



Zimbabwe Plant Breeders Association

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NEWSLETTER

ZPBA Newsletter Issue 2 of 2017

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1. WHO IS ZPBA- Zimbabwe Plant Breeders Association

ZPBA is a **membership-based, not-for-profit, non-political, professional association** of Zimbabweans based locally or abroad active or interested in plant breeding and/or plant breeding-related fields (e.g. seed agronomist, seed inspectors, seed technologists, geneticists, germplasm conservation specialists, biotechnologists, molecular biologists, etc) launched on the **26th of January, 2016** at Holiday Inn, Harare.

ZPBA hopes to contribute towards agricultural and industrial development in Zimbabwe through creating a platform for information exchange and sharing amongst plant breeders and related professionals, contributing towards policy dialogue, building capacity in both the public and private sector through relevant training.

ZPBA is governed by an **elected Executive Committee**, which **derives its powers** from the **membership** and functions through an **appointed Secretariat**.

Read more <http://zimbabweplantbreedersassociation.org.zw/about-us/>

2. IN THE NEWS- Focus on Under-Exploited Crops

a. Investigating the genetic diversity of Livingstone potato (*Plectranthus esculentus*), an underutilized vegetable for improved productivity and utilization in Zimbabwe.

By Gaudencia T. Kujeke (BSc Hons. Agric & MPhil Agric (Horticulture), D.Phil. studies at the U. Z.)

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Livingstone potato (*Plectranthus esculentus*), commonly known as *Tsenza* is an underutilised crop that is native to tropical southern Africa and has been cultivated since prehistoric times. In Zimbabwe, it is mainly produced in Manicaland and Mashonaland East provinces. The edible tuberous roots are mainly produced by women and are usually grown in wetlands although dryland production is possible. Though not well known throughout the country, *Tsenza* is important because it is an indigenous vegetable that is well adapted to local soil and climate conditions and can easily be cultivated with minimal inputs. It also provides a source of income for producers as surplus is sold in local markets. The Livingstone potato germplasm in Zimbabwe is slowly getting lost due to lack of information on its production methods and lack of promotion as a revealed by a survey carried out in 2013 (Kujeke *et al.*, 2015). The loss of these genetic resources is detrimental to the genetic diversity of crops and diet in a community. One of the objectives of the study is to evaluate the Livingstone potato germplasm found in selected countries in southern Africa including Zimbabwe through morphological and molecular methods. This is important because it helps in the detection of unique traits and also the structure of the population to be conserved. Conservation of genetic resources can also be achieved through promotion of its use. However access to clean planting material remains a constraint to wide scale exploitation of this crop. Current research activities have also included participatory evaluations on a range of value added products at food festivals. Results of the research will be available as publications following the completion of the D.Phil. studies.



Tsenza growers in Mashonaland East during the 2013 survey



Tsenza value added products exhibited during the UZ Research week (July, 2017)

b. Commercial Production of *Cleome gynandra* in Zimbabwe

By Linda G. Muusha [Bsc Honours Crop Science (UZ); Msc Postharvest Science and Technology (CUT)];
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Cleome gynandra (cat's whiskers/spiderplant/nyevhe/ulude) is a vegetable crop that is commonly found in East and Southern Africa. It grows well during the warm summer months and does not tolerate low temperatures that are below 15°C. It is popularly consumed as a fresh vegetable but it can also be sun dried and stored for use when it is out of season. Currently *C. gynandra* is being exported to Botswana and South Africa, mainly in the dried form but also as a fresh vegetable.

C. gynandra is a very nutritious vegetable that contains vitamins A, B and C, calcium, magnesium and iron. Its popularity in Zimbabwe is increasing mainly because of the increasing awareness of its nutritional benefits. The status of the crop has changed from being a tolerated weed to a fully-fledged cultivated crop. The cultivation of *C. gynandra* is being encouraged especially in nutritional gardens.

The commercialisation of the crop means that proper agronomic guidelines need to be established that will facilitate the large scale production of the vegetable in an economically viable manner. Research carried out at the Horticulture Research Institute in Marondera has shown that the commercial production of *C. gynandra* is possible using manure, compound fertilisers or a combination of the two. The seed can be sown directly into the field in rows spaced 50cm apart. Seed is drilled into the lines and can then be thinned to 20cm between the plants. Alternatively the seed can be sown in trays and then transplanted into the field. The disadvantage of this method is that the plants will start flowering early. Seed germination is a problem in *C. gynandra* production due to the inherent seed dormancy. Although there are ways of breaking the dormancy it is best to plant seed that is at least 6 months old and has broken dormancy.



Green stem *Cleome gynandra*

The institute has two *C. gynandra* accessions, a purple stem accession and a green stem accession. The green stem type has proved to be popular as a vegetable as it is not as bitter as the purple stem. However, when used as a biofumigant for soil-borne pathogens the purple stem accession has proved to be more effective than the green stem accession in the control of *Rhizoctonia solani*, *Pythium ultimum*, *Verticillium dahliae*, *Phytophthora infestans* and *Phytophthora cinnamom*. Biofumigation is a term used to describe

the suppression of plant pests and diseases by biocidal hydrolysis products called isothiocyanates that are released by glucosinolate containing plants in soil.

In Zimbabwe no breeding work has been done on this vegetable. Breeding research could focus on improving leaf yield, increasing the vegetative period, drought tolerance and plant uniformity.

HRI produces seed for the green stemmed and the purple stemmed accessions of *C.gynandra*. This seed is readily available to those who want to purchase. As awareness is increasing the demand for the seed is also increasing.

c. Intensification of Cocoyam for sustainable livelihoods in Zimbabwe



by A. Matikiti (BSc Agriculture, MPhil In Agronomy, currently studying DPhil studies at the University of Free State, Bloemfontein, South Africa.) Email: matikitia@yahoo.com; Mobile: 0775 504 696,

Cocoyam (*Colocasia esculenta*), a plant known by several names in different parts of the world, refers to two members of the Acreae family that are staple foods for many people in the developing countries in Africa, Asia and the Pacific. In most parts of the world it is called taro, some know it as elephant's ears, while in Zimbabwe they call it yam although it is different from the West African yam. Locally, they are called *madhumbe* in Shona and *amadhumbé* in Ndebele. The cocoyam-producing belt stretches from Rusape to Nyanga, from Nyanga to Mutare and Chipinge to some parts of Masvingo. Due to many factors like intermarriages, migration and relocation individual smallholder farmers in other parts of the country also grow this crop.

Despite all the potential and advantages of cocoyam production in Zimbabwe, the crop is treated as a minor crop best described as an orphaned, neglected and underutilized crop; it has received no scientific research or funding despite its significance for food security in the country. Its production is in the hands

of the smallholder resource poor farmers, who experience shortages of planting material and labour. There are only two types of cocoyam in Zimbabwe, madhumbe and magogoya, There are no known varieties in Zimbabwe as the crop has never received any research in breeding. While cocoyam continues to be maintained by socio-cultural preferences and use practices, they remain inadequately characterized and neglected by research and conservation. Crop production is declining in favour of more modern root crops such as sweet potato and Irish potato which have a very high economic benefit to the smallholder farmers notably in Nyanga. However, in areas like Honde Valley and Chipinge, cocoyam is contributing substantially to the food and income security of many households. The crop is commonly sold at markets like Mbare Musika, Sakubva but can also be found in upmarket supermarkets like Fruit and Veg at Borrowdale and Honeydew in Greendale thus demonstrating its economic potential.

Due to the neglect of the crop and drought conditions experienced in this country, there has been vast erosion and loss of cocoyam genetic diversity. Though domesticated years ago, the importance for food and medicinal properties seem to have been reduced over time. The underutilization of cocoyams could also be due to post-harvest losses, unrecognized nutritional value, poor consumer awareness and lack of agricultural extension services and government policies promoting the crop. Demand for the crop, its attributes, and their potential nutritional value, culinary value and adaptability to climate changes in the areas of the country could overcome its neglect and lead to a wider production and usage. Development research on cocoyam has the potential to make the crop contribute more to food security, nutrition, dietary and culinary diversification, health and income generation. Therefore, processing of the crop and improving culinary diversification would also help to promote the crop locally and upgrade its status among other local crops.



3. REPORTS

THE SADC Seed Certification Systems (18-19 July, 2017) and the Variety Release Systems (9-10 August, 2017) Training workshops organised by Zimbabwe Seed Trade Association (ZSTA) and funded by USAID Seed Trade Project.

Report by Nomusa Muguti from Community Technology Development Trust.

Dr Mujaju head of Seed Services presented a well informative presentation on SADC Harmonisation of Seed Policies. He elaborated that harmonisation of seed policies of SADC member states will facilitate easy and smooth movement of seeds from countries with excess seeds to countries with deficit seeds supply. This initiative will increase food security in the region. Currently access of certified seeds by smallholder farmers in other parts of the region are as low as 4% hence harmonisation should help create stiff competition between seed companies for market share which will result in access of quality seeds at affordable rates to farmers. Harmonisation will bring in trust and acceptance of seeds quality of member states because once a variety is registered in two countries of member states it can be moved and sold anywhere in the region without any restrictions since seed policies would be the same. The major purpose of SADC Seed Systems is to save time and money for seed companies when moving seeds within the region since re-testing of seeds will no longer be required. Furthermore, once registered in at least three countries a new variety should be released across the SADC region

Following the introductory presentation, crop specific procedures/ systems were presented by crop experts.



Group Photo for the SADC Variety Release Systems Training workshop 9-10 August, 2017



4. INVESTING IN PROFESSIONAL DEVELOPMENT AND TRAINING

i. Participatory Crop Variety Improvement Training Workshop organised by ZPBA

A Concept with potential to enhance variety adoption

A Very Useful tool in value chain systems

DATE:	TUESDAY 10 OCTOBER, 2017
VENUE:	HARARE
COME EXPECTING:	
	➤ Overview on farmer participatory crop variety improvement (covering breeding & variety selection)
	➤ Farmer Field School concept and its use in participatory crop variety improvement
	➤ Experimental designs and data analysis considerations for participatory plant variety improvements
	➤ Shared experiences from those applying Participatory Crop Variety Improvement
	➤ Industry perspectives on Participatory Crop Variety Improvement- are we doing it right
COST:	
	• \$20.00/person (\$15.00/ paid-up member)
TO BOOK YOUR PLACE:	
a.	Email zimplantbreedersassociation@gmail.com for registration form & bank details
b.	Return registration form to ZPBA
ALSO Contact if you want	
i.	To sponsor & get brand visibility
ii.	To have specific issues covered during training



ii. **Appeal for assistance with projects for third year UZ Crop Science students**

Final year BSc Agriculture students at the University of Zimbabwe are currently looking for suitable topics for their research projects. All students have to conduct research and finally produce a thesis, over the two semesters Aug - May. For Crop Science students this would most likely be over the summer growing season. Assistance in providing a research site/suitable situation would be greatly appreciated. If research is already ongoing, students might be able to be involved in some particular aspect of it. Support could alternatively be provided for research on campus (pot study, laboratory). Please liaise with me (maasdorp@agric.uz.ac.zw), including any queries. A student's project provides a very valuable part of his/her training.

Your assistance will be greatly appreciated.

5. ZPBA MEMBERSHIP

Membership benefits include

Professional and personal development; **Shared costs on human resource development**; Networking; **Timely Communication (especially for events, internships, job vacancies, scholarships)**; Voting rights; **Discounted rates for events**; Sense of pride in the profession and industry

Read more <http://zimbabweplantbreedersassociation.org.zw/membership/>

6. ZPBA CONTACT DETAILS

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