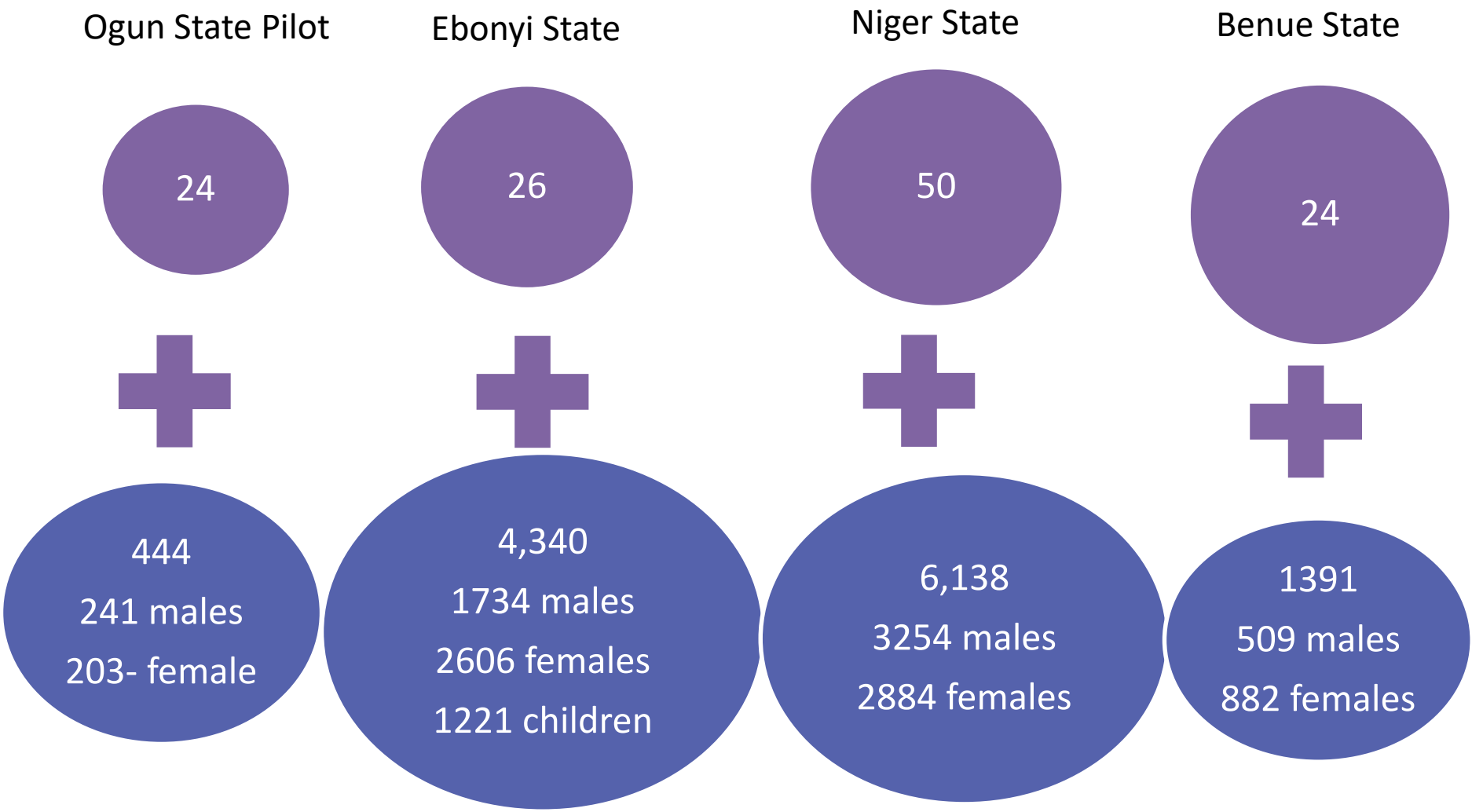
Not just what we find but what we do with it…

- **Maintaining scholarly excellence**
  - 5 international peer reviewed publications expected from projects discussed
- **The Bridge to policy makers**
  - Production of policy briefs (short summary pieces targeted at the busy policy maker)
  - Stakeholder consultation with relevant ministries (agriculture, health), Nigerian government regulatory agency, (NAFAC) private sector
  - Working jointly to determine next steps

Not just what we find but what we do with it…

- **The Bridge to extension:**
  - Production of non-technical publications
    - Pamphlets/manuals produced include one on proper fermentation to reduce aflatoxin levels in maize gruel (Ogi/pap/akamu)
    - Already translated into the 3 main Nigerian languages
    - More states now translating documents into other Nigerian languages
    - **Working with media (and extension) we have produced the pamphlet material in oral form (Yoruba, igbo and hausa for now)**
    - **Working extension and youth to train communities on production and storage practices**

Dissemination update:



Dissemination activities by trainees

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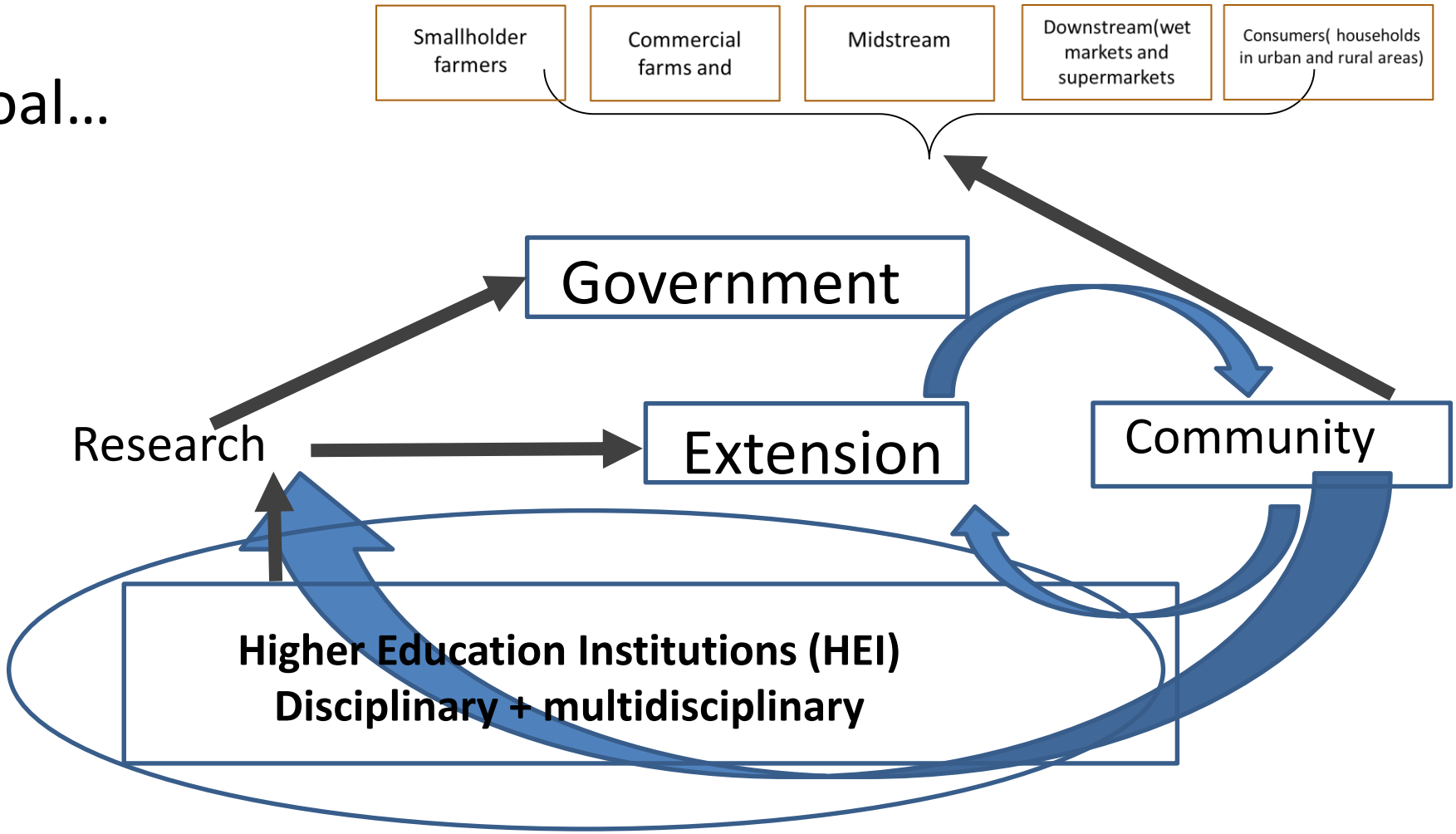
Thank you

Goal…


Smallholder farmers
Commercial farms and
Midstream
Downstream(wet markets and supermarkets
Consumers(households in urban and rural areas)
Government
Research
Extension
Community
Higher Education Institutions (HEI)
Disciplinary + multidisciplinary

Where we are now?

- Ongoing discussions with NAFDAC

- Dissemination with extension workers
  - 124 trained have gone on to train 12,204 others (6,551 females and 5,6523 males).
  - Dissemination through “Train the Trainers”

Dissemination through "Train the Trainers"

- Our NAPP scholars and collaborators take the knowledge and skills acquired at Michigan State University (MSU) as well as the outcomes of their research efforts to many more Nigerians.
- Our NAPP scholar working on food safety has trained people from different organizations (government, academia, private sector, civil society and producers) in three of the FTF states on issues related to aflatoxins (based on our research findings).
- Our training adopts a train the trainer approach. In each state, we train a group of extension agents and academics from institutions of higher learning who go on to train others in their communities
- We monitor them and they send us pictures and videos of their training/field visits through WhatsApp.
- During the dissemination activities, the trainees involvement was encouraging!
  - They were happy about the enlightenment they got from the topic of discussion.
  - There were several positive comments from them such as *"…the training was an eye-opener and a life saver… they were also grateful for the organization of such an impactful training as this*
  - **The trainees were also ready to join in creating awareness on aflatoxin by taking the message to people in their communities**

Thank you!!!

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