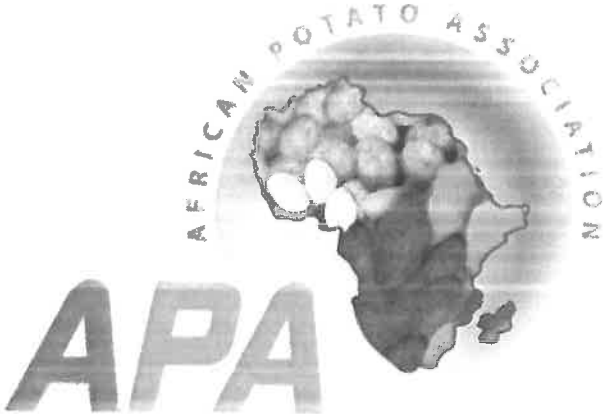
9th African Potato Association Conference

30th of June – 4th of July 2013

Great Rift Valley Lodge, Naivasha,

Kenya

Technical Report



Compiled by Johanna Kroeschell for the International Potato Center, Sub Saharan Africa

Date: 28.07.2013

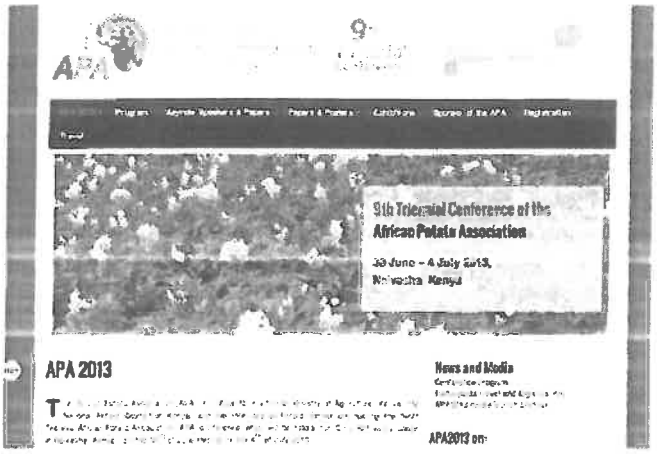
11. Communication & Media activities and Publication

APA website

For communication purposes and the distribution of information the APA website was created with details about the program, Keynote speakers, paper and poster submission formats, the exhibition, sponsors and sponsorship and travel information.

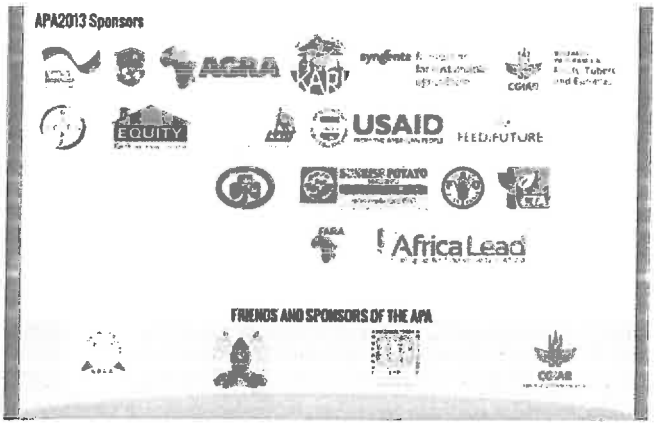
3998 single visitors visited the website until 26 July 2013.

www.africanpotatoassociation.org



Additionally all logos of our sponsors were published on our website under the headline **Sponsors of the APA:**

http://www.africanpotatoassociation.org/?page_id=94



13. Newly elected APA Council 2014 - 2016

The 10th African Potato Association Conference will be held in Ethiopia. The Ethiopian Institute of Agricultural Resarch (EIAR) has agreed to organize the meeting together with APA in the year 2016.

The newly elected APA council 2014-2016:

AFRICAN POTATO ASSOCIATION COUNCIL 2014-2016		
Position	Name	Organization
President	Dr. Endale Gebre	Ethiopian Institute of Agricultural Research (EIAR)
Vice President	Dr. Steffen Schulz	International Potato Center (CIP)-Ethiopia
Secretary	Mr. Gebremedhin Woldegiorgis	Ethiopian Institute of Agricultural Research (EIAR)
Treasurer	Dr. Asrat Asfaw Amele	International Potato Center (CIP)-Ethiopia
North Africa Representative	Dr. Nouri Khamassy	National Agricultural Research Institute of Tunisia (INRAT)
East & Central Africa representative	Dr. Moses Nyongesa	Kenya Agriculture Research Institute (KARI)
Southern Africa Representative	Dr. Sunette Laurie	Agricultural Research Council (ARC) Vegetable and Ornamental Plant Institute - South Africa
West Africa Representative	Dr. Some Koussou	INERA Burkina Faso
International Potato Center Representative	Dr. Elmar Schulte-Gelderman	International Potato Center (CIP)
Out-going President	Dr. Jan Low	International Potato Center (CIP)

III. Perspectives for potatoes and sweetpotatoes in Africa

1. Way forward for Potato drawing from the 9th Triennial Conference of the African Potato Association (APA) presentations and exhibitions, by Elmar Schulte-Geldermann, Potato Science Leader, CIP – SSA

The most remarkable fact of the 9th Triennial APA conference was the tremendous interest from all over the world in the African potato sector. As past APA conferences have been dominated basically by African based researchers with little private sector presence, this time private sector actors from Europe, Asia, America and of course Africa have been present in good numbers. In addition there were

participating potato researchers from 24 countries presenting their research findings in 5 keynote presentations, 29 oral presentations and 48 poster presentations.

Many of the scientific presentations focused on the improvement of seed systems ranging from novel and cost effective methods and technologies such as in-vitro, stem cutting and rapid minituber multiplications. In this area most remarkable scientific reports have been dealing with:

- The successful introduction of aeroponics and hydroponics systems for minituber production in African countries,
- The potential of rapid multiplication from in-vitro plans combined with the further multiplication as rooted stem cuttings.
- Novel technologies for in-vitro microtuber production, and its applicability.
- The successfully piloted "3G seed potato" strategy, aiming to deliver low cost, quality seed to growers in 2-4 field generations, rather than the conventional 6 to 7 generations. The "3G" seed strategy envisages producing large numbers of minitubers through one generation of a very rapid multiplication technology (RMT) thus allowing bulking of sufficient seed in reduced number of field generations. The strategy reduces the cost of production and helps prevent the buildup of damaging diseases in the field.
- Addressing potential risk of disease spread through importation of seed potato and related policy and pest risk assessment options
- The successful piloting of Quality Declared Planting Material (QDPM) protocols in Ethiopia, providing better seed qualities to farmers, in countries with ineffective or expensive formal seed certification. Although not suitable for cross-border trade regimes, the Quality declared seed had a huge advantage over randomly selected seed, being less likely to be diseased, and producing greater yield and a better product. In addition, evidence showed that the approach resulted in providing greater income producing opportunities in both local seed and ware potato markets.

In there has been less but still a significant number of presentations from breeding work. Highlights include:

- An integrative breeding strategy for making climate-smart potato varieties for SSA. This ombines molecular marker assisted methods with participatory breeding approaches as well as using GEBV (Genomic Estimated Breeding Value) prediction models as efficient tools for selecting superior genotypes for target regions from breeding populations.
- The potential of durable cisgenic resistance to Phytophthora infestans in potato and perspectives for its applications in Africa

- Breeding advances in CIP-bred clones with resistance to late blight, heat tolerance, early tuberization, and extreme resistance to PVY. This makes them suitable for mid-elevation tropics and areas subject to climate change and they are available for variety development and further use in breeding.

- A possible strategy for accelerated technology transfer of improved public bred germplasm to private sector actors through proposals to introduce models of benefit sharing. This could incentivize private sector engagement, potentially providinglong-term sustainable income streams for public breeding and in-situ conservation or evidence of adoption depending on institutional mandates.

Other new findings presented include:

- Options for reducing yield losses from virus infection, such as mineral oil as efficient treatment to reduce PVY transmission and positive seed selection to reduce significantly the virus load of farm saved seed;

- Clear indications that aphids are now occurring at higher altitudes in SSA countries and hence causing more virus damage in seed producing areas. High importance of having a balanced nutrient supply to ensure yields and potato quality, noting that the paradigm has to shift from applying N and P only.

- The increasing demand for potato-based processing products is an opportunity for potato growers. However, in order to be competitive with European producers, for instance, productivity must increase dramatically (25t/ha) to lower the potato prices for processors to about $150/t. Additionally, the regular supply of high quality potato of more suitable varieties has to be guaranteed to satisfy the processing sector.

- The increase in losses caused by bacterial wilt and insufficient progress in disease control options through crop management and resistance breeding.

Besides the scientific presentations the mentioned high turnout of private sector companies engaged in breeding, input supply, and processing, clearly indicated the commercial potential and interest the African potato sector has generated in recent years. A multitude of discussions and informal interactions took place and contacts made around the exhibition booths and during the entire event between researchers and private sector players. Also, interest in more exchange visits and other contact between the European and African Potato Associations has been expressed and these options for exchange will be further explored by the incoming APA Council.

However, challenges and bottlenecks remain in the sector. Despite its potential to contribute towards household nutrition and incomes, there are several problems for a dynamic development of the African potato sector, particularly in the areas concerned with productivity, infrastructure to support value chain enhancement, farmers' knowledge and supportive policies.

Some of those challenges that researchers and practitioners will need to continue to address include the shortages or lack of clean seed, build-up of crop specific soil and seed borne pests and diseases, unavailability of improved varieties that meet different consumer and producer needs, inefficient use of organic matter, farm manure and other resources, insufficient nutrient supply to the crop and nutrient mining of the soil and the use of inappropriate fertilizers. Many of the problems are inherent to the farming system and need to be tackled on a whole farm basis by diversifying the cropping system in an economically and environmentally sound manner. Improving complex production systems requires a series of improvements by specifically addressing the above mentioned constraints. Beyond production, post-harvest management, market access, access knowledge and information, capacities of extension and research bodies and policies need to be considered as they influence the entire sector. Of major importance will be the advances in breeding with traditional and modern methods to address challenges of changing climates and increasing disease pressures by breeding for resistances and tolerances to abiotic and biotic stresses. Simultaneously breeders have to address changing consumer and market demands for different processing traits.

In summary the 9th APA conference proved to be an excellent learning and exchange platform, which is envisaged to be intensified beyond the Triennial Conferences. The momentum will be kept through the decision to start newsletter every six months to inform the growing community of practice of other opportunities for engaging in new learning experiences and sharing new knowledge.

2. Way Forward Sweetpotato, by Jan Low, Outgoing APA President and Leader of the Sweetpotato for Profit and Health Initiative for CIP - SSA

The 9th Triennial APA meeting was a milestone for sweetpotato researchers in terms of the range of papers across different countries and subject areas within Africa and the exchange of experience between countries in Asia (China, India) and the African continent. . There were participating sweetpotato researchers from 25 countries presenting their research findings in 5 keynote presentations, 24 oral presentations and 56 poster presentations.

The most notable areas of progress highlighted during the presentations and posters were:

1) A substantial change in the way sweetpotato breeding is being done. Accelerated breeding, that reduces the number of years from 8 to 4 from crossing to varietal release is now in use in 4 SSA countries. Evidence was presented that heterosis can be exploited in sweetpotato. And breeders from 11 African countries reported on varietal development from their breeding programs.

2) New tools and techniques are assisting in improving breeding efficiency. Near Infrared Reflectance Spectroscopy can provide quality traits (protein, sugars, carbohydrates, vitamins, minerals) in record time, in vitro evaluation using polyethylene glycol can enable screening for drought tolerance before going to the field, and the CloneSelector program helps breeders organizing their trials and analyze their data.

3) Research is starting to provide answers to the seed system bottleneck and studies documenting experiences trying to understand and improve both informal and formal "seed systems" will assist in helping farmers get better access to quality planting material in a timely manner. Improved methods for rapid multiplication of sweetpotato vines in the field, the Triple S method for storing roots in sand and re-sprouting them systematically, and the use of net tunnels to protect disease-free vines from virus-carrying insects are methods likely to spread to many countries.

4) There were fewer papers on other areas of crop management than on seed systems. However, several studies on viruses have been undertaken and the depth of knowledge on the diversity and severity of viruses affecting sweetpotato has increased substantially during the last five years. Moreover, intercropping sweetpotato with maize or with pigeon pea has positive effects and there are indications that arbuscular mycorrhizal fungi used on sweetpotato root structure can lead to higher yields.

5) There have been several efforts to get sweetpotato value chains moving in very different settings Experience from the innovation platform models used in East Africa and other examples linked specifically to product development were shared. Studies in West and East Africa documented returns to actors along the value chain and pinpointed the challenges in improving the efficiency of sweetpotato value chains. A panel discussion highlighted the challenge of adequately addressing gender when working on sweetpotato value chain enhancement.

6) Displays at exhibition booths and many presentations highlighted the range of processed products that can use sweetpotato as an ingredient, including biscuits, bread, sweetpotato-mango leather, noodles, starch, and complementary weaning foods for young children. This was an eye opener for many participants as sweetpotato product development is still in its infancy in SSA.

7) Many presentations and posters in all themes focused on the use of pro-vitamin A orange-fleshed sweetpotato, whose development and use has been dramatically increasing over the past decade as a key tool for combatting vitamin A deficiency among young children and women of reproductive age. Experiences were shared on how best to tackle behavioral change when introducing new dietary practices along with orange-fleshed sweetpotato, with several countries presenting their experience concerning producer and consumer acceptance of orange-fleshed sweetpotato.

Clearly, sweetpotato is emerging from its traditional role in sub-Saharan Africa of being the classic food security crop to a more commercialized crop, and in the case of orange-fleshed sweetpotato a healthy food for all. Given its ability to be produced across a wide range of agro-ecologies and its ability to produce at least something on marginal soils, its use is bound to continue to increase in the near future. However, challenges and bottlenecks remain along the value chain. It is of note that there were no policy papers on sweetpotato submitted to this conference. Getting the attention of policy makers to

recognize the potential contribution of the crop to food security and nutrition, and getting governments to invest in its development and promotion remains a key challenge to exploiting sweetpotatoes full potential.

Some of those challenges that researchers and practitioners will need to continue to address include:

1) How to ensure sustainable access to quality sweetpotato planting material when it is so difficult to commercialize in the smallholder setting?

2) How to increase the commercialization of the crop, particularly to serve the growing urban populations? This will require further work on fresh root storage and product development.

3) How can we effectively engender our approaches to building sweetpotato value chains in different cultural and agro-ecological contexts?

4) How to improve change sweetpotato's image of being a crop of the poor to a health food for all?

5) How to go-to-scale cost-effectively with integrated agriculture-community level nutrition interventions using orange-fleshed sweetpotato as an entry point?

6) How to ensure that breeders continue to produce adapted varieties and simultaneously address the changing needs of consumers and processors?

7) How will we tackle changes in viruses and other disease and pest pressure as the environments in which sweetpotato grows become increasingly difficult?

8) What are the best bet investments to make to increase sweetpotato productivity in changing food systems?

9) How can we build effective private-public partnerships to enhance the value-added returns from sweetpotato?

10) How can we improve the sweetpotato database at the country and the global level so that its contribution can be better recognized and monitored?

Hopefully, the detailed participants list will enable people attending the 9th Triennial meeting to keep in contact with those with similar interests or needed expertise. The African Potato Association, through its decision to start newsletter every six months, can help sustain the enthusiasm and momentum present at this event and inform the growing community of practice of other opportunities for engaging in new learning experiences and sharing new knowledge.