



# Zimbabwe Plant Breeders Association

*Innovative. Creative. Exceptional*

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## UPCOMING EVENT

The 2023 ZPBA Annual Event will be hosted by

MIDLANDS STATE UNIVERSITY



A hybrid event planned for early February

*(more info will be shared soon)*

Interested in presenting, sponsoring, attending- contact Secretariat



## 1. Breeding superior vegetable varieties for Zimbabwe

**Avanos Seeds** is a privately owned Zimbabwean seed company, established in 2005. If there is ONE thing that makes Avanos Seeds stand out from the crowd, it is the fact that Avanos Seeds breeds and seed produces its varieties locally (climate allowing).

Over the 17 years of its existence, Avanos Seeds has developed and introduced a series of impressive vegetable varieties, which rank among the best available to Zimbabwean farmers. These varieties range from long-time favourites such as *Butternut Waltham Plus* and *Tomato Rodade Plus* which are recognized as superior strains within well-known commodities of similar name, to high-end exclusive hybrid varieties such as *Tomato Royale Plus* and *Pumpkin Kayla Plus*.

Avanos's 'PLUS' range of products derives from the company's own breeding and product development program - the word PLUS behind the variety name works like a seal of authenticity: a farmer can trust that the PLUS range of varieties are developed with Zimbabwean farmers and consumers in mind. They are well adapted to local growing conditions and fit a specific consumer segment.

**Avanos Seeds** is also a proud pioneer in the development of improved varieties of African traditional vegetables. One of its flagship varieties, *Tsungu Paida Plus*, has transformed this traditional vegetable crop from a backyard crop scorned by market gardeners to a highly rewarding and popular cash crop, and has brought *tsungu* back on the table in urban and rural areas alike.



*Tsungu Paida Plus in a happy farmer's field*



Another such example is Hybrid *Covo Rugare Gold Plus*, a truly revolutionary development in Zimbabwe, where this seed-propagated variety provides a highly enticing alternative to the vegetatively propagated, traditional *covo rugare*. **Gold Plus** offers market gardeners a superior yield and consistently high income, and to consumers it offers a vegetable that is tender, quick to cook and sweet tasting.

**Avanos Seeds'** focus is to provide Zimbabwean farmers with the best possible genetic and physical quality seed.

*Seed production requires special skill, such as this pollination technique*



The company's good name has spread beyond Zimbabwe's borders, and farmers from the southern African region travel from far and wide to pick up a pack of seed that they know will give them superior results in their own farms.

Zimbabwe is well positioned to play a crucial role in the regional vegetable seed supply, and **Avanos Seeds** intends to use its expertise and know-how in support of this purpose.

*Zimbabwe developed onion varieties Kalunga Plus and Ilanga Plus*



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## 2. A plant breeding professional keeps scaling up

Armed with a BScAgric (Hons) from the University of Zimbabwe, Dr. Isack Mathew went on to obtain both a Masters and a PhD degree from the University of KwaZulu-Natal (South Africa). He has extensive experience in the field of Crop Genetic Improvement, encompassing Agronomy, Plant and Molecular Genetics and is currently co-supervising a doctoral student (with Prof. Gwata and Prof. Shonhai) in the Faculty of Engineering, Science and Agriculture at the University of Venda, (South Africa). In addition, he was recently appointed as the Maize Breeder at Limagrain Zaad South Africa (Pty) Ltd. To date, he has more than 55 peer-reviewed



publications in accredited high impact journals. Previously, he was involved with both national and international collaborative research activities including a project on *Validating Water Use Efficiency and Carbon Sequestration Potential of Cereals* (2021-2023; UNISA/UKZN; funded by WRC, IRD, France), *Land Suitability Study for Irrigation* project for KwaZulu-Natal (funded by the KwaZulu Natal Provincial Department of Public Works), *Cassava Nursery and Production* project with Agri-Biotech (Pvt) Ltd (funded by the Eastern Cape Development Corporation), *Virus Free Sweet Potato Cuttings for Livelihoods* project in Zimbabwe (funded by FAO) and the *Cornell University/CIP/UZ Collaboration on Sweet Potato Pathology for Production and Post-harvest Handling* project. He was appointed recently as an Adjunct Professor (with effect from 01/10/2022) in the Department of Plant and Soil Sciences, at the University of Venda (South Africa). With such an appointment and a plethora of impactful achievements at a young age (<40 yr), Prof. Mathew is set to shine brighter in both the academic field and crop genetic improvement research circles. Well done Prof. Mathew.

(Communicated by Prof. ET Gwata - Email: [etcgwata@gmail.com](mailto:etcgwata@gmail.com))

### 3. The Zimbabwe National Seed Testing laboratory re-accredited by ISTA



The International Seed Testing Association approved the re-accreditation of the National Seed Testing Laboratory at Seed Services Institute following a successful technical and systems audit carried out by international auditors in 2022. For accreditation, a physical audit is carried out at a member laboratory every three years. In-between the physical audits, member laboratories are monitored through participation in proficiency tests to check internal competency in comparison with other international laboratories three times every year.

The ISTA accreditation allows Seed Services Institute to issue Orange International Certificates (OICs) for seed consignments meant for international trade. Samples of these seed consignments are analysed using the protocols prescribed by ISTA. This certification system through OICs is accepted worldwide as a reliable quality assurance system. This means locally produced good quality seed of our improved varieties can be traded locally and internationally with confidence in the seed quality

ISTA also provides periodic skills development trainings to seed scientists and technicians to keep abreast with modern technological developments in seed science. The scientists also participate in seed testing methodology research and development thus contributing to the wealth of seed knowledge internationally. Such capacity building activities contribute to retaining, if not improving, this quality guaranteeing system both locally and internationally.

This ISTA accreditation when combined with other enablers such as SADC HSR, COMESA HSR create a conducive environment for the growth of the sector, with potential to have seed as an export commodity. There also is an opportunity to disseminate locally bred varieties and have impact in other countries. Locally, the farming community should have confidence in the quality of locally produced certified seed available on the market.

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## 4. THE ZPBA Organised RUFORUM Side Event



Photo credits MSU publicity

During the 18<sup>th</sup> Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) Annual General Meeting conference held in Harare on the 12<sup>th</sup> - 16<sup>th</sup> of December 2022, the Zimbabwe Plant Breeders Association (ZPBA) successfully hosted a side-event themed: **'Increasing Collaboration Between Universities Involved in Post-graduate Training of Crop Breeders and Players in the Food and Nutrition Security Value Chain in Zimbabwe'** held at the University of Zimbabwe on the 14<sup>th</sup> of December 2022. The event was graced by academics and students from local and regional universities as well as industrial players from both public and private institutions in Zimbabwe.

In his presentation, Prof Muzvidziwa, the Vice chancellor of Midlands State University, appreciated ZPBA for organising this side event which provided an opportunity for stakeholders to dialogue. He further noted that whilst the narrative within the universities' community was that limited financial resources were negatively affecting the scope of postgraduate research and training, there should be innovative ways of finding resources and ensuring the training programs continue. Most of the presenters acknowledged the importance of collaboration not competition. Universities can take advantage of various opportunities offered by stakeholders including resource persons for teaching specialist areas, field and

laboratories both for student visits and research purposes, internship, sabbatical leave, online training modules (eg FAO modules [Seeds Toolkit | FAO | Food and Agriculture Organization of the United Nations](#), [Course: Introduction to Pre-breeding \(fao.org\)](#)), germplasm from international organisations eg CIMMYT, CIAT etc. Some institutions offer structured programs for interns eg TRB, which equip students with scientific writing, presentation and soft skills among other skills. The participants were informed that government has capacitated extension in the field which should see improvement in data collection and communication. In turn Universities were encouraged to offer postgraduate training opportunities under RUFORUM to early career scientists especially public sector employees. During the discussions the stakeholders especially from the private sector were challenged to come up with local scholarships and research grants to support post graduate student training at local universities.

In his closing remarks the ZPBA President, Dr Magama encouraged the participants to continue the conversations and hoped that these should result in more meaningful collaborations. ZPBA remains committed to providing a platform for discussions, mounting various activities etc for the benefit of the sector.

ZPBA thanks all the presenters namely Prof. V N Muzvidziwa (MSU Vice chancellor), Ms. R Tanyongana (FAO), Dr. D Kutwayo (ARID), Prof. O Jiri (ARDAS), Dr. S Dimbi (TRB), Dr X Mhike (CIMMYT), Dr. L Mwadzingeni (Seed Co), Dr P Manjeru (MSU), Dr. F Magama (ZPBA president & TRB CEO), the Master of Ceremony Mr. T Mangisi (Synergy), and everyone who participated physically and virtually in the side-event. Special thanks also go to RUFORUM for providing the platform and for sponsoring the venue, teas and lunch.

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## 5. REMATTOOL-R: a smart tool for identifying superior maize genotypes from multi-environment yield trials

Shared below is an abstract of a recent publication on a tool to assist maize breeders in selection and advancement of maize cultivars at all stages of the variety trialing process. It can also be used for variety release meetings since the graphs and process of variety selection are easy to follow. We hope the maize breeding research and maize variety release panel communities will find it helpful.

### ABSTRACT:

Lewis Machida, Francisco Huerta Rodriguez, Dan Makumbi & Murisi Tarusenga (2022) REMATTOOL-R: a smart tool for identifying superior maize genotypes from multi-environment yield trials, Journal of Crop Improvement, DOI: [10.1080/15427528.2022.2134072](https://doi.org/10.1080/15427528.2022.2134072)

Breeders routinely evaluate many experimental hybrids that may be of different maturities. In maize (*Zea mays* L.), days to 50% anthesis and percent grain moisture content are used as proxies for relative maturity. The lack of an easy-to-use statistical tool that gives yield potential of all entries in a trial while classifying them into different relative maturity categories in a single visualization makes it difficult to quickly assess superior genotypes. We report on a tool called REMATTOOL-R to aid breeders in visualizing and assessing the relationship between yield and certain agronomic traits, viz., days to anthesis, percent harvest grain moisture content, and number of harvested plants, and help them in advancing experimental hybrids to the next stage. REMATTOOL-R uses either Best Linear Unbiased Estimators (BLUEs) or Best Linear Unbiased Predictors (BLUPs) of yield and agronomic traits from multilocation trials to perform various computations. The various computations produce graphical and tabular visualizations of the relationship between grain yield and days to anthesis, moisture content, and number of harvested plants that can be used to support selection decisions by the breeder. REMATTOOL-R output tables show entries with at least 5% higher yield than the check varieties in the trial. REMATTOOL-R is a robust, simple, user-friendly, and easily comprehensible tool, convenient for identifying superior genotypes during all the trial stages of a maize breeding program. REMATTOOL-R will be useful to breeders and researchers in related disciplines.

### KEYWORDS:

- [Maize variety testing](#)
- [multi-environment trial analysis \(META\)](#)
- [relative maturity](#)

Link. <https://www.tandfonline.com/doi/full/10.1080/15427528.2022.2134072>

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## WHO IS ZPBA

**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 **26<sup>th</sup> of January, 2016** at Holiday Inn, Harare with financial assistance from FAO.

**ZPBA** is legally registered as a **Trust** in Zimbabwe: registration number 1791/2018. The **ZPBA Board of Trustees** consists of the elected **Executive committee of the ZPBA** who are bound by both the Trust Deed and the ZPBA Constitution.

### 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

For **Corporate members** you are entitled to one representative and to bring visibility to your institution, you will be acknowledged at ZPBA organized events as well as being featured on the ZPBA website

### WANT TO BE A SUBSCRIBED MEMBER?

What are you waiting for, visit [Apply for Membership – Zimbabwe Plant Breeders Association \(zpba.org.zw\)](#). Pay your subs and receive your unique membership ID.

### THANK YOU SUBSCRIBED MEMBERS

Thank you to members who continue to pay their subscriptions as well as those who support fundraising initiatives. Such contributions make it possible for your association to keep going.