

# 2022 AFRICA YAM TAC

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## Introductory Comments

- As a group we have been impressed by the progress that has been made.
- We are delighted to see the yam breeding groups across West Africa coming together as a very real community of practice
- This progress has been made in the face of very real difficulties due to the impact of Covid.
- It is also very good to see the development and progress of a younger cohort of scientists

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## Accomplishment and opportunities: Support science

- It is apparent that there is now been a substantial investment in yam genotyping. This has utilised a variety of technologies including DART, GBS, WGS and targeted genotyping for candidate genes/QTL. However it important that information from the different technologies is integrated on a genome or pangenome framework.
- This data should be integrated with the sequence data that will result from the Illumina investment in yam sequencing. This has the potential to be a major game changer and it is important that this is taken into account in the planning framework.
- The importance of developing both an understanding of and technologies to deal with sporadic flowering and expression of sex are given priority. This is often a major limitation and it appears to have been raised at every stage of the project We acknowledge the progress of the work in Japan in sex determination but would like to emphasise that importance of this area including the reliable induction of flowering.

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### Accomplishment and opportunities: Support science (cont.)

- Research is also needed in tuber dormancy and tuber wound response. All together, the recruitment of a plant physiologist (in house or at ARI) would be granted
- There has been significant progress in dissecting the key traits determining quality and developing technologies to screen for quality. This is important and welcomed. Given the limitation in the number of samples that can be processed it is important to identify where in the breeding cycle they can be most effectively deployed and explore the potential of higher throughput technologies such as NIR. It will also be important to establish standard methods that can be recognised at every stage in the value chain.
- There has been a significant improvement in Breedbase/Yambase it is important that data enters there from all the programs in a timely manner if breeding decisions are to be made using the capability of this system.

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## Accomplishment and opportunities: Plant Breeding

- Shortening the breeding cycle at IITA by one year (-25%) is a great accomplishment. Need to translate that into the National Breeding programs
- Variety release is entering the exponential growth phase. We should expect greater number of elite materials being promoted. Need to have a tracking system to record adoption and feedback from users.
- SAH systems seems to be working well for IITA, but we do not hear how much is invested in it. Maybe it is time to start testing some alternative systems.
- Incorporating and promoting local varieties within YIIFSWA would help “open the farmers’ door” to other technology adoption.
- The role of the program should be to optimize GxE, so far all the effort has been on the G. Need to strive to interject new genetics into alternative management practices.

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## Accomplishment and opportunities: Plant Breeding (cont.)

- We hear about the “yield gap” in the video (current 10t/ha vs possible 60 t/ha). If we keep increasing G, where would the yield gap go?
- Associate with ARI's to study ways to enhance flowering and manipulate dormancy in a way that will enhance the efficiency of yam breeding programs.
- Future expansion of Africa Yams to other countries could bring relevant germplasm, additional testing environments and the opportunity for greater impact. (Let's be mindful about how we move germplasm)
- Great progress in integrating quality traits into IITA breeding programs. National Programs need to make progress. Tools should be developed to incorporate such traits as selection criteria in early stages.

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## Accomplishment and opportunities: Capacity building and NARS

### TRAINING AND CAPACITY BUILDING:

#### Positive results

- A great number of people (students, researchers as well as professional) is trained
- Investment in infrastructure has elevated National yam breeding programs.

**Shortcoming:** investment in SAH facilities was done for partners but the result is not identical everywhere. This is due to the lack of SOP, Thus, there is a need to develop the SOP that can be used at other side (by partners)

**For released varieties,** there is a need to deepen the food quality assessment : Focus should be made on « pounded yam, boiled yam », and then on tubers storability

The program needs to find ways to recognize and highlight the work National Programs are doing and the opportunities that supporting yam research in Africa could bring in terms of economic and social development

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## Future challenges and opportunities

The model of engagement at the national level in the area of communication strategy of the project to assess how the AfricaYam project has supported the national programs to mobilize resources for the sustainability of the project needs to be discussed.

Given the challenge yam production will face in the future (i.e. climate change), there is the need for more efficient and effective technologies to develop resilient, productive and nutritious crops. If we managed to discover relevant genes, are we considering the use of genome editing to develop the yams of tomorrow. This calls for new investments and strategic partners.

The relevance of the crop, and the progress made by the project need to be advertised in order to capture the attention from governments, public sector, advanced research institutions, and others.













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## Final Comments

- It would be good to establish a signature for varieties that are products of AfricaYam e.g. by using a varietal name prefix such as *AFY-name*. There is a need to develop good publicity material for released varieties that show how they rate relative to older material and target this to processors or user groups.
- It would be good to know what the impact of the BMGF funding for AfricaYam has had on regional investment in yam through the NARs. Ideally it will have acted as a seed to attract further funding. The importance of yam research and varietal development needs to be recognized at a local level. There is the need to develop resilience.





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