Zimbabwe Plant Breeders Association

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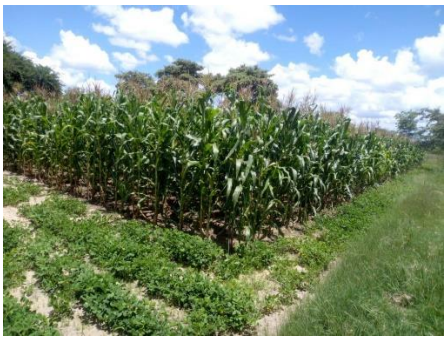
ZPBA NEWSLETTER Issue 3 of 2020

IN THIS ISSUE

Remember The Pfumvudza event in September, 2021….

Below is how the plot looks in January 2021



RICE BREEDING RESEARCH INVESTMENTS FOR DEVELOPING ADAPTABLE AND HIGH YIELDING VARIETIES WITH MULTIPLE STRESS TOLERANCES FOR PROFITABILITY AND POVERTY REDUCTION IN SMALL HOLDER FARMING SYSTEMS

by

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Rice (*Oryza sativa*) consumption is increasing at a quicker rate than any other major staple in Africa due to high population growth, rapid urbanization and eating habits modifications (Seck *et al*., 2013). Rice is the third most essential source of dietary energy in Africa. Currently rice productivity is low (0.5–3.5 t ha^{-1}) despite the progress in research since the mid-1990s, notably developing the NERICA rice varieties that are suitable for rainfed and lowland rice production. The continent therefore continues to rely on imports to meet its increasing demand for rice. According to Africa Rice, Africa accounts for one-third of global rice imports. Like other African countries, Zimbabwe is faced with a rice deficit, thereby increasing rice imports. Faced with the threat of scarcity in the supply of rice, the need to enhance domestic production thereby contributing to food security has become a top priority.

Zimbabwe is implementing strategic plans for boosting up rice production such as rehabilitation of irrigated schemes and the development and dissemination of high-yielding rice varieties with special emphasis on rainfed and lowland rice growing. Development of high yielding and disease resistant rice varieties is of utmost importance to raise rice productivity and that needs research intervention. The Zimbabwean rice sector has the potential to become an engine for economic growth across the country, contributing to elimination of extreme poverty and food insecurity.

Increasing rice productivity is one of the larger challenges within the plant breeding community into the near-term future, given pressures from rapidly increasing demand in Zimbabwe and competition for irrigated land, particularly from increasing horticultural production. Furthermore, there are significant differences in preferences for quality characteristics. There is a compelling need to develop improved rice varieties and augmenting innovative rice breeding techniques. The Republic of Korea, therefore sharing its experience on development of high-yielding germplasm and breeding technologies with the Scientific and Industrial Research and Development Center (SIRDC), a program called Korea Africa Food and Agriculture Cooperation Initiative (KAFACI). KAFACI rice project is supporting rice research in Zimbabwe so that it becomes comparable to other cereals breeding programs.

Figure 1: Rice breeding trials at SIRDC

Moreover, the rice breeding efforts by SIRDC are being supported by extension work which has been analyzing the current rice seed multiplication and dissemination system in Zimbabwe and also seeks to improve stakeholders' awareness of the availability of rice improved varieties. In addition, SIRDC is also conducting trainings on seed production methodologies, good agricultural practices, seed processing and marketing systems that aim to improve the diffusion of improved rice seed varieties in Zimbabwe for researchers, extension workers and farmers. Most farmers at Chigondo Irrigation Scheme in Wedza, Mashonaland East Province and Fuve Panganayi Irrigation Scheme in Zaka, Masvingo Province have received the programs very well. The extension work is expected to promote use of certified rice seed, increase of land under rice production and improve rice productivity leading to marketable surplus and income at household level. Additional support is required to support the establishment of efficient rice seed systems, dissemination of climate resilient rice varieties, dissemination of good agricultural practices to close yield gaps, improving quality management along the value chain, and investment in rice production and processing infrastructure.

Figure 2: Farmers selecting rice varieties as part of KAFACI rice trials participatory variety selection

References:

Seck, P.A., Toure, A. A., Coulibaly, J. Y., Diagne. A. and Wopereis, M. C. S. 2013. Impact of rice research on income, poverty and food security in Africa: an ex-ante analysis. In: Wopereis, M. C. S., Johnson, D. E., Ahmadi, N., Tollens, E., and Jalloh, A. (Eds.), Realizing Africa's Rice Promise. CABInternational, Wallingford, UK. pp. 24-33.

COTTON RESEARCH INSITUTE RELEASES TWO NEW COTTON VARIETIES

by

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Cotton Research Institute of the Department of Agricultural Research and Innovation Development within the Ministry of Lands, Agriculture, Water and Rural Resettlement released two improved cotton varieties namely CRI MS 3 and CRI MS 4 in Harare on 11 November 2020. This was in response to growing concerns over the occurrence of new biotic and abiotic stress factors as well as to broaden variety options which can be grown under these changing environmental conditions. Before the release, there were three public bred cotton varieties that were readily available on the market namely SZ9314, CRI MS 1 and CRI MS2. These two new varieties now add an impetus to boost cotton production in Zimbabwe as they are resilient, stable and adaptable to most of the cotton growing areas. The varieties were tested for over six years in more than ten diverse environments and performed better than the current commercial varieties. This is a major milestone achievement for the institute and the government considering the attributes of these two new varieties.

The main features of CRI MS 3 gathered from on-farm and on-station trials include high yields under dry-land conditions which go up to 2100kg/ha and under irrigated conditions can go up to 3900kg/ha. It has an indeterminate growth habit that allows it to regrow after an intense stress such as dry spell and matures earlier than the current cultivars by at least 3% maturity index. The gin-outturn is exceptional at more than 42% whilst its reaction to major pests (aphids, jassids and bollworms) and diseases (Verticillium wilt, Fusarium wilt and bacterial blight) ranges from fair to good tolerance.

The variety CRI MS 4 also has similar attributes of high yields under dry land conditions producing as much as 2000kg/ha. The main attraction on the variety is its high performance under irrigated conditions yielding as much as 4100kg/ha mainly because CRI MS 4 produces large bolls. It has a good gin-outturn of above 42%. The variety can produce high quality yarn as it has long fibres of 28.56mm which ranges at the border of medium and long staple category. The fibre maturity of these varieties is very high (>90%) which allows it to mature uniformly.

In broad terms, these new varieties can be grown in similar manner to those of the existing commercial varieties but should keep the following points in mind:

1. CRI MS 3 and CRI MS 4 can give better returns than the current commercial varieties of a range from 7-12% especially in areas with a higher yield potential.
2. Optimum nutrition management should be done as these new varieties are high yielding so they need more feeding to support the high number of bolls they produce
3. Integrated pest management should be done to compliment the level of tolerance these varieties exhibit so as to attain high boll counts on the plants
4. The large bolls of CRI MS 4 improve picking productivity but avoid letting it ripe cotton to stay to long on the plant as it starts to hang out and shed off.

FIVE ZIMBABWEAN BREEDERS AMOUNG AFRICA'S 20 MOST INFLUENTIAL PLANT BREEDERS OF 2020

In July 2020 Southern African Plant Breeders Association (SABPA) sent out a call to help identify and honour Africa's 20 most influential plant breeders of 2020. A short motivation was requested, per active plant breeder as to why he or she should be included on the SAPBA list, highlighting and explaining the influence his or her key contributions has had in the plant breeding sector. Zimbabwe Plant Breeders Association participated and put forward seven nominees. Three of them Dr. Cosmos Magorokosho, Prof. John Derera and Dr. Ephrame Havazvidi were selected among SAPBA's top 20 plant breeders of 2020. Two other Zimbabweans Dr. Geoffrey Hildebrand and Prof. Marvellous Zhou also made it to the list. Read more Top 20 most influential breeders of 2020 | SAPBA

Professor John DERERA- Head of Breeding, IITA, Nigeria

Dr. Ephrame HAVAZVIDI- Breeder, Seed Co, Zimbabwe

Dr. Geoff HILDEBRAND- Breeder, Klein Karoo, Zimbabwe

Dr. Cosmos MAGOROKOSHO- Maize breeder & Country Rep, CIMMYT Zimbabwe

Professor Marvellous ZHOU- Breeder SASRI, RSA

On hearing the NEWS here is a sample of what colleagues said

- Congratulations indeed to the 5 Zimbabweans in the top 20 plant breeders of Africa. We are very proud of their accomplishments and they are leaving a mark that cannot be erased -Rufaro
- Congratulations to Dr. Cosmos Magorokosho, Prof. John Derera and Dr. Ephrame Havazvidi for being selected among the top 20 plant breeders of 2020. These were nominations from ZPBA. There are two other Zimbabweans Dr. Geoffrey Hildebrand and Dr. Marvellous Zhou. Congratulations to all. - Tongo
- Congratulations to the team from Zim. This is awesome- Frank
- Congratulations to our esteemed breeders. We are proud of you- Tatenda
- Congratulations to all Zimbabwean winning Breeders!! Thanks ZPBA for putting together a winning team- Charles
- Congratulations colleagues; efforts and inspiration recognized beyond our national boundaries- Enock
- Dr M Zhou, Dr Magorokosho, Dr Havazvidi, Dr Hildebrand & Prof. Derera thank you for raising the Zimbabwean flag. We are super proud of you.- Pepukai
- Congrats guys. That's serious recognition. Well done! - Oswell

And a response from John, one of the Influential plant breeders of 2020 'Many thanks colleagues for your support. Together we can spur further the genetic gains for the nation in need of feed, fibre, food, fuel and furniture. Keep the fire burning'

UPCOMING EVENTS

1. CALL for PRESENTATIONS

- Calling for volunteers to give presentations on the ZPBA platform online via ZOOM or WhatsApp, etc be it a seminar, a training event etc.
- Contact Dr. C. Kamutando (+263 71 323 2033; kamutandocn@gmail.com) or Mr. P. Matova (+263 77 237 1385; matova_p@yahoo.com) or contact using ZPBA contact details.

2. ZPBA Annual Event 2021

- Traditionally this has been held in January annually but due to the COVID pandemic and current national COVID restrictions it has to be postponed. Instead a hybrid (online + physical attendance) event is being planned for later date
- Theme: *'Enhancing Genetic Gains to Boost Crop Productivity & Quality in the Face of Climate Change & Discerning Markets'*
- To assist in planning, kindly complete the form on https://forms.gle/b68i78uJxEP3ZRgX6 if you plan to present, partner or participate

3. APBA 2021 Conference

- Theme *'Accelerating genetic gains in plant breeding for resilience and transformative food systems and economic growth in Africa'*
- The sub-themes will be advised at a later date.
- It will be an online event therefore no travel costs.
- You are encouraged to participate

Contact Us

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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 **26th 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 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

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 MEMBER

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