

Seed Info

Official Newsletter of the WANA Seed Network

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Editorial Note

Seed Info aims to stimulate information exchange and regular communication between seed staff in the Central and West Asia and North Africa (CWANA) region and beyond. Its purpose is to help strengthen national seed programs and thus improve the supply of high-quality seed to farmers.

WANA Seed Network News provides information on activities relating to CGIAR initiatives on seed systems. Here we present the Communities of Excellence on Seed System Development initiative which is a catalytic process to establish a community of experts and a forward-looking strategy that places seed systems development squarely on the One CGIAR research for development agenda. The process is a bottom-up engagement that is initially nested within CGIAR but will expand out to a much wider set of agri-food system stakeholders.

In the **News and Views** section, we present an article by Niels Louwaars from the Dutch Seed Trade Association on how to draw attention to and better advocate for seeds. While the importance of seeds and the value of plant breeding are critical for sustenance of our agri-food systems, many in society, including decision makers seem to overlook them. The situation is even worse in many countries with weak seed systems where seed issues become a national agenda at the start of the rainy season but gradually fade away until the next season. A consistent policy environment ensures the development of a pluralistic national seed system that serves the needs of diverse farming communities within the given context of their socioeconomic situation and farming systems. With this in mind, creating a platform for dialogue between national seed trade associations, representing the interests of broad range of stakeholders and the government, remains critical. In this issue we present another fascinating story on how the Soybean Innovation Lab is working to quickly bring new varieties from trial to market in collaboration with 62 public and private sector organizations across 24 countries. Fast-track testing and release coupled with accelerated seed multiplication can bring about a soybean revolution in Africa if supported by a regionally harmonized regulatory framework. In this month's newsletter we also present news from regional and international organizations including the African Development Bank, West and Central African Council for Agricultural Research, International Seed Testing Association and Development and the

International Union for the Protection of New Varieties of Plants.

The section on **Seed Programs** presents news from Ethiopia and Syria. From Ethiopia we present the Plant Breeder's Rights (PBR) Proclamation and PBR Directive and its implications for farmers' varieties and farm-saved seed. In Ethiopia, the PBR Proclamation No 481/2006 and Farmers and Community Rights Proclamation No 482/2006 were enacted over a decade and half ago. Currently a revised PBR Proclamation No. 1068/2017 is pending approval while its implementation is decreed by the Ministerial Directive No. 769/2021 where both provide options for plant variety protection at policy and legislative levels. While the issues of plant breeder's rights and farmer's rights appeared separate and noncontentious, the inclusion of registration and protection of farmer's varieties in the PBR proclamation created some concerns. Moreover, there are still many technical and administrative factors delaying its implementation particularly due to the lack of an independent agency to enforce PBR. Meanwhile, from Syria, we report on the ongoing efforts to rehabilitate the agricultural and seed sector to enhance crop production to achieve food and nutritional security in the country under a Food and Agricultural Organization of the United Nations (FAO) project supported by the European Union.

The **Research** section of *Seed Info* captures information on research activities or issues relevant to the development of seed programs in the CWANA region and beyond. This issue features a paper on participatory variety selection carried out in Gudoberet and Goshebado lowest administration levels, or *kebeles* in the Basona-Worana district under an Africa RISING project being implemented in partnership with ICARDA.

Seed Info encourages the exchange of information among national, regional, and global seed industries. We encourage our readers to share their views and news through this newsletter. Your contributions are most welcome. Take time to share and contribute to your newsletter.

Have a nice read.

Zewdie Bishaw, Editor



WANA Seed Network News

This section presents information about the WANA Seed Network, including network activities and reports from meetings of the Steering Committee and the WANA Seed Council.

The CGIAR Community of Excellence for Seed Systems Development

Accelerating research for development on sustainable and inclusive seed systems

In many low- and middle-income countries, there is limited availability of, and access to quality propagation material to develop well-adapted crop varieties and species and breeds. This hinders efforts to transform agri-food systems into more productive, nutritious, gender equitable, socially inclusive, and environmentally sustainable systems. These limitations, in turn, limit improvements in incomes, livelihoods, and food and nutrition security for smallholder farmers, consumers, and many other actors in local agri-food systems, particularly in the face of the global climate crisis.

Finding solutions to the challenges facing seed systems is crucial. Seed systems comprise the development, production, dissemination, and conservation of propagation materials for crops, trees, forages, livestock, and fish. While the threats to seed systems are inherently complex and specific to species and context, efforts to advance solutions share several key requirements: better coordination, more effective learning, and greater innovation among the wide range of seed system actors, which include farmers, consumers, community-based organizations, private enterprises, researchers, governments, and development agencies. Coordination, learning, and innovation at multiple levels — global, national, and local — are prerequisites to making more productive, inclusive, nutritious, and resilient varieties available. They are also critical to conserving genetic resources for future generations, and ultimately, to delivering on the Sustainable Development Goals (SDGs) of **Zero Hunger, Gender Equality**, among others by 2030.

Seed systems are a primary instrument through which CGIAR, and its partners will deliver on its five impact areas related to nutrition, poverty, gender, climate, and environment, and on the SDGs.

Why this initiative

Seed systems development already has an important place in the CGIAR agenda. This development includes activities relating to specific crops, trees, forages, livestock, and fish, across diverse regions such as sub-Saharan Africa, Latin America and South Asia, and collaborations with global crop-science and livestock breeding firms, financial service providers, genetic resource experts, and small domestic seed producers. However, CGIAR efforts remain fragmented, indicating a real need for closer coordination, especially in supporting public policy and regulation, commercialization pathways, and biodiversity conservation.

The CGIAR Community of Excellence for Seed Systems Development initiative is a catalytic process to establish a community of experts and a forward-looking strategy that places seed systems development squarely on the One CGIAR research-for-development agenda. The process is a bottom-up engagement that is initially nested within CGIAR but will expand out to a much wider set of agri-food system stakeholders.

Behind this initiative is a vision that all farmers in low- and middle-income countries. — particularly smallholder farmers — will have the opportunity to participate in and benefit from equitable, sustainable, and innovative seed systems that offer well-adapted and quality propagation material for crops, trees, forages, livestock, and fish.

It is important to note that this initiative does not take a prescriptive approach to seed systems development, nor does it adhere to a single paradigm or model. The initiative recognizes the rich diversity in the reproductive biology of crops, trees, forages, livestock, and fish, and the heterogeneity found within the agro-ecological, socioeconomic, and policy contexts in which seed is developed, produced, exchanged, and used.

What we strive to achieve

The expected long-term outcomes of this initiative are substantive improvements to nutrition, poverty reduction, gender equity and social inclusion, resilience to climate change, and environmental sustainability in focal countries and regions throughout Africa, Asia, and Latin America. This will result from the development of more vibrant, sustainable, and inclusive agri-food systems and of seed systems that ensure smallholder farmers have timely access to well-adapted, resilient, and affordable crop varieties. To achieve this, we need a more coherent and better coordinated evidence-based approach to seed systems development built

on high-quality research and innovation closely integrated with communications, partnership, and capacity development.

In the short term, we are working to build a CGIAR Community of Experts and strategies for seed systems development that anchor research, communications, partnership, and capacity building within the One CGIAR research for development agenda.

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For more information on the initiative, you may please contact: Dr David Spielman, IFPRI, Kigali, Rwanda; email: d.spielman@cgiar.org.

Source: [The CGIAR Community of Excellence for Seed Systems Development](#)

News and Views

News, views, and suggestions relating to the seed industry are included in this section, providing a forum for discussion between seed sector professionals.

Advocacy for Enabling Environment: How to Draw Attention to Seeds?

We all know the importance of seeds and the value of plant breeding, but many in society, including decision makers seem to overlook them. It is important that they value seeds because the seed sector is highly regulated and not only by the ministries of agriculture. Ministries of planning, finance, and the environment can create or block opportunities for good seed to reach farmers. A good example is the role of environment ministries in discussions about access to genetic resources and the use of gene editing technologies. Seed associations, representing the seed value chain actors, are therefore important for advocating on behalf of the sector, which consists of a diversity of operators both in the seed chain from research and breeding to marketing, and from forage through field crops and potatoes to horticultural seeds.

Seed associations use different communication methods. International associations like the International Seed Federation and Euroseeds often use social media. Plantum in The Netherlands had a very special initiative last May on International Fascination of Plants Day—a day where the importance of plants and especially plant research is celebrated. As part of this initiative, Plantum installed a 3.5 m high chair on the square in front of

the Parliament entrance. The chair was covered with plants, flowers, and agricultural products. The message was that even when there is a lot of negativity in the news, plant breeding is a ‘good news’ sector, that quietly works for the people, to secure food and nutrition, happiness (flowers) and helps to make agriculture more sustainable by reducing chemical crop protection through breeding for resistance and adapting crops to climate change.

Parliamentarians and ministers passing by on their way to work were invited to sit on the chair (“Take a Seed”) and say a few words about the beauty of plants, their importance for all, and the need to innovate. Farmers’, non-governmental organizations (NGOs) and other stakeholders were invited to do the same. These messages were then recorded as small films and were published on social media. In addition, all passers-by were invited to3 a webinar where seed issues were discussed under the leadership of popular national television host, Jeroen Pauw. Minister for the Environment Carola Schouten also joined the TV show.

Breeders and seedsmen are generally not very good at communication. We prefer to discuss topics one-on-one based on science and facts. The experience with installing this chair is that it is now much easier to approach politicians and civil servants when there is a policy issue affecting seeds, such as breeder’s rights, biotechnology, crop protection, seed regulations and public research support. As soon as we have access to such decision makers, we can present our arguments. They may not always agree with us but at least they will listen with an understanding that breeding and seeds are important.





The 3.5 m high chair created for International Fascination of Plants Day (top). The Minister of Agriculture being interviewed on the chair (bottom).

It is not necessary, possible, or even useful to copy this initiative in other countries, but this may be an example for breeders and seedsmen to think creatively about reaching out to society and decision makers.

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Editor's note:

In many low- and middle-income countries seeds become a hot issue when the rain starts and everyone scrambles, from policy makers to local administrators. Once the season sets on, the conversation fades, the seed agenda is shelved for next season, and the cycle continues. While national seed trade associations were established to create a forum to represent the seed sector, many remain ineffective in setting the agenda and playing an advocacy role. Strengthening the national seed associations to play a proactive role may change the status quo in low- and middle-income countries.

High-level Dialogue on 'Feeding Africa: Leadership to Scale Up Successful Innovations'

The High-level Dialogue on 'Feeding Africa' Leadership to Scale Up Successful Innovations' was hosted by the African Development Bank (AfDB) and the UN International Fund for Agricultural Development (IFAD), in partnership with the Forum for Agricultural Research in Africa (FARA) and the CGIAR System Organization, on 29 and 30 April 2021. Seventeen heads of state, the chairman of the African Union Commission (AUC), and heads of Multilateral Development Banks (MDB) and research and development (R&D) centers attended the virtual meeting.

Background

One of the challenges to Africa's food security is the low productivity of its major staple crops such as maize, rice, wheat, sorghum, and millets. This makes agriculture uncompetitive, with about a third of calories consumed imported from outside the continent. The AfDB's Feed Africa Strategy—particularly related to the roll out of the Technologies for Agricultural Transformation (TAAT) program—reveals that increased investments in agricultural R&D and technology adoption can help boost agricultural productivity and contribute to strengthening food security. However, funding for regional and sub-regional research and development institutions has declined, limiting opportunities for investments in innovation and R&D. There is a need to refocus attention and investment in agricultural R&D—both public and private—and develop improved synergies between the two.

Rationale

TAAT brings together scientists from international and national agricultural research systems, governments, and the private sector to deliver agricultural technologies to farmers, at scale [delivering impressive results](#). Among these are TAAT Wheat Compact implemented by ICARDA which scales heat tolerant wheat varieties, and TAAT Maize Compact implemented by African Agricultural Technology Foundation (AATF) which scales drought-tolerant maize varieties across selected African countries.

Although AfDB's science- and tech-driven Feed Africa Strategy is working there is much more work to be done. The High-level Dialogue aimed at creating new partnerships with governments, other multi-lateral development banks and development partners to extend, replicate and scale up these programs to more commodities and countries in Africa which are not currently supported through Technologies African Agricultural Transformation (TAAT). This can be achieved by strengthening Africa's Regional Technology Delivery Infrastructure (RTDI)—an ecosystem of International Agriculture Research Centers, National Agricultural Research and Extension Systems, FARA, ministries of agriculture of regional member countries, seed fertilizer and farm machinery companies, farmer organizations, among others.

To scale up successful technologies and build a pipeline for climate adapted and more robust food systems technologies, the AfDB and partners need to make a concerted effort to achieve the much-needed transformation of Africa's agricultural sector. The ADB has invited IFAD to co-host a

meeting to expand and sustain African agriculture's success stories. AFDB and IFAD, in collaboration with the African Union and FARA, will co-convene a roundtable to reframe the regional R&D agenda as part of a RTDI in a new partnership. The meeting draws on case studies and success stories from development partners and existing RTDI to demonstrate expansion potential.

Outcomes

The virtual summit announced commitments from regional member countries, multi-lateral development banks and development partners to replicate success stories across 17 African countries and in priority commodities, revealing commitments to finance regional research for development connected to scaling up new technologies by RTDI.

A coalition of multilateral development banks and development partners has pledged over US\$17 billion in financing in a bold bid to address rising hunger on the African continent and to improve food security. In addition, 17 African heads of state signed on to the commitment to boost agricultural production by doubling current productivity levels through the scaling up of agro-technologies, investing in access to markets, and promoting agricultural research and development.

For more details of the communique, please visit this [link](#).

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Soybean Innovation Lab Works to Bring New Varieties from Trial to Market

One of the biggest challenges to successful soybean production in Africa is the availability of high-yielding soybean lines. To address this challenge, the Soybean Innovation Lab (SIL) designed the [Pan-African Soybean Variety Trials \(PATs\)](#), which operate in 24 countries across 113 locations, to quickly bring newly introduced, high-yielding varieties to the African soybean market (see map). A network of 59 public and private sector partners now supports these trials.

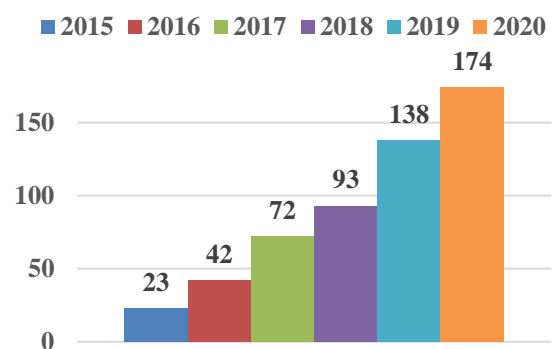
The slow pace of varietal release over the last 15 years limits farmers' abilities to access high-yielding and locally adapted varieties. The PATs, which began in 2016 at four locations within one country, specifically addresses this problem by speeding up the process from trialing through to commercialization by leveraging a seed catalogue of over 170 successful commercial varieties. The ever-growing PAT catalog of available varieties are

sourced from a network of private seed companies and public sector breeding institutions from Africa, Australia, and North and South America looking to serve the fast-growing African soybean complex.

Through the PATs, trial cooperators across 62 companies and organizations can engage in deep learning about soybean varietal performance while also producing the high-quality data they need to fast-track registration, often within 18 months. The PAT Advanced Pipeline is already full, with 60 varieties either registered or near registration across 11 countries.

The PAT Advanced Pipeline uses trial data to evaluate the performance of newly introduced materials not only against each other, but also against the local varieties currently available to farmers.

Key metrics inform the advanced pipeline, such as maturity, grain yield, and protein and oil concentration, to accumulate never-before-available information on varietal performance. These data provide transparency and head-to-head analyses of materials through a formal testing platform, leading to registration and commercialization of new varieties.



Network of pan-African soybean variety trials (top) and number of soybean lines tested (bottom).

As a result of the PATs, seven varieties have already been brought to market in Malawi, Uganda, Mali, and Zambia. Nine more are on the cusp of the registration process. The ever-growing PAT catalog of available varieties are sourced from a network of

private seed companies and public sector breeding institutions from Africa, Australia, and North and South America looking to serve the fast-growing African soybean complex. You can read more about all seven new varieties in the [2021 Activities & Impact Report](#).

Breeders and seed companies know that seed contracts and royalties are central to commercialization. The PATs provide public breeders with a new and critically needed revenue source for their breeding programs. Private breeders see new markets and a low-cost way to enter these new markets. Local seed producers see an opportunity to increase their own profitability while improving farmer productivity. Local farmers learn the value of fresh seed and a steady flow of new varieties to better meet their needs, fight disease and drought, and support increasing profitability from their operations.

For more information about the Pan-African Soybean Variety Trials Pipeline, contact Michelle da Fonseca Santos, Program Manager, soybeaninnovationlab@illinois.edu.

Steph Adams, SIL, Illinois University, Illinois, USA; email: smadams@illinois.edu

Tool-box for Root, Tuber and Banana Seed Systems

The CGIAR Research Program on Roots, Tubers and Bananas (RTB) launched a toolbox for working with root, tuber, and banana seed systems. The tools in this toolbox help scientists, policy makers and practitioners to study and improve these important, yet challenging seed systems and include methods, models, approaches, and information and communication technologies (ICTs). The toolbox aims to provide users with detailed information on how to use the tools to understand root, tuber, and banana seed systems, so that one can design, conduct, monitor and evaluate seed system projects. For more information visit this [website](#).

Africa's Evolving Vegetable Seed Sector: status, policy options and lessons from Asia

Authored by Schreinemachers and colleagues, a review article in *Food Security* highlighted the status of the vegetable seed sector in Africa and the policy options and lessons that could be learned from Asia's successful seed program.

Fostering better access to more nutritious foods across sub-Saharan Africa will be critical to ending hunger and malnutrition. In Asia, vegetable production and consumption have grown rapidly since the 1990s and the development of a dynamic vegetable seed industry, led by the private sector, played a pivotal role in this process. The availability of locally bred and adapted varieties facilitated the rapid expansion of production and increased the supply of affordable vegetables to consumers. In contrast, the vegetable seed sector in sub-Saharan Africa has been slow to develop and has received little attention in the development agenda.

Drawing from Asia's experience, this paper outlines a four-point strategy to accelerate the vegetable seed sector in sub-Saharan Africa. First, there is a need to strengthen the technical capacity of African seed companies to allow them to develop varieties that are well-adapted to local conditions and consumer preferences. Second, seed regulations, originally designed with food grains in mind, should be reviewed and revised to facilitate domestic vegetable breeding research and seed production. Third, more farmer extension is needed to exploit improved varieties together with good management practices. Fourth, vegetable marketing systems should be strengthened to reduce risks to farmers and traders. Investment in these four areas will help energize private sector investment in the vegetable seed sector. Asian experience suggests that investment in locally adapted vegetable varieties is a critical step in improving productivity, availability and ultimately consumption of nutritious vegetables.

Details of this article are available at this [link](#).

Modernizing the Regional Catalogue of Crop Species and Varieties

Experts from several regional and international organizations met in Ouagadougou, Burkina Faso from 1-5 February 2021, for a technical meeting. Their overarching goal is to modernize West Africa's Regional Catalogue of Plant Species and Varieties' electronic data platform.

Organized by Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles (CORAF), the meeting will enable actors to develop the terms of reference and establish a roadmap for the modernization of the data platform of [West Africa's Regional Catalogue of Plant Species and Varieties](#). They will also define the modalities for extending the list of plant species to other crops of economic and food security importance in the regional catalogue.

West Africa's Regional Catalogue of Plant Species and Varieties was developed by CORAF in collaboration with its national and regional partners and within the framework of the [Partnership for Agricultural Research, Education, and Development in West Africa](#) (PAIRED). It facilitates access to new certified plant varieties and the marketing of seeds in the ECOWAS-WAMU-CILSS regional area.

The catalogue's current version recorded 1,496 varieties of 11 priority crops: rice, maize, sorghum, millet, groundnuts, cowpea, cassava, yam, potato, tomato, and onion.

The meeting extended the list of economic and food security importance beyond the 11 crop species such as sesame, soybean, sweet potato, okra, local eggplant, and bissap.

To be recorded in the catalogue — as was the case for the 11 crops currently recorded — it is imperative that candidate varieties are approved at the national level and meet the following three conditions:

- Be recognized as distinct, homogeneous, and stable (DHS).
- Be recognized as efficient enough compared to the range of the most used varieties and without major defect for users, through a protocol for examining the agronomic, technological, and environmental value (ATEV).
- Be designated by an approved denomination.

The meeting will see the participation of 15 experts from CORAF, the Permanent Interstate Committee for Drought Control in the Sahel, the West African Economic and Monetary Union, the Food and Agriculture Organization of the United Nations, the United States Agency for International Development in West Africa and experts in DHS testing-Distinctness, Homogeneity and Stability.

Source: CORAF This Month, February 2021

Guiding Seed Sector Transformation in Africa: Durable solutions to systemic problems

Increasing the availability and use of quality seed of new, improved, and preferred varieties will drive the agricultural growth necessary to sustainably feed a growing population in a changing climate in Africa. Diverse investments around the world have enabled innovation on the production, marketing and use of quality seed as well as learning on improved governance to transform and deliver effective, inclusive, and sustainable seed sectors. However,

where some initiatives find success, others continue to face difficulty. Conscious of this, Wageningen Centre for Development Innovation and the Royal Tropical Institute organized an online conference *Guiding Seed Sector Transformation in Africa: Durable solutions to systemic problems* to bring international experiences and expertise together to share lessons, test the durability of solutions, and explore their potential to overcome the root causes of common seed sector problems.

The online conference, held from 21-23 June 2021, attracted over 40 contributing partners collaborate to deliver 22 insightful and triggering sessions to an audience of roughly 500 global peers. Here you can find a [link](#) to a playlist of the session recordings, which are also easily accessible at www.issdafrica.org.

ISTA Seed Health Proficiency Test

Registration is now open for the ISTA Seed Health Proficiency Test for detection of *Ditylenchus dipsaci* on alfalfa (*Medicago sativa*). This round aims to verify the ability of laboratories to detect *D. dipsaci* seed samples and includes an identification exercise of different nematodes.

This proficiency test has two objectives: to verify the ability of laboratories to detect *D. dipsaci* seed samples and to serve as an identification exercise for different nematodes. Accredited laboratories are required to participate if they hold a valid accreditation for the ISTA Method 7-031. Laboratories that are not accredited may participate as volunteers. These laboratories are encouraged to participate using their preferred method.

If you wish to participate, please send an email to nadine.ettel@ista.ch latest by 30 July 2021. Please note that we only have a limited number of sample sets. The samples of *M. sativa* (method 7-031) will be ready for distribution October 18, 2021. Further information is available on the [ISTA website](#).

For general information or if you wish to participate in one of the test rounds of seed health proficiency tests, please contact the ISTA Secretariat (ista.office@ista.ch) or the proficiency test subcommittee chairperson, Ms Valerie Grimault (valerie.grimault@geves.fr).

News from the International Union for the Protection of New Varieties of Plants UPOV membership

The purpose of the International Union for the Protection of New Varieties of Plants (UPOV) is to

provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society. UPOV is an intergovernmental organization based in Geneva, with 77 members, covering 96 states.

The members of UPOV are (as of May 2021) two regional organizations (the African Intellectual Property Organization¹ and the European Union²) and [77 sovereign countries](#) (see map below for May 2021).



UPOV member countries: The boundaries shown on this map do not imply the expression of any opinion whatsoever on the part of UPOV concerning the legal status of any country or territory.

New membership

Saint Vincent and the Grenadines deposited its instrument of accession to the UPOV Convention on 22 February 2021 and became the 77th member of UPOV on 22 March 2021.

UPOV seminar

A seminar to exchange information on matters concerning harvested material and unauthorized use of propagating material was organized by electronic means on 27 May 2021. The presentations, video of the seminar and final list of participants are available at:

https://www.upov.int/meetings/en/details.jsp?meeting_id=63048.

A seminar to exchange information and experiences on strategies involving plant breeding and plant variety protection that address broad policy issues will be held on 20 October 2021.

Guidance on DUS examination

Preparatory workshops on DUS (distinctness, uniformity and stability) are organized before each UPOV Technical Working Party meeting, with the aim of explaining UPOV's work and preparing participants for the meeting. Videos of the preparatory webinars on the following topics were

produced and are available on the [UPOV Youtube channel](#):

- Webinar 1: How to organize DUS examination and international cooperation
- Webinar 2: International harmonization in DUS examination
- Webinar 3: Developing and using UPOV Test Guidelines
- Webinar 4: Using molecular markers in DUS examination and the role of the BMT

UPOV PRISMA

[UPOV PRISMA](#) is an on-line tool to assist in making plant variety protection (PVP) applications to PVP Offices of participating UPOV members. UPOV PRISMA currently has 35 participating UPOV members, covering 74 countries (see <http://www.upov.int/upovprisma/en/index.html>).

The benefits of using UPOV PRISMA are:

- Online service for PVP applications
- 70+ countries covered
- Language choice to read forms
- Translation of predefined responses
- Copy data to other applications
- Reminders for novelty and priority
- Find all PVP Office procedures
- Overview of all submissions

The latest version (Version 2.5) was released in the first quarter of 2021 and includes expansion of crop and species coverage including the addition of maize for the European Union, the possibility to use UPOV PRISMA for National Listing applications in the United Kingdom, and new payment facilities including PayPal, credit card or bank transfer. In June 2021, the 1000th application for data was submitted via UPOV PRISMA.

Benjamin Philippe Rivoire, UPOV, Zurich, Switzerland; email: ben.rivoire@upov.int

GMOs Hold their Ground in Africa and Globally

The socioeconomic impacts of biotech crops have been documented in the last 23 years (1996-2018) showing that biotech crops have contributed to increasing productivity for food, feed, and fiber; supporting self-sufficiency on a nation's arable land; conserving biodiversity; mitigating climate change challenges; and improving economic, health, and social status of adopters. According to a

¹ Operates a plant breeders' rights system that covers 17 member states (Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Senegal, and Togo)

² Operates a plant breeders' rights system that covers 28 member states (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany,

Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom)

study by [PG Economics](#), farmers who planted genetically modified (GM) crops increased their incomes by almost \$19 billion in 2018 and reduced carbon emissions by 23 billion kg or the equivalent of removing 15.3 million cars from the roads that year. The higher income represents \$4.42 in extra income for each extra dollar invested, according to a report released in 2020 by PG Economics. More countries are now embracing GM technology having seen its benefits particularly with new technologies such as gene editing which is relatively less controversial (See [SeedInfo No. 60](#) January 2021).

Initiative to modernize biotechnology and biosafety recommendation of 1986

Experts who have previously served the Organization for Economic Cooperation and Development (OECD) are proposing to update the Recommendation on Recombinant DNA Safety Considerations of 1986 to make it more suitable for the modern era of [biotechnology](#).

In an article published by *Trends in Biotechnology*, the experts presented their suggestions on how to update the Recommendation considering the accomplishments made by modern biotechnology since 1986. They emphasized that there is a need for mutual understanding among nations and their respective regulatory approaches towards [genome editing](#). They also stated that the Recommendation remains an important legal instrument and should be more widely known, especially to aspiring OECD candidates who intend to be compliant with the organization's standards.

To begin with, the experts recommended that the Recommendation be renamed as Safety Considerations for Protocols of Modern Biotechnology: Applications in the Environment, Agriculture, and Food/Feed Production. Section I will focus on sharing experiences with rDNA organisms to harmonize approaches to rDNA techniques with [biosafety](#) regulations while still allowing the biotechnological developments to expand. Section II will highlight the validity of the principle of good industrial large-scale practice used for handling industrial microbial strains derived from modern biotechnology. Section III, which deals with agricultural and environmental applications, recommends that risk/safety assessment should consider the knowledge gained over the years about the environmental and human health effects of living organisms. Lastly, the authors recognize that a regular review and updating of the Recommendation can help give rise to innovative safety assessment methodologies to possibly address challenges of synthetic biology

products in terms of the application of familiarity and comparative safety assessment approach.

The revisions, according to the authors, could look forward to the likelihood and range of experience of modern biotechnology while still reflecting current discussions like the original Recommendation.

Read the full list with details of the suggested amendments in [Trends in Biotechnology](#).

Source: *Crop Biotech Update 24 March 2021*

Kenya National Biosafety Authority approves genetically modified cassava

On 22 June 2021, the Kenya National Biosafety Authority (NBA) approved the environmental release of [genetically modified](#) (GM) cassava event 4046, which is resistant to cassava brown streak disease (CBSD) and was developed by the Kenya Agricultural and Livestock Research Organization (KALRO).

The NBA Board approved the application as stated in the decision document dated 16 June 2021, following a necessary review in accordance with the country's Biosafety Act. KALRO scientists have been developing CBSD-resistant cassava varieties using event 4046 under regulated confined field trial conditions authorized by NBA. The approval paves way for conducting national performance trials of these varieties before registration and release to farmers. The approval is valid for five years from the date of authorization.

Cassava event 4046 was developed using modern biotechnology and was evaluated over a period of five years in confined field trials in three different locations in Kenya – Mtwapa (Kilifi), Kandara (Murang'a), and Alupe (Busia). It has shown high and stable resistance against CBSD, a disease that can result in a 100 percent loss of usable storage roots due to severe infection. The extensive review conducted by NBA confirms that GM cassava is as safe as conventional varieties for food, feed, and the environment.

The disease-resistant cassava was developed under the Virus Resistant Cassava for Africa Plus (VIRCA Plus) project, a collaborative program between KALRO, the National Crops Resources Research Institute of Uganda, and the Donald Danforth Plant Science Center.

For more details, read the full news release from KALRO in [Science Speaks](#). For more information on biotech developments in Africa, contact:

ISAAA AfriCenter Director Dr. Margaret Karembu at mkarembu@isaaa.org.

Source: *Crop Biotech Update 23 June 2021*

Nigeria to commercialize first genetically modified food crop

After a decade of research work and on-farm experimentations, farmers in Nigeria will be planting the pod borer resistant cowpea following its proof of efficacy and the official release by the Federal Government of Nigeria. AATF has been coordinating a network of international partners and funders including USAID for over 10 years, worked with relevant local partners such as the Institute for Agricultural Research to develop the variety which became the first genetically modified food crop developed and released in the country. For more information visit the [link](#).

Source: *AATF Partnerships Newsletter April 2021*

South Australia plants GM crops after lifting ban

Farmers in South Australia have started sowing [genetically modified](#) (GM) crops following the lifting of their 16-year-old ban on [GM crops](#). [GM canola](#) and [Bt cotton](#) were the first genetically engineered crops approved for growth in South Australia.

Farmers have begun dry-sowing GM canola crops despite below-average rainfall in March and April. They were hoping to save as much moisture as possible before the rainy season starts. Farmers have also initiated dry-sowing crops including GM canola and Bt cotton before the rainy season starts providing a larger choice of crops to pick from.

For more details, visit [Indaily](#) and the [Crop and Pasture Report South Australia](#).

Source: *Crop Biotech Update 12 May 2021*

Contributions from Seed Programs

In this section, we invite national seed programs, projects, universities, and regional and international organizations to provide news about their seed-related activities.

PBR Proclamation and Directive in Ethiopia: Implications for Farmer's Varieties and Farm Saved Seed

Background

According to the UPOV Convention, plant variety protection through the granting of plant breeders' rights has now become an established norm in the global north for new varieties developed through formal breeding programs. An exemption for breeders to develop new crop varieties and farmers' privilege to re-use seed of protected varieties subject to certain restrictions (landholding or production) are clearly stipulated in the convention. Some countries are even extending the royalty to saved seed of protected varieties.

On the other hand, in the global south the issue of farmers' rights to save, use, exchange and sell farm-saved seed or propagating material is advocated based on International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) subject to national laws and as appropriate. Practically speaking there is no conflict between farmers' rights and with national legislation implementing the UPOV Convention. However, extending these arguments to the registration and protection of farmers' varieties and the use of farm-saved seed of a protected variety introduce some elements of ambiguity hindering the implementation of PVP and engagement of foreign plant breeding and seed companies in the global south.

In Ethiopia, the Plant Breeder's Rights (PBR) Proclamation No 481/2006 and Farmers and Community Rights Proclamation No. 482/2006 were enacted over a decade and half ago. Currently a revised PBR Proclamation No. 1068/2017 and its implementation Ministerial Directive No. 769/2021 provide options for plant variety protection both at policy and legislative levels. The revised draft PBR Law is now pending approval. Moreover, the recently endorsed PBR Directive by the Federal Attorney General is meant to advance variety protection and is one step forward to operationalizing PBR by the Ministry of Agriculture in Ethiopia. However, there are still many factors delaying its implementation, particularly the lack of an independent agency with a capacity to enforce PBR.

Farm-saved seed use

According to the PBR proclamation, the use of farm-saved seed from a protected variety, is strongly linked to the definition of smallholder farmer. The PBR proclamation Article 2/15 defines 'small holder farmer or pastoral community' as 'a farmer or pastoral community who is officially granted a certificate of possession of land not more than 10 ha and engaged in agricultural development using predominantly his own and family labor and his livelihood is predominately dependent on

agriculture.’ According to this definition, smallholder farmers are farmers with farm holdings of 10 ha or less. However, the maximum 10 ha limit holding is not clarified based on crop species. This may lead to misuse in the provision for high value crops like vegetable seeds and industrial crops of high commercial value.

Smallholder farmers and pastoralists and their communities are endowed with the right to use farm-saved seed, exchange it and sell it for noncommercial purposes (Article 7/1&2). The article states that ‘small holder farmers or pastoral community shall have the right to save, use, exchange and sell farm-saved seed of any variety on the non-commercial marketing.’ The provision is applicable to any type of variety including high value vegetable crops that generate high income from small plots. This provision may discourage foreign private seed companies from investing in breeding and seed production for the domestic market and affect the future growth of the Ethiopian seed sector. The private seed companies may focus on importing seeds and in turn oblige the government to allocate foreign currency for importing seeds that would otherwise be produced locally.

The PBR Directive does not include any issue of farm-saved seed because the PBR Proclamation does not recommend formulating detailed provisions in the directives that follow. However, details on farm-saved seed are included in the draft PBR Proclamation considering the definition of smallholder farmers. The revised draft PBR suggests provisions for the use of farm-saved seed based on the crop types and total production within the maximum limits of smallholder farmers’ 10 ha.

Farmer’s variety protection

In Ethiopia, PBR Proclamation under Article 2/7 clearly defines ‘farmers or pastoral community variety’ as ‘a variety which is traditionally cultivated and developed by farmers or pastoral communities in their fields; or predominantly breed or selected by farmers or pastoral communities from various plant source’. The Proclamation under Article 4/3 further states that ‘The Ministry shall prescribe less stringent distinctness, uniformity and stability requirements for the eligibility of farmer or pastoral community’ varieties for plant breeders’ right by ministerial directive’. Prior to the revision of the previous PBR law, the Quality Declared Seed Directive# 1/2007 included procedures on how to register farmers’ varieties. However, the QDS directive lacks a mechanism for how to confirm the sole ownership of the proposed variety to the applicant in consideration. The initiative to register

farmers’ variety was also not accepted by the National Variety Release Committee because there is no system for confirming the sole property ownership of the variety by an applicant or for verifying that the variety is not from the lists of crops where Ethiopia is centre of origin or diversity.

Taking the above situation into account, the PBR Directive Article 5 was purposely formulated to include procedures on how to register farmers, pastoralists or community varieties and grant protection from the community to the national levels. For these varieties to be registered and granted protection at a national level, crop species should be included in the list of crops where Ethiopia is known globally as the center of origin or center of diversity.

According to the provision under Article 5 and Article 6 and sub articles 1 to10, a farmer, pastoralist or community can request the registration of their proposed variety starting from the lowest administration level or *kebele* level. The Directive under these provisions states the procedures for conducting the assessment at each administrative level of the country and confirming the sole property ownership of the proposed local variety in either *kebele*, zonal or regional administration levels. If the variety does not fulfil ownership at the regional level and is found across the country, then it shall be registered as an Ethiopian farmers’ variety. Anyone who uses the protected variety in seed production and marketing will also pay a royalty fee to farmers or communities for which the variety is registered.

Farmers or pastoralists or communities who are interested in developing varieties from their local or community varieties should follow the conventional procedure for variety release and registration in the country.

Tefera Zeray, Ministry of Agriculture-Agricultural Transformation Agency Delivery Unit, Addis Abeba, Ethiopia; email: tefera.zeray@ata.gov.et

ICARDA Continues to Rebuild Syria’s Seed System

In 2020/2021, the Phase II one-year *FAO Syria Smallholder Support Program* was signed between the Food and Agriculture Organization of the United Nations (FAO) and ICARDA. The project is funded by the European Union, aimed at empowering vulnerable smallholder farmers to become more competitive and more resilient, as the agricultural sector emerges from the ongoing crisis. Increasing smallholders’ access to improved varieties and enhancing their contribution to seed

production is one of the key components of the ICARDA-led project.

Under this project, to complement the formal seed sector, community-based seed production will be piloted in Syria by re-establishing and empowering pioneer farmers to become specialized and market-oriented community-based seed producers.

During Phase II, the following key outputs were achieved:

- Two existing farmer seed producer groups (SPGs) in Aleppo and Homs governorates were supported and one new SPG in Deir-ez-Zor governorate was established, and agricultural inputs and services provided.
- About 9.8 tons of pre-basic seed of wheat, barley, chickpea, and lentil varieties were distributed to 53 smallholder farmers and planted on 85.1 ha to produce an estimated 200.7 tons of basic seed.
- Capacity of SPG members, project partners, and stakeholders along the seed value chain was increased through training of trainers and farmers.
- Integrated seed production technologies were demonstrated and field days were organized.
- [Raised-bed machine technology](#) in some farmers' fields in Aleppo province were introduced and demonstrated.

In partnership with the FAO, ICARDA's seed multiplication project is implemented in cooperation with national institutions and the chambers of agriculture in Syria to support smallholder farmers, by disseminating quality seeds and technologies, and training farmers on innovative practices. Getting a country's food systems back on track is fundamental to the recovery of fragile states and countries like Syria after a crisis.

Training in seed technology

On 22 May 2021, a training course was organized by ICARDA for farmer leaders, project partners and stakeholders in Aleppo. The course focused on early generation seed production, seed processing and seed quality control. The theoretical sessions complemented by practical demonstrations during the field day and cross learning event were organized on the 23 May 2021 in the Aleppo governorate.

Field day

On 23 May 2021, a field day was organized by ICARDA at Tel Aren village in Al-Safierh district

of Aleppo province. Over 150 farmers from Aleppo and pioneer framers from Homs, and Deir ez-Zor governorate attended the event. Representatives from the General Commission for Scientific Agricultural Research, General Organization for Seeds Multiplication, Agriculture, Extension and Plant Protection Directorates in Aleppo, Agriculture Chamber in Aleppo, Aleppo University and Farmer Union in Al-Safierh district also attended the event. H.E the Minster and Deputy Minister of Agriculture and Head of Planning and International Cooperation of the Ministry of Agriculture also attended the field day along with FAO representatives and ICARDA staff.

During the event, an ICARDA project team presented overall project activities and achievements. Farmers spoke about the importance of the ICARDA-FAO project, the establishment of seed producer groups and the difficulties they faced in gaining access to appropriate harvesters and seed cleaners. Access to such facilities remain critical for SPGs if they are expected to continue in the seed business and serve their local communities in target districts and beyond—particularly for those crops neglected by the formal sector.

Farmers also spoke positively of the raised bed machine technology which allows farmers to plant with less water and save time in their regular farm operations.



Wheat seed multiplication field (top); and participants of the training course (bottom).

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Research Notes

This section contains short communications on practical research or relevant information on agriculture or seed science and technology.

Identification of Farmers' Preferred Faba Bean (*Vicia fabae* L.) Varieties Adapted to Central Ethiopia

Yetsedaw Aynewa^{a*}, Seid Ahmed,^b and Zewdie Bishaw^{a3}

Abstract

Participatory variety selection (PVS) was conducted to identify better adapted faba bean varieties and provide recommendations based on the performance evaluated through farmers' involvement. Five nationally released faba bean varieties were evaluated at Gudoberet and Goshebado *kebeles* in Basona-Worana district of North Shewa Zone Africa RISING site. The experimental design was a mother trial design and conducted during the 2020/21 main cropping season. The participating farmers' evaluations revealed that the varieties Ashebeka, Numan and Didea ranked first, second and third, respectively. Farmers' evaluations provide the appropriate information about adapted varieties in their marginal environment and creates opportunities for seed multiplication through community or cooperative seed production.

Key words: Adaptation, faba bean, farmers' evaluations, grain yield, biomass yield

Introduction

Faba bean ranks first in terms of area coverage and production in Ethiopia (CSA, 2020) accounting for 30 percent and 34 percent of legume area and production. About 4,070,037 smallholder farmers have planted 466,698 ha of land and produced 1,006,752 tons with average productivity of 2.157 tons ha⁻¹.

Faba bean has high protein content compared with cereal crops and currently released improved varieties in Ethiopia have 25-28 percent crude

protein. Apart from food and nutritional security, faba bean plays an important role as a cash crop, increasing farmers' income and improving soil fertility and health through crop rotation. This in turn ensures sustainable farming systems.

The main objectives of this study were to: (i) identify high-yielding faba bean varieties adapted to marginal environment; (ii) diversify barley-based farming systems through the introduction of legumes; and (iii) strengthen seed producer cooperatives through the provision of early generation seeds to improve availability and access to quality seeds of farmer preferred varieties.

Materials and methods

Study areas

The PVS of faba bean was conducted at Goshebado and Gudoberet *kebeles* of Basona-Worana district, North Shoa Zone, Amhara region in the 2020/2021 main cropping season.

Experimental materials

The experiments were carried out with five nationally released, improved faba bean varieties: Ashebeka, Didea, Gora, Numan and Gabelcho. These varieties were evaluated through PVS in mother trial design planted in four farmers' fields (two in each *kebele*) with one replication per farmer. The experiment was planted by hand with a seed rate of 175 kg ha⁻¹ in plots of 25 m². NPS fertilizer was applied once at a rate of 125 kg ha⁻¹ at planting time.

Data collection

Agronomic data were collected for grain yield, and biomass yield. Grain and aboveground biomass yields were measured at crop maturity. For PVS, a group of male and female farmers randomly selected from the community were organized to participate in the evaluation. Male and female farmers separately evaluated and ranked the varieties at crop maturity. The evaluation criteria were identified through a brainstorming session with the farmers. Farmers used parameters like vegetative growth or vigor, number of pods, disease reaction, maturity time, seed size, and kernel number per pod to evaluate the varieties.

Data analysis

Agronomic data analysis: Biomass and grain yield data collected were analyzed using simple descriptive statistics on a hectare basis.

Farmer's data analysis: Farmers' criteria were identified through brainstorming with farmers and

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ranked in groups. Matrix ranking was employed to analyze the data with the criteria arranged in the first row and the varieties in the first column; the score values were entered for each variety.

Results and discussion

Biomass and grain yield

Differences in biomass and grain yield were observed at Goshebedo and Gudoberet (Table 1). Biomass yield ranged from 1.57 at Goshebedo to 10.25 tons ha⁻¹ at Gudoberet. The highest mean biomass yield of 7.1 tons ha⁻¹ was recorded for Didea while the lowest biomass yield of 4.9 tons ha⁻¹ was recorded for Gabelcho (data not shown). Grain yield ranged from 0.62 tons for Gora at Goshebedo to 3.95 quintals for Didea at Gudoberet (Table 1). The highest mean grain yield of 3 tons ha⁻¹ was recorded for Didea at Gudoberet while the lowest were recorded for Gabelcho and Ashebeka 2.3 tons ha⁻¹ (data not shown).

Table 1. Biomass and grain yield of faba bean varieties at Gudoberet and Goshebedo in 2020/21 cropping season

Location	Variety	BY(t/ha)	GY(t/ha)
Goshe Bado	Didea	7.53	3.41
	Numan	7.53	3.29
	Gabelcho	7.33	3.46
	Ashebeka	7.73	3.51
	Gora	5.93	3.16
	Gora	1.57	0.62
	Didea	4.38	1.92
	Ashebeka	2.65	1.06
	Numan	2.37	1.09
	Gabelcho	1.85	0.81
Gudo Beret	Gebelcho	4.51	2.16
	Ashebeka	5.45	2.44
	Gora	5.49	2.69
	Numan	6.41	3.04
	Didea	6.05	2.67
	Ashebeka	5.53	2.26
	Gabelcho	5.77	2.78
	Numan	6.05	2.76
	Gora	8.29	3.57
	Didea	10.25	3.95

Note: BY=biological yield; GY= grain yield

Farmers' evaluations

Farmers' evaluations based on mean score values (msv) revealed differences among improved faba bean varieties (Figure 1 and Table 2). The total weighted mean value ranged from the lowest of 158.75 to the highest of 280.5. From all varieties evaluated and selected by farmers, Ashebeka (msv 280.5), Numan (264.5) and Didea (233.75) ranked first, second and third, respectively. Male farmers' evaluation at Gudoberet ranked Didea (msv 358), Numan (340) and Gora (312) as first, second and third, respectively while at Goshebedo Ashebeka

(msv 409), Numan (313) and Gebelcho (288) ranked first, second and third, respectively. Female farmers' evaluation at Gudoberet ranked Numan (msv 255), Didea (238) and Ashebeka (212) as first, second and third, respectively while at Goshebedo they ranked Ashebeka (msv 200), Numan (150) and Gora (128) as first, second and third, respectively. Similarly, PVS of faba bean varieties was carried out in southeastern Ethiopia (Aynewa et al., 2018) and the outcome was used for local seed production. Accordingly, Didea was selected by both male and female farmers followed by Hachalu and Gabelcho based on overall mean score.

PVS helps to address variety evaluation under marginal environments and to introduce genetic diversity. Previous literature has recognized that centralized plant breeding is unable to address the enormous diversity of environmental conditions and end users needed (Morris and Bellon, 2004). It is argued that for crops grown in environments poorly represented by the research stations, it is likely that research stations are insufficiently representing the actual crop environment and relying up on them likely results in discarding useful breeding materials (Ceccarelli *et al.*, 1996).

Table 2. Farmers' evaluations (mean score values) at Gudoberet and Goshebedo in 2020/21 cropping season

Variety	GUM	GUF	GBM	GBF	Weighted mean	Rank
Didea	358	238	215	124	233.75	3
Numan	340	255	313	150	264.5	2
Gabelcho	133	96	288	118	158.75	5
Ashebeka	301	212	409	200	280.5	1
Gora	312	163	215	128	204.5	4

Note: GUM= Gudoberet male farmers, GUF= Gudoberet female farmers, GBM= Goshebedo male farmers, GBF= Goshebedo female farmers

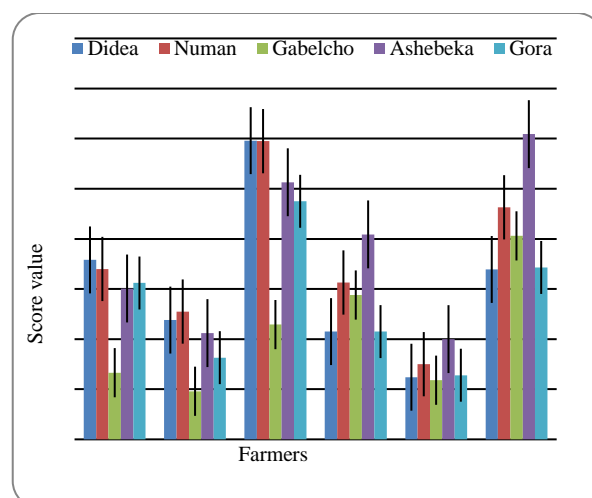


Figure 1. Mean score values of farmers' evaluations



Figure 2. Participatory variety selection plots of faba bean varieties

Association between farmers' evaluations and yield

Pearson correlation coefficient revealed significant differences between how farmers score value, grain yield and biomass yield (Table 3). From the farmers' evaluation, significant associations (at $P < 0.05$ levels) were observed between Gudoberet female farmers' evaluations and Gudoberet male farmers' evaluations ($r=0.905^*$), Goshebado female farmers' evaluations and Goshebado male farmers' evaluations ($r=0.884^*$) and grain yield with biomass yield ($r=0.958^*$). Non-significant and positive correlations were observed for Goshebado male farmers' evaluations with Gudoberet female farmers' evaluations ($r=0.133$), Goshebado female farmers' evaluations with Gudoberet male farmers' evaluations ($r=0.272$) and Gudoberet female farmers' evaluations ($r=0.410$), biomass yield with Gudoberet male farmers' evaluations ($r=0.659$) and female farmers' evaluations ($r=0.632$), grain yield with Gudoberet male farmers' evaluations ($r=0.660$) and female farmers' evaluations ($r=0.598$). Non-significant and negative associations were observed for Goshebado male farmers' evaluations with Gudoberet male farmers' evaluations ($r=-0.138$), biomass yield with Goshebado male farmers' evaluations ($r=-0.451$) and female farmers' evaluations ($r=-0.208$), grain yield with Goshebado male farmers' evaluations ($r=-0.627$) and female farmers' evaluations ($r=-0.398$).

Table 3. Pearson correlation of farmers score value, biomass yield and grain yield

	GUM	GUF	GBM	GBF	BMV	GY
GUM	1					
GUF	0.905*	1				
GBM	-0.138	0.133	1			
GBF	0.272	0.410	0.884*	1		
BMV	0.659	0.632	-0.451	-0.208	1	
GY	0.660	0.598	-0.627	-0.398	0.958*	1

Note: *correlation is significant at 0.05 levels, GUM= Gudoberet male farmers score value, GUF= Gudoberet female farmers score value, GBM= Goshebado male farmers score value, GBF= Goshebado female farmers score value, BMV=Biomass yield and GY= Grain yield

Conclusion

Farmers' overall evaluations revealed differences in preferences among the faba bean varieties. The association between yield and farmers' preferences helps for indirect selection of acceptable varieties. The analysis of traits with farmers' involvement improves understanding of and access to genetic diversity and helps integrate information from both national and international resources. Farmers' evaluations provide opportunities to understand their needs and to design a relevant faba bean seed system in a sustainable way.

Acknowledgments

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References

- Aynewa, Y., S. Ahmed, and Z. Bishaw. 2018. Identification of faba bean (*Vicia faba* L.) varieties adapted to southeastern Ethiopia. *SeedInfo* No. 55. ICARDA, Beirut, Lebanon.
- Ceccarelli, S., Grando, S. and Booth, R.H., 1996. International breeding programmes and resource-poor farmers: crop improvement in difficult environments, 99-116. *In: Participatory Plant Breeding*. Eyzaguirre, P. and M. Iwanaga. (eds.) Proceeding of a workshop on participatory plant breeding, 26-29 July 1995, Wageningen, Netherlands.
- CSA (Central Statistics Authority). 2020. Agricultural Sample Survey 2019/20 (2012 E.C.) Volume I Report on Area and Production of Major Crops. Statistical Bulletin 587, Addis Ababa, Ethiopia.
- Morris, M.L. and M.R. Bellon. 2004. Participatory plant breeding research: Opportunities and challenges for the international crop improvement system. *Euphytica* 136:21-35.

Meetings and Courses

Announcements of national, regional, or international conferences, meetings, workshops, and training courses appear in this section.

Conferences

With the COVID-19 pandemic continuing to escalate and national and international travel restrictions in place, virtual conferences, workshops, meetings, and trainings have become

the order of the day replacing the old in-person interactions.

AGROSYM 2021

The XII International Agriculture Symposium (AGROSYM 2021) will be organized from 7-10 October 2021 in Sarajevo, Bosnia and Herzegovina. AGROSYM is an annual platform for international scientific discussion on agriculture, food, rural development, environment, and forestry. AGROSYM provides an opportunity to exchange ideas, to strengthen existing and create new academic networks, and to foster dialogue between academia, public institutions, the private sector, and civil society organizations on the recent global and regional trends in the agro-food sector. AGROSYM covers the following themes: plant production, plant protection and food safety, organic agriculture, environment protection and natural resource management, animal husbandry, rural development and agro-economy, and forestry and agroforestry. Multidisciplinary results reported during AGROSYM will contribute to the dissemination of knowledge and good practices to all actors of the agro-food chain including farmers, extension agents, researchers and policy makers, as well as the general public about the importance of agriculture and food science—one of the most important strategic areas of many national research strategies.

ISTA Seed Symposium 2022

[The ISTA Seed Symposium 2022](#) provides a forum for discussion of the latest advances in seed science and technology, as well as an opportunity to exchange ideas and information. The theme of the event is *Quality Seed for Sustainable Agriculture* and it will be held from 4-6 May 2022 in Christchurch, New Zealand.

Participants are invited to submit oral and poster papers under the above theme. The research reported in offered papers can cover both the scientific basis of aspects of seed quality and its technological application in seed testing.

Session topics

1. Seed microbial interactions
2. New technologies
3. Heirloom and wild species for sustainability
4. Biosecurity challenges
5. Molecular understanding of seed dormancy and deterioration
6. Biomolecular techniques for species and varietal assessment

Submission of papers

Offers of papers should be submitted online only in the form of an abstract in English, of 300 words

maximum. Papers will be selected for presentation by a scientific committee chaired by the symposium convenor. Submission opens on 1 May 2021 and closes on 1 October 2021.

For more information you may visit the [link](#).

AFSTA Annual Meeting

The African Seed Trade Association (AFSTA) Congress 2021 will be held in Nairobi, Kenya, 27-30 September 2021. For more information, please contact the AFSTA Secretariat at afsta@afsta.org

The 33rd ISTA Congress 2022

The 33rd International Seed Testing Association (ISTA) Congress will be held in Christchurch, New Zealand, May 4 to 10, 2021. For more information, please contact: ISTA, Zurichstrasse 50, 8303 Bassersdorf, Switzerland; tel: +41 44 838 6000; fax: +41 44 838 6001; email: ista.office@ista.ch; website: www.seedtest.org

Courses

ICARDA courses

ICARDA organizes both short- and long-term courses in themes related to its research programs under biodiversity and crop improvement; resilient agricultural livelihood systems; and water, land management, and ecosystems. For more information on ICARDA annual training programs, please contact: Charles Kleinermann, ICARDA, Cairo, Egypt; email: c.kleinermann@cgiar.org

UPOV distance learning courses

Two sessions of each of the following UPOV distance learning courses are planned in 2020:

1. DL-205, Introduction to the UPOV System of Plant Variety Protection under the UPOV Convention
2. DL-305, Examination of applications for plant breeders' rights
3. DL-305A, Administration of plant breeders' rights (Part A of DL-305)
4. DL-305B, DUS Examination (Part B of DL-305).

The timetable of all courses for **Session II-2021** is as follows:

- Registration: 2 August to 12 September
- Study period: 11 October to 14 November
- Final exam: 8 November to 14 November.

The categories for participants are as follows:

Category 1: Government officials or members of the Union endorsed by the relevant representative to the UPOV Council (no fee).

Category 2: Officials of observer states/intergovernmental organizations endorsed by the relevant representative to the UPOV Council (one non-fee-paying student per state/intergovernmental organization; additional students, CHF1,000 per student).

Category 3: Others (fee, CHF1,000).

More detailed information about the courses and online registration is available on the [UPOV website](#).

Understanding seed testing video series

The Association of Official Seed Analysts (AOSA) and the Society of Commercial Seed Technologists (SCST) have created a series of videos around understanding seed testing.

You can find the fourth video which deals with the dividing process below. The rest of the videos can be found on the AOSA YouTube channel. For more information, please visit <https://analyzeseeds.com>.

Literature

Books, journal articles, and other literature of interest to readers are presented here. This section may contain relevant information on agriculture-related publications including seed policy, regulation, and technology.

Books

OECD. 2021. Making Better Policies for Food Systems

Published by [OECD](#); 9789264752627 (html); 9789264967830 (pdf); 9789264693623 (epub); Price: €48 (pdf); 280 pp

Food systems around the world face a triple challenge: providing food security and nutrition for a growing global population; supporting livelihoods for those working along the food supply chain; and contributing to environmental sustainability. Better policies hold tremendous promise for making progress in these domains. This report focuses on three questions. What has been the performance of food systems to date, and what role did policies play? How can policy makers design coherent policies across the triple challenge?

[Seed Info](#)

And how can policy makers deal with frictions related to facts, interests, and values, which often complicate the task of achieving better policies? Better policies will require breaking down silos between agriculture, health, and environmental policies, and overcoming knowledge gaps, resistance from interest groups, and differing values. Robust, inclusive, evidence-based processes are thus essential to making better policies for food systems.

OECD. 2021. Agricultural Policy Monitoring and Evaluation 2021: Addressing the Challenges Facing Food Systems

Published by [OECD](#); ISBN: 9789264853706 (pdf); 9789264347526 (html); 9789264434783 (epub); Price: €87 (pdf); 602 pp

This annual report monitors and evaluates agricultural policies in 54 countries, including the 38 OECD countries, the five non-OECD EU Member States, and 11 emerging economies. The report includes country specific analysis based on up-to-date estimates of support to agriculture that are compiled using a comprehensive system of measurement and classification – the Producer and Consumer Support Estimates (PSE and CSE) and related indicators. This year’s report focuses on policy responses to the COVID-19 pandemic and analyzes the implications of agricultural support policies for the performance of food systems.

Tauger, M.B. 2021. Agriculture in World History (Themes in World History) 2nd Edition

Published by [Routledge](#); ISBN-13: 978-0367420918; Price (pb): \$44.95; 208 pp

Now in its second edition, *Agriculture in World History* presents a unique exploration of farmers and farming, and their relationships to non-farmers and urban societies from the ancient world to the 21st century.

From its origins, civilization has depended on the food, fiber, and other goods produced by farmers. This book illustrates how urban societies both exploited and supported farmers, and together endured economic and environmental crises. Viewing farmers as the crucial interface between civilization and the natural world, Mark Tauger examines the environmental changes, political and social transformations, and scientific and technological developments in farming. The second edition draws attention to the modern period, particularly the effects of war, depression, and

authoritarianism on world agriculture, scientific advances, and the problems they created, increased international competition between countries with the expanding role of corporations, the threats posed by climate change, and some of agriculture's prospects. Accessibly written and following a chronological structure, the volume enables readers to easily gain a foundational understanding of an important aspect of world history.

This survey will be an indispensable text for world history students and for anyone interested in the historical development of the present agricultural and food crises.

Clapp, J. 2020. *Food*, 3rd Edition

Published by Wiley: ISBN-13: 978-1509541768; Price (HC): \$39.60; 320 pp

We all need food to survive, and 40 percent of the world's population relies on agriculture for their livelihood. Yet control over food is concentrated in relatively few hands. Turmoil in the world food economy in recent decades has highlighted several vulnerabilities and contradictions inherent in the way we currently organize this vital sector. Extremes of both undernourishment and over-nourishment affect a significant proportion of humanity. And attempts to increase production through the spread of an industrial model of agriculture has resulted in serious ecological consequences.

The fully revised and expanded third edition of this popular book explores how the rise of industrial agriculture, corporate control, inequitable agricultural trade rules, and the financialization of food have each enabled powerful actors to gain fundamental influence over the practices that dominate the world food economy and result in

uneven consequences for both people and planet. A variety of movements have emerged that are making important progress in establishing alternative food systems, but, as Clapp's penetrating analysis ably shows, significant challenges remain.

Websites

About AATF

AATF was founded in 2003 to address Africa's food security prospects through agricultural technology. AATF (www.aatf-africa.org) believes that the agricultural sector is a key foundational pillar as Africa consolidates its economic growth and carves out its new position as a major global economic powerhouse and the next growth market in the world. It was formed in response to the need for an effective mechanism that would facilitate and support negotiation for technology access and commercialization and formation of appropriate partnerships to manage the development and deployment of innovative technologies for use by smallholder farmers in sub-Saharan Africa.

Newsletters

SEEDnews

SEEDnews is an international seed magazine that promotes the use of high-quality seeds and the best varieties on the market publishing news, essays, and technical diffusion articles.

SEEDnews reaches farmers, seed producers, technicians, new crop growers and government agents with the mission of raising knowledge, thus producing more food with environmental suitability.

About ICARDA

The International Center for Agricultural Research in the Dry Areas (ICARDA) is the global agricultural research organization working with countries in the world's dry and marginal areas to deliver sustainable systems solutions that increase productivity, improve rural nutrition, and strengthen national food security. ICARDA's integrated approach includes new crop varieties, agronomy, on-farm water productivity, natural resources management, rangeland and small ruminant production, and socioeconomic and policy research to better target poverty issues and accelerate technology adoption. As a member of the CGIAR Consortium, ICARDA works closely with national agricultural research programs and other partners in more than 40 countries across North and sub-Saharan Africa, and Central, South, and West Asia.



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Note to Subscribers

Subscribers are encouraged to play a proactive role in making this newsletter a useful platform for information exchange. Contributions are most welcome in the broad areas of seed system development; meetings, courses, and electronic conferences; books and reviews; websites of special relevance to the seed sector; funding opportunities; requests to other readers for information and collaboration; and feature articles or discussion issues proposed by subscribers. The Editor always welcomes suggestions on format and content. Please send inputs by email to z.bishaw@cgiar.org

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