West Africa Seed and Planting Material

The Newsletter of the West Africa Seed Network (WASNET)

Secretariat: PO Box 9698, KIA Accra, Ghana

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This is the 17th issue of the West Africa Seed and Planting Material, the newsletter of the West Africa Seed and Planting Material Network (WASNET). WASNET addresses the needs and problems in the seed and planting material sectors in West African countries and brings together private and public seed actors from West African countries in a structure, which will encourage them to work together to strengthen local, national, and regional seed industry development.

The newsletter of WASNET is not only a tool through which the latest developments of the seed and planting materials sectors are communicated to seed and planting material staff in West Africa and beyond. It also aims at informing readers of what is going on in the seed and planting material sector in other networks or seed related associations in the world. Even more, the newsletter is a forum of discussion whereby readers and contributors are allowed and encouraged to pose and answer questions.

The last issues of the Newsletter dealt mainly with, the leading role being played by ECOWAS in the process of the harmonization of seed rules and regulations in West Africa, towards the creation of the national seed association in Bénin, the seed actors and the varieties grown in Togo and the release of new crops varieties in Ghana. Emphasis in the current issue is shifted to the proceedings of the Third General Assembly of WASNET held from 21 to 24 February 2006, Accra, Ghana; the regional workshop for validating the regulatory framework for seed production and marketing ECOWAS and UEMOA member states; the seed system in Côte d'Ivoire; and farmers' strategies for introduction of early varieties of millet, groundnut, and cowpea in the region of Dosso, Niger. It is also worthwhile to share with the readers of the newsletter of the West Africa Seed and Planting Material Network, some information on seed in the world and seed events to come.

Do not forget to send your comments on articles and contributions for the next issue of the newsletter

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WASNET News

Proceedings of the Third General Assembly of the West Africa Seed and Planting Material Network (WASNET)

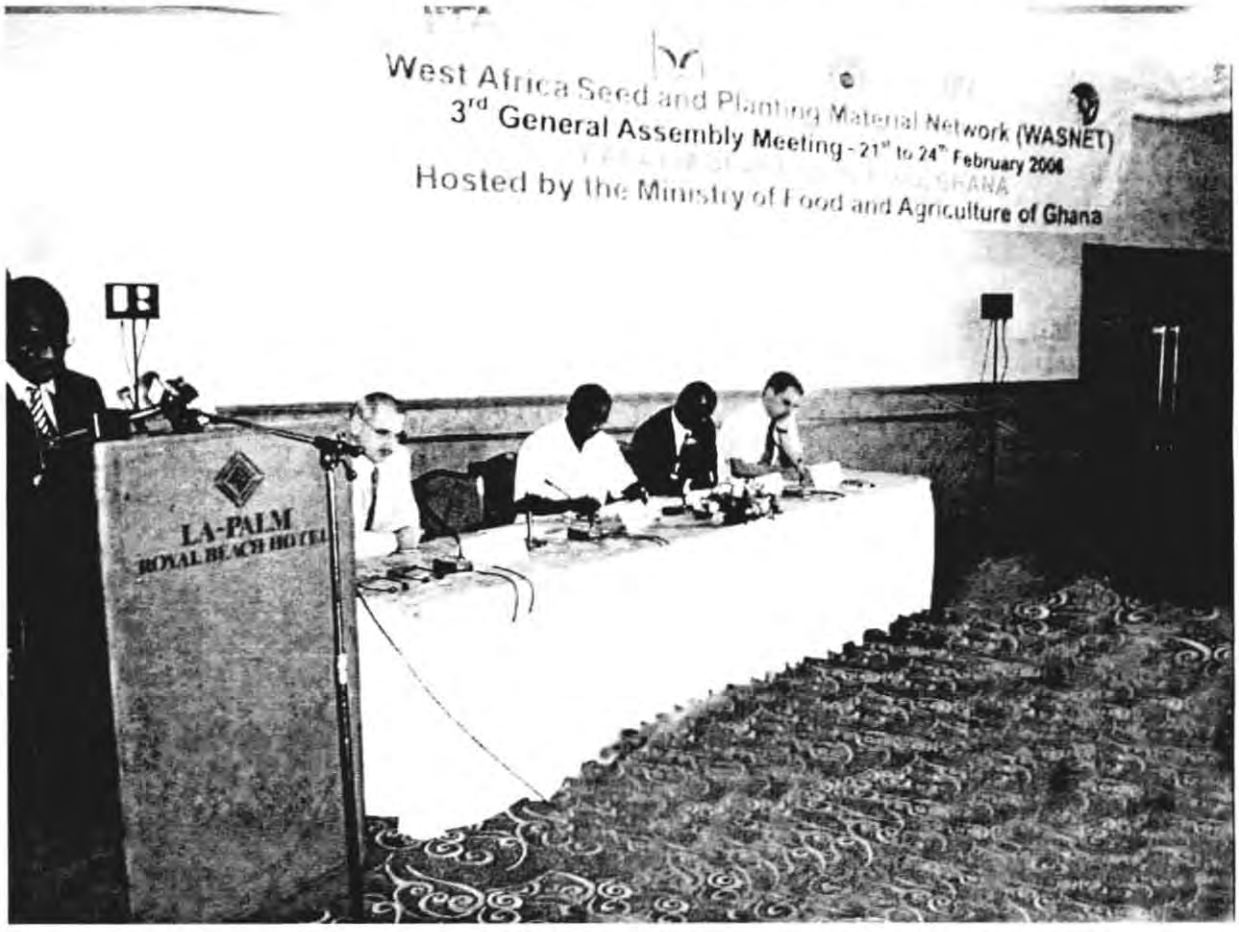
Held 21–24 February 2006 at La Palm Royal Beach, Accra, Ghana

Norbert Maroya

At the Second General Assembly of the West Africa Seed and Planting Material Network (WASNET) held in Dakar, Senegal in February 2004, it was agreed among member countries that the Third General Assembly be hosted by Ghana. Thus, from 21 to 24 February 2006, the Third General Assembly of WASNET took place in the conference room of La Palm Royal Beach Hotel, Accra, Ghana.

The meeting started at 11.00am with addresses by the Chair of the WASNET Steering Committee, Mr Abba Dieme, the representative of GTZ and Principal Advisor of the Seed Project, Dr Lothar Diehl, the representative of the Director General of the International Institute of Tropical Agriculture (IITA), Dr Stephan Weise, and the representative of the Executive Secretary of ECOWAS, Dr Qwelibo J. Subah.

In his keynote address, the Honorable Minister of Food and Agriculture highlighted the challenges facing the continent in the light of growing population, decreasing land area for farming, and increasing complexity of biotic and abiotic stresses. In view of these drawbacks, the Honorable Minister challenged agricultural experts to develop and disseminate improved technologies to offset the problems. This would enable the region



Dignitaries at the high table.

Participants at the meeting.

achieve accelerated growth in food production to ensure food security and to increase the incomes of farmers who constitute the majority of our population. On that note, the Honorable Minister declared the Third General Assembly duly opened, after which a group photograph was taken.

The presentations of the first day included the following:

- Harmonized rules and regulations for inter-country seed trade enhancement in West Africa: practical achievements (Dr Q. Subah of ECOWAS)
- Development of Africa Seed Industry: FAO's Strategy (Dr R.G. Geui of FAO Rome)
- Strategy and status of NERICA dissemination in sub-Saharan Africa (Dr I. Akintayo of WARDA)
- What Genetically Modified Organism (GMO) is about and what is the stand of West and Central Africa? (Prof. W.S. Alhassan of PBS)
- Development of Seed Trade in Africa (Mr J. Rakotoarisaona of AFSTA)
- MISTOWA's experience in managing the regional agricultural products and inputs information system (Dr K. Debrah of IFDC/MISTOWA)
- Association in the West African Agro Input Sector: Challenges and Challenges (Mrs M. Dohmen of IFDC/MIR)
- New developments in the International Seed Testing Association (Dr E. Asiedu of ISTA Seed Vigour Committee)
- Achievement and lessons from the West Asia and Northern Africa Seed Network (Dr A.G. van Gastel of ICARDA)
- Intellectual property rights: Challenges and Opportunities for Africa seed Industry (Dr G. Omanya of AATF)
- Material Transfer Agreements (Mr F. Burgaud of GNIS France).

Other presentations included the regional summary on the state of the variety catalog by Mr P. Buckner of Niger and statistics on projected needs and productions of seed in the region from 2006 to 2010 by Mr A. Dieme of Senegal.

On the second day, presentations on both private and public seed sectors in the 12 member countries were presented to depict the advances and challenges of the respective programs. The meeting learnt that whereas most countries had done well to establish private sector associations, some countries still did not have the vital elements of a functional seed system, including variety release systems, seed committees, seed policy and laws, as well as quality control systems. In some countries, the uses of improved seeds by farmers were too low. Thus, presenters give many challenges mitigating against the growth of seed industries.

In view of the anticipation of completion of funding support to WASNET by GTZ, a presentation was made on alternative funding scenarios for WASNET activities after September 2006. The proposal included submitting proposals separately to FAO, IITA, ECOWAS, CORAF/WECARD, as well as to member countries and WASNET private sector partners. Members felt that in view of the achievements made by WASNET, and the challenges facing the seed sector in the subregion, it would be damaging if the activities of the network were terminated. After a lengthy discussion, it was concluded that ECOWAS would be in the best position to become the owner of the network after GTZ funding terminates. The representative of ECOWAS indicated that the chances are reasonably bright. However, due to the short notice given (to ECOWAS) and with regard to budgeting, it was decided that a request be sent to GTZ and IITA for a grace period of funding for six months after 30 September 2006. This would allow ECOWAS to prepare itself to include WASNET in its annual budget starting from 2007.

On the third day, the participants went to Kumasi and visited the seed processing and storage facilities at the Crops Research Institute's station at Kwadaso and at the Grains and Legumes Development Board's (GLDB's) premises at Asuoyeboah. At these places, seed processing was actively in progress and participants had the opportunity to interact with the officers-in-charge, seed quality control officers, and seed growers. In addition, delegates visited a private seed dealer, OBEK Agro-Services Limited, where the Executive Director of the board, at the head office of GLDB, received them. The delegates were happy about the trip as they learned new experiences from their Ghanaian counterparts and also saw some parts of the country. The group returned to Accra that evening.

On the fourth day, the WASNET Coordinator presented the progress report of

Participants tour seed processing and storage facilities at Kwadaso and Asuoyeboah.

the network where he highlighted activities carried out, achievements and challenges since the last general assembly. Notably among the achievements were the high number of seed associations formed in member countries; linkages developed with national, regional, and international organizations working on seed or seed-related activities; building a strong private-public partnership in the subregion, development of a web-page; and publishing half-yearly newsletter. Members commended the coordinator and the secretariat for the good work done within the period under review. The secretary of the steering committee presented a summary of the discussions during the April 2005 steering committee.

Steering committee members were then elected as follows:

President:	Abba Dieme	Public Sector	Senegal
Vice President:	Momodou Ceesay	Private Sector	Gambia
Secretary:	Issa Dembele	Private Sector	Mali
Fourth Member:	Idara Sheriff	Public Sector	Sierra Leone

In the afternoon of the fourth day, the new steering committee presided over the general assembly met to decide on the venue and date for the next meeting. Because of the possible aquisition of WASNET by ECOWAS, the next meeting will be held in Abuja, Nigeria, in February 2008, if approved by the Nigerian authorities.

The report of the business meeting, recommendations and proceedings were then adopted.

Conclusions and recommendations

At the end of the Third General Assembly, delegates from member countries were satisfied with progress made by WASNET within such a short period. They were also delighted to see Accra and the countryside of Ghana. The following recommendations were however made:

- WASNET continues relevant activities and orients its vision to address new challenges facing seed industry development in the subregion, with emphasis on public-private partnerships.
- Considering the various options available for continuing the activities of WASNET, after funding from GTZ comes to an end in September 2006, it was agreed by the delegates that ECOWAS was positioned to own WASNET. In this regard, the Third General Assembly was tasked to develop a communiqué for submission to the ECOWAS Secretariat for consideration. If agreed, this must be followed by submission of a full proposal, taking into consideration the vision of ECOWAS.
- A request will be presented to GTZ for consideration of continued support for six additional months.
- WASNET should continue to develop proposals for funding of various activities in line with donors interest.
- It was agreed that the next WASNET General Assembly be scheduled for February 2008 in Abuja, Nigeria, under the aegis of ECOWAS.

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Communique of The Third General Assembly of WASNET

Held 21–24 February 2006 at La Palm Royal Beach, Accra, Ghana

The Third General Assembly of the West African Seed and Planting Material Network was held in Accra, Ghana 21–24 February 2006. Both public and private sector delegates from 12 West African countries (Bénin, Burkina Faso, Côte d'Ivoire, The Gambia, Ghana, Guinea, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo) participated in the workshop.

Objectives of the workshop were to:

- Assess progress made in the seed supply systems through the complimentary efforts of the public and private sector partners.
- Share information and experiences among network members and between the network and regional and international seed organizations.
- Develop strategies for the way forward in improving the seed delivery systems.

At the end of the workshop, delegates were satisfied with the progress made by WASNET since its inception in 1999. They were however, unhappy about the seizure of donor funding at end of September 2006 from the German Government through the German Technical Cooperation (GTZ).

Delegates strongly felt that in view of the:
Importance of improved seeds in ensuring food security, as well as improving agricultural productivity and livelihoods of farmers who constitute 60–70% of our populations;

Poor state of the seed delivery systems, particularly at the inception of the network, in comparison with other regions;

Significant achievements of WASNET in the development of the private seed sector to enhance its seed delivery capacity;

delegates should consider that:

- WASNET is the only information exchange forum for discussions on matters relating to seed industry development in West Africa for both the public and private sectors.
- WASNET is one of the main actors in West Africa for the implementation of the process of harmonization of regulations for seed certification and quality control and for the common regional catalog presently under the leadership of the Economic Community of West African States (ECOWAS).
- WASNET contributes towards the improvement of agricultural productivity in West Africa by distributing improved seeds to small-scale farmers through the community based seed systems.

Considering the adoption in January 2005 of the regional agricultural policy ECOWAP for the entire West Africa and its action plan 2006–2010 in which the seed sector development has an important role to play, delegates considered the following key achievements of WASNET:

- Creation and official launching of national seed association in West Africa.
- WASNET's website (http://www.wasnet.org) as the main source of information of West African seed sector.
- Publishing bi-annual newsletter of the West Africa Seed Network (ISSN 1595–2312) edited in English and French for more than 1000 private and public seed actors in West Africa and beyond.
- Provision of email addresses through the website (i.e. ghana@wasnet.org for the public and beninprivate@wasnet.org for the private sectors) in each of the 12 member countries of WASNET, who are all member states of ECOWAS.

The delegates also considered WASNET's funding assured since 1999 by the German Technical Cooperation (GTZ) which will end on 30 September 2006. They considered the risks of loosing these important achievements, if the funding of WASNET seizes after 30 September 2006, and the consequences of food reducing crop productivity, decreasing farmers' incomes and food insecurity.

Delegates to the Third General Assembly of WASNET made the following recommendations:

- ECOWAS in the implementation of its Agricultural Policy (ECOWAP), should consider WASNET as its specialized organ for seed and planting material and ensures it's funding.
- The Steering Committee and the regional Coordinator of WASNET should contact the autho-

rities of ECOWAS to discuss this communiqué and WASNET documents. This would allow ECOWAS understand the necessity for integrating WASNET in its institutional structure for sustainability.

- The Executive Secretariat of ECOWAS should contact the authorities of IITA and GTZ to discuss the possibility of extending funding for six months more to allow ECOWAS prepare itself for the integration.

Agreed in Accra, Ghana on 24 February 2006 by delegates who atten-

Vote of thanks of The Third General Assembly of WASNET

The participants of the Third General Assembly of the West Africa Seed and Planting Materials network (WASNET) held in Accra, 21–24 February 2006 at La Palm Royal Hotel Beach, noted with great satisfaction the perfect organization of the General Assembly and the quality of presentations, debates, and discussions that took place. The participants are delighted for this unique experience in West Africa in which the private and public seed actors meet for fruitful discussions for the subregional seed industry development.

Convinced that the present meeting marks a determining turning point in the regional meetings between private and public seed actors, the participants express their warmest gratitude to all those who contributed in diverse ways to the success of this General Assembly.

The delegates wish to express their profound appreciation and gratitude, particularly to the:

- Government and people of Ghana for their support and hospitality in the organization of the General Assembly.
- Minister of Food and Agriculture (MOFA), Ghana, Honourable Ernest Debra for his personal commitment, technical, and financial support.
- Executive Secretary of ECOWAS for the support given to the Third General Assembly of WASNET. The personal interest of the representative of the Executive Secretary, Dr Q.J. Subah is greatly acknowledged.
- IITA and the Ghana Council for Scientific and Industrial Research (CSIR) for their support to the General Assembly and permanent technical backstopping support to the regional Coordination of WASNET.
- German Technical Cooperation (GTZ) through the German Federal Ministry for Economic Cooperation and Development (BMZ) for their technical, material, and financial supports.
- United Nations' Food and Agriculture Organization (FAO); the Africa Rice Center (WARDA), the International Center for Agricultural Research in Dry Areas (ICARDA), the African Agricultural Technology Foundation (AATF), the International Center for Soil fertility and Agricultural Development (IFDC), the African Seed Trade Association (AFSTA), and the Inter-professional Seed Group (GNIS), France, for their technical assistance and great contributions to the success of the present General Assembly.
- Bilingual Interpreters who facilitated the communications in French and English.
- Staff and workers of the La Palm Royal Beach Hotel for their assistance.
- Delegates who worked tirelessly and greatly contributed to the success of the General Assembly.

Long live WASNET
Accra, 24 February 2006
The Delegates

Annex

Speech by Abba Dieme, Chair of the Steering Committee of the West Africa Seed and Planting Material Network, at the Third General Assembly

Honorable Minister of Food and Agriculture of Ghana,

The Representative of the Executive Secretary of ECOWAS,

The Representative of FAO,

The Representative of the Director General of GTZ,

The Representative of the Director General of IITA,

The Representatives of International Organizations in Ghana,

The Representatives of Member countries of WASNET,

Ladies and gentlemen, distinguished Guests,

It is a great honor this day, 21 February 2006, to preside over the solemn opening of the 3rd General Assembly of the West Africa Seed and Planting Material Network (WASNET).

On behalf of my colleagues from member countries and in my capacity as Chair of the WASNET Steering Committee, I am pleased to welcome you in this magnificent La Palm Royal Beach Hotel of Greater Accra, for the 3rd General Assembly of our Seed Network.

I am particularly happy that you have accepted to attend, in such large numbers, this Assembly holding at a crucial moment for the future of a network. We all cherish its importance in the development of the agricultural sector in the West African subregion.

Dear colleagues, as you are aware, WASNET has been funded right from start by the German Government to which I extend my special thanks through Doctor Lothar Diehl who represents the German technical cooperation Institution (GTZ) within the Steering Committee of WASNET. I also wish to express our gratitude to the Council for Industrial and Scientific Research (CSIR) of Ghana and to its Director, Prof. Emmanuel Owusu–Bennoah, for its constant material and technical support to the Coordination of WASNET hosted by the Council.

Dear colleagues as a matter of fact, great progress has been achieved: thanks to our common efforts within WASNET, Nonetheless, much remains to be done given the lack of the good quality seeds that are needed for our subregion to attain food security.

Hence the urgent need for all of us, players of the seed sector, namely governments, private operators, seed producers, stockers and distributors, producer associations, seed users, etc., to facilitate the development of seed trade in WASNET member countries.

Yours is therefore an immense task which calls for your technical and monitoring skills, as well as your devotion. It is worth recalling the objectives of WASNET, namely to:

- Enhance cooperation among member countries in the seed sector.
- Ensure a more uniform development of the seed sector as well as of relevant procedures and activities.
- Promote technical development, efficient management, and strengthening of seed infrastructures both at national and subregional levels.
- Facilitate the exchange of information and of good quality planting material.
- Collaborate in the exchange of technical and scientific expertise.

This Third General Assembly of WASNET has come in the nick of time to help push our reflections on the strategy to use in order to endow our network with the tools it needs to meet the challenges of the New Partnership for African Development (NEPAD).

The Representatives of WASNET member countries,

Honorable guests,
Allow me to seize this opportunity to thank, once again, the national and international institutions for their financial, technical and scientific support to the network.

My thanks also go to the Ministry of Food and Agriculture of Ghana whose significant financial contribution has allowed us to hold this Assembly.

Dear colleagues, I cannot conclude this statement without renewing to you my thanks for your interest in this Assembly.

Convinced that you will leave no stone unturned in your deliberations over the four days, I wish full success to the Third General Assembly of the West Africa Seed and Planting Material Network.

I thank you.

IITA opening remarks at the Third General Assembly of WASNET held 21-24 February 2006, at La Palm Royal Beach Hotel Accra, Ghana

Dr Stephan Weise
IITA-Ghana

Honourable Minister of Food and Agriculture of Ghana,
Representative of the Executive Secretary of ECOWAS
The Chair of WASNET Steering Committee,
Representative au GTZ and Principal Adviser of WASNET,
Members of WASNET Steering Committee,
Representatives of International Organizations in Ghana,
Representatives of Regional and subregional organizations,
Representatives of National Seed Related Organizations,
National Coordinators, representatives of WASNET member countries,
Chairpersons of the National Seed Associations
Distinguished Guests,
Dear Participants, All protocols observed.

It is heartening to note the interest in the seed sector shown in various meetings in West Africa since the last General Assembly in 2004.

At IITA, our interest in this sector through involvement in WASNET and other programs has remained very high in view of its crucial importance to the attainment of our mission. Our breeding programs have continued to make good progress in working with partners in the national research systems to raise the genetic potential of selected major crops in the subregion. Naturally, we are also making progress in research on resource and crop management issues that are important for the success of improved varieties on farmers' fields.

In view of their slow rates of multiplication, we have continued to improve the methods for mass production of healthy planting materials of vegetatively propagated crops with emphasis on cassava, plantains/bananas, and yams. The improved methods are promoted to public and private sector operators. Good examples of adoption and implementation of these methods include the commercial production of hybrid banana suckers in Nigeria. The Root and Tuber Improvement Program of MOFA in Ghana has also demonstrated how planting materials of improved cassava varieties could be rapidly multiplied and distributed nationwide through a systematic approach over a relatively short period. We look forward to the time when producers' seed stocks in the subregion, especially of such vegetatively propagated crops, could be renewed on a regular basis to limit depressions in productivity due to accumulation of diseases and pests. A very active seed sector is essential for this.

Community-based seed production schemes in special projects and networks that we manage, especially on maize and cowpea, have proven successful. Our collaboration with both private and public sector agencies engaged in commercial production of seeds for grain crops also continued through provision of technical advice, training, and germplasm.

We pay serious attention to seed health issues not only because of their major effects on crop productivity in the field, but also their impact on regional and international trade of crop produce. Efficient and effective seed testing is important to international distribution of seeds to our partners, and we have ensured this through improvements in testing facilities and close partnership with national and regional crop protection and plant quarantine systems. We are very proud of the achievements of WASNET but a lot remains to be done in the seed sector in the West Africa subregion. In particular, limitations in the following areas are restricting the potential impact of crop breeding and access of farmers to better varieties in several countries:

- Production and distribution of high quality seeds
- Seed certification and quality control systems
- Varietal selection and release process.

We are informed that ECOWAS is now leading the development of a regional seed catalog and harmonized rules and regulations for seed certification and quality control in West Africa. I hope that we will take advantage of this Assembly to work towards ensuring that the progress made in addressing these and other important issues through WASNET are not only continued, but also intensified in the interest of food security and wealth creation in the subregion.

Honourable Minister of Food and Agriculture of Ghana, allow me to take this opportunity to congratulate you for the supports of your department to this Third General Assembly of WASNET. Dear Representative of ECOWAS, distinguished colleagues, the challenge is to ensure that all these efforts lead to the easy movement of seed through countries in the subregion a real supply of quality seed to our small-scale farmers.

Distinguished participants on behalf of the Director General of IITA, I wish you all fruitful deliberations.

Thank you for your attention.

ECOWAS opening remarks at the Third General Assembly of WASNET 21–24 February 2006 at La Palm Royal Beach Hotel, Accra, Ghana

Dr J. Qwelibo Subah
Principal Program Officer (Agriculture) ECOWAS Executive Secretariat Abuja, Nigeria

Honourable Minister of Food and Agriculture of Ghana

Distinguished representatives from the ECOWAS Member States

Distinguished representatives of the Intergovernmental organizations

Distinguished representatives of the International organizations and development partners

Representatives of the socio-professional, civil society, and private sector organizations

Distinguished Ladies and Gentlemen,

Allow me first of all to express, on behalf of Dr Mohamed Ibn Chambas, the ECOWAS Executive Secretary and on behalf of all of you participants, our gratitude to the President of the Republic of Ghana, His Excellency, John A. Kufuor, to the government and people of Ghana for having kindly accepted to host this very important meeting.

It is an honor and a pleasure for me to bring to you all at this meeting greetings from Dr Chambas and the entire ECOWAS Community. ECOWAS wishes to thank WASNET for the invitation extended to her to participate at this General Assembly meeting. ECOWAS is particularly touched by the opportunity given it to make a few remarks at the opening ceremony of this meeting.

This meeting is taking place 13 months after the adoption of the ECOWAS Regional Agricultural Policy (ECOWAP).

When they adopted the regional agricultural policy, the Heads of State and Government urged the ECOWAS Executive Secretariat to do everything possible to ensure the effective implementation of this decision and particularly to define the action plan, the institutional mechanism, the financing plan, and finally the monitoring-evaluation mechanism.

He also invited the other regional organization and cooperation to put, in a long-term perspective, their sector strategies, policies, and programs on agriculture, food, and natural resource management in line with the orientations and priorities of the West African Agricultural Policy.

A Plan of Actions was adopted here in Accra in May 2005 for the implementation of ECOWAP. In this plan of actions, importance is given to the improvement of productivity and the building of a regional market for agricultural products and inputs.

Thematic working groups were established in November 2005, firstly to compliment the staff of ECOWAS in the preparation of priority programs for implementation of the detailed plan of actions adopted. But more importantly, the thematic groups were established to strengthen collaboration among West African integration organizations and structures; and for creating synergies in work done by these institutions.

WASNET is a very active member of the Thematic Group on agricultural inputs. ECOWAS therefore deems it important, and indeed, necessary to participate at this General Assembly of an important partner like WASNET. ECOWAS looks forward to strengthening its collaboration with WASNET.

It is, therefore, my pleasure to wish you successful deliberations at this Third General Assembly. ECOWAS firmly believes in the critical role WASNET is playing in helping to organize the seed sector in the subregion. Your contribution is important for all stakeholders in the seed and inputs sectors in West Africa.

In conclusion, permit me again to thank you for the kind invitation extended to ECOWAS.

Ladies and Gentlemen,

Thank you for your kind attention.

Opening keynote address by the Honorable Minister of Food and Agriculture on the occasion of the Third General Assembly of the West Africa Seed and Planting Material Network

Hon. Ernest A. Debrah M.P.
La Palm Royal Beach Hotel, Accra, Ghana, 21–24 February 2006

The Chair of WASNET Steering Committee,

Representative of the Director General of IITA,

Representative of the Executive Secretary of ECOWAS,

Our development partners here represented,

Directors of MOFA and other collaborating MDAS,

Representatives of WASNET member countries,

Distinguished Guests,

Ladies and Gentlemen.

I welcome you all, on behalf of the President and the good people of Ghana, to this Third General Assembly of the West Africa Seed and Planting Material Network here in Ghana.

It is indeed, my greatest pleasure to be part of this all-important program on the harmonization of policies, legislation, trade, and utilization of seed in the subregion. I am particularly happy to be with people like you because I also happen to be a seed grower.

Mr Chair, the Government of Ghana considers the attainment of food security and the improvement in the standard of living of our farmers as high priority. You will agree with me that one of the main requirements; if not the main one, needed to achieve increased crop productivity is to place greater emphasis on the development, production, efficient distribution, and use of quality seed and planting material. Quality seed is therefore vital to the success of our country's agricultural development as it is in many other countries.

In Ghana, the Government took the initial responsibility of promoting the development of the seed sector in the country.

Since 1959, the seed industry in the country has undergone various transformations all aimed at improving the industry to help achieve national food security and enhance export trade.

With the assistance of our development partners, investments have been made to establish viable institutions and structures for the development and production of breeder and foundation seeds. A vibrant seed producers' association has been launched to take care of certified seed production. Agri-input dealers in the country have been reorganized and reoriented to adopt good and genuine business practices.

Now the private sector is considered as having the potential to play an important role in commercial seed industry activities. Accordingly, the Government's strategy is to continue to encourage and assist the private sector to systematically assume responsibility for all commercially viable components of the seed industry.

To safeguard the seed industry, the Seed Act and the Seed Policy of the country are currently being reviewed to ward off unscrupulous activities in the industry.

Mr Chair, I wish to inform you that Ghana has a strong Seed Inspection and Certification Division, to ensure that quality seed is available for planting. The country also has a well-constituted National Variety Release committee, which has, since 1997, released several varieties of crops including cassava, maize, cowpea, soybean, groundnut, plantain, sweetpotato, yam, chilli pepper, and cotton which were developed by our research institutes and universities.

We are aware that the availability of land is limited, globally. However, there seems to be no limit to the rate at which global population is increasing. This situation makes the attainment of self-sufficiency in food production extra difficult and consequently puts pressure on the physical environment and agricultural resource base.

To offset deficiencies in food and raw material production, conscious effort must be made to produce and use improved inputs, including improved seeds and planting materials.

In Ghana, the Ministry of Food and Agriculture is facilitating the production of extra hectares of some selected crops to improve farmers' livelihood, enhance employment opportunities for the youth, and national food security. We are tackling this program by initially building the capacities of our breeder, foundation, and certified seed producers to achieve set targets. The efficiency of our seed processing centers are also being improved.

Inevitably, we will still need more cooperation with other countries in the subregion as well as with other regions. Ghana, for instance, needed cashew seed for its 2006 program, and we had to take the seed from Bénin and we are aware that seed trade is ongoing in the subregion.

In the light of these and other issues, and by the authority of Heads of State and Governments of ECOWAS, the implementation of the Economic Committee of West African States Agricultural Policy (ECOWAP) was adopted in January 2005.

The adoption of ECOWAP is intended to ensure sustainable food security in the subregion, to rationalize the natural resource base and also to ensure decent remuneration for those engaged in agriculture. It is also envisaged that subregional integration would be made easy to ensure free movement of persons, goods and services. These movements will, of course, have to be regularized to fall within harmonized standards.

Mr Chair, I understand that this Assembly will discuss several significant issues including seed rules and regulations, seed policies and laws, seed trade, seed needs etc., and will also look at both the public and private sectors in the seed industry. The outcome of these discussions will be very crucial to the future of the harmonization process in the subregion as well as to other regions.

Therefore, on this occasion, I wish you successful deliberations, productive participation, and a happy stay in Ghana.

Mr Chair, I now declare this Third General Assembly of the West Africa Seed and Planting Material Network duly opened.

Thank you.

ECOWAS and UEMOA harmonized seed rules and regulations for seed quality control and seed certification in West African states

Report of the regional workshop for validating the regulatory framework for seed production and marketing ECOWAS and UEMOA member states

Ernest Asiedu and Norbert G. Maroya

The "Regional Workshop for Validating the Regulatory Framework for the Production and Marketing in West Africa" was organized from 14 to 16 December 2005 in Lomé, Togo by ECOWAS and UEMOA in collaboration with ASN, FAO, GTZ, IFDC, INSAH/CILSS, SCOSA, and WASNET, with the following objectives:

- Develop a consensus among the 15 states of the West Africa region regarding the technical agreements for seed production and trade within the region by taking into account agreements reached during the previous workshops held in Dakar (January 2004), Lome (November 2004), and Accra (September 2005).
- Review and validate draft instruments to be tabled by ECOWAS and UEAMOA with the goal of submitting them first to their councils of sectoral ministers (ministers of agriculture) and then to their statutory meeting of the ministers in 2006.
- Review and validate a proposed institutional arrangement under which the system will operate at national and regional levels.

First day

The workshop started with an opening ceremony, during which six speeches were presented. The representatives of the technical partners of the workshop, Dr J.Q. Subah of ECOWAS, Dr Roger B. Kabore of UEMOA, Mr Sylvain Roy of IFDC, and Dr Robert Guei of FAO presented their respective addresses. They highlighted the importance of improved seeds in the socioeconomic development of the ECOWAS member states and the need to come together in the region for a common purpose. The representative of the French Embassy in his speech pointed out the support of his country to this initiative through FAO. All the speakers pledged their support to ensure that the noble initiatives being taken will succeed and enhance the development of the region.

Mr Kassegne Adjonou, Minister in charge of Rural Water presented the keynote address on behalf of the Honorable Togolese Minister of State in charge of Agriculture, Livestock, and Fisheries. He stressed the importance of improved seeds and agricultural development in improving the livelihoods of majority of the peoples of ECOWAS and UEMOA member countries.

Seventy-seven delegates attended the workshop from all the 15 countries of ECOWAS including the eight member states of UEMOA. The elected bureau of the workshop comprised: Dr Issoufou Kapran (Niger) as chair, while Dr Ernest A. Asiedu (Ghana) and Mr Kodjo Labare (Togo) served as rapporteurs.

After the election of the bureau, the technical part of the workshop started by a plenary session on the first day, 14 December. Dr Richard Jones presented an overview of the Sustainable Commercialization of Seeds in Africa (SCOSA) Project, followed by a proposal on regulatory instruments by Mr G.P. Sika a consultant. Before these two presentations, Dr Subah of ECOWAS made a presentation on the overview of the process of harmonization of seed quality control and certification and a common regional catalog.

After the plenary session, participants were divided into two groups to examine two sets of documents (1) Variety Evaluation, Release and Common Catalog and (2) Seed Quality Control and Certification. Mr Paul Senghor and Mr Justin Rakotoarisaona (consultants) prepared these documents respectively.

Participants at the meeting.

Variety Evaluation, Release, and Common Catalog (Group 1) was chaired by Dr Issoufou Kapran and Seed Quality Control and Certification (Group 2) was chaired by Mr O.J. Shobowale (Nigeria). The terms of reference were as follows:

- Review and update the documents in conformity with the recommendations given during the workshops in Lomé (November 2004) and Accra (September 2005).
- Determine consensus and their suitability of the documents for adoption.
- Suggest minor changes to make the documents fully acceptable.

Second day

The later part of the morning was used for the plenary session where the two groups presented their conclusions for discussions and adoption. From the afternoon of the second day, (15 December) to the afternoon of the third day, (16 December), participants were again divided into two groups: to review three instruments (other documents) prepared by a consultant Mr G.P. Sika, the documents were as follows:

- Draft Instrument No. 1: General Agreement
- Draft Instrument No. 2: Regional Catalog
- Draft Instrument No. 3: Institutional Arrangement

Group 1, was chaired by Mr S. Yakuba-Atar. We were asked to review the first document. Group 2 was chaired by Mr Amadou Djigo and Mr Francois Burgaud. During each of the two days respectively, participant were asked to review the second and third documents. The two groups submitted their reports at the final plenary.

Third day

The two groups worked until the evening of the third day before coming together in plenary for discussions of their findings. The observations and conclusions were as follows:

Variety evaluation, release, and common catalog

It was observed that the consultant (Paul Senghor) had addressed most of the recommendations given in Accra and Lomé with regards to the guidelines for the distinctness, uniformity, and stability (DUS) test protocols in relation to yam, cassava, millet, and cowpea. In addition, the consultant had addressed the recommendation given for value for cultivation and utilization (VCU) test protocols in relation to groundnut, cowpea, millet, rice, yam, and cassava.

Participants from the 15 countries were therefore satisfied with the work done by the consultant and therefore adopted the documents.

It was however suggested that minor corrections and suggestions be given, including translation of the technical reports into English by the consultant and the workshop organizers.

Seed quality control and certification

It was observed that similar to the previous documents, the consultant (Justin Rakotoarisaona) had addressed most of the concerns raised in Accra and Lomé with regards to units for varietal purity and appropriate seed moisture content required for certification and marketing.

Participants from the 15 countries were therefore satisfied with the work done by the consultant and therefore adopted the documents.

The consultant was mandated to address the minor corrections suggested.

Draft instruments

Some major and minor omissions as well as unnecessary details were observed in the three documents, leading to ammendments by members as indicated in the documents. Each group submitted a track change version in which all the proposed and adopted corrections were in red. The consultant (Mr Sika) is therefore required to incorporate the changes in the final instruments.

General conclusions and recommendations

The two documents: (1) Variety Evaluation, Release, and Common Catalog and (2) Seed Quality Control and Certification; prepared respectively by the two consultants were adopted for use in the ECOWAS/UEMOA member states by delegates.

ECOWAS and UEMOA in technical partnership with IFDC, ASN, FAO, GTZ, INSAH, SCOSA, and WASNET will therefore process the final documents for approval by the respective Councils of Ministers.

Following their adoptions, these documents on (1) Draft Instrument No. 1: General Agreement, (2) Draft Instrument No. 2: Regional Catalog, and (3) Draft Instrument No. 3 Institutional Arrangement should be reproduced by Anglophone technical experts prior to their legal drafting and approval by council of ministers.

After adoption and approval, the instruments specified (under the various articles) would be implemented to make all the documents developed fully operational.

Members will be contacted for the follow-up activities in the implementation of the instruments and are therefore urged to sustain their maximum cooperation.

The closing ceremony was held very late in the evening by Dr Comlan Agbobli Director General of the Togolese Institute of Agricultural Research, on behalf of the Minister of State in Charge of Agriculture, Livestock, and Fisheries.

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Minutes of the meetings of the technical and financial partners during and after the workshop for validating the regulatory framework for seed production and marketing in ECOWAS and UEMOA members states

Norbert G. Maroya

1. Dr J.Q. Subah, (ECOWAS) President (16/12/2005)
2. Dr Kolado Bocoum (UEMOA) President (17/12/2005)
3. Mr Norbert Maroya (IITA/GTZ/WASNET), Rapporteur

Members

4. Dr Robert G. Guei (FAO)
5. Dr Georges Dimithe (IFDC/MIR)
6. Dr Baffour Badu-Apraku (IITA)
7. Mr Sylvain Roy (IFDC/MIR)
8. Mr François Burgaud (GNIS)
9. Dr Richard B. Jones (ICRISAT for the SCOSA project)
10. Mr Paul Thérence Senghor (Consultant)
11. Mr Justin Rakotoarisaona (Consultant/AFSTA)
12. Dr Boubacar Diallo (INSAH/CILSS)
13. Dr Gérard Sery (ASN)
14. Prof. Gbolagade B. Ayoola (IFDC-MIR)
15. Dr Balu Bumb (IFDC/USA)
16. Dr Bahiru Duguma (EGAT/AG/ATGO)

Agenda

- Review of the workshop
- Road map and timing of activities after the workshop
- Any other business

Review of the workshop

The review of the workshop was initiated on Friday, 16 December 2005 during the lunchtime under the chair of ECOWAS and was followed-up on Saturday, 17 December 2005 with the chair of UEMOA. The following are summaries of the points raised and outlined:

- High level of participation (77 delegates).
- Poor quality of the English translation.
- The French version of the draft instruments now have to be put in the proper legal form and then translated by professionals into good English.
- A lot of progress has been made although much more could have been done in terms of communication from ECOWAS (mainly) during the preparation of the workshop.
- We need to take stock of where we are and where we are going with better communication between ourselves.
- The two organizations (UEMOA/ECOWAS) should give themselves a deadline to finalize all these legal documents for their respective bodies.
- The time is right to strengthen the collaboration between ECOWAS and UEMOA and adopt the legal document jointly.
- These documents have to go through the technical commission before the meeting of UEMOA and ECOWAS Ministers. In this process of getting the documents ready, the technical partners need to be proactive.
- The technical and financial partners think that practically, it is not realistic for ECOWAS to target the Council of the Ministers of May 2006 to finalize this process.
- Also, we should not wait until May 2006 before starting the action plan.
- ECOWAS and UEMOA contact persons should have a close contact with the Ministers of Agriculture and regional cooperation for this harmonization process
- Sensitize our donor partners.

Road map and timing of activities after the workshop

Many points were discussed. The following are the key activities to undertake after the workshop:

Finalize the workshop document

- The Consultant (Mr Guillaume Sika) will revise the workshop documents (French version) by integrating the amendments, comments, and decisions made during the workshop.

- The documents corrected by the consultants will be sent to the technical partners for control and technical approval according to the outcomes of the workshop.

Hire a legal consultant

- IFDC in partnership with INSAH/CILSS will write the terms of reference(ToR) for the legal consultant. The ToR will clearly specify the results (types and formats) to be produced by the consultant.
- IFDC in collaboration with other technical partners will select the legal consultant. It was decided that as much as possible, the legal consultant should be bilingual (French-English).

Review and finalize the legal documents

- The technical partners should review the instruments produced by the legal consultant.
- After integration by the consultant of the comments and observations of the technical partners, the finalized French version will be handed over to IFDC.
- Professionals from FAO in collaboration with the legal consultant should translate the finalized French version of the legal documents into English under the supervision of FAO (Dr Robert Guei) and with the support of Paul Senghor for specific areas he drafted.
- Both French and English versions of the legal instruments will be sent to the technical partners for final review and approval.

Submit legal documents

- The approved final English and French versions of the legal documents will be handed over to ECOWAS and UEMOA by IFDC.

Budget for the timing implementation of the road map

- ECOWAS and UEMOA in collaboration with the technical partners will develop as soon as possible the budget needed to realize all the activities planned up to the adoption of the legal instruments by the Council of Ministers.
- They should officially request needed support from the financial partners.

Any other business

A discussion was initiated on the implementation of the harmonized legal instruments after approval through the UEMOA and ECOWAS processes. It was decided to wait for the adoption by the Council of Ministers before planning activities for the implementation.

Mr François Burgaud informed the meeting of the organization of the sixth Annual Congress of the African Seed Trade Association (AFSTA) to be held from 28 to 31 March 2006 in Entebbe Uganda. During the congress, there will be as usual, a working group on the harmonization of seed rules and regulations in Africa. He therefore would like the partners of the harmonization process in West Africa to participate in the congress to exchange information with their colleagues of other regions of Africa.

An awareness creation tour of the ECOWAS member States will be organized and led by ECOWAS and UEMOA with funding from the SCOSA project.

Mr François Burgaud informed the technical and financial partners that he would like, the Ministry of Agriculture of France to be the financial partner (because it supports the activity directly or indirectly through FAO), and GNIS to be integrated as technical partner.

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Summary of key points of the road map, timing, and responsibilities.

Activities	Period	Responsible	Source of funding
Finalization of workshop documents by the consultant	By mid-January 2006	Consultant and IFDC coordination	
Review and adoption of the finalized workshop document by the technical partners	By mid-February 2006	Partners with IFDC coordination	
Drafting of ToR for the legal Consultant	By mid-January 2006	Partners with IFDC/INSAH lead and coordination	ECOWAS/UEMOA
Hiring of the legal consultant (bilingual preferably)	By mid-February 2006	Partners with IFDC coordination	
Production of legal documents (draft)	By end of March 2006	Legal consultant	
Review of legal documents	By end of April 2006	Technical partners with IFDC coordination	
Translation of final legal documents into English	May–June 2006	Professionals from FAO supported by Senghor for specific areas	
Review of translated legal documents (English version)	July 2006	Technical partners	
Submission of legal documents (French and English) to ECOWAS and UEMOA	End of July 2006	Technical partners	

Recent development in the seed industry in Côte d'Ivoire

Jean Esse Kouadio

Introduction

Food policy is considered as an integral part of the national agricultural policy under the 1992–2015 Agricultural Development Master Plan of Côte d'Ivoire.

The main objectives set for the development of the agricultural sector ever since the country's accession to independence remain: diversification of agricultural production, increase of agricultural income, reduction of regional disparities, modernization of farmland, and higher productivity with a view to ensuring abundant supply of healthy food.

Admittedly, relatively bounty crops are secured, thanks to the agricultural policy put in place. However, food balance in Côte d'Ivoire remains negative for some crops and is marked by massive importations of cereals and legumes (rice, wheat, vegetables, etc.).

Emphasis should be laid on the increase of agricultural productivity using good quality inputs.

Undoubtedly, chemical inputs (fertilizers and pesticides), as well as modern farming techniques, play a significant role in agriculture but their impact would be negligible if the farmer does not use good quality seeds.

Thus, the improvement of the quality of seeds and planting materials is now considered as a paramount activity. As a result, the main focus of the Project is on the transfer to the key actors of the seed sector (agronomists, senior technicians, and lab assistants) of basic techniques for the production of quality seed and planting material (Field inspection and laboratory analysis).

Seed policy in Côte d'Ivoire

Background. During the early years of independence, several research structures (research institutes and development enterprises) were involved in the seed sector. Their mandate which, inter alia, was to supervise the farmers, covered all the major food (rice, maize, millet, sorghum, yams, vegetables), fruits, and fodder crops. Seed distribution was handled by government-owned and private companies such as SOFACO, CALLIVOIRE, SEMIVOIRE.

From the 1970s, seed production facilities as well seed packaging and storage centers were set up (seed farms). In the 1980s, export crops were diversified in order to ensure a better supply of food products.

Improved seeds were essentially used by the farmers working under the supervision of the main national development structures. Seeds were given out free of charge to them and yet, only 10% of agricultural land was cropped with improved seeds.

State-of-the-art. The production and utilization of improved seeds have remained a major concern for the Ministry of Agricultural Development. The use in percentage terms of improved seeds and planting materials is more or less widespread depending on the sector:

- 100% for export of pineapple, banana, and papaya
- 100% for palm oil, coconut, and rubber
- 40% for coffee and cocoa from research institutes and extension-managed stake centers
- 100% for cotton
- 100% for export of horticultural plants

The image of the somehow backward traditional food crop system is been gradually enhanced with improved planting materials of cereals (rice and maize) and root and tuber crops (cassava and yam). On the other hand, improved seeds are used for irrigated rice cultivation.

Present structure of the seed and planting material sector

Institutional frame work. The administrative management of the seed and planting material sector is the responsibility of the Sous Direction des Semences et Intrants (Seeds and Inputs subdirectorate) under the Food Production and diversification Directorate (DPAD) of the General Directorate of Productions and Diversification (DGPDA) in the Ministry of Agriculture.

Professionalization. Since government withdrawal from agricultural production and trade activities, take-over by the private sector is being organized at the pace of the national plan drawn up with a view to restructuring the agricultural sector. Significant progress has been made by private market players but improved seed produc-

tion and marketing companies are yet to be established. CNRA and CIDT research centers as well as ANADER and other public services operating as projects still enjoy a big slot in the supply of breeder and foundation seeds. It is also the case of the National Rice Program (PNR) for rice and maize.

Regulatory framework

Decree no. 92/392 of January 1992 sets out the terms and conditions for the registration, and protection of plant varieties as well as for the production, control, certification, commercialization, importation, and exportation of seeds and plants.

Orders were also taken to assist with implementation:

- The interministerial Order no. 11 of 15 February 1999 establishing the Technical Committee on Plants and Varieties Official Catalog (CTIC).
- The interministerial Order no. 122 of 18 August 1998, establishing the Official Catalog of Rice Varieties and Species.
- The Order no. 44/MINAGRA of 21 April 2000, appointing the members of the CTIC.
- The Order no. 01 / MINAGRI of 6 January 2005 appointing Mrs Diénébou Toure–conde as Chair of the CTIC.

Future WASNET activities.

29–31 May	ISF Congress	Copenhagen (DK)
June 1–2	ISF: International Seminar on Patent Protection of Plant-Related Innovations: Facts and Issues	Copenhagen (DK)
12–16 June	UPOV: Technical Working Party for Vegetables	Guanajuato (MX)
12–16 June	FAO: First Session of the Governing Body of the International Treaty on PGRFA	Madrid (ES)
26–29 June	ISTA: Annual Meeting	Zurich (CH)
3–7July	UPOV: Technical Working Party for Agricultural Crops	Beijing (CN)
9–12 August	OECD: Annual Meeting of Seed Schemes	Fortaleza (BR)
15–18August	FELAS: XX Seminario Panamericano de Semillas	Fortaleza (BR)
27–28 August	ISF: Tree and Shrub Seed Group	Stratford-on-Avon (UK)
15–17 October	ESA: Annual Meeting	Brussels (BE)
16–17 October	UPOV: Administrative and Legal Council	Geneva (CH)
18 October	UPOV: Consultative Committee Meeting	Geneva (CH)
22–24 October	EESNET: Sixth Annual Meeting	Opatija (Croatia)
30 October	ISF: Sustainable Agriculture Committee Meeting	Cape Town (ZA)
31 October	ISF: Intellectual Property Committee Meeting	Cape Town (ZA)
1 November	ISF: Breeders Committee Meeting	Cape Town (ZA)
2 November	ISF: Vegetable and Ornamental Crops Section Meeting	Cape Town (ZA)
2 November	ISF: Cereal and Pulse Crops Section Meeting	Cape Town (ZA)
2 November	ISF: Industrial Crops Section Meeting	Cape Town (ZA)
3 November	ISF: Maize and Sorghum Section Meeting	Cape Town (ZA)
3 November	ISF: Forage and Turf Crops Section Meeting	Cape Town (ZA)
3 November	ISF: Executive Committee Meeting	Cape Town (ZA)
4 November	ISF: Board of Directors Meeting	Cape Town (ZA)
13–15 November	APSA: Asian Seed Congress 2006	Kuala Lumpur (MY)
21–23 November	UPOV: Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular	Seoul (KR)
2007		
26–30 March	UPOV Meetings	Geneva (CH)
5–11 May	ISTA Congress	Iguassu Falls (BR)
21–23 May	ISF Congress	Christchurch (NZ)
22–26 October	UPOV Meetings	Geneva (CH)
2008		
26–28 May	ISF Congress	Prague (CZ)

Support to the seed and planting material sector should lead to:
- responsibility sharing among the various partners and cross-fertilization of professions;
- strong partnership, synergy and division of labour among the main components of the sector.

The following table presents the partners and players of the seed sector in Côte d'Ivoire.

In terms of legislation, new orders are being drafted for the:

- Registration and accreditation of seed and planting material professionals;
- Regulation of production and commercialization activities;
- Approval of newly created or introduced varieties (yam, maize); only approved varieties are registered on the official catalog of plant species and varieties.
- Work is underway for the introduction of a bill on the protection of plant accessions, the purpose of which is to grant the breeder an intellectual property right to the benefit of both the breeder and the country of origin.
- By Order no. 2000/388 of 24 May 2000, Côte d'Ivoire ratified the Bangui Agreement on Intellectual Property, revising the Accord of 2 March 1977 establishing the African Intellectual Property Organization, adopted on 24 February 1999 in Bangui.

As can be seen, legislation evolves in the light of developments in the seed and planting material sector:

- Quality control for the purpose of certification is currently performed on maize, rice, soybean, and onion seeds by the seed analysis unit of LANADA (National Laboratory for Agricultural Development). Controls are carried out on request by the clients: development companies, projects, and a few private institutions.
- Importations and exportations of plant materials are subject to approval issued by the Ministry of Agriculture, following plant health inspection and verification of the origin of the material.
- Organization of the sector.

Partners and players of the seed sector in Côte d'Ivoire.

Partners	Actors	Responsibilities
Public Authorities		
Ministry of Scientific Research	CNRA and other institutes colleges, universities	Genetic improvement variety development (lines) trials, characterization, scientific backstopping expertise
Ministry of Industry	Ivorian Board of Intellectual property (OIPI)	Management of plant varieties protection system
Ministry of Agriculture	Direction Générale des Productions et de la Diversification	Planning, legislation, control and certification, various forms of support: facilitation, promotion,
	Agricoles (DGPDA) and specialized Services (SDSI, DPVCQ, ANADER, PNR, LANADA)	Access to credit, organization, advice, training, information, animation, development, and dissemination of the official species and varieties catalog.
Advisory bodies		
Technical Committee for Registration on the Official Catalog of Species and Varieties (CTIC)	Approval commission and specialized units	Review of varieties, advice to public authorities for: • Approval or protection of varieties • Professional authorizations • Seed and planting material import and export.
Private sector	Companies, cooperatives, NGOs, approved laboratories, Projects. players: • Farmers • Breeders • Distributors	Development of varieties Quality control Production of foundation materials Production of certified material, packaging Trade and distribution

Future prospects. The seed and planting materials market in Côte d'Ivoire is being bullish as more and more people get interested in agricultural development programs. As a result, farmers' needs are now a major concern for the seed industry.

Actions carried out. In order to revamp the sector, a study on the development of the seed sector, commissioned by the Ministry of Agriculture was conducted by the National Bureau of Technical Studies (BNETD) in December 1999. As a result of the sociopolitical crisis facing the country, the study could not be validated and submitted to the donors for funding purpose. The study is currently being updated with the support of all the partners of the sector.

Production activities. The National Rice Program under the Ministry of Agriculture has added seed production to its activities. So in 2004, the Program was able to produce 186, 537 kg of cereal seeds (rice and maize). A project named CBSS (Community-based seed system) was implemented to train seed growers. With the assistance of the project, the growers could turn out 1217 tonnes of Nerica seed rice in 2004, on 802 hectares.

Constraints to the development of the seed sector

Difficult access to improved seed and planting materials was identified as one of the major constraints to the rise of productivity in current farming systems. Investigations have revealed that utilization of improved seeds is still low, only 5% in WAEMU countries and about 10% in Southern Africa (FAO, ASN, CILSS).

This is due to several problems, namely:

- Unstructured seed sector highly dominated by traditional methods;
- Lack of information on stocks at hand and on farmers' seed needs. This is due to a persisting batter system and absence of tangible relationships between the various stakeholders of seed sectors;
- Seed systems are exploited without consideration of the needs of smallholders who are responsible for more than 90% of agricultural production;
- Seed laws are not adapted to local realities and are sometimes nonexistent;
- Low priority given to the seed industry within national agricultural policies and strategies.

All those constraints are serious obstacles to access by the farmers to a wide range of high quality seeds and planting materials.

Like in savanna countries, a good number of traditional varieties are becoming extinct in the forest zones as a result of weather hazards (drought), diminishing soil fertility and introduction of higher yielding transgenic varieties.

There are also other threats stemming mainly from the conservation methods used, wars, and other man-made disasters.

Statistical data

Production statistics for the major crops (1990–2005)

List and traits of cultivated cereal varieties.

Variety	Type	Cycle	Yield (t/ha)
Rice			
WAB 56-50 (GBLAGNIN)	Upland	108 d	3.5
IDSA 85 (GUEGBIN)	Upland	120 d	1.8
WAB 450-11-1-P31-1-HB (KEAH)	Upland	90 d	4
WAB 450-1-B-P-38-HB (BONFANI)	Upland	90 d	4
Bouaké 189	Irrigated	130 d	4
WITA 9 (NIMBA)	Irrigated	120 d	6
Maize			
CJB	Rainfed	105 d	2
Ferké 7635	Rainfed	105 d	3
Ferké 7926	Rainfed	115 d	3.6
Ferké 7529	Rainfed	120 d	3.5
IRAT 83	Rainfed	105 d	4
IRAT 81	Rainfed	120 d	4.5

List and traits of cultivated grain legume varieties.

Variety	Type	Cycle	Yield (t/ha)
Groundnut			
TS 32-1 (Type Spanish)	Rainfed	90-100 d	1
KH 140 A (Type Spanish)	Rainfed	90-100 d	1
RMP 91 (Type Virginia)	Rainfed	120-130 d	1.5
Cowpea			
Vigna unguiculata	Rainfed	75-120 d	0.5 – 0.7

List and traits of cultivated root and tuber crops varieties.

Variety	Type	Cycle (Months)	Yield (t/ha)
Yams			
Wacrou	Rainfed	11	10
Kponan	Rainfed	11	10
Lokpa	Rainfed	11	10
Krenglè	Rainfed	11	10
Bètè-bètè	Rainfed	11	30
N'za	Rainfed	11	30
Florido	Rainfed	11	30
Cassava			
Bonoua	Rainfed	18	12
Tabouka	Rainfed	18	18
Kataoli	Rainfed	18	15
H3	Rainfed	18	15

Seed production statistics.

	2002	2003	2004	2005		
	CBSS	CBSS	CBSS	PNR	CBSS	PNR
Upland rice (tonnes)	150	600	1217	33	1500	164.8
Irrigated rice (tonnes)	-	-	-	49.89		92.4
Maize (tonnes)	-	-	-	63.81		4

Seed production projections (2006-2010).

With the resumption of funding to the project, a production of 5000 tonnes of seeds has been planned for the season 2006/2007.

10 000 tonnes of NERICA in 2008
15 000 tonnes of NERICA in 2009 (end of project),

Projected seed needs for certified food crops.

Crops	Seeds
Upland rice	50 000 t
Lowland rice	7500 t
Maize	10 000 t
Yam	120 000 t
Cocoyam	14 000 t
Cassava	99 600 000 cuttings
Plantain	250 000 000 suckers
Legumes	1350 t
Millet/sorghum	1500 t

Training needs

The national seed service has developed three training projects for which funding is being sought:

- Seed Inspectors and Controllers Training project;
- MINAGRI Staff capacity building project;
- Seed Sector Professionalization Project for the main food crops

Annex I
List of seed associations

List of seed rice producing associations (CBSS Project).

Regions	Départements	S/Prefectures	Villages	Associations
Kapok tree				
			Bodocipa	Aglo Zréazé
			Gnaliépa	Awalé
	Gagnoa	Gagnoa	Izambré	Azo Ahiagho
			Drayo	NANET
	Lakota	Lakota	Niemenakoya	NIEKO
	Katiola	Katiola	Nangoniékaha	Yélamplin
			Sangadiokaha	Groupement 1
			Brobo	groupement 2
				Groupement 3
			AdokroFoundi	Rice growers Asso
Bandama valley			Djamakekro	AFD
				Rice growers Asso
	Bouaké	Brobo	Samanikro	Rice growers Asso
				Women's association
			Kouadjanikro	Rice growers Asso
				Women's association
			Bounda Nanan	Youth association
			Bopri	Women's association
			Akrougbagbokro	Women's association
			Badio-Kouamekro	Youth association
	Sakassou	Sakassou	Sakassou	Etranou
			vrigrivouta	Vouhohifla
			Dioulabougou	Benkadi
			Dioulabougou	Hernankono
			Yaoyaokro	Kikivla
			Madiéta	Vadama
			Ourarébota	Kahagouo
	Bouafle	Bonon	Blablata	Tchèbo
			Fréfrédou	Kapakiva
			Bognongra	Sokrolaye
			Gonan	Vrigrita
			Gonan	Bononfla 1
Marahoue				
			Gonan	Bononfla 2
			Béziaka	Ass. Des femmes
			Duafla	Ass. Des femmes
	Zuenoula	Zuenoula		Ass. Des jeunes
			Dézra	Ass. Des jeunes
			Gnanoufla	Ass. Des jeunes

List of seed rice producing associations (CBSS Project).

Regions	Départements	S/Prefectures	Villages	Associations
			Séifla	Ass. Des jeunes
			Niakara	Niakara
Worodougou				
	Seguela	Tieningboue	Wedalla	Wedalla
			Bagao	Bagao
			Kodiakaha	Chongagnigui
			Loyérikaha	Chigata
				Foungnigué
			Dosouloukaha	Lomana
		Karakoro	Djélokaha	Wologobéguitchan
			Nambodiélékaha	Chigata
			Diélikaha	Tcherignimin
			Lodorikaha	Yebenounona
			Labitikaha	Wanagana
			Lassiélikaha	Bèkéléma
			Kpombélikaha	Chigata
			Pangarikaha	Foungnigué
				Bèkéléma
			Pokaha	Lomanana
			Oliokaha	Yebèkanounona
			Tawélékaha	Chigata
			Karakoro	Chigata
			Tianakaha	Foungnigué
			Sétiokaha	Békanounona
			Topinakaha	Dawahanna
			Kouniguekaha	Bénimateni
			Dopiankaha	Bèkéléma
			Féléssankaha	Wanagana
			Morviné	Wagnomana
			Nakpokaha	Kolotiogafoli
			Nakaha	Bénimateni
			Lagakaha	Chigata
			Kassérè 1	Chigata
Savanes	Korhogo	Kassere	Kassérè 2	Wodja
			Pongafré	Wobèh
			Sionfan	Joint association
		Sinematiali	Sinématiali	Womagnon
	Ferké	Ferké	Ferke	Foungnigué
	Boundiali	Boundiali	Boundiali	Wobin
			Deinneu	Growers' association
			Ouellé	Groupe 1
				Groupe 2
			Pépleu	Peklouado
			Qua yacouba	Zouedo
				Ayiyalo

List of seed rice producing associations (CBSS Project).

Regions	Départements	S/Prefectures	Villages	Associations
			Jérisalem	Kognin
			TP Abattoir	WODO
			Gningleu	Kouaguidan
			Glileu	Kahiga
Montagnes	Danane	Zouan-Hounien		Zobieu
			Lvanpleu	Zokole
				Wosseu
			Kangbeuville	Péminko
				Groupe B.
			mankpanleu	Yikouago
			Topeuville	Zouedo
				Sreukuato
			Bauhieleu	Growers' association
			Banhinleu	Gloudy
			Gbakagbeupleu	Gbékoungbé
			Goueuleu	Kouaga
			Brunoville	Growers' association
			Zouan-Hounien	Diyayien
			Zouan	Potôt
Moyen Cavaly	Guiglo	Guiglo	Domobly	Groupe 1
				Groupe 2
			Monan	Village Cooperative
			Braffoueby	Rehilé
Lagunes	Dabou	Sikensi	Bakanou B	COJAB
			Bécédi	Women's association
	Tiassale	Tiassale	Tiassalé	Binkadi
Lacs	Yamousoukro	Yamoussoukro	Yamoussoukro	ECOYA
	Dimbokro	Dimbokro	Dimbokro	Coopérative entente
			Bocanda	Groupement Goly
				Rice growers Coop
			M'bahiakro	N'zi-Sama
			Abokro	Rice growers Ass.
N'zi Comoe	M'bahiakro	M'bahiakro	Akouffoukro	AJA
			N'diorèkro	AJN
	Daoukro	Daoukro	Assa Comoékro	Anouanzè
			Balam	Ahizé 1
				Ahizé 2
			Godoua	Péguénimé
			Bolia	Aquéquénéssai
				Awoa
			Grovéhio	Zomadré
			Korézouzoua	Vasi-voir
				Guédéwa
				Gnazouo
			Digbam	Dayou Awané
			Loukouahio	Wazi

List of seed rice producing associations (CBSS Project).

Regions	Départements	S/Prefectures	Villages	Associations
				Aïnon
				Ayouaguéné
				Béné Bézy
				Aguénuoa
			Grand-Nahio	Krapaha 1
				Krapaha 2
				Wahihi
				Wahiyro
				Séhizo
			Nakiahio	Aïpo
				Padré
				Groupe fonctionnaire
			Tézié	Aïnon 2
				Ligba
				Nagbo
				Okéwa
				Aïnon 1
		Saioua		Hizi
				Djéné Club
				Linizi
			Gabia	Sahikalapahi
	Issia		Zadihoa	Sèblé-Akouo
			Dérahio	Zomassa
			Broma	Awané
			Zikibouo	kpénahi
				AJDK
			Korébouho	Péholilé
				Aquéquénessai
				Nogtaba
				Zimdy
Haut			Niébélahio	Nemané
Sassandra			Saïoua	Zégrégba
			Zéga	Ténédé
				Krapaha
				Afema 1
			Korézouzoua	Tomaho
			Krizabahio	Aïka
			Takouahio	Wahotone
			Zézahio	Watosséba
			Kridakozahio	Vas-y-voir
				Limé yela
			Korébouo 2	Azussè
			Bogbam	Nayéwa
			Gazéhio	Awoa
			Diloboua	Lizy
			Bogouloboua	Awané

List of seed rice producing associations (CBSS Project).

Regions	Départements	S/Prefectures	Villages	Associations
			Dahira	Aïssanon
			Loboua	Awané
			Godoua 2	Maïla
			Ouandahio	Zouzou Akouli
			Gbitapéa	Zomassa
			Béssérégühé	Ténédé
		Issia	Lagoguhé	Oudissai
				Akaba Akabaneyé
			Zaguiguia	Watosseba
			Tagoura	Manguatché
			Guéya	Oléyé Club
			Tapéguhé	Guyémane
	Daloa	Daloa	Bébouossibou	Labasi
			Kribléguhé	AFK
			Zalihouan	Awané
			Balouzon	Nagboiha
			Zépréguhé	AFZ
			Wandaguhé	AFW
Lacs	Yamoussoukro	Yamoussoukro	Yamoussoukro	ECOYA
			Tiébissou	CORERIZ
Moyen Comoe			Abengourou	CAPAI
	Abengourou	Abengourou		Anouanzè
				Rice Seed Network
Agneby	Adzopé	Adzopé	Duquesne Crémone	ACIRFA
Total	24	27	152	198

Summary

Number of regions concerned: .....14 out of 19

Number of Departments: 24

Number of sub-prefectures: 27

Number of villages: 152

Number of associations: 198

Following the government withdrawal from production activities, private structures were mandated to take over. The National Rice Program, under the Ministry of Agriculture, took on board seed production activities. This government structure coopted growers from various regions for the production of cereal seeds under its supervision. The following table shows the locations and the number of growers by crop.

Departements	Upland rice	Speculations irrigated rice	Maize
Yamoussoukro	19	21	64
Toumodi	-	-	18
Oumé	1	-	-
Bocanda	187	-	-
Sinfra (Bazré)	50	-	-
Divo (Iré)	67	-	-

List of structures involved in the production/importation of seeds and planting materials.

Structures	Areas of intervention	Address, tel, fax
ANADER	Supervision	20-21-10-58/20-21-10-58
BURISEM	Training	20-22-71-17/21-35-30-83
CNRA	Seeds (cereals, tubers, plants, vegetables, industrial crops)	23-45-31-16/22-44-21-08
CSRS	Seeds (yam, cassava)	
CIDT	Seeds (cotton)	20-22-27-61/20-22-85-15
CALLIVOIRE	Seeds (vegetables + rice)	21-35-88-39
AVENTIS	Seeds (maize)	21-75-13-00/21-75-13-57
BANADOR	In vitro plantlets (poyo)	20-32-84-85
LABOCAB	In vitro plantlets (poyo)	20-32-58-82/20-32-58-87
PROJET SOJA	Seeds (soybean + rice + maize)	22-44-56-66/22-47-22-03
PNR	Supervision (rice + maize)	20-22-80-01/30-64-18-39
SAPH	Plants (rubber)	21-75-76-76
HEVEGO	Plants (rubber)	34-71-26-30
SOGB	Plants (rubber)	20-21-99-47
SCB	In vitro plantlets (poyo)	20-20-93-02
PALMAFRIQUE	Plants (oil palm tree)	20-32-23-66
PALMCI	Plants (oil palm tree)	20-30-10-21/20-32-00-90
LCCI	Seeds (cotton)	36-86-29-29/36-86-28-94
IVOIRE COTON	Seeds (cotton)	
OVDL	Supervision (Seed rice)	05-68-53-56 / 07-31-52-30
SEMIVOIRE	Seeds (vegetables + rice + maize)	21-35-86-13
SYNGENTA	Seeds (maize + vegetables)	21-25-56-25
ASN	Institutional support	20-21-15-80
ANARIZ-CI	Seeds (rice)	20-33-49-53/07-66-83-38
SODIRO	Seeds (cashew nut)	80-03-38-00/91
IPS	Jute seeds	22-44-44-43
TRCI	Plants (rubber)	20-21-22-08 (Abengourou)
CCP	Plants (rubber)	20-37-15-40 (Dabou)
CHC	Plants (rubber)	20-24-04-52
SIPEFCI	Plants (oil palm tree)	21-24-14-74/70
SAIB	Plants (rubber)	21-27-21-17
CABETY SEED	Seeds (rice)	07-08-51-77
URECO-CI	Seeds (cotton)	36-86-05-71
SAKJ	In vitro plantlets of banana (poyo)	20-32-23-53
ADCVI	Vegetable seeds	08 BP 840 ABJ 08
CIFEL	Tissue culture materials	20-32-16-68
EMAO	Pineapple suckers	23-46-69-11

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Securing farming systems and strategies through the introduction of early varieties of millet, cowpea, and groundnut in the Dosso region, Niger

Illya Miko, Issaka Ahmadou, Moutari Adamou, and Moukaila Amadou

Introduction

Agricultural production in Niger is hampered by poor soil fertility and dwindling rainfall, leading to the reduction of the length of the rainy season. This is translated into rain isohyets moving down southward (Sivakumar et al. 1993), causing a significant drop in the agricultural potential of farmlands in Niger, especially as local varieties are ill adapted to the new ecological situation. Consequently, the people of Niger, particularly the rural dwellers, have to grapple with food insecurity almost on a daily basis. For them to attain food security, there is need to supply them with more secure production systems. This can be achieved essentially through, on the one hand, the use of high yielding varieties adapted to their degraded ecological conditions and, on the other hand, the adoption of cropping techniques capable of raising the prevailing low yield potential. Against this background, variety trials for earliness are a useful tool in helping the people of Niger achieve food security.

Materials and methods

Trial material. For millet, two types of combinations were proposed to the farmers: CT6 and SRMT-490 were compared to the local variety with the second combination involving Souna III et HKP. Cowpea early variety trials involved TN27-80 and TN28-87 combined with the local variety. For groundnut, T177-83 and T169-83 were tested. The varietal combinations tested and the number of trials performed per year are shown in Table 1.

Experimental design. Each farmer is considered as a replicate (MAG/EL 1997; Hocdé and Triomphe 2002). For each replicate, two early varieties are tested against the farmer's local variety. For the latter, steps were taken in the villages to ensure that the same local variety is compared with two introduced varieties. Each replicate is a block of three main plots of 200 m2 each with interplot spacing varying depending on the crop. The plot with the local variety was established in the middle.

Conduct of the trials on-farm. The trials were established in the villages as shown in Figure 1. Voluntary farmers were selected among those lacking cultivars which are adapted to degraded ecological conditions.

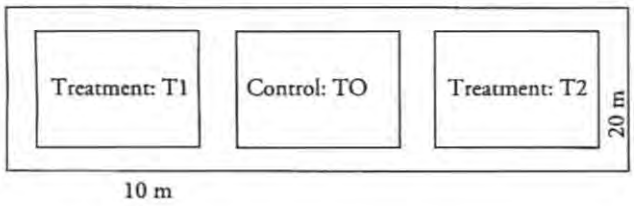
The improved early varieties tested were supplied by research, which guaranteed the purity of the seeds used. Farmers applied the same farm maintenance operations. The seeds used, including those of landraces, were equally treated with thioral. The same phytosanitary treatments were also applied. Two preventive treatments were recommended for cowpea.

Table 1. Varieties tested and number of tests per year.

Crop	Test combinations	Number of tests in 2000	Number of tests in 2001
Millet	• CT6 and SRMT490	12	-
	• Souna III and HKP-	-	4
Cowpea	• TN27-80 and TN28-87	8	5
Groundnut	• T177-83 and T169-83	7	5
Total		27	14

Figure 1. Distribution of eary trials in the Dosso region.

The experimental design applied across trials



Planting densities for the three crops were:

- 1 m x 1 m for millet
- 0.80 m x 0.80 m for cowpea
- 0.40 m x 0.15 m for groundnut

Thinning was done, leaving three plants per hill of millet. For cowpea and groundnut, three and one seed were planted respectively per hill. A basal application of SSP was carried out at land preparation at a rate of 100kg/ha. Top dressing was applied only for millet at a rate of 50 kg/ha of urea in two spot applications.

Precautions. As the trials were conducted on-farm, steps were taken as in the case of the yield trials in order to avoid improvizations by the test farmers and particularly the introduction of additional crops, fertilizers or treatments, or crops like sorrel in alleys, etc.

Data and statistical analysis. Data were collected only from the main plots and according to the choice of the farmers. Data on 50% of flowering and maturity could not be collected with precision by the extension officers due to lack of regular monitoring. Quantitative data were statistically analyzed using SAS. Mean yields were compared to the Duncan multiple range test at a 5% threshold.

Results and discussions

Millet earliness trial. Earliness tests were carried out in the central and northern parts of Dosso. CT6 and SRMT-490 were compared to a local variety in 2000. In 2001, Souna III and HKP were tested. These varieties have high yield potentials ranging from 1500 to 2000 kg/ha (INRAN 1987). They have the ability, thanks to their short cycle, to escape the dry spell following an abrupt rain stoppage.

Quantitative results. Table 2 shows the results of the various tests carried out. It came out quite clearly that improved varieties yield more than the local varieties. The assessment of earliness based on growing cycle was unfortunately not possible due to the reasons stated above such as poor supervision on the ground. Data on 50% flowering and physiological maturity could be collected for each variety tested.

The main conclusions of the tests are as follows:

- Souna III and HKP. Although involving a small group of farmers, this test gave us the opportunity to assess the performance of the two varieties. The mean yields of the three varieties are significantly different at 5% threshold of the LSD test. Souna III with a production gain of 455 kg/ha over the local variety and of 557 kg/ha over the regional mean appears as a good substitute of the local variety. Its yield superiority ranges from 80 to 130% as compared respectively with the local variety produced in the same conditions and the regional mean. HKP also yielded more than the local variety but less than Souna III. This table also shows that the local variety is capable of generating a production gain of 32% compared to the regional mean if the technology package used in testing early maturity is properly followed.
- CT6 and SRMT-490. This combination was tested in 12 R&D villages in the region. Mean variety yields are significantly different with 653 kg/ha for CT6, which gave the highest yield in the region, followed by SRMT-490 and, finally the local variety. However, yield increases are lower than those of Souna III and HKP, that

Table 2. Earliness trials for millet, 2000 and 2001 growing season.

Variety	No. of farmers	Yield (kg/ha)	Production gain (kg/ha) Landrace	Mean	% of yield increase Landrace	Mean
Souna III	4	977 A	455	557	87	133
HKP	4	672 AB	150	252	29	60
Landrace	4	522 B	-	102	-	24
Cv (%)	-	29.63	-	-	-	-
CT6	13	653 A	98	233	18	55
SRMT-490	14	575 AB	20	155	4	37
Landrace		555 B	-	135	-	32
LSD		95.05	Means with the same letter are not different at 5 % of LSD test			
Cv (%)	-	20.33				
Regional mean (1991–2001)		420				

Table 3. Views of visiting farmers about the varieties tested.

Variety	Participants	Participants' opinion Number	%	Reasons for the choice
HKP3	31	2	06.45	Early, compact cob
CT6	31	6	19.35	Long cob, big seeded, early
H80-10GR	31	1	03.22	Acceptable seeding
SRMT-490	31	5	16.13	Early, good looking cob
CT3	31	7	22.58	Early, compact cob
HKP	31	10	32.26	Well filled cob, early, adequate cob size, good looking cob

is around 98 kg/ha for CT6 and 20 kg/ha for SRMT-490. It appears clearly that although those varieties were tested solely for earliness in order to guarantee stable production, they performed better than the local variety. The tests have revealed that Souna III, HKP and CT6 could be quite useful in the improvement of millet-based farming systems in the ecologies where they were tested.

Qualitative results. These data relate to the choices made by the contact farmers involved in the experiments as well as the views expressed by the growers about those varieties during station or farm visits. The contact farmers surveyed believed that HKP seems more preferred by the trial farmers, which somehow put the new varieties (CT6 and SRMT-490) at a disadvantage. The farmer's opinion during the visits to the research station, as conveyed in Table 3, is a confirmation with 32.26% of the farmers preferring HKP and 19.35% CT6.

Partial conclusion. The four varieties tested for earliness in the Dosso region have proved to be adapted to the region where they were tested. Those varieties can meet the farmers' expectations in the part of the region where the trials were conducted. As a result, they could play a part in improving farming systems in the northern and central ecologies of the region.

Cowpea earliness. Despite the production constraints faced by the populations, cowpea is the second most popular crop in the Dosso region. Just like groundnut, it suffers from degrading climatic conditions which characterize the region. This situation led to the recommendation by the scientists for early trials of two varieties, namely TN27-80 and TN28-87. These are varieties with good production potential ranging from 1500 to 2000 kg/ha) (INRAN, 1994) and good adaptability (rainfall from 300 to 700 mm) in the various ecologies of the region.

Table 4. Results of cowpea earliness trials, 2000 and 2001 growing season.

Variety	No. of farmers	Yield (kg/ha)	Production gain (kg/ha)		% of yield increase	
			Local	Mean	Local	Mean
TN28-87	12	372 A	73	257	24	223
TN27-80	9	367 A	68	252	23	219
Local	9	299 A	-	184	-	160
Cv (%)		28,75	Means with the same letter are not different at 5% Duncan test threshold			
Mean yield	115					

Table 5. Farmers' opinion on the varieties tested.

Variety	Participants	Farmers' opinion		Reasons for the choice
		No.	%	
TN27-80	46	10	22	Early and high yielding
TN28-87	46	18	39	Good seed quality, early
Local (Dan zahi)	46	18	39	Early and good market value

Quantitative results. The mean yield for the three varieties tested is shown in Table 4. Statistical analysis involving 12 replications have revealed no significant difference among the varieties tested. However, TN28-87 named Dan Bagazam because of its earliness topped the list with a mean yield of 372 kg/ha followed by TN27-80, and the local variety.

Yield increases for these varieties (65–75 kg/ha), compared to the yield of the local variety grown in similar conditions are not significant. On the other hand, such increases may reach 225%, in relation to the regional mean of 115 kg/ha, which means that a yield rise of 160% can be achieved just by improving the production environment with the technology package used for the tests. Such increase may reach up to a maximum of 225% with TN28-87 and 219% with TN27-80.

Qualitative results. Despite the ashy color of TN27-80, farmers highly appreciate the two introduced varieties. TN28-87 is favored not only for its good market value (white seed), but especially for its organoleptic traits. TN27-80 is also liked for its very good organoleptic characteristics, hence its name Gui dan bon Sey in Djerma.

The scores shown in Table 5 indicate that TN28-87 is very popular. Eighteen out of the 46 farmers surveyed ranked it at the top of the three varieties tested.

Partial conclusion. The cowpea earliness experiments conducted have revealed that the yield reduction observed in the region is due to improper application of cultural techniques rather than to varietal deterioration. However, the yields of improved varieties were higher than those of the local variety.

Groundnut earliness trial. The varieties proposed for this experiment (T177-83 and T169-83) are well known. They were already tested in the groundnut belt in Niger in the 1980s and gave equal oil content (49–50% of seed dry weight) and similar vegetative cycle (85–95 days).

Quantitative results. Table 6 shows the mean yields for the three varieties tested. The mean yields of varieties tested are lower than that of the local variety. This is mainly due to nonobservance of the planting dates by the farmers, the majority of which are women. As a matter of fact, for the trial covering two growing seasons (2000 and 2001), planting took place during the last part of July and on the plateau soils (Fakara, Zigui, Dabaga). The sudden rain stoppage of recent seasons was the cause of the poor yields recorded for the various varieties. In such conditions, the local variety and T177-83 outyielded T169-83. However, one may conclude that the local variety, that is 55-437 (El Dakar), had a better performance and adaptation to that ecology.

Qualitative results. Despite the low field performance of the trials, farmers were given the opportunity to express their views on their behavior on station (Table 7) and in on-farm showcases (Table 8).

Partial conclusion. Despite its low performance during the test, T177-83 can replace or be planted along with the local variety 55-437 in farmers' field with a view to improvie the production of groundnut in the region.

Table 6. The results of groundnut earliness trials, growing season 2000.

Variety	No. of farmers	Yield (kg/ha)	Production gain (kg/ha)		% of yield increase	
			Local	Mean	Local	Mean
Local	11	294 A	-	-85	-	-
T177-83	13	292 A	-2	-87	-	-
T169-83	10	177 B	-117	-202	-	-
Cv (%)		20,47	Means with the same letter are not significantly different at 5% thresh			
Regional mean		379	old of Duncan test.			

Table 7. Farmers'views on-farm planted varieties at Doutchi and Dosso.

Variety	Participants	Farmers' views		Reasons for the choice
		No.	%	
T169-83	21	18	85.7	Good podding
T177-83	21	3	14.3	Well filled pods and good conservation of stover till harvest
Local (Tsougouné da koudi)	21	0	0	Well filled pods

Table 8. Farmers's views on-farm planted varieties at Lossa.

Variety	Participants	Views of participating farmers		Reasons for the choice
		No.	%	
T169-83	31	5	16.13	Good podding
T177-83	31	13	41.94	Well filled pods and good conservation of stover till harvest
T181-83	31	11	35.48	Well filled pods
ICGV-87-003	31	1	03.22	Stover
TS32-1	31	1	03.22	Well filled pods

General conclusion. Thanks to the earliness trials, the following conclusions could be drawn regarding the farmer's behavior vis-à-vis newly introduced varieties as well as the performance of the varieties of the three crops tested. Yield level, their major concern, is the only criterion used by the farmers in assessing varieties; earliness, the purpose of the trial, did not retain their attention. This led to the traits farmers generally look for in the planting material tested, in order to meet the expectations of the population of the region as well as the prevailing environmental conditions.

Regarding the improvement of farming systems, it appeared quite clearly that if adopted, introduced varieties can be sources of yield increase. Yield increase seems higher with millet than with cowpea and groundnut.

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Publications, meetings, and seed events

Publications

Economic impact of transgenic crops in developing countries

By Terri Raney

Abstract

Transgenic crops are being adopted rapidly at the global level, but only a few developing countries are growing them in significant quantities. Why are these crops so successful in some countries but not in others? Farm level profitability ultimately determines whether farmers adopt and retain a new technology, but this depends on much more than technical performance. Recent economic studies in developing countries find positive, but highly variable, economic returns to adopting transgenic crops. These studies confirm that institutional factors such as national agricultural research capacity, environmental and food safety regulations, intellectual property rights, and agricultural input markets matter, at least, as much as the technology itself in determining the level and distribution of economic benefits.

PMID: 16522366

Full article can be downloaded from the website of AgBioWorld at http://www.agbioworld.org/pdf/raney.pdf by Terri Raney

Food and Agriculture Organization of the United Nations (FAO)

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The first decade of genetically engineered crops in the USA

By Jorge Fernandez-Cornejo and Margriet Caswell, with contributions from Lorraine Mitchell, Elise Golan, and Fred Kuchler

Economic Information Bulletin No. (EIB-11) 36pp, April 2006

Ten years after the first generation of genetically engineered (GE) crops, varieties became commercially available, adoption of these varieties by US farmers is widespread for major crops. Driven by farmers' expectations of higher yields, savings in management time, and lower pesticide costs, the adoption of corn, soybean, and cotton GE varieties has increased rapidly. Despite the benefits, however, environmental and consumer concerns may have limited acceptance of GE crops, particularly in Europe.

This report focuses on GE crops and their adoption in USA over the past 10 years. It examines the three major stakeholders of agricultural biotechnology and finds that:

- The place of R&D activity by producers of GE seed (the seed firms and technology providers) has been rapid,
- Farmers have adopted some GE varieties widely and at a rapid rate and benefited from such adoption, and
- The level of consumer concerns about foods that contain GE ingredients varies by country, with European consumers being most concerned.

Applied Molecular Genetics Laboratory

The International Maize and Wheat Improvement Center (CIMMYT) has recently published "Laboratory protocols: CIMMYT Applied Molecular Genetics Laboratory. Third edition", edited by M. Warburton, M. William, A. McNab, and D. Poland.

According to the foreword, the primary motive for compiling and publishing this manual was to provide scientists, researchers, and students from national agricultural research systems, universities, and small private companies in developing countries, as well as advanced research institutions in the developed world, with a useful guide on the protocols currently in use in the Applied Molecular Genetics (AMG) Laboratory of CIMMYT's Applied Biotechnology Center.

The main protocols currently in use there have to do with molecular marker technology and can be used for mapping, molecular marker-assisted selection, and studies on genetic diversity.

See http://www.cimmyt.org/english/docs/manual/protocols/abc_amgl.pdf (1.63 MB) or contact mwarburton@cgiar.org with any comments.

Molecular markers for genebank management and crop breeding

The International Plant Genetic Resources Institute (IPGRI) has recently published "Molecular markers for genebank management" by D. Spooner, R. van Treuren, and M.C. de Vicente.

The 126-page document includes discussion of the main marker techniques and their comparative qualities; applications of molecular techniques in genebank management and crop breeding; and current developments in molecular marker applications and future challenges that could result from these developments.

See www.ipgri.cgiar.org/publications/pdf/1082.pdf (1.58 MB) or contact IPGRI@cgiar.org for more information.

The power of seeds

Norman E. Borlaug

(This article was published by Plant Breeding News, Edition 166 of 30 April 2006)

During my lifetime, seed technology has been the catalyst that has averted mass starvation on planet Earth. At today's 6.4 billion, the world's population is four times the 1.6 billion people who lived when I was born in 1914. How many more can the earth feed without destroying the forests and wildlife habitat? The answer hinges on the extent of a continuing stream of ever-more-powerful seeds, based on focused research, until population stabilizes.

Of course, we all know that to stay ahead of the "population monster" requires more than seeds alone. It requires essential policy changes at the highest levels of governments plus improved production technologies: mineral was well as organic fertilizers, better tillage practices, more-efficient irrigation, and weed control. But, without the catalyst, the power of seeds, better policies and production technologies will not be enough.

Let me describe a few examples of positive results from focused research.

I first started serious work on seed technology in 1944 as a Rockefeller Foundation scientist with the cooperative Government of Mexico-Rockefeller Foundation agricultural research program. Even with imported food grains at the time, many Mexicans were hungry. Based on the wheat and maize (corn) varieties that we developed, and while population continued a brisk increase, Mexico became self-sufficient in food grains by the mid-1950s.

In the mid-1960s, India and Pakistan were experiencing hunger, and two provinces in Northeast India suffered famine, even while millions of tonnes, annually of food aid, mostly wheat, were imported. Malthusian thought was reawakening. Two widely read books at the time contended, in effect, "Let's write off India, it's hopeless; let's only provide our food aid to countries that have a chance." With the power of the high-yielding seeds and production technologies that we introduced, together with improved policies, Pakistan in 1968 and India in 1974 became self-sufficient in food grains and they have essentially remained so.

Though few people outside the country knew it, China during the Cultural Revolution experienced widespread hunger and famine. Many millions starved. At the time of my first trip to China, in 1974, universities were closed, food was rationed, things were miserable. On my more than 12 trips, I witnessed remarkable progress. Although population has increased by nearly 50%, to 1.3 billion, most Chinese today are well fed and enjoy a much higher standard of living, thanks to the power of seeds as the catalyst. In the early 1970s, China acquired from Pakistan some of our "Mexican" short-strawed, high-yielding wheat seeds. China also benefited from improved varieties of rice provided by the International Rice Research Institute in the Philippines. But China's overall success resulted from sound national research that provided a continuous stream of better seeds and production technologies, accompanied by a set of policies that support increased production.

The positive experiences in Mexico, India, Pakistan, and China result, largely, from the catalytic power of three seeds: wheat, rice, and maize. Many other countries of Asia, the Middle East, and Latin America also benefited from these improved seeds. But, what about Africa?

Sub-Saharan Africa is my greatest worry. In most of the area, maize is more important than either wheat or rice. High-yielding, disease-resistant quality protein maize (QPM), based on research, is an important development for many African families who have little milk, eggs, or meat because of animal diseases and poverty. The protein quality of QPM is close to that of skim milk, resulting in improved health.

What is required for sub-Saharan Africa, in addition to better seeds of wheat, rice, and maize, I believe, is focused research to enhance yields and quality of some of the "orphan crops" that are important in the diets of Africans: cassava, sweetpotatoes, sorghum and millet, and lentils, and cowpeas, among others.

More generally, for planet Earth's growing population, both conventional and biotechnology research on food crops and livestock, both private- and public-sector funded, is absolutely essential to provide ever-more-powerful seeds as well as a continuing stream of improved technology to energize the catalytic power of seeds.

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Learn more about Dr Borlaug's work and ideas in his authorized biography: *The Man Who Fed the World: Nobel Peace Prize Laureate Norman Borlaug and His Battle to End World Hunger* by Leon Hesser (www.durbanhouse.com) ISBN: 1-930754-90-6. 250 pages. $24.95

Meetings, workshops, and seed events

31 July–4 August 2006. African Rice Congress, WARDA, Dar es Salaam, Tanzania Contact: Lawrence Narteh. http://www.warda.org/africa-rice-congress/

8–10 August 2006. 7th Plant Genomics Conference, Heilongjiang University, Harbin, China. Contact: Rongtian Li, Zhenqiang Lu, Chunquan Ma. http://www.plantgenomics.cn

13–19 August 2006. 27th International Horticultural Congress, Seoul (Korea) Web: www.ihc2006.org

16–19 August 2006.Tropical Crop Biotechnology Conference 2006, Cairns, Queensland, Australia. Organized by CSIRO Plant Industry. For more information: Contact: CSIRO Plant Industry s.mckell@uq.edu.au , Website: www.tcbc2006.com.au

20–25 August 2006. The International Plant Breeding Symposium, Sheraton "Centro Historico" Hotel, Mexico City. Crop Science will publish presentations by invited speakers in proceedings. More information is available at www.intlplantbreeding.com. If you are unable to register online please send an email to: intlplantbreeding@cgiar.org

10–14 September 2006. First Symposium on Sunflower Industrial Uses. Udine University, Udine Province, Friuli Venezia Giulia Region, Italy. http://www.sunflowersymposium.org/index.php?option=com_frontpage&Itemid=1 http://www.isa.cetiom.fr/1st%20ann%20Symposium%20Udine.htm

Sponsored by the International Sunflower Association (ISA)

17–20 September 2006. World Grains Summit. Moscone Convention Center - San Francisco, California. More information available on http://www.wgsummit.org

17–21 September 2006. Cucurbitaceae 2006, Grove Park Inn Resort and Spa in Asheville, North Carolina, USA (in the scenic Blue Ridge Mountains).

Contact: Dr Gerald Holmes, Department of Plant Pathology, North Carolina State University, Raleigh, NC 27695-7616, 919-515-9779 (gerald_holmes@ncsu.edu) Conference website: http://www.ncsu.edu/cucurbit2006.

18–20 September 2006. The International Cotton Genome Initiative (ICGI) 2006 Research Conference, Blue Tree Park Hotel (http://www.bluetree.com.br/index_ing.asp) Brasília, D.F., Brazil. Details of the ICGI 2006 Research Conference will be posted on the ICGI website (http://icgi.tamu.edu) as they become available.

20–21 September 2006. Maïs au futur: A la découverte de nouvelles technologies - ARVALIS - Institut du végétal, Agrosite de Pau-Montardon, France. Information www.avalisinstitutduvegetal.fr/fr/com.detail.asp?id251

9–13 October 2006. Second International Rice Congress (IRC2006) - New Delhi, India. More information available on http://www.icar.org.in/irc2006/

11–14 October 2006. Plant Genomics European Meetings, Venice, Italy. http://www.distagenomics.unibo.it/plantgems/ Contact person: PGEM5@agrsci.unibo.it

14–18 October 2006. The 6th New Crops Symposium: Creating Markets for Economic Development of New Crops and New Uses, University Center for New Crops and Plant Products, The Hilton Gaslamp Quarter Hotel, San Diego, CA. Sponsored by: Association for the Advancement of Industrial Crops and Purdue www.aaic.org or www.hort.purdue.edu/newcrop

13–16 November 2006. Asia and Pacific Seed Association (APSA) - Annual Congress - Hilton Kuala Lumpur - Kuala Lumpur, Malaysia. More information available on http://www.apsaseed.co

20–22 November, International Potato Breeding Conference 2006 - Carlow, Ireland Information available on: http://www.teagasc.ie/publications/2006/20061120.htm;or email: potato@oakpark.teagasc.ie

1–5 December 2006. The First International Meeting on Cassava Plant Breeding and Biotechnology, to be

held in Brasilia, Brazil. For more details, email Dr Nagib Nassar of the University of Brasilia at: nagnassa@rudah.com.br or visit the meeting website at: http://www.geneconserve.pro.br/meeting/

27–30 March 2007. Annual Congress of the African Seed Trade Association Congress (AFSTA). Zambezi Hotel in Livingtone, Zambia. More information on www.afsta.org

24–28 July 2007. The 9th International Pollination Symposium, Iowa State University (Note new dates, and see additional details in New Announcements, above). The official theme is: "Host-Pollinator Biology Relationships - Diversity in Action." For more information please visit: http://www.ucs.iastate.edu/mnet/plantbee/home.html

9–14 September 2007. The World Cotton Research Conference-4, Lubbock, Texas, USA (http://www.icac.org). There is no cost of preregistration and if you preregister you will receive all the upcoming information on WCRC-4.171 researchers from over 20 countries have preregistered as of today.

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