SEED SYSTEMS STRENGTHENING:
The Role of the AFSTA in Advancing a Demand-Led Seed System

SEEDS OF CHANGE:
Tackling the Challenges of Seed Trade and Movement in Africa

THE AFRICAN SEED

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EMPOWERING AFRICA'S FUTURE, ONE SEED AT A TIME

FROM LOCAL FIELDS TO CONTINENTAL IMPACT:
Starke Ayres' Journey in African Seeds

The Status of Plant Breeding and Innovation in Africa

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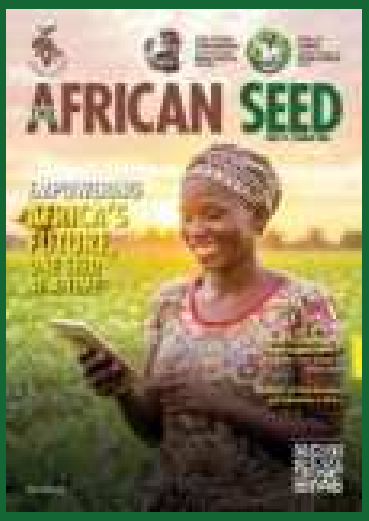

Cover Photo
Vibrant image of an african woman smiling at a farm during sunset while using technology to take care of her farm

Credit: Freepik AI

We are AFSTA
African Seed Trade Association (AFSTA) is a not-for profit membership association formed in 2000 to champion interests of private seed companies in Africa.

It is registered in Kenya as an international organisation. Currently, the Association has about 125 members comprising seed companies and national seed trade associations, among others.

Vision
All African farmers have access to quality seeds for food security and economic growth

Mission
To create the best environment for trade & innovation in quality seed for the benefit of members & farmers in Africa.

African Seed Trade Association (AFSTA)

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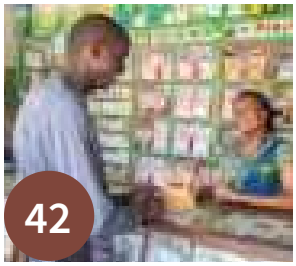
In this Issue



The AfSTA Secretariat

AfSTA Secretariat 2026

From left to right

1. **Mercy Bor** - Head of Finance and Administration
2. **Samuel Muchiri** - ICT and Protocol Officer
3. **Dr. Yacouba Diallo** - Secretary General
4. **Kennedy Mangwana** - Technical Manager
5. **Linda Mbaisi** - Lead Commmunications, Advocacy and Outreach

Leading the Seed Sector

An Exclusive Interview with AFSTA's Outgoing President, Amadou Sarr

In this twelfth edition of *The African Seed Magazine*, published by the African Seed Trade Association (AFSTA), I share reflections on my journey in the seed sector, my experience serving as president of AFSTA, and my thoughts on the future of the African seed industry.

From Finance to the Seed Sector

My professional background is in finance. I began my career in the private sector, working with an international accounting firm and later with several international organizations. In 1988, I made the transition into the seed industry, an area that has shaped the rest of my professional journey and eventually led me to serve in leadership at AFSTA.

Growth of the African Seed Industry

Over the past five years, I have seen the African seed industry continue to grow. While this progress is encouraging, it is also important to recognize that several barriers still exist. Addressing these challenges will be critical if we want to ensure stronger and more sustainable growth for the sector across the continent.

Reflections on My Presidency

Serving as president of AFSTA has been both rewarding and challenging. Although AFSTA plays a continental role, it remains a relatively young association with a very ambitious mission. One of the key challenges has been bringing together different stakeholders, national associations, private sector companies, and other partners in the seed industry, under a common vision.

Despite these challenges, I have been inspired by the determination and dynamism of our members. The enthusiasm and engagement demonstrated during meetings, conferences, and discussions highlight the growing importance of the seed industry in Africa. I firmly believe that identifying and structuring the sector's challenges will help pave the way for a more dynamic and well-coordinated industry.

Key Achievements During My Tenure

During my time as president, several important milestones were achieved. One of the most significant has been strengthening the financial sustainability of AFSTA by improving the profitability of our conferences. This has helped ensure a more stable financial situation for the association.

We also worked to revitalize the administration within the General Secretariat, strengthening its operational capacity. Another important step was proposing a new, more inclusive constitution aimed at better reflecting the diversity of stakeholders within the African seed sector.

Goals Still in Progress

While I am proud of these achievements, there are still goals that remain ongoing. One of my aspirations is to see AFSTA have at least one member in every country across the continent. I would also like to see stronger commitments from countries to promote robust national seed industries and greater efforts to democratize access to quality seeds for farmers.

These ambitions have not been limited by obstacles; rather, they are long-term objectives that require sustained commitment and collaboration over time.

Lessons and Reflections

Looking back, I feel that I fulfilled my role to the best of my ability. This was made possible thanks to the support and dedication of AFSTA's Board members, who worked tirelessly to help us achieve our shared objectives. Their commitment played a crucial role in the progress we made together.

Advice for the Future

As I look ahead, I am confident that my successor understands the priorities for AFSTA. The roadmap for the organization's development has already been laid out, providing clear guidance for the work that lies ahead.

The Next Decade for Africa's Seed Industry

Over the next ten years, I believe the African seed industry must accelerate its pace of development. AFSTA's central objective is to promote trade in quality seeds across Africa, and achieving this will require the creation of a more enabling and supportive environment. The sector must continue evolving to meet the growing needs of producers and industry members.

A Message of Gratitude

Finally, I would like to express my sincere gratitude to all members of AFSTA, the Board of Directors, and the General Secretariat for their support and kindness throughout my tenure. Their dedication and collaboration have been invaluable.

I wish AFSTA continued success as it works to strengthen the seed industry and support agricultural development across Africa.

Beyond Consolidation

AFSTA's Strategic Expansion for a Thriving African Seed Sector

Dr Yacouba Diallo
Secretary General

After 25 years of dedicated service to its members and to the seed sector on the continent, the African Seed Trade Association (AFSTA) has embarked on a comprehensive institutional transformation to position itself as a more agile, responsive, and future-oriented organization.

Recognizing the swift development of Africa's seed industry, driven by market liberalization, regional integration, technological advancements, climate change, and heightened private-sector engagement, AFSTA has implemented strategic reforms to enhance governance, operational efficiency, and the value it offers to members.

Institutional Strengthening and Governance Reform

AFSTA has reviewed and updated its Constitution and Bylaws to better reflect current industry realities and international best practices in association management. These reforms enhance transparency, accountability, and inclusiveness while ensuring stronger representation of members across regions and value chains.

The changes also aimed to maintain relevance, effectiveness, and compliance with current best practices, while addressing the evolving needs of members and the industry.

Enhancing the strategic Direction and Operations of AFSTA

AFSTA endeavors to improve market access for its members, establish strategic partnerships, and secure financial sustainability. This revision of the constitution and bylaws will intend to align these fundamental documents with the organization's strategic objectives and mission, which have been reshaped to be more actionable and achievable. In addition, the operation and coordination structure, including the secretariat and specialized committees and working groups (Market Access Committee, Phyto-sanitary Sub-committee, Communication and Advocacy Community, Intellectual Property Rights (IPR) committee, in addition to Biotechnology and Plant breeding innovation (PBi) committee have been created or revamped

The secretariat's competencies have been strengthened through the recruitment of Key staff positions to inject fresh expertise, reinforce technical capacity, and enhance organizational performance. This leadership renewal reflects AFSTA's commitment to professional excellence and results-driven service delivery while fostering effective collaborations and partnerships with regional and international organizations

Digital Transformation and Brand Repositioning

To remain relevant in a fast-changing communication landscape, AFSTA has launched a new website and adopted a refreshed visual identity, including a new logo. These changes go beyond aesthetics in branding; they signal a renewed institutional ambition.
Through strengthened social media engagement and digital communication platforms, AFSTA is amplifying its voice as the leading advocate for Africa's seed industry. This transformation enhances visibility, stakeholder engagement, policy influence, and knowledge dissemination across the continent and globally.

Expanding Membership and Strategic Partnerships

AFSTA has intensified its membership drive to broaden representation across national seed associations, private companies, and allied stakeholders both on the continent and outside of Africa. This expansion strengthens the Association's legitimacy as the unified voice of Africa's seed industry.

At the same time, AFSTA has deepened collaboration with international partners, regional economic communities, research institutions, and development organizations. These strategic alliances enhance policy advocacy, promote harmonization of seed regulations, facilitate investment and innovation, and, more importantly, regional seed market development.

A Vision for the brilliant Future

These reforms mark a decisive shift from consolidation to strategic expansion. AFSTA is positioning itself not merely as a trade association, but as a continental platform driving:

1. Regional seed policy harmonization
2. Transparent and growing regional seed market
3. Private sector growth and competitiveness
4. Innovation and technology transfer
5. Climate-resilient seed systems
6. Sustainable agricultural transformation

As Africa faces growing food security challenges and demographic expansion, AFSTA stands ready to lead the next chapter of seed sector development—building an integrated, competitive, and resilient African seed market that supports farmers, enterprises, and national economies alike.

From the Editor's Desk

Lindah Mbaisi
Editor, African Seed Magazine
Communications Lead, African Seed Trade Association

Welcome to this latest edition of the African Seed Magazine, published by the African Seed Trade Association (AFSTA).

This edition is especially special for me, as it is the first, I have had the privilege to steer since my appointment as AFSTA's new Communications Lead. I am proud to say that it is a truly packed issue, and that is entirely thanks to you.

A very big thank you to everyone who heeded our call for articles and generously contributed their time, expertise, and insights. Your overwhelming response made this one of our richest editions yet. The diversity of voices and perspectives truly reflects the strength, passion, and innovation driving Africa's seed sector forward.

Now, as Africa continues to navigate a rapidly evolving agricultural landscape shaped by climate change, population growth, policy shifts, and technological innovation, the role of a resilient and competitive seed sector has never been more critical. Quality seed remains the foundation of food security, farmer prosperity, and sustainable agricultural transformation across the continent.

This edition brings together diverse perspectives from policymakers, seed companies, researchers, development partners, and farmers who are collectively shaping the future of Africa's seed systems. From advancements in plant breeding and seed technology to policy harmonization, regional trade, and genome editing, the conversations reflected in these pages highlight both the progress made and the work that lies ahead.

As we look forward to the upcoming AFSTA engagements and partnerships across the continent, we are reminded that collaboration remains our greatest strength. Strong national seed associations, harmonized regulatory frameworks, and vibrant public-private partnerships will continue to drive innovation and ensure that improved varieties reach farmers efficiently and affordably.

We also celebrate the partnerships that make it all possible. We are deeply grateful to our host organisation The South African National Seed Organisation (SANSOR), contributors, partners, and advertisers whose support makes this publication possible. Your insights, expertise, and commitment continue to strengthen Africa's seed sector. Without a doubt, the momentum across the continent is real, and it is inspiring to see.

This issue is more that pages and prints. It is a snapshot of a thriving, forward-looking seed community. We hope this edition informs, inspires, and stimulates meaningful dialogue within our growing community.

Happy reading!

Empowering Africa's Future, One Seed at a Time

Dr Yacouba Diallo
Secretary General

Food security remains one of the most pressing challenges facing humanity today. A confluence of factors further contributes to its complexity, including the swelling world population. By 2050, the world's agri-food system must meet the demands of 9.7 billion people while simultaneously reducing agriculture's environmental impact. Achieving this will require the sustainable intensification of agriculture: producing more food on less land and with less water, while building resilience against external shocks and climate change.

8.9%
of the global population is hungry

Currently, close to 8.9 percent of the global population is hungry, and nearly 2 billion people lack access to safe, nutritious, and sufficient food on a regular basis, indicating that the goal of Zero Hunger by 2030 remains unreachable. Food production, excluding non-food uses of agricultural products, must rise by up to 70 percent to meet global food demand. Africa, to feed its rapidly growing population, is increasingly reliant on food imports, spending about US$68 billion annually, of which US$37 billion is spent in Sub-Saharan Africa. This import bill is projected to keep rising.

The agriculture sector in the continent is at a decisive juncture and has tremendous potential to foster economic growth and greater food security. With 65% of the world's uncultivated arable land, around 874 million hectares, Africa is well-positioned to become a leading global food producer. Urban food markets could grow into a trillion-dollar industry by 2030, driven by rising populations and demand, while cereal and grain output could double or triple with better inputs and technology. However, significant challenges and obstacles to realizing this potential. Climate change causes disruptions through droughts, floods, and unpredictable rainfall. Over 90% of farming relies on rain, with just 4% irrigated; soil degradation, pests, disease pressures, and limited use of quality inputs also hinder productivity. African agricultural zones, which account for 70% of crop value, are expected to face severe aridity and heat stress by 2050.

The seed sector faces challenges, including weak policies, limited private-sector growth, low adoption of improved varieties, and funding shortages, with over 80% of local seed companies facing financial and market uncertainties. The seeds represent hope, resilience, and transformation for the millions across Africa. For smallholder farmers, quality seeds are powerful tools to break poverty cycles, ensure food security, and build sustainable futures. Agriculture sustains 65% of Africa's population, yet only 20-30% of farmers have access to improved, climate-resilient seeds that could greatly increase yields. Despite evidence of the need for improved seed varieties to help close the yield gap, much of Africa continues to depend on seeds carried over from previous seasons.

Africa's Future relies on the radical Seed of Transformation

Quality seeds serve as the biological blueprint for agricultural success, carrying traits for drought tolerance, pest resistance, nutritional density, and productivity. Producing and supplying quality seeds to farmers is essential for Africa to achieve Sustainable Development Goal 2: Zero Hunger by 2030.
Unfortunately, the African seed sector faces a substantial gap, with only 20-30% of farmers having access to improved

seeds. This access varies by country and also by species within the same country. Consequently, the majority rely on poorly adapted varieties that fall significantly short of their potential yields.

The ripple effect of using inferior seed quality results in ongoing cycles of low productivity, food insecurity, and persistent poverty. Access to high-quality seeds is crucial for farmers, as it can significantly increase yields, potentially doubling or tripling production, while also improving nutritional value and enhancing crops' resilience to unpredictable weather conditions.
Evidence shows that, in crop production, without seed quality, other agricultural interventions, including fertilizers, irrigation, and mechanization, cannot reach their full potential.

Building Robust and resilient seed Systems to unlock the agricultural potential

African farmers encounter systemic obstacles in accessing high-quality seed, perpetuating a vicious cycle. The widespread issue of substandard seed quality results in low yields, which in turn generate insufficient income for farmers to invest in better seeds for subsequent seasons. These obstacles include inadequate production, quality assurance, and marketing infrastructure: current seed systems suffer from limited storage facilities, testing laboratories, and inefficient distribution networks, hindering the reach of quality seeds to remote farming communities.

Furthermore, restrictive policies pose challenges: despite the ongoing harmonization of seed regulations across regional economic communities (RECs), the complexity and inefficiency of national policies, regulations, and requirements for variety release, seed certification, and import/export create barriers for small-scale seed producers and seed.. Moreover, gaps in early-generation seed production lead to an inconsistent supply along the value chain, resulting in unpredictable availability and quality for farmers.

Breaking this vicious cycle of the poor and unreliable seed supply system and creating sustainable seed systems that serve Africa's diverse agricultural landscapes requires strategic innovation, institutional capacity, coordinated interventions across policy, technology, and innovation scaling, infrastructure, financing, and knowledge systems, and partnerships across public and private sectors.

Revolutionizing the seed system in Africa requires a holistic, innovative approach & partnerships to ensure the availability, access, affordability, and utilization of quality seeds, including for small-scale farmers.

The following six points are the path-breaking steps, and the successful conditions in making this happens are:

- Macroeconomic framework and sound policies, along with harmonized seed regulations, aim to foster investment in the seed industry. This includes establishing transparent and harmonized processes for variety registration and protection, as well as standardized quality assurance, seed certification standards, and clear, internationally aligned phytosanitary measures.

- Science and breeding innovation, including modern biotechnology and plant breeding innovations, digitalization and AI tools, and systemic approaches, will open up interesting avenues for innovative seed systems but also pose challenges and provide solutions to the failure of traditional varieties in addressing climate change, including their genetic adaptations for drought tolerance, heat resilience, and pest resistance for African agricultural survival.

- Advancing climate-smart agricultural (CSA) technologies and precision agriculture: Promoting and scaling CSA technologies is vital for enhancing resilience and productivity in Africa's seed sector, particularly amid climate challenges. Precision agriculture uses digital tools such as sensors, satellite imagery, and artificial intelligence (AI) to enable site-specific farming, optimize inputs, and yield for smallholders despite infrastructure gaps.

- Global quality assurance and the fight against counterfeit seed: Seed quality assurance ensures genetic purity and fosters greater trust among farmers and consumers in the agricultural sector. A rigorous seed quality assurance system enhances the reliability of seed supply, thereby improving crop yield and resilience against pests and diseases. Africa needs to accelerate the harmonization of seed certification approaches, such as the COMESA Seed label, aligned with international standards (OECD seed scheme, IST International Rules for Seed Testing) to ensure seed quality meets the highest

standards. It is only through robust certification systems that ensure seeds meet minimum standards for purity, germination, and freedom from disease that one can protect farmers against fake seeds, build their confidence in truth-in-labeling certificates, and enable diverse seed suppliers to participate in formal markets.

Today, as Artificial Intelligence (AI) plays an increasingly important role in agriculture, Africa must seize the opportunity to improve crop seed quality assurance through advanced data analysis, predictive modeling, and automated monitoring. AI technologies like machine learning, computer vision, and predictive analytics can significantly improve seed quality control, traditionally managed manually by seed analysts, which is often time-consuming, costly, and demands specialized human skills.

- Promote innovative Business Models & Business Solutions: The seed industry is dynamic and evolves constantly. Traditional business models may need to revise their value propositions and update their structures and operations to expand seed markets and improve distribution to get quality seed on time and desired packages into farms in remote areas. Successful and sustainable business models in the seed industry that drive profitability require the effective alignment of value creation, delivery, and an effective operational structure. This involves deploying diverse strategies across industries, often integrating research and innovation with scalability, a market-driven approach, smart investment in infrastructure and logistics, and human capital.

- Capacity Building of seed system and actors: Africa needs to continue extensive capacity-building for breeders and seed producers, transferring technical knowledge in variety development, seed multiplication techniques, quality assurance, and business management. Training targets not just technical skills but also education in entrepreneurial skills development and market understanding. In addition, priority needs to be put on social inclusion of women, creating opportunities and attractiveness for youth and agripreneurs, and finally, stimulating job creation for the new generations.

Sowing the Future of the African seed industry: Strategic Collaborations, multi-stakeholder partnerships for Impact at scale

The seed sector on the continent is characterized by diverse seed systems that combine formal and farmer-managed approaches, a broad spectrum of interlinked stakeholders, and partner interventions along the seed value chains. The public sector, including national governments, the African Union, and the regional economic commissions (RECs), establishes regulatory frameworks and, together with donor programs, funds public breeding programs. Research institutions develop improved varieties adapted to local conditions. Private companies bring investment in seed production, marketing, and distribution networks.

Strategic alignment of private sector interest, public sector development goals, and the collective expertise of the entire seed industry ecosystem is key to build strategic pillars that address the most critical needs in African seed systems: Seed Quality Assurance Initiatives that ensure farmers access certified, high-quality seeds; Regulation Harmonization that breaks down barriers to cross-border seed trade and accelerates variety registration; Market Facilitation and Investment Solutions that unlock capital and create enabling business environments; and Technology and Innovation that brings cutting-edge solutions to smallholder farmers.

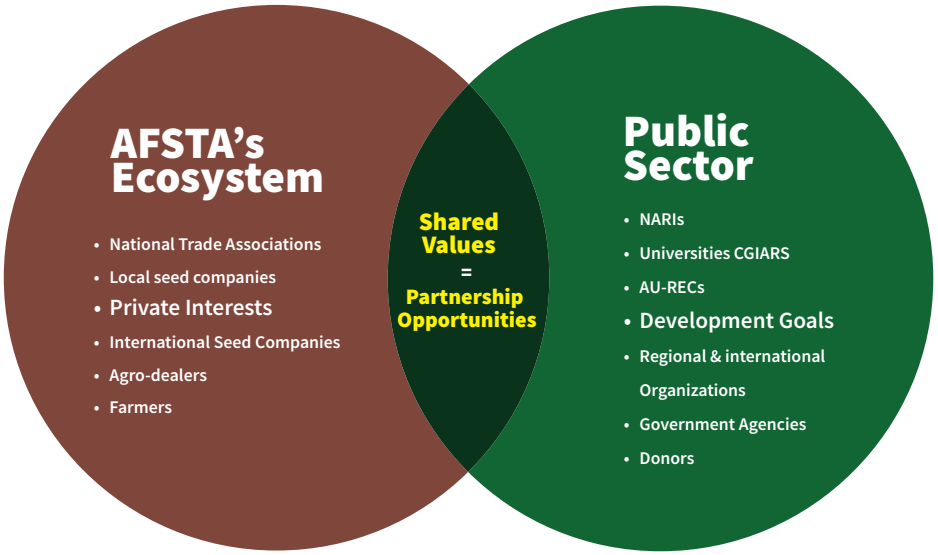
At the heart of its strategic plan, AFSTA implements a private-public partnership approach that includes its comprehensive ecosystem with diverse stakeholders, including local and international seed companies, national seed trade associations (NSTAs), agro-dealers, promoting the private sector interests and sharing value with the development goal hosted by public sector institutions including government agencies, regional organizations, national agricultural research and extension services (NARES), universities, CGIAR institutions, and donors. This interconnected network creates a powerful platform that facilitates meaningful collaboration, delivering concrete results in seed availability, enhancing crop productivity, and ultimately transforming the livelihoods of millions of African farmers.

In conclusion, transforming Africa's

AFSTA's Collaborative Approach to Thrive the African Seed Industry

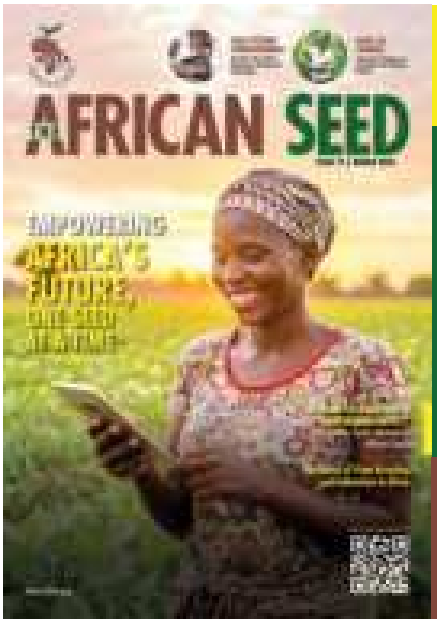
AFSTA's PPP Value Proposition

Collaboration - Synergy



Seed Quality Assurance Initiatives	Regulation Harmonization	Market Facilitation and Investment Solutions	Technology and Innovation

seed sector is essential to increasing agricultural productivity and tackling major challenges such as hunger and climate change. High-quality seeds, backed by strong policies and partnerships, are key to sustainable growth across the continent. Despite progress, the sector still faces many hurdles, with many African farmers relying on low-quality or informal seeds that limit yields and resilience to droughts and pests. Only about 10-20% of seeds used are certified, leading to dependence on imports and vulnerability in staples like maize and rice. This situation threatens food security and economic development, especially for smallholders, women, and youth. To drive sector transformation, effective strategies include implementing policies that support local seed production, breeder innovation, and regional trade within frameworks like the African Continental Free Trade Area (AfCFTA). Investments in R&D for climate-adapted varieties and public-private partnerships can improve access to diverse, affordable seeds. Resilient seed systems help achieve SDG 2 (Zero Hunger) by boosting crop yields by 20-50% for smallholders, cutting poverty, and promoting climate-smart agriculture. Initiatives such as community seed banks in West Africa and efforts to enhance seed sovereignty in Central Africa promote self-sufficiency and support Agenda 2063's goal of resilient food systems.



Call for Articles – AFSTA Magazine *(13th Edition)*

The African Seed Trade Association (AFSTA) invites experts, practitioners, and value chain stakeholders in the seed sector to submit articles for the 13th edition of the African Seed Magazine, to be published in March 2027.

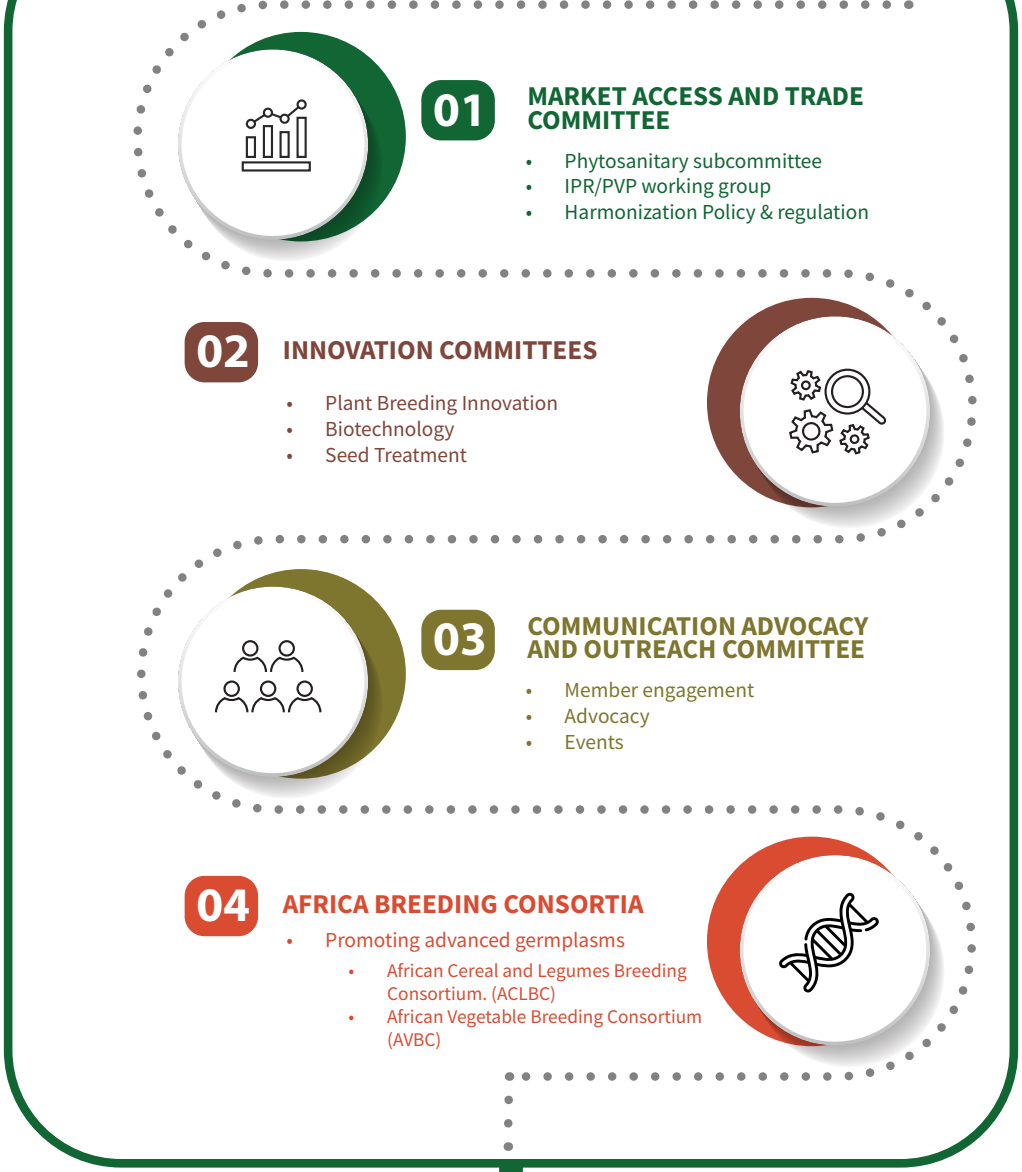
We welcome well-researched and insightful articles highlighting initiatives, innovations, policies, and developments shaping the African seed sector.

Submission Deadline: 10th January 2027

Please submit your articles to the AFSTA Communications Lead, Lindah Mbaisi, at: lindah@afsta.org.

Theorical Frame:

AFSTA Committees, Working Groups and Consortia



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South Africa's Seed Sector:

A Continental Anchor for Agricultural Progress

By Matome Ramokgopa, Chairman – South African National Seed Organisation (SANSOR)

The future of African agriculture will not be determined by ambition alone. It will be shaped by systems — by the institutions, investments, and innovations that translate potential into productivity. At the foundation of those systems lies seed. Within every seed is not only genetic material, but the promise of yield, resilience, nutritional value, and market competitiveness.

South Africa's seed sector has matured into one of the most structured and globally competitive systems on the African continent. It has done so not by accident, but through decades of regulatory refinement, scientific advancement, private sector investment, and disciplined quality assurance. Today, it stands as both a national asset and a continental anchor for agricultural progress.

$800 Million

Value of South Africa Seed industry for the 2024-2025 season.

The South African seed industry was estimated to be valued at 800 million Dollars for the 2024-2025 season. While this represents only a fraction of total agricultural output, its influence is disproportionate. Improved seed is one of the highest-return inputs in farming. It determines yield ceilings, disease resistance, input efficiency, water use performance, and increasingly, climate adaptability.

In staple grains and oilseeds, improved varieties directly affect food security and trade competitiveness. In horticulture and fresh produce, the impact is even more visible to consumers. Modern varieties are bred not only for yield, but for uniformity, flavour, shelf life, transport resilience, and post-harvest performance. The success of South Africa's fresh produce exports — whether citrus, vegetables, or specialty crops — depends fundamentally on genetic quality. Shelf life is no longer a secondary trait; it is a strategic one. Seed innovation now influences how long produce can withstand transportation, maintain visual quality on supermarket shelves, and meet stringent export standards.

The strength of South Africa's seed system rests on five defining pillars.

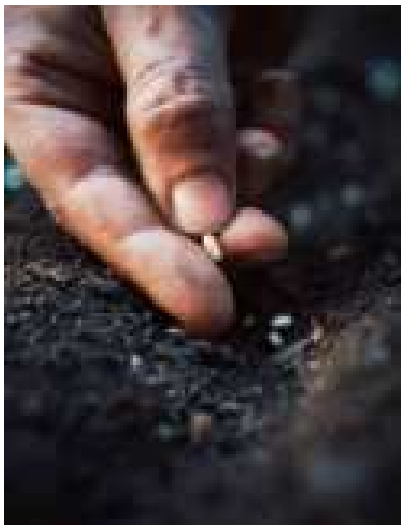
First, regulatory certainty. A clear legislative framework governing variety registration, certification, and plant breeders' rights has created stability and predictability. Investors and breeders require confidence that innovation will be protected. South Africa has built that confidence.

Second, strong private sector participation. Over time, breeding has evolved into a predominantly private-sector-driven ecosystem, supported by advanced research platforms and global germplasm exchange. This has allowed local adaptation while maintaining international competitiveness.

Third, a rigorous certification system. Quality assurance through field inspections, laboratory testing, and traceability safeguards genetic integrity. Certification is not a procedural obligation; it is the mechanism through which trust is built across the value chain — from breeder to farmer to processor to consumer.

Fourth, a responsive and commercially oriented farming sector. South African farmers are technically skilled and performance-focused. Their demand for improved varieties drives innovation cycles and accelerates adoption of superior genetics.

Fifth, infrastructure and trade integration. Efficient production systems, seed



processing facilities, and logistics networks enable both domestic

distribution, regional and global export. South Africa is not only a market; it is a production hub for the world.

The scale of certified seed production reflects this maturity. Recent pruduction hectares planted for certification illustrate the backbone of our system. Groundnuts account for 11,938 hectares under certification. Maize represents 7,895 hectares. Soybeans stand at 5,803 hectares. Wheat comprises 4,690 hectares, and dry beans account for 3,207 hectares.

These figures are more than statistics. They represent structured grower networks, technical oversight, and disciplined compliance. They demonstrate diversification across staple crops and protein value chains, as well as strategic crops critical for food security.

Innovation within the sector is increasingly shaped by the realities of climate variability. Irregular rainfall, rising temperatures, and evolving pest pressures demand continuous adaptation. Modern breeding programs integrate advanced selection technologies to develop varieties that are more resilient, resource-efficient, and adaptable to specific agro-ecological zones.

At the same time, the seed sector's role in fresh produce continues to expand. Consumer expectations are rising. Markets demand uniform size, consistent taste profiles, improved transportability, and reduced post-harvest losses. Seed innovation is central to meeting these standards. The varieties selected today determine tomorrow's export viability and retail competitiveness.

South Africa's leadership within the continent lies in alignment. Regulation, technical expertise, private investment, and farmer adoption function cohesively. This alignment enables the country to serve as a gateway for improved genetics into broader African markets. It also positions South Africa as a reference point in conversations around regulatory harmonization and seed system development.

Yet leadership carries responsibility. The continent faces pressing challenges: climate stress, rising food demand, youth unemployment, and the need for sustainable intensification. A robust seed system is foundational to addressing each of these challenges.

Accelerating regional harmonization of seed regulations remains one of the most strategic priorities. Mutual recognition of variety testing data and aligned certification protocols would reduce duplication, lower costs, and shorten time-to-market for improved genetics. This would expand farmer access and strengthen food security across borders.

Equally important is inclusion. Women and youth participation in seed multiplication, distribution, and agribusiness strengthens both social equity and economic resilience. Structured partnerships, training initiatives, and enterprise development programs are gradually broadening access to the value chain. The sustainability of Africa's seed sector depends on nurturing the next generation of innovators and entrepreneurs.

As South Africa prepares to host the 2026 African seed industry congress, the opportunity is not merely to showcase infrastructure or policy frameworks. It is to demonstrate a functioning ecosystem — one where regulatory clarity, scientific innovation, commercial discipline, and farmer performance intersect.

Africa's agricultural future will be shaped in access to the best genetics adaptable to local conditions and consumer preferences. It will be shaped by the quiet but disciplined work of ensuring that every seed planted carries the highest possible potential.

Seed is small in physical dimension, yet vast in strategic significance. It is the beginning of productivity, the enabler of quality, and the guardian of resilience. If Africa is to achieve food security, export competitiveness, and inclusive agricultural growth, it must continue to strengthen its seed systems.

South Africa stands ready to contribute — not as a solitary actor, but as a committed continental partner in building the next era of agricultural progress

Empowering the Seed Sector:

Leadership and Vision at SANSOR

Dr Lukeshni Chetty - General Manager of the South African National Seed Organisation (SANSOR)

Email: lukeshni@sansor.co.za

1. Tell us about your seed association. What it does, where it operates, and the role you play as a leader?

SANSOR was formally established in 1989 as the representative body for the South African Seed Industry. SANSOR was an amalgamation of other seed associations viz. The SA Hybrid Maize Organisation, The SA Vegetable Growers Association and the SA Forage Seed Association. We are a unified, single voice for the seed sector and represent the industry on all seed related matters. We are based in Pretoria, Gauteng, South Africa. My role is to direct and oversee the organisation's strategy as laid out by the SANSOR board; and lead a team of passionate and enthusiastic young people to support our members.

2. What inspired you to enter the seed business? Was there a defining moment that set you on this path?

Without seed we have no food, no future, no life. I studied Genetics at the University of the Free State and completed my doctorate in Genetics in 2009. During my studies I fell in love with DNA. This led me to a research role which then led me to the seed industry. By joining SANSOR as General Manager in 2012, I've found more purpose in advocating for seed security and food security solutions. We are proud to know that our members are dedicated to providing the agricultural sector – from gardeners, backyard farmers, small-scale producers to large commercial farmers, with quality seed. Serving our members translates into also serving those who produce food for all.

> **"By joining SANSOR as General Manager in 2012, I've found more purpose in advocating for seed security and food security solutions."**

3. How has the association evolved over time? From crops and R&D to markets, partnerships, and logistics.

Our organisation has grown significantly in both stature and impact over the years. While seed certification remains a core part of SANSOR's mandate, our role has expanded considerably. Today, we are actively involved in youth and career development, knowledge sharing, and industry liaison, while also creating meaningful engagement platforms for our members.

In addition, we support relevant research initiatives that contribute to the advancement and sustainability of the seed sector. Through these efforts, SANSOR continues to strengthen collaboration across the industry and support the growth of South Africa's seed value chain.

4. Do you have international or regional partnerships, and how have these shaped your growth?

We are members of the International Seed Federation as well as other regional seed associations. Being a part of these organizations has helped us access knowledge and support for our members on key topics as well as help them trade across the world.

5. As a woman leader, how have you intentionally supported women within your company or value chain? Are there specific programs or practices you are proud of?

At SANSOR, we are proud to have strong female representation within our team. Of our 13 team members, 10 are women serving in a range of roles, including senior leadership positions. Creating an environment where women can grow, lead, and contribute meaningfully is something I value deeply.

Last year, we also hosted a Women in Agriculture Luncheon in honour of National Women's Day. The event celebrated the achievements of women in agriculture and created a valuable platform for women across South Africa's agricultural sector to connect, share experiences, motivate one another, and build supportive professional networks.

6. What do you see as the key ingredients for building a relevant and successful seed association in Africa today?

A strong board that is composed of members that understand seed business in that country, a sound financial model to ensure stability and functions of the association and a highly skilled and passionate team. And lastly, members to bring it all together.

7. What major milestones or success stories stand out under your leadership?

Several milestones stand out during my tenure. In 2016, we implemented an online seed sales portal, which has made it much easier and more efficient for SANSOR members to submit seed sales data used in developing industry market intelligence reports.

Another significant achievement was the establishment of an end-point royalty system for self-pollinated crops, developed in collaboration with farmer organizations. This initiative helps support ongoing plant breeding and technological innovation in the seed sector.

In addition, SANSOR's membership has grown substantially over the past decade, with increased engagement and active participation from members across various committees, further strengthening collaboration and representation within the industry.

8. Can you share a snapshot of your organization's scale - key members served, policy development, etc?

SANSOR currently represents a total of 125 members, of which 80 are bona fide seed companies involved in breeding, producing, marketing, importing, and exporting seed. Our membership also includes associate members across the seed value chain who contribute to the development and growth of the industry. Through this diverse membership base, SANSOR plays an important role in supporting policy dialogue, industry coordination, and the continued advancement of South Africa's seed sector.

9. How has your workforce grown, and what role does talent development play in your business strategy?

In the last decade our association grew from 6 staff (only 4 were full time), to 13 full time team members. We are now properly capacitated to support members in phytosanitary matters, science and policy, research, technical seed matters as well as seed certification services

10. The seed sector remains largely male-dominated. What challenges have you faced as a woman, and how have you navigated or overcome them?

Competence alone does not always guarantee respect. Building trust and demonstrating that you deserve a seat at the table takes time, whether you are a man or a woman. However, women often have to work harder to overcome preconceived biases and perceptions.

For me, the key has been to remain focused, consistent, and confident in my abilities while allowing my work and leadership to speak for themselves. Encouragingly, the number of women pursuing careers in STEM continues to grow, and we are excited to see increasing diversity and representation in the sector.

This shift will undoubtedly strengthen the industry and bring new perspectives to the table.

11. If you could change three things in Africa's seed sector to improve efficiency and competitiveness, what would they be?

First, I would ensure that Plant Variety Protection (PVP) systems are properly implemented and enforced across Africa. Strong protection frameworks are essential to encourage investment in plant breeding, innovation, and the development of improved crop varieties.

Second, I would support the establishment and strengthening of national seed associations in key countries. These organizations play a critical role in representing seed companies, facilitating dialogue with policymakers, and supporting the development of strong and well-

coordinated seed industries. Finally, I would invest more in African-led research and innovation by supporting organizations and research institutions that are developing solutions tailored to the continent's unique agricultural challenges. Promoting home-grown innovations will help ensure that farmers have access to technologies and seed varieties that are well suited to local conditions.

12. Beyond government, who are your key partners (private sector, NGOs, research institutions), and how do these collaborations add value?

Farmer organisations are our clients and key partners for sustainable agriculture and the implementation of innovation.

13. What kind of support would make the biggest difference for your business — from government, development partners, or organizations like AFSTA?

We would like to see AFSTA continue to grow from strength to strength. A strong AFSTA plays an important role in supporting national seed associations like SANSOR by creating opportunities for collaboration, knowledge sharing, and regional alignment. In particular, strengthening AFSTA's capacity will help organizations such as SANSOR better support their members in expanding seed trade across the African continent and accessing new regional markets.

14. How does regional harmonization of seed regulations affect your organization and members in Southern Africa, and what progress would you like to see?

Harmonised seed regulations will help our organization and members by facilitating trade and variety release, opening regional markets. We would like to see full implementation across all member states, more streamlined procedures, a financially sustainable operating model, improved administrative support for cataloguing, and stronger capacity building to address ongoing challenges such as domestication of regulations, additional pilot projects, and the need for a common regional position on GM seed.

15. What lessons or advice would you share with young entrepreneurs, especially women, aspiring to enter the seed sector?

There is nothing that can stop you but yourself, so believe in yourself and surround yourself with knowledgeable people and mentors.

16. Finally, what message would you like readers to take away about leadership, resilience, and the future of Africa's seed industry?

Don't underestimate the potential Africa has to provide solutions for food security, climate resilience and poverty reduction. We need to be more mindful of our resources, talents and abilities to provide our own solutions for our farmers, industry and nation!

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From Local Fields to Continental Impact:

Starke Ayres' Journey in African Seeds

As told by Nereshenee Namdayal
Nereshnee.ramdayal@starkeayres.com

1. What is the name of your seed company, and when was it established?

My name is Nereshnee Namdayal, and I serve as the Africa Subsidiary Director at Starke Ayres. Established in 1877, Starke Ayres is a leading South African seed company with over a century of experience in developing, producing, and supplying high-quality seed. Today, we proudly serve commercial growers and home gardeners across Africa and beyond, helping farmers achieve better yields and stronger crops.

2. What motivated you to start this company, and what problem were you aiming to solve in the seed sector?

Starke Ayres was created to help farmers improve their yields by providing reliable seed that performs well in their local conditions. At the time, many farmers struggled with varieties that weren't suited to their climate or soil. The company set out to solve that problem by offering seed that could help growers produce healthier crops and improve their livelihoods.

3. How has the company evolved since inception in terms of crop portfolio, market presence, and partnerships across the value chain?

Over the years, we have expanded from a small seed business into a company offering a broad range of vegetable varieties, as well as a strong retail range for home gardeners and small growers. We now operate across Southern and Sub-Saharan Africa, supported by partnerships with researchers, seed producers, distributors, and farmers. Our research and development capabilities have grown substantially, and our in-house quality control lab allows us to test and monitor every batch of seed to international standards.

4. What distinguishes your company from others in the seed industry? (Please describe your core value proposition.)

Our strength lies in breeding and testing varieties for local

conditions, and then working closely with farmers to help them succeed. We invest heavily in trials, research, and on-the-ground technical support so farmers can plant seeds they trust and rely on.

5. Where do you currently market and sell your certified seed (domestically and/or internationally)?

We supply certified seed across Southern Africa and several other African countries. International customers are supported through our subsidiaries, local distributors, and long-standing global partnerships.

6. Do you have any international affiliations or strategic partnerships? If so, how have they contributed to your growth?

Starke Ayres is an active member of global seed organisations such as The African Seed Trade Association (AFSTA), The American Seed Trade Association (ASTA), Asia and Pacific Seed Alliance (APSA), and The International Seed Federation (ISF). These networks give us access to shared research, regulatory discussions, and industry best practices, helping us improve our products and reach new markets.

7. Who are your key partners beyond government institutions (e.g., private sector, research institutions, NGOs)?

We collaborate closely with private seed producers, universities, research institutions, distributors, farmer organizations, and NGOs dedicated to food security and agricultural development.

8. What has your seed production volume (in tonnage) been over the past three years?

We produce significant volumes (900 tons) of seed every three (3) years across a range of crops, supported by strong production and quality-management systems.

9. How many employees does your company currently have, and how has your workforce grown over time?

Our team includes 590 permanent staff and around 190 temporary employees across breeding, production, marketing, technical support, and operations. Our workforce has grown steadily as our markets and production needs have expanded.

10. Are there any specific programs or initiatives within your company aimed at empowering women?

We support women through inclusive recruitment, leadership development, and mentorship opportunities. We encourage women to pursue careers in science, agriculture, and leadership roles. We also host Women's Day events focused on personal and professional growth.

11. As a woman in a traditionally male-dominated seed sector, what challenges have you faced, and how have you addressed them?

The seed sector is still male-dominated, especially in technical and leadership roles. Navigating expectations, both personal and professional, has sometimes been challenging. I have addressed this by building strong networks, staying results-focused, and advocating for more inclusive leadership and diverse teams.

12. What key factors do you believe are essential for building a successful seed business in Africa?

Success in Africa requires strong breeding programmes, reliable production systems, good distribution networks, meaningful engagement with farmers, and clear

regulatory frameworks that support movement of seed across borders.

13. What major milestones or success stories have your company achieved under your leadership?

We have strengthened our African footprint, launched new high-performing varieties, refreshed our marketing, and deepened partnerships across the value chain. This helps farmers grow better crops and supports regional food security.

14. How does regional harmonization of seed regulations affect your business operations within the Southern African region?

Aligned seed regulations allow us to register varieties faster, avoid duplicate trials, and move quality seed across borders more efficiently. This gives farmers quicker access to improved varieties.

15. If you could change three things in the seed sector to improve efficiency and competitiveness, what would they be and why?

I would first accelerate and better align variety registration processes, ensuring that new seed varieties reach farmers more quickly and reliably. Second, I would strengthen measures against counterfeit seeds, enforcing quality standards to protect farmers' investments and build trust in the sector. Finally, I would increase investment in breeding programs and capacity building, fostering innovation, developing climate-resilient seeds, and strengthening the skills and expertise needed for a robust and competitive seed industry.

16. What support do you need from government, development partners, or AFSTA to enhance your company's growth and international competitiveness?

We need support in regulatory alignment, infrastructure development, research funding, and training programmes for seed producers and regulators. AFSTA plays an important role in coordinating these priorities across the region.

17. What lessons or advice would you share with aspiring seed entrepreneurs, particularly women?

For aspiring seed entrepreneurs, particularly women, I would advise building strong technical knowledge, cultivating a broad network, seeking mentorship, and maintaining resilience in the face of challenges. Women bring unique perspectives and strengths to agriculture, and their skills and leadership are critical for driving innovation and growth in the seed sector.

18. Is there any additional information or perspective you would like to share?

The seed sector plays a critical role in Africa's food security and economic growth. Continued investment in innovation, partnerships, and inclusive leadership will shape the success of future farmers and the broader industry.

'For aspiring seed entrepreneurs, particularly women, I would advise building strong technical knowledge, cultivating a broad network, seeking mentorship, and maintaining resilience in the face of challenges.'

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Tomato Mazao F1

- Excellent plant Vigor
- It produces uniform clusters with ideal size & shape
- Uniform and attractive deep red fruits
- Excellent Fruit firmness
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Onion Red Crown F1

- High yielding with excellent market qualities
- Matures in 75-85 days
- Deep red, medium to large bulbs
- Thin neck with excellent curing ability
- Yield potential: 24 tons per acre
- Stores up to 5 months
- Tolerant to pink root, downy mildew & purple blotch

Squash Riziki F1

- Early Maturity (40 - 45 days)
- Open plant with less spines for easy harvesting
- High yield potential (7-9 tons/acre)
- Medium to dark green straight fruits
- Very good fruit quality
- Intermediate resistance to ZYMV

Cabbage Baraka F1

- Maturity: 80 - 90 days
- High yielding bluish green round heads.
- Weighing about 4-6 kg
- Good field holding capacity
- Tolerant to black rot, ring spot & fusarium yellows.

Fodder Beet Feldherr

- High yielding with light orange bulbs
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Seeds of Change:

Tackling the Challenges of Seed Trade and Movement in Africa

By Kulani Machaba (PhD), Past AFSTA President and current AFSTA Board Member

Agriculture remains the backbone of Africa's economy, employing millions and feeding billions. The seed industry is one of the most important industries at the heart of agricultural development in Africa. Yet, despite the importance of access to high quality seed for all farmers across the African Continent, the trade and movement of seeds in Africa face persistent challenges that limit development.

According to the FAOSTATS and World Bank (2023), Cereal yields in an average grain yield of about 2.1 tonnes per hectare, which is about 49% below the global average. There a are a few countries such as South Africa, Egypt, Kenya, Zambia that achieve higher yields attributed to high technology usage and better access to high quality seeds.

49%

Percentage below global average for cereal yield per hectare in Africa

This article will highlight some factors that limit farmers' access to high quality seeds, and steps that AFSTA has been engaged in the past five years to improve the situation.

1. **Poor Access to Quality Seeds**
   Many African farmers rely on informal seed systems, saving seeds from previous harvests or exchanging them with neighbors. While these practices are valuable for tradition and local adaptation, they often result in seeds with low germination rates, susceptibility to disease, and reduced yields.

   AFSTA has been working with National Seed Trade Associations (NSTAs) to urge authorities to expand seed certification programs, granting the NSTAs to self-regulate and set participation in seed certification schemes, and strengthening extension services using member companies to ensure farmers have access to high-quality seeds. Through funding from various partners that include the Gates Foundation and CLI, AFTSTA has partnered with NSTAs to conduct farmers training days and webinars (train-the-trainer programs) in the past five years in Nigeria, Malawi, Ghana, Senegal, Kenya ,and Ivory Coast.

2. **Weak Regulatory Frameworks**
   Inconsistent seed regulations, slow variety release processes, and complex cross-border laws hinder the rapid availability of improved varieties and limit regional trade. AFSTA has participated in programs to ensure harmonizing seed policies across regions, simplifying registration processes, and promoting regional seed trade agreements can strengthen seed movement and availability.

Some of the specific interventions made by AFSTA in the past five years include the following:

- Partnership with Common Market for Eastern and Southern Africa (COMESA) to sensitize stakeholders on the implementation of the regional harmonized seed trade regulations in the 21 member states under COMSHIP.
- Engaged with East African Community (EAC) in the development and implementation of the EAC regional seed law.
- Participation in ARIPO/ UPOV initiatives to support a harmonized Plant Variety Protection (PVP) law across Africa and discuss the ratification of the ARIPO protocol on Plant Variety Protection

- Partnership with the Integrated Seed Sector Development (ISSD) on improvement of access to quality seeds by smallholder farmers in Africa.

3. **Poor Storage and Distribution**
Even when seeds are available, inadequate storage facilities and weak distribution networks lead to spoilage and reduce access in remote areas.
The seed industry (NSTAs) in collaboration with AFSTA and various donors has been urging government authorities to create favorable climate for agricultural infrastructure investments, including investing inn modern storage infrastructure, developing rural distribution networks, and removing cross-border trade barriers that cause lengthy delays when seed in being transported from a seed production hub to neighboring countries. Recent experiences whereby some country authorities put trade embargoes and stop seed either from leaving or entering their countries citing reasons such as phytosanitary issues, drought and food security have a negative impact on regional trade and foo security. This is because it is currently not feasible to have a seed production hub established in several corners of the 54 countries of the African Continent, and when one country unilaterally implements trade embargoes, this tends to result in retaliatory policies by neighboring countries thus negatively impacting seed trade/movement and farmers' access to quality seeds.

4. **Slow adoption of technology**
Continued reliance on low-yield seeds, being late adopters on technologies that improve farming productivity such high-yielding genetics, precision resource management, and environmental control to maximize productivity, innovations that include CRISPR gene editing for drought/pest resistance, AI-powered precision planting, drone-based monitoring, and advanced seed coating technologies that boost germination has a negative impact on African based farmers. Although many African countries are Parties to the Cartagena Protocol on Biosafety and are obligated by this international law to enact functional biosafety laws, as of 2026, only 11 countries out of 54 had enacted functional biosafety laws. On the genome editing regulations, things are mobbing faster with more that 12 countries (and more following) having clarified their legal position on genome editing.

AFSTA is continuing to work with NSTAs, the African Union and international partners to ensure that faster implementation of functional biosafety frameworks to enable investment in African agriculture.

Addressing the above-mentioned obstacles is crucial not only for boosting yields but also for ensuring food security and sustainable livelihoods across the continent. The trajectory in the African seed trade is positive, as the government authorities are now working close with NSTAs and the seed industry and AFSTA to implement favorable investment policies and improve predictability for R&D and trading investments.

'AFSTA is continuing to work with NSTAs, the African Union and international partners to ensure that faster implementation of functional biosafety frameworks to enable investment in African agriculture.'

Figure 3. A picture capturing some of the keynote speakers, APBA officials and session moderators at the recent APBA conference that was held at the Victoria Falls, Zimbabwe. Over 400 participants attended the conference.

The Status of Plant Breeding and Innovation in Africa

By Damaris Achieng Odeny,President, APBA and Principal Scientist, ICRISAT – East and Southern Africa

Plant breeding in Africa is undergoing a major transformation, shifting from conventional selection approaches toward modern, integrated, data-driven, and innovation-enabled systems. This transition is driven by mounting pressures including rapid population growth, climate variability, emerging pests and diseases, soil degradation, changing consumer and market demands, and the need to reduce dependence on food imports while improving smallholder livelihoods. Encouragingly, Africa's crop improvement community has grown significantly in technical capacity and confidence, supported by stronger regional networks, expanded partnerships, improved access to modern breeding tools, and increasingly supportive policy environments.

Increasing national budgets to agriculture: A key enabling factor for this transformation is rising public investment in agriculture. Africa has experienced the world's fastest agricultural sector growth since the early 2000s, prompting greater political recognition of agriculture's strategic importance. Between 2019 and 2024, several countries including Mali, Ethiopia, Benin, Malawi, and Zimbabwe met or exceeded the Comprehensive Africa Agriculture Development Program (CAADP) target of allocating at least 10% of national budgets to agriculture (Figure 1). Evidence shows that increased agricultural spending, particularly when accompanied by higher investment in research, drives productivity growth. While overall funding levels remain insufficient, recent progress provides a strong foundation for sustained agricultural innovation.

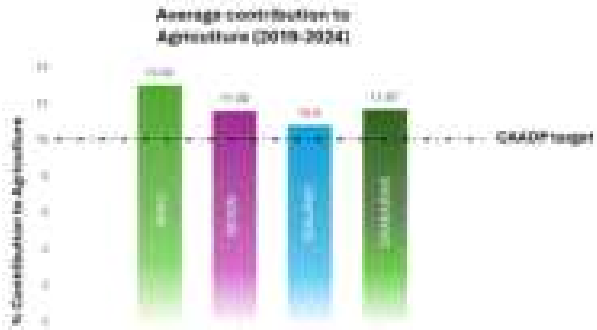

Figure 1: Examples of countries in Africa that have met, or exceeded the CAADP target contribution of national budget to agriculture of 10%

From conventional to modern breeding methods: At the technical level, breeding programs are moving decisively from conventional to modern breeding methods. Collaboration between CGIAR and National Agricultural Research and Education Systems (NARES) has been instrumental in this shift, particularly through breeding networks and shared platforms. The Excellence in Breeding initiative has expanded access to publicly available molecular markers, enabling most African NARES programs to routinely use low- and mid-density

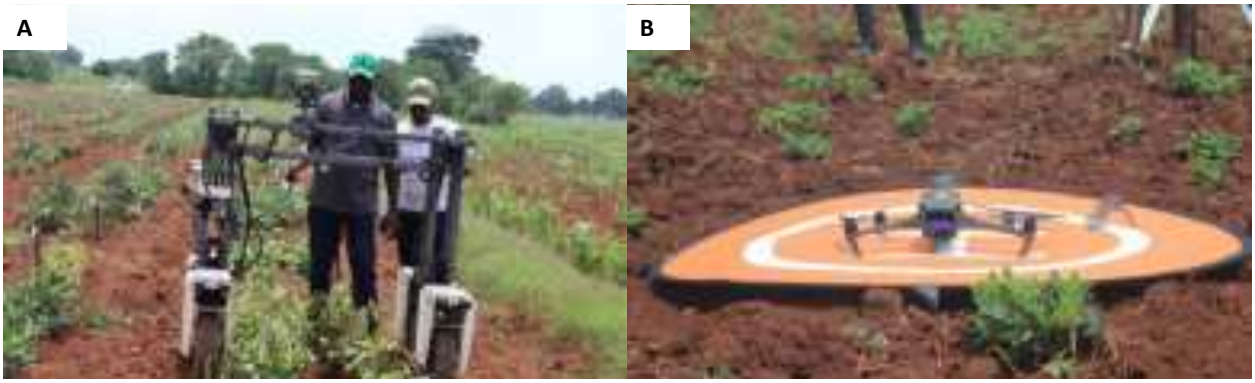

Figure 2: A demonstration of actual use of high throughput phenotyping in research fields in Uganda. A. High throughput data capture at pod filling stage of cowpea using a Rover at Makerere University Agricultural Research Institute Kabanyolo (MUARIK) experimental field. Picture credit, Dr. Dramadri Isaac Onziga of MaRCCI, Makerere University, Uganda. B. A DJI Mavic 3 multispectral drone used for mapping groundnut experimental field in Uganda. Photo Credit, Mr. Ivan Papu of NaSARRI, Uganda.

markers for quality control, population improvement, genomics-assisted selection, and variety tracking. Improved and standardized phenotyping - often supported by tools such as drones and sensors (Figure 2) - has enabled earlier and more accurate selection for complex traits such as drought tolerance, yield stability, and nutritional quality.

From single to multiple trait selection: Breeding objectives have also evolved from single-trait selection toward multi-trait improvement. Modern programs increasingly combine yield with resilience traits such as tolerance to drought and heat, resistance to pests and diseases, and improvements in grain quality, nutrition, and processing characteristics. This approach is now widely applied across major cereals and legumes, including maize, sorghum, millet, rice, wheat, cowpea, common bean, and groundnut, as well as roots and tubers such as cassava and sweetpotato.

Exploiting native crop species: Another important shift is the growing focus on indigenous and underutilized crop species. These crops often play critical roles in nutrition, climate resilience, and cultural food systems but have historically received limited research investment. Recent initiatives such as the Vision for Adapted Crops and Soils (VACS), launched in 2024, aim to improve seven adapted crops highly relevant to African farming systems, including finger millet, Bambara groundnut, pigeonpea, sesame, taro, amaranth, and okra. Earlier efforts such as the African Orphan Crops Consortium laid the groundwork by advancing genomic resources for nutritious indigenous crops. Several countries, including Kenya, are now integrating these crops into academic and research programs.

Digital transformation: Digital transformation has become a central pillar of breeding modernization. Breeding informatics and data management systems are increasingly viewed as core infrastructure rather than optional tools. Platforms such as the Breeding Management System (BMS) and the newer Enterprise Breeding System (EBS) enable breeders to manage product profiles, design trials, capture metadata, analyze results, and guide selection decisions more effectively. These systems support end-to-end breeding pipelines, from crossing strategies and multi-location testing to variety release and seed scale-up.

Integrating nutrition quality: Nutrition has become a central breeding priority as African consumers grow more health-conscious and urban markets expand. Biofortified crop varieties - such as vitamin A cassava and maize, iron- and zinc-rich beans and pearl millet, zinc sorghum, and vitamin A sweet potato have been released and adopted. Nigeria has introduced minimum micronutrient standards for biofortified maize varieties, integrating nutrition requirements into formal variety release systems. Regional economic communities, including COMESA, SADC, and ECOWAS, are discussing harmonized nutrition standards to facilitate cross-border varietal release and seed trade.

Towards routine gene and genome editing: Biotechnology applications are also advancing. While earlier use focused on tissue culture, diagnostics, and molecular markers, several countries are now exploring genetic engineering and genome editing. Genome editing is emerging as a promising accelerator of innovation, especially in countries such as Kenya, Nigeria, Malawi, and Rwanda, where regulatory frameworks exempt certain gene-edited products from stringent GMO biosafety regulations.

Functional seed systems: Functional seed systems are increasingly recognized as inseparable from effective breeding. Organizations such as AGRA have played a catalytic role in strengthening seed systems through policy reform, capacity building, agro-dealer network development, and financing across the seed value chain. A key message for the future is that breeding and seed systems must be planned and developed together to ensure impact at scale.

Broader partnerships: Africa's progress has been supported by a broad ecosystem of partnerships involving NARES, CGIAR centers, regional bodies, development partners, philanthropic organizations, and the private sector. These collaborations have strengthened training, laboratory infrastructure, shared trial networks, and access to germplasm and breeding tools. Within this ecosystem, the African Plant Breeders Association (APBA; Figure 3) has emerged as a central platform for collaboration, capacity building, and advocacy, rapidly establishing itself as a driver of breeding innovation across the continent. Launched in 2019, APBA is the continent's largest network of academics and professionals committed to the advancement of plant genetics and breeding in Africa.

Challenges: Despite significant progress, challenges remain. Unstable financing, infrastructure gaps, limited expertise in quantitative genetics and data science, regulatory fragmentation, and adoption barriers linked to farmer and market preferences continue to constrain impact. Addressing these challenges will require sustained investment, policy coherence, and long-term commitment to fully realize the potential of modern plant breeding in Africa.

Breeders and Farmers Rights:

A Complementary Path

By Maya Muler, Manager, Corporate Communications, East West Seed

Email:maya.muller@eastwestseed.com

Debates around Plant Variety Protection (PVP) and farmers' rights are often presented as a tension between innovation and tradition or farmer's seed system. In practice, however, a well-designed national PVP's system shows that strong breeders' rights and clearly articulated farmers' rights can be complementary and mutually reinforcing, contributing to resilient and inclusive seed systems across Africa.

A robust PVP framework, aligned with UPOV 1991, can provide the security needed for breeders to invest in the development of locally adapted varieties; particularly vegetables that address climate variability, disease pressure, and evolving market demand. Such investments are essential to ensuring a diverse pipeline of improved varieties for African farmers can continue. At the same time, national legislation has the opportunity to reflect local farming realities by recognizing farmers' traditional practices, including saving, using, and exchanging seed for their own use, in line with national priorities and socio-economic contexts. When carefully balanced, these provisions can coexist with effective PVP systems and support freedom of choice for farmers.

Experience across emerging seed markets suggests that farmers adopt commercial seed not due to obligation, but because it delivers tangible value, such as yield stability, uniformity, and traits preferred by markets. Where informal systems continue to play an important role, improved varieties can still reach farmers through partnerships, capacity building, and contract seed production, illustrating that formal and informal seed systems are not necessarily in opposition but can evolve alongside each other.

For East-West Seed, trust from farmers is fundamental. Our business depends on farmers choosing our seed because it meets their needs and contributes to their livelihoods. This trust underpins our long-term engagement with farming communities and local seed value chains.

Ultimately, the discussion for African agriculture may not be about choosing between protecting breeders or farmers, but about designing balanced and pragmatic policies that support both. A well-calibrated PVP framework can encourage innovation, expand farmer choice, strengthen local seed production, and contribute to food security and sustainable agricultural development.

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Transforming Seed Systems for a Food-Secure Africa

By Seed Systems Group

As Africa's agricultural landscape continues to evolve in the face of climate change, population growth, and market volatility, one element remains central to food resilience and crop productivity: quality seed. Seed Systems Group (SSG), a nonprofit organization headquartered in Nairobi, Kenya, and with a regional office in Lome, Togo, is redefining how smallholder farmers access improved varieties through an innovative, scalable public–private partnership model that strengthens entire seed value chains.

Founded in 2019 and backed by global and continental partners, SSG interventions target primarily African countries and communities, left behind in the African Green Revolution, to ensure that even the most remote farmers can reliably access climate-resilient, high-yielding seed of staple crops. A very important asset of SSG is that it couples deep knowledge of plant breeding with established expertise in seed sector development to catalyze sustainable growth in national seed systems.
For SSG, all farmers deserve good seed.

An organization devoted to achieving African Food Security

Vision: All of Africa free from hunger, malnutrition and poverty and capable of adapting to climate change.

Mission: To ensure that every farmer across Africa has access to affordable, high-quality seed for a wide range of nutritious food crops.

Since its inception, SSG has grounded its work in evidence. Its initial 15-country feasibility studies, conducted between June 2019 to February 2021, in collaboration with Cornell University and Sathguru Consulting (in Angola, Benin, Burundi, Cameroon, Chad, Congo Republic, Côte d'Ivoire, DR Congo, Eritrea, Guinea, Madagascar, Niger, Senegal, Sierra Leone, and Togo), laid the foundation for a five-year strategy guiding national food system transformation through sustainable seed system development. This strategy is accessible on SSG's website (seedsystemsgroup.org/resources) and continues to guide the organization's expansion across the continent.

A Proven Model for Sustainable Seed Systems

SSG employs a four-component public-private partnership model that has demonstrated proof-of-concept across East,

West, and Southern Africa. Its strength lies in its sustainability and adaptability across crops and socio-economic contexts. Below are the components:

1. **Variety Testing and Early-Generation Seed**

SSG partners with National Agricultural Research Institutions (NARIs) to identify, evaluate, and release promising crop varieties, and to multiply foundation seeds for local seed companies.

2. **Development of Private Seed Companies**

SSG trains and supports emerging seed companies to produce certified seeds at scale for the market and for small seed packs dedicated to raising farmer awareness. The small seed packs (50–100 g) are used as the entry point for farmers to test and adopt improved varieties.

3. **Farmer Awareness Raising**

Through collaboration with Farm Input Promotions Africa (FIPS) and extension delivery units in each country, SSG recruits and trains volunteer farmers known as Village-Based Advisors (VBAs) to host demonstration plots, distribute small packs, and support farmer learning within their communities.

4. **Rural Agro-Dealer Development**

To ensure last-mile delivery, SSG trains and provides small grants to community-level owners of small input shops known as agro-dealerships. High-performing VBAs with interest in seed business are included in this support.

Achievements to Date

As of year 2025, SSG has conducted seed systems development projects in 15 African countries namely Burundi, Côte d'Ivoire, Democratic Republic of Congo (DRC), Djibouti, Eritrea, Ghana, Guinea-Bissau, Kenya, Madagascar, Malawi, Senegal, Sierra Leone, Somalia, South Sudan, and Togo.

SSG has facilitated 288 crop performance trials and the release of 67 climate-resilient, high-yielding, and nutrient-dense varieties of multiple staple crops including maize, rice, sorghum, finger millet, pearl millet, pigeon pea, wheat, barley, beans, chickpea, cowpea, groundnut, mungbean, amaranth, vegetables including tomato, onion, eggplant, okra, and forage crops including Sudangrass and panicum. These improved varieties help farmers adapt to climate change, increase incomes, and enhance nutrition. A total of 153 MT of foundation seeds has been produced through the NARIs, enabling the production of 6,370 MT of certified seeds by 53 local seed companies and individual producers. More than 1 million farmers have been reached with over 2.6 million small packs of certified seeds.

A Landmark Breakthrough: Hybrid Maize Seed Production in left-behind countries

SSG has facilitated the first-ever hybrid maize seed production in Burundi, DRC, Eritrea, Madagascar, Somalia, South Sudan, and Togo. This milestone has set the stage for dramatically higher maize yields, reduced import dependence, and long-term competitiveness for national seed sectors.

Investing in the Next Generation of Seed Leaders

Recognizing that sustainable seed systems depend on strong human capital, SSG has so far awarded 10 MSc fellowships in Plant Breeding:

- 6 fellows from Eritrea at Makerere University
- 4 fellows from Somalia at the University of Zimbabwe

These are the future plant breeders, seed regulators, and seed company leaders who will drive national seed systems forward.

Strong Partnerships, Expanding Impact

SSG collaborates with an extensive network of partners, including:

- **National governments:** In each of the 15 countries, SSG is guided by Ministries of Agriculture on national priorities and linkages with national units of breeding research and extension.
- **Funders:** World Food Program, IFAD, IDRC, AGRA, The Rockefeller Foundation, USAID*, USDA, World Bank, Feed the Future Innovation Lab for Crop Improvement, Vanguard Charitable, Seeds of Change, Sall Family Foundation, and SAHEL Consulting.
- **Technical partners:** CIMMYT, IITA, ICRISAT, AfricaRice, CORAF, FIPS Africa, International Potato Center (CIP), WorldVeg, Cornell University, and Purdue University.

These partnerships ensure that SSG's approaches are science-driven, locally anchored, and built for lasting impact.

A Future Built on High-Yielding Adapted Seed

As Africa advances towards greater food security and climate resilience, quality seed remains fundamental to agricultural growth. Through its proven model, strong partnerships, and commitment to sustainability, SSG continues to accelerate adoption of diverse and nutritious improved seed, strengthen local enterprises, and build the enabling environments needed for thriving national seed sectors.

SSG is dedicated to ensuring that Africa's farmers—wherever they are—have access to the seed they need for a better, more resilient future. Because All farmers deserve good seed!

Photo Caption: Farmers in Northern Ghana receive pearl millet small seed packs.

Seed Systems Strengthening:

The Role of the Africa Seed Trade Association (AFSTA) in Advancing a Demand-Led Seed System

By Grace Gitu (Former AFSTA Technical Manager)
Managing Director, Africa Farmer Needs at Farm Level Initiative (AFNEED)

Introduction

Current data suggests that only 20–30% of African farmers have access to quality certified seeds, despite the continent's immense growth potential. A primary driver of this limitation is the traditional supply-driven seed system that currently dominates this landscape.

While supply-driven systems focus on breeding improved varieties and expanding certified seed production, they often fail to achieve widespread farmers' adoption. Farmers often face limited varieties choice, poor access to varieties that align with their agro-ecological conditions, cultural preferences and market requirements.

A demand-led seed system reverses this logic by placing farmers and markets at the center of innovation and decision-making. By prioritizing varieties that respond to climate risks, nutritional needs and market opportunities, this approach strengthens the feedback loops between breeders, seed companies and policymakers. As the apex institution representing the African seed industry, the Africa Seed Trade Association (AFSTA) plays a critical role in bridging the gap between research and the real-world needs of farmers.

Strengthening a demand-led seed system is not only a technical priority but also an opportunity to grow the Africa global seed market share (estimated 2% of USD 80 billion value), Africa intra-regional seed trade (estimated 17%), and achieving inclusive agricultural growth and resilient food systems in the continent.

AFSTA as a Catalyst for Demand-Led Systems

1. **Translating Research into Scalable Solutions**
   In Africa, public and private research institutions have for many years developed hundreds of improved crop varieties, yet many remain underutilized without effective commercialization pathways. AFSTA as the champion of private seed companies' interests, has a critical role in translating these scientific innovations into usable products for farmers
   - AFSTA can strengthen "last-mile" delivery by supporting seed companies through licensing agreements, seed multiplication and branding efforts.
   - Utilizing the proximity of seed companies to local communities to enhance crop research adaptation to local contexts, increasing both relevance and adoption rates.

2. **Driving Private Sector–Led Seed Markets**
The private seed companies play a critical role in structural shift of the Africa seed systems. The private seed companies reshape seed markets, enhance competitiveness, improve seed quality and expands farmer seed choices. AFSTA has the potential to drive inclusive seed market development that reduces reliance on inefficient traditional supply-driven seed system, thus stimulating transformation of the Africa agriculture

- In collaboration with National Seed Trade Associations (NSTAs), AFSTA should develop seed information platforms to help companies identify niche market signals.
- Such information must leverage partnerships with agro-dealers and inputs distributors to enable efficient seed supply chains that improve access, reduce transaction costs and expand farmer choice.

3. **Enhancing Diversity and Climate Resilience**
Climate change is intensifying food production risks and malnutrition in Africa. Demand-led systems are uniquely positioned to address these challenges by prioritizing climate-resilient and nutrient-dense varieties.

Seed companies in Africa, must focus on climate-smart and nutrient-dense varieties that address the challenges of climate change on food production. When embedded within demand-led seed systems, these innovations respond not only to agronomic needs but also to food security, nutritional and market demand.

- AFSTA should strengthen its Special Interest Groups (SIGs) to help companies align investments with Africa climate adaptation and nutrition objectives while creating synergies across multiple development priorities, including the United Nations Sustainable Development Goals (SDGs).
- This ensures that seed innovation serves the dual purpose of agronomic success and continental food security.

4. **Strengthening Data and Digital Innovation**
A responsive seed system requires accurate and reliable data on farmer preferences and market trends. Digital tools can significantly reduce the information asymmetries that currently constrain market development.

- AFSTA must advocate for digital platforms, such as a searchable Africa Digital Crop Variety Catalogue and updated regulatory frameworks that support real-time data collection.
- This enhances transparency and market intelligence service as the pillars of a truly responsive, demand-led system.

5. **Supporting Policy and Regulatory Reform**
A demand-led system can only flourish in an enabling policy environment. Robust seed laws and quality assurance mechanisms are essential for building investor trust.

- AFSTA must provide evidence-based insights to Africa national governments, regional blocks (e.g., EAC, COMESA, ECOWAS), Africa Union(AfCFTA), global institutions (UPOV, ISPM, IPPC etc), development partners and seed companies to harmonize regulations, eliminate regulatory bottlenecks and strengthen regulatory systems that increase production and access of early generation and certified seed among all African countries.
- Harmonizing regulatory efforts help AFSTA to fosters a cohesive regulatory environment that increases the production of early-generation and certified seeds, and facilitate seed companies move quality seeds to farmers.

Conclusion

AFSTA is the essential link between research, markets, and the smallholder farmer. By driving the shift toward a demand-led model, AFSTA will accelerate technology adoption, enhance climate resilience, and unlock sustainable livelihoods across the continent. Ultimately, positioning private seed companies as engines of growth is the most viable pathway toward a resilient agricultural transformation in Africa.

The Seeds That Changed Everything:

Nigeria's GMO Success Story

Rose Gidado, Ph.D., Abraham Isah, Ph.D., Tignegre Jean Baptiste, Ph.D., Sanni Kayode, Ph.D, Ndirpaya Yarama, Ph.D, Njuguna Joyce.

Across the rural landscapes of Nigeria, a quiet revolution is unfolding. It is not loud or political, nor is it driven by theory or debate. Instead, it is carried on the backs of farmers - men and women who rise before the sun, who know the scent of the soil, and who understand the difference between promise and reality. For them, genetically modified crops are not an abstract concept; they are the difference between loss and security, between struggle and stability, between hoping for a good harvest and finally achieving one. This is why Nigerian farmers are increasingly happy with GMOs: because the technology is transforming their lives in ways that are real, measurable, and deeply felt.

For decades, cowpea farmers in Nigeria lived with a familiar dread, the growing season once began with anxiety. The Maruca vitrata pod borer, a tiny insect capable of wiping out entire fields, controlled their destiny. In bad years, farmers lost between 20% and 80% of their harvests, and in the worst cases, they lost everything. To protect their fields, farmers sprayed pesticides six to ten times each season, often without proper protective equipment. Spraying was expensive. It burned the skin, irritated the eyes, provoked headaches, and stole precious hours from farmers - especially women, who often bore the burden of pesticide application. And for all this effort, the pest continued to win.

The commercial release of World's first genetically modified cowpea otherwise known as Pod Borer-Resistant Cowpea (PBRC), SAMPEA 20-T in 2019 changed this story dramatically marking a turning point. In 2021, From the moment farmers started planting, they began to notice improvements. In the subsequeent years, farmers planted cowpea without fear. The variety provides almost complete protection against the Maruca pod borer allowing them to reclaim their harvests. Yields surged - 20 percent higher in moderate pest seasons and up to 100 percent higher when infestations were severe. Fields that once failed began to flourish. Farmers describe the experience simply healthier harvests that restored hope and confidence. "It brought back hope." With PBRC, the number of pesticide sprays dropped from as many as ten to just two. The savings, between $25 and $37 per hectare became meaningful contributions to school fees, household food, and small investments that strengthened rural livelihoods. Women, in particular, gained back time and health that had been lost to years of unsafe spraying practices.

As word travelled from farmer to farmer, adoption expanded rapidly. Each season, more farmers requested seed, and certified seed production rose to meet the demand. By 2024, nearly half a million kilograms of PBRC seed had circulated across Nigeria, reaching almost a quarter of a million households. What began as a scientific breakthrough has become a community-driven movement powered by trust, results, and the lived experiences of farmers whose lives have been changed. The economic impact extends beyond individual households. Studies by IFPRI project that PBRC will generate an estimated $350 million in economic benefits, with $258 million going directly to farmers. For every dollar invested in developing PBRC, the Nigerian economy gains twenty-six dollars in return. For smallholder farmers, these gains have translated into concrete improvements in their livelihoods. Adoption of PBRC has grown rapidly as farmers have shared their experiences with neighbors and community members. Demand for seed increased steadily, leading to a significant rise in certified seed production.

Year	Certified seeds Produced	Farmers Reached
2020	7 MT	3,500 farmers
2021	11.7 MT	5,859 farmers
2022	36.17 MT	18,088 farmers
2023	40.71 MT	40,750 farmers
2024	489.8 MT	244,900 farmers

The remarkable surge in 2024 demonstrates how widely PBRC has been embraced. Nearly half a million kilograms of certified seed reached close to a quarter of a million farmers. What began as a scientific innovation has become a story of hope, resilience, and transformation for farming communities across Nigeria.

A similar transformation is taking place in maize fields through the introduction of TELA maize hybrids, SAMMAZ 72T, 73T, 74T, and 75T, released for commercial cultivation in 2024. These varieties carry triple protection against fall armyworm, stem

Scattered peas from mini-bucket with green pods, tomato, asparagus flat lying on wooden wall.jpg

borers, and drought. For maize farmers, who for years battled destructive pests and unpredictable rainfall, TELA hybrids are proving to be a lifeline. During the 2024 wet season, farmers growing TELA maize harvested nearly twice as much grain as those using conventional varieties. The difference was striking: TELA fields averaged 5.9 tonnes per hectare, compared with just over 3 tonnes from non-TELA fields. The hybrid's resilience under drought conditions was especially remarkable. Farmers reported that even after weeks without rain, the crop remained vigorous, its leaves green and its stalks sturdy.

'Nigerian farmers are embracing GMOs because the technology works for them'

What truly won farmers over, however, was the dramatic reduction in pest damage. While non-TELA maize suffered extensive harm, almost 60 percent damage in some cases, TELA maize remained largely protected. As a result, farmers who once sprayed pesticides an average of four times per season found that one spray, sometimes none at all, was enough. The economic benefits were immediate. By the end of the season, TELA farmers earned 137 percent more in net revenue than their counterparts. Many spoke of the "peace of mind" that came from planting a crop that would not betray them when the rains failed or when the armyworm marched across neighbouring fields.

Cotton farmers, too, are rediscovering confidence thanks to biotechnology. The cultivation of Mahyco BG-II cotton between 2019 and 2024 covered roughly 20,900 hectares across Nigeria, bringing relief to farmers who had endured years of inconsistent yield and relentless pest pressure. With improved insect resistance, superior lint quality, and reduced spraying requirements, GM cotton is helping restore a once-vibrant sector. In 2025 alone, 750 hectares of biotech cotton were cultivated, signalling renewed interest in a crop that had long been in decline.

Taken together, these experiences reveal a powerful truth: Nigerian farmers are embracing GMOs because the technology works for them. They deliver higher yields, lower input costs, better health outcomes, and more dependable harvests. They replace fear with confidence and uncertainty with security. For many households, this means more food on the table, stable income, and the ability to send children to school. For communities, it means stronger local economies and greater resilience in the face of climate stress. And for the country, it means progress toward food security grounded in science, innovation, and farmer-led adoption.

The story of GMOs in Nigeria is not one of controversy, but of transformation - fields reborn, burdens lifted, and rural livelihoods strengthened. When farmers speak about PBRC cowpea, TELA maize, or biotech cotton, they speak not in technical terms but from the heart: "It saved my crop." "It reduced my stress." "It gave me a better life." These testimonies, spoken in countless languages across Nigeria's diverse landscapes, form the most compelling reason why Nigerian farmers are happy with GMOs: because they have seen the benefits, felt the impact, and chosen the future for themselves.

Strengthening Zimbabwe's Rice Seed Systems For Import Substitution and Regional Trade

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Setting the Context: Import Substitution, Food Security, and Seed Policy

Zimbabwe's agricultural policy increasingly emphasises import substitution as a strategy for strengthening food security, conserving foreign currency, and building resilient domestic value chains. Within this framework, high demand food commodities that remain heavily import dependent, such as rice, have been prioritised for local production and agro industrial development.

Rice consumption has expanded rapidly in urban and peri urban markets, outpacing domestic supply and sustaining reliance on extra regional imports. While rice is now embedded in national diets, production systems (particularly seed systems), have lagged behind demand. This mismatch has limited productivity, constrained private investment, and weakened prospects for regional trade.

Recognising this gap, the Scientific and Industrial Research and Development Centre (SIRDC) has positioned rice as a strategic entry point for strengthening seed systems that support import substitution, private sector participation, and long term competitiveness. By investing in locally adapted varieties and structured seed multiplication, the programme fosters a better environment for trade and innovation in quality seed, in line with AFSTA's mission and Africa's broader food security agenda.

From Research to Fields: Developing Market Ready Rice Varieties

Rice production in Zimbabwe has traditionally been concentrated in vlei systems, often characterised by low yields, informal seed use, and weak integration into structured markets. To address these constraints, SIRDC, in collaboration with the Korea–Africa Food and Agriculture Cooperation Initiative (KAFACI), developed and released two improved rice varieties: SIRDARICE 201 and SIRDARICE 301.

These short and medium duration varieties respectively, suited to both irrigated and upland systems, mature within four to five months, enabling flexible cropping calendars and

double cropping opportunities. Under research station and farmer trials, they out yield commonly grown local checks NERICA and MHARA by about 20–30%, with typical on farm yields ranging from 4.7 to 8.0 t/ha under irrigation. While NERICA and MHARA played an important role as earlier improved rice options, their yield potential and grain quality are now surpassed by the newer SIRDARICE varieties, which combine higher productivity with superior grain quality and stronger market appeal.
Beyond yield, the varieties exhibit good grain quality, milling recovery, and high consumer acceptance. Participatory Variety Selection trials and farmer demonstrations validated agronomic performance, water use efficiency, and pest resilience under real production conditions. Organoleptic assessments involving farmers, millers, and consumers confirmed preference for SIRDARICE varieties in taste, texture, and cooking quality.

This participatory, evidence based approach has strengthened farmer confidence, accelerated adoption, and provided policymakers with credible justification to support irrigation based rice expansion.

Establishing a Structured and Sustainable Rice Seed Pipeline

Varietal development alone does not guarantee impact. For rice to contribute meaningfully to import substitution and trade, productivity gains must rest on a reliable, quality assured seed system. SIRDC has therefore established a structured rice seed pipeline covering breeder, foundation, and certified seed stages.

Breeder seed is maintained under controlled conditions at research stations, followed by foundation seed production and certified seed bulking by trained growers and emerging seed enterprises under regulatory supervision. This system shifts farmers away from recycled grain, often linked to declining yields and disease build up toward certified seed.

The rice seed pipeline also creates business opportunities for seed SMEs, out growers, and agro dealers, who lead in seed multiplication, distribution, and service provision. This strengthens the commercial base of the rice sector while expanding farmer access to improved varieties. By embedding quality assurance and varietal purity protocols, the system reinforces trust in certified seed and prepares Zimbabwe for participation in harmonised regional seed markets, where traceability and standards compliance are essential.

Partnerships, Policy Alignment, and Trade Readiness

The rice seed programme is anchored in multi stakeholder partnerships spanning public research institutions, extension services, irrigation management authorities, seed regulators, and the private sector. Regional initiatives such as KAFACI provide technical and financial support, while national extension systems promote farmer training, technology dissemination, and formation of local seed businesses.

These efforts align with Zimbabwe's policy objectives on import substitution, agro industrialisation, and value chain development, while also resonating with continental agendas on seed harmonisation and regional trade. As Zimbabwe builds a performance track record with SIRDARICE varieties, opportunities are emerging to position these varieties in regional seed catalogues and supply certified seed to neighbouring markets such as Mozambique, Zambia, and Malawi. This shift from national adoption to regional trade reflects AFSTA's vision of integrated, competitive, private sector led African seed systems.

Climate Smart Irrigation and Scaling Pathways

SIRDARICE varieties suit Zimbabwe's expanding irrigation infrastructure, especially in the low veld and middle veld, where demand for high yielding rice is growing. Their short maturity profiles enable double cropping, boosting land and water productivity, while tolerance to intermittent water stress supports climate resilient farming. Scaling efforts integrate climate smart practices such as alternate wetting and drying, integrated nutrient and pest management, and digital advisory tools supporting irrigation scheduling.

Field evidence suggests that if 30–40% of irrigated rice farmers adopt SIRDARICE varieties, national production could rise by over 20,000 tonnes annually, saving foreign currency and raising rural incomes. Unlocking this potential requires stronger public–private partnerships to expand certified seed production, link with millers and traders, and recognise rice as a strategic irrigation crop.

Policy Implications and Conclusions

SIRDC's experience shows how seed system development can drive import substitution, private sector growth, and regional trade integration. Through participatory breeding, structured seed multiplication, quality assurance, and policy alignment, the programme is transforming rice from a subsistence crop into a market oriented commodity.

For policymakers, it highlights seed systems as essential for food security and trade; for seed companies and agro dealers, it signals commercial opportunities tied to irrigation expansion and steady demand for certified seed. Regionally, it offers a model for positioning African bred varieties in harmonised seed markets. Overall, the SIRDARICE experience demonstrates how innovation in quality seed and a supportive seed trade environment can deliver tangible gains for farmers, enterprises, and national economies.

Get the seed right, and the market will follow

By International Maize and Wheat Improvement Center (CIMMYT)
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Success in Africa's seed markets is rarely about a single breakthrough. Managing risk at every step, from early testing and selection to commercialization and sustained demand, is critical in providing farmers with a robust variety. Without testing the varieties widely to expose them to the different stresses, even strong genetics can fail. The demand for maize, dryland crops (sorghum and pearl millet), and wheat is increasing due to population growth, urbanization, and dietary changes. These opportunities come with the associated risks of imperfect seed markets and regulations that may hinder further investments.

Across the sector, familiar questions persist. Which varieties will perform reliably across environments? How much testing is enough before committing resources? How do you build demand in markets where awareness does not always translate into seed sales? And how do you shorten the time between testing and identifying a variety to be commercialized?

CIMMYT works with seed companies to solve these questions in practical ways. By combining access to elite genetics, large-scale testing, modern breeding methods and tools, and appropriate delivery solutions, CIMMYT helps companies move from uncertainty to evidence-based decision-making across crops. There is strong evidence that this approach is shaping seed markets across the region.

For crop varieties that CIMMYT and our partners develop, the challenge remains to scale and maintain consistent, excellent performance. Products must perform under drought, pest, and disease pressure across millions of hectares. For example, CIMMYT-derived maize hybrids are estimated to cover about 8.4mhectares across Sub-Saharan Africa, with more than 205,000 metric tons of certified seed produced in 2024 by the private- and public-sector scaling partners. For many companies, scale is important, and the high adoption of these hybrids is clear evidence that they are not just high-performing in trials but are also commercially viable in their markets.

CIMMYT's maize delivery pathway shows how breeding, testing, and seed system services support seed companies to develop, commercialize, and scale competitive maize products. Scan the QR code to explore CIMMYT's maize products and services.

CIMMYT's maize delivery pathway shows how breeding, testing, and seed system services support seed companies to develop, commercialize, and scale competitive maize products. Scan the QR code to explore CIMMYT's maize products and services.

For dryland crops, one of the key challenges is identifying the most promising entry points in diverse and often high-risk environments. Unlike maize, the seed value chain of dryland crops has not received extensive investment by the private sector. CIMMYT has encouraged the participation of seed companies by including them in the evaluation process. This approach provides the private sector with opportunities to evaluate their industry preferences and participate in formal commercialization discussions. At the same time, delivery models such as farmer hubs, aggregators, and input layaway approaches are showing how demand for sorghum, pearl millet, groundnut, pigeon pea, and chickpea can be built and sustained when seed is linked to grain markets.

In wheat, seed companies operate in a high-risk, high-demand market. Disease outbreaks, particularly rusts, can wipe out years of investment in a single season, while demand across Africa continues to rise to an estimated 55–60m tons annually. Domestic production has not kept pace, with over 30m metric tons imported in 2024/25 alone, exposing markets to price volatility and supply shocks. In this context, access to reliable, disease-resilient genetics and performance data is essential for protecting both farmer confidence and commercial returns.

Maize Doubled Haploid (DH) Facility – Kiboko; 2) Main Research Farm – Kiboko; 3) Fall Armyworm (FAW) Screening Facility – Kiboko; 4) New Wheat Pathology Greenhouse; 5) MLN Screening Facility – Naivasha. critical infrastructure supporting faster development of resilient crop varieties for Africa.

Partnering with CIMMYT: Driving technology development and delivery for Africa's seed sector

In maize, CIMMYT works with seed companies through platforms like the International Maize Improvement Consortium for Africa (IMIC-Africa), providing structured access to elite germplasm, phenotyping services, and performance data generated under African conditions. Companies also engage through a wider portfolio of products and services, including licensing hybrids and open-pollinated varieties, doubled haploid production, disease screening e.g., maize lethal necrosis, and access to global maize genetic diversity

In wheat, CIMMYT has reduced development risk by anchoring improvement and testing in global rust hotspots such as Kenya

The Wheat Improvement Network for Africa (WIN-Africa) showing the 16 countries participating in Stage 2 trials, advancing the evaluation and adaptation of improved wheat varieties across diverse agro-ecologies.

and Ethiopia, where more than 700,000 wheat lines have been evaluated. These efforts are supported by rust phenotyping, multi-environment testing, and the Disease Early Warning and Advisory System, which enables proactive disease management. Through the Wheat Improvement Network for Africa (WINA), active in 17 countries, about 95 percent of wheat varieties grown on the continent are derived from CIMMYT germplasm. For seed companies, this means lower research and development risk, stronger market confidence, and wheat products that are reliable and scalable.

For dryland crops, CIMMYT convenes the Africa Dryland Crops Improvement Network (ADCIN), established in 2023, that brings together more than 200 scientists and institutions from over 18 countries across East, Southern, West and Central Africa, and CGIAR centers, focusing on sorghum, pearl millet, cowpea, chickpea, groundnut, pigeonpea, and finger millet. It provides a platform for coordinated breeding, shared data, germplasm, and harmonized testing. This generates credible multi-country performance evidence aligned with national priorities. The network helps seed companies identify promising varieties earlier in the breeding pipeline, providing confidence in evaluation, licensing, and market entry.

Beyond breeding and testing, CIMMYT and partners support seed companies through market analytics that link faster seed supply with stronger demand creation. Irrigation-enabled off-season multiplication systems are shortening the time from early generation seed to commercial volumes. Evidence from maize markets in East Africa shows that trusted performance information improves agro-dealer stocking choices and significantly increases farmers' choice of the best hybrids, translating into higher sales of newer varieties. CIMMYT economists and marketing experts support targeted social marketing, point-of-sale tools, and digital promotion to improve returns on marketing investment.

Ultimately, CIMMYT gives seed companies an edge where it matters most. The consortium membership in maize, and collaboratively generated evidence in dryland crops and wheat enables companies to get access to quality seed. By lowering risk, speeding up market entry, and providing evidence for decision-making, CIMMYT helps seed companies develop products that can compete, grow, and succeed across Africa's diverse agro-ecologies and evolving seed markets.

Scan Code to learn more about CIMMYT Dryland Crops

Cultivating Leadership:

Women, Youth, and the Future of Seed Systems in Northern Ghana

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In Northern Ghana, a region marked by climate vulnerability and entrenched poverty, the development of a robust and modern seed system is a critical pillar for achieving food security and economic resilience. Policymakers at national and regional levels have identified seed policy harmonization, particularly under the Economic Community of West African States (ECOWAS), as a powerful mechanism to transform the sector. By streamlining cross-border trade, certifying quality, and expanding market access, harmonization promises significant efficiency gains. However, this technical and market-focused discourse frequently overlooks a fundamental social question: harmonization for whom?

For seed policy harmonization in Northern Ghana to be truly transformative and sustainable, it must be clearly and intentionally designed to foster the leadership and economic inclusion of women and youth. Regulatory efficiency and social inclusion are not separate objectives but are closely linked. A harmonized system will only reach its full potential if it actively dismantles the structural barriers faced by these groups and systematically channels new opportunities toward them. Through an analysis of the disconnect between high-level policy and on-the-ground realities, this article proposes a framework for inclusive harmonization, offering concrete recommendations to ensure the process cultivates a new generation of equitable seed sector leadership.

Barriers to Inclusion

Cultural and social barriers form a primary layer of exclusion. Deeply entrenched patriarchal norms dictate a rigid gender-based division of labor, confining women to subsistence food crops while men control high-value commercial seed production. Women are systematically excluded from key decision-making forums where seed contracts and information are shared. Furthermore, customary land tenure systems that favor male inheritance leave women with insecure, temporary access to land, disqualifying them from using it as collateral and discouraging long-term investment. For youth, agriculture is often perceived as unattractive, backbreaking labor with low prestige, fueling rural-to-urban migration, while young women face societal pressures prioritizing early marriage over entrepreneurship.

These social norms translate directly into tangible economic and resource barriers. Without land title, women are deemed high-risk by formal financial institutions, forcing reliance on insufficient informal loans. Youth face similar challenges due to a lack of credit history. This severely limits access to quality foundation seed, irrigation, and machinery. Women also have lesser access to extension services and critical inputs like fertilizers. A significant digital divide further marginalizes both groups, cutting them off from modern tools for market information, seed tracking, and mobile banking. Consequently, women and youth are often relegated to low-value tasks like seed cleaning and packaging rather than profitable multiplication and sales.

Compounding these issues is policy and institutional barriers. National and ECOWAS harmonization policies remain largely gender-blind and youth-blind, focusing on technical standards without mandatory social inclusion clauses. Where inclusive policies exist, implementation is weak; training is ill-suited to women's literacy levels and time constraints, and quotas are rarely enforced. Moreover, the bureaucratic process to become a certified seed producer is complex, costly, and centralized, effectively barring entry for resource-poor women and youth in Northern communities.

Harnessing Seed Policy Harmonization as a Tool for Inclusion

Harmonization can create direct pathways for participation through digital policy design. Digital seed certification and traceability platforms must be developed with accessible, mobile-first interfaces and paired with targeted digital literacy training. This would allow women and youth to avoid traditional exclusionary networks. Furthermore, harmonized standards for seed producer accreditation should include incentives or criteria for enterprises demonstrating inclusive hiring or outgrower networks, making equity a benchmark for market access.

Furthermore, the economic promise of an integrated regional market must be deliberately channeled. Regional certification schemes will enable successful woman-led enterprises, like Dinmbone Farm Gates in Northern Ghana, to scale up by selling certified seeds across borders. For youth, the larger market creates demand for allied services in digital marketing, logistics, and quality assurance. To unlock this potential, harmonization must be paired with targeted financial instruments, such as venture funds and loan guarantee schemes that accept group-based or movable asset collateral.

Ultimately, the highest opportunity lies in using harmonization to catalyze a structural shift in governance. The reform process creates an imperative to revise the charters of national seed committees and regional task forces. Mandating meaningful representation for women and youth in these regulatory bodies ensures the rules of the new system are co-created by those it intends to benefit. This transforms them from passive beneficiaries into active architects of a resilient seed future.

Recommendations for an Inclusive Pathway

Transforming this opportunity into reality requires concrete, actionable strategies that embed inclusion at the core of the harmonization agenda.

1. Regional and national seed policies must incorporate binding social inclusion clauses. This includes legislating quotas for women and youth representation on all seed regulatory committees and linking a percentage of public seed procurement contracts to businesses with proven inclusive leadership or supply networks. Inclusion must be a condition for support, not an optional virtue.
2. Governments and development partners must establish dedicated financial products for women and youth-led agribusinesses. Concurrently, the rollout of digital platforms for e-commerce and seed traceability must follow global design principles to ensure accessibility, accompanied by compulsory digital skills training programs designed for and delivered to women's and youth groups.
3. Capacity development must evolve beyond one-off training. It requires establishing formal mentorship and succession pathways that connect aspiring entrepreneurs with established experts. Crucially, impact must be measured. National and regional agricultural databases must mandate gender- and age-disaggregated data collection on all key indicators, from licenses issued to seed volumes traded. This creates transparency and accountability, making inclusive growth a visible, tracked outcome of policy.

Conclusion

The future resilience of Northern Ghana's seed sector hinges on its ability to harness the full potential of all its people. While technical harmonization is necessary for market efficiency, it is profoundly insufficient for equitable development. By deliberately redesigning policy frameworks to dismantle barriers, channel opportunities, and cultivate representative leadership, stakeholders can ensure the process of creating integrated markets that builds a more inclusive and dynamic seed industry. True success, therefore, will be measured not just by the tonnage of certified seed traded, but by the growing number of women and youth who are celebrated as owners, leaders, and primary beneficiaries of a truly transformed system.

Scaling Seed Systems Responsibly:

CESSA's Strategic Evolution Toward Market-Responsive Growth

By Evelyn Lusenaka, Director Seed Systems – AGRA

A New Chapter for African Seed Systems

As AGRA marks 20 years of advancing agricultural transformation across Africa, one lesson stands out clearly: resilient seed systems are built through balanced collaboration among smallholder farmers, national research institutions, regulators, seed enterprises, agro-dealers, and financial actors. Sustainable progress happens when these actors align around farmer demand, market realities, and long-term system viability.

As AGRA enters its third decade, the strategic emphasis is evolving from foundational system strengthening toward market-responsive scale and sustainability. This is not a departure from public-good objectives, but a maturation of the ecosystem—ensuring that improved crop varieties reach farmers reliably, affordably, and at scale.

The AGRA Center of Excellence for Seed Systems in Africa (CESSA) is advancing this next phase by supporting coordinated public–private engagement that strengthens farmer choice, enterprise viability, and national seed system resilience through stronger linkages to the markets and financial sectors.

From Varieties to Viable Markets

Over two decades, AGRA has supported national agricultural research systems in releasing nearly 690 improved crop varieties, across more than 18 crops, adapted to diverse agro-ecologies and climate pressures. The focus now is to identify commercially viable, farmer-demanded varieties and facilitate their transition into structured seed value chains through transparent licensing frameworks, coordination on production of Early Generation Seed, and responsible private-sector uptake. This happens when there is a strong market pull that makes farmers enterprises profitable. This approach complements, rather than replaces, farmer-managed seed systems. Resilient seed ecosystems require both formal and informal channels, and farmer choice remains central.

'Africa's seed systems transformation will require coordinated policy leadership, responsive markets, capable enterprises, and empowered farmers.'

AGRA has also supported the growth of nearly 120 local seed enterprises, strengthened human capital across the sector, and contributed to the production of significant volumes of quality seed annually. The next step is ensuring that these capacities translate into reliable market access and sustainable enterprise performance.

Positioning Balanced Public–Private Ecosystems: National seed systems cannot function in isolation from markets. CESSA's evolving strategy is grounded in three pillars:

1. Market-Responsive Coordinatio Strengthening alignment between breeding priorities, farmer demand, off-taker requirements, and enterprise viability. This includes improving Early Generation Seed coordination, enhancing licensing transparency, and supporting enabling business environments. Evolving from a supply-side approach to a private sector demand-driven model. By working closely with AFSTA, CESSA aims to ensure that the incentives of breeding programs are aligned with what seed companies can sell, what offtakers (such as processors, traders, aggregators among others) want to buy, and what smallholder farmers can adopt. This includes incentivizing public- private sector engagement through creating pathways and conducive business environments for private companies to take up best-bet government-bred varieties with clear commercial potential.

2. Operationalizing National Seed Sector Investment Plans (SSIPs) Through the Seed Systems Assessment Tool (SeedSAT), CESSA has supported 11 countries in developing costed seed system investment plans. AGRA is working with governments to adopt these as formal roadmaps to mobilize domestic and external financing, modernize quality assurance

systems, and create predictable policy environments that encourage responsible long-term investments.

3. Scaling Climate-Resilient and Nutritious Varieties for Markets. Climate-smart and biofortified varieties represent both resilience imperatives and market opportunities. AGRA supports structured commercialization pathways that connect these varieties to farmer demand while strengthening enterprise capability and access to finance. CESSA is collaborating with the national research institutes, OneCG and private sector in its program to advance and fast track variety release of focus crops with these traits; mapping commercialization through embedding public -private linkages along the process. AGRAs vision is to facilitate the commercialization of these "market-demanded" varieties, by unlocking opportunities for turning the challenges of climate change and low nutrition into a competitive advantage for African seed businesses.

Leveraging Investment and De-Risking Architecture

Sustainable seed systems require catalytic capital and risk-sharing mechanisms that crowd in long-term domestic and regional investment. By aligning national seed investment plans (roadmaps) with blended finance models, regulatory modernization, and enterprise strengthening, AGRA aims to support a seed ecosystem that is commercially viable while remaining farmer centered.

A Call for Coordinated Leadership

Africa's seed systems transformation will require coordinated policy leadership, responsive markets, capable enterprises, and empowered farmers. CESSA continues to evolve as a strategic continental technical and advisory hub; facilitating dialogue, strengthening coordination, and supporting responsible commercialization that enhances farmer resilience, enterprise sustainability, and national food security.

The next decade will be defined not only by varietal releases, but by the reliability, accessibility, and affordability of seed systems that work for farmers and markets alike to significantly improve adoption rates across the continent
We invite AFSTA members to collaborate with us on:

4. Market -Led Seed Delivery Model: Partnering on scaling a demand-driven, private sector-led seed delivery system to accelerate adoption and varietal turnover of improved crop varieties, in collaboration with OneCG and NARS.
5. Customized Financial Products and Services: Partnering on the engagement of financial service providers to design and deploy innovative, scalable, and sustainable financial products and services tailored to the working capital, infrastructure, and growth needs of seed companies.
6. Capacity Building of local small seed companies to grow and support reduction of seed supply gaps
7. Variety Licensing Pilots: Gaining priority access to high-yielding, market-demanded varieties currently held by National Research Systems across AGRA target countries.
8. EGS Coordination Hubs: Participating in public-private platforms designed to guarantee a steady supply of breeder and foundation seed.
9. Digital Traceability Initiatives: Partnering on the roll-out of modernized certification tools to eliminate counterfeit seed and protect your brand's integrity.
10. Climate-Smart Scaling: Leveraging CESSA's technical and financial advisory to expand your portfolio of drought-tolerant and biofortified seeds.

Increasing access to quality seeds for sustainable and resilient food systems in West and Central Africa

Analysis by the West and Central African Council for Agricultural Research and Development (CORAF)

Key messages

West and Central Africa import approximately 1.2 trillion CFA francs worth of food annually, mainly because of an underdeveloped seed system. High-quality seeds are essential for food sovereignty and climate resilience.

The Regional Catalogue of Species and Varieties of West Africa and the Sahel (CREVAOS) lists over 1,930 improved varieties, but adoption remains low—averaging 25% of certified seed use—and varies by crop and country. In Central Africa, the adoption rate is even lower.

CORAF advises enhancing regional governance and coordination in the seed sector, investing in research and human resources, creating innovative and inclusive financing options, regulating exclusivity models to promote fairness, and facilitating the cross-border movement of quality seeds.

Context

West and Central Africa's persistent dependence on food imports undermines food sovereignty and increases vulnerability to climatic and economic shocks.

Seed systems, which are essential for productivity and resilience, continue to be marked by disparities in governance, limitations in plant breeding research, low adoption of certified seeds, and insufficient involvement of private and community stakeholders.

CORAF, leveraging its regional influence, has examined insights from the 2025 Africa Food Summit (AFS) Forum discussions to determine strategic paths to accelerate the sustainable transformation of seed systems across West and Central Africa. These guidelines are in line with international commitments:

- **SDG 2** *(Zero Hunger)*: ensure food security.
- **SDG 5** *(Gender Equality)*: strengthen women's access to productive resources.
- **SDG 13** *(Climate Action)*: promote resilient practices.

African Union Agenda 2063: aspiration for a prosperous and self-sufficient Africa. Commitment III of the Kampala Declaration is to ensure food and nutrition security by 2035.

Key findings

The analyses resulting from the discussions held at the AFS Forum 2025 highlight systemic constraints that hinder the performance and sustainability of seed systems. These constraints relate to governance and regulatory frameworks, research and innovation capacities, access to finance, social inclusion, and the economic models governing seed production and distribution.

1. **Governance and regulation**
   Harmonised regional regulatory frameworks exist, but their adoption and implementation remain weak and uneven across countries in the community areas. Digital tools for variety management and monitoring remain underused, and seeds from community and smallholder systems are not sufficiently recognised in existing regulatory frameworks.Furthermore, certain traditional vegetable crops and cereals (okra, amaranth, local aubergines, fonio, etc.), which are essential in terms of nutrition, culture, and identity, remain marginal in seed policies, even though they represent a strategic lever for food sovereignty.

2. **Research and innovation**
   The region has more than 1,930 varieties listed in the West African regional catalogue, illustrating the dynamism of varietal research. Although some sorting is needed to eliminate duplicates, this volume of innovation confirms the capacity of research systems to produce solutions adapted to the region's contexts. However, adoption of these varieties by producers remains low, severely limiting their impact on productivity and the resilience of agricultural systems. In many African countries, the quantity of certified seeds producers use falls short of requirements, severely limiting productivity gains, particularly in rain-fed systems. This observation reaffirms the need for greater commitment from governments, donors, and private investors in scaling up new varieties, but also for policies that encourage the promotion of new varieties.Furthermore, human and material capacities remain insufficient in terms of new breeding techniques, particularly in genome editing (CRISPR CAS9) and the use of artificial intelligence. Yet these tools offer significant potential to improve the efficiency of breeding programmes and reduce the time needed to create new varieties. Finally, producers' limited access to green financing restricts their ability to purchase quality seeds. Added to this are weak technical and logistical capacities for quality control and certification, particularly in the horticultural sector. This situation encourages the proliferation of counterfeit seeds on the market, to the detriment of small producers.

'West and Central Africa import approximately 1.2 trillion CFA francs worth of food annually, mainly because of an underdeveloped seed system'

3. **Financing**
   Financing remains one of the main bottlenecks in the development of seed systems in West and Central Africa. In most cases, traditional financial mechanisms are ill-suited to the specific needs of the seed sector and, more particularly, to those of the horticultural sector. The costs of producing, certifying, and distributing improved seed varieties remain high and are often not optimised. This situation hinders local investment, particularly in certain cereal and legume crops that are important for food security (millet, sorghum, cowpea, etc.). It also limits local seed producers' ability to develop viable, competitive business models. Furthermore, young producers and start-ups, which are a strategic lever for modernisation and innovation in the seed sector, face significant difficulties in accessing financing and technical support tailored to their specific needs. This constraint reduces their ability to invest, innovate, and position themselves sustainably in the market. Finally, the lack of green and inclusive financing mechanisms restricts producers' access to quality seeds, particularly for resilient and sustainable agricultural practices. The absence of such mechanisms not only limits the adoption of certified seeds but also the transition to more efficient, inclusive, and environmentally friendly agricultural systems.

4. **Social inclusion**
   Women and young people continue to face significant

barriers to access to land, finance, and decision-making bodies. Yet their potential and contribution are essential to seed production, distribution, and adoption. Greater recognition of their role is a major lever for strengthening the sustainability and equity of seed systems.

5. **Exclusivity and economic models**
Models of partial or total exclusivity rights over new varieties granted to the private sector, which have already been tested by other plant breeding institutions and proven their worth, offer an opportunity to attract private investment when applied to variety distribution. However, their current design, which is often costly and time-consuming, risks excluding small producers and reinforcing dependence on multinationals. A balanced framework of s is needed to secure investment while preserving equity. Horticulture remains the poor relation of the local seed industry, even though its nutritional, economic and value-added importance is undeniable. This imbalance calls for specific incentive policies to mobilise public and private investment in this sector.

Strategic guidelines proposed by CORAF

Strengthen regional seed governance and coordination
CORAF recommends effectively strengthening regional governance of seed systems through accelerated adoption and implementation of harmonised regional regulations in West Africa, the Sahel and Central Africa. This approach aims to reduce disparities between countries and improve the consistency of public and private interventions in the sector.

The dissemination and increased use of regional seed management and monitoring platforms are an essential lever for improving transparency, control and traceability of varieties. At the same time, CORAF recommends strengthening collaboration with the African Union and the AfCFTA to ensure the effective implementation of the African Union's programme on seeds and biotechnology, as well as guidelines for harmonising cross-border seed movement across the continent.

In a context of rapid scientific innovation, the development and implementation of regulatory frameworks on gene editing, biotechnology and biosafety appear essential in order to take advantage of new technologies while ensuring human safety and environmental protection.

Investing in research and human capital
The Council emphasises the strategic importance of investing in human capital in order to strengthen research

and innovation capacities in a sustainable manner. This involves training a new generation of breeders, particularly in horticultural crops, and integrating new breeding techniques through gene editing and biotechnology.

The modernisation of laboratories and quality control infrastructure is also essential to improve the reliability of certification systems and strengthen the confidence of producers and markets. In addition, the development of digitalisation and seed traceability will help to secure seed value chains and facilitate the monitoring of varieties, in order to secure plant genetic resources.

Promoting genetic diversity
Preserving and promoting genetic diversity is a strategic issue for the resilience and sustainability of agricultural systems. CORAF recommends the development of functional gene banks at national and regional levels.
It is also necessary to preserve local and endogenous varieties as strategic resources and to support public maintenance breeding programmes for improved varieties that are endangered or in low demand but are of agronomic, nutritional or cultural interest.

Regulate licensing models for the private sector
To promote private investment while ensuring fairness, CORAF recommends adopting flexible exclusivity models tailored to each country's context. These models should reduce financial obstacles for local seed producers and ensure equitable access to new varieties.
Transparency and fairness in the allocation of exclusivity rights are essential to avoid the exclusion of small producers. In this regard, the dissemination and implementation at the state level of the guidelines developed by the African Organization for Intellectual Property (OAPI) on "*the creation, production and marketing of protected plant varieties*" are an important lever.

Promoting innovative and inclusive financing
CORAF recommends developing specific lines of credit for the seed sector that are better adapted to its cycles and risks. Mobilising climate and environmental financing also represents a major opportunity to support the adoption of resilient and sustainable seeds.
Financial mechanisms accessible to women and young people must be put in place to strengthen their participation and investment capacity in the seed sector.

Strengthening inclusion and gender equality
The sustainable transformation of seed systems requires greater attention to social inclusion and gender equity. CORAF recommends incentives to increase women's and young people's access to land, finance and training schemes.
Recognising their role in seed production and distribution will help to enhance the efficiency, equity and sustainability of seed systems.

Encouraging a responsible private sector
Finally, CORAF calls for creating an environment conducive to the emergence of competitive local seed companies by supporting national and regional seed trade associations.

The development of balanced and environmentally responsible public-private partnerships is essential to strengthen investment, innovation and sustainability in the sector.

CORAF is committed to continuing its role as a regional catalyst, mobilising its partners to build an integrated, competitive and inclusive seed system.

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ASK FOR IT BY NAME

Figure 1: ACTESA Secretariat poses for a group picture with seed stakeholders in the Democratic Republic of Congo during the COMESA's regional seed harmonisation regulations meeting.

Comesa Champions A Transformative Harmonised Seed Regulation System

BY The Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA)

The regional and global agricultural sector has transformed over the past few decades, with 53-percent increase in agricultural output per capita. The evolving agricultural landscapes regionally and globally, particularly for the 21 Common Market for Eastern and Southern Africa (COMESA) Member States, have driven an increased demand for seed production, access, and trade, amidst unstandardised seed laws and regulatory frameworks across COMESA's 21 Member States. Fragmented national seed systems have contributed to low adoption of quality seed among smallholder farmers, with about 23 % of smallholders having access to quality, improved seed varieties, contributing to widespread food insecurity in the region.

This position created a pathway for the COMESA Seed Harmonisation Implementation Programme, commonly referred to as COMSHIP, a regional initiative by the Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA), a Specialised Agency of COMESA, designed to standardise seed laws and regulatory frameworks across COMESA's 21 Member States.

Initiated in 2014, following the adoption of the COMESA Seed Trade Harmonisation Regulations by COMESA Ministers in 2014, COMSHIP contributes to driving the reduction of regulatory fragmentation that has historically constrained regional seed production, trade, and access to improved seed varieties.

As a key step towards driving the COMSHIP agenda on harmonisation efforts, the alignment of the National Seed Regulations to the COMESA Seed Trade Harmonisation Regulations was initiated, with an indication that as of mid-2025, eleven (11) Member States officially gazetted the COMESA Seed Trade Harmonisation Regulations. These include Burundi, Egypt, Ethiopia, Eswatini, Malawi, Rwanda, Kenya, Tunisia, Uganda, Zambia, and Zimbabwe. The Democratic Republic of Congo has kick-started the process, as demonstrated by its submission of its aligned seed laws to parliament for approval.

With official gazetting, the COMESA Member States have fully aligned their National Seed Laws with the COMESA Harmonised Framework, enabling efficient, seamless seed production and distribution across the Member States, devoid of independent national approvals. This represents a major step forward in driving the seed regulation system to boost intra-regional trade and improve food security in the COMESA region.

To complement the COMSHIP initiative, the COMESA Seed Variety Catalogue is an innovative resource platform listing registered seed varieties accepted across compliant Member States. To date, 126 varieties from about 20 seed companies and CGIAR centres have been registered in the COMESA regional catalogue.

This streamlines variety release and commercialisation processes by eliminating repeated evaluation across countries. The platform has evolved, facilitating a seamless process for seed companies in the region to introduce registered varieties to multiple COMESA markets, without national approvals.

In alignment with the COMSHIP and the COMESA Regional Catalogue Systems, the COMESA Seed Information System (COMSIS) is a game-changer that has shifted and transformed seed trade and distribution by facilitating the dissemination of information on available seed varieties, supporting market intelligence for seed companies, tracking variety adoption and trade, including the improvement of stakeholder interaction in the seed value chain. COMSIS has transformed into a key tool for monitoring the performance of the harmonised seed system. The COMSIS digital App has been developed, awaiting its launch. To respond to increasing challenges of seed traceability and quality assurance across borders, the COMESA Regional Seed Labelling and Certification System was recently launched. The system provides standardised regional seed labels, mutual recognition of certification among compliant states, including simplified phytosanitary and market entry procedures. This initiative reinforces ACTESA's commitment to enhancing efficiency and reducing costs for seed producers and exporters across the region.

A spotlight on implementation challenges, embody uneven domestication across Member States: While 11 countries have gazetted harmonised regulations, full regional coverage remains incomplete. Some Member States are yet to align their national seed laws or finalise gazetting.
The COMESA region's potential for quality seed production is estimated at 2 million metric tonnes annually; however, production and access remain below 500,000 MT, significantly limiting the impact on food security.

Forward Looking;
COMSHIP remains a critical regional effort to transform seed regulation, boost intra-regional trade, and improve food security in Eastern and Southern Africa. Although implementation progress has been significant, notably in regulatory alignment, seed variety registration, and digital support systems, achieving full regional harmonisation and tangible impact on smallholder access to quality seeds requires continued concerted effort and political will, including deliberate public -private partnerships to drive the process. In deepening collaboration of co-financing, the COMSHIP is implemented with ACTESA Secretariat financing and technical support from partners including the European Union (EU)'s Regional Enterprise Competitiveness and Access to Markets Programme (RECAMP) and African Agricultural Technology Foundation (AATF)

African Union

TASAI
The African Seed Access Index

AGRA
Sustainably Growing Africa's Food Systems

Announcing the Seed Sector Performance Index (SSPI) 2025 Status Report for Africa

A joint initiative by the African Union Commission (AUC), TASAI Inc., and AGRA, SSPI provides a bird's eye view of the status of national seed systems in Africa. The monitoring tool tracks data for 17 indicators related to seed production, seed utilization, variety release, seed inspection and the performance of national seed associations. As an African Union initiative, SSPI also serves as the seed sector indicator in the CAADP Biennial Review Reports.

The 2025 Status Report follows the publication of the inaugural Report in 2023. It contains seed industry data for 50 African countries. Expected to launch in 2026, the report will be accompanied by an online data dashboard.

The AUC, TASAI, and AGRA are inviting all delegates to preview and validate the 2025 SSPI data in a side event during the 2026 AFSTA Congress. Scan the code below to learn more about how to attend.

SSPI Data validation meeting
March 25, 2026 ~ 16:00-18:00
Inquiries: admin@tasai.org/
WhatsApp: +256 78 788 8801

Seeds That Secure the Future:

How Nigeria's Seed System Is Powering Food Security, Innovation, and Farmer Confidence

By The National Agricultural Seed Council (NASC)

"Seed is the code that determines the success of the entire agricultural value chain." — *Senator Kashim Shettima, GCON, Vice President of the Federal Republic of Nigeria*

Agriculture remains the backbone of Africa's economies, livelihoods, and food systems. Yet, as every farmer knows, the strength of that backbone depends on its first and most critical input: seed. From yield potential to climate resilience, from farmer income to national food sovereignty, seed quality determines outcomes long before the first rains fall.

In Nigeria, this understanding has guided over five decades of structured investment, regulation, and innovation in the seed sector. Today, as Africa faces rising temperatures, population growth, land pressure, and persistent food insecurity, Nigeria's experience, led by the National Agricultural Seed Council (NASC), offers a compelling case study of how strong seed systems translate into real impact on farmers' fields.

The 8th Seed Connect Africa Conference and Exhibition in 2025 marked a historic milestone: 50 years of Nigeria's organized seed system. What began as the National Seed Service has evolved into one of Africa's most structured and influential seed regulatory systems, now recognized both regionally and globally.

At the conference, Nigeria's highest political leadership underscored the strategic importance of seeds to national development. His Excellency Senator Kashim Shettima, GCON, Vice President of the Federal Republic of Nigeria, alongside Senator Abubakar Kyari, CON, Honourable Minister of Agriculture and Food Security, Senator Dr. Aliyu Sabi Abdullahi, Minister of State, and other key stakeholders, launched landmark initiatives that will shape the future of Nigeria's seed industry. These included the Seeds for Renewed Hope Programme (S-RHP), the Nigeria Seed System Strategy Document facilitated by AGRA, the unveiling of the NASC 50th Anniversary Logo commemorating five decades of organized seed development, and the launch of The Seed Book, which documents the evolution and advances of Nigeria's seed industry. Together, these initiatives send a clear policy signal that seed remains central to Nigeria's food security agenda.

'Nigeria's agricultural sector contributes approximately 25% of GDP and supports more than 70% of rural households, yet productivity has historically lagged behind its potential'

Nigeria's agricultural sector contributes approximately 25% of GDP and supports more than 70% of rural households, yet productivity has historically lagged behind its potential. NASC has responded by focusing not only on regulation, but on farmer-facing outcomes that directly influence productivity and income.

In recent years, the Council has supported the release of more than 60 high-yielding, climate-resilient crop varieties through close collaboration with breeders, seed companies, research institutions, and development partners. These varieties are specifically designed to withstand drought, pests, diseases and pressing challenges for farmers operating in increasingly unpredictable climates.

To address persistent bottlenecks such as poor seed quality, delayed certification, and limited access, NASC introduced the Digital Seed Certification System. This innovation has improved traceability, reduced turnaround time for certification, and strengthened farmer confidence in certified seed, ensuring that what is planted in farmers' fields matches what was promised.

Recognizing that efficient seed systems require both strong public oversight and private-sector dynamism, NASC has undertaken bold regulatory reforms. These include the development of the National Crop Varieties Registration and Release Regulations, the National Third-Party Seed Certification Regulations, and the National Early Generation Seed Production (Liberalization) Regulations. Together, these instruments streamline variety release, enhance quality assurance, and open space for private-sector participation in early generation seed (EGS) production, one of the most critical and capital-intensive stages of the seed value chain.

Perhaps the most transformative intervention has been the establishment of the Presidential Catalytic Seed Fund, which operationalizes provisions of the NASC Act. Approved by President Bola Ahmed Tinubu, GCFR, the ₦50 billion revolving Seed Fund, domiciled at the Bank of Industry, offers concessional financing at a 6% interest rate over four years. This fund directly addresses one of the seed sector's longest-standing challenges which is access to affordable finance. It is designed to supports breeding, early generation seed (EGS) production, commercial seed multiplication, regulation, and quality assurance. Ultimately, it ensures that farmers receive timely, affordable, and high-quality seed. The expected impact would be reduced import dependence, strengthened local seed enterprises, improved nutrition, and enhanced national food security.

While quality seed supply is essential, understanding what varieties farmers actually grow has often relied on farmer recall or visual inspection, methods that are prone to error. This gap is being addressed through the IMAGE Project, the Improved Measurement and Evidence for Varietal Adoption through Genotyping. Implemented across Nigeria, Ethiopia, and Tanzania, IMAGE introduced routine genotyping-based varietal monitoring, providing the most accurate method for varietal identification.

"IMAGE was created because countries need a modern, reliable way to know which varieties farmers are actually growing and whether investments are delivering real benefits," project leads explain. For NASC, the project has strengthened national capacity to track adoption and turnover of improved varieties, identify gaps in seed quality and varietal purity, and inform policy, regulation, and private-sector investment decisions. This is not just about data; it is about aligning seed systems with global goals on hunger reduction, poverty alleviation, climate resilience, and health.

Now concluding its six-year investment cycle from 2020 to 2026, IMAGE's most enduring legacy lies in institutionalization. National teams are now equipped to conduct future genotyped surveys, maintain genetic reference libraries, manage data governance systems, and integrate evidence into national planning. Policy recommendations emerging from Nigeria's experience include strengthening coordination within rice seed systems, improving breeder–policymaker linkages, expanding gene bank and irrigation capacity, enhancing extension services with a focus on gender inclusion, and supporting commercialization and quality seed supply. These insights reinforce the value of nationally led varietal monitoring systems rather than time-bound projects.

Sustainability also depends on people. In February 2025, the Plant Variety Protection Office (PVPO), domiciled within NASC, organized the PVPO Youth Training Program with support from AGRA, training 25 young professionals drawn from all 6 geopolitical zones. Participants received hands-on exposure to seed regulation, certification, data management, and breeders' rights, including a study visit to NASC headquarters. For many, it was their first direct engagement with the systems that safeguard seed quality and innovation.

Nigeria's seed sector is now firmly integrated into global and regional frameworks, with active membership in ISTA, UPOV, OECD Seed Schemes, ISF, AFSTA, ARIPO, ECOWAS COASEM, and Africa Seeds. This alignment has strengthened competitiveness and trade. In 2023 alone, Nigeria exported more than 4,000 metric tonnes of certified seed to neighbouring countries, generating over USD 8 million, a clear signal that robust regulation and quality assurance pay dividends.

As Africa looks toward 2050, with a projected population of 2.5 billion, the pathway to food security runs through strong seed systems. Nigeria's experience shows that when policy, regulation, innovation, finance, and human capacity align, seeds become more than inputs—they become instruments of resilience and prosperity. For farmers, the promise is simple but powerful: access to reliable, high-performing seed when they need it. For Africa, it is the foundation of a food-secure future.

Seed Certification:

The Regulatory Standard for Nigerian Agriculture

By Muhammad Auwal
Seed Association of Nigeria (SEEDAN)

In the Nigerian seed sector, the distinction between grain and seed is defined by the law. Certified seed is seed of known genetic origin and guaranteed genetic purity, produced under strictly controlled and tested conditions in accordance with the Law on Seeds. For members of the Seed Entrepreneurs Association of Nigeria (SEEDAN), adhering to these standards is the only way to ensure agricultural productivity and market integrity.

The Certification Process in Nigeria

In Nigeria, certified seed production is supervised by the National Agricultural Seeds Council (NASC) and carried out by registered private seed companies listed in the Seed Register. This oversight ensures that every bag of seed meets specific technical benchmarks before it reaches the farmer.

The process is built on high operational standards:

- **Registered Processing:** Seed processing takes place only in registered seed processing centers to prevent contamination.
- **Accredited Testing:** Quality testing is conducted in accredited seed laboratories to verify germination rates and physical purity.
- **Official Documentation:** After meeting all quality standards, NASC issues official certification labels that are attached to seed packages. These labels serve as proof that the seed meets national standards for purity, germination, and health.

The Impact on Farm Productivity

The effective use of a crop variety's genetic potential both in yield and quality, is only possible through certified seed. For farmers aiming at higher productivity, reduced risk, and increased profit, high-quality seed is not an option; it is a necessity.

- **Predictable Performance:** Because the seeds are genetically pure, the crop grows and matures uniformly. This is essential for farmers selling to industrial off takers who require standardized raw materials.
- **Resource Efficiency:** Certified seed ensures that investments in fertilizer and crop protection chemicals are not wasted on low-potential or diseased plants.
- **Disease Control:** Field inspections and laboratory tests prevent the distribution of seed-borne pathogens, protecting the farm from avoidable losses.

Challenges to Industry Growth

Despite the clear benefits, the formal seed sector faces competition from the informal market and the sale of substandard seeds.

- **Counterfeit Products:** Unlabeled seeds sold in rural markets often fail to germinate, causing significant financial loss to farmers and damaging the reputation of the industry.
- **Adoption Rates:** There is a continued need to demonstrate to smallholder farmers that the cost of certified seed is offset by the reduction in risk and the increase in final harvest value.

In conclusion, a robust certification system is the foundation of a competitive seed industry. By following the standards set by the NASC and the Seed Register, SEEDAN members provide the reliable inputs necessary for Nigeria's food security. When the quality of the seed is guaranteed, the farmer has a reliable foundation for a successful season.

SEEDLIFE CÔTE D'IVOIRE: Towards a More Structured and Dynamic Seed Sector

By Guy Joseph LIABRA
President, SEEDLIFE Côte d'Ivoire

1. National Priority and Structuring Investments

Côte d'Ivoire has now placed seeds at the heart of its food security strategy. In a country where agriculture employs nearly 66% of the active population and where food crop yields remain below potential (≈ 2 t/ha for maize, 2.8 t/ha for rice, 15 t/ha for cassava), genetic improvement is recognized as a key lever for agricultural transformation.

This political commitment is reflected in the creation of a dedicated Directorate for Seeds, Fertilizers and Related Products (DSEPA) and in an ambitious regulatory reform: updating the National Seed and Plant Policy, a new ECOWAS-aligned draft law, and strengthened mechanisms for accreditation, approval, certification, and varietal protection.

All major agricultural programs include a structuring seed component: 2PAU-CI (AfDB financing), PDC2V (World Bank financing), 2PAI Bélier and 2PAI Nord (mixed financing). These programs all promote access to certified seeds, the development of climate-resilient varieties, and the training of seed multipliers, confirming the cross-cutting role of seeds in public investments.

2. Market Dynamics

Market realities remain mixed: approximately 80% of seeds in circulation still come from the informal sector. The formal sector is dominated by imports, with a growing share of hybrids, particularly in maize.

3. SEEDLIFE CI: A Structuring Commitment to the Sector

SEEDLIFE Côte d'Ivoire, created in 2024, is the National Association of Professional Seed Companies in Côte d'Ivoire. It brings together formalized companies involved in the breeding, production, and distribution of certified seeds. Its mission is to contribute to seed security and the professionalization of the sector. Its members notably include BAYER WEST-CENTRAL AFRICA, MAS SEEDS CI, UPL CALLIVOIRE, RMG CI, SEMIVOIRE, SOLEVO CI, GSN AFRIQUE, A2P, CORTEVA, PALMELIT CI, and LIDEA.

In response to sector challenges, SEEDLIFE CI is firmly committed to building synergies with the State through DSEPA and technical sector institutions, notably AfricaSeeds, CNRA, WAVE Research, and the Abidjan Legacy Program. SEEDLIFE CI also supports the establishment of professional master's programs in seed science in partnership with the UFR Biosciences of Félix Houphouët-Boigny University.

4. Challenges and Prospects

Significant challenges remain: the predominance of the informal sector, insufficient production of basic and pre-basic seeds, and the need to strengthen technical and statistical capacities. Strategic priorities include the development of a National Seed Master Plan, certification to international standards (OECD, ISTA), effective protection of varietal property rights, structuring of seed SMEs, and the establishment of an efficient traceability system.

Conclusion

Côte d'Ivoire is engaged in a structuring transition that combines strong political will, ambitious regulatory reform, massive investments, and a gradual rise in hybrid seed adoption. The key challenge in the coming years will be to accelerate the formalization and upgrading of the sector in order to make the Ivorian seed sector a sustainable pillar of food sovereignty and a credible player in the West African market. SEEDLIFE CI is fully committed, alongside public authorities and stakeholders, to meeting this challenge.

STAK: Shaping Kenya's Seed Sector Through Innovation, Policy Leadership and Farmer Protection

By Joyce Karanja.
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As Kenya's agriculture sector evolves to meet the demands of food security, climate change and population growth, the seed industry remains at the heart of productivity and resilience. The Seed Trade Association of Kenya (STAK), representing over 90% of the formal seed market, continues to play a pivotal role in strengthening seed systems, advancing policy reforms, and safeguarding farmers from counterfeit and substandard seed.

This article highlights STAK's recent contributions and ongoing efforts to shape Kenya's seed sector, while addressing emerging challenges and opportunities for the future.

Strengthening the Legal and Policy Framework for Seed Systems

A strong and predictable regulatory framework is essential for ensuring quality seed delivery to farmers. STAK has played an active advisory role to government and policymakers, working closely with the Kenya Plant Health Inspectorate Service, the Ministry of Agriculture and Livestock Development, and Parliament to address policy gaps.

The ongoing review of the Seed Act seeks to improve seed certification services, strengthen the seed production value chain, align Kenya's regulatory framework with regional standards under COMESA and SADC harmonized seed regulations, and integrate farmer-saved seed systems while preserving quality safeguards.

Recent court rulings and proposed legislative amendments have underscored the importance of balancing farmer rights and seed system integrity. For example, the Kenyan High Court declared certain provisions restricting farmer seed sharing unconstitutional, highlighting the need for inclusive legal reforms that protect both farmers and seed innovation. In response, STAK has intensified engagement with lawmakers and stakeholders to advocate for balanced, science-based policies that protect farmers, ensure seed quality, and support innovation.

Combating Counterfeit Seed Through Technology and Surveillance

Counterfeit seed remains one of the greatest threats to farmer productivity, food security and trust in the formal seed system. Fake seeds lead to poor germination, reduced yields, and financial losses for farmers. Enforcement operations have revealed the scale of the problem, with authorities confiscating thousands of counterfeit seed packets.

STAK has been at the forefront of combating counterfeit seed through innovative technologies and collaborative enforcement. One of the association's most impactful innovations is the Scratch Seed Sticker Label authentication system. This technology enables farmers to verify seed authenticity by scratching a label on the packet and sending the code via SMS to confirm whether the seed is genuine.

In addition, STAK works jointly with KEPHIS, seed companies and law enforcement agencies to conduct market surveillance and remove counterfeit products from circulation. These efforts have strengthened farmer confidence and enhanced transparency across the seed value chain.

Enhancing Industry Capacity Through Training and Self-Regulation

STAK has also played a leading role in strengthening seed certification capacity through self-regulation initiatives and professional development. Through sustained advocacy, the association has supported the establishment of self-regulatory mechanisms within the industry, including training seed inspectors and analysts to support certification processes.

In 2025, STAK initiated the training of additional seed inspectors and analysts in the private sector to boost members' certification capacity. Once gazetted, these professionals will complement national certification services and help address capacity gaps. These initiatives reinforce quality assurance across seed production, processing and distribution while supporting a more efficient and responsive certification system.

Promoting Farmer Awareness and Adoption of Certified Seeds

Access to reliable information is critical to improving seed adoption and agricultural productivity. STAK continues to invest in farmer education through field days, expos and outreach programs that demonstrate the value of certified seed.

These engagements help farmers understand the importance of certified seed, how to identify counterfeit products, the performance of improved and climate-resilient varieties, and the economic benefits of quality seed. STAK also collaborates with research institutions and partners to ensure newly developed varieties move efficiently from research to farmers, strengthening productivity and resilience at farm level.

Addressing Emerging Challenges in Kenya's Seed Sector

Despite significant progress, Kenya's seed sector faces several challenges. Counterfeit and substandard seed continues to undermine farmer confidence, particularly during peak planting seasons. Policy and regulatory uncertainty arising from ongoing legislative reforms and court rulings requires strong industry engagement to ensure balanced outcomes.

Climate change is also increasing demand for resilient seed varieties capable of performing under variable environmental conditions. At the same time, many farmers still lack access to accurate information about certified seed and its benefits, highlighting the need for sustained awareness campaigns and extension services.

STAK's Vision for a Resilient Seed Sector

Looking ahead, STAK remains committed to strengthening Kenya's seed system through continued policy advocacy, enhanced certification capacity, scaled anti-counterfeit technologies and expanded farmer education. The association will continue serving as a trusted advisor to government on seed production and regulatory matters, ensuring policies are practical, science-based and farmer-centered.

As Kenya advances toward a modern, resilient and inclusive seed system, STAK's leadership and partnerships will remain essential. Quality seed is the foundation of agricultural productivity, food security and economic growth, and STAK is committed to ensuring that every farmer has access to it.

NSAR: Positioning Rwanda's Seed Sector as a Strategic Engine for National Transformation

National Seed Association of Rwanda (NSAR)

Rwanda's seed sector is undergoing a deliberate and structured transformation; one that recognizes quality seed not merely as an agricultural input, but as a strategic economic asset capable of driving productivity, trade, jobs, and long-term resilience. The National Seed Association of Rwanda (NSAR) is spearheading this transition through its Private Sector Strategic Roadmap for Rwanda Seed Industry 2030, a seven-year agenda (2023–2030) designed to build a resilient, competitive and inclusive seed ecosystem.

3rd Rwanda National Seed Congress: Translating Strategy into Action

A major milestone under this transformation agenda is the 3rd Rwanda National Seed Congress (20–21 July 2026), convened under the theme: *"Seeds as a Strategic Engine for National Transformation: Advancing a Competitive, Private-Sector–Led Seed System for Food Security, Jobs and Trade."*

The Congress is conceived as a high-level, multi-stakeholder platform designed not merely for dialogue—but for coordinated implementation. It brings together policymakers, regulators, private-sector leaders, investors, development partners, regional economic communities, and research institutions to accelerate reform and investment commitments. Strategically aligned with Rwanda's Vision 2050, NST2, PSTA5 and Climate Resilience Strategy the Congress will focus on: Regulatory harmonization and reduction of trade barriers, Climate-smart agriculture and biotechnology readiness, Digital seed traceability and AI-enabled certification systems, Financing mechanisms and bankability of seed enterprises, Regional export competitiveness and Youth employment and gender inclusion.

Operationalizing the Roadmap at Farmer Level

Beyond policy and strategy, NSAR is ensuring that transformation is tangible at farm level. Through member-led demonstration plots and performance trials across agro-ecological zones, farmers are evaluating hybrid and climate-resilient varieties. These demonstrations; Strengthen farmer confidence in certified seed, promote informed variety selection, build trust in quality assurance systems and Strengthen linkages between seed enterprises and rural markets. This approach ensures that innovation translates into measurable productivity gains and income improvements.

Strengthening Quality, Standards and Regional Trade

Quality assurance remains central to Rwanda's seed transformation journey. NSAR is working closely with regulators and industry actors to enhance certification systems, traceability and compliance with international standards. Preparation toward ISTA and OECD accreditation is not merely technical but strategic! It positions Rwanda within regional and global seed trade systems, strengthens credibility and enhances export readiness. Parallel efforts to address early-generation seed (EGS) constraints are improving the sustainability of improved variety pipelines and ensuring long-term sector viability.

Climate Resilience, Digitalization and Financial Inclusion

Recognizing that resilience is both ecological and economic, NSAR's strategy integrates: Climate-smart and stress-tolerant varieties, conservation agriculture alignment, responsible biotechnology governance, digital traceability and data-driven certification systems. Additionally, financial inclusion is expanding through engagement with banks and insurance providers to strengthen credit access, risk mitigation, and value-chain financing.

A Continental Perspective

By positioning seed systems at the centre of economic transformation, Rwanda is contributing to Africa's broader agenda of productivity-led growth, regional integration and private-sector–driven development. The 3rd Rwanda National Seed Congress therefore serves not only as a national milestone but as a platform for regional collaboration, investment dialogue and standards harmonization.

Looking Ahead

Through its 7-Year Strategic Roadmap (2023–2030), NSAR is systematically addressing structural bottlenecks while unlocking new opportunities for trade, innovation, and inclusive growth. As Rwanda advances toward becoming a competitive regional seed hub, NSAR remains committed to building a coordinated, quality-driven, farmer-centred and investment-ready seed system; one that strengthens food security, creates decent jobs, enhances export competitiveness, and contributes sustainably to national and continental transformation.

TASAI: Seeds of Change in Somalia and Cameroon

Somalia: Laying the groundwork for seed sector development

After decades of turmoil that decimated agricultural institutions, Somalia's formal seed sector, long dormant, is now showing signs of revival. The agriculture sector is very important to the country's economy contributing 65% to the country's GDP and accounting for 75% of the country's exports.

The sector employs 80% of the population, 25% of whom are engaged in crop agriculture. Given the importance of agriculture, the Federal Ministry of Agriculture and Irrigation (FMoAI) prioritized revival of the seed sector, with a focus on seed production and process, as one of the entry point projects in the National Transformation Plan (2025-2029).

One of the important steps that the government undertook to revive the seed sector in the country was the establishment of the Somali Agricultural Regulatory and Inspection Service (SARIS) as the government agency in charge of regulating the sector. SARIS was officially launched in 2025, shortly after the passing of the SARIS Law No. 32, 24 December 2024. In addition, the government passed the Somalia Seed and Plant Varieties Law No. 35, 24 December 2024, implemented by SARIS, to regulate all matters pertaining to seed and plant varieties in the country. These two instruments provide a firm legal and regulatory framework on which to build the country's seed sector. Within the first six months of passing the SARIS Law, the agency had registered 18 local seed companies. These companies produce and commercialize multiple crops including maize, sorghum, sesame, rice and cowpea.

A recent study by The African Seed Access Index (TASAI Inc) offers a comprehensive snapshot of this emerging sector. It paints a picture of a system that though still in its infancy, is brimming with potential. In September 2024, the FMoAI established the Department of Research and Extension to oversee plant breeding and variety development. In November 2025, the Prime Minster presided over the ground-breaking ceremony of the new National Agricultural Research Institute in the capital city, Mogadishu. The expectation is that the Department will transition into the new NARI. In addition, the rehabilitation of the national research centers in Bonkay and Afgooye is underway.

In the absence of any national breeding programs, the government has embarked on multiple initiatives involving

Tasai - Participants at the Somalia seed stakeholders workshop to launch the TASAI Somalia country study.JPG

adaptation trials of varieties originally developed in other countries. According to SARIS, in 2024 six entities (two seed companies, two individuals, and two NGOs) imported seed for a total of 48 varieties of maize, sorghum and sesame to conduct adaptation trials in collaboration with the FMoAI. In addition, there are ongoing efforts led by the Somali National University and Zamzam University of Science and Technology to retrieve and clean varieties developed in Somalia several decades ago that have not been maintained because of the war. As a result of all these efforts, the first new varieties - three rice varieties - were released in 2021, and three additional varieties – one each for maize, sorghum, and cowpea seed – were released between 2022 and 2024.

NGOs are the main buyers of seed for maize, sorghum, and cowpea, accounting for between 58% and 63% of aggregate sales by seed companies. Building a reliable retail base through agro-dealers and direct farmer sales will be critical if the private sector is to thrive.

On the policy front, despite the passing of the two laws and the establishment of SARIS, a number of companies still operate without registration or certification, and the agency's nine seed inspectors are stretched thin across a vast and often insecure territory. A seed testing lab has been established, and inspectors are receiving training, but technical regulations and harmonization with the Common Market for Eastern and Southern Africa Seed Trade Regulations remain incomplete. Perhaps the biggest challenge is counterfeit seed — a pervasive problem that undercuts farmer confidence. With limited enforcement and fragmented oversight, fake seed continues to circulate, undermining progress made elsewhere.
For improved seed to reach more farmers, there is a need to expand access, raise awareness, and ensure that certified seed prices reflect value.

Cameroon: Advancing the seed industry amidst persistent challenges

Thousands of kilometers away, Cameroon's seed sector tells a story of early growth hampered by institutional inertia. The formal system is more established than Somalia's, but still struggles with weak research capacity, limited private-sector development, and under-resourced government agencies.

Research and Development Lag

The country's leading research body, *Institut de Recherche Agricole pour le Développement* (IRAD), faces a serious capacity gap. In 2024, Cameroon had one active maize breeder and no breeders for rice, sorghum, or soya bean. Currently, no local universities offer graduate-level training in plant breeding. As a result, the turnover of new varieties has stalled with some maize, sorghum, and soybean varieties dating back nearly four decades. However, in 2024, IRAD and IITA were testing hybrid maize varieties that they planned to release in the next few years. In addition, IRAD received 20 rice varieties from AfricaRice, all of which were placed into adaptive trials in 2024.

A Crowded Market, but Little Scale

Cameroon's seed industry is dominated by small producers who each sell less than five metric tons of seed annually. In 2023, according to the *Direction de la Réglementation, du Contrôle de Qualité des Intrants et Produits Agricole* (DRCQ), 201 seed producers were registered to produce seed across the 10 regions of the country. Most of them lack their own processing facilities, sell directly to farmers or through public procurement, with few developing private retail networks.

Policy Framework: Strong on Paper

Cameroon's seed policy framework is one of the continent's most comprehensive. The National Agricultural Seed Development Plan, seed law, and accompanying decrees provide a solid foundation. Institutions like the *Conseil National des Semences et Obtentions Végétales* (CONSOV) which oversees seed sector activities and the *Commission d'homologation des espèces et variétés* (CHEV) which oversees variety release and registration lack the resources to carry out their mandates. The once-promising Seed Fund has ceased operations, despite being operational for a few years.

Institutional and Farmer Support

With 96 inspectors, Cameroon's DRCQ provides modest but functional seed certification and control services. More inspectors and better funding are urgently needed to improve coverage and field mobility. The private sector, represented by ACOSEC, has struggled to gain traction. Most seed producers are unaware of its existence, and members rate its performance as "poor" at 27% Revamping the association could inject much-needed dynamism into private-sector advocacy.

At the farmer level, extension officers and agro-dealers play key roles in bridging the gap between producers and users. In 2024, Cameroon had 1,888 public extension officers, but few have the resources to operate effectively. The country's 28 registered agro-dealers are too few to ensure broad distribution. This signals a need to strengthen MINADER's capacity for surveillance at the market end of the seed industry.

India–Africa Partnership in Strengthening Seed Systems: Policy Alignment, Innovation, and Shared Resilience

By Syed Areesh Hussain

Agricultural transformation across the Global South begins with a seed. For both India and Africa — home to millions of smallholder farmers and diverse agro-ecological systems — resilient seed systems are fundamental to food security, farmer incomes, and long-term economic stability. As climate change intensifies, populations grow, and regional trade expands, the seed sector has emerged as a strategic pillar for agricultural transformation.

India and Africa share common developmental realities: fragmented landholdings, climate vulnerability, evolving regulatory systems, and increasing demand for quality seed. At the same time, both regions possess complementary strengths. India has developed a robust seed industry supported by strong public research institutions and an expanding private sector. Africa holds immense genetic diversity, growing regional market integration, and policy momentum toward harmonisation. A structured India–Africa partnership in the seed sector presents an opportunity to build resilient, inclusive, and innovation-driven seed ecosystems.

Policy and Regulatory Harmonisation: Enabling Growth

Regulatory coherence is central to seed sector advancement. Across Africa, regional economic communities such as COMESA, ECOWAS, and SADC have made significant progress in harmonising seed regulations to facilitate varietal release, certification standards, and cross-border trade. These efforts aim to reduce duplication, lower transaction costs, and improve farmer access to quality seed.

India's experience in managing a large domestic seed market offers practical lessons in seed certification systems, plant variety protection frameworks, quality control mechanisms, and public–private collaboration. Institutional dialogue between Indian and African regulatory bodies can strengthen science-based, transparent, and predictable seed policies.

Simultaneously, Africa's regional harmonisation efforts provide valuable

models of multi-country regulatory alignment. A two-way exchange of best practices can foster mutual recognition frameworks, strengthen phytosanitary coordination, and enhance trade facilitation under broader South–South cooperation platforms and AfCFTA.

Effective policy alignment must focus not only on regulation but also on implementation capacity, digital traceability systems, and enforcement mechanisms to curb counterfeit seed — a shared challenge across developing markets.

Strengthening Formal and Farmer-Centric Seed Systems

Seed systems in both India and Africa operate through a dual structure — formal certified channels and farmer-managed systems. Smallholder farmers often depend on local varieties and informal exchanges, particularly in remote areas. Rather than viewing these systems as separate, policy frameworks must integrate them in complementary ways.

India's decentralised seed production models, including farmer producer organisations and cooperative enterprises, demonstrate how local entrepreneurship can strengthen last-mile delivery. Similarly, Africa's community seed banks and quality declared seed schemes play an essential role in enhancing accessibility and preserving indigenous germplasm.
Policies that support local seed entrepreneurs, capacity building initiatives, and inclusive distribution networks are essential to ensure equitable access. Women farmers, who play a critical role in seed selection and preservation, must be central to seed policy design. Youth participation in seed production, agribusiness, and innovation also represents a shared priority for both regions.

Research, Breeding, and Emerging Technologies

Scientific collaboration remains at the heart of resilient seed systems. India has built strong capabilities in hybrid technology, stress-tolerant crop breeding, and public–private research partnerships. Africa, with its expanding research institutions and partnerships with international agricultural centers, is accelerating the development of drought-tolerant maize, improved pulses, climate-resilient cereals, and biofortified crops. Strengthening institutional partnerships between Indian research bodies and African national agricultural research systems can accelerate co-development of varieties tailored to diverse agro-climatic conditions. Joint research initiatives, germplasm exchange within regulatory norms, and collaborative breeding programs can generate shared value.

Emerging technologies such as gene editing offer further opportunities to improve crop resilience, productivity, and nutritional outcomes. However, enabling these innovations requires clear, science-based regulatory frameworks, biosafety capacity building, and transparent stakeholder engagement.

Digital Transformation and Market Intelligence

Digital technologies are reshaping seed ecosystems. In India, digital platforms support seed traceability, real-time advisory services, and e-market linkages. African countries are increasingly leveraging mobile-based solutions for seed distribution, weather alerts, and market information.

Blockchain-enabled certification systems, digital seed tracking, and AI-driven agronomic advisory tools can enhance transparency and reduce inefficiencies across seed value chains. Collaborative pilot initiatives between Indian and African institutions can accelerate digital integration while strengthening farmer outreach.

Robust market intelligence systems are equally important. Data-driven forecasting of climate risks, farmer preferences, and trade demand enables more responsive breeding strategies and efficient seed distribution. Institutional collaboration in digital capacity building can modernise seed supply chains across both regions.

Climate-Resilient and Nutrition-Sensitive Seed Solutions

Climate change presents an urgent common challenge. Irregular rainfall, rising temperatures, emerging pests, and soil degradation demand adaptive seed solutions. Developing stress-tolerant, early-maturing, and diversified crop varieties is no longer optional — it is strategic.

India's renewed emphasis on millets and climate-resilient crops aligns closely with Africa's traditional cultivation systems of sorghum, millet, and pulses. Joint research, seed multiplication partnerships, and value-chain development in these crops can improve both resilience and nutrition outcomes. Integrating climate modeling into breeding programs, strengthening early warning systems, and investing in indigenous crops will be critical to safeguarding long-term food systems.

Institutionalising India–Africa Seed Cooperation

For India and Africa, the seed sector is not merely commercial — it is foundational to national development strategies. Institutionalising cooperation through structured policy dialogues, seed trade working groups, research partnerships, and capacity-building initiatives will ensure sustained progress.

Priority areas for structured collaboration include:

- Mutual recognition of seed standards
- Strengthening phytosanitary coordination
- Digitalisation of certification systems
- Joint climate-resilient breeding initiatives
- Capacity building for regulatory authorities

A balanced partnership built on mutual respect, knowledge exchange, and co-creation can accelerate agricultural transformation across both regions.

As global food systems confront climate stress, trade disruptions, and rising demand, India and Africa have a unique opportunity to lead through partnership. The future of agricultural resilience in the Global South will depend on strong seed systems anchored in sound policy, scientific innovation, and inclusive growth.

The journey toward sustainable agriculture begins with quality seed — but it flourishes through collaboration, institutional trust, and shared vision.

SANSOR: When Innovation Meets Regulations, Farmers Win

Lessons from the South African Regulatory Regime for Seed

By Dr Miekie Human & Mr Kobus van Huyssteen

Behind much of the South African agriculture sector's success is regulations that support innovation, competition and the drive to deliver improved, high yielding products to farmers.

The South African market for seed, is highly competitive. A competitive market ensures products are of a high quality and continuously improved upon. Consumers will not continue using a product that fails, and the same is true for farmers buying seed. This means plant breeders continuously innovate to ensure their seed is of high quality and delivers on farmer-needs, this ranges from pest and disease resistance or climate resilient crops while maintaining end-user attractiveness and affordability.

A competitive market benefits consumers domestically and allows the sector to compete internationally. The vegetable industry in South Africa has had many successes over the years, with carrots being a prime example. South African consumers can purchase a wide range of this root crop throughout the year. This includes the normal orange variety of the vegetable but also varietals which yield different sizes, colours and taste profiles. Every time a consumer picks up a bag of carrots, or one is shipped for export, there is a complex set of enabling legislation and regulations which has underpinned the value chain from seed to shelf.
This legislation includes the Plant Breeders' Rights Act 12 of 2018 and the Plant Improvement Act 11 of 2018. These pieces of legislation and regulations have served as the cornerstone for the national food secure status of South Africa.

The Plant Breeders' Rights Act ensures that South Africa is an advantageous environment that incentivises innovation when breeding new plant varieties. It does this by protecting the intellectual property of breeders when they create a new variety. This means if a company or individual can breed a more appealing version of a carrot to consumers, they can generate a return on their investment. This gives the local seed industry both the incentive and the confidence to invest time, resources and money into breeding new varieties and introducing new internationally bred ones, because there is a guaranteed return on investment.

A critical factor in ensuring farmers benefit from breeding, is that protection of intellectual property (through legislation like Plant Breeders' Rights) is accessible to individuals, local companies and the research community in equal measure as for large or multinational companies. The cost of registering a new variety in South Africa is currently less than R8 000 (500 USD) which means it is affordable enough to put it within the reach of even hobbyist gardeners. This means that even smaller seed companies can afford to innovate and register new varieties. By contrast,

$ 728 504 000
South Africa Seed industry worth 2024

in some African countries, this cost can be over a hundred thousand Rand per new variety.

Registration under the Plant Breeders' Rights Act harmonises with international regulations, including those of the International Union for the Protection of New Varieties of Plants (UPOV). The UPOV system encourages the development of improved, high-quality plant varieties by providing breeders with effective intellectual property protection, supporting food security and sustainable agriculture. It also harmonises variety examination and facilitates international cooperation, reducing testing costs, improving market access, and enabling farmers to benefit from better-adapted, productive varieties.

Healthy competition in the seed market has increased the choices farmers can make when selecting crops and varieties of a particular crop. More farmer choices mean more choices for consumers. More crop choices also mean that farmers can trial varieties which suit their growing conditions and provide better yield.

Safety and quality are also vital aspects of successful regulation. South Africa's Plant Improvement Act enables not only food security but its safety and quality too. For example, under this act, all seed sold to farmers, including for animal feed, must meet certain standards and the providers of this seed need to be registered. What this means is that our agricultural market is not plagued by counterfeit or illegal seed as is the case in other countries. The certification schemes included in the act (four in total) include one for seed certification – which is implemented by the South African National Seed Organization (SANSOR) as the certifying authority. This allows the industry to set the standards for certification ensuring these are up to date and relevant.

South Africa's local requirements for certification are aligned with international standards, practices and schemes like OECD (The Organization for Economic Cooperation and Development) which means the local sector can export seed that is accepted all over the world. Export is also enabled through rigorous, stable, and science-based phytosanitary standards which enhance our ability to trade internationally. The government has also launched a new and highly efficient e-certification platform which digitises phytosanitary certification for export and has significantly streamlined processes.

South Africa can, however, also learn from forward-looking seed regulation in a few of our fellow African nations. For instance, Kenya, Malawi and Nigeria have adopted a progressive approach to the regulation of gene editing as a tool to safeguard food security.

Seed is the starting point for the food we eat and a key input for the agricultural sector. The seed industry in South Africa was worth a staggering 728 504 000 USD in 2024 with Field Crops dominating at 480 257 000 USD followed by Vegetable and Ornamental crops at 195 870 000 USD and lastly Forage and Turf crops at 52 377 722 USD and its value has grown year on year; a significant reason for this has been a regulatory environment which has ensured a competitive market that provides safe and high-quality seed.

In turn, the farming sector has grown substantially in recent years. The net farming income was 13,9% higher in 2024 and amounted to R130 712 million as compared to R114 729 million in 2023. While growth in the farming sector should be attributed to a variety of factors, access to high quality seeds is an important contributing factor confirming clearly that seed security is food security.

A regional seed producers' alliance is being formed within the Alliance of Sahel States (AES)

By APSA-Sahel

Seed producers from the three countries that form the Alliance of Sahel States (AES), namely Burkina Faso, Mali, and Niger, met on Tuesday, 25 November 2025, in Ouagadougou for a Constituent General Assembly to create a sub-regional association of seed producers.

Known as the Alliance of Agricultural Seed Producers of the Sahel (APSA-Sahel), this alliance aims to support agricultural development and food sovereignty initiatives in general, and to contribute to the development of an efficient community seed sector in particular.

APSA-Sahel aims to increase the availability and accessibility of quality seeds in sufficient quantities to farmers in member countries.

APSA-Sahel has the backing of the governments of the three AES states, which view it as a key tool for regional integration and a tangible step toward enhancing cross-border trade in high-quality seeds among member states and beyond.

"The creation of APSA-Sahel is a founding act in favour of food sovereignty in the Sahelian countries. The decision to create APSA-Sahel opens a new chapter in the agricultural history of the sub-region," said Mr. Gaoussou SANOU, Secretary General, representing the Minister of State, Minister of Agriculture, Animal and Fisheries Resources of Burkina Faso, at the launch ceremony for this alliance.

According to Mr. Inoussa OUEDRAOGO, President of the National Union of Seed Producers of Burkina Faso and the first elected President of APSA-Sahel, this new organisation will promote scientific and technical cooperation between the agricultural research institutes of member states and support the establishment of regional centres of excellence in varietal creation. "APSA-Sahel aims to promote the development of seed varieties adapted to the Sahelian climate, particularly drought-resistant varieties, in order to meet the food and nutritional needs of the Sahel's populations," he said.

At the end of the APSA-Sahel Constitutive General Assembly held on 25 November 2925 in Ouagadougou, Burkina Faso, an Executive Board was set up to steer the Alliance's actions.

Composition of the APSA-Sahel Executive Committee

No.	Surname and first name(s)	Position	Country of origin
1.	Mr Inoussa Ouédraogo	Chair	Burkina Faso
2.	Moussa Sidibé	Vice-President	Mali
3.	Issoufou Maizama	Secretary General	Niger
4.	Lendi Daba	Treasurer General	Burkina Faso
5.	Ms. Salifou Aichatou	Secretary for External Relations	Niger
6.	Mr. Soumaila Maiga	Secretary for Organisation and Communication	Mali

Breeding Better Markets:

How AVBC Is Transforming Vegetable Seed Systems in Africa

By The Africa Vegetable Breeding Consortium (AVBC)

Public–private partnerships (PPP) in the seed sector are often discussed in abstract terms. When they are well structured and anchored in real market needs, they deliver concrete and measurable results at company, sector, and farmer levels. In vegetable seed systems, the Africa Vegetable Breeding Consortium (AVBC), jointly implemented by the AFSTA Seed Trade Association and the World Vegetable Center (WorldVeg), has for nearly a decade provided a clear example of a PPP delivering tangible and impactful results.

The AVBC approach has translated into direct economic outcomes for seed companies. WorldVeg acts as a common engine for innovation by generating advanced breeding lines, delivering targeted technical trainings, and producing market intelligence that can be accessed by seed companies of different sizes and technical capacities. This shared pipeline strengthens company R&D portfolios, accelerates variety development, and contributes to a more inclusive and competitive African seed sector.

A key feature of AVBC is its role in generating collective intelligence and enabling shared responses to systemic constraints. The consortium allows companies to better align breeding and marketing strategies with consumer demand while also providing a platform for coordinated action on major challenges affecting the sector. For example, in 2026, AVBC seed companies and researchers launched a multi-year collaborative initiative targeting bacterial wilt, one of the most damaging diseases affecting solanaceous crops in Africa. Addressing such constraints collectively is more effective, as data, genetics, and results are shared, enabling research to progress faster than through isolated company-level efforts.

These collaborative efforts have translated into tangible company-level results through variety releases and market diversification. In countries such as Mali, Ghana, and Burkina Faso, local seed companies have successfully released new vegetable varieties derived from AVBC breeding lines that were tested and selected under local conditions. These companies are now supplying farmers with improved and high-performing varieties of sweet pepper, chili pepper, and okra. Such releases have strengthened local seed supply and improved the competitiveness of national seed companies. Acting individually, many of these companies would have lacked the financial and technical resources required to develop new varieties on their own.

Beyond strengthening existing value chains, AVBC has enabled the development of new markets through a strong market-oriented mindset among member companies. A clear example is mungbean in Mali, a legume traditionally associated with Asian production systems and previously unfamiliar to this seed company. Through WorldVeg's breeding program, short-cycle mungbean lines with a production cycle of around 50 days were developed and showcased

to AVBC members during the annual workshop. This short production cycle made mungbean particularly attractive for short rainy season environments and drought-prone areas.

As a result, a seed company in Mali identified mungbean as a viable commercial opportunity for the first time. Three mungbean varieties have since been released in Mali and have demonstrated commercial viability, creating a new market segment for both the seed company and farmers.

In parallel, AVBC has invested in strengthening the technical capacity of member companies to ensure long-term sustainability of these results. Targeted trainings have equipped companies with practical skills to initiate and manage their own crossing and early-generation selection activities. Through hands-on sessions on hybridization techniques and breeding workflows, companies have progressively moved from being passive recipients of finished varieties to active contributors to breeding processes. This capacity development reduces long-term dependency on external innovation and supports the emergence of sustainable, locally rooted R&D functions.

Ensuring that breeding priorities are driven by African preferences rather than external market requirements is a core objective of AVBC, and okra provides a strong illustration of this approach. Many okra varieties available in African markets originate from breeding programs designed for the Indian market, where consumer preferences differ significantly. In West Africa, traits such as sliminess are not a defect but a key quality attribute that strongly influences consumer acceptance. Fruit size and shape also vary in importance across regions and market segments. These characteristics are often under-prioritized in varieties bred for other regions. In response, WorldVeg is developing okra breeding lines that explicitly integrate African market requirements while improving agronomic performance, including yield stability and resistance to major constraints such as begomoviruses. This demand-driven approach increases the likelihood of adoption by farmers and uptake by consumers.

Overall, AVBC translates breeding development and market intelligence into tangible commercial success. Improved and locally adapted varieties move efficiently from research into company portfolios, national catalogues, and farmers' fields. As companies strengthen their competitiveness and diversify into climate-relevant crops, farmers gain access to better-performing seed, more resilient production options, and new income opportunities. In this way, AVBC converts innovation into market uptake, and market uptake into improved livelihoods across African vegetable value chains

Scan Code to learn more about The Africa Vegetable Breeding Consortium

How ACLBC is Catalysing the Adoption of New Climate-smart Seed Varieties

By The African Cereal and Legume Breeding Consortium (ACLBC).

Buoyed by the need to accelerate the uptake of new climate-smart seed varieties through a multi-faceted approach that addresses technical, financial, and social barriers, the African Seed Trade Association (AFSTA), in collaboration with Technologies for African Agricultural Transformation (TAAT), held a field demonstration and workshop on the 19th of August 2025 in Kenya.

The field demonstration of climate-smart seed varieties and workshop held at the Kenya Agricultural and Livestock Research Organisation (KALRO) research station in Njoro, Kenya, under the framework of the African Cereal and Legume Breeding Consortium (ACLBC).

The event, which was held under the theme "***Catalysing Seed Technology Adoption through Partnership, Performance & Field Experience,***" brought together several experts from the public and private sectors, including seed companies and breeding institutions, seed inspectors and farmers from across Africa.

With a focal emphasis on improving access to resilient seed innovations through appropriate breeding support and robust supply chains, strengthening extension services, using peer-to-peer knowledge sharing, enhancing farmer education via demonstration plots, and tailoring seeds to local needs, the consortium took participants through a 2-acre demonstration plot established in collaboration with KALRO.

The demonstration showcased newly released, high-performing varieties of maize, soybean, rice, wheat, high-iron beans (HIB), sorghum, and millet.

This initiative, according to Geoffrey Nsofon, the ACLBC Lead, "seeks to stimulate interest among seed companies and catalyse the adoption, branding, and scaling of these elite varieties and hybrids developed by CGIAR Centres and Advanced Agricultural Research Institutions."

According to Mr Nsofon, the consortium is not all about the uptake of new varieties and hybrids but also about reinforcing the capacity of seed companies to produce their own parental lines.

"Our intention is to accelerate the uptake of these varieties by seed companies, and we hope that those who have identified the varieties will secure licenses in their

Seed Experts from Kenya, Ghana and Zimbabwe at the Maize field under demonstration

different countries," he said.

"We work on a demand-driven approach where we produce what the seed companies want, or seed companies collaborate with us to produce what they want for their particular market, hence the need for seed companies across Africa to join the consortium for greater benefits, including the right to get the exclusive lines of your choice," Nsofon added.

The AFSTA Secretary General, Dr Yacouba Diallo, hailed the field demonstration as a successful and significant step to achieving food systems resilience in Africa using seed innovations and seed companies as pivots.

"We want to engage the private sector, mainly seed companies, to uptake the new varieties for business purposes by putting the new varieties in their portfolio, multiplying and selling to farmers. With all these innovative varieties, we will be able to increase productivity and push the frontiers of food and nutrition security in Africa," Dr Diallo said.

Dr Solomon Gizaw, the Head of the TAAT Clearinghouse, after participating in the extensive field demonstration, urged seed companies to take full advantage of the opportunities ACLBC offers by joining the consortium.

"This consortium offers a unique platform to facilitate large-scale investments, leverage state-of-the-art breeding technologies, and expand your footprint across the African agricultural landscape. Your active participation is crucial in scaling up the availability of superior seeds and enhancing the resilience and productivity of farming systems across the continent," he added.

Breeders and multipliers observed several innovative technologies that aid in the production of clean planting materials for their improved seed varieties.

"I found the tour to be quite enlightening as I acquired a wealth of knowledge and discovered new crop varieties to incorporate into my portfolio. The fresh ideas and characteristics of these new varieties will enable me to increase and broaden the range of crops I am cultivating," stated Mr. John Kimaithi Mainga, the Executive Director at Inungu CBO Seed Merchant, Kitui, Kenya.

Participants at the field demonstration appreciated the high potential of the TAAT-certified cereal and legume varieties at multiple growth stages under genuine field conditions, and they lauded ACLBC for creating a platform that enables seed companies and value chain actors to collaborate with TAAT Compacts, breeders, and technology developers.

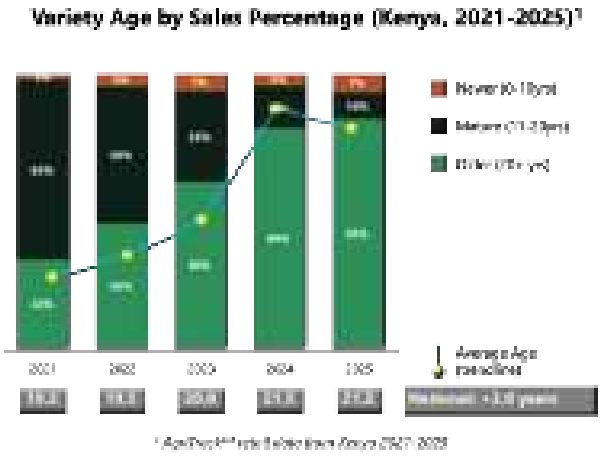
Why Better Genetics Aren't Enough:

Marketing Innovations that Move Farmers to New Varieties

By Resourced

Introduction

Across Africa, farmers continue to plant varieties that are 10-20+ years old, despite large investments in breeding and variety release. For example, the average varietal age of maize seed in Kenya has increased (to >20 years old) over the past five years (refer to chart). Most of these varieties were developed for a growing environment that no longer exists. Varietal turnover happens far too slowly to keep pace with climate change, evolving pests and diseases, and ongoing investments in breeding. The Seed Marketing Innovations for Africa (SMIA) program set out to answer a central question: *Which marketing innovations meaningfully accelerate the adoption and replacement of old varieties with newer, better-performing ones?*



Executive Summary

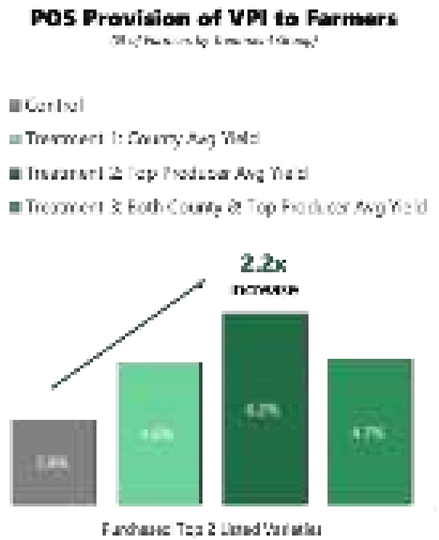
Over the course of the three-year program, SMIA generated a substantial evidence base on the role of marketing in accelerating adoption and varietal turnover. Through market intelligence, controlled field experiments, pilot marketing campaigns with seed companies and trade associations, and seed sector engagement, the program demonstrated that relatively inexpensive, well-designed marketing efforts, in particular, utilization of varietal performance information (VPI), point-of-sale support to agro-dealers, targeted digital campaigns, and optimized demo plot designs, can meaningfully shift farmer demand toward newer, higher-performing varieties.

Throughout the program, SMIA consistently engaged with seed systems stakeholders to bring them along on the learning journey – (i) to amplify the need for further focus and investment in marketing, (ii) to bring awareness to key results and insights, and (iii) to share techniques, tools and training that can provide practical, accessible resources for commercial marketing teams. The program's final phase translated these insights into practical metrics, guidance and tools for industry actors, reinforcing the central message of SMIA: trusted information, targeted messaging, and coordinated engagement along the customer journey are powerful levers for accelerating varietal turnover.

Innovation Pilots – Key Results

SMIA delivered on its primary objective of building an evidence base on marketing innovations that are suited to the challenges of African seed systems and seed companies. The innovation pilots were designed to test discrete and replicable marketing approaches under real-world conditions and quantify their influence on farmer purchasing behavior and agro-dealer decisions. Each pilot explored a specific intervention ranging from VPI formats and point-of-sale nudges to demo plot enhancements and digital marketing approaches, while maintaining a consistent objective: generate actionable, comparative evidence on which strategies offer the highest return for accelerating adoption. The combined results provide a clear, data-driven picture of where the greatest influence lies in shifting demand toward improved varieties, and which tools seed companies and partners can confidently scale. Here are some of the most compelling and concrete results from that portfolio of work:

1. **Varietal Performance Information (VPI) is the strongest driver of adoption.**
    a. Across multiple studies, provision of independent and localized varietal performance info (VPI) increased the share of farmers purchasing top-performing varieties by 2 - 4 times.
    b. Even general informational nudges advocating the benefits of newer seed varieties created positive purchasing shifts:
        i. Converted 7% more farmers to new varieties
        ii. New buyers purchased 14% higher volume of new varieties
        iii. This created a persistent effect, with new buyers purchasing 10% higher volumes even the following season
2. **Point-of-Sale (POS) interactions remain critical influence points.**
    a. VPI also motivated agro-dealers (ADs) to stock newer (or remove older) varieties, with +15% of agro-dealers shifting to newer varieties.
    b. Those ADs also increased the volume of top products stocked by 20%, while reducing stocked volume of poor performers by 38%.
    c. Intercept studies showed that even small "nudges", such as simplified VPI formats or AD recommendations, shift purchase intentions and result in significant increases in sales of promoted hybrids.
3. **Digital marketing is a cost-effective frontier for seed companies.**
    a. Private-sector campaigns delivered up to $58 in expected sales for every $1 of ad spend, showing the scalability and efficiency of digital channels.
    b. Data from digital campaigns drives continuous improvement: there was a 5.5× growth in qualified leads from Year 1 to Year 2 of the campaigns, resulting from adjustments to messaging and channel selection.
4. **Opportunities to professionalize conventional methods.**
    a. Demo plots become much more effective when customer (farmer) touchpoints are "stacked."
    b. Combining demos with SMS reminders, field days, and signage generated up to 6× higher adoption among farmers who interacted with the demos.
5. **Public-sector campaigns de-risk private sector marketing investments.**
    a. PSA-style campaigns aimed at driving awareness and improving perceptions created a broad reach with >2.6 million unique customers exposed to anchor campaign messages.
    b. Re-targeting efforts in the second campaign season allowed the team to hone message, assess channels and align spend – leading to tripling reach and doubling lead conversion, while increasing ROI for allocated budget.



Private Seed Company Campaigns

Metrics	Year 1	Year 2
Impressions	[illegible]	[illegible]
Reach	[illegible]	[illegible]
Clicks	[illegible]	[illegible]
Leads	722	4,000

Return	Year 1	Year 2
Ad Spend	$15,000	[illegible]
Conversion Factor[1]	[illegible]	
CLTV[2]	[illegible]	
Expected Value[3]	[illegible]	[illegible]
ROAS[4]	[illegible]	$1 : $58

[illegible]

Key Insights & Takeaways

SMIA built an evidence base that has delivered a clear conclusion:

accelerating varietal turnover in African seed systems is fundamentally a marketing and information challenge, not a constraint of breeding capacity or germplasm quality. Findings from market intelligence research, controlled experiments, and real-world marketing campaigns consistently demonstrated that farmer adoption responds most strongly to (i) trusted, decision-relevant information that supports (ii) targeted, value-oriented messaging, and is (iii) reinforced with engagement points throughout the customer journey. Improved varieties do not sell themselves. Breeding simply creates potential; investments in marketing are essential to convert it into adoption.

1. **Trusted information (informing value perception) is the dominant driver of adoption.** Farmers do not resist improved seed; they resist uncertainty. Independent, localized, and simple Varietal Performance Information (VPI) consistently outperformed discounts and other incentives, increasing purchases of top-performing varieties by 2-4 times. Even general info nudges in favor of newer varieties created measurable, persistent shifts in purchasing behavior.

2. **Agrodealers are an important in-person point of influence.** SMIA's evidence shows that equipping agrodealers with clear performance rankings, simple VPI formats, and point-of-sale tools directly improves both stocking decisions and recommendation quality. When ADs are confident in the performance story, they actively shift farmers toward newer varieties and also reduce shelf space devoted to older, familiar products. Working with ADs' is an opportunity to influence the influencers.

3. **Effective messaging requires continuous improvement.** Market intelligence informs customer segmentation; value proposition assessments ensure targeted messaging; multiple, coordinated exposures increase effectiveness; and digital tracking and attribution enable iteration and improvement. SMIA's campaign results confirm that generic awareness alone has limited behavioral impact. Marketing must be treated as a system, not an event, and continuously refined through iteration, retargeting, and learning – to drive higher engagement, conversion, and adoption.

4. **Digital marketing is a force multiplier for reach, cost efficiency, and continuous improvement.** SMIA demonstrated that targeted digital campaigns can deliver exceptional return on investment, generate qualified leads at scale, and enable rapid learning through measurable performance data. Digital channels were particularly effective at reinforcing earlier messages, retargeting engaged farmers, and linking to direct touchpoints with online catalogs or customer sales reps. Digital amplifies retail and field-based engagement by extending reach, improving message repetition, and enabling continuous optimization that is rarely possible with conventional channels alone.

5. **Coordinated public and private investment is essential to scale impact.** A reinforcing model where publicly funded, brand-agnostic campaigns create broad awareness and improve perceptions of newer varieties, effectively de-risking private-sector investment in targeted, conversion-focused marketing. When public actors act as industry flag-bearers at the top of the funnel, seed companies can invest more confidently in downstream digital campaigns, agrodealer engagement, and sales activation. This coordination is not about replacing private marketing, but about aligning incentives and sequencing investments to unlock greater overall efficiency and impact.

Taken together, these insights reinforce SMIA's overarching conclusion: **seed marketing is the missing link between breeding investments and farmer-level impact.** Scaling the approaches proven effective under SMIA offers a practical, cost-effective path to reduce varietal age, strengthen commercial seed systems, and ensure that improved genetics reach farmers faster and are adopted more reliably across African markets.

Conclusion

The SMIA program concludes with clear evidence that marketing innovations can materially accelerate the adoption of improved varieties, when designed with farmers' information needs and decision points in mind. Information (both general nudges and specific value-oriented data) emerged as the most consistent driver of behavioral change, outperforming traditional incentives and demonstrating its value across retail, digital, and community-based channels. Digital campaigns and optimized demo strategies offer scalable avenues for industry-wide adoption, while agro-dealers remain a critical and underutilized influence point. Several key lessons were elevated over the course of the work:

- Better genetics do not sell themselves.
- Reliable Varietal Performance Information (VPI) is a missing public good in seed systems.
- Farmers and agrodealers are rational actors who respond to credible signals.

As the program closes, the evidence base, tools, and capabilities built through SMIA provide a strong foundation for future investments aimed at reducing varietal age, strengthening commercial seed systems, and improving farmer access to climate-appropriate genetics. The path forward is clear: scaling the approaches proven effective under SMIA can help deliver faster, more reliable varietal turnover across African markets.

About the partnership

The Seed Marketing Innovations for Africa (SMIA) program was implemented by Resourced (https://www.resourced.global/) , which led program design, coordination, and the generation of actionable insights for the seed sector. Delivery was supported by a consortium of partners: CIMMYT (varietal performance information and point-of-sale marketing approaches); GeoPoll and AgNexus Africa (farmer, agro-dealer, and retail market data); STAK and USTA (sector-led coordination and awareness building); and 5DM Africa (design and testing of digital marketing approaches). Together, these partners brought complementary expertise that translated farmer insights into practical, scalable marketing strategies for seed companies.

Beyond the Bag:

Why Africa's Seed Revolution Depends on Educated Experts

ByAmos Rutherfford Azinu, PhD
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The difference between a thriving agricultural sector and one struggling to feed its population often comes down to something deceptively simple: seeds. Yet across Africa, the commercial seed system faces a critical challenge that rarely makes headlines—a severe shortage of professionals with the right educational qualifications and technical skills to build, manage, and innovate within modern seed systems.

The Education Gap in Africa's Seed Sector

Africa's seed industry operates with a significant human capital deficit. While the continent has made strides in developing its seed sector over the past two decades, the lack of specialized training in seed science, technology, and business management continues to hamper progress. Many seed companies, regulatory bodies, and quality assurance laboratories struggle to find qualified seed technologists, plant breeders, seed certification specialists, and quality control managers.

This skills gap manifests in multiple ways: inconsistent seed quality, weak regulatory enforcement, limited innovation in variety development, and inefficient distribution systems. The consequences are felt directly by smallholder farmers, who represent the majority of Africa's agricultural workforce but often lack access to improved seed varieties that could boost their yields by 30-50%.

Learning from Global Leaders

The contrast with established seed systems elsewhere in the world is instructive. In the Netherlands, home to one of the world's most advanced seed industries, the sector benefits from a robust ecosystem of specialized education. Wageningen University alone produces hundreds of graduates annually in plant breeding, seed technology, and related fields. The Dutch seed sector employs approximately 12,000 people, many with advanced degrees, serving a country of just 17 million people.

The United States offers another compelling comparison. American land-grant universities have trained generations of seed scientists, agronomists, and plant breeders who have built an industry that supplies high-quality seed to farmers domestically and globally. Iowa State University's seed science program, for instance, has been producing seed technologists since 1922. The result is a highly sophisticated system where seed purity, germination rates, and varietal performance are closely monitored and continuously improved.

India provides perhaps the most relevant comparison for Africa, given similar development trajectories. Since the Green Revolution, India has invested heavily in agricultural education and seed sector capacity building. The country now has over 60 agricultural universities producing thousands of graduates in seed technology and related fields annually. This human capital investment has enabled India to develop a vibrant seed industry worth over $4 billion, with both multinational and domestic companies thriving. Indian seed replacement rates—the percentage of farmers using certified seed rather than saved seed—have climbed to 30-35% for many crops, compared to 10-15% or lower for most African countries.

The African Reality

Africa's situation stands in stark contrast. The continent has fewer than 20 universities offering specialized degrees in seed science or seed technology. Many countries have no formal seed science training programs at all. A 2019 study by the Alliance for a Green Revolution in Africa found that across 13 African countries, seed regulatory authorities were operating at only 40% of their required staffing levels, and among existing staff, fewer than half had relevant technical qualifications.

Kenya, often cited as having one of Africa's most developed seed sectors, illustrates both the potential and the challenges. The country's seed industry has grown significantly, with more than 60 registered seed companies. However, the Kenya Plant Health Inspectorate Service regularly reports difficulties finding qualified seed analysts and inspectors.

Universities produce relatively few seed science graduates, and those who do graduate often lack practical, hands-on training in modern seed testing laboratories or production facilities.

What Skills Are Needed?

A functional commercial seed system requires professionals across multiple domains. Plant breeders must understand both classical genetics and modern molecular techniques to develop improved varieties. Seed production agronomists need expertise in crop management, isolation distances, roguing, and harvest timing to maintain genetic purity. Seed technologists must master processing, treatment, storage, and quality testing. Seed certification officers require knowledge of standards, sampling protocols, and field inspection techniques. Seed business managers need to understand supply chain logistics, market dynamics, and intellectual property rights.

These are not skills that can be picked up casually or transferred wholesale from general agricultural training. They require specialized, systematic education combined with practical experience.

Economic Implications

The economic stakes are substantial. The African seed market is valued at approximately $1.5 billion annually but operates far below its potential. With appropriate human capital development, industry experts estimate the market could grow to $5-7 billion within a decade, contributing significantly to food security and rural incomes.

Research from the International Food Policy Research Institute indicates that improved seed alone can account for 20-40% of yield increases in staple crops. But realizing this potential requires seed that meets quality standards—which in turn requires trained professionals to produce, test, certify, and distribute it.

A Path Forward

Addressing Africa's seed sector skills gap requires coordinated action across multiple fronts. Universities must expand and modernize seed science curricula, incorporating practical training components and modern laboratory techniques. Regional centers of excellence could serve multiple countries, providing advanced training and serving as hubs for research and innovation.

The private sector has a crucial role to play. Leading seed companies should invest in training programs, apprenticeships, and partnerships with educational institutions. Some companies, like East African Seed Company and Seed Co Limited, have pioneered internal training programs, but these efforts need to scale dramatically.

Regional and continental bodies such as the African Union, the Alliance for a Green Revolution in Africa, and regional economic communities should prioritize seed sector capacity building in their development strategies. The African Seed and Biotechnology Program has made important contributions, but funding and scope remain limited relative to the need.

'Africa's situation stands in stark contrast. The continent has fewer than 20 universities offering specialized degrees in seed science or seed technology. Many countries have no formal seed science training programs at all.'

International development partners can support scholarship programs, faculty development, laboratory infrastructure, and regional training networks. The transformation of Asia's seed systems in the 1970s and 1980s benefited significantly from such investments by organizations like the Rockefeller Foundation and the World Bank.

Beyond Technical Skills

Technical qualifications alone are insufficient. Africa's seed sector also needs professionals who understand the unique contexts in which they operate—the constraints facing smallholder farmers, the importance of informal seed systems, the complexities of operating in diverse agroecological zones with limited infrastructure, and the need to balance commercial viability with social impact. This requires educational programs that combine scientific rigor with practical insight into African agricultural realities. It means training professionals who can innovate within constraints, who understand both modern biotechnology and the value of traditional crop varieties, and who can build bridges between formal and informal seed systems.

The Time Is Now

Africa's population is projected to double by 2050, placing unprecedented pressure on food production systems. Climate change is adding another layer of complexity, requiring crop varieties with enhanced resilience. The continent cannot afford to let its seed sector remain hobbled by human capital constraints. The good news is that Africa has demonstrated in other sectors—mobile technology, banking, renewable energy—that with the right investments and enabling environment, rapid transformation is possible. The seed sector deserves similar attention and resources.

Ultimately, improving Africa's seed systems is not just about seeds—it is about people. It is about training a generation of African seed professionals who can build companies, enforce standards, develop new varieties, and ensure that millions of smallholder farmers have access to the quality seed that can transform their livelihoods. The harvest from such investments would be measured not just in bushels of grain, but in stronger economies, better nutrition, and greater food sovereignty across the continent.

The foundation of any seed system is, quite literally, planted by the people who understand seeds best. Africa's agricultural future depends on ensuring those people have the education and skills to succeed.

Seeds of Change:

AATF and Partners Power DroughtTEGO & TELA Maize Hybrids Across Africa

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Vanise Simiyu, a smallholder farmer in Kakamega County, Kenya, showing her healthy maize farm planted with the WE 4141 variety, which promises a bountiful harvest.

Introduction

As climate shocks intensify across Africa, resilient seed systems are no longer optional, they are essential. Through strategic partnerships with the private seed sector, AATF is transforming DroughtTEGO and TELA Hybrids from a proven innovation into a commercially viable, farmer-preferred solution across diverse African markets. This is the story of catalytic leadership in action, where public–private collaboration accelerates adoption, strengthens seed enterprises, and builds climate-resilient maize value chains at scale. Africa's farmers stand on the frontline of climate stress, and resilient maize is their lifeline. Through AATF's catalytic role, DroughtTEGO and TELA hybrids have moved beyond experimental plots into competitive seed markets, unlocking productivity, profitability, and improving livelihoods.

From Innovation to Widespread Impact

Over 125 conventional DroughtTEGO hybrids were released through the Water Efficient Maize for Africa (WEMA) partnership led by AATF in collaboration with CIMMYT, Bayer, Kenya Agricultural and Livestock Research Organization (KALRO), National Agricultural Research Organisation (NARO of Uganda), Tanzania Agricultural Research Institute (TARI), Agricultural Research Council (ARC of South Africa), Instituto de Investigação Agrária de Moçambique (IIAM), Ethiopian Institute of Agricultural Research (EIAR), and Institute for Agricultural Research (IAR of Nigeria).

These water-efficient maize hybrids, branded DroughtTEGO, are resilient to moderate drought, particularly under erratic rainfall occurring two weeks before and two weeks after flowering. Under moderate drought stress, farmers can achieve yields of 3–5 t/ha, and 8–12 t/ha under optimal rainfall, well above the sub-Saharan Africa smallholder average of 1.0–1.2 t/ha.

Due to their wide adaptability, especially in mid-altitude agro-ecologies, DroughtTEGO hybrids are now commercialized in 13 countries across East, Southern, West, and Central Africa. A strategic licensing model, combined with promotion through the TAAT Maize Compact platform, has enabled over 40 seed companies to integrate these hybrids into their portfolios.

Leveraging the COMESA Harmonized Variety Catalogue has further accelerated regional release and registration, allowing DroughtTEGO hybrids to expand to six more countries beyond initial WEMA countries.

During the 2024/2025 growing seasons, DroughtTEGO hybrids deployed through TAAT Maize Compact intervention sites, achieved yields ranging from 3.6–6.8 t/ha across 10 countries, demonstrating consistent field performance under farmer-managed conditions. If replicated at scale, this productivity leap has the potential to significantly narrow Africa's maize yield gap and strengthen national and regional food security.

Expanding the Resilience Portfolio: TELA Bt Hybrids

Beyond conventional drought tolerance, AATF and partners are advancing insect-resistant TELA maize under the Biotech Maize Seed Systems (BMSS) initiative. Nine TELA (Bt) maize hybrids have been released and registered in South Africa and Nigeria, providing protection against stem borers and fall armyworm (FAW). In Nigeria, TELA hybrids demonstrated up to an 88% yield advantage over older non-Bt varieties grown by farmers, showcasing the powerful synergy between drought tolerance and insect resistance in boosting smallholder productivity.

Conclusion: Scaling Impact Through Markets

The commercialization of DroughtTEGO, TELA (Bt), and StrigAway (for control of Striga weed) technologies demonstrates that when innovation provide solution to farmers, transformation happens. Seed companies licensed by AATF have cumulatively produced over 63,000 metric tons of certified maize seed, sufficient to plant more than 2.5 million hectares and benefit over 6 million smallholder farmers across Africa.

This is more than technology deployment; it is market transformation. Together, resilient seeds and strong partnerships are reshaping Africa's maize future.

AATF continues to license DroughtTEGO and TELA hybrids to seed companies seeking to strengthen their maize portfolios and grow their businesses while delivering climate-resilient solutions to farmers.

Winning Africa's Agricultural Future Starts with Seed

Seed Quality, System Strength, and the Resilience Required to Compete

By QualiBasic Seed Company

Africa's agricultural conversation often focuses on fertilizers, irrigation, mechanization, and financing. Yet season after season, the most decisive factor in productivity is chosen long before the first rains arrive. It is the seed.

Seed determines whether a farmer harvests or merely plants. It defines yield, tolerance to pests, response to rainfall variability, and ultimately whether agriculture becomes a livelihood or a risk. In a continent where smallholders produce the majority of food, seed quality is a strategic asset.

Africa's struggle with food security isn't simply a matter of increasing production. The key lies in developing agricultural systems that can handle unpredictability. In farming, resilience starts with genetics.

A System Under Pressure

Africa's seed sector operates within a unique structural reality. Formal seed companies, supported by breeders and regulators, provide improved genetics and certified seed. However, their reach is still developing relative to the continent's scale. Many seed companies face a recurring constraint: inconsistent access to reliable early-generation seed.

Alongside this system, farmer-managed seed networks continue to play a vital role in accessibility and local adaptation. But without assured purity and performance, these systems struggle to meet the demands of climate variability and commercial agriculture.

The continent isn't facing a failed seed system; instead, it's working with a system in transitionshifting from dependable subsistence methods to a market-based approach. The bridge between the two lies upstream.

Why Foundation Seed Matters

The performance of every certified seed brand ultimately traces back to one central point: foundation seed. When

early-generation seed is dependable, seed companies plan confidently, production stabilizes, and farmers trust what they plant. When it is inconsistent, the entire value chain carries risk. This is the space in which QualiBasic Seed Company (QBS) operates.

By multiplying breeder seed sourced from global research partners into high-purity foundation seed, QBS strengthens the critical part of the value chain. Quality control start with breeder seed verification and continues through controlled pollination, supervised multiplication, regulatory inspections with Seed Control and Certification Institute (SCCI) in Zambia, the Kenya Plant Health Inspectorate Service (KEPHIS) in Kenya and South African National Seed Organization (SANSO) in South Africa, and laboratory testing before release to ensure reliablity before release.

Beyond Quality: Building Competitive Seed Markets

Africa's next agricultural leap in agriculture will be driven not soley by technological advancements but by the establishment and operation of effective markets.

Seed companies demand more than superior genetics; they rely on efficient supply chains, consistent production, and cost-effective operations. When early-generation seed demonstrates reliability, organizations are able to allocate resources toward marketing, distribution, and farmer education. This facilitates faster adoption and expedites the introduction of enhanced varieties into agricultural fields.

Across Africa, projects are increasingly highlighting this transition. Innovative breeding techniques like CSPTA and BMSS are helping crops withstand pests and harsh climates. Advances in production technology are making farming less labor-intensive and enhancing seed quality. Unified regional regulations are simplifying cross-border trade. Community and hybrid seed initiatives are linking formal research with local farmer networks. Agriculture in Africa is unmistakably progressing toward a comprehensive seed economy rather than simply expanding its seed sector.

The Resilience Required to Win

To compete globally and feed its growing population, Africa must build resilience across several dimensions simultaneously.

- Genetic resilience is needed to cope with climate volatility and emerging pests.
- Market resilience is required so seed companies can plan production and expand distribution.
- Institutional resilience must come through predictable regulatory systems and regional harmonization.
- Partnership resilience is essential linking research organizations, private companies, policymakers, and farmer organizations.

No single institution can solve this challenge alone. Collaboration is crtical and the seed industry sits at the center of this ecosystem.

The Strategic Opportunity

Africa has a rare advantage: it can build a modern seed industry without repeating the inefficiencies of older agricultural systems. By investing directly in quality assurance, traceability, and regional supply chains, the continent can shorten the path to productivity growth.

At QBS, our mission is to supply foundation seed of the highest quality and purity to seed companies across East and Southern Africa, and our vision is to become the continent's trusted reference for quality foundation seed supply.Foundation seed serves as both an input and a stabilizer in agricultural markets.

Looking Forward

Africa's agricultural future will not be determined only by rainfall patterns or input subsidies. It will be determined by the strength of the systems that connect research to the farmer. Seed quality is the starting point of that connection.

Africa has ample innovation, talent, and demand. What's needed now is a level of reliability that enables farmers, seed companies, and markets to work confidently year after year. Success in African agriculture isn't just about what happens on the farm it starts with the seed.

'Seed determines whether a farmer harvests or merely plants. It defines yield, tolerance to pests, response to rainfall variability, and ultimately whether agriculture becomes a livelihood or a risk.'

Image caption: The Nigerian delegation at the 2025 UPOV sessions in Geneva

What's new at the International Union for the Protection of New Varieties of Plants (UPOV)?

By the Union for the Protection of New Varieties of Plants (UPOV)

In 2025 Nigeria acceded to the UPOV Convention. By granting breeders intellectual property rights, known as breeders' rights, UPOV members foster innovation in agriculture, support food security, and contribute to sustainable development.

Nigeria's formal welcome by the Governing Body of UPOV, the UPOV Council, took center stage at the organization's 2025 sessions, marking a major step forward for breeders' rights across Africa.

Mr. Fatuhu Muhammed, Director General of the Nigerian Agricultural Seeds Council, addressed the UPOV Council, pledging his nation's commitment to global collaboration in plant variety protection. In 2024, more than 29,000 plant variety protection (PVP) filings were made in UPOV members—the ninth consecutive year of growth. Nigeria's March 2025 accession as Africa's most populous country brings UPOV to 80 members covering 99 states.

On the sidelines of the sessions, UPOV held a Seminar on Cooperation with Breeders in Plant Variety Examinations, where members shared experiences on collaborating with breeders to make plant variety examinations more cost effective and efficient. Participants presented examples of cooperative testing approaches across national systems and discussed the benefits of collaboration in implementing the options provided under the UPOV Convention.

"The Government of Nigeria is fully committed to collaborating with all member countries and the UPOV Secretariat in a spirit of unity and partnership. We look forward to working together to create a future where agricultural innovation thrives, sustainable development is achieved, and our farmers and breeders are empowered. We are confident that this membership will benefit future generations for years to come," - Mr. Fatuhu Muhammed, Director General of the Nigerian Agricultural Seeds Council.

The sessions also saw the handover of UPOV leadership positions. Outgoing President of the Council, Mr. Yehan Cui (China), passed the baton to Mr. Anthony Parker (Canada) and Ms. Grace Ama Issahaque (Ghana), was elected Vice-President of the Council.

In addition, the UPOV Council provided positive advice on the draft law of Malaysia, paving the way for the Southeast Asian nation to become a UPOV member once the law is adopted.

Building Effective Plant Variety Protection Systems Across Africa

Effective PVP system development and implementation in Africa requires clear enabling legal environments, coupled with better communication and engagement with African stakeholders.

Central to this is engaging diverse stakeholders - from government agencies and breeding institutions to seed companies and farmer organizations - to build understanding of how PVP systems operate within national seed sectors.

An upcoming UPOV seminar in October 2026 will focus on smallholder farmers, sharing practical examples of PVP's impact and fostering understanding of how new plant varieties support farmers, growers, and consumers. To participate in the seminar, email upov.mail@upov.int

UPOV Digitalization Efforts

Digital infrastructure for plant variety protection continues to expand across Africa and beyond.

UPOV PRISMA, the tailor-made online tool to facilitate PVP filings, surpassed 10,000 applications in October 2025. This tool is designed to simplify and digitize the filing process across different territories in line with international standards.

- Breeders can now submit applications to Nigeria using UPOV PRISMA for all crops and species, following the country's integration with the platform.
- The African Regional Intellectual Property Organization (ARIPO) also completed its UPOV PRISMA integration in November 2025, enabling breeders to submit applications electronically for all plant species across Contracting Parties to ARIPO's PVP Protocol.
- Japan has also successfully connected its national online plant variety protection system to UPOV PRISMA. Effective October 14, 2025, applicants can now file for protection across all genera and species in Japan through the unified global platform, further expanding the reach of streamlined digital filing.

Meanwhile, a new version of the UPOV e-PVP DUS (Distinctness, Uniformity, and Stability) report exchange system is facilitating greater collaboration among PVP authorities worldwide. The digital tool enables offices to share technical reports related to DUS testing—the backbone of decisions on whether a new plant variety qualifies for protection. By avoiding repeated trials and promoting data sharing across jurisdictions, the system aims to reduce waiting times and costs for both breeders and PVP offices.

At a meeting in the Netherlands, UPOV's Technical Working Party for Ornamental Plants and Forest Trees (TWO) reviewed updated testing guidelines for species like Ginkgo and Zantedeschia, while exploring how Genotyping-by-Sequencing (GbS) could support DUS testing in Hydrangea.

Meanwhile, in Beijing, China, the Technical Working Party on Testing Methods and Techniques (TWM) brought together over 150 participants ranging from DUS experts to molecular specialists and plant breeders. On the table: high-throughput phenotyping, image-based trait analysis, and the use of machine learning to improve decision-making in plant variety testing. Though still in the pilot phase, these tools could mark a turning point in how new varieties are assessed.

mage caption: Delegates at the UPOV Technical Working Party for Agricultural Crops in the United Republic of Tanzania

In the United Republic of Tanzania, the Technical Working Party for Agricultural Crops (TWA) convened to update guidelines for staple crops like maize and sweet potato. A field visit to the Tanzania Coffee Research Institute offered a glimpse into local breeding success, showing over 20 protected coffee varieties. Beyond the institutional and technical updates, PVP impact stories are emerging from across the continent. In Kenya, a local breeder describes how rose breeding and plant variety protection have transformed livelihoods in Naivasha, showing how PVP systems can drive not only agricultural innovation but broader socio-economic development across the entire value chain.

As UPOV's presence in Africa deepens, such examples offer tangible evidence of what formal plant variety protection can mean for breeders, farmers, and communities alike.

'In 2024, more than 29,000 plant variety protection (PVP) filings were made in UPOV members—the ninth consecutive year of growth.'

South-South Cooperation:

A Strategic Lever to Strengthen Africa's Seed Systems

Ajay Panchbhai, PhD
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Africa's agricultural transformation hinges on stronger, more resilient seed systems. Quality seed is the first and most critical driver of productivity, yet formal seed sector penetration for many staple crops in Sub-Saharan Africa (SSA) remains below 20%. At the same time, increasing climate variability is accelerating the need for faster varietal turnover and wider access to climate-resilient, market-responsive crop varieties. Strengthening seed systems is therefore not optional, it is foundational to food security, resilience, and agricultural competitiveness.

A continent-wide assessment by The African Seed Access Index, conducted in collaboration with the African Union Commission and the Alliance for a Green Revolution in Africa, developed the Seed Sector Performance Index (SSPI) 2023 to evaluate the performance of national seed systems across Africa. The analysis shows that most countries fall within fair to poor performance categories, with two rated extremely poor, while only a few demonstrate well-developed and efficient seed systems.

Similarly, the 2019 Access to Seed Index for Eastern and Southern Africa (ESA), which assessed 22 leading seed companies, shows that companies operate across multiple countries in the region. Yet, according to the Common Market for Eastern and Southern Africa (COMESA), only around 23% of smallholder farmers currently have access to improved varieties of major field crops, highlighting the large gap that remains in seed system delivery.

In this context, South–South Cooperation (SSC) offers an underutilized but highly strategic pathway for accelerating Africa's seed sector development, particularly through deeper engagement among private seed actors across Africa, Asia, and Latin America.

Expanding the South–S th Lens beyond Africa-Asia

Discussions around SSC in agriculture often focus primarily on Africa-Asia exchanges, drawing inspiration from Asia's Green Revolution and the evolution of its seed industries. Countries such as India and Vietnam have demonstrated how coordinated investments in breeding, irrigation, input markets, and private seed enterprise development can significantly increase productivity and rural incomes. However, SSC in the seed sector should be viewed more broadly as a tri-continental opportunity linking Africa, Asia, and Latin America.

Latin America, particularly Brazil and Argentina, has developed one of the most dynamic seed industries in the Global South. Brazil's commercial seed market is among the largest globally, supported by strong public–private research linkages, robust intellectual property systems, and well-established hybrid seed industries (OECD Seed Schemes Report, 2022). Importantly, many of these systems evolved in tropical and subtropical agro-ecologies comparable to large parts of Africa.

Clearly, transformative seed sector growth in the Global South has already happened. Africa can accelerate its trajectory by engaging strategically with those experiences.

The Central Role of Private Seed Enterprises

While public research institutions remain critical in varietal development, sustainable seed system growth ultimately depends on an inclusive seed value chain that includes commercially viable private seed enterprises.

In Asia, the expansion of competitive domestic seed companies was driven by several enabling factors:

- Transparent and decentralized varietal release and registration systems
- Predictable regulatory pathways
- Strong national research–industry linkages
- Investment in hybrid and advanced seed technologies
- Active seed industry associations advocating policy reforms

Similarly, in Latin America, regulatory clarity and enforceable intellectual property systems created incentives for innovation, reinvestment, and scaling of local and regional seed firms.

By contrast, many African seed systems still face structural constraints, including fragmented regulatory frameworks, inconsistent policy harmonization, limited access to early-generation seed, weak commercialization pathways, and insufficient private capital flows. According to the World Bank's Enabling the Business of Agriculture report, regulatory inefficiencies and limited competition continue to constrain seed market performance in several African countries.

SSC can help address these bottlenecks- not through simple replication, but through adaptation of proven models to African contexts.

What Practical SSC in Seeds Could Look Like

A deliberate SSC strategy (Figure 3) for Africa's seed sector could include:

1. Structured exchange platforms among African, Asian, and Latin American seed associations.
2. Joint capacity-building initiatives for emerging African seed entrepreneurs.
3. Knowledge-sharing on regulatory systems, including varietal registration, quality assurance; and phyto-sanitary and biosafety governance.
4. South-South investment partnerships targeting early-stage African seed enterprises.
5. Collaborative industry-led dialogues on hybrid development, stewardship, and digital seed traceability systems.

Crucially, such cooperation should be institutionalized through long-term partnerships among industry associations, research organizations, and regulatory bodies.

Figure 3: SSC Strategy for Africa's Seed sector development

From Regional Harmonization to Global Collaboration through SSC

Over the past decade, Africa has made some progress in facilitating the movement of improved crop varieties across national borders through regional policy harmonization. One example is the Komboka rice variety, a high-yielding and climate-resilient variety developed by the International Rice Research Institute (IRRI) in partnership with African national research systems. Komboka was recently registered in the COMESA Regional Variety Catalogue, allowing its commercialization across multiple member states without the need for repeated national testing and registration.

Building on the progress made in regional seed policy harmonization within Africa, the next step is to look beyond

Komboka Rice Variety

the continent. Several crop varieties developed in Asia and Latin America could have strong adaptation potential in African production environments. Conversely, some African-developed varieties may also be suitable for tropical and subtropical regions in other parts of the Global South.

This mutual agro-ecological relevance presents a largely untapped opportunity for SSC. Such collaboration could enable the more efficient exchange of improved germplasm, technologies, and regulatory experiences among countries facing similar challenges.

Bridging Research and Markets

Another critical gap in many African seed systems lies in bridging research outputs with commercial markets. Significant public investments generate improved germplasm, yet pathways for private sector uptake and farmer adoption remain inconsistent.

Experiences from Asia and Latin America show how licensing frameworks, royalty systems, and industry consortia can create sustainable incentives for the commercialization of public-bred varieties through public-private partnerships.

For Africa, adapting such mechanisms could improve varietal turnover rates and accelerate farmer access to improved seed.

A Strategic Role for AfSTA

As the continental voice of the African seed industry, AfSTA is uniquely positioned to catalyze a broader South- South seed dialogue. By strengthening engagement not only within Africa but also with Asia and Latin America, AfSTA can:

- Facilitate peer-to-peer exchange among private seed actors
- Advocate for evidence-based regulatory reform
- Promote commercialization models that incentivize innovation
- Position Africa as both a recipient and contributor in global seed innovation

Conclusion:

South–South Cooperation represents more than knowledge exchange- it offers Africa an opportunity to reshape how innovation flows across the Global South. By strengthening partnerships with Asia and Latin America, Africa can accelerate varietal development, build resilient seed systems, and position itself not only as a recipient but also as a contributor to global seed innovation.

Why Join AFSTA

Join the Network Shaping Africa's Seed Future

Be part of a continental movement dedicated to expanding seed trade, strengthening African seed systems, driving innovation in agriculture, and improving farmers' access to quality seeds

The Voice of Africa's Seed Industry

By joining AFSTA, your organisation becomes part of a powerful continental network of seed companies, plant breeders, policymakers, and agricultural value chain stakeholders working to advance innovation, policy harmonisation, and market growth in Africa's seed sector.

1. **Grow Your Business and Raise Its Visibility Across Africa**
   AFSTA membership opens the door to new markets and commercial opportunities across the continent. Strengthen your industry presence, expand your distribution networks and grow your seed business in Africa's rapidly evolving agricultural markets.

   Benefit from:
   - Direct access to a network of seed companies, distributors, and buyers across Africa
   - Discounted participation in the AFSTA Annual Congress and Seed Trade Fair
   - Business-to-business trading platforms and seed exhibitions
   - Market insights on seed demand, emerging crops, and regional trade opportunities
   - Company listing on the AFSTA website and the African Seed Magazine
   - Official recognition and introduction at the AFSTA General Assembly

2. **Influence Policies That Shape the Seed Industry**
   AFSTA represents the collective voice of Africa's seed sector in discussions with governments and regional bodies. Help shape policies that affect your business environment and regional trade.

   Benefit from:
   - Representation in policy and regulatory discussions
   - Advocacy for harmonised seed regulations across Africa
   - Engagement with regulators on certification, quality standards, and seed trade

3. **Access Knowledge, technologies, and Innovations**
   Stay ahead in a competitive seed industry through timely updates on developments shaping the seed sector and cutting-edge knowledge and technical expertise. Strengthen your technical capacity and improve product quality.

   Benefit from:
   - Training, workshops, and webinars on seed production, processing, and quality management
   - Access to emerging plant breeding innovations and improved germplasms
   - Industry updates and best practices in seed science and seed business development
   - Primarily access to AFSTA's publications: E-Reviews, newsletters, Monthly Updates, and magazines
   - Industry insights, policy updates, key announcements on events and opportunities

4. **Build Strategic Partnerships**
   AFSTA connects members across the entire seed value chain to create partnerships, joint ventures, and new collaboration opportunities.

   Network with:
   - Seed producers and distributors
   - Plant breeders and researchers
   - Policymakers and regulators
   - Seed-related service providers
   - Farmer organisations and development partners

5. **Privileged Access to Africa's Largest Annual Seed Industry Event and the African plant breeding consortiums**
   The Annual AFSTA Congress provides unmatched opportunities to build partnerships, identify distributors, promote seed products, and expand into new markets.

   Benefit from:
   - Discounted registration fees for the Annual Congress
   - Participation in high-level plenary discussions on seed trade, innovation, and policy
   - Access to the Seed Trade Fair and Exhibition
   - Business-to-business trading tables
   - Networking with seed companies, investors, researchers, and policymakers from across Africa and beyond

Together, AFSTA members are transforming agriculture in Africa. ***Join AFSTA Today!***

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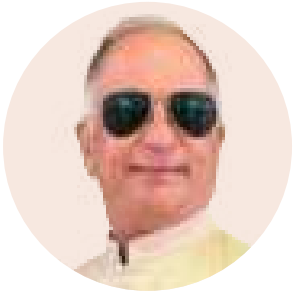

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