



# NEWS

Volume 1, No. 2, July 10, 2002 Larry Murdock & Idah Sithole-Niang, editors

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This newsletter is our informal way of keeping you up-to-date on developments relevant to our Network for the Genetic Improvement of Cowpea for Africa (NGICA). We'll include sundry announcements about meetings, publications, achievements, news, and other useful information. We'll try to keep it short, because all of us are awash in a sea of information, but, then, there are a lot of us and many interesting things are going on! If you have something to share, please send it to us and we'll pass it along in the next newsletter.

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## **NGICA Transformer's Meeting Scheduled**

Thanks to a grant of \$20,000 from the Rockefeller Foundation, NGICA has scheduled a meeting of researchers currently working on transformation of cowpea or closely-related legumes. The workshop will convene October 31-November 2 in Capri, Italy. The purpose of the meeting -- which will be chaired by Prof. Luigi Monti -- is to enable all research teams working on cowpea transformation to compare notes, share information on genotypes and procedures, eliminate unnecessary duplication, exchange ideas and experience, assist one another over difficulties, and finally, to help foster a sense of community. As best we know, all research groups actively working on cowpea transformation will be represented. Katy Ibrahim and Stefania Grillo have made the arrangements for the meeting -- so it is guaranteed to be well done!

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## **New Informational Materials**

A new brochure on genetically modified food: "Aliments: Issues des variétés cultivées génétiquement améliorées en Afrique" is now available. This is the French version of "Food from Genetically Improved Crops in Africa" developed by Maarten Chrispeels and jointly published by the San Diego Centre and AfricaBio last year. You can get paper copies in either language from Larry Murdock (email: [larry\\_murdock@entm.purdue.edu](mailto:larry_murdock@entm.purdue.edu)). NGICA and the Bean/Cowpea CRSP helped support the translation of the original English version into French. Maarten Chrispeels found the funds to publish the document. Copies of the two brochures can be obtained from Larry Murdock ([larry\\_murdock@entm.purdue.edu](mailto:larry_murdock@entm.purdue.edu)) or by writing to him c/o Department of Entomology, Purdue University, W. Lafayette, IN 47907, USA. The documents are also available on the San Diego Centre's world wide website: [www.sdcm.org/GMFoodsBrochure.pdf](http://www.sdcm.org/GMFoodsBrochure.pdf) (English) and [www.sdcm.org/OGM-en-Afrique.pdf](http://www.sdcm.org/OGM-en-Afrique.pdf) (French).

## NGICANs!

**Mbene Faye** was elected Chair of the PRONAF Steering Committee at the project's recent meeting in Cotonou, Benin. The Projet Niebe pour l'Afrique (PRONAF) is supported by the International Fund for Agricultural Development (IFAD) and the Swiss Agency for Development and Cooperation (SDC), and is managed by IITA. Its purpose is to carry out research on cowpeas and soybeans and to facilitate networking and technology transfer to promote their production and utilization in Africa.

**Ousmane Boukar** is expected to return to his post in Maroua, Cameroon as cowpea breeder with IRAD this fall, after finishing his Ph.D work at Purdue. His Bean/Cowpea CRSP-supported Ph.D research focuses on identifying AFLP markers associated with Striga resistance and laying the basis for marker-assisted tools for cowpea breeding. Thanks in part to help from Mike Timko, whose lab in Virginia Ousmane visited last year, prospects are good for timely completion of his dissertation.

**Ray Bressan** has been named Distinguished Professor by the Trustees of Purdue University. Ray was recognized for his research into the physiology and molecular biology of salt and water stress on plants. This is a truly special recognition at Purdue, because the School of Agriculture has honored in this way only very few among its nearly 300 faculty. Ray's other work, in collaboration with **Mike Hasegawa**, has included a leadership role in developing the first effective transformation systems for sorghum and for mint.

**Ivan Ingelbrecht** has been serving as Head of IITA's Biotechnology Laboratory since late last year.

**T.J. Higgins** spent three days at Purdue in late June, 2002, visiting with Ray Bressan, Larry Murdock, and Suzanne Nielsen and discussing matters relevant to NGICA. T.J. is Chief Scientist and currently Assistant Chief of CSIRO's Plant Industry Division/Australia.

**Jess Lowenberg-DeBoer** was recently elected Chair of the Bean/Cowpea CRSP Technical Committee. Jess also serves as Regional Facilitator for the CRSP West Africa Regional project.

**Idah Sithole-Niang** has been invited to serve as a member of the Board of Governors of ICIPE. Idah has also been very busy attending various important meetings: In March, she was in Grottafrata, Italy to participate in a conference on enhancing biosafety scientific expertise in Sub-Saharan Africa. In June she was in Rome, participating in the FAO/CIES: Expert's workshop on the Impact of IPRs on Biotechnology in Developing Countries. In July, she was again in Italy, as a participant in the International Consortium on Agricultural Biotechnology Research (ICABR).

**Rob Paarlberg** has written a new paper: "The Contested Governance of GM Foods: Implications for U.S.-EU Trade and the Developing World" as a Working Paper from the Weatherhead Center for International Affairs, Harvard University. This will shortly be accessible on the Weatherhead Center website. Rob develops the ideas that (1) because of their consumers' aversion to eating GM foods, wealthy industrialized nations (primarily Europe and Japan) are having a powerful suppressive effect on the adoption of GM crops in developing nations, and (2) importers rather than exporters set safety and labeling standards.

**Larry Murdock** was elected to the Chair of the Bean/Cowpea CRSP West Africa Regional Committee. He also serves on the Technical Committee of the CRSP.

**Esther Sakyi-Dawson** of the Department of Food Science of the University of Ghana-Legon was elected Co-Chair of the CRSP West Africa Regional Committee, and also serves on the CRSP Technical Committee.

**Laurie Kitch, Muffy Koch, and Idah-Sithole-Niang** have published a Crop Biotechnology Working Paper for Administrators and Policymakers in Sub-Saharan Africa. This document will undoubtedly prove of great value for decision makers who are faced with issues relating to policies, strategies, and frameworks for biotechnology. It lucidly introduces all of the major concepts and principles of biotechnology as they relate to food production and biosafety. The traditional method of crop improvement by classical plant breeding -- the context for much biotechnology -- as written by **Jeff Ehlers**, is described, as are the fundamental operations of biotechnology that offer new tools and germplasm for breeders' use. Potential benefits are treated objectively, as are risks and concerns. The consequences of various national policy options are explored -- in which **Rob Paarlberg's** thinking is very well reflected. There is a useful summary of the experience thus far with GMO's around the world, and a valuable glossary of common biotech terms. The illustrations nicely illuminate the needs, opportunities and dilemmas associated with using biotechnology to produce more and better food. In short, this document is a superb introduction to the entire complex of concepts and issues related to the use of biotechnology for crop improvement. We are proud to see so many NGICAN's at the heart of this publication. The document was published with funding provided by the Rockefeller Foundation. It is being widely distributed with additional support for printing and distribution from AfricaBio, USAID and World Vision International. Laurie Kitch was recently in Addis Ababa, sharing the message at a conference hosted by the United Nations Economic Commission for Africa. Copies of the document can be obtained by writing Laurie Kitch c/o FAO Subregional Office for Southern and Eastern Africa, P.O. Box 3730, Harare, Zimbabwe, or sending him an email at [laurie.kitch@FAO.org](mailto:laurie.kitch@FAO.org).

**Russ Freed** ([freed@msu.edu](mailto:freed@msu.edu)) is collaborating with African Universities to explore ways to enhance the teaching of Agriculture with the use of emerging computer technologies. His project's vision is to provide agriculture professionals in African universities with easy/ready access to information technology that help cut hunger in Africa. His website (<http://www.msu.edu/~freed/frontpage.htm> ) was developed and is maintained as a centralized cooperative clearing house for organizing and exchanging information of interest to Agriculture professionals at African and US universities. The project's mission is (1) to enhance the teaching of agriculture in African Universities (2) to solidify partnerships between Americans and Africans that can help improve educational programs (3) to build networks of agriculturalists who are interested in furthering teaching and research at universities by contributing to this website and (4) contribute toward the development of partnerships geared toward fighting hunger in Africa. For any NGICAN who would like to learn more about plant breeding and biotechnology, have a look at Russ' web site (<http://www.msu.edu/~freed/>), which has the lectures from the plant breeding and biotechnology course that he taught in Spring 2002.

**Deborah Delmer** has recently taken up a new position as Associate Director for Food Security for the Rockefeller Foundation in New York City where she will be dealing with issues related to the role biotechnology can play in advancing the improvement of crops for the developing world. She will also be involved in efforts to improve the situation with respect to the problems of intellectual property rights that are restricting use of the technologies required to carry out biotech projects relating to subsistence crops.

Debby received her A.B. degree with honors in Bacteriology in 1963 from Indiana University and her Ph.D. in Cell Biology in 1968 from the University of California San

Diego. Her first faculty position was at the MSU Plant Research Laboratory, where she held positions of Assistant and then Associate Professor and began her many studies on the biosynthesis of the plant cell wall. She subsequently held positions as a Principal Scientist at the ARCO Plant Cell Research Institute in Dublin CA, as Professor at The Hebrew University of Jerusalem and, most recently, as Professor and Chair of the Section of Plant Biology at UC Davis. Together with colleagues at Calgene, Inc., Delmer's group was the first to identify plant homologs of bacterial genes that encode the catalytic subunit of the cellulose synthase, and much of her recent research at UC Davis focused on the role of this gene family in cellulose synthesis in plants. She has also recently served as President of the American Society of Plant Biologists.

We welcome Debby, whose wide interests, experience, and responsibilities converge neatly with those of NGICA, and we look forward to working with her.

**Fred Erbisich** recently completed a book for Michigan State University (MSU) titled *Basic Workbook for Intellectual Property Management*. This was designed for those not familiar with the types of agreements and procedures used in intellectual property management. One chapter covers the development of an intellectual property policy for an organization. MSU expects to make the workbook available in the near future.

Last year, Fred was involved in several international activities, which included:

1. In Egypt, working with the Agricultural Research Center's new technology transfer office;
2. In Kenya, participating in an intellectual property program
3. In India, participating in a three-day workshop/seminar in New Delhi, and presenting several lectures on intellectual property at Pune University Science and Technology Park.

At MSU, he recently presented several lectures in the Intern Program for Intellectual Property, which was attended by 24 individuals from nine developing countries.

Fred has again indicated that he is willing to work with others to develop similar intellectual property management programs at their institution. He is also available to assist individuals and/or institutes to better understand intellectual property management. His consulting fee remains quite low. The fee is airfare to and from your area along with housing and food during his stay. He will not charge for any consulting or other intellectual property work.

Editors' Comment: With rates like these, it's no wonder Fred is so busy! NGICA greatly appreciates the spirit and the commitment, and we will undoubtedly take advantage of Fred's offer in the near future.

**Louis Jackai**, Louis Jackai, Research Professor at Tuskegee University, has initiated a program focusing on cowpeas in the southeastern USA. Louis points out that Alabama grows and consumes a lot of cowpeas, or southern peas, as they are commonly known. He says that while cowpeas are a common vegetable in many parts of the USA, in the southern states it is a major food item in most African American and many southern white homes. It is grown mainly for consumption as a green pea. The dry bean (pulse) familiar to consumers in Africa is also grown in some states such as California and Texas, and sold in most stores across the USA. Most southern pea producers are small, limited resource vegetable growers. A different complex of pests and diseases attacks cowpea in the southern US, but although the pest problem is nowhere close to what obtains in Africa, it is considered serious enough to warrant control with insecticides. Many producers use insecticides to ensure that they produce a crop with no blemish, but Louis wonders how justified is the commonly used

prophylactic insecticide applications? This has attracted the attention of Louis and other faculty members at Tuskegee University who have expertise in cowpea production in Africa and elsewhere. They believe the use of insecticide on this crop here in the USA can be greatly reduced, or in some locations, completely eliminated. Accordingly, they have started to work with a small group of growers in three Alabama counties close to the university as part of an overall effort to begin a program on sustainable cowpea production in the state.

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### **Some New Initiatives**

Our NGICA meeting in Dakar last year hopefully gave attention to all of the major constraints to the production and adoption of genetically-improved cowpea in sub-Saharan Africa. One of those constraints is inadequate public understanding of the benefits and risks of biotechnology. Another constraint relates to producing conventional and GMO seeds and distributing them to farmers -- in a sustainable way. In the future we will obviously also face the question as to whether consumers will accept foods made from the genetically-modified grain, and we will have to deal with questions about the food safety of Bt and of bean alpha-amylase inhibitor, whose genes may be put into cowpea. Some pilot NGICA-engendered initiatives relating to these issues have recently been started:

#### **1. Consumers to be interviewed about reaction to GMOs in Northern Nigeria**

Dr. Saket Kushwaha, of Abubakar Tafawa Balewa University (ATBU), Bauchi, Nigeria, is launching a pilot study of consumer reaction to the idea of genetically modified organisms (GMOs). Dr. Joan Fulton and Dr. Jess Lowenberg-DeBoer, Purdue University, are collaborating with Kushwaha in this effort. The first step will involve brief interviews with consumers in eight states in northern Nigeria. In each state 60 participants will be sought, 30 rural residents and 30 urban. The states are: Bauchi, Jigawa, Kano, Gombe, Katsina, Sokoto, Admawa and Yola. The survey will ask consumers how they understand the concept of GMOs and if they currently use GMO food products. The idea for this pilot survey grows out of a debate at the recent West Africa meeting of the Bean/Cowpea Collaborative Research Support Program (CRSP) in Cotonou, Benin.

#### **2. Seed Sector GMO Issues**

The Bean/Cowpea CRSP Economics Team is carrying out a pilot study of seed sector issues related to modified (GM) cowpeas in West Africa. Mavuangi Khonde, a Purdue Agricultural Economics student from the Democratic Republic of Congo (DRC) is carrying out a literature review of seed sector economics in West Africa. Dayton Lambert, also a Purdue Agricultural Economics student, will travel to Senegal, Niger and Ghana to interview seed producers and marketers about their overall business constraints and the potential problems related to producing and marketing GM seed. Mbene Faye will assist Dayton in making contacts and gathering data while he is in Senegal. Both Khonde and Lambert are supervised by Jess Lowenberg-DeBoer.

The seed sector study was prompted by discussions at NGICA's Dakar conference on genetic improvement of cowpea in 2001. The hypothesis underlying the Bean/Cowpea CRSP-funded study is that in the long run only private-for-profit organizations will provide a sustainable seed supply.

#### **3. A Food Safety Initiative**

Thanks to funding from the Bean/Cowpea CRSP, **Afua Okobea Ofuri-Anti** is at the Purdue Department of Food Science working with **Suzanne Nielsen**. Afua is a M.Sc. student at the University of Ghana-Legon in Accra working under the direction of **Esther Sakyi-Dawson**. Afua's task at Purdue is to carry out a detailed literature study of the food safety aspects of the Bt protein as well as alpha-amylase inhibitor from common bean. Based on this study,

she will identify researchable questions or issues that arise in relation to the potential introduction of Bt or aAI genes into cowpea. She will also carry out some limited studies on the digestibility of bean aAI, using aAI and antibodies provided by **T.J. Higgins**. Ultimately we hope that this preliminary work will help us get a better focus on any outstanding food safety issues related to the potential introduction of these genes into cowpea. If any of these issues require in-depth research to resolve, then we will be in a good position to justify them and seek the required funding from donors.

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#### **Book Reviewed.**

The book "Securing the Harvest: Biotechnology and Seed Systems for Africa" by **Joe DeVries** and **Gary Toenniessen**, was recently reviewed by the distinguished plant molecular biologist, **Maarten Chrispeels**. You might like to read Maarten's review in Trends in Plant Sciences 7: 187. After you do, you will want to get your hands on a copy!

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#### **Biosafety/Biodiversity Coordination Workshop in Mombasa, Kenya.**

What will be the risks -- to the environment, and to biodiversity -- of deploying transgenic cowpeas in Africa in the future? Three funded projects have begun to address these issues. **Remy Pasquet** has been working for some time on gene flow between cultivated and wild cowpea at ICIPE in Kenya with support from the Rockefeller Foundation. Remy has also joined Larry Murdock and **Barry Pittendrigh** (Purdue), **Joe Huesing** at Monsanto Co., and **A.B. Salifu** at SARI, Tamale, Ghana as a P.I. on a USAID-funded project administered through IITA to assess gene flow and resistance management issues in cowpea in West Africa. **Christian Fatokun** and **Manu Tamo** of IITA have also received funds from USAID to carry out gene flow studies in cowpea in several West African countries. Finally, the Bean/Cowpea CRSP will provide funding for focused resistance management-related studies on cowpeas in Ghana as well as supporting some gene flow work. Given the importance and complexity of the issues and the multiple players, NGICA took the initiative and organized a meeting of most of the scientists involved (Salifu, Pittendrigh, Huesing, Fatokun, and Pasquet) in Mombasa, Kenya, June 18-21. The meeting was hosted locally by Remy Pasquet, who organized a tour of his research plots in the Mombasa area. As a result of the three-day workshop-type meeting, the participants were able to coordinate their plans, eliminate unnecessary overlap, share ideas about methodologies, and devise means of communication.

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#### **Bean/Cowpea CRSP FY03 Workplan Approved**

The Bean/Cowpea CRSP recently approved its workplans and budgets for FY 2003. Funding will be available for numerous projects close to the hearts of NGICAns. CRSP activities will include:

1. The tried and true approach to increasing the quantity and qualities of cowpeas as food is traditional breeding. CRSP breeding work, addressing many constraints (insects, drought, diseases, Striga, etc.), will be carried out in Senegal, Burkina Faso, and Cameroon as well as in California. NGICAns involved in this work include **Ndiaga Cisse** of ISRA-Senegal, **Issa Drabo** of INERA, Burkina Faso, **Ousmane Boukar** of IRAD, Cameroon, and **Jeff Ehlers** and **Phil Roberts** at UC Riverside.
2. Studies of cowpea marketing in West Africa will be carried out by **Mbene Faye** of ISRA-Senegal, **Germaine Ibro** of INRAN-Niger, **Saket Kushwaha** of ABTU-Nigeria, **Augustine Langyintuo** of SARI-Ghana, **Jess Lowenberg-DeBoer** and **Joan Fulton** of

Purdue. These studies build on the team of economists organized in the region over the last several years by Jess, whose price and quality studies of cowpea were initiated in Cameroon -- and since extended to the region -- have begun to give us a very clear and documented idea of the grain traits favored by consumers and the price discount associated with bruchid damage.

3. The development and commercialization of value-added products from cowpea is still in its infancy, but there is much potential. **Esther Sakyi-Dawson** of the University of Ghana-Legon and **Dick Phillips** will work on developing value-added products from cowpeas and carry out research designed to increase food security.

4. Cowpea hay is an extremely valuable commodity in some parts of sub-Saharan Africa, yet it has gotten relatively little attention by researchers. In the next few years this will change, given a new CRSP project involving **Mohamadou Gandah** of INRAN-Niger, and **Bill Payne** of Texas A&M University. Their research project will deal with integrated and sustainable cowpea systems in West Africa. As part of the project, **Germaine Ibro** of INRAN will be collecting some data on cowpea hay prices and market structure.

5. The CRSP will also make a substantive investment in cowpea biotechnology. Primary focus will be the development of an efficient transformation system for cowpea, work which will be led at Purdue by **Ray Bressan**. **Idah Sithole-Niang**, working in Harare, will develop the use of RNA interference technology to reduce or eliminate flatulence-causing oligosaccharides -- these oligosaccharides are a major factor preventing many African mothers from using cowpeas as the base for weaning foods. This objective focuses on adding a useful trait to cowpea that would benefit consumers. **Larry Murdock** at Purdue will guide studies to identify optimal Bt's and other genes that may be used to transform cowpeas. **A.B. Salifu** at SARI-Ghana will be responsible for detailed studies of the biology and behavior of Maruca and cowpea weevil as the basis for developing resistance management plans of insect resistant (Bt and alpha-amylase inhibitor expressing) cowpeas.

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#### **Status of Ongoing Work on Striga**

**Mike Timko** generously took the time to provide the following overview of ongoing work on the important parasitic weed *Striga* -- note that Mike and his colleague **Christopher Botanga** are soliciting help in obtaining some materials from colleagues in Africa -- see below -- for studies on the phylogenetic relationships of various *Striga* populations. Please help them out if you can!

Host Specificity, Avirulence, and the *Striga gesnerioides* -Cowpea Interaction: It is well documented that differences exist among isolates of *Striga gesnerioides* in their host specificity, and that particular host species differ in their ability to resist *Striga* parasitism. What factors define host specificity and virulence on particular genotypes remain to be determined. Pioneering studies by **Athena Lane** (Long Ashton), **B.B. Singh** (IITA), and others led to our current understanding that at least five different races of *Striga gesnerioides* exist in West Africa. The distinction among these races is based upon the differential response of various cowpea cultivars. It was previously reported that markers linked to the *S. gesnerioides* race 1 (Burkina Faso) and race 3 (Nigeria) resistance genes *Rsg<sub>1</sub>*, *Rsg<sub>2</sub>*, and *Rsg<sub>4</sub>* present in the resistant cowpea lines B301, IT82D-849 and Tvu 14676, respectively, map to Linkage Group 1 (LG1) in the cowpea genome [Ouédraogo, J.T., Maheshwari, V., Berner, D.K., St-Pierre, C.-A., Belzile, F. and Timko, M.P. (2001) Identification of AFLP markers linked to resistance of cowpea (*Vigna unguiculata* L.) to parasitism by *Striga gesnerioides*. Theor. Appl. Genet. 102: 1029-1036). Evidence has now been found that the *Striga* resistance genes in cowpea form two clusters within the cowpea genome. In an article

to appear in Genome, Jeremy Ouédraogo and his collaborators now report that the *S. gesnerioides* race 1 resistance genes *Rsg<sub>3</sub>* and *Rsg<sub>994</sub>* found in Suvita-2 and IT81D-994 mapped to Linkage Group 6 [Ouédraogo, J.T., Olivier, A., Timko, M.P., and Belzile, F.J. (2002) AFLP markers for resistance against *Striga gesnerioides* race 1 in cowpea (*Vigna unguiculata*). Genome: In Press]. Work is underway to map the genes conferring resistance to races 2 (Mali), 4 (Benin) and 5 (Cameroon).

Specificity of the host-parasite interaction is the basis of Flor's gene-for-gene hypothesis, in which the product of a single resistance (*R*) gene in the host recognizes a specific pathogen-derived factor encoded in an avirulence (*Avr*) gene in the pathogen. Do distinct *Avr* genes exist in *Striga gesnerioides* that encode factors recognized by these race-specific resistance genes? Moreover, what defines a race, its geographic distribution, and host range? There have been few attempts to analyze genetic variability and population structure of *Striga* species and little is known about the relationship between genetic variability of the parasite and its virulence. An analysis of genetic variability within and among yellow- and red-flowered populations of *S. asiatica* in the Republic of Benin was recently carried out by Christopher Botanga and his colleagues [Botanga, C.J., Kling, J.G., Berner, D.K. and Timko, M.P. (2002) Genetic variability of *Striga asiatica* (L.) Kuntze based on AFLP analysis and host-parasite interaction. Euphytica: In Press]. Using AFLP profile analysis as their tool, these researchers found significant intra- and interpopulation genetic distances suggesting that each local population of the parasite might be considered as a different ecotype. Tests of the interactions of these different *Striga* populations with two different susceptible host plant genotypes (i.e., 8338-1 (*Zea mays*) and CK60B (*Sorghum bicolor*)), revealed a high degree of host-specialization, with the various *Striga* populations exhibiting different degrees of virulence on susceptible host plants. Chris is now turning his attention to an analysis of population structure and genetic diversity of *Striga gesnerioides* in West Africa, focusing on the phenetic relationship among the five races of *Striga* parasitic on cowpea. Sites were sampled throughout the suspected distribution range for each of the known races and AFLP profiles of individuals within these populations analyzed. Preliminary data indicate that while significant similarity exists in genetic architecture among the races, molecular markers can be recognized that appear unique to each West African race. These differences should allow researchers to distinguish among them. A basic knowledge of the genetic variability of the pathogen and the ability to distinguish among races in the field should assist breeders in their attempts to successfully breed for sustainable broad-based resistance.

We are hoping to undertake a more comprehensive study of genetic variation and evolutionary relationships among *S. gesnerioides* in Africa. Our aim is to integrate information on the phylogenetic relatedness of *S. gesnerioides* isolates parasitic on cowpea and those parasitic on other legume and non-legume host species (i.e., members of the wild legume genera *Alysicarpus*, *Indigofera*, and *Tephrosia*, and the non-legumes *Ipomea*, *Jaquemontia*, *Merremia*, *Euphorbia*, and *Nicotiana* among others). We seek your help in obtaining seed of local *S. gesnerioides* populations for this analysis. We are particularly interested in obtaining seed from regions of West, Central, and South Africa as well as locations outside of Africa where the parasite is recognized. If you would like to collect material for inclusion in these studies and can provide seed samples for analysis, please contact either **Michael P. Timko** or **Christopher Botanga**, Department of Biology, University of Virginia. E-mail - [mpt9g@virginia.edu](mailto:mpt9g@virginia.edu); [cjb2v@virginia.edu](mailto:cjb2v@virginia.edu); or Fax – 434-982-5626 for information on how to collect specimens and to ship seed material for analysis.

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**Other Items:** **Idah Sithole-Niang** participated in a meeting in Rome, June 24-27, 2002, organized by FAO-CEIS and dealing with the impact of IPRs on biotechnology in developing countries.

**Idah Sithole-Niang** and **Larry Murdock** both presented papers at the World Vision International/Rockefeller Foundation-sponsored workshop in Nairobi, Kenya on May 14-16, 2002, dealing with the risks and benefits of GMO's. When Larry couldn't attend the meeting because of a health issue, Idah stepped in and read his paper as well as her own.

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**NGICA Website:** We are working steadily on putting up an NGICA web-site; hopefully it will be ready to put up in August. The website will provide easy access to (1) NGICA documents (2) information about cowpeas (3) announcements of relevant meetings (4) trip and meeting reports (5) a bulletin board of general interest items; (6) limited access bulletin boards for specialty groups; (7) public progress reports on NGICA projects (8) and recommended cowpea-relevant websites, and (9) more.