



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 among seed staff in the Central and West Asia and North Africa (CWANA) region. The purpose is to help strengthen national seed programs, and thus improve the supply of quality seed to farmers.



The first International Seed Congress, which led to the establishment of the International Seed Trade Federation (FIS=Fédération Internationale du Commerce des Semences) was held in London in 1924. Later on the International Association of Plant Breeders for the Protection of Plant Varieties (ASSINSEL=Association Internationale des Sélectionneurs pour la Protection de Obentions Végétales) was established in 1938. FIS and ASSINSEL run as separate association, but merged in 2002 to become the International Seed Federation (ISF). In the **NEWS AND VIEWS** section Marcel Bruins, Secretary General of ISF, provides readers with an insight looking into the role of seed association in the national, regional and global seed industry taking into considerations the roles of ISF and affiliated associations in Africa, Americas, Asia and Europe.

There is also news on the Program for Africa's Seed Systems (PASS) from Agricultural Green Revolution for Africa (AGRA), commercialization of the first CMS pigeon pea hybrid from ICRISAT and seed sales of dedicated energy. PASS is a new venture whose mission is to increase income, improve food security, and reduces poverty by promoting the development of a seed system that delivers new crop technology to farmers in an efficient, equitable, and sustainable manner. PASS prioritizes getting funds to key individuals and agencies working directly with Africa's farmers on developing new crop varieties, producing new seeds, and developing new delivery systems for getting critical inputs to smallholder farmers. PASS is funding the development of new varieties of beans, cassava, cowpea, maize, rice, sweet potato and sorghum in several African (13) countries.

Pigeon pea is an important pulse crop and grows on 3.5 million ha in India alone. It is particularly very suitable for rainfed agriculture because of its drought tolerance, minimum input requirements and producing reasonable yields

under unfavorable agro-ecological conditions. In the past 50 years, however, pigeon pea productivity has not increased in spite of several new varieties being released. To achieve a breakthrough in yield, ICRISAT used innovative breeding technology to develop commercial hybrids, the first in food legume working with the Indian Council of Agricultural Research, State agricultural universities, state seed corporations and private seed companies. After 25 years of research, the first pigeon pea hybrid ICPH 2671 was developed by ICRISAT in 2005 and commercialized by Pravardhan Seeds.

The section on **SEED PROGRAMS** includes news from Afghanistan, Egypt and Ethiopia. The news from Afghanistan focuses on the First General Assembly of Afghanistan National Seed Organization held in Badam Bagh, Kabul on 19 October 2008. We are also reporting on the existing or emerging seed trade associations, representing the interests of the private seed sector in the face of changing policy and regulatory frameworks in Egypt and Ethiopia.

The **RESEARCH** section aims to capture information on adaptive research or issues relevant to seed program development in the region and beyond. Alemayehu *et al* from the Southern Agricultural Research Institute writes about the bean seed system in southern in Ethiopia with emphasis on the role of farmers and social institutions.

Seed Info encourages the exchange of information on the national, regional, and global seed industry. We encourage our readers to share their views through this newsletter. Your contributions are most welcome in Arabic, English, or French.

In the last issue of *Seed Info* we circulated a questionnaire seeking your opinion on the contents, improvements and best ways of sending you the newsletter. For on-line survey, please visit the site at:

http://www.icarda.org/publications/SurveySeedInfo/ICARDA_SeedInfo_User_Survey.asp

Happy New Year!

Zewdie Bishaw

Editor

WANA SEED NETWORK NEWS

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

ECO Regional Seed Association

In last issue of *Seed Info*, we reported the birth of a new regional seed association representing 10 member countries of the Economic Cooperation Organization (ECO) region comprising of Afghanistan, Azerbaijan, Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkey, Turkmenistan and Uzbekistan. ECO, FAO and ICARDA are working with Turkish Seed Industry Association and a 10 member Committee to draft bylaws for discussion at the next meeting planned in January 2008. The general assembly of the first congress will be held in 2009.

ECO, FAO and ICARDA are working closely with member countries, and particularly the Government of Turkey to facilitate the formation of the regional seed association. The membership of the association will be open to all seed companies and service providers from ECO region and beyond.

Zewdie Bishaw, ICARDA, Aleppo, Syria; E-mail: z.bishaw@cgiar.org

ICARDA Organizes Regional Workshop on Plant Variety Protection

Plant variety protection (PVP) is a form of intellectual property protection to provide exclusive rights or ownership of varieties to plant breeders or seed companies. PVP encourages private investment in plant breeding and thereby increase the choice of varieties available to farmers. The majority of countries are expected to introduce a PVP system under TRIPS agreement of World Trade Organization. This could be part of government strategy to stimulate domestic and foreign private sector investment in crop improvement research. Likewise, it may also encourage foreign companies to introduce their varieties and technology to countries where protection is available.

Although introducing a PVP system is straight forward, the legal and technical procedures for implementing the law may have considerable implications on governments and the whole seed industry. Many countries in CWANA region lack PVP framework. It is therefore important to create an opportunity for dialogue among all stakeholders of the seed industry: NARS, public and private seed companies and the farming community at large.

The regional workshop will include key presentations, case studies, country reports and group discussions to come up with recommendations and action plans for implementation by national governments. Participating countries include both members and non-members of UPOV to share experiences: Afghanistan, Algeria, Azerbaijan, Egypt, Ethiopia, Jordan, Kyrgyzstan, Morocco, Oman, Pakistan, Sudan, Syria, Tunisia, Turkey and Uzbekistan. For more information contact Seed Section, Biodiversity and Integrated Gene Management, P. O. Box 5466, Aleppo, Syria; E-mail: z.bishaw@cgiar.org.

NEWS AND VIEWS

News, views and suggestions on the seed industry are included in this section. It is a forum for discussion among seed sector professionals.

The Role of Seed Association in Seed Industry from National to Global Levels: International Seed Federation

What is ISF?

The International Seed Federation (ISF) is a non-profit and non-governmental organization whose members are national seed associations and seed companies. With members spread over 70 developed and developing countries on all continents, ISF represents the vast majority of the world's seed trade and private plant breeding community. ISF members are responsible for 96% of the international seed trade. It serves as an international forum to discuss issues of interest on the global seed industry. The ISF serves and balances the interests of its members by bringing together and representing, at a global level, the mainstream of the seed industry involved in plant breeding and commercializing seed, and also through its regular dialogue with

public and private institutions that have an impact on international seed trade.

ISF pursues its objectives in non-political and scientific manner primarily based on adoption of common positions on strategic issues through healthy debate, mutual respect, and consensus amongst its members. It also works to facilitate access to plant genetic resources and related technology and enhance the international movement of seed and the contribution of seed industry to meeting the growing global needs for food, feed, fiber, fuel, industrial, ornamental and amenity crop applications.

ISF promotes strong cooperation with national and regional seed associations and strives to form strong and professional relationship with organizations that are responsible for international treaties, conventions and agreements that impact the seed industry. By enhancing the seed industry in different countries, it strengthens market linkages and improves access to agricultural inputs such as seed of adapted varieties. ISF actively engages in policy dialogues with stakeholders (such as FAO, WIPO, OECD, ISTA, UPOV, IPPC and CBD) to ensure that the concerns of the private sector are addressed.

ISF is structured into three crop sections (Field Crops; Forage and Turf; Vegetables and Ornamentals) and three standing committees (Breeders Committee; Phytosanitary Committee; Trade and Arbitration Rules Committee) and special groups on specific issues. Each Section, Committee or Group meets at least once a year.

The Board of Directors, elected every two years by the General Assembly, ensures that all decisions made by the Sections conform to ISF's general policy. The Executive Committee is responsible to oversee the operation of the Secretariat.

Global forum for commerce and dialogue

Seed is the basis for agriculture and the international seed industry plays an increasingly vital role in the global pursuit to ensure sustained development and well being of our planet and its people in an environmentally responsible manner. Apart from its traditional role of being a major contributor to sustainable food and feed production, the global seed industry is now also at the forefront of the latest technological advances in developing alternative uses for plants such as renewable sources of

bio-energy, bio-materials, and plants that will provide food and feed of increased nutritional and even medicinal value. These additional demands will have to be carefully balanced against the need to continue to improve the quantity and quality of food and feed production on an ongoing basis.

The industry is highly competitive, ensuring an efficient and responsible global seed trade that offers farmers a continuous supply of new high-yielding varieties suitable for different environmental conditions, and for producing crops and products that will continue to meet changing consumer demands and standards. To cope effectively with the challenges brought about by increased globalization such as environmental and health issues, regional trade groupings, new technological advances as well as farmer and consumer sophistication, the global seed industry needs a representative forum to research and discuss important issues, adopt positions, and represent and promote its interests at a global level. The ISF provides such a forum. To that effect, ISF organizes an annual congress, which often brings together up to 1500 seedsmen to:

- Exchange information on recent developments in plant breeding and seed trade
- Identify mutual concerns, enable strategic thinking and discussion to adopt common positions
- Meet customers and suppliers to negotiate business contracts.

Together with the national seed associations ISF plan to verify at regular intervals if the congress fulfils the needs of those attending.

Vision of ISF

The vision of ISF is to be the principal organization representing the interests of the world seed industry at the global level.

- ISF can best achieve this vision by effectively harnessing and utilizing the influence and resources of its principal members, the national seed associations (NSAs), as well as the regional seed associations (RSA's). Currently the Presidents of the RSAs are invited as observers to the meetings of the ISF Board of Directors, and the Secretaries of the RSAs are invited as observers to attend the meetings of the national secretaries.

- Effective communication by all actors (NSA's, RSA's and ISF secretariat) is crucial in performing the relevant tasks. It is desirable that each grouping performs those tasks which cannot be performed more effectively at a more immediate or local level.

Interaction with national and regional seed associations

The strength of national and regional seed associations in promoting free movement of seed is considered as essential but the key role of ISF is in coordinating these activities. ISF member organizations can and should be the bridge to enhance their country's participation in regional and global organizations that govern seed movement between countries at regional and global levels. For example, ISF will encourage NSAs to interact with their governments to introduce PVP and encourage them to make it operational. Obviously, this can only be done in close liaison with national associations. For example, collection of statistics on national, regional and global seed trade is considered of vital importance. ISF is working closely with NSAs and RSAs to collect and verify these statistics.

ISF interacts with specific NSAs and obtain their collaboration in outreach efforts at national and regional levels to support the agreed industry position at a global level tapping into already available resources. The ISF will continue to collaborate with other national and regional associations which are already engaged in activities where NSAs considered important for the seed industry and have been identified as requiring strengthening.

Conclusion

The provision of sufficient good quality food depends in large part on a well established seed industry with well established regulations for an efficient and continuous flow of high quality seeds and varieties to those who need it the most. An active and efficient seed association is of vital importance to ensure that the seed industry's voice is heard in a national, regional and international quest for sustainable agricultural development.

Marcel Bruins, Secretary General, ISF, Geneva, Switzerland; E-mail: m.bruins@seedworld.com

AGRA's Program for Africa's Seed Systems

The Program for Africa's Seed Systems (PASS) is a new venture launched by the Agricultural Green Revolution for Africa's (AGRA). Its mission is to increase income, improve food security, and reduce poverty by promoting the development of a seed system that delivers new crop technology to farmers in an efficient, equitable, and sustainable manner. PASS prioritizes getting funds to key individuals and agencies working directly with Africa's farmers on developing new crop varieties, producing new seeds, and developing new delivery systems for getting critical inputs to smallholder farmers. PASS is funding the development of new varieties of beans, cassava, cowpea, maize, rice, sweet potato and sorghum in 12 countries. The crop development program uses conventional breeding, with close collaboration between breeders and farmers, and pays special attention to conserving and utilizing Africa's crop biodiversity.

Working with front-line practitioners across a 13-country program area, in 2007, PASS developed 43 grants totaling US\$36,801,778, all aimed at improving crop yields under Africa's challenging farming conditions. Grants made by PASS in 2007 will train 80 new African plant breeders to the PhD level and increase yields of eight important food crops in six African countries. Already, PASS funded activities have produced over 400 t of improved seed and trained over 400 village-level distributors of seed in professional business practices. Equally important, PASS activities have communicated an exciting message to a generation of agriculturalists working in both the public and private sectors in Africa that now is the time to bring forward new ideas for increasing food production. PASS works along a value chain that begins with newly trained African crop scientists, continues with funds for breeding new crop varieties, and achieves impact in the lives of farmers through a vigorous campaign of seed production and other agricultural input supply at village level. PASS makes carefully targeted grants along a "value chain" of interdependent activities and includes:

- **Education for African Crop Improvement** targets funds for education and training, especially MSc and PhD fellowships for plant breeders and other crop scientists;

- **Fund for Improvement and Adoption of African Crops** makes targeted grants to individual breeders and their support teams to develop and popularize improved crop varieties of Africa's major food crops;
- **Seed Production for Africa** provides grant support and equity investments for the emergence of private, African seed companies and other seed dissemination activities;
- **Agro-dealer Development Program** provides training and credit to establish and support the growth of private, village-based agro-dealers who are a primary conduit of seeds, agricultural inputs and knowledge directly to smallholder farmers to increase their productivity and incomes. It builds and develops networks of certified agro-dealers to enhance the quality, volume and range of seeds sold. This will result in a significant increase in adoption of improved crop varieties.

Source: AGRA Update

India Commercialize World's First Pigeon Pea Hybrid

Pigeon pea (red gram) is an important pulse crop, grown on about 3.5 million ha in India alone, where it is the main ingredient in the staple *dal*. The crop is suitable for rainfed agriculture because it is drought tolerant, needs minimum inputs and produces reasonable yields under unfavorable agro-ecological conditions. In the past 50 years, pigeon pea productivity has not increased in spite of releasing several new varieties.

ICRISAT used innovative breeding technology to develop commercial hybrids—the first such attempt in any food legume—working with Indian Council of Agricultural Research, state agricultural universities, state seed corporations, and private seed companies. After 25 years of research, the world's first cytoplasmic male sterility (CMS) based pigeon pea hybrid (ICPH 2671) was developed by ICRISAT in 2005, and has been named 'Pushkal' by Pravardhan Seeds. The hybrid is suitable for commercial cultivation in Andhra Pradesh, Karnataka and Maharashtra.

In India, the bulk of food proteins are derived from pulse crops that are generally grown under low-input and risk-prone marginal environments with low and unstable yields. The Green Revolution of 1970s ignored legumes that are a major source of protein in the developing world.

The CMS based hybrid seed technology is ready for takeoff with all its major components in place. The major responsibility, now, is to take this research product to farmers in rainfed areas. Considering the high yield potential of the technology, it is expected that farmers with both small and large holdings will adopt the hybrids. Since pigeon pea is grown by resource poor small-scale farmers, it will be important to keep the seed cost within the reach.

Based on results from three years and 21 test locations, ICRISAT scientists believe that hybrid technology in pigeon pea has become a profound success. Experimental hybrids have recorded 20-150% yield advantage over the best checks. This high yielding, disease resistant (wilt and sterility mosaic) hybrid gives about 30-40% yield advantage over the popular variety Maruti. Seed production of the parental lines of Pushkal has been successful.

The new technology promises to break the yield barrier, ideal for bringing the next quantum jump in yield. Eminent agricultural scientist M.S. Swaminathan had commented that, 'hybrid pigeon pea technology is like dwarfing genes in wheat and rice and this will create a second green revolution' in India. This breakthrough is the result of ICRISAT's strong public-private partnership.

Source: ICRISAT Press Release, 16 July 2008

Seed Sales of Dedicated Energy Crops

Ceres, Inc. announced that it has begun booking switchgrass and high-biomass sorghum seed under its Blade Energy Crops label. The highly anticipated launch marks the first seed sales of non-food, low-carbon crops developed specifically as raw materials for biofuels and biopower. The company simultaneously launched a Blade website to support direct-to-farm sales. The company reported that the first Blade products build on the inherent advantages of these highly efficient crops, offering double-digit biomass yield gains in many cases -- a

remarkable level of improvement by crop science standards. High yields are needed since widely dispersed sources of biomass are cost-prohibitive to harvest and transport.

Switchgrass and high-biomass sorghum can provide new options for growers, especially on underperforming acres. The bulk of Blade seed to be sold to bioenergy companies this first year, the company has set aside seed for growers interested in gaining experience with these crops as the market for biomass develops.

With mandates for 21 billion gallons of biofuels from non-corn sources and renewed interest in cleaner-burning alternatives to coal, energy crops could offer farm operators a sizeable opportunity. There are various state and federal initiatives to support growers, including the Biomass Crop Assistance Program (BCAP), which is expected to be introduced soon by the U.S. Department of Agriculture.

Many bioenergy producers are looking for a mix of crops to provide flexibility from year to year and mitigate risk. With a perennial and an annual crop in product portfolio, a broad range of geographies and production systems can be supported. Blade seed products include two improved switchgrass seed varieties (EG 1101 and EG 1102) and two new high-biomass sorghum hybrids (ES 5200 and ES 5201).

EG 1101 is a lowland-type switchgrass bred for greater biomass yields and better establishment. It has high biofuel conversion potential, and shown superior conversion characteristics for biochemical and thermochemical processes. It may work well in a 2-cut system in high rainfall areas. A similar cultivar, EG 1102, is adapted farther north than EG 1101. Several switchgrass varieties suited to mid and northern latitudes are also available from Blade.

ES 5200 and ES 5201 are two high-biomass sorghum hybrids that offer high yield potential in single-cut harvest systems. Since the plants generally do not produce grain heads until very late in the season, if at all, they continue growing – and producing more biomass – until early autumn or the first killing freeze. Blade will also have sorghum hybrids suited to multi-cut harvest systems.

Blade will also be the first major brand to package sorghum seed by count rather than weight – an industry practice that has been well received in corn and soy. This allows producers to purchase only the amount of seed they need rather than having to overbuy to cover

variations in seeds per pound. Likewise, Blade switchgrass seed will be sold as pounds of pure live seed (PLS) – rather than bulk weight – so customers will purchase only viable seeds. More information can be found at <http://www.BladeEnergy.com>.

Ceres, Inc. is a leading developer and marketer of high-yielding energy crops that can be planted as raw materials for cellulosic ethanol production and biopower. Its development efforts cover switchgrass, sorghum, miscanthus, energycane and short-rotation woody crops. The plant breeding and biotechnology company markets its switchgrass seed and sorghum seed under its Blade Energy Crops brand. The firm also licenses its technology and traits to other organizations.

ICARDA Spearheads Seed Relief in Central Asia

Kyrgyzstan and Tajikistan are dependent on grain imports to complement domestic production. However, a combination of bad weather conditions and the impact of several years of neglect in agriculture have drastically worsened the food security in these countries. Rising food prices have had a heavy toll on both countries, where prices for bread more than doubled over the last 12 months.

ICARDA, following the request and support of the United States Agency for International Development (USAID), together with its development partners in Tajikistan (Save the Children) and Kyrgyzstan (International Center for Soil Fertility and Agricultural Development), have carried out emergency supply of winter wheat seeds to both countries. ICARDA, working together with numerous partners, moved quickly to facilitate purchase of adapted seed varieties from Krasnodar, its transport and hand off to the development partners. In total, 172 tons planting seeds of adapted winter wheat varieties were provided to 275 tons to Kyrgyzstan (Krasnodar 99 and Starshina) and Tajikistan (Tanya).

To prevent such food crises in the future, long-term steps should be taken to develop more sustainable solutions to the inherent problems of low wheat productivity mainly on irrigated, often salinity-ridden land, and of

insufficient and inefficient wheat seed supply to farmers in Kyrgyzstan and Tajikistan.

Therefore, ICARDA will continue its work with its development and donor partners on developing and implementing activities aiming at strengthening the private seed production and supply systems, in the CAC region.

Source: CAC News, July-September 2007

New Members of UPOV

On 29 October and 12 December 2008, the Government of Georgia and Costa Rica, respectively deposited their instrument of accession to the International Convention for the Protection of New Varieties of Plants of December 2, 1961, as revised at Geneva on November 10, 1972, on October 23, 1978, and on March 19, 1991, with the Secretary General of UPOV. The Convention entered into force for Georgia one month after the deposit of its instrument of accession, i.e. on 29 November 2008 whereas for Costa Rica on 12 January 2009. Georgia and Costa Rica became the 66th and 67th members of the Union. According to the notification deposited with the Secretary General together with the instrument of accession, protection is available to all genera and species in both countries. UPOV has now 67 member countries.

USPTO Overturns Yellow Bean Patent

The US Patent and Trademark Office (USPTO) reversed the controversial patent for a common yellow bean breed. The patent has raised profound concerns since it was granted to Larry Proctor of Colorado in 1999. Proctor bought the beans, known to locals as azufrado or Mayocoba, in Mexico and bred them for several years to grow plants that produce distinctly colored yellow seed and gave better harvest, dubbed as 'Enola bean'. Proctor has been charging licensing fees on imports of yellow beans from Mexico, until the patent was challenged by the International Center for Tropical Agriculture (CIAT) in 2001. CIAT claims that the bean has been a familiar staple in Latin American diets for more than a century.

It is important that when food crops are involved, governments have a duty to ensure

that (before granting patent protection) they have been presented with a clearly distinct and novel discovery and that the plant material used in the research and development was lawfully obtained. For more information visit the website.

NEPAD Workshop Discusses Challenges for North Africa

New Partnership for Africa's Development (NEPAD) is a program of action of the African Union for the development of the African Continent. Under NEPAD, more than 130 scientists from Algeria, Chad, Egypt, Libya, Mauritania Morocco and Tunisia attended a biotechnology workshop in Ezzahra, Tunisia to discuss the challenges and a regional integrated research program for North Africa. There are on-going research projects aimed at improving crops' nutritional quality, and tolerance to drought and salt. A collaborating team from Algeria, Egypt and Tunisia succeeded in collecting valuable North African germplasm with tolerance to drought and salinity, and with low level of phytic acids. These pioneering efforts will have a great impact in fighting poverty and malnutrition. Participants made several recommendations to enhance the network which include capacity building and human resource enhancement in Africa, role of NEPAD to strengthen cooperation among African scientists, identifying focal points North Africa countries, additional training in the biotechnology, and upgrading agricultural communication. For further information, contact: Ismail Abdel Hamid, Egypt Biotechnology Information Center; E-mail: ismail@isaaa.org or ismail@egypt-bic.com.

Source: CropBiotech Update 5 December 2008

CONTRIBUTIONS FROM SEED PROGRAMS AND PROJECTS

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

Afghanistan Establishes National Seed Association

Afghanistan will soon formally register its new National Seed Association, which will become the main umbrella organization in the seed industry for advocacy and representation both at national and international levels. In preparation for this landmark registration, up to 100 stakeholders from across Afghanistan gathered at the National Seed Secretariat in Badam Bagh, Kabul for the first general assembly meeting of the Afghanistan National Seed Organization (ANSOR). This is an outcome of the unanimous agreement of stakeholders' representing the public, private and NGOs following sub-national consultations, which culminated in a wrap-up workshop in Kabul on 12 May 2008.

The meeting was organized under the aegis of the Variety and Seed Industry Development project, which is being implemented by Food and Agriculture Organization (FAO) and Ministry of Agriculture, Irrigation and Livestock (MAIL) with funding from the European Union (EU).

The meeting was devoted to a thorough review of the articles of association until unanimous agreement was reached on all its elements. The meeting also deliberated and made unanimous agreement on the membership structure, fees and the registration of the articles of association. The General Assembly then elected a nine member board of directors who shall manage and supervise all activities of the association and enforce the articles of association. The new Board comprises representatives of the major stakeholders including the private sector, government seed institutions and an NGO seed producer. The Board elected its President and other executive members during its first meeting.



The ANSOR assembly in Kabul, 19 October 2008

With its 30 ordinary and 2 associate members, ANSOR will work closely with the National Seed Committee in ensuring effective enforcement of the national seed policy and encourage a quick enactment of the seed law by the Afghanistan parliament. The secretariat of Afghanistan National Seed Organization is located within National Seed Secretariat in Badam Bagh, Kabul, Afghanistan (Tel: +93-700601824; E-mail: contact@afghanseed.org).

The annual seed review meeting for planning seed production in 2008/09 followed the general assembly of ANSOR. About 43 private and public seed enterprises, NGOs and agricultural research from all over Afghanistan met to finalize production planning for the 2008/09 cropping season. The meeting also gave the producers an opportunity to select the wheat varieties and estimate the quantities of foundation seed needed, and the quantities of certified seeds they would like to produce and sell next year. This plan will serve as a reference for seed producers, quality control officers and marketing agents. With a total of 532 t foundation seed of 18 improved varieties for irrigated and rainfed conditions available, it is expected that up to 16,000 t of certified wheat seed will be made available for sale to Afghan farmers in 2009. This is in comparison with the project's target output of 25,000 t certified wheat seed per year by 2011.

The meeting was held in a recently inaugurated National Seed Secretariat in Badam Bagh, Kabul. The National Seed Secretariat is situated in close proximity to the Central Seed Testing Laboratory in Kabul and accommodates the apex institutions for coordinating seed industry functions in Afghanistan, comprising the National Seed Board and its affiliated bodies namely the Variety Release Committee, the Seed and Plant Health Inspectorate, the Seed Certification Agency, and the Afghanistan National Seed Organization. The National Seed Board will be proclaimed upon ratification of the Seed Law, which is currently in parliament for consideration. The Seed Board will function as the highest body in the seed sector with overall oversight for the management of the national seed program and having autonomy and freedom to carry out its functions.

Mohammad Jawad and Sam Kugbei, Variety and Seed Development Project, FAO, Kabul, Afghanistan; E-mail: samuel.kugbei@fao.org

Egyptian Private Sector Establishes Second Seed Trade Association

The Egyptian Seed Industry Association (ESIA) was formally established and registered on 16 April 2006, under Law No. 84 of 2002. It is the second association, after the Egyptian Seed Association (ESAS). Fifteen private seed companies established the association whose membership today grew to 41 members. The membership is open to all reputable seed industry stakeholders as full and associate members, all receiving same services and privileges except for voting rights in general assembly and membership of board of directors congruent to the bylaws of the association.

ESIA's membership includes all leading seed companies in field crops (except one) with their own plant breeding program and seed processing plants. They account for 87% of maize seed production in Egypt. All leading Egyptian vegetable seed companies representing the multi-national seed companies and with their own seed testing and acclimatization stations are also members of the new association. In addition, several reputable seed traders /distributors and professional and experienced contract seed growers are members.

The main objective of ESIA is to make available quality seed and planting material and serve the Egyptian farmers in achieving higher production and productivity in the agricultural sector. The association represents the interest of its members and contributes to the dialogue of challenges facing the seed industry at national, regional and global levels. The association also contributes to the on-going national dialogue to improve the regulatory framework and enabling policy environment such as the amendments of

Agriculture Law No 53 of 1966, amendments to IPR law, variety release protocols and breeders' rights recognizing the role of private sector in the seed sector.

ESIA is officially recognized and is a member of several government committees such as the Seed Council, Plant Varieties Registration Committee, Biosafety Committee, Grain Council, and Agricultural Crops Committee. In addition, ESIA maintains close relations and regular meetings with all relevant institutes of Agricultural Research Council, as well as the newly formed Agriculture Modernization Consultative Council. ESIA has seven board members elected by the general assembly every

two years which in turn elect its Chairman, Deputy Chairman, Secretary and Treasurer.

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Ethiopia Establishes Seed Growers and Processors Association

Ethiopia is an agrarian country. About 86% of its population resides in rural areas and make a living from agriculture. Agriculture is the mainstay of the economy in the traditional mixed crop-livestock production systems and largely practiced in the middle and highland agro-ecologies. The agricultural sector is largely under-developed and dominated by subsistence farmers, focusing on household food security.

There is a growing demand for improved seeds against a huge shortage in the country. About 90% of certified seed is supplied by a subsidized public seed enterprise. Public sector seed supply remains inadequate to satisfy a constantly growing demand from farmers. The role of the private sector in the production and marketing of seeds is low and confined to hybrid maize seed (25-30%).

A policy change is now in effect to encourage the participation of domestic and foreign companies in seed production and marketing of hybrid maize and self-pollinating crops in an attempt to address the critical shortage of improved seeds. The new strategy aimed at gradually withdrawing the public sector from production to regulatory tasks as the private sector develops and expands to take over seed production and marketing.

There is growing interest of the private sector to engage in seed production and marketing illustrated by the recent expansion of investments in commercial private farms in different parts of the country. Nevertheless, efforts have been isolated and beset with a number of policy and technical constraints. To date the private sector is too weak to take off the ground and make the anticipated contribution unless organized and backstopped by a strong policy environment.

The establishment of a national seed trade association was one essential component lacking in efforts to strengthening the private sector. The Ethiopian Seed Trade Association (ESTA) was established in 2005. To date it has only

managed draft bylaws and obtain legal status. The slow progress and weak performance stemmed from lack of vision, clear work-plan, commitment and strong leadership.

ESTA, reinforced with the election of new five-member board in June 2007. The board has sets the annual plan of action and seeks financial support to kick-start activities. The association is currently undertaking the following activities: (i) establishing an office with essential facilities and forming an office management team; (ii) creating a forum for members and non-members to discuss policy and technical issues; (iii) delivering services to members; (iv) training of members; and (v) linking ESTA to African Seed Trade Association.

Objectives

The objectives of ESTA are as follows:

- To promote the use of improved quality seed conforming to national and international quality standards
- To promote the development of seed industry for improving crop production in Ethiopia, in Africa, and the world
- To represent the interests of the seed industry in Ethiopia and internationally
- To improve communication between the seed industry in Ethiopia and the world
- To promote activities that lead to regulatory harmonization in Ethiopia, Africa, and other regions to facilitate seed movement
- To interact with national and international organization involved in seed activities to promote the interests of the seed industry
- To improve communication between seed suppliers in Ethiopia, Africa and the entire world by providing necessary seed industry information and holding meetings, seminars, workshops, etc
- To advise relevant government regulatory authorities in drafting rules and regulations pertaining to seed trade, etc

Membership

Although over 20 firms are licensed to produce seed to date only the following are registered as members: three government farms (Bale state farm, Awassa state farm, Coffee plantation), Ethiopian Seed Enterprise, Pioneer Hi-bred Seeds Ethiopia and 10 local private seed companies.

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RESEARCH NOTES

Short communications on practical research or relevant information on agriculture or seed technology are presented in this section.

Reinvigorating Bean Seed System in Ethiopia: Role of Farmers and Social Institutions

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1. Background

Since antiquity seed selection, saving and exchange has been part of farmer seed system. In common beans (*Phaseolus vulgaris* L.), this could probably date back 8000 years, when it domesticated in South Andean and Middle Americas (Gepts and Debouck, 1991). In Africa, bean seed system is of a recent origin probably since its introduction in 16th or 17th century (Gentry, 1969). Farmers have developed farming practices adapted to local conditions by preserving and exploiting useful alleles in bean improvement and seed supply. This is based on selection for diversity that meet farmers ecological, nutritional and socio-economic needs either from existing or variability created on-farm through natural mutation, out-crossing within varieties and between wild relatives, seed saving and exchange (inter and intra-community) via social networks in a continuous process of varietal evolution. This has created and maintained considerable on-farm diversity. However, the bean seed system in South Nations, Nationalities and Peoples Regional (SNNPR) state of Ethiopia is suffering from lack of choices, environmental and social changes. This calls for the attention of plant breeders and development practitioners. This article highlights efforts to revitalize local bean seed system in the SNNPR.

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SNNPR is one of the nine regional states of Ethiopia (see figure below). The majority of people in the region make their livelihoods from agriculture. Common beans are among important crops cultivated in Dawro, Gedio, Gamo-Gofa, Gurage, Kambata-Tambaro, Sidama, and Wolayta zones of the region.

Formal seed production and supply probably started with the establishment of Institute of Agricultural Research (1966) and Ethiopian Seed Enterprise (1979). Currently, ESE is producing seed of less than a quarter of released varieties. Formal seed supply could not cover all crops for which new varieties are available. Farmers largely obtain bean seed from informal sources. The formal sector plays a limited role; seed supply is often irregular and limited to a few varieties. Seed supply by the formal sector is limited by insufficient production capacity, late delivery, and lack of clear varietal choice and seed demand.

With centralized public seed programs being ineffective, alternative approaches were taken as a point of departure. Farmers were trained to produce quality seed for their own use and for local seed provision to explore opportunities for small-scale seed enterprises. As a result, research and development practitioners developed different models (Asfaw, 2007) for effective seed delivery. The overall objectives of different seed supply models were to improve the variety and seed security of smallholder farmers by enhancing the availability and accessibility of seeds. In the entire model, participation of farmers in seed production sought as an alternative strategy.



South Nations, Nationalities and Peoples Regional State of Ethiopia (shaded)

2. Participatory seed diffusion

Since 1998, farmers were exposed to new bean germplasm through participatory varietal evaluation (PVE) and participatory bean breeding (PPB) in SNNPR region particularly around Awassa area. The bean varieties with wider acceptance through PVE and PPB exercise were included in a participatory seed diffusion scheme involving individual farmers and cooperatives, implemented through local social institutions.

2.1 Individual farmer scheme

The scheme was started in two communities after PVE and PPB trials in 2003 at Boricha 'woreda', Sidama zone. Nine farmers participated in seed multiplication of four varieties supplied by agricultural research. They produced 900 kg seed and sold the seed to other farmers within the community. This was direct researcher-farmer collaboration without partnership with other seed chain actors. In 2006, the scheme entered a partnership with operational research project (supported by Irish Aid) where two farmers were involved in seed multiplication of Awash-1 and Ibado varieties each on half a hectare. The seed multiplied by these two farmers was bought by the project for 2007 seed provision. In 2007, the project supplied 1000 kg seed of Awash-Melka and 900 kg seed of Ibado at Boricha Sidama zone and 3000 kg seed of Awash-Melka and Awash-1 seed at Berissa in Gurage zone. About 70 farmers in Boricha and 120 farmers in Berissa participated in seed production, each on a

minimum of 0.25 ha. Participating farmers were selected through community meeting and with help from 'woreda' and 'kebele' agricultural development staff. Farmers were given initial seed of their preferred varieties (Awash-Melka, Awash-1 or Ibado) in a revolving seed system. Farmers receive initial seed as credit and repay in kind, at harvest, the amount of seed received. Agricultural research, Hawassa University and 'woreda' offices in each district are involved. The agricultural research center provided initial seed and trained development agents and 'woreda' agriculture experts in bean seed production and post-harvest handling. The development agents and 'woreda' experts in turn provided on-farm practical training to farmers, and were involved in distributing seed credit, collecting seed at harvest, storing seed and

overall technical support to farmers from field selection to harvesting and processing. Agricultural research, development practitioners and farmers monitored jointly the entire operation. About 3,450 kg seed collected as repayment was re-distributed to others farmers in the community for the 2008 cropping season. Seed repayment was 100% at Berissa and 24 % at Boricha. Seed from better-managed fields which met minimum quality, requirements, were sold to other development practitioners in the region. For instance, one farmer at Boricha produced 1600 kg of Ibadó seed; and 500 kg was sold as seed to an NGO operating in another zone. The remainder was used as grain within the community. In general, the approach made seed available to farmers in their vicinities and enabled many farmers to access seed through informal channels. However, the scheme encountered some problems during its implementation. First, farmers were not adequately organized which make seed marketing difficult. Second, farmers were unwilling to pay back the seed credit particularly at Boricha, probably due to the influence of long standing relief interventions. Thus, success of revolving seed system requires political commitment of local government.

Bean varieties from participatory selection were also distributed to large numbers of farmers in collaboration with NGOs like Inter-aid France in Boditi (Wolayta zone), Agri-Service in Amaro special 'woreda', Action-aid Ethiopia in Kamba (Gamo-Gofa zone), World Vision in Kambata-Tambaro zone and IPMS (Improving Productivity and Marketing Success to Ethiopian Farmers) project in Dale (Sidama zone).

2.2 Cooperative-based scheme

In cooperative-based scheme (Asrat, 2007), varieties with high market demand were targeted. The agricultural research center, Bureau of Agriculture and Rural Development, NGOs, farmers, farmer cooperative unions and grain exporters were involved. Initially, seed production was started side by side with the market-oriented bean grain production initiative in order to provide seed to producers in a sustainable manner. Farmers' cooperative union provide inputs (seed in seed-credit and fertilizers with 25% down payment) to farmers and collected seed repayments for next season's distribution. A joint task force from partners monitors seed production. Field days are

organized before the harvest by bringing researchers, development practitioners, farmers, seed processors, grain traders and policy makers to seed production fields for joint evaluation and up-scaling. At harvest, seed from better managed fields which met minimum seed production requirements are purchased by cooperatives at 15% premium over prevailing grain prices. Production from fields not approved for seed was sold as grain to cooperatives.

In 2007, in collaboration with Self-help Development International, 4,545 kg basic seed was distributed to farmers organized in six primary cooperatives in three 'woredas' in Sidama zone (Table 1). In 2008, it was scaled-up to other cooperatives and zones (Table 2) and 17,025 kg seed of 10 varieties were distributed to 552 seed producers at four cooperatives unions covering 180.35 ha. The expected production is 263,900 kg.

Table 1. Common bean seed distribution for cooperative-based seed scheme in 2007, Sidama Zone

Woreda	No of cooperative involved	Area (ha)	Seed distributed (kg)	Raw seed produced (kg)
Awassa Zuria	3	14	1,260	14,500
Boricha	1	16.5	1,485	11,550
Loko Abaya	2	20	1,800	18,000

For IPMS lead activities at Dale in Sidama and Alaba special 'woreda', research supplied initial basic seed in revolving seed system to the cooperatives as part of the seed system of Tropical Legume-II project. Similarly, Damota union at Wolayta zone obtained revolving seed grant from Tropical Legume-II project.

2.3 Community seed saving scheme

This is a collaborative activity between agricultural research and an NGO which is playing the leading role. Inter-Aid France Food Security Project is operating a project in Damot Gale 'woreda' of Wolayta zone. The NGO is promoting community seed production as one of the component of its agricultural development program. By creating a group, it plans to make farmers seed secure and avoid seed credit with high interest at planting time which force them into share-cropping (rent land to creditors). This activity combines seed

Table 2. Cooperative based seed production in 2008

Zone	No of 'woredas'	Seed distributed (kg)	Area planted (ha)	Expected seed produced (kg)	No. of farmers	Varieties	Main scheme supporters
Sidama	2	8,050	89.5	116,200	199	Awash-1, Mexican142, Redwolyta	Self-help Development International
	1	1,100	11	16,500	49	DRK, Cranscoup, Dimitu, Nassir	IMPS and Research
Gurage	3	1,600	16.85	23200	57	Mexican142	Self-help development international
Wolayta	1	2,675	27	54,000	56	Awash-1	BoARD
	1	2,600	26	39,000	129	Ibado, Awash-Melka, Awash-1, Argene	Damota Union and Research supplied seed grant
Alaba 'woreda'	1	1,000	10	15,000	62	Dimitu, Nassir	IPMS and research

selection and saving, facilitating access to quality seed to enhance crop production. It improves family finances and increases production.

The project is currently working on community bean seed saving scheme using 'iddir', local social organization. These are voluntary community based functional local social institution organized to address societal needs in time of need such as death of a family (funeral services, etc) and house construction, They follow traditional norms and rules with elected leaders. 'Idders' were approached to extend their role in the society from aid-oriented to development-oriented. To begin with volunteer bean seed groups were formed within each 'iddir'. To be a member of a seed group, seed saving is compulsory. Seed savings by members is used as seed capital. Each seed member has the right to get seed credit at planting time twice what he/she saved in the scheme. Seed savings are stored in the house of 'iddir' leader or NGO social workers, in locally made storage structures. The 'iddir' leaders also collect seed repayment. The NGO provided initial and subsequent revolving seed grant to the seed groups.

Farmers lack varietal choices to meet their diverse needs due to limited on-farm diversity (small size red bean is dominant). Before initiating the scheme, the project made farmers' aware of new varieties. Awassa Agricultural Research Center provided germplasm and technical backstopping. The project was provided with basic seed of Omo-95 and Ibado varieties and conducted participatory variety

evaluation comparing them with a local variety. During evaluation and selection, the communities set their own selection criteria and decided the variety to include in their seed production scheme.

The community selected Omo-95 (RWR-719) variety for seed production scheme based on the following agronomic and culinary attributes: very good germination (seedling emergence and establishment), upright plant structure (strong stem, erect), non-shattering (intact pods), seed color (deep-red color with high market demand), traditional cooking (good look and flavor), relatively longer seed storage period and high grain yield. The variety looks suitable for 'belg' production with an average yield of 1.5 t ha⁻¹ compared to on-farm yields of 1.2–1.8 t ha⁻¹.

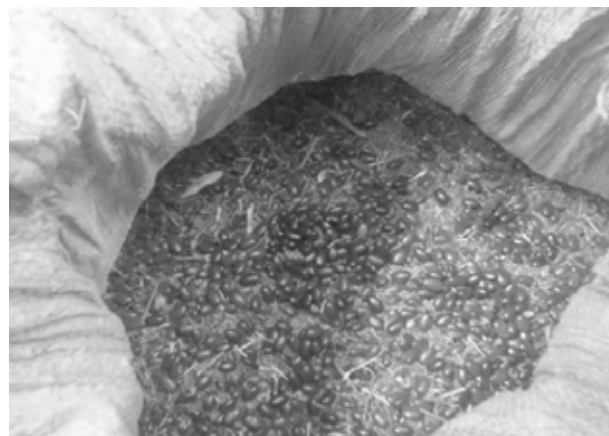
The program was started in 2006 'belg' season with three development 'iddirs' under which 7 bean seed groups were organized (each up to 10 members). The project injected 7,200 kg of revolving seed grant to development 'iddirs'. In 2008, this was scaled up to 18 development 'iddirs' with 58 groups and 474 members (Table 3). Meanwhile, the revolving seed of improved variety Omo-95 increased from 720 kg in year 2006 to 1830 kg in the 2008 cropping season. With substantial demand to participate in the seed saving scheme, the project encountered shortage of improved seed. In 2008 belg season, for example, the project could only supply one fourth of the seed demand for Omo-95 compared to a total of 2445 kg requested by participating farmers (excluding seed available in revolving scheme).

The gap was met by supplying seed of the local farmer variety (Red Wolayita). Table 3 summarizes the achievements of bean seed saving scheme.

Table 3. Performance of bean seed saving scheme in Boditi, Wolayta zone

Main indicators	2006	2007	2008
Number of development 'iddirs'	3	9	19
Number of bean seed groups	7	22	58
Number of beneficiaries	72	180	474
Amount of bean seed injected as revolving seed grant (kg)	720	890	2445 ¹
Amount of bean seed collected and redistributed to new seed groups (kg) ²	-	610	1185
Beneficiaries who saved seed in subsequent years and continue as member of seed group	82%	91%	- ³
Level of repayment rate	94%	97%	- ³

Note: ¹1800 kg was Red Wolaita variety; ²All is Omo-95 variety; ³Performance data for 2008 is being collected



Seed collection, treatment and storage: farmers mix seed with soil as local innovation to avoid bruchid attack

Some key observation with the community bean seed saving scheme are:

- **Dynamics of seed demand:** The scheme introduced during the second year of the project and more groups are still expected, but the response is very positive. There is an increase in the number of new seed groups established by reallocating seed collected from older groups. Farmers are satisfied because the scheme it enables them to get better yields, avoid seed credit and improve seed availability. Farmers liked keeping the seed in the scheme and not worried about seed being eaten during food shortage period which can last up to six months.
- **Consistency of participation:** There is a rather low level of dropouts in the seed groups; 18% in first year and only 9% during the second year of the scheme.
- **Level of repayment:** In 2007 'belg' season, the repayment rate was 97%. It is not surprising as 'iddirs' have expertise in dealing with loans. It also confirms the relevance of organizational option selected.
- **Benefits to farmers:** The scheme helps farmers overcome seed purchase at high price (or loans at high interest rates), avoid sharecropping increased their production and providing greater social benefits.

Seed supply remains a bottleneck for sustainability of the scheme. Strong partnership with seed chain actors is critical, particularly creating linkage with research for injecting new germplasm; empowering local seed producers and other seed actors; and facilitating links between local seed producers and the 'iddirs'.

Looking into the possibility of linking the 'iddirs' with the 'woreda' cooperatives is vital for reliable improved seeds supply.

Conclusion

Strengthening farmer seed system is vital for improving food security, as it is the predominant seed supplier for the majority of farmers in stress environments. Hence, linking the participatory approach with informal distribution will enhance seed security (availability, access and quality) of farming communities in marginal areas. Efforts using local social institutions like 'iddirs' for seed production, saving and marketing would make the local system more sustainable.

Acknowledgments

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MEETINGS AND COURSES

Announcements of meetings, seminars, workshops and training courses appear in this section. Please send us announcements for national, regional, or international workshops, seminars and training courses organized in your country for inclusion in the next issue.

Conferences

ISTA Annual Meeting 2009, Zurich, Switzerland, 15-18 June 2009. ISTA is pleased to announce that the registration for the ISTA Annual Meeting 2009 to be held from 15-18 June 2009 in Glattbrugg (Zurich), Switzerland is now open. The reduced fee for early registrations will apply until 15 April 2009. For registration please visit the website (www.seedtest.org/AM2009). For more information contact: Dr. Michael Muschick, Secretary General, ISTA, Zurichstrasse 50, 8303 Bassersdorf, Switzerland; E-mail: ista.office@ista.ch; www.seedtest.org

ISF 2009 World Seed Congress, 25-27 May 2009, Antalya, Turkey. The congress is organized under the auspices of the ISF and hosted by the Turkish Seed Industry Association. Antalya located in the Mediterranean coast in western Turkey is a city known for its seed production of horticultural crops. For more information and registration please contact: ISF, Chemin du Reposoir 7, 1260 Nyon Switzerland; E-mail: isf@worldseed.org. Further information is available from Turkish Seed Industry Association, Mithapasa Caddesi Fazilet Apt. No 50/4, Yenisehir, Ankara, Turkey; E-mail: turkted@turkted.org.tr.

Second World Seed Conference 2009, 8-10 September 2009, FAO, Rome. The conference under the theme 'Responding to the Challenges of Changing world-the role of new plant varieties and high quality seed in agriculture' is jointly organized by FAO, OECD, UPOV, ISF and ISTA. This event is aimed at a cross section of the seed industry from policy makers and senior managers of government agencies to professionals such as plant breeders, seed specialists, researchers to farmers' associations and consumer organizations. It also include breeding companies, breeders' associations, certification agencies, seed producers, seed trade associations, technology companies, academic institutions, and international breeding and seed research centers. The conference will be held over three days, organized into two events: Expert Forum, 8-9 September 2009 and Policy forum, 10 September 2009.

The aim of the Expert Forum is to provide information and facilitate discussion on means of encouraging the development of new plant varieties and the production and distribution of

high quality seed. The Policy Forum will review the conclusions of the Expert Forum on means to provide an enabling environment that encourages the development of new varieties and facilitates the production and distribution of high quality seed.

The expert forum will be in English only whereas the policy forum will have simultaneous translation in Arabic, Chinese, English, French and Spanish. Further information on the conference can be obtained at: <http://www.worldseedconference.org>.

Courses

Wageningen International Courses 2009. Wageningen University and Research offers continuing education through postgraduate courses, training sessions, and refresher courses. The courses vary from general interest to highly specialized levels, offering the chance to learn about current developments. Many institutions including Wageningen International organize short courses. For more information on courses organized by WI follow this link.

ISTA Vigour Workshop, Mashhad, Iran 18-21 April 2009: The International Seed Testing Association (ISTA) will hold a Seed Vigour Workshop at the Department of Crop Science, University of Ferdowsi, Mashhad, Iran from 18-21 April 2009. The workshop will offer an introduction to the concept of seed vigour and seed vigour testing. It will be made up largely of lectures with some practical experience in vigour tests. The lecturers will be Dr Alison Powell (Chair, ISTA Vigour Committee, University of Aberdeen, UK), Dr Stan Matthews (University of Aberdeen, UK) and Dr Mohammad Khajeh Hosseini (University of Ferdowsi). The workshop will be conducted in English. Further details of the workshop and registration can be obtained from the website of ISTA.

International Training Program on Contemporary Approaches in Genetic Resources Conservation and Use, Wageningen, The Netherlands, 6 April to 1 May 2009. Wageningen International and the Centre for Genetic Resources, the Netherlands in cooperation with Bioversity International and GFU for Underutilized Species are organizing a four-week training program on genetic resources conservation and use. The training program is designed for project coordinators, managers,

trainers, program leaders and other professionals who aim to promote the conservation and use of genetic resources for agriculture from a policy, research, education or development perspective. The program consists of four two-week modules, organized in parallel sessions:

- Genetic resource policies and conservation strategies, 6–17 April
- Adaptive genetic resources management, 6–17 April
- Enhancing agro-biodiversity use: markets and chains, 20 April–1 May
- Integrated approaches in crop improvement and seed supply, 20 April–1 May

The program is part of the annual course portfolio of Wageningen International. With the Global Plan of Action on Animal Genetic Resources having come into force in 2007, the training program will address plant as well as animal genetic resources. The latter will be specifically addressed in module 3 from a conservation perspective, and in module 4 from a sustainable use perspective. To this end, program modules addressing plant and animal issues specifically will be run in parallel. Also the module on integrated approaches in crop improvement and seed supply is new. Please find more details on the program and application form at Wageningen International. For more information contact: Karèn Verhoosel Wageningen International Program for Capacity Development and Institutional Change, P.O. Box 88, 6700 AB Wageningen, The Netherlands Tel: +31-317-486860; Fax: +31-317 486801; E-mail: karen.verhoosel@wur.nl

Introduction to the UPOV System of Plant Variety Protection (DL 205), 4 May to 7 June 2009. UPOV invites interested applicants to its distance-learning program which will be run in English, French, German and Spanish. There are three categories of participants:

- Government officials of members of the Union nominated by the relevant representative to the UPOV Council (No fee);
- Officials of observer states/ intergovernmental organizations nominated by the relevant representative to the UPOV Council (one non-fee paying per state/intergovernmental organization and CHF1,000 per additional student)

- Others (fee: CHF, 1000)

Preregistration of participants in categories 1 and 2 must be accompanied by a notification from the representative to the UPOV council of the UPOV member or observer as appropriate, formally nominating the participant. More detailed information concerning the course content and on-line pre-registration is available on the UPOV website: <http://upov.int/en/about/training.htm>

LITERATURE

Books and journal articles and other literature of interest to readers are presented here. Please send information on seed and other agriculture related publications on policy, regulation, and technology to the Editor for inclusion in *Seed Info*.

Books

Thijssen, Marja H., Zewdie Bishaw, Abdurahman Beshir, Walter S. de Boef. 2008. Farmers, Seeds and Varieties: Supporting Informal Seed Supply in Ethiopia. Ethiopia is characterized by an enormous diversity in agro-ecology, farming systems and crops. The informal sector is dominating the seed supply of almost all crops. The book addresses strategies and approaches for supporting informal seed supply, and links these with conservation and use of indigenous genetic resources. The book presents case studies from Ethiopia and elsewhere. It deals with the technical aspects of quality; seed availability and access; the role of farmers in the conservation and management of local crops and varieties; and the participation of farmers and communities in plant breeding and research. It takes a particular interest in the role of farmer organizations and their potential role in developing community and small-scale seed enterprises. The Ethiopian Seed Enterprise, ICARDA and Wageningen International jointly published the book. You can download the full guide and/or individual chapters at website of Wageningen International.

ISTA Publications

ISTA is known for publishing International Rules for Seed Testing (IRS) and a series of handbooks on seed testing methods which are

regularly updated based on new developments in seed science and technology. Some of the new or revised publications are:

ISTA. 2009. International Rules for Seed Testing (English or French): IRST is a primary instrument to promote uniformity in seed testing with 17 sections that provide definitions and standardized methods to be used in, for example, sampling and testing seed lot quality and reporting results for international seed trade. It is also a useful reference guide for germination condition and methods for over 1000 species. The price is US\$ 357.

Ripka, Z. (ed). 2006. ISTA Handbook on Flower Seed Testing: The handbook is a new ISTA project to collate current specialized knowledge of flower seed testing for most frequently tested species. The handbook contains an initial 24 method sheets covering 13 families with a series of procedures and detailed descriptions. The price is US\$ 245.

ISTA. 2009. ISTA Handbook on Pure Seed Definitions: This handbook will expand on and illustrate the pure seed definitions of the International Rules for Seed Testing. The price is US\$ 245.

To order these books or other related publications please contact ISTA Secretariat.

Aoki, K. 2008. Seed Wars: Controversies and Cases on Plant Genetic Resources and Intellectual Property, University of California, Davis, California. The book chronicles the expansion of intellectual property protection for plants throughout the past several decades and speculates on possible ways to ensure that plant genetic resources remain freely available across national borders to farmers, plant breeders and researchers. 'Seed Wars' is a comprehensive overview of current domestic and international legal controversies regarding intellectual property protections for plant genetic resources (PGRs) over the past three decades. It examines: (i) rise of intellectual property protection for plant varieties and the enclosure of 'genetic' commons; (ii) move of agro-chemical industry to seed in context of industrial agriculture; and (iii) emergence of overlapping regimes of national and multilateral treaties such as TRIPS (1994), CBD (1992) and ITPGR (2004). This book also speculates on

possible directions that intellectual property protection for PGRs may take in the 21st century. Carolina Academic Press (Pb), ISBN: 978-1-59460-050-0; Price: US\$ 40; 208 pp;

Herring, R. J. (ed). 2007. Transgenics and the Poor: Biotechnology in Development Studies. Genetic engineering is changing the terrain of development studies. Technologies with unprecedented potential-the capacity to move genes across species-have created widely politicized phenomena: 'Frankenfoods', 'GMOs', and 'The Terminator'. The public has reacted with equanimity or appreciation to genetically engineered pharmaceuticals, beginning with insulin, but transgenics in food and agriculture have raised a globally contentious politics.

The authors collectively conclude that predictions of disaster for the poor from transgenic technology are uninformed by empirical results, rest on misunderstandings of biotechnology or the poor or both, or get the science wrong. Yet the triumphalism of pro-transgenic forces, however, must be tempered by serious unanswered questions: much is unknown, but the transgenic genie is out of the bottle.

In this much-needed book, an emergent empirical literature allows scholars in disciplines ranging from micro-biology to economics and political science to assess the potential effects of transgenic organisms on poverty through multiple dynamics of property, yields, prices, biodiversity, environmental integrity and nutrition. Routledge (Pb), ISBN 978-0-415-46876-3; Price: \$160; 256 pp

Hazell, P.B.R. 2008. An Assessment of the Impact of Agricultural Research in South Asia since the Green Revolution. Science Council Secretariat: Rome, Italy. The CGIAR-supported Centers and their national partners in South Asia have responded well to agriculture's evolving needs, and their work continues to be a sound investment for the region, despite its changed economic realities, according to a new and comprehensive impact study from the Group's Science Council. The compelling story of those efforts is thoroughly documented in a study commissioned by the Science Council's Standing Panel on Impact Assessment and entitled An Assessment of the

Impact of Agricultural Research in South Asia since the Green Revolution.

Useful Websites, Journals, Newsletters

Alliance of CGIAR centers best bets for boosting crop yields in sub-Saharan Africa

The website provides best bet technologies available for boosting crop yields in Africa as compiled by CGIAR Secretariat and the World Bank. The best bet proformas are given sequentially by Center as submitted by 12th June 2008. Visit the website at:

http://www.worldagroforestrycentre.org/downloads/CGIAR_boosting_yields_ssa.pdf

New Journals

Journal of Agriculture and Biological Sciences: PMAS Arid Agriculture University Rawalpindi has launched a new journal entitled.

The journal will be published in continuity of previous published 'Pakistan Journal of Arid Agriculture' Researchers are invited to contribute scientific papers on original research work pertaining to all the related areas of agriculture and biology. Procedure for submitting manuscripts and peer review process have been posted on University website at: www.uar.edu.pk.

Food Security: The Science, Sociology and Economics of Food Production and Access to Food: The journal seeks to address the constraints- physical, biological and socio-economic-which not only limit food production but also the ability of people to access a healthy diet. The journal contains a mixture of original refereed papers taking a synthetic view of the science, sociology and economics of food production, agricultural development, access to food, and nutrition, together with review articles, case studies and letters to the editor. The journal covers the principles and practice of food security per se, taking an overview of the subject or analyzing it with a broad perspective over its many component disciplines. The journal does not seek to duplicate the coverage of the many publications that focus specifically on those component disciplines. For more information, visit the website: www.editorialmanager.com/fose

Green Farming: It is a monthly International Journal of Agricultural Sciences. The Journal publishes original research papers, reviews and technical articles on all various disciplines related to agriculture, horticulture, forestry, animal husbandry, dairying and rural development etc. The Journal also provides latest and applied technology to various readers such as scientists, experts, research scholars, administrators, policy makers, extension workers, private organizations and progressive farmers etc for application of organic and eco-safe farming & animal husbandry practices.

The Journal is guided by its eminent editorial board consisting of leading agricultural & animal husbandry experts to make it a unique guide on the advances in global agriculture.

The Journal is currently subscribed by various national & international agricultural research institutes, state agricultural universities, research workers, scholars, KVK'S, NGO'S, govt. departments, private agro-industries and progressive farmers.

Recently Green Farming has stated its official blog to provide a worldwide platform for discussing new

ideas and innovative technologies. Authors, readers and subscribers are free to express their opinions within reason and may leave comments on the abstracts of articles posted. Please follow this link to visit our website www.greenfarming.in.

Seed Newsletter

Seed Today is the leading seed industry publication in the United States. Each issue brings together seed producers, equipment manufacturers and service providers. The publication includes production facility features, product reviews and seed industry news. You can access the web site, view the magazine and send your seed news. Seed Today is freely available to readers worldwide via the Internet.

GIPB Knowledge Resource Center

The new version of the Knowledge Resource Center, the GIPB website has been launched (<http://km.fao.org/gipb/>). The major aim is to make all contents more easily accessible for all. Visit the GIPB web-site and check the updated information and resources.

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