Status and Future of Extension in Africa

Dr. Kristin Davis
Development Strategies and Governance Division
International Food Policy Research Institute

Sasakawa Africa Association (SAA) Official Side Event for FAO Science and Innovation Forum

14 October 2022

Key Messages

- Extension services are critical to supporting producers
- Status: Need for an upgrade?
- Future: Farmer-led, digitally-enabled, innovative, professional

CGIAR

How Can Extension Get Us Here?

CGIAR

Source: Davis et al. 2021

Extension Services in Africa – a Snapshot

- Increasing pluralism
- Wider audience
- Increasing outreach methods esp. digitalization
- Increasing professionalism
- Increasing topics: climate change, nutrition, entrepreneurship

Davis et al. 2021; Davis et al. 2020; Kiptot and Franzel 2015; Kiptot et al. 2016; Zhou and Babu 2015

Extension's Future

Source: Jiménez et al. 2021; Ragasa et al. 2019

Extension's Future – an Upgrade!

Photo: B. Van Campenhout/IFPRI

- Farmer-led
- Digitally-enabled
- Innovative
- Inclusive
- Professional

CGIAR

Davis et al. 2020; Davis et al. 2021; Van Campenhout et al. 2021

How to Upgrade Extension

- Increase investment and support to agriculture and to extension
- Support implementation of policies and strategies that support and capacitate extension
- This must happen at national, regional, and global level

Balana et al. 2022; Breisinger et al. 2022; de Weerdt and Duchoslav 2022

References

- Balana, B., K. Andam, M. Amara, D. Adeyanju, D. Laborde. 2022, June 9. The Russia-Ukraine crisis presents threats to Nigeria's food security, but potential opportunities for the fertilizer, energy sectors. Issue post: IFPRI blog.
- Breisinger , C., X. Diao, P. Dorosh, J. Mbuthia, L. Omune, E. O. Oseko, A. Pradesha, J. Thurlow. 2022, June 10. Rising commodities prices driven by the Russia-Ukraine crisis threaten to undermine Kenya's economy, increase poverty. Issue post: IFPRI blog.
- De Weerdt, J. and J. Duchoslav. 2022, April 27. Russia's invasion of Ukraine threatens food security in Malawi. How can the country respond? Issue post: IFPRI blog.
- Davis, K., S. C. Babu, and C. Ragasa. (Eds.). 2020. Agricultural extension: Global status and performance in selected countries. Washington, DC: International Food Policy Research Institute. https://doi.org/10.2499/9780896293755
- Davis, K., Makhija, S., & Spielman, D. J. 2021. Agricultural extension and rural advisory services: what have we learned? What's next? Policies, Institutions, and Markets (PIM) Synthesis Brief. Washington, DC: PIM.
- Jiménez, D.; Ortiz-Crespo, B.; Guerena, D.; Davis, K.; Bennett, G. 2021. The extension agent of the future. 1 p.
- Kiptot, E., and S. Franzel. 2015. "Farmer-to-Farmer Extension: Opportunities for Enhancing Performance of Volunteer Farmer Trainers in Kenya." Development in Practice 25 (4): 503–517. http://dx.doi.org/10.1080/09614524.2015.1029438
- Kiptot, E., M. Karuhanga, S. Franzel, and P.B. Nzigamasabo. 2016. "Volunteer Farmer-Trainer Motivations in East Africa: Practical Implications for Enhancing Farmer-to-Farmer Extension." International Journal of Agricultural Sustainability 14 (3): 339–356. https://doi.org/10.1080/14735903.2015.1137685
- Ragasa, C.; Mthinda, C.; Chowa, C.; Mzungu, D.; Kalagho, K.; and Kazembe, C. 2019. Assessing and strengthening Malawi's pluralistic agricultural extension system: Evidence and lessons from a three-year research study. Project Note. Washington, DC: International Food Policy Research Institute (IFPRI). http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/133501
- Van Campenhout, B., D.J. Spielman, and E. Lecoutere, Els. 2021. "Information and Communication Technologies to Provide Agricultural Advice to Smallholder Farmers: Experimental Evidence from Uganda. American Journal of Agricultural Economics 103 (1): 317—337. https://doi.org/10.1002/ajae.12089
- Zhou, Y. and S. C. Babu. 2015. Knowledge Driven Development. Private Extension and Global Lessons. London: Elsevier.

CGIAR

～“Delivering innovation through Multidimensional Agricultural Extension in Africa”～

Mel Oluoch

Sasakawa Africa Association (SAA)

FAO Science and Innovation Forum

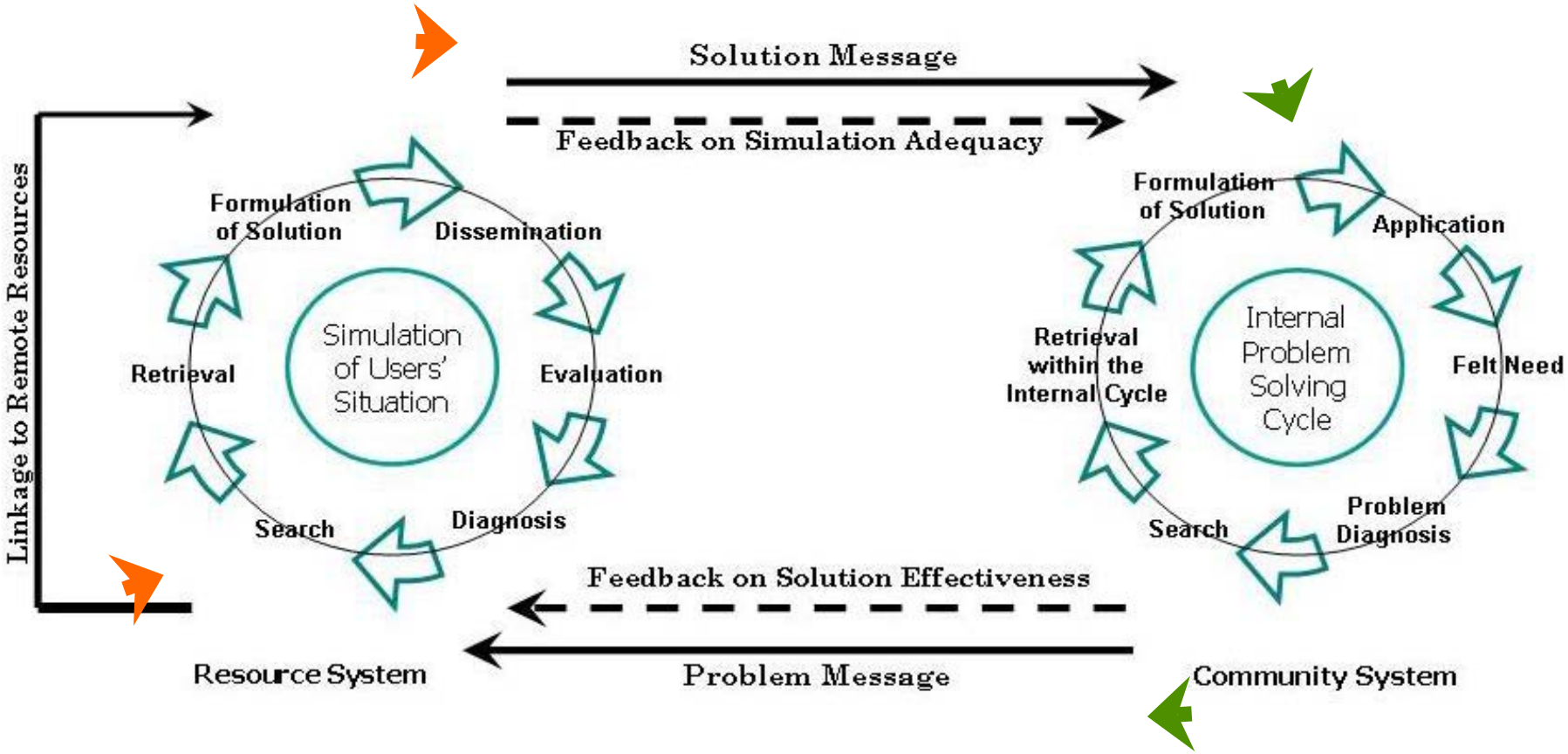
October 14, 2022

SAA Approach to Agriculture Transformation in Africa

- Co-create, innovate and support resilient-building measures
- Increase smallholder farmers' food security and income earning potential while creating rural employment for youths
- Inclusive decision-making in technology interventions

based on proven extension models critical in sustainable rural agricultural development

Holistic' and Participatory Approaches to Technology Transfer



Toward virtuous cycle of the SAA extension strategy

Sustainable productivity enhancement by focusing on soil function

Agricultural technology dissemination supported by digital technologies

Production cost reduction through optimal chemical fertilizer application, use of organic amendments, integrated pest management, reduced labor, etc.

Increased Crop Productivity FOOD SECURITY

Secured healthy and sustainable agricultural labor force

Increased surplus of agricultural products (grain, etc.)

Sustainable Intensification

Promotion of food safety by quality control of stored agricultural products (aflatoxins, agro-chemical residues, etc.)

Improved nutritional value (micronutrients) of crop varieties through soil improvement

Integrated Soil Fertility Management

REGENERATIVE AGRICULTURE

Conservation Agriculture

Increased revenue from product aggregation and collective marketing through farmer's

Harmonized information asymmetry between farmers and other stakeholders (input dealers, marketers, etc.)

Crop diversification through introduction of biofortified crops, vegetables, legumes, etc.

Diversification with Nutrient-dense Crops NUTRITION SECURITY

Nutrition-sensitive Agriculture

Market-orientated Agriculture

Increased Profitability INCOME SECURITY

Increased revenue for sales of good quality of cash crops (nutritious crops like vegetables, legumes, etc.

Regeneration of Agroecosystems by restoring Biodiversity /Soil Health leading to Carbon Sequestration

Improved access to nutritious crops/ processed nutritional supplements for infants and young children

Gender-sensitive awareness-raising of nutrition (balanced diet, food safety, women empowerment, etc.)

Increased farmers' purchasing power of nutritious foods

Income generation by Farmer-entrepreneurs (contract farming/agro-processing/input sales/agro-brokerage, etc.)

promotion of biofortified crops + increased food purchasing power

Agriculture-based Community Nutrition Improvement Approach

- SAA aims to improve the nutrition of entire communities through Nutrition-Sensitive Agriculture led by promotion of biofortified and nutrient dense crops and increased food purchasing power through Market-Oriented Agriculture, based on sustainable intensification through Regenerative Agriculture.

Nutrition Sensitive Agriculture Interventions

- Promotion of biofortified and nutrient dense crops
- Enhancing the production and consumption of nutritious food by rural households (“*diet diversification*”)
- Postharvest Handling and Agro-processing Services to improve quality
- Gender-sensitive nutrition awareness-raising

Market Oriented Agriculture Interventions

- Increased revenue from product aggregation and collective marketing through farmer cooperatives
- Increased revenue from sales through Smallholder Horticulture Empowerment Promotion (SHEP) approach
- Income generation through farming as a business enterprise (contract farming/agro-processing/input-output sales/agro-brokerage, etc.)

Integrated SAA extension models (approaches) along the value chain

Capacity Building

- Consumption
- Marketing
- Processing
- Storage and Transport
- Harvesting
- Production
- Inputs

Private and Extension Service Provision (PESP)

Community Savings for Investment in Agribusiness (CSIA)

Agro-processing Enterprise Center (APEC)

Demand Driven Curriculum

Farmer Learning Platform (FLP)

Community Based Seed Multiplication (CBSM)

SAA Approach to Technology Transfer

The technology Transfer strategy consists of:

- ❑ Consolidation of the **Field Extension Models** along the crop value chain
- ❑ **Number and type** of field models implemented as single or consolidated:
  - ✓ Value Chain Centers (PHTCs, OSCA etc.)
  - ✓ Commodity association traders and trainers (CAT)
  - ✓ Farmer learning platforms (FLP),
  - ✓ Agro-processing enterprises (APE)
  - ✓ Private service provider (PSP)
  - ✓ **Community-based seed multiplication (CBSM)**
  - ✓ Private extension and service provision (PESP)
  - ✓ Community saving for investment in agriculture (CSIA)
  - ✓ Community-based facilitators (CBFs)

Key Principles

Need Assessment

Need-Based Technology Identification and Sourcing out

Need-based Technology demonstration

Farmer Learning Plots (FLPs) – Model encompass 4 different plot types:

- Need-based Community Demonstration Plots (CDPs) to showcase productivity-increasing technologies while filling technology and knowledge gaps
- Technology Adoption Plots (TAPs) carried out by early adopters (partial adopters)
- Model Adoption Plots (MAPs) illustrating exemplary adoption plots (full adopters)
- Community Practices (CPs)

SAA Approach to Agricultural Extension: Scale-up Model

Training of Trainer Extension Agents
By Sasakawa Africa Assocaition

Training of CBFs
By Trained Extension Agents

Training of Farmers
By CBFs

Farmer-to-Farmer Training
By Farmers

Training of Farmers
By CBFs

Farmer-to-Farmer Training
By Farmers

Training of CATs
By Trained Extension Agents

Training of input stockists and retailers
By CATs

Farmer-to-Farmers Training
By Farmers

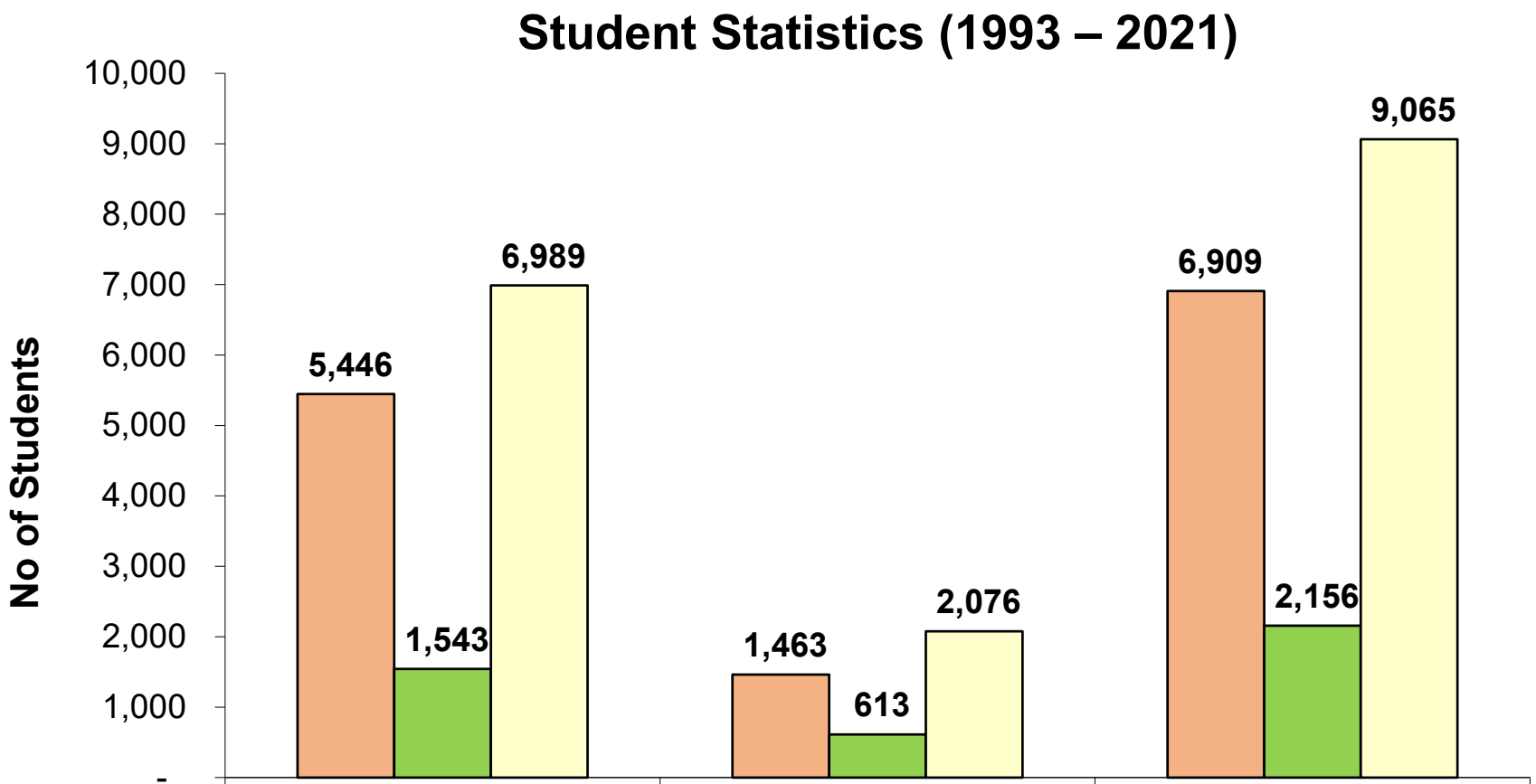
Training of input stockists and retailers
By CATs

Farmer-to-Farmers Training
By Farmers

Community Based Facilitators (CBF); Commodity Association Trader (CAT)

Human Resource Development

Sasakawa Africa Fund for Extension Education (SAFE)

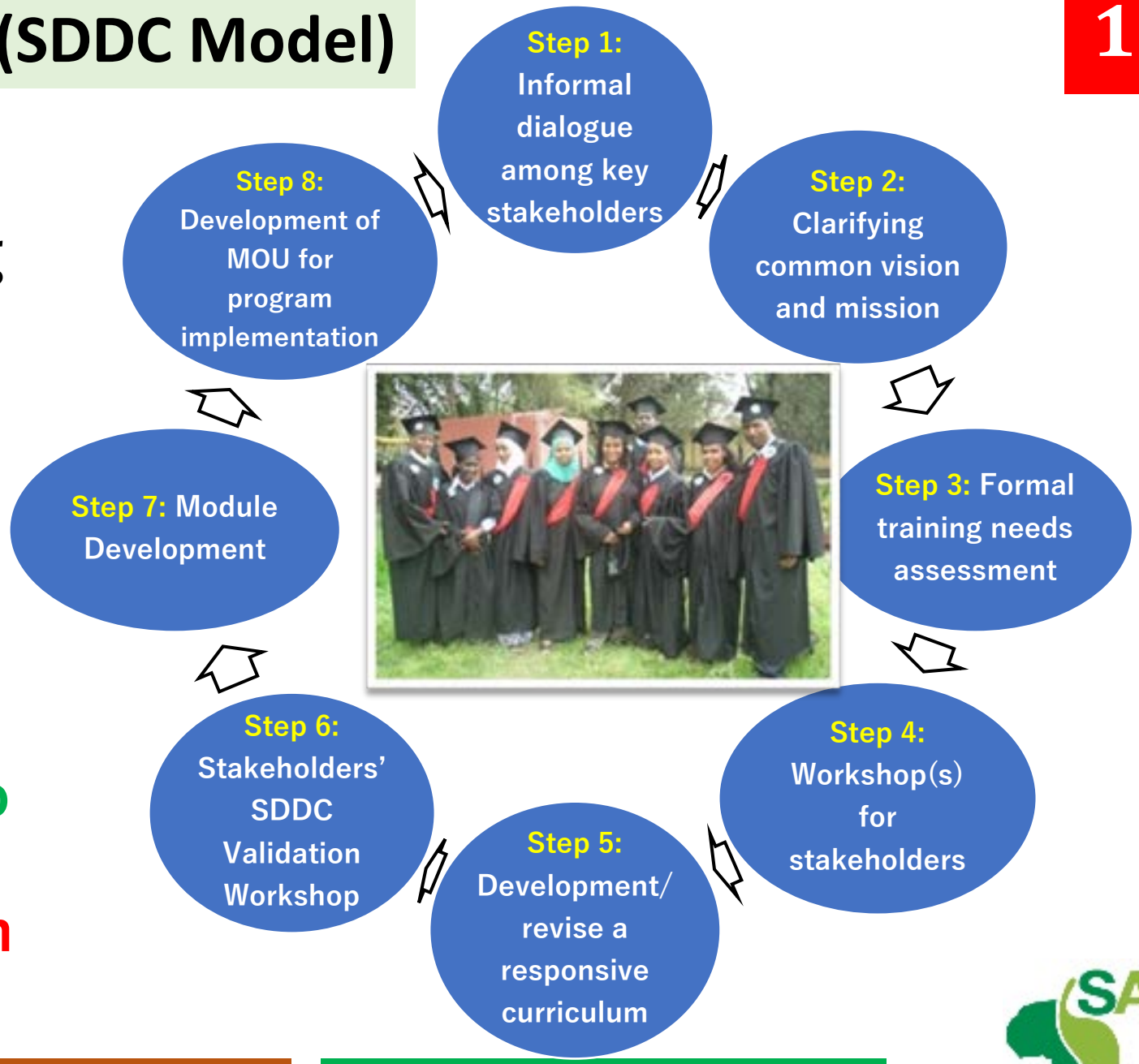


	Male	Female	Total
Graduates	5,446	1,463	6,909
Current	1,543	613	2,156
Total	6,989	2,076	9,065

Countries	No of Universities
Benin	1
Burkina Faso	1
Ethiopia	9
Ghana	2
Malawi	1
Mali	4
Mozambique	1
Nigeria	8
Sierra Leone	1
Tanzania	1
Uganda	1
TOTAL	30

Demand Driven Curriculum (SDDC Model)

- Emphasize experiential learning: learning by doing - (combination of theory, experience, critical reflection and practice).
- Participatory curriculum development process
- All stakeholders are involved
- Curriculum streamlined to focus on needs identified
- Curriculum demand-driven & value chain oriented



Postharvest Handling and Agro-processing Services to improve quality

Wheat Harvesting in Ethiopia

Groundnut butter processing in Mali

Rice parboiling in Nigeria

Demonstrate through trained extension agents & directly, using postharvest and trading platforms, different technology options in harvesting, handling, processing, storage, and value addition, as well as enterprise management

Cassava Grater, Nigeria

PICS bag storage in Ethiopia

Inclusivity: Engagement of Youth, Women and People with Disabilities

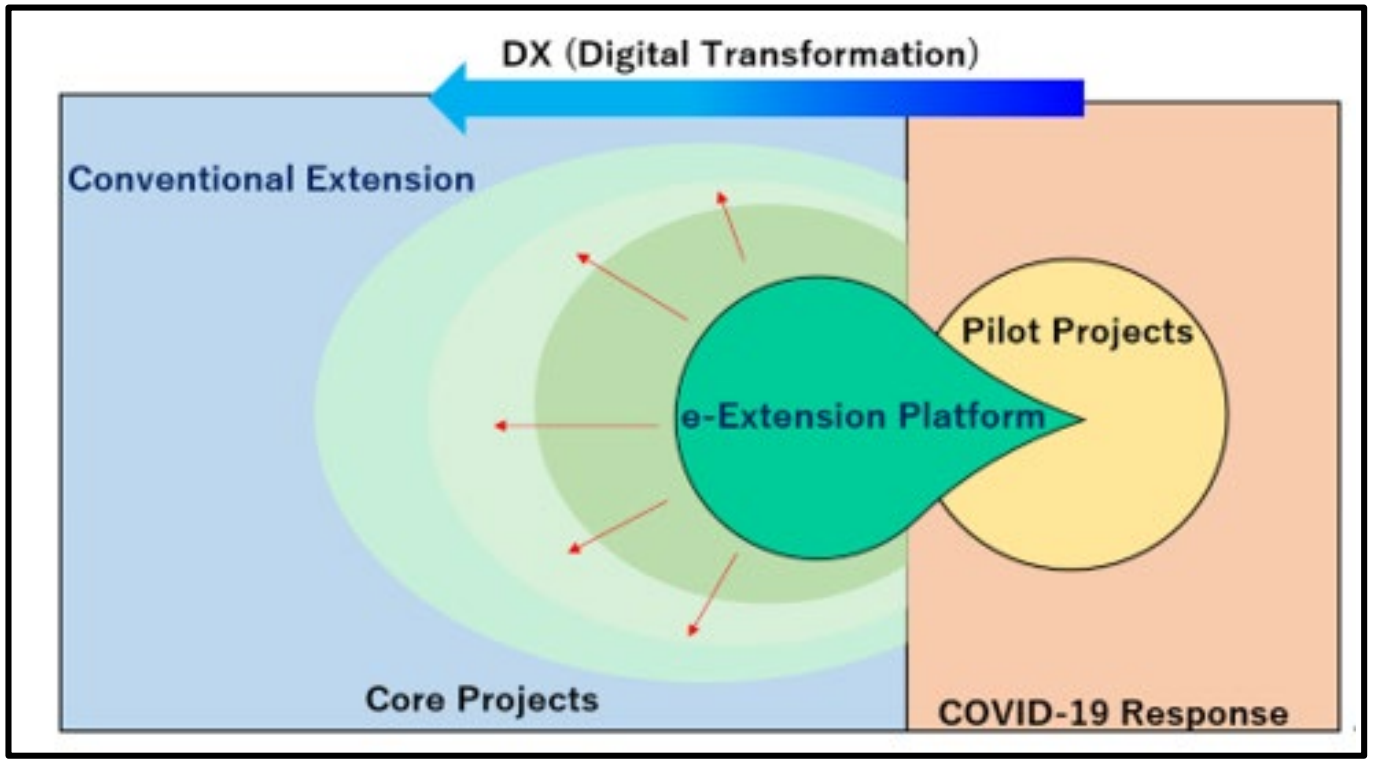
Private Service Provision

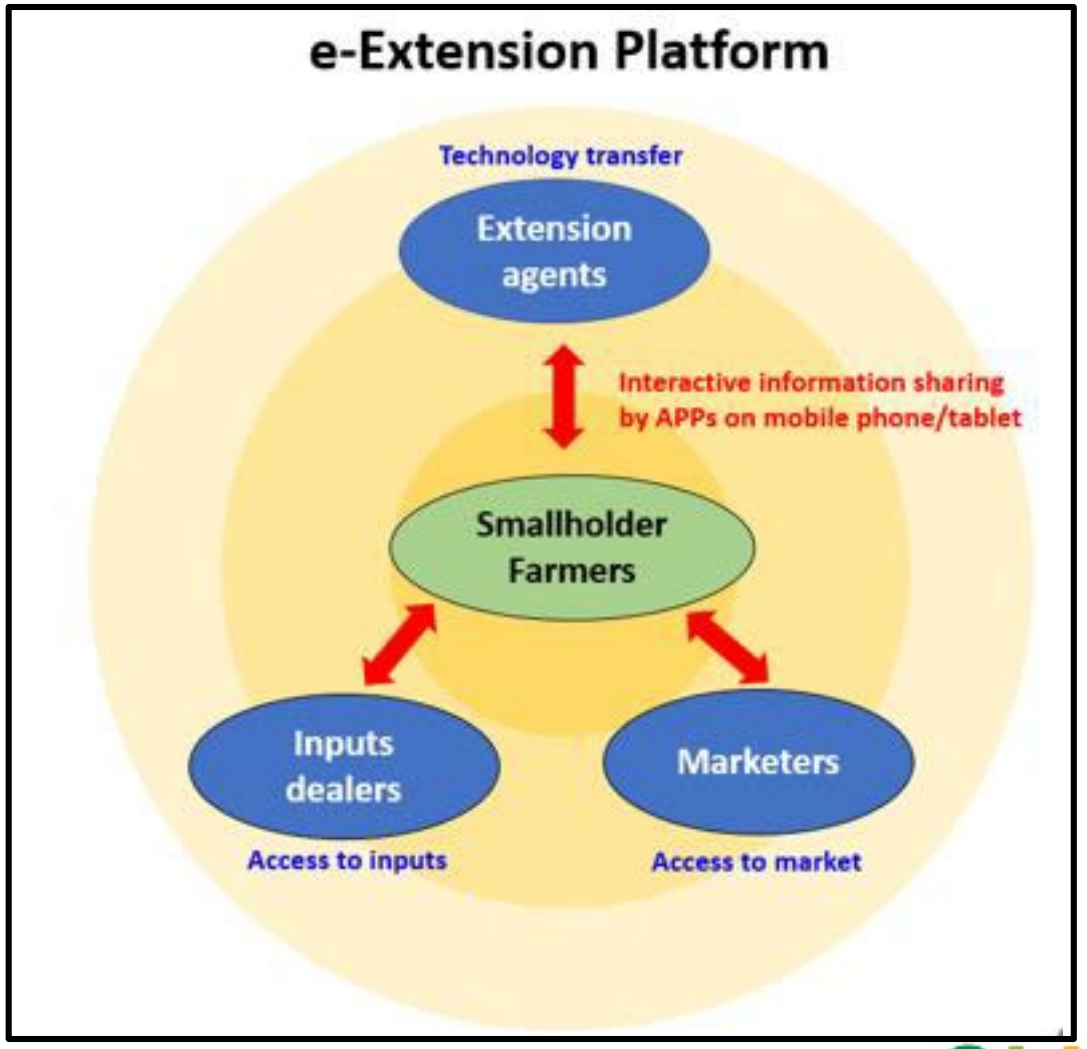
Platform to create employment

- Agro-processing enterprises
- Machine fabrication and maintenance
- Community Seed Multiplication
- Commodity/Community Association Traders (e.g. Agro-dealers)
- Community Based Facilitators
- Youth Business Clinics
- E-Extension services

Mainstreaming of e-Extension Platform in Agriculture Operations

Assessment of the impact of COVID-19 on extension delivery





Scaling up technologies through Digital Transformation to bridge the Extension worker to Farmer ratio

Scaling up technologies through Digital Transformation

Short, medium and long-term solutions

- Facilitate technology transfer mechanisms for farmers by using ICT
- Strengthening the supply chain by using ICT to improve farmers' access to services
- Integrate Youth into Agriculture – Innovation
- Development of E-Learning Platforms in Agriculture Universities

“Walking with the Farmer”

Mitigating fertilizer price increase through the promotion of Urea Deep Placement Technology

An experience from SAA-Nigeria

By

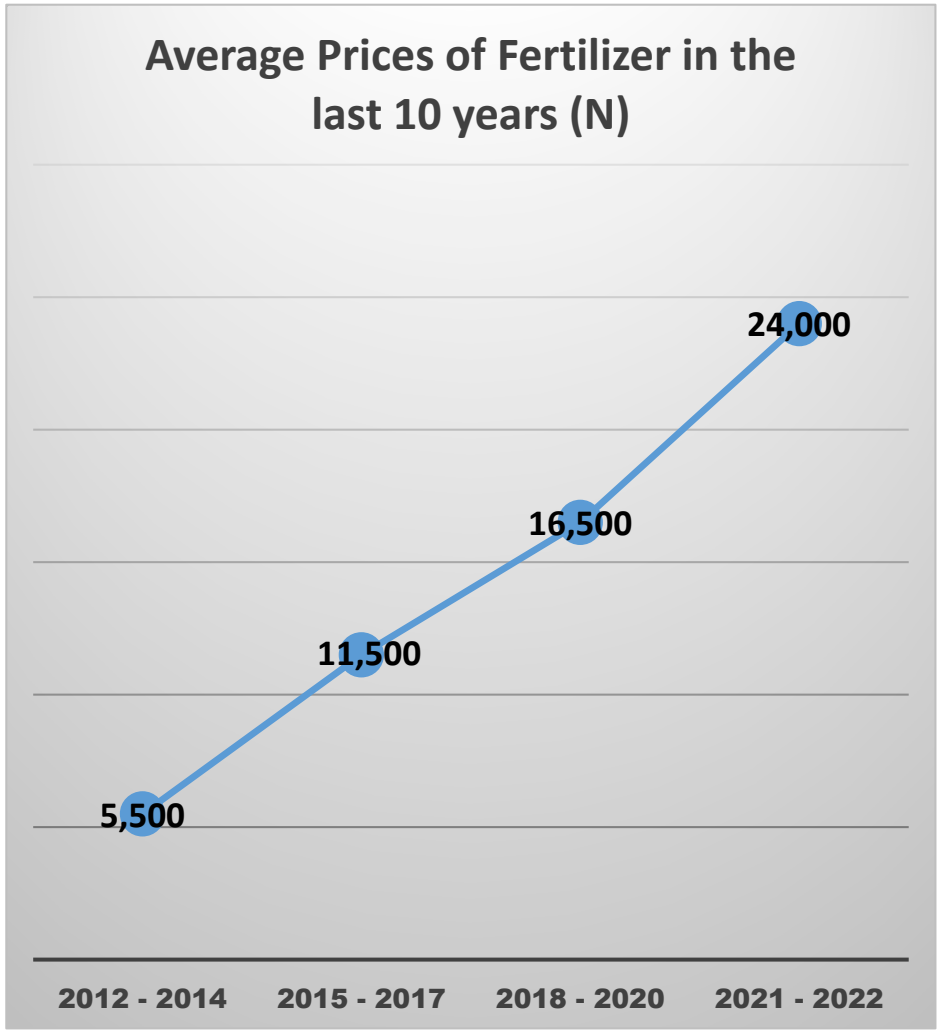
Abdulhamid, GAMBO

Deputy Country Director, SAA-Nigeria

@ Sasakawa Africa Association (SAA) Official Side Event for FAO Science and Innovation Forum in collaboration with the International Food Policy Research Institute (IFPRI) and the African Forum for Agricultural Advisory Services (AFAAS)

On 14th October 2022

Background



One of the adaptation and mitigation strategies for coping with fertilizer price increases heightened by the Russian-Ukraine crisis is the **use of UDP technology**.

SAA-Nigeria promotes UDP through sourcing, knowledge sharing, and developing the skills of farmers and extension personnel through innovative agricultural extension, which enable food, nutrition, and income security of SHFs

Background

UDP technology was introduced by IFDC to improve Nitrogen fertilization on irrigated Rice

It involves placing urea briquettes at a depth of 5-7 cm, between 4 Rice plants

This covers the Nitrogen requirements of Rice (for four hills) throughout its growing cycle

PRODUCTION CYCLE

Principle behind the Technology

SAA-Nigeria promotes the use of UDP as a coping strategy for its ability to

- **Reduce the rate of Urea fertilizer applied/ha by over 30%**
- **Improved grain quality (good tillering)**
- **Lower environmental impact from fewer N losses through leaching, volatilization, nitrification, and denitrification.**

- **Reduction of production cost**
- **Efficient Nitrogen fertilization and its availability across all growth stages**
- **Increases in gross margins and farmer's Income**

Mode of Use in the field

- Ideal plant spacing of 20 cm x 20 cm to be kept
- Transplanting is done completely in rows
- The deep placement of briquettes will take place

Rice transplanted in rows of 20 cm x 20 cm.

- If the plant spacing of 20 cm x 20 cm cannot be maintained
- Deep placement of briquettes will take place between the inter-rows every 40 cm
- Skipping every other inter-row

Success Stories from the technology used

Decrease in cost of Production	Reduced production cost by 30 – 35% per hectare in Jigawa, Gombe, and Kano states
Increase in the number of tillers per hectare of Rice farms	Using UDP farmers record an average of 60-70 tillers per stand against the urea broadcast with 30 tillers/stand on average
Yield increase	Increases in yield ranging from 50 to 60% using UDP compared to granular Urea

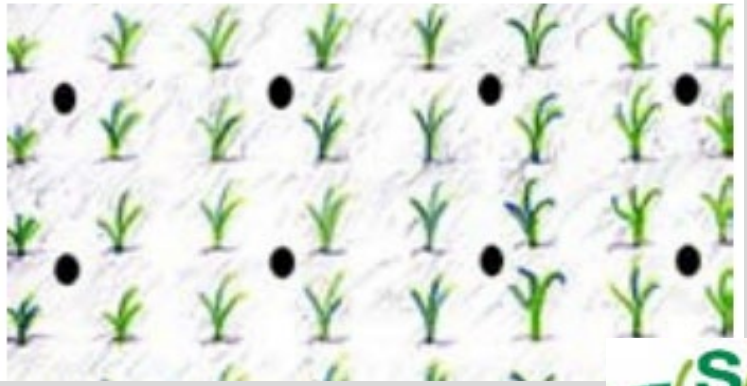
Success Stories from the technology used

Increase adoption

16,000 Rice farmers under KSADP are using the technology in Maize and Rice with corresponding 50-60% yield increase

Promotion of UDP technologies

275,500 farmers trained on UDP in 12 States through training, demonstration and field days



Success Stories from the technology used

THE STORY OF ALHAJI SANI HOTORO ON UDP IN KANO

- Broadcasting methods of applying fertilizer on their farm did not protect them from wastage
- After applying fertilizers, most of it would be washed away by rain or blown away by the wind, or even melt under the hot sun leaving very little to be taken up by the crops.
- Sometimes it gets so bad that they have to apply another round just to be sure of a good harvest
- Recently, the cost of fertilizers is so high and barely affordable
- UDP technology is an efficient means of cost reduction as well as yield increase.

Current UDP Promotion activities

Currently, SAA promotes a UDP Planter

The planter is made in China, costing USD126 = N52,900/unit.

Under the SAA/KSADP project, plans are ongoing to train local fabricators in the state to pioneer its mass production for scaling-up and sustainability

cross-section of beneficiary farmers during the distribution exercise in Kano, Nigeria.

Current UDP Promotion activities

- Promotion of Briquetting technologies
- Sourcing and dissemination of USG Applicator
- Training and usage of USG applicator
- Promotion of USG applicator as Private Extension Service Support to youth

New partnership on fertilizer Briquetting

- SAA and Royal Blue to work together on the promotion of USG
- Royal blue to produce USG
- SAA to spearhead the dissemination
- Royal blue to try producing NPK briquette for different crops

Conclusion

UDP technology contributes to improving farmers' income, food security, and environmental conservation

- ✓Improved nitrogen efficiency
- ✓Eliminating the volatility and washed away
- ✓Mitigate loss from blown away by the wind
- ✓Mitigate loss from melting under the hot sun,
- ✓Eliminate the second round of application caused by running water and other environmental factors
- ✓Cost-effectiveness in term of quantity used compared to normal fertilizer

Pictorials of UDP in Maize and Rice Production

Thank you

e-kakashi

Digitalization of agricultural extension Potential of e-kakashi

SoftBank Corp.
Service Planning Technology Division,
Technology Planning & Development Division,
CPS Technology Planning Department
Takashi TOGAMI, Ph.D.

2022.10.14

Agricultural Issues

Our Vision

Our vision is to drive the Information Revolution in agriculture while respecting our Mother Earth

Agriculturally Designed
IoT

Structured / Tagged
Big Data

Specific knowledge-driven
AI

Cyber Physical System
CPS


e-kakashi

Sustainable Food Production Eco Cycle

Achieving the goal

Solution for Agricultural Issues

Data, knowledge, Sciences

Researchers, Scientifically Skilled farmer
Young Generations

Education (Nationwide)

Development of human resources

Economic Effects $

Science Based Agriculture
×
Agricultural IoT Platform
(by IoT, Big Data, AI & CPS)

Environment

Reducing
Global warming Effect
Environmental Effect

Reducing methane & N_2O from paddy
Reducing fertilizer & agrochemical
e.g Water level sensor & AWD method

Value Added

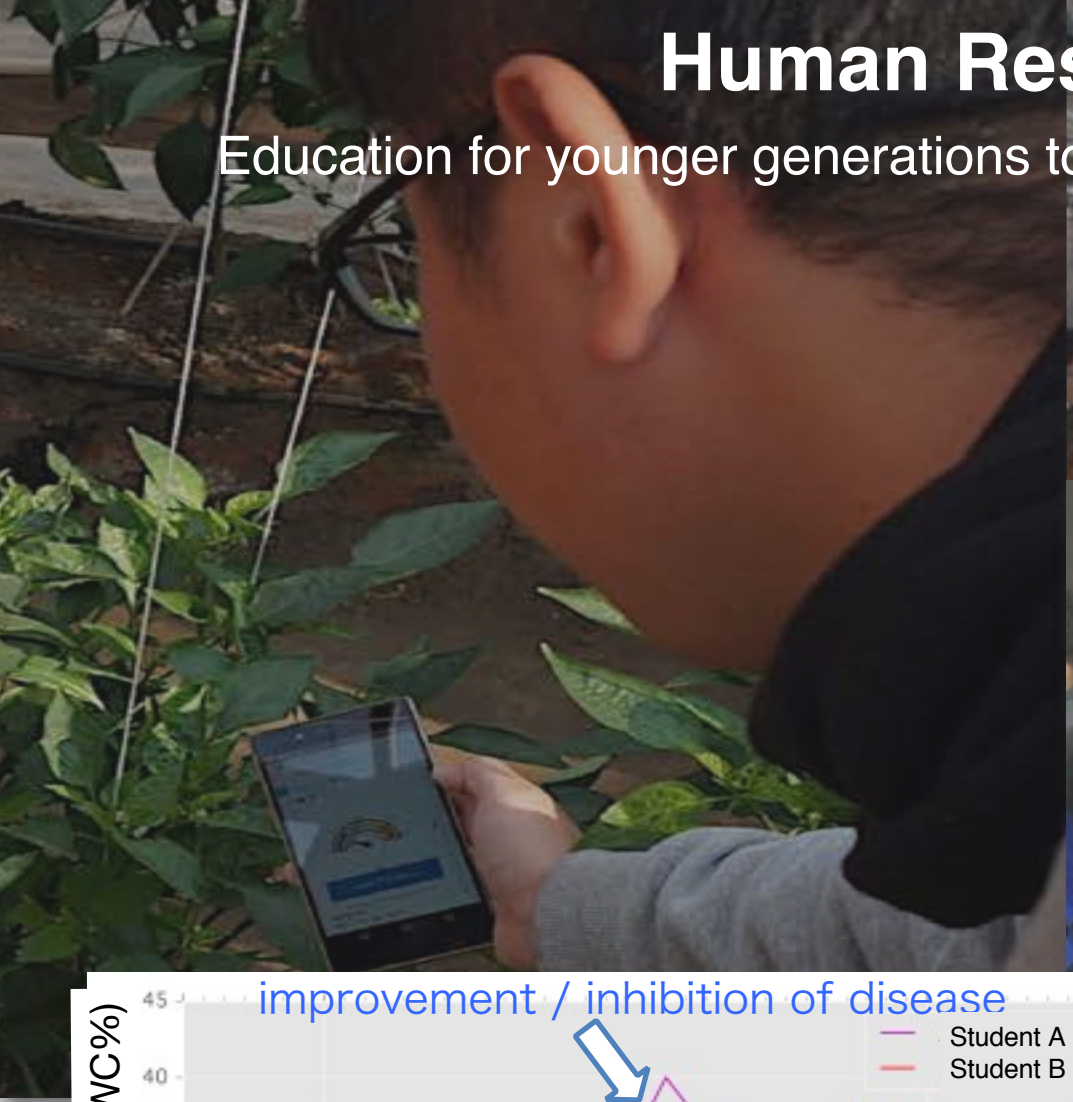
Higher productivity & quality

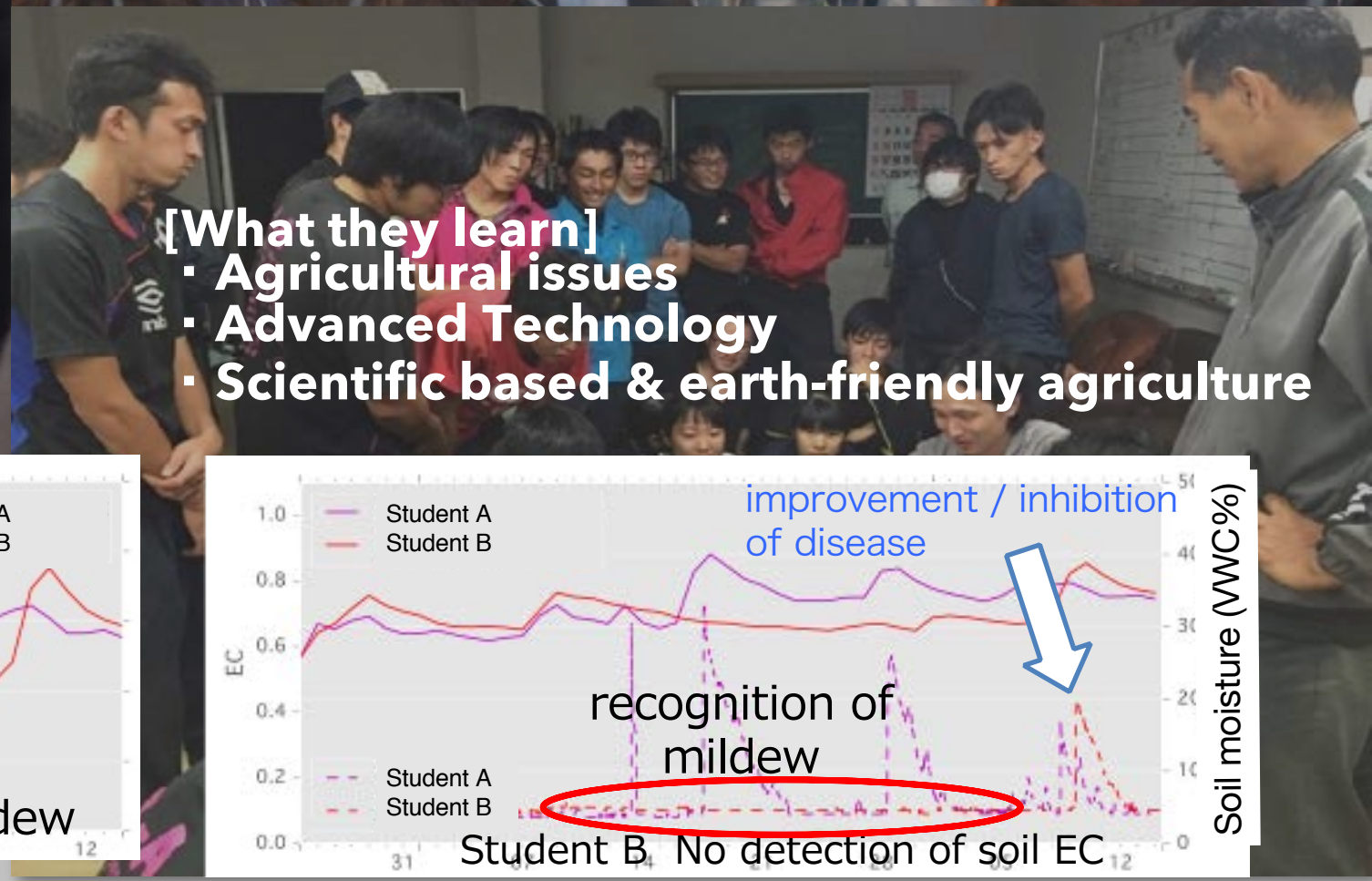
Food security

Scientific approach

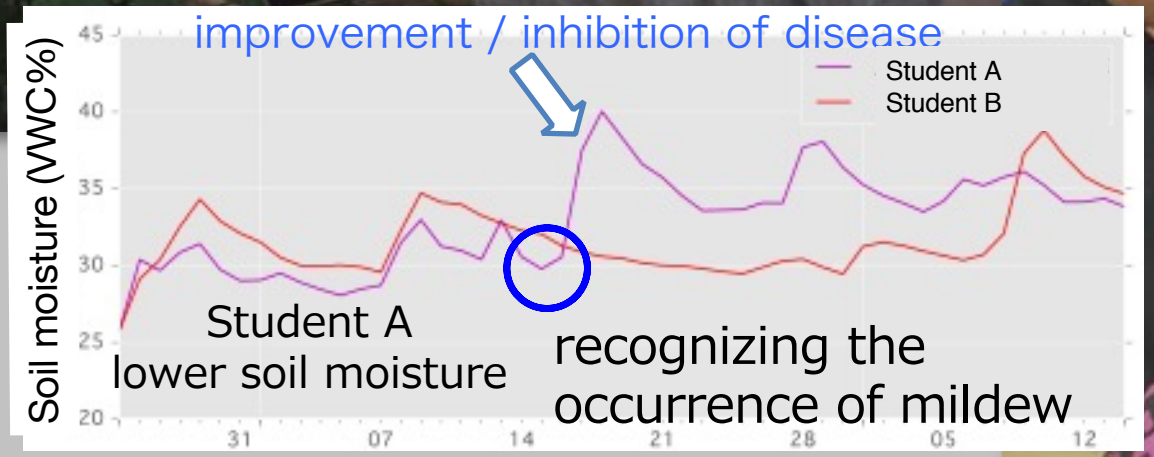
Human Resource Development

Education for younger generations to implement sustainable & earth-friendly agriculture



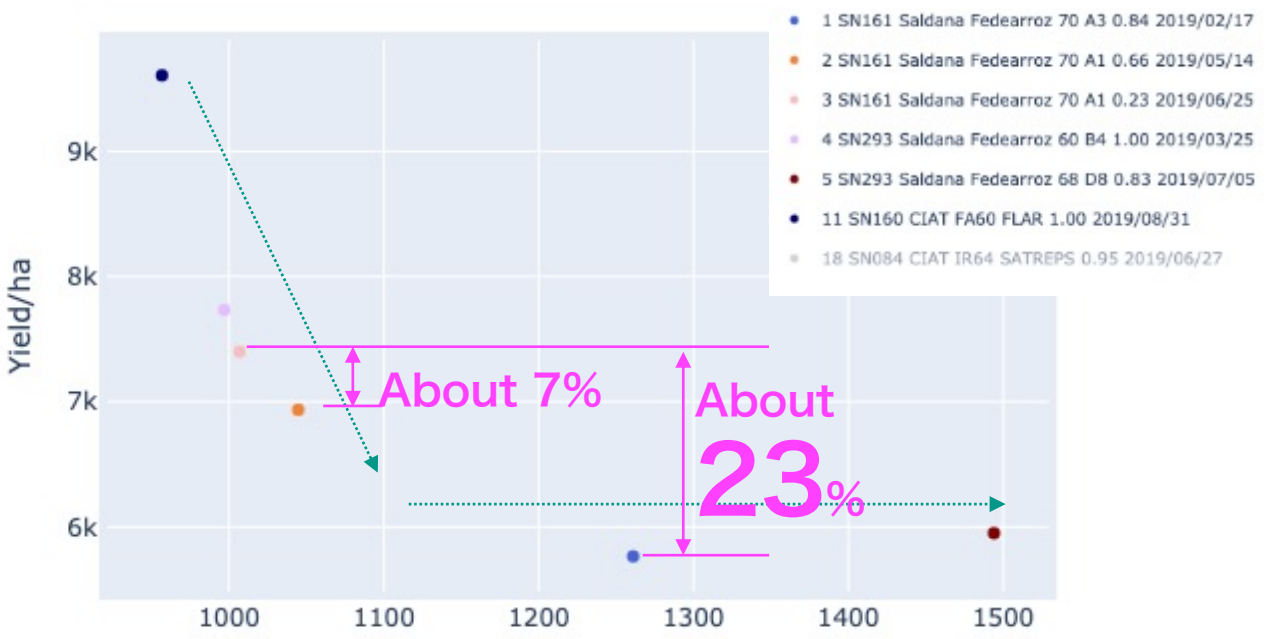


[What they learn]
- **Agricultural issues**
- **Advanced Technology**
- **Scientific based & earth-friendly agriculture**

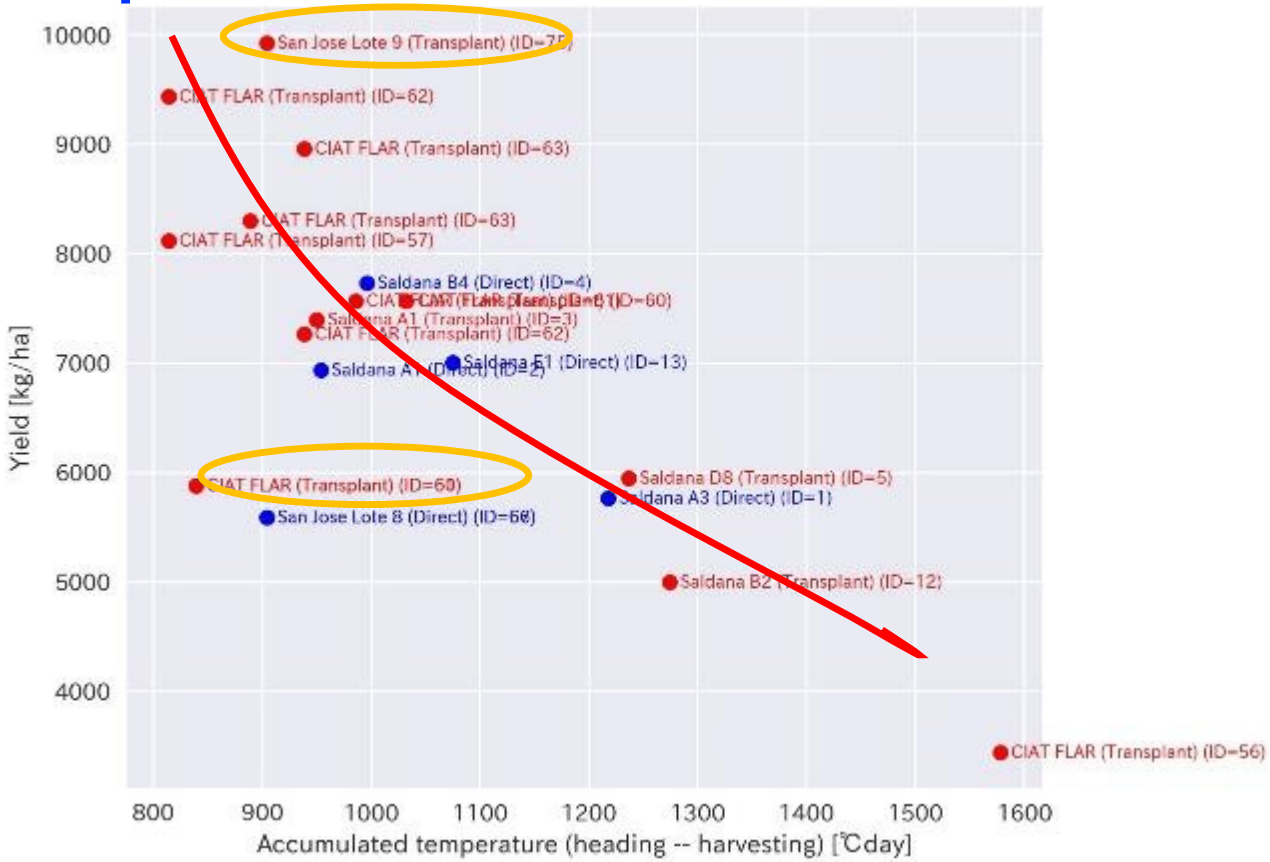


Increase in Productivity by harvesting optimum timing (Rice)

Alert system for best harvesting period is the key to prevent product loss and increase in productivity in short term period.



Accumulated Average Daily Temperature)



Growing Day Degrees (heading to harvesting by accumulated average daily temperature) v.s. Yield(kg)/ha

Succeeded to have increased in yields by science-based cultivation

Succeeded to have increased in yields

up to 1.6 times

Summary

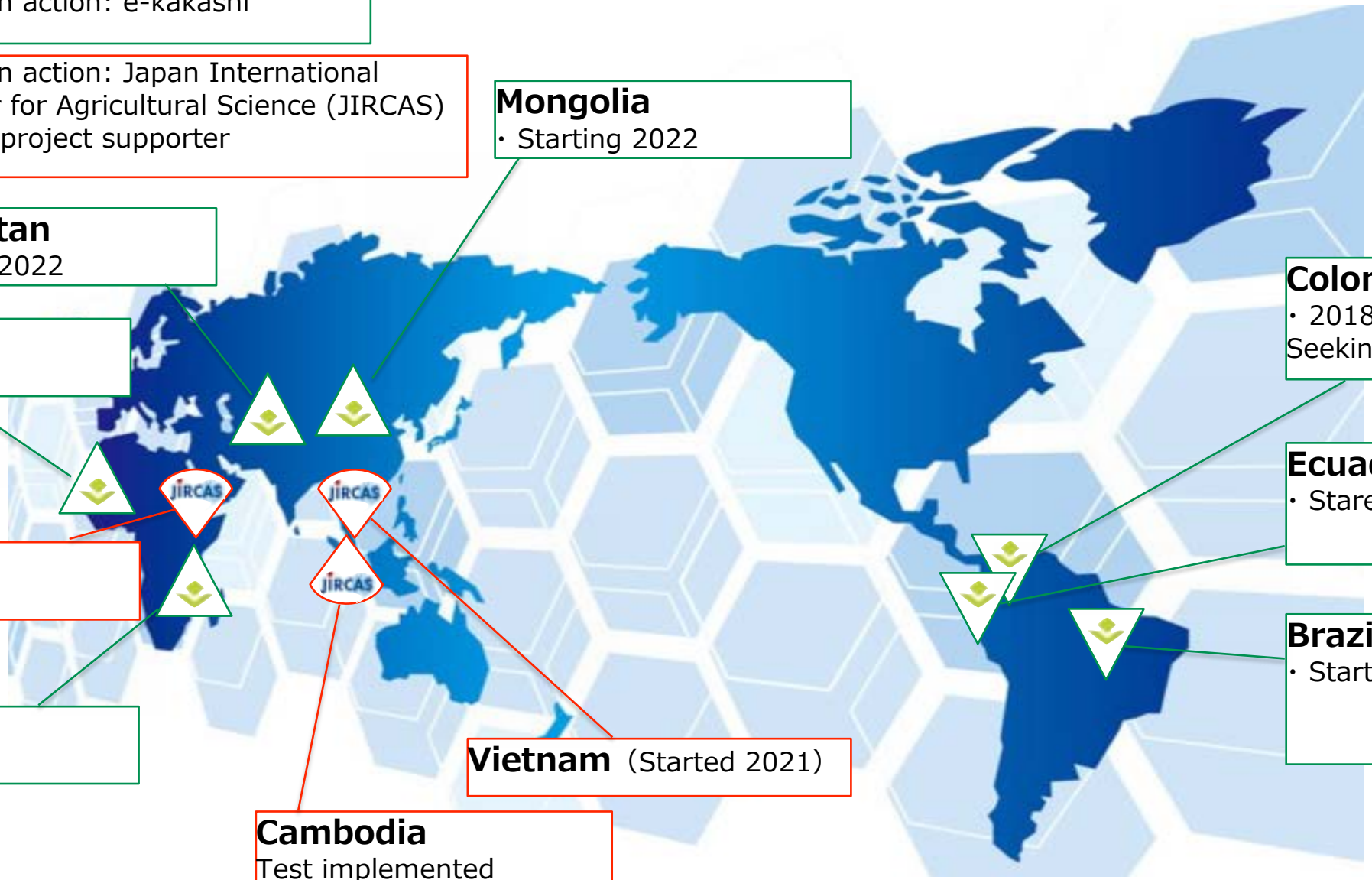
- **Science-based cultivation was implemented by Calbee Potato, Inc. with their contracted farmers.**
- **Tends to decrease in potato yields due to drought in recent years.**
  Utilizing collected environmental data and alerting function to irrigate.
- **Increase in yields up to 1.2 to 1.6 times and succeeded to harvest high quality potato.**

Reference (in Japanese) : https://agri.mynavi.jp/2022_01_20_180583/

e-kakashi：Projects in the World

The subject of an action: e-kakashi

The subject of an action: Japan International Research Center for Agricultural Science (JIRCAS)
＊e-kakashi is a project supporter



Mongolia
・Starting 2022

Uzbekistan
・Starting 2022

Nigeria
・Starting 2022

Ethiopia
・Started 2021

Ethiopia
・Started 2021

Vietnam（Started 2021）

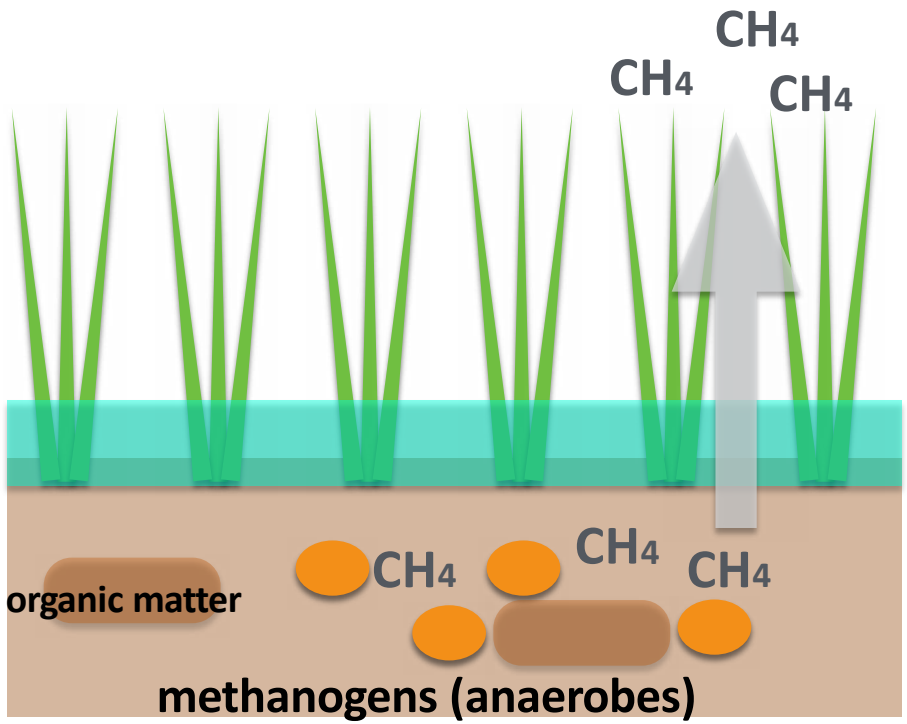
Cambodia
Test implemented
(continued)

Colombia
・2018~2020
Seeking new a PJT

Ecuador
・Stared 2020

Brazil
・Started 2021

Methane (CH_4) from a paddy field



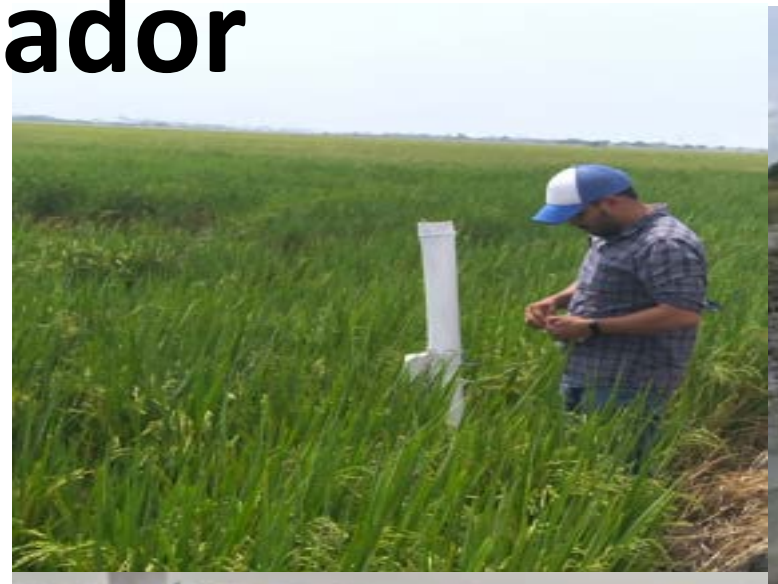
methane emission from paddy field

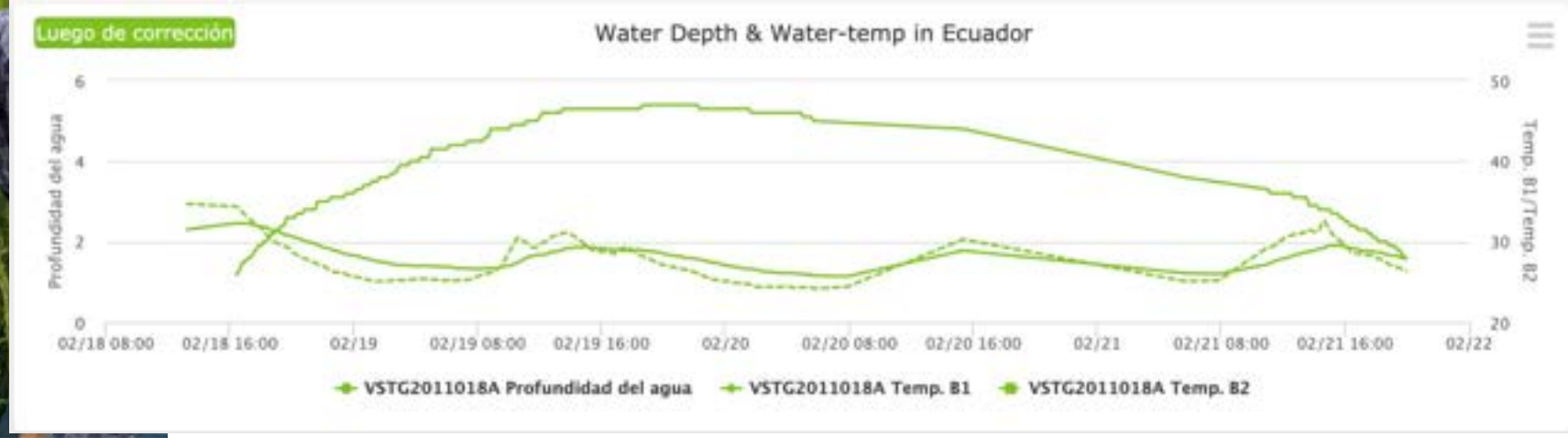
20%

of the whole anthropogenic methane emission in the world

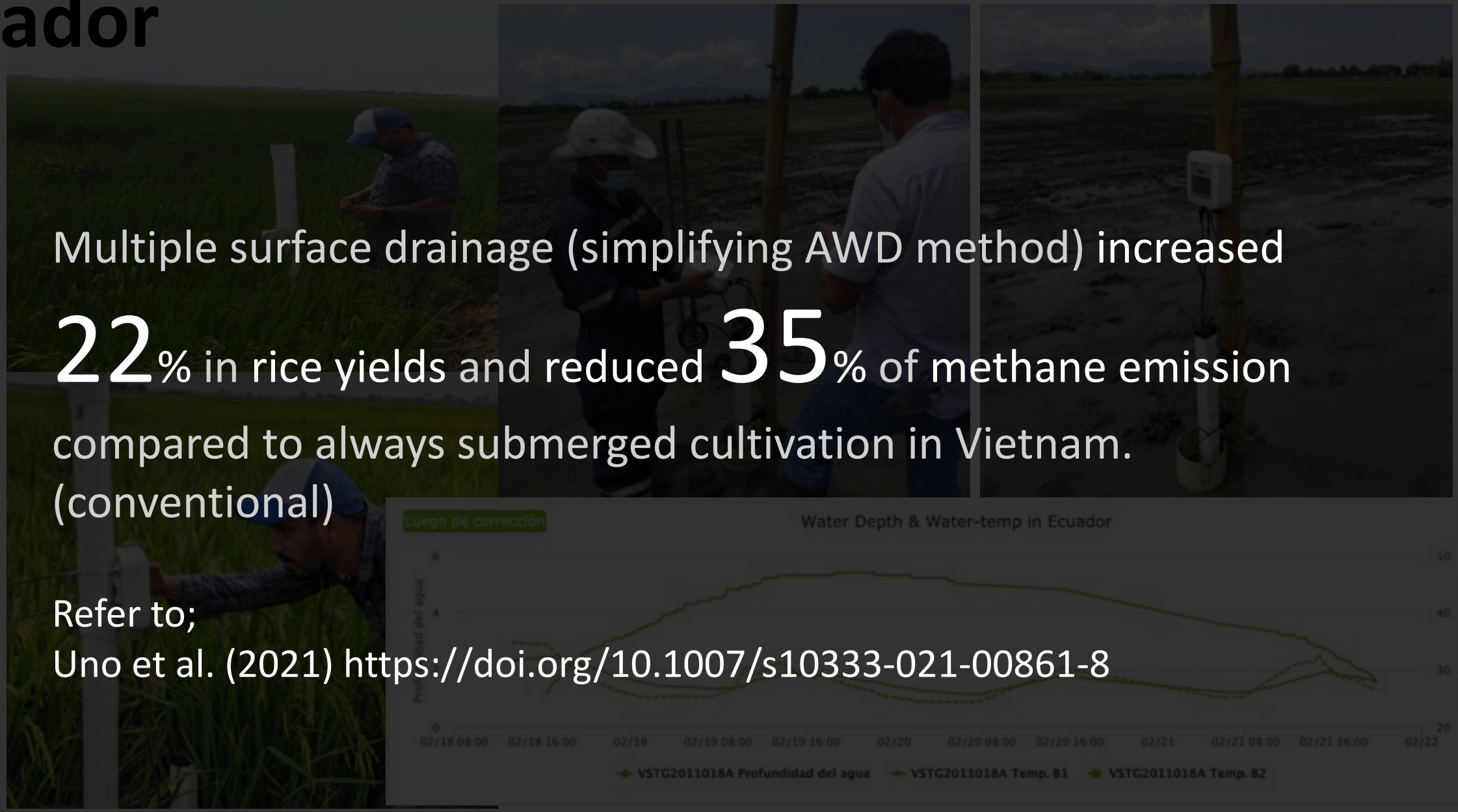
Reference:
Climate news network (2016).

Ecuador




Luego de corrección
Water Depth & Water-temp in Ecuador
Profundidad del agua
Temp. B1/Temp. B2
6
4
2
0
50
40
30
20
02/18 08:00
02/18 16:00
02/19
02/19 08:00
02/19 16:00
02/20
02/20 08:00
02/20 16:00
02/21
02/21 08:00
02/21 16:00
02/22
VSTG2011018A Profundidad del agua
VSTG2011018A Temp. B1
VSTG2011018A Temp. B2

Ecuador



Multiple surface drainage (simplifying AWD method) increased

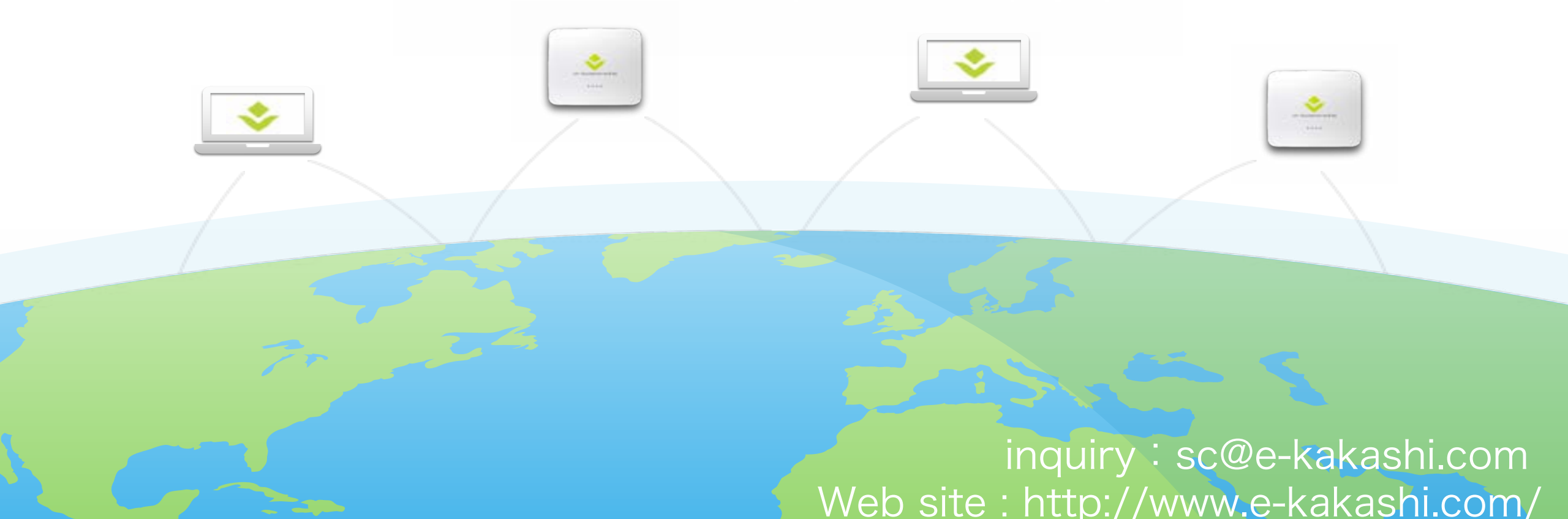
22% in rice yields and reduced 35% of methane emission

compared to always submerged cultivation in Vietnam. (conventional)

Refer to;
Uno et al. (2021) https://doi.org/10.1007/s10333-021-00861-8

e-kakashi

Science Based Agricultural
Make People Happy



inquiry : sc@e-kakashi.com
Web site : http://www.e-kakashi.com/

Promoting Biofortified crops in Africa

HarvestPlus experience

Sakile Kudita

October 2022

www.HarvestPlus.org

HarvestPlus
Better Crops • Better Nutrition

IFPRI

CGIAR

Biofortification

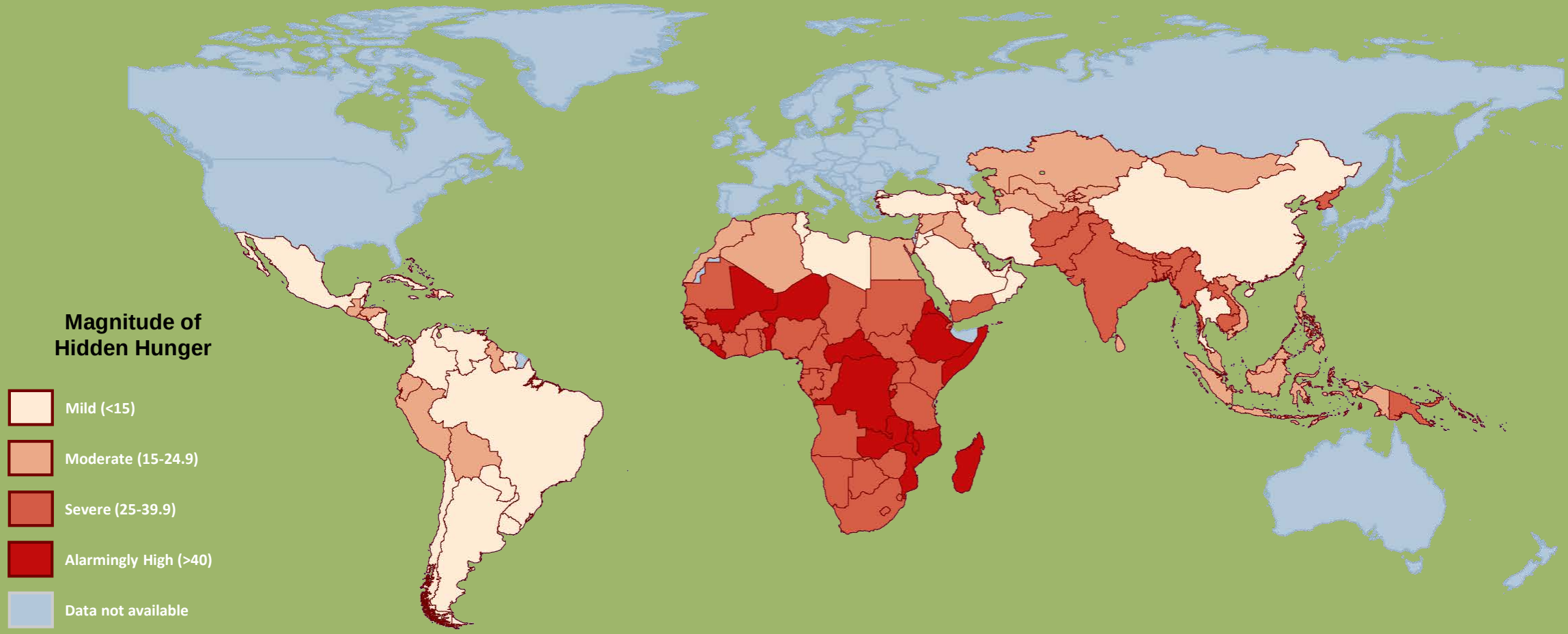
- Nutrition sensitive agricultural innovation
- Increasing the density of vitamins and minerals in (*staple*) food crop through plant breeding or agronomic practices

HarvestPlus

Why Biofortification

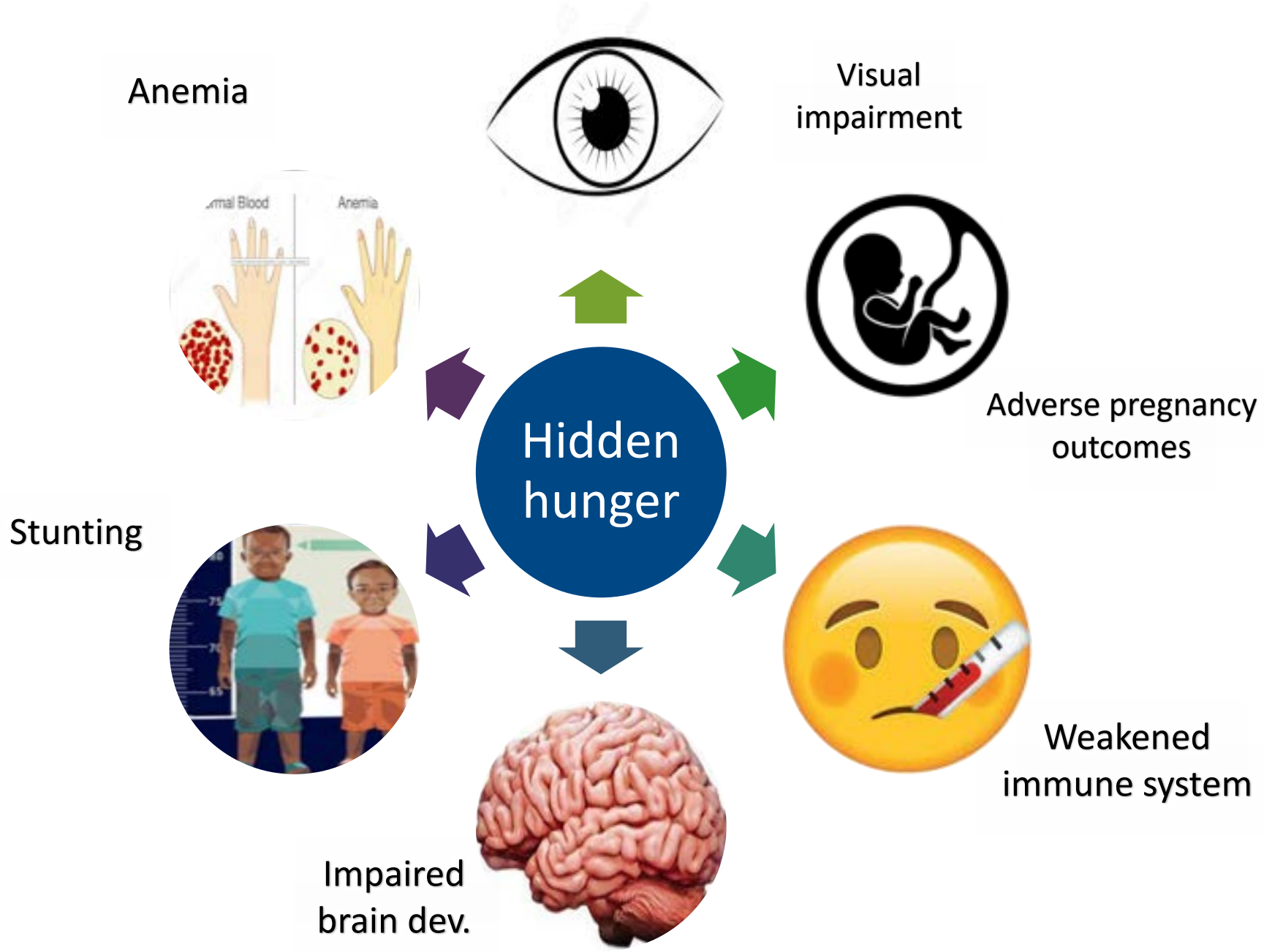
More than 2 BILLION suffer from hidden hunger

- non diverse, staple based diets, deficient in essential micronutrients
- Biofortification increases nutrient quality of foods that the majority can afford.



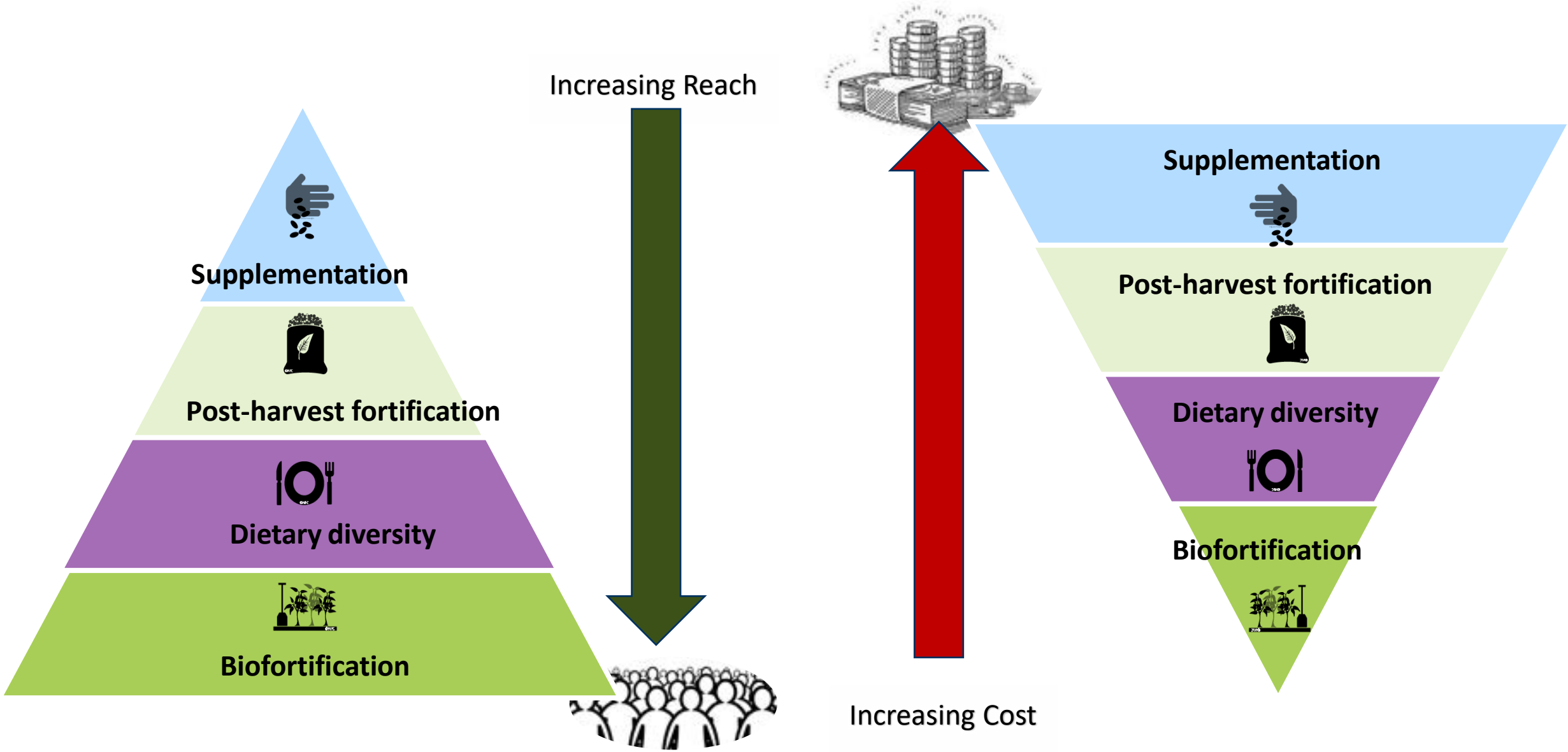
HarvestPlus

Health impacts of hidden hunger



HarvestPlus

Strategies for curbing hidden hunger



HarvestPlus

Biofortified crops & their adoption challenges

Iron, Zinc – Invisible traits

Iron beans

Iron pearl millet

Zinc Maize

Zinc wheat

Zinc rice

- Value chain integrity
- Traceability

Provitamin A varieties – Visible traits

Vitamin A cassava
yellow cassava

Vitamin A maize
orange maize

Vitamin A sweetpotato
Orange sweet potato

- Non biofortified varieties were mostly white
- Historical biases
  - yellow maize experience during 1992 drought in southern Africa
  - yellow maize association with stock feed
  - Yellow maize Coloring effect on adjacent white maize
  - Low dry matter content in previous varieties of OSP and yellow cassava

HarvestPlus

Role of Extension

Farmer education	• Nutrition education • Good agronomic practices • Correct misconception
Monitoring and evaluation	• Inclusion of BF crop metrics in national crop surveys – Zimbabwe
Seed quality assurance	• Certification of community level multipliers - Orange sweet potato in Uganda • Advising farmers on the source of good quality seed – Yellow cassava stems - Nigeria, OSP – Uganda

HarvestPlus

Extension approaches used to break adoption barriers

Farmer field schools

- Demonstrate agronomic performance
- Promote good agricultural practices

Lead farmer approach

- Step-down nutrition and agronomy training
- Lead farmers also trained to be change agents / champions

Social marketing

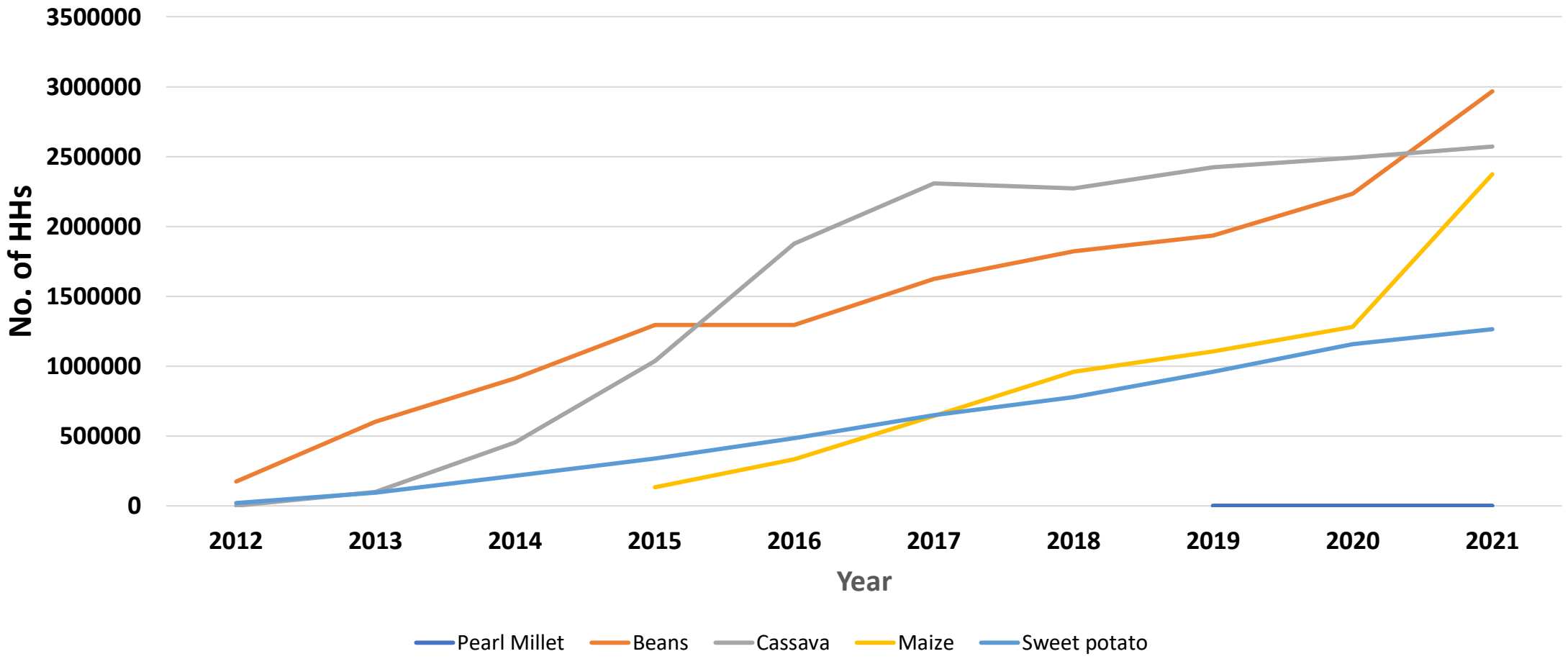
- Extension led edutainment road shows
- Exhibitions, food fairs, field days

Digital extension

- Necessitated by COVID
- Remote training through social media (WhatsApp)
- Community radio programs

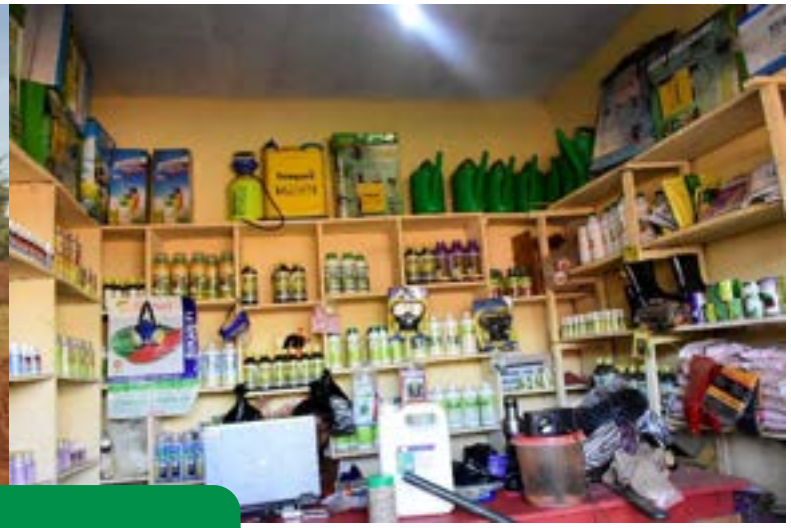
HarvestPlus

HHs growing Biofortified crops in Africa



Thank You

ZIROBWE AGALI AWAMU AGRI-BUSINESS TRAINING ASSOCIATION (ZAABTA) ONE STOP CENTRE



Presented by Mayambala Godfrey CEO ZAABTA

4 November 2022

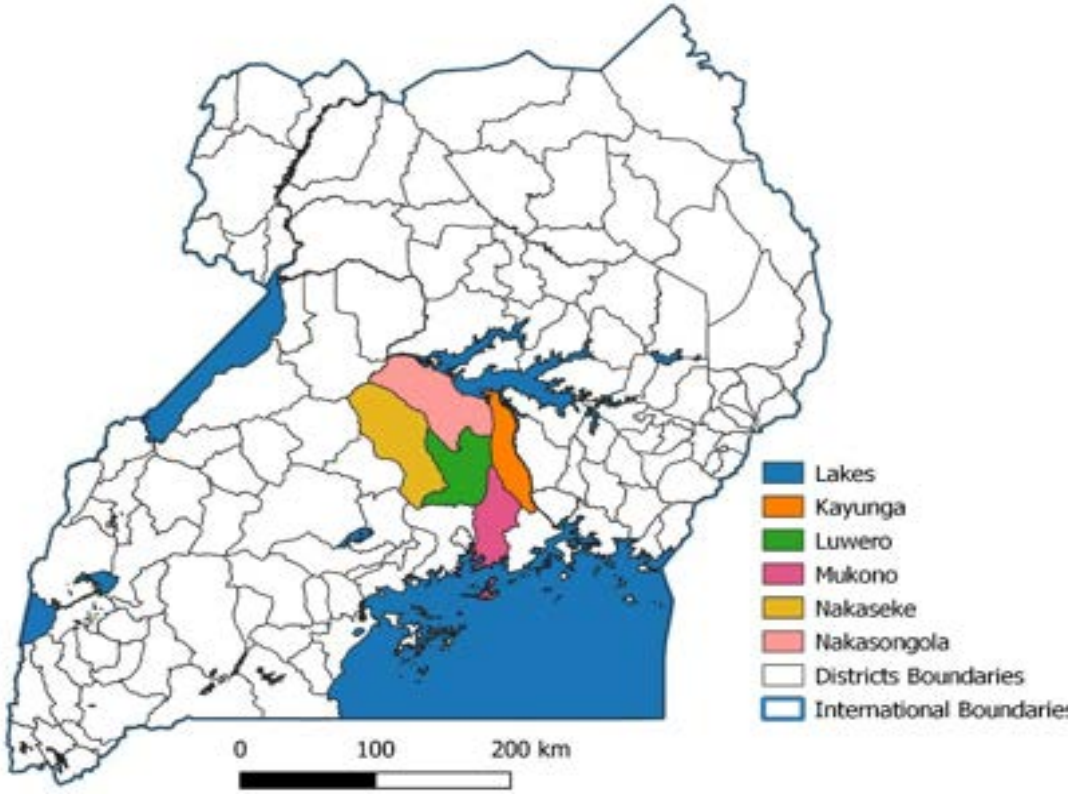
ZAABTA AT A GLANCE

ZAABTA is a high-level farmer organization based in Zirobwe Town Council, Luwero district and registered in 2004 as a company limited by guarantee with Reg No. 63157 and strong business arm.

ZAABTA has 4,922 registered farmers (2,560 women (52%) and 2,362 men (48%), of which 2,215 are youths (45%)) but offers services to over 20,000 farmers engaged in upland rice, soybean, maize, beans, coffee & horticulture

- **Vision:** To contribute to improved quality of life of members through economic empowerment, food and nutrition security.
- **Mission:** To be a centre of excellence for farmers' agribusiness services in Uganda.
- **Core Business:** To aggregate, process and market farmer's produce

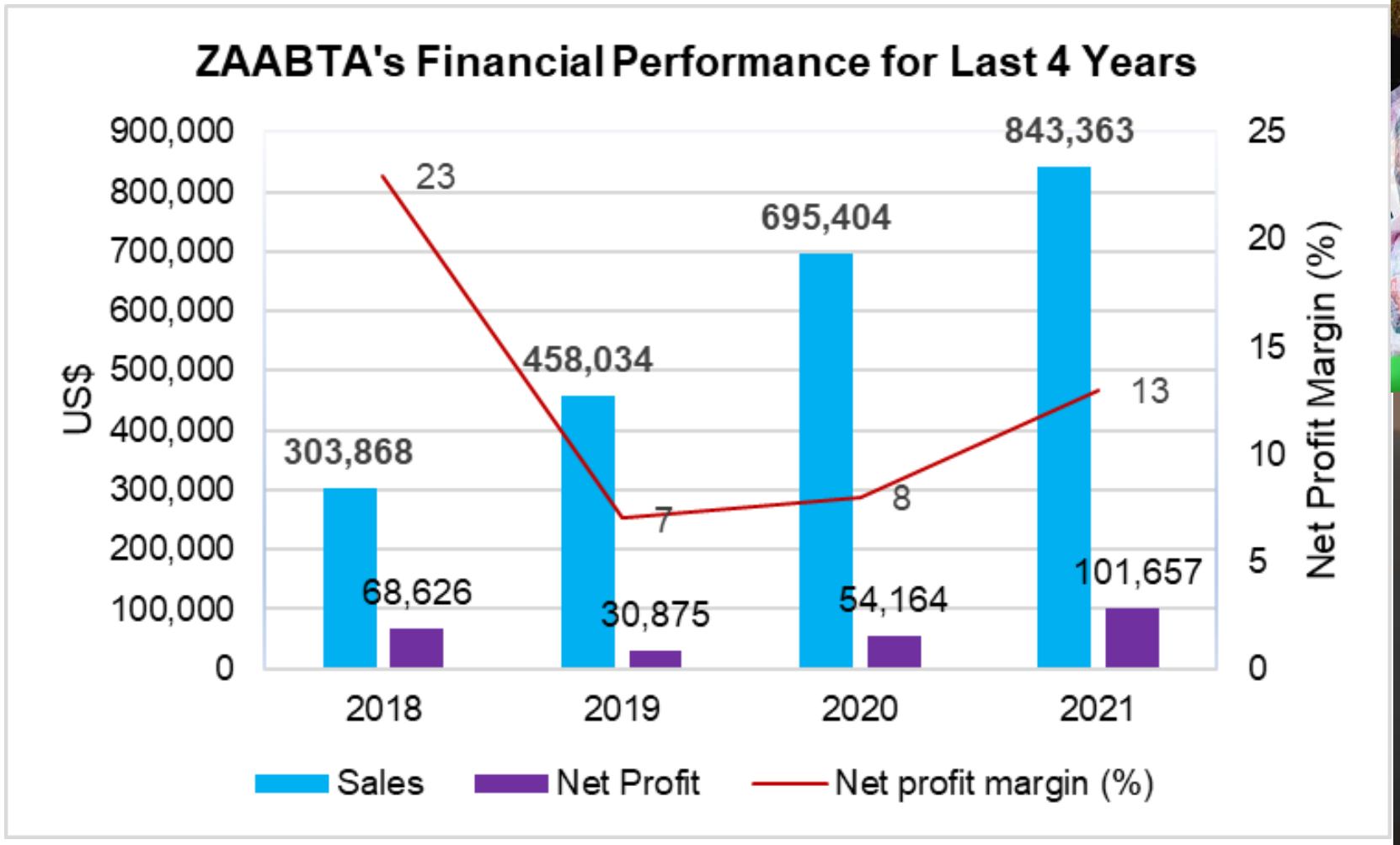
Areas of operation



4 November 2022

ZAABTA AT A GLANCE

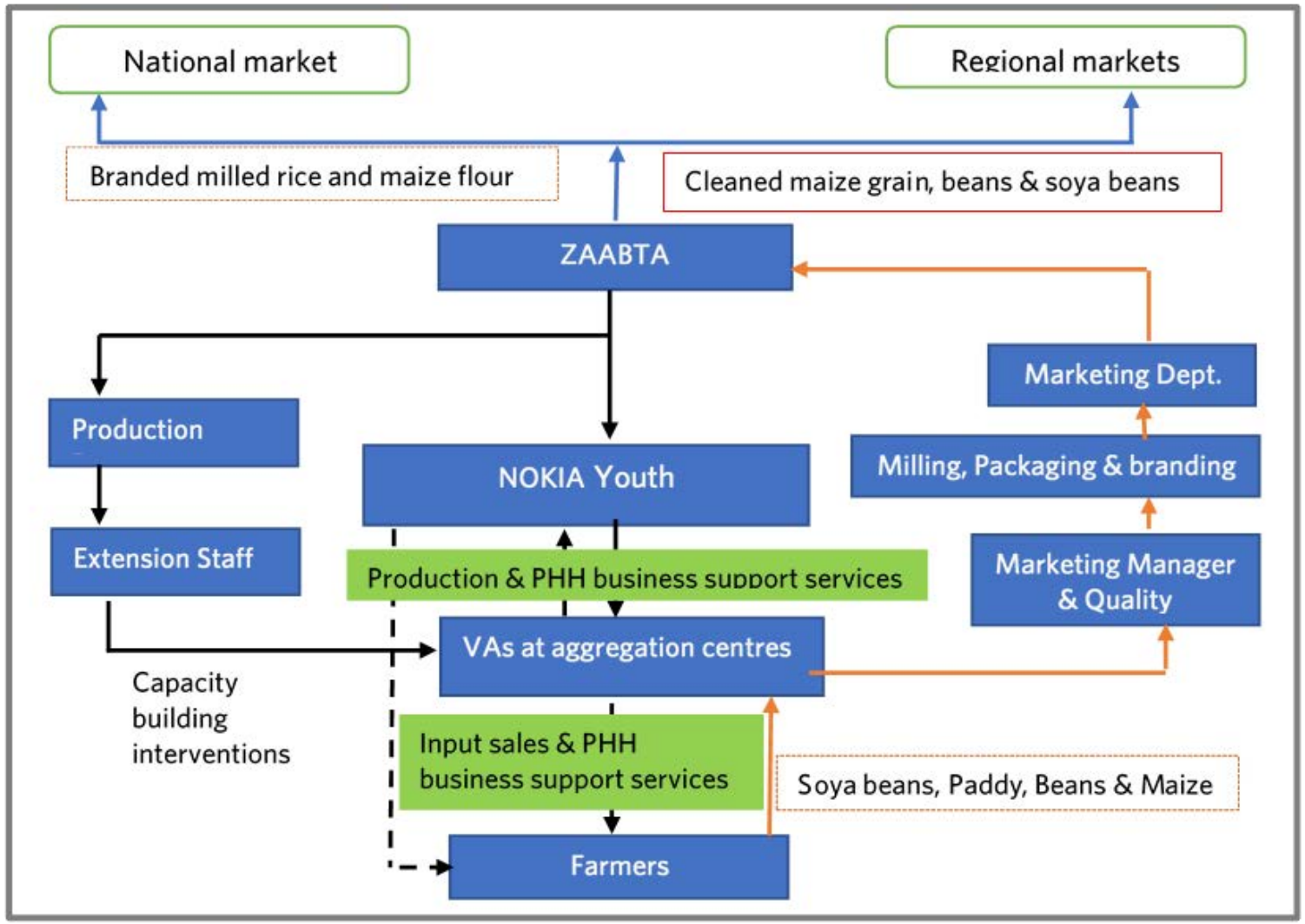
In 2010, ZAABTA's turnover was US& 12,962 and bank balance was reflecting US$7



FY2021, Sales – milled rice was US$ 206,266, rice husks was US$ 4,859, rice toll milling was US$ 24,943.

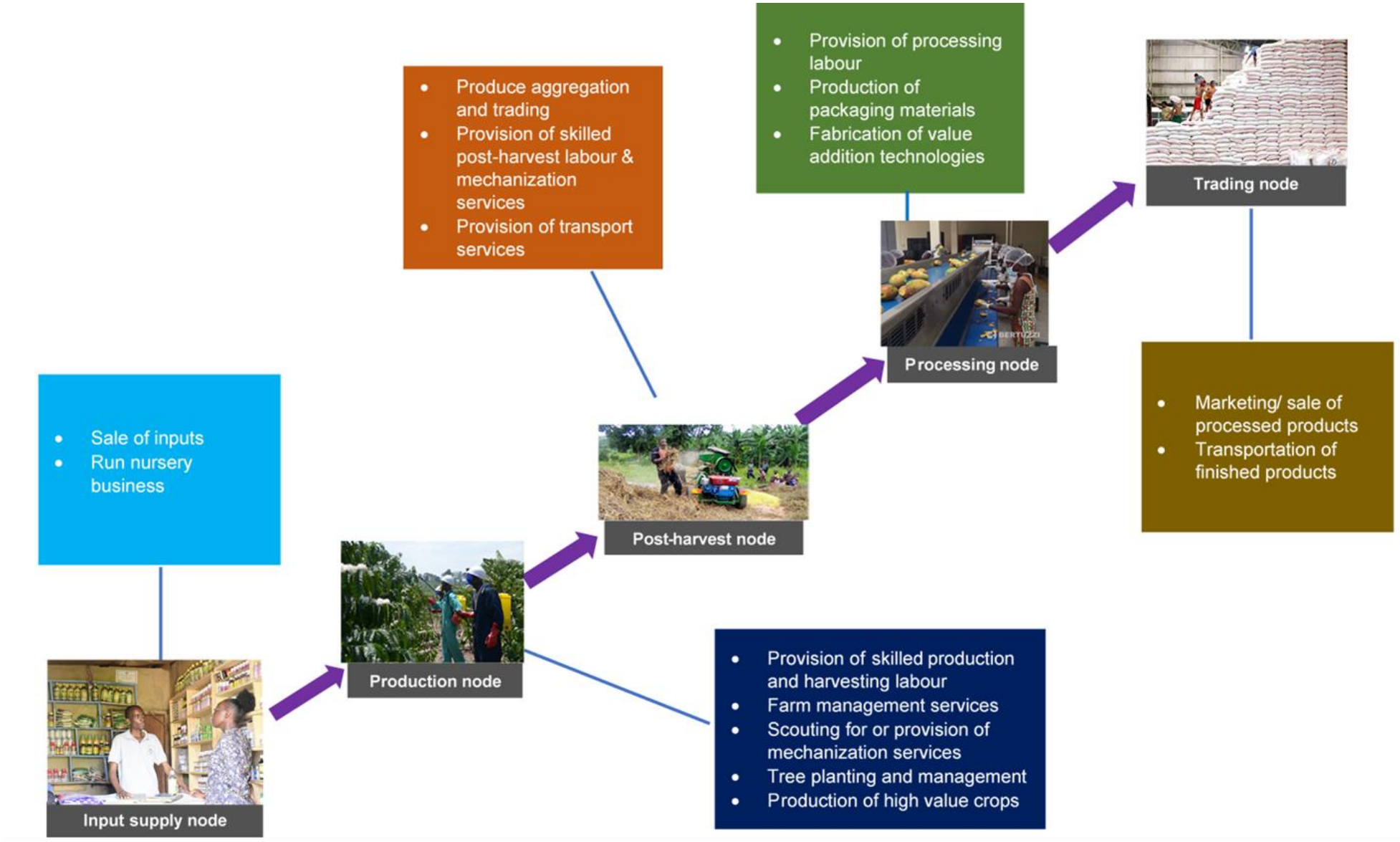
4 November 2022

Our One Stop Centre Business model



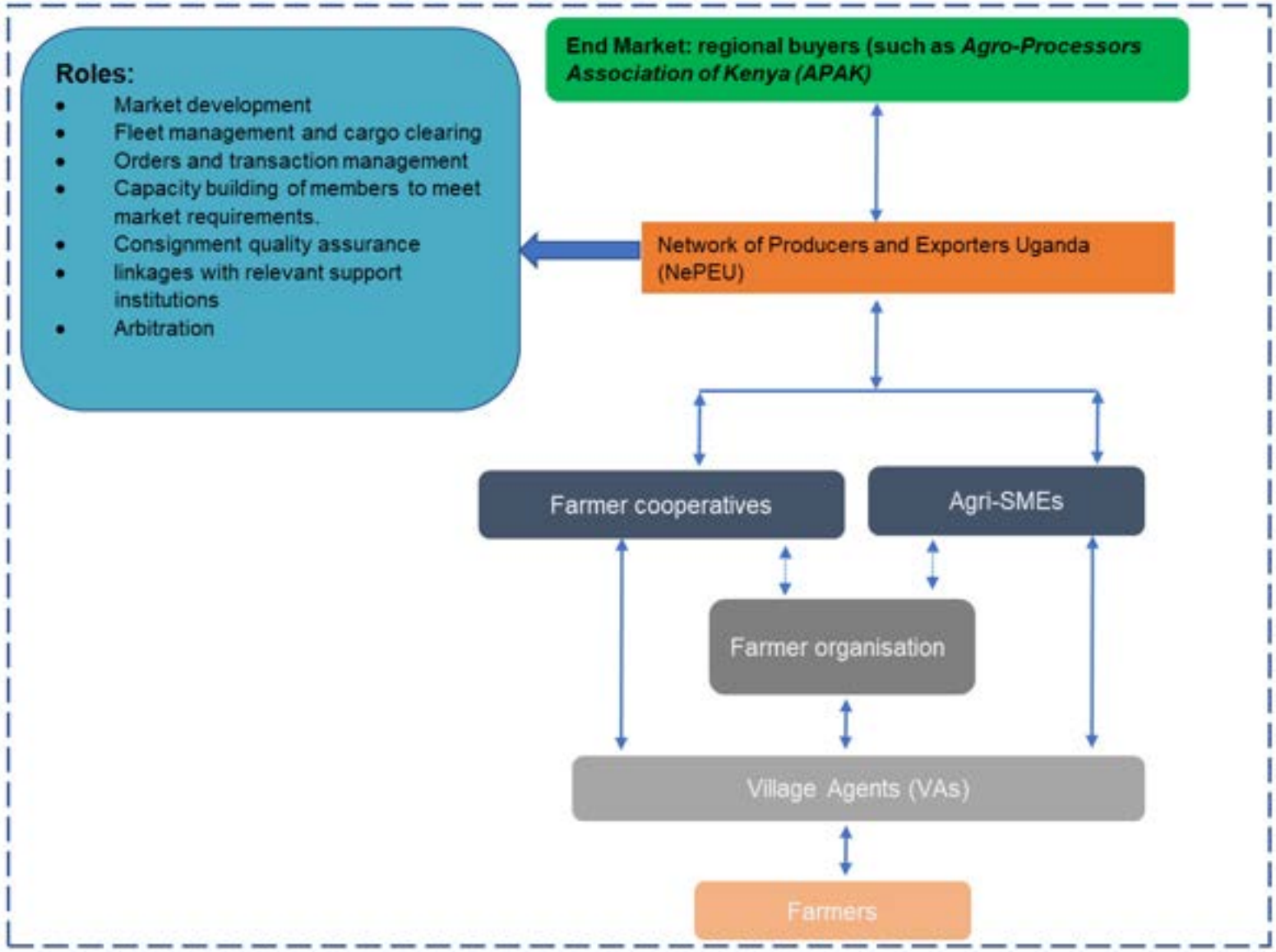
4 November 2022

Our Approach to Integration of Youth Along the Target Value Chains



NePEU – Leveraging with others

We realized the importance of association with like minded cooperatives as partners for sustainable access to markets – i.e. raising required volumes by the market. This has been effective with maize and beans



Value Proposition

After realizing the bottlenecks with most cooperatives and that success is hinged on strong member base, ZAABTA created different value proposition avenues to members to create loyalty. This has resulted in increased volumes and quality of produce supplied by member

Services provided include

- **Agribusiness training and agricultural extension service delivery**
  - **13,000 farmers receive extension services on annual basis through VAs and ZAABTA extension works**
  - **Employing 22 full time staff, 10 casual workers and 70 village agents**

- **Grain production, processing, packaging and selling mainly for maize, rice, beans and soybean.**
  - **Over US$840,000 of produce sourced from members**

- **Seed/stock multiplication**
  - **Close to 200T of seed multiplied and sold to seed companies**

- **Input and output market linkages**
  - **Established partnerships with national buyers, regional buyers, financial institutions, input suppliers etc.**

- **Soft loans to farmers for production through the Commodity Investment and Treasury department**
  - **Also cater for school fees and medical**
  - **Over US$90,000 of soft loans advanced to farmers on annual basis from ZAABTA**

- **Storage (warehouse) management and drying services**
  - **12 stores with capacity of 2,000MT**

- **Sale of quality agro-inputs (Using ezzy agric application to manage orders and deliveries)**

- **Provision of production and postharvest handling technological/ mechanization services**

4 November 2022

Our lessons

- **Partnerships both with private and public players has been critical to our progress**
- **Focus on market penetration is key for cooperatives development and building member loyalty**
- **Completing the value chains i.e. to invest in processing provides more opportunities to farmers**
- **Diversification of cooperative incomes to cater for off-season**
- **Engagement of youth as commission agents at different nodes of the value chain has increased efficiency especially delivery of inputs and aggregation of produce**
- **Developing youth tailored business models and opportunities that caters for social behavior change has increased youth participation in cooperative activities – money now thinking.**
- **Need for clear succession plan especially at board level to ensure continuity – mentor youths and allow them to make mistakes under watch of the elders**
- **Promotion of re-investment of dividends into productive assets reduces financial burden to cooperatives which ensures timely delivery of inputs and other services**

ZIROBWE AGALI AWAMU AGRI-BUSINESS TRAINING ASSOCIATION

(ZAABTA)

LUWERO DISTRICT

P.O BOX 1233 ZIROBWE