

“Market-led approaches to plant breeding in Sub-Sahara Africa; Insights and benefits from changing practices”

Understanding Africa’s plant Breederers and their variety portfolio:

Challenges and Opportunities for emerging markets



The Business
of Plant Breeding

Market-led Approaches to Plant Variety Originity Africa

Name: Nasser Yao

Email: N.Yao@cgiar.org

Organization: Alliance Bioversity International-CIAT

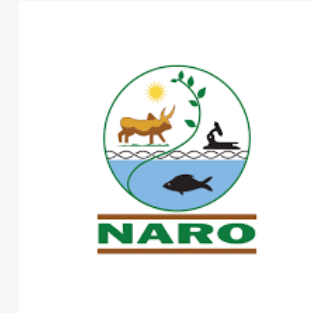
Event: APBA 2nd Conference, Kigali Rwanda, October 27th



What's DLB: An international food security alliance



UNIVERSITY OF NAIROBI



Alliance



Crawford Fund FOR A FOOD SECURE WORLD



Australian Government

Australian Centre for International Agricultural Research



THE UNIVERSITY OF QUEENSLAND AUSTRALIA

CREATE CHANGE



www.demandledbreeding.org

Market-led approaches to plant breeding in Sub-Sahara Africa; Insights and benefits from changing practices

What's DLB?

- * Demand/Market-led breeding is new way of developing modern high performing crop varieties that are **customer-focused** and **adopted** by **smallholder farmers**
- * **DLB** is **NOT Participatory Plant Breeding (PPB)**, even though both concepts share some similarities
 - DLB develop varieties with inputs from a **broad range of sources** (clients, stakeholders, value chain actors and non-technical experts)
- * DLB is an **holistic approach** implemented through seven **core pillars**

DLB, an holistic approach implemented through seven core pillars

1 - Visioning and Foresight for Setting Breeding Goals

2 - Understanding Clients

3 - New Variety Design and Product Profiling

4 - Variety Development Strategy and Stage Plan

5 - Making the Case for Investments in New Variety Development

6 - Monitoring, Evaluation and Learning

7 - Return on investment

Why DLB does or should matter?

Plant breeding should be **customer-focused** and seen as a **business**, more **responsive to market** demands and providing income to **breeders** and the whole value chain including **farmers**

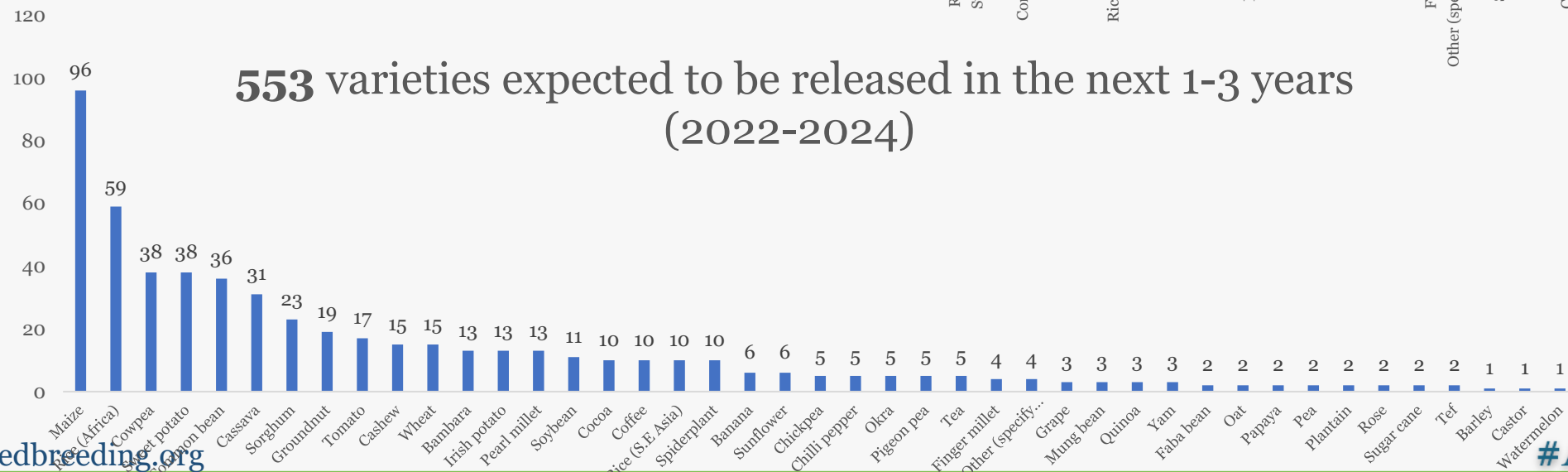
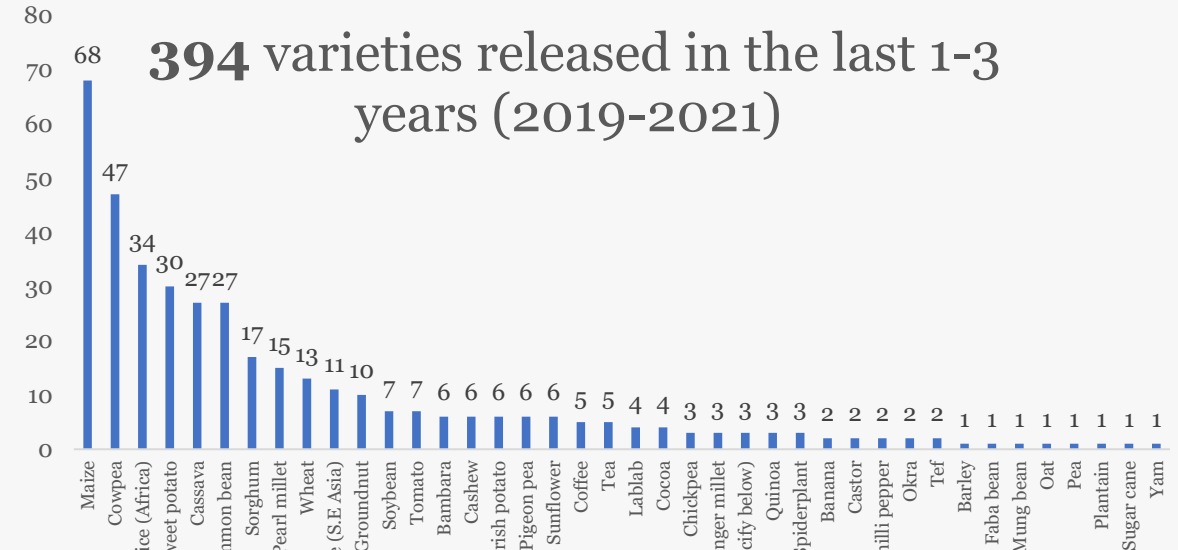
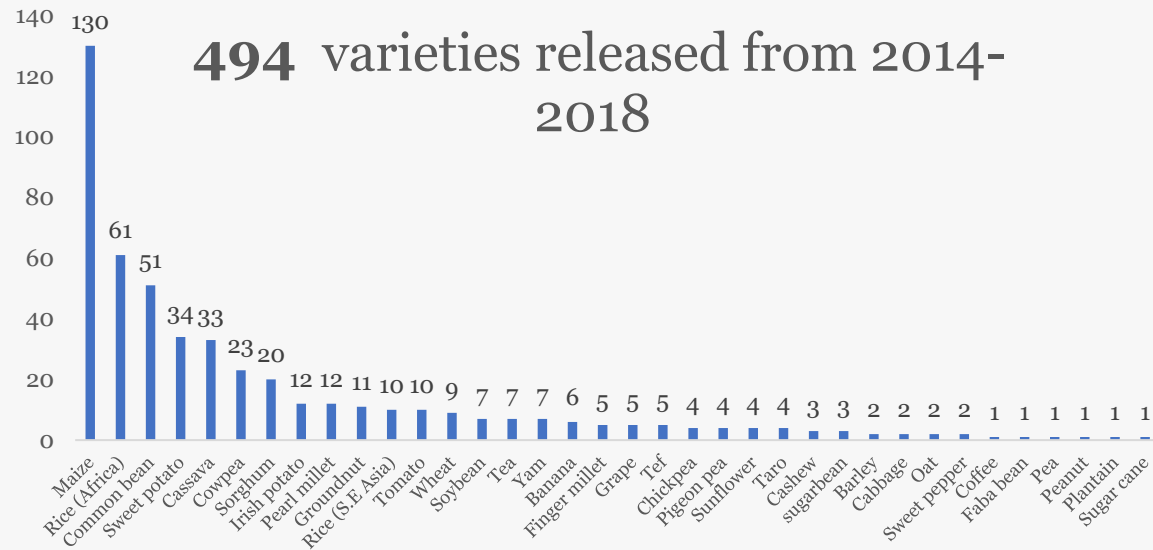
Too many new varieties are released but not being **used**: variety adoption for 15 staple crops ranged from only **2-40%** (DIIVA study, 2015)

* Breeder can achieve **greater use of his varieties** by truly meeting the preferences of smallholder farmers and their whole value chains

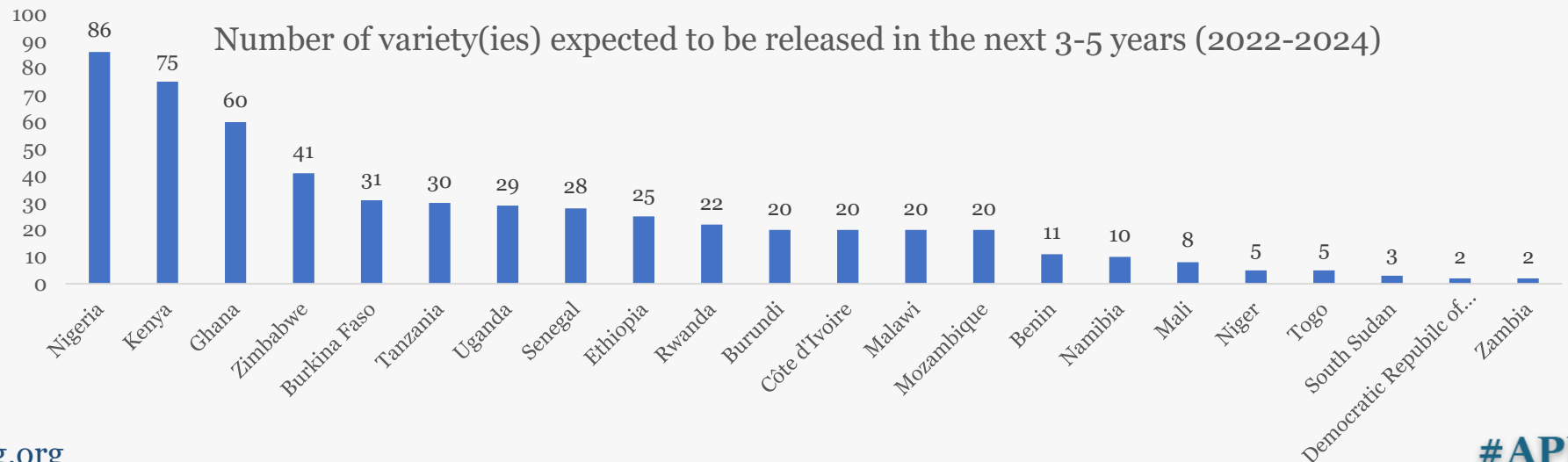
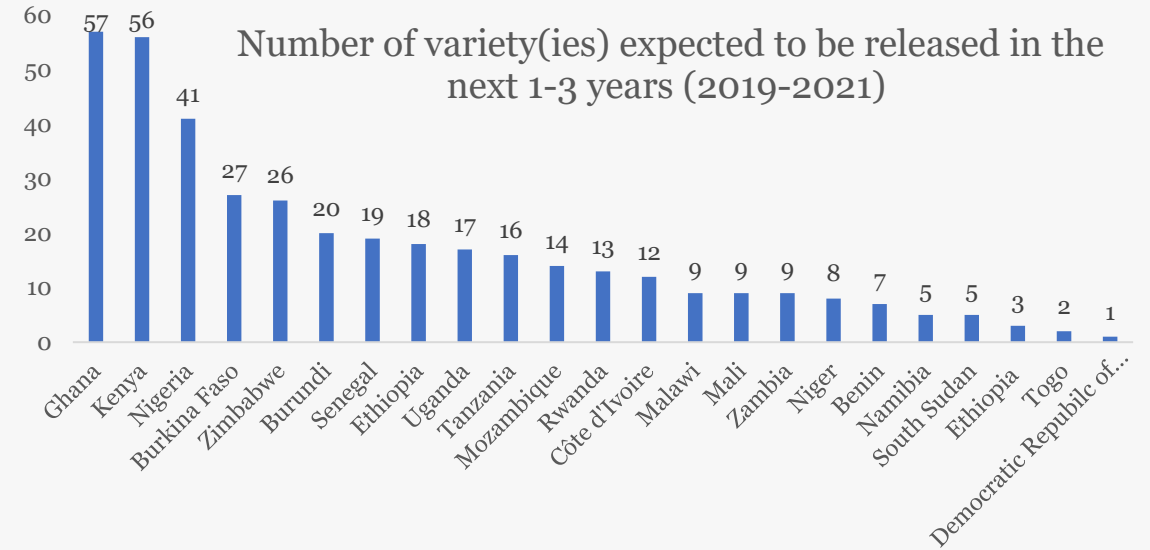
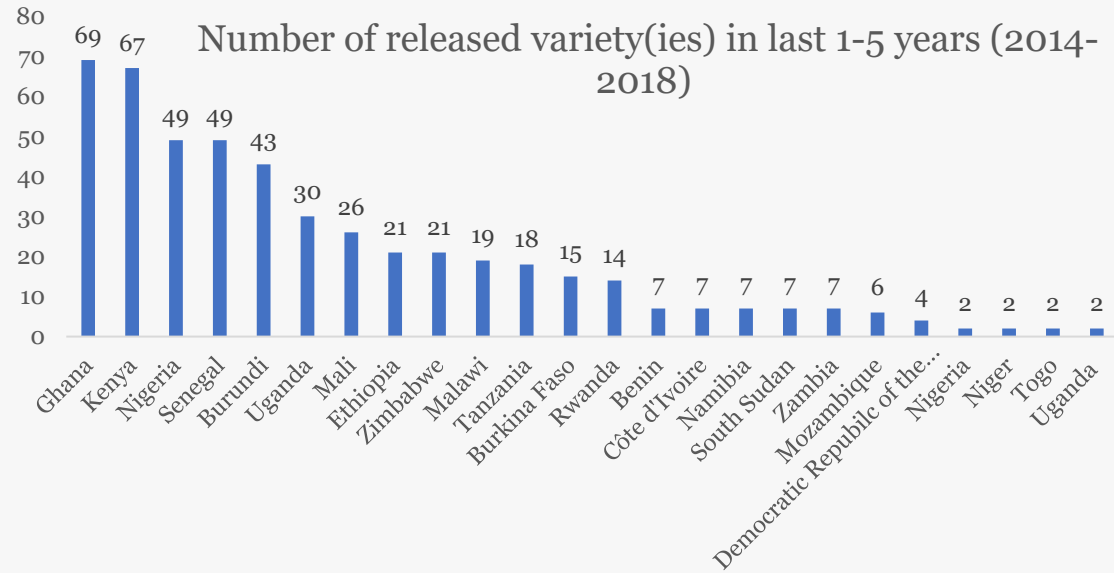
Only **Public and private partnership** will bring greater access to quality seed, improve farmer livelihoods and encourage markets to flourish

Understanding Africa's plant breeders along with their variety portfolio

African plant breeders variety portfolio/crop



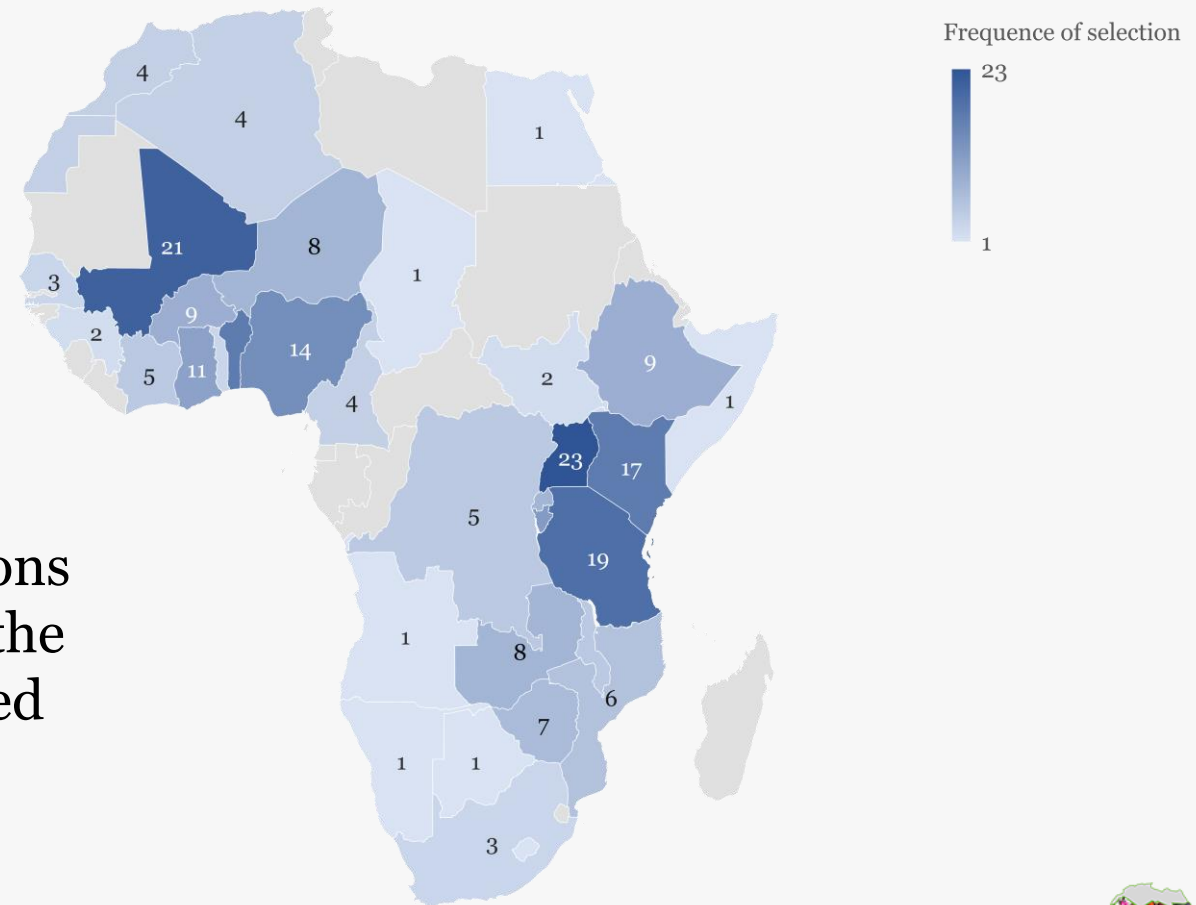
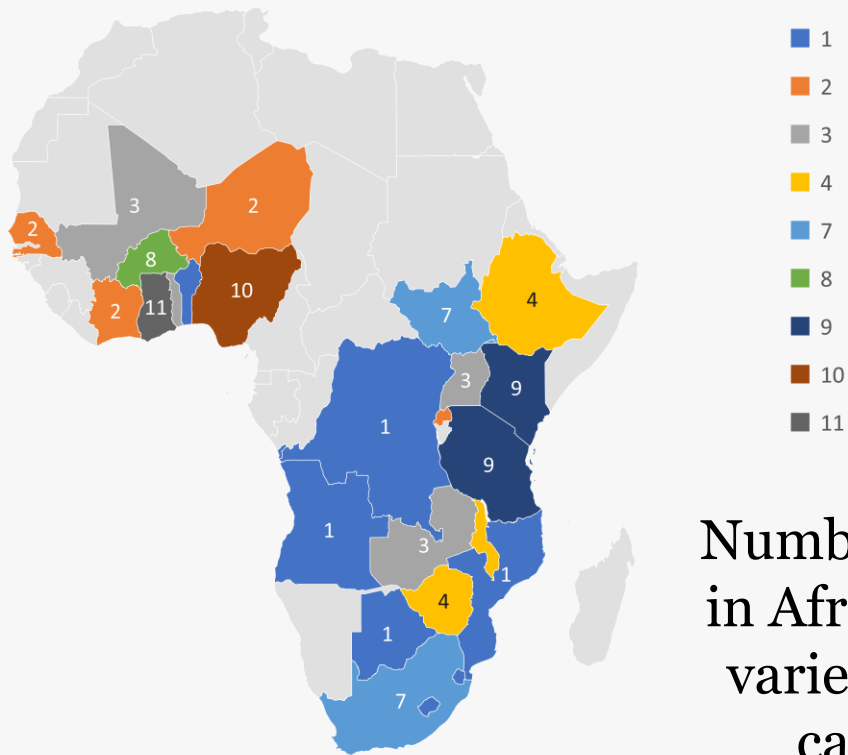
African plant breeders variety portfolio per country



Pan-African potential of the varieties released

Core countries for seed production and distribution

Additional countries for seed distribution



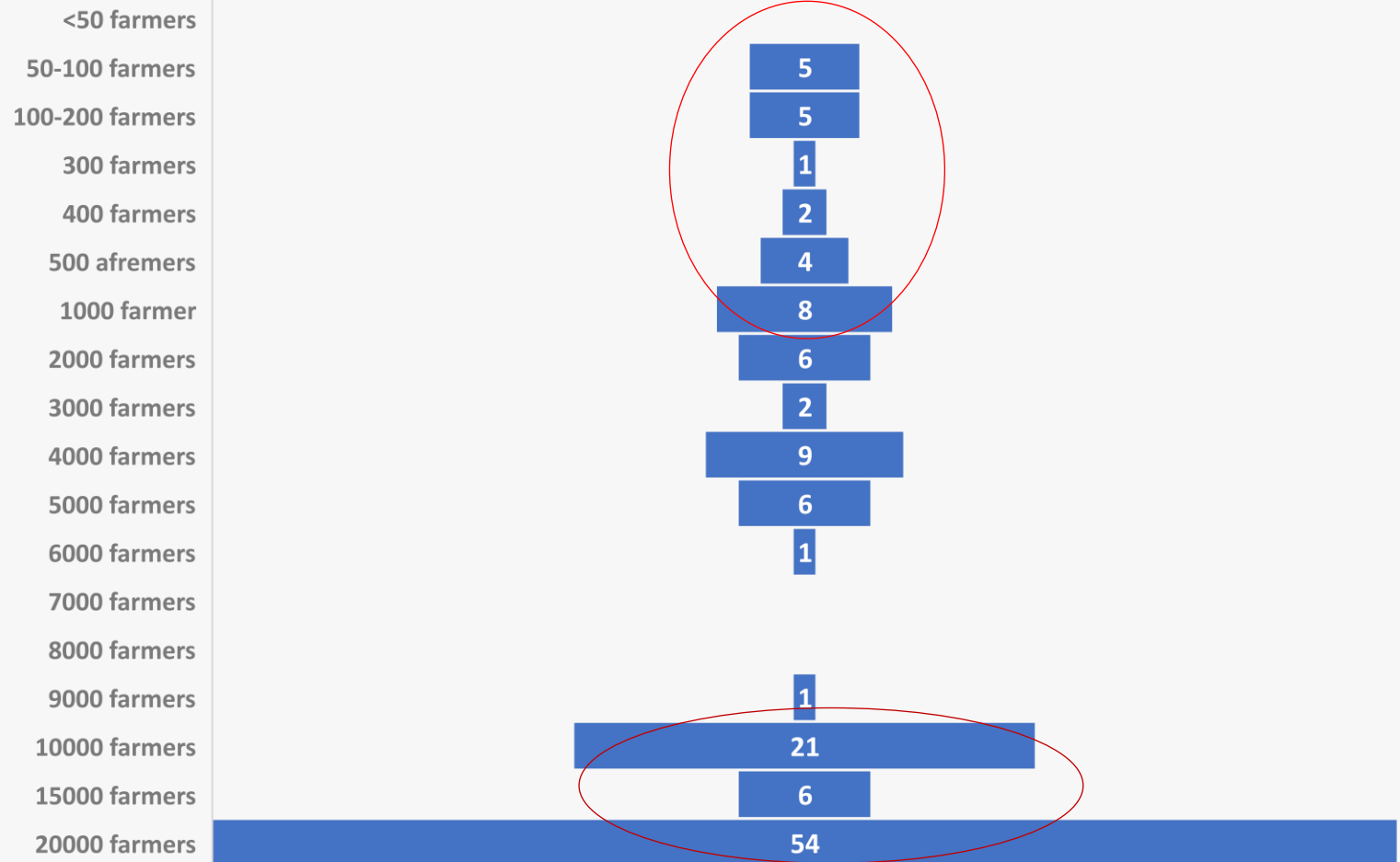
Number of Regions in Africa where the varieties released can be used

82

Powered by Bing
© GeoNames, HERE, MSFT, Microsoft

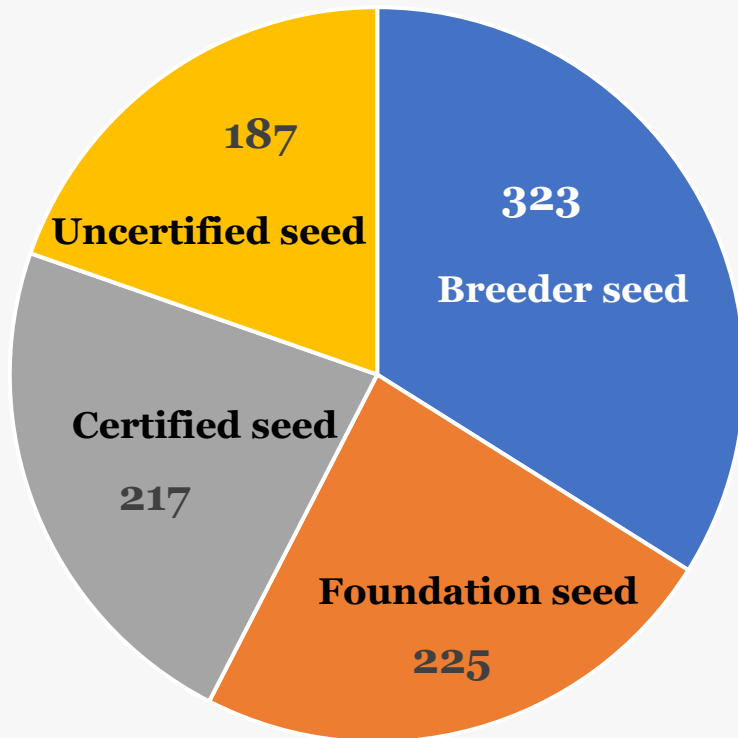
Potential users of the released varieties

- ❖ For 62% of the breeders their varieties will serve between 10,000-20,000 farmers
- ❖ For 20% it will serve at most 1000 farmers (<50 - 1000 farmers)



Seed production plan for scaling up

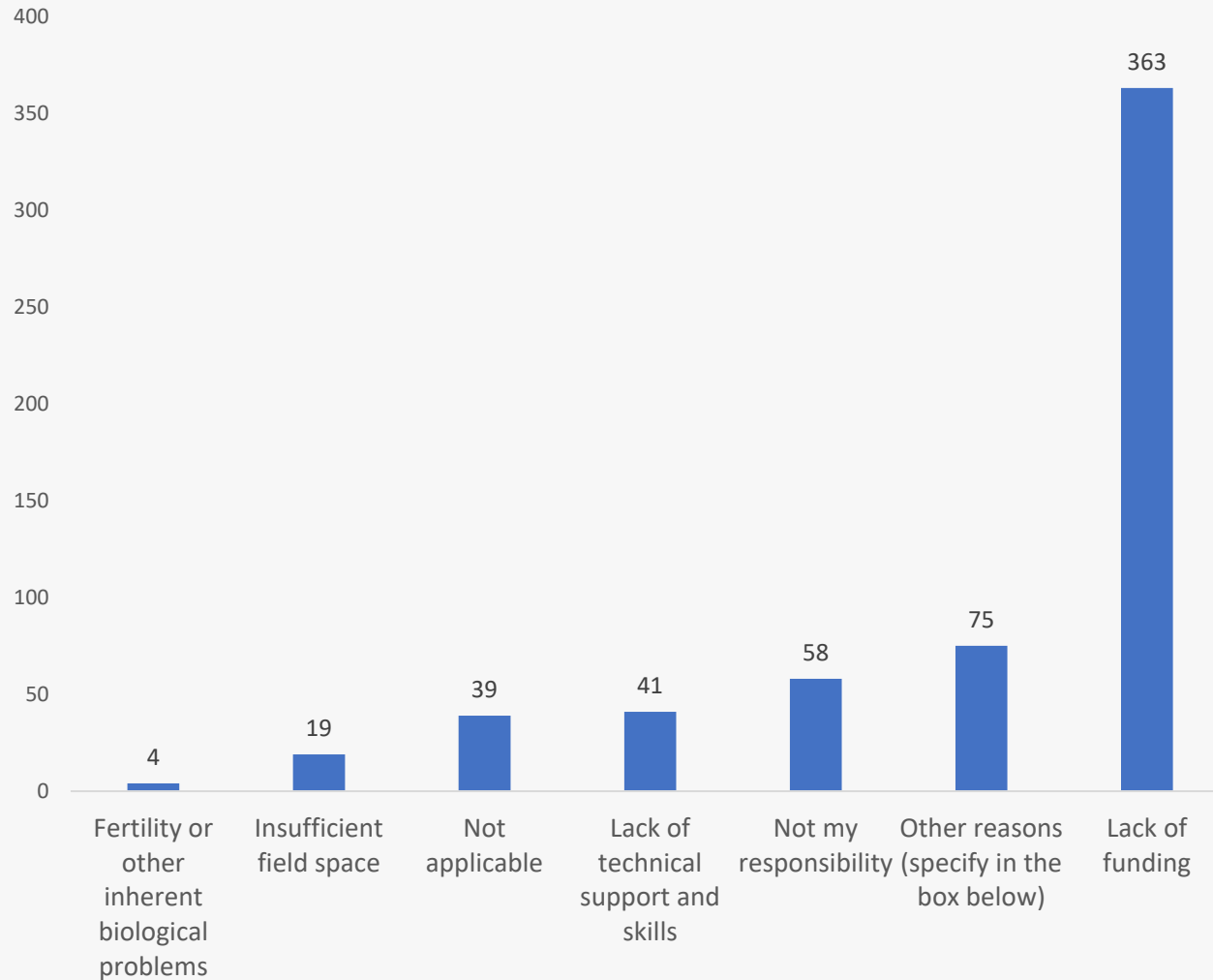
Total number of varieties with production plans for scaling



Common name	Breed/seed	Found. seed	Certif. seed	Uncert. seed
Maize	59	35	36	21
Com. bean	45	28	30	26
Rice (Africa)	39	28	23	21
Cowpea	31	18	18	15
Cassava	21	21	18	20
Sweet potato	21	11	12	11
Pearl millet	11	4	3	3
Irish potato	9	8	8	8
Sorghum	9	8	8	4
Soybean	8	7	6	6
Banana	7	2	2	2
Wheat	7	6	6	6
Bambara	6	6	5	6
Cocoa	5	4	5	3
Groundnut	5	5	4	4
Chickpea	3	3	3	3
Tef	3	2	2	2
Tomato	3	3	3	3
Barley	2	2	2	2
Castor	2	2	2	2

Common name	Breed. seed	Found. seed	Certif. seed	Uncert. seed
Coffee	2	1	0	0
Grape	2	2	2	2
Pigeon pea	2	1	1	1
Rice (S.E Asia)	2	1	1	
Yam	2	1	1	1
Afr. eggplant	1	1	1	1
Amaranth	1	1	1	1
Chilli pepper	1	1	1	1
Coconut	1	1	1	1
Finger millet	1	0	0	0
Melia	1	1	1	1
Mung bean	1	1	1	1
Okra	1	1	1	1
Papaya	1	1	1	1
Pea	1	1	1	1
Plantain	1	0	0	0
Spiderplant	1	1	1	1
Sugar cane	1	1	1	1
Sunflower	1	1	1	1
Watermelon	1	1	1	1

Reasons for not having a seed production strategy

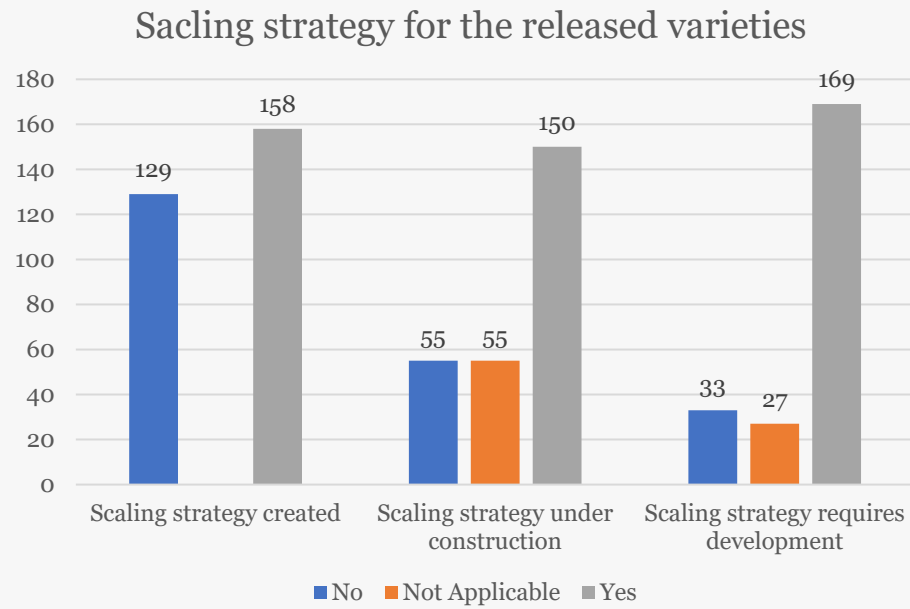


* Lack or poor medium to long time storage facilities

* Constraining variety registration process

* Seed business not attractive since purchase depend on government funding

Scaling up strategy for variety released



Crop	Scaling strategy created	Scaling strategy under construction	Scaling strategy requires development
Maize	31	20	29
Common bean	29	18	14
Cowpea	12	9	16
Rice (Africa)	11	13	14
Irish potato	10	4	5
Sorghum	8	5	5
Sweet potato	8	8	11
Pearl millet	6	6	2
Wheat	6	1	6
Grape	5	5	5
Banana	5	7	6
Cassava	5	9	11
Cashew	3	3	3
Barley	2	0	2
Amaranth	1	1	1
Melia	1	1	1
Quinoa	1	1	1
Rice (S.E Asia)	1	1	1
Spiderplant	1	1	1
Sugar cane	1	1	1
Tea	1	1	1
Sunflower	1	0	1

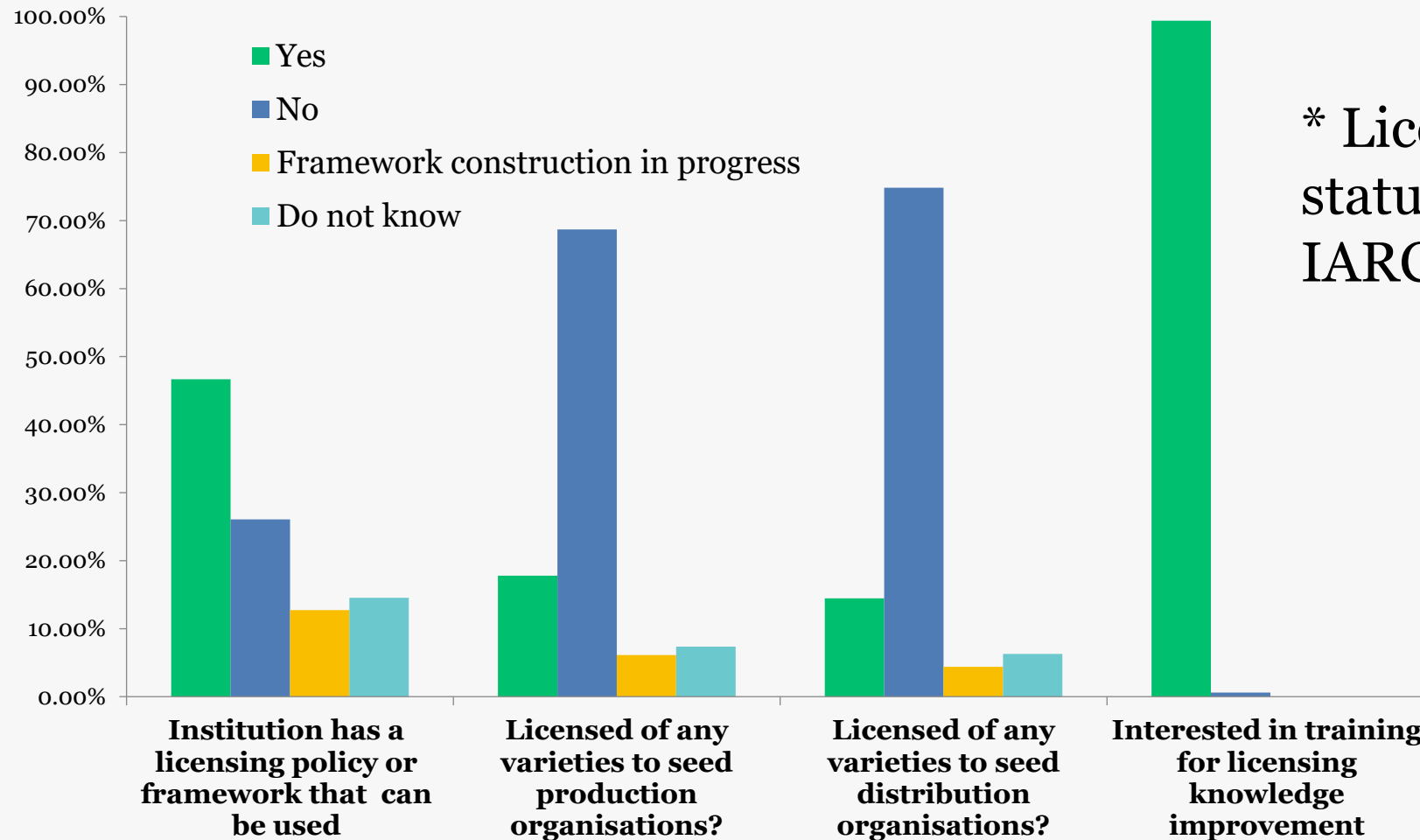
Crop	Scaling strategy created	Scaling strategy under construction	Scaling strategy requires development
Tef	1	0	1
Coffee	1	1	2
Tomato	1	2	2
Cocoa	1	6	6
Finger millet	1	1	0
Other	1	1	0
Chickpea	1	3	0
Mung bean	1	0	0
Pigeon pea	1	0	0
Yam	0	0	1
Plantain	0	1	1
Groundnut	0	4	1
Chili peper	0	0	1
Coconut	0	0	1
Okra	0	0	1
African eggplant	0	2	2
Castor	0	2	2
Orange	0	2	2
Soybean	0	5	4
Bambara	0	4	5
Garden egg	0	1	0

* Same type of data available per country



#APBAConf21

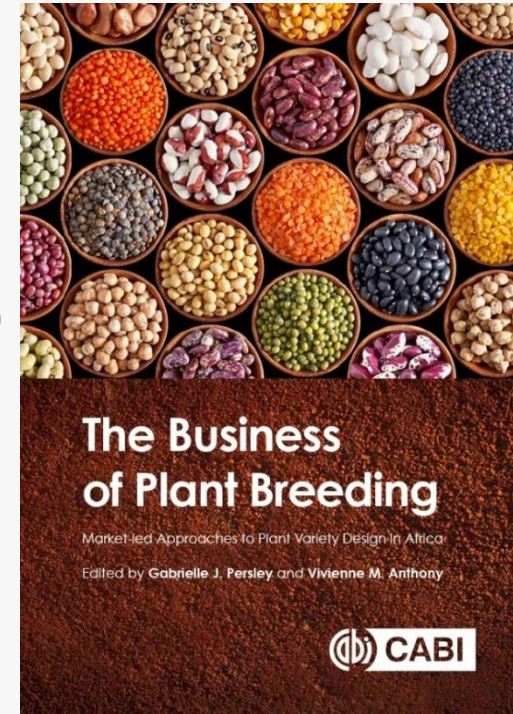
Licensing policy or framework



* Licensing framework or policy status available for NARS, CG, IARC and universities

What have we done?

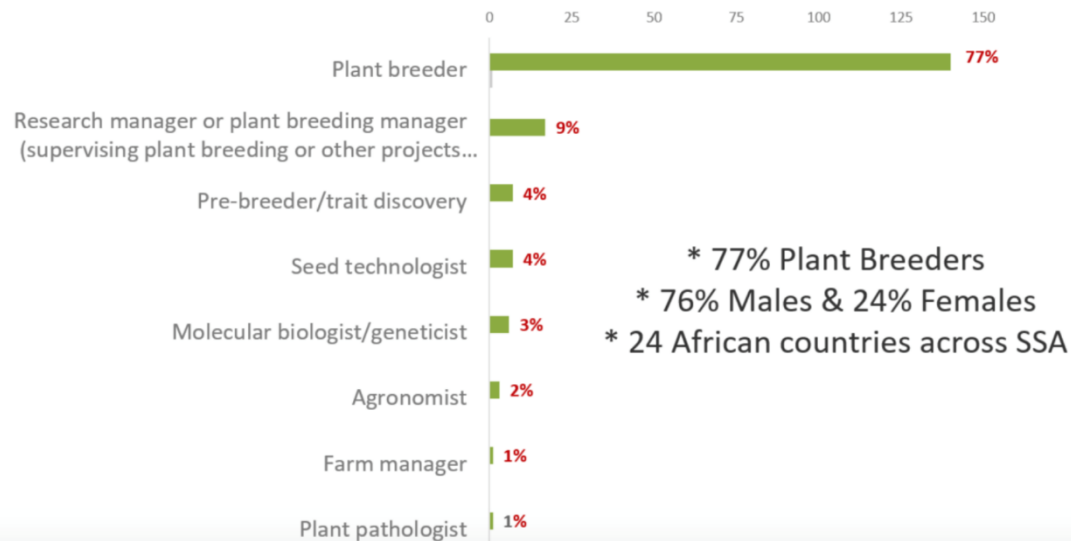
- * DLB book -The Business of plant breeding
- * Inclusion of DLB in the curriculum of partner universities (WACCI, ACCI, UoN and Makerere University)
- * DLB Product profile tool and Practitioners' guide
- * Institutionalisation of DLB in key institutions (Universities above and research institutions in Ethiopia)
- * Deployment of DLB in public and private institutions through the PABRA network and corridors and university partners
- * Train over 400 breeding related scientists which form the DLB Community of Practice



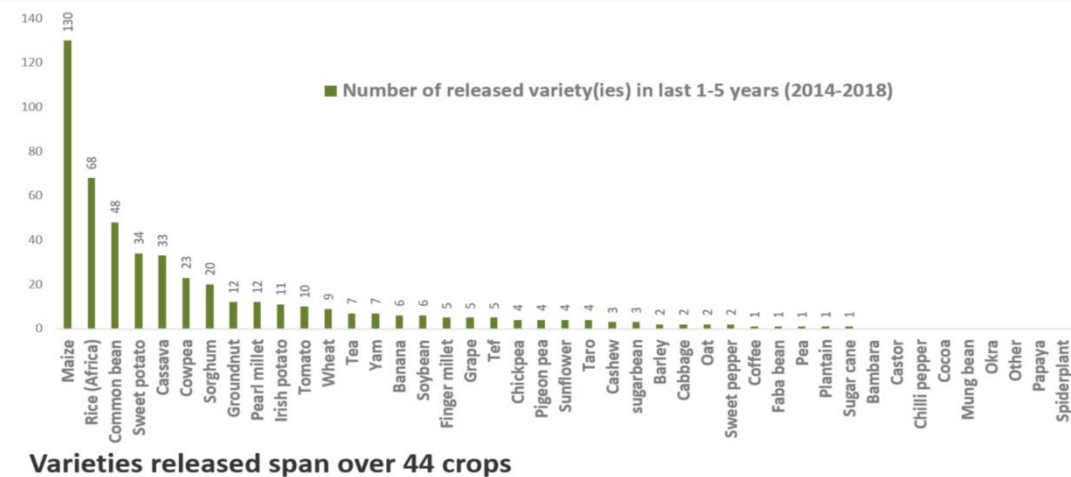
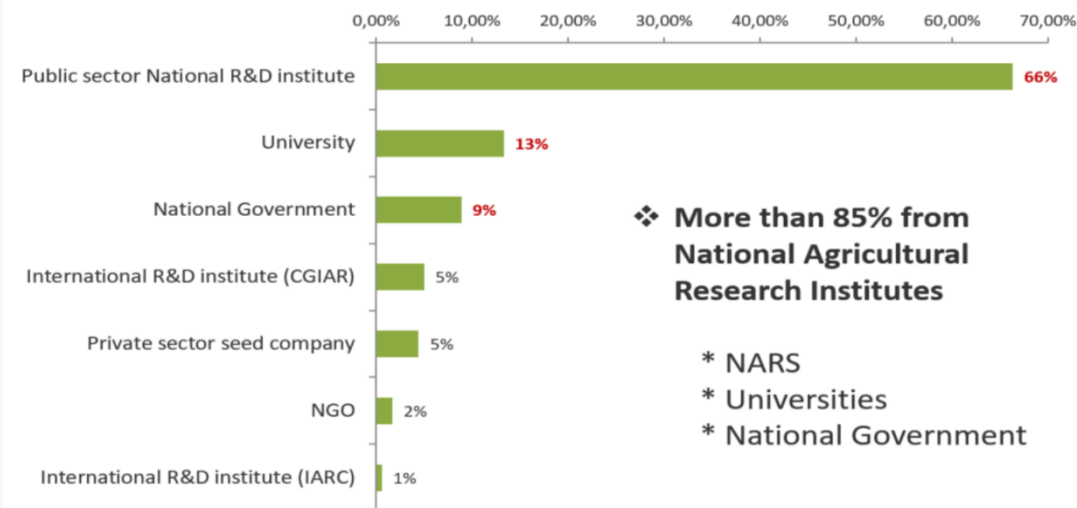
The DLB “Community of Practice”

Join us @
demandledbreeding@gmail.com


Who are the Alumini:



Where the Alumini are working




DLB CoP organized by thematic group




Beans

[Read more](#)




Roots and Tubers

[Read more](#)




Forage and Orphan

[Read more](#)




Horticultural and Ornamental Crops

[Read more](#)




Maize

[Read more](#)




Millets and Wheat

[Read more](#)



Nuts and Peas

[Read more](#)



Rice

[Read more](#)

Concluding remarks: Where are we heading to?

- **Institutionalisation and increase visibility of DLB**

- * DLB approach as common practice of breeding in research and education institutions across SSA

- * DLB as “must have” partner for the private sector (seed and processing industries....) by channelling

- * Drive policy dialogues to build a business case for investment in DLB across SSA

Concluding remark: Where are we heading to?

- * Review the DLB modules and teaching materials to include gender, diversity & inclusion and entrepreneurship
- * Provide a more inclusive platform for the DLB community of practice
- * Supporting the DLB CoP to connect with seed production and distribution organizations
- * Impact assessment of the DLB approach

Acknowledgements

THANK YOU



#APBAConf21 