

THE MCKNIGHT FOUNDATION

Collaborative Crop Research Program

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CCRP Quarterly Newsletter

To: The McKnight Foundation grantees
From: Office of the CCRP Program Director
Reporting period: July-September 2005

QN3_05

CCRP News

- Our *quarterly newsletters* (QNs) cover the periods January-March (quarter 1, or Q1), April-June (Q2), July-September (Q3), and October-December (Q4) for each year. Each newsletter is issued at the end of the month following the quarter. By the middle of the post-quarter month, we ask the PIs to submit three bullet points of information pertaining to research news and other happenings that occurred during the previous quarter. The due date for each quarter's bullet points is January 15 (for Q4 of previous year), April 15 (for Q1), July 15 (for Q2), and October 15 (for Q3). Please submit each quarter and limit your submissions to no more than one page. Any additional materials, however, are welcomed and will be incorporated onto your project's web page. This and future issues of the QN will be translated into Spanish and French.
- The [Quinoa \(Bolivia\)](#) project was featured in a recently-published article in Crop Science. The article focuses on how McKnight-funded researchers at Brigham Young University (BYU) in the U.S. have developed genetic markers for use in breeding quinoa, and are currently working to develop a genetic map of the plant. The article notes that team in Bolivia has already developed new, hardier varieties of quinoa that can result in doubled and tripled yields of grain. It mentions project leader Alejandro Bonifacio, who has developed and introduced a late variety of quinoa in Bolivia that germinates more readily and puts forth better root systems. Congratulations!
- A *project development workshop* for the finalists in the West African competitive grants process took place August 14-16 in Bamako, Mali. It involved project teams that have competed successfully in the initial round of selection in the RFP focused on millet- and sorghum-based systems in West Africa. The workshop was co-organized by Dr. Mohamed Ag Ayoya and the CCRP management team; Mohamed served as facilitator for the event. A CD containing workshop photos and documents was sent to all of the workshop participants (roughly 50) and is available upon request. Further information is available at the [workshop web page](#). Full proposals were due October 15. Projects will be selected for funding during the Oversight Committee meeting December 1-3 in Madrid, Spain.

- The workshop of the CCRP's Andean "*Community of Practice*" (CoP) took place August 29-September 1 in La Paz, Bolivia. The meeting, the first of our annual regional CoP meetings, brought together representatives of the nine CCRP projects in Ecuador, Peru and Bolivia. The workshop was co-organized by Betsy Campbell, the PUMA Foundation and the CCRP management team and was facilitated by Betsy. The participants shared strategies and plans for their projects and explored topics of mutual interest. The meeting's "special feature" focused on approaches to achieving nutritional impacts; this topic was introduced by Dr. Peter Berti of PATH-Canada. Further information is available at the [workshop web page](#) and will soon be made available on CD.
- While in Bolivia, the Community of Practice group visited PROINPA's quinoa research site outside of La Paz. After the meeting, Rebecca Nelson met with Alejandro Bonifacio, Antonio Gandarillas, and Enrique Carrasco at PROINPA's offices in La Paz.
- The East Africa request for pre-proposals (RFP), entitled "*Enhancing the utilization of legumes in Malawi, Mozambique and Tanzania,*" was released on June 1. A total of 27 pre-proposals were received by the September 15 deadline and sent to members of the Oversight Committee for analysis. The Oversight Committee will meet in early December to consider the proposed projects. Applicants selected to submit full proposals will be notified by January 6, 2006. A project development workshop and/or site visits are tentatively scheduled for March 2006. Partnership proposals will be due in May 2006; final awards will be announced in August 2006. Further information is available at the [current RFPs web page](#).
- Robert Mwanga and Simon Gichuki attended a workshop entitled "*Dissemination of New Technologies for Small-holder Farmers in the Developing World,*" which was held in Bellagio, Italy from 13-17 September. Simon's summary of the event can be found in a separate section below.
- *Coordination among Foundations working towards international food security.* The UN's Hunger Task Force has noted that "the myriad of current hunger reduction efforts -- in nutrition, agriculture and human rights -- are seldom coordinated in an effective way, and often resemble 'trains passing in the night'." In recent months, the CCRP has made efforts to address this constraint through greater communication with other foundations that share an interest in alleviating world hunger. Charity Kabutha represented the CCRP at a meeting in the UK in September, which was organized by The Gatsby Foundation. The event was entitled "Strengthening Agricultural Technology and its Dissemination in Africa: The Scope for Philanthropy." Richard Jones, Simon Gichuki and Robert Mwanga attended a meeting at Bellagio in Italy, co-sponsored by the Rockefeller, Syngenta and McKnight Foundations (see Simon's report below for details). Rebecca Nelson has participated in on-going informal discussions with representatives of the Rockefeller, Syngenta and Gates Foundations over the past months, and was asked to contribute to a briefing of at the Gates Foundation in November. Our objectives are to better understand the range of strategies being taken and to identify opportunities for coordination and synergy.
- While in Kenya in July, Rebecca Nelson visited field activities of the [Sweetpotato diversity \(Kenya\)](#) and [Cereal roots \(Brazil/Kenya\)](#) projects.
- Annual reports and supporting documents were received and approved for the following projects: [Finger millet \(India\)](#), [Tef \(Ethiopia\)](#)

- CCRP Web usage statistics have remained high since our last newsletter. The revised structure of the site is more user friendly, and we are delighted to have more users. Please keep your project information up-to-date so that visitors to the site are not disappointed! See the CCRP Web section of this report for more information.
 - The CCRP is offering a new service. To better reach those with limited Internet access, we will re-produce any/all of the following in CD or hard copy formats:
 - Back issues of the quarterly newsletter
 - Workshop materials (photos, presentations, associated documents) for all workshops listed [here](#).
 - Literature lists [please specify topic(s) of interest]
 - Project information and reportsPlease communicate with Kelly Lindsay (KAL44@cornell.edu) with queries or requests.
 - Please see the last section of this update for news from the CCRP projects.
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Upcoming CCRP Events

2005

December

Oversight Committee meeting (December 1-3, Madrid, Spain)

The Oversight Committee will meet as part of the grant selection process for RFP “*Millet- and sorghum-based systems in West Africa.*” Full proposals will be reviewed and the final set chosen to be recommended to the McKnight board for funding. The OC will also meet to select pre-proposals from the recently released RFP “*Edible legumes in Malawi, Mozambique and Tanzania.*”

Recent and Upcoming Related Events

September

13-17 Dissemination of New Technologies for Small-holder Farmers in the Developing World, Bellagio, Italy

27-30 Generation Challenge Program meeting, Rome, Italy

October

23-27 [International Plant Biotechnology Symposium](#) organized by the East African Plant Molecular Biologists Network (EAPMBNet), Dar-es-Salaam, Tanzania

November

19-23 [5th International Rice Genetics Symposium](#), Edsa Shangri-La, Manila, Philippines

December

5-9 [7th African Crop Science Society Conference](#), Entebbe, Uganda

Workshop on “Dissemination of New Technologies for Small-holder Farmers in the Developing World”, September 13-17, 2005, Bellagio Study and Conference Center, Italy.

Summary by Simon T. Gichuki, leader of the Eastern African Sweetpotato Diversity Project and Robert Mwanga, leader of the Uganda Sweetpotato Project. A more complete summary will be made available on the CCRP-Web.

Workshop objective: To develop a roadmap towards making the benefits of GM crop available to resource-poor farmers in Africa

The workshop was hosted by the International Potato Centre (CIP) with the support of the Rockefeller Foundation, Syngenta Foundation for Sustainable Agriculture and the McKnight Foundation. Participant were drawn from different interest groups; 8 CGIAR scientists, 2 NARS scientists, 2 representatives of private biotechnology companies, 2 representatives from biotech support agencies, 3 representatives of philanthropic foundations, 2 representatives of development agencies and 1 university social scientist as detailed below. Five position papers were presented:

- Pamela Anderson - The UN Millennium Development Target 18 – increasing the access of new technologies to the poor
- Marc Ghislain - Towards crops with appropriate gene technologies
- Robert Tripp - Seed systems and the delivery of GM crops in Africa
- Frederick Perlak -Dissemination and monitoring of GM crops for small-scale farmers
- Muffy Koch and Shawn Sullivan-Risks of biosafety, IPR and liability regimes on biotechnology availability to the poor

Three case studies on development of GM crops were presented:

- Joe Tohme – GM crop and Harvest+ Challenge Program
- Stephen Mugo – Bt maize in Kenya
- Marc Ghislain – Bt sweetpotato in sub-saharan Africa

The participants divided into two discussion groups based on the two broad categories of crops: vegetatively-propagated crops and grain crops. Presentations of the two groups were then presented in plenary followed by detailed discussions. The participants decided that the results of the workshop would be shared widely as information briefs and material for training. Several upcoming biotechnology workshops and development agencies would be targeted for sharing the information. The workshop convener, Dr. Pamela Anderson would prepare the workshop document and circulate it to the participants and others.



The CCRP Web is at... <http://mcknight.ccrp.cornell.edu>

CCRP Web changes over the past quarter:

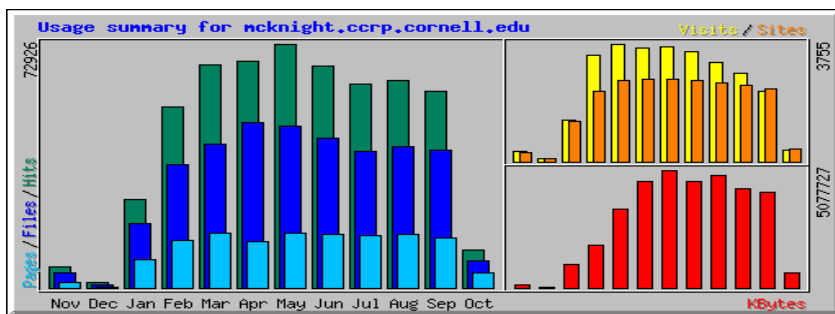


Most of the CCRP’s workshop pages have been modified to include a new photo layout. Instead of having to advance from slide to slide, you will now be able to view thumbnail versions of each picture (see left). Upon clicking the picture, a new window will open and display the larger version of the picture with a caption. Kelly will begin incorporating this new layout design on the project pages in the months to come.

- New workshop pages have been created for the recent workshops:
 - [Tef and Finger Millet: Comparative Genomics of the Chloridoid Cereals](#)
 - [West Africa project development](#)
 - [Meeting of the CCRP’s Andean Community of Practice](#)
- New [impact](#) page. This page was created to show the important impact-related achievements of CCRP projects. Please submit updates to me regarding your project’s impact. The page is looking rather lonely without content!

Site Visits

The CCRP Web site receives approximately 60,000 hits a month. Keep visiting the site to know what is happening in the CCRP, and check your project pages to make sure they are updated!



Month	Daily Avg					Monthly Totals				
	Hits	Files	Pages	Visits	Sites	KBytes	Visits	Pages	Files	Hits
Oct 2005	2245	1583	867	76	386	629866	382	4335	7918	11228
Sep 2005	1960	1375	494	75	2317	4116734	2256	14838	41260	58805
Aug 2005	2003	1363	517	90	2416	4275231	2816	16030	42255	62119
Jul 2005	1960	1314	499	102	2503	4835233	3170	15492	40755	60762
Jun 2005	2210	1489	528	116	2595	4565801	3496	15842	44692	66310
May 2005	2352	1555	531	118	2637	5077727	3663	16478	48209	72926
Apr 2005	2258	1647	462	120	2617	4562767	3614	13872	49410	67757
Mar 2005	2144	1381	523	121	2582	3397688	3755	16240	42839	66489
Feb 2005	1929	1318	510	120	2246	1851396	3382	14301	36906	54036
Jan 2005	879	637	277	44	1270	1000484	1331	8321	19137	26370
Dec 2004	58	33	9	3	107	35051	113	277	1017	1760
Nov 2004	209	150	54	10	286	127073	317	1622	4518	6297
Totals						34475051	28295	137648	378916	554859

Updates from the CCRP Projects. The updates below are published as received. Minimal edits have been made.

Andean tubers (Peru)

- Drs. Ramiro Ortega and Carlos Arbizu, leader and Peruvian co-leader of the Andean tuber project, were invited to lecture in the International Workshop “*In situ* Conservation of Plant Genetic Resources” held last 19 - 23 September in Huaral, Peru. Dr. Ortega lectured on the “*On-farm* management of Andean tubers in rural communities of Cusco”. Dr. Arbizu on the other hand, lectured on the “Economic potentials of bioactive compounds and antioxidant capacity of Andean root and tubers”. The workshop was organized and funded by the Inter American Institute for Cooperation in Agriculture (IICA), the International Plant Genetic Resources Institute (IPGRI), and the Peru’s National Agricultural Research Institute (INIA). Some 72 agronomists, biologists, anthropologists, sociologists, lawyers, technicians, and governmental officials from Bolivia, Brazil, Colombia, Ecuador, Peru, Mexico, Surinam, and Venezuela attended this important event.
- Two project participants, Willy Vargas of the University of Cusco, and Jesus Alcazar, of the International Potato Center, were trained on taxonomy and ecology of weevils at the University of California-Davis by Dr. Lynn Kimsey last 12 – 22 August. The two entomologists were fortunate to receive also the knowledge of the world famous weevil taxonomist Dr. Charles O’Brien. So far, the entomology team has identified the oca weevil for science. This training will contribute to the identification of other weevils damaging Andean tubers.
- Cusco University students Estenio Duran and Hector Ortiz, who were trained within the Andean tuber project on diversity of Andean tubers, have been collaborating with the Peru’s National Agricultural Research Institute (INIA) to rationalize the Peruvian collection of oca. The collection maintained by INIA comprises more than 1700 accessions. So, to reduce the size of the collection, in the first stage, the two young scientists interacted with INIA’s and the International Potato Center’s (CIP) curators to identify some 200 morphotypes based on tuber characters. In the second stage, following the same strategy of the first one, they homologated the INIA’s morphotypes with that maintained by CIP. The work yielded 150 homologue morphotypes maintained both by INIA and CIP. This work will optimize the conservation and utilization of Peruvian oca collection.

Finger millet (India)

- Two advanced finger millet lines (ML series) were entered in the State multilocation trials conducted by the All India coordinated millet project. They are in seven locations in our state.
- Three high-yielding elite lines resistant to neck blast have been distributed for popularization and seed multiplication (for wider spread and impact). In the wet season 2005, these will be tested in 28 selected villages.

- Collaborators Katrien Devos and Sally Leong provided primer sequences to Shailaja Hittalmani for testing parental polymorphism and identify trait specific marker screening in the RIL population available at the lead center (work in progress).
- cDNA from the roots of the stressed plants of selected RILs have been made to identify the candidate genes expressed under stress.
- Database development has been initiated to document the molecular finger prints data and the data generated from several participatory and mapping population phenotyping using the rice database format obtained from IRRI by Dr McLaren (Flat file database and structural database).
- Marker sequences have been obtained from Dr. Mark Sorrells of Cornell University and primers are tested on finger millet population and association analysis using regression is carried out. Bulk segregant analysis of neck blast resistant plants and root characters using Tef markers and other candidate gene markers from rice is done.
- With help of rural home economics department assistance, wine preparation was standardized.
- The physical grain quality parameters and the national parameters of the selected finger millet genotypes with high yield, have been assessed and the superior grain quality parameter listed. Correlations are estimated between the disease resistance and some grain quality parameter, especially silicon content in the grains.
- One student from the Rural home science section of the University has submitted the M. Sc. thesis on grain quality parameters (September, 2005) and prepared two manuscripts for publication.
- One full length research paper is accepted for publication in Environment and Ecology journal on blast resistance. Three abstracts are accepted in the forth coming meeting in the International Genetic and Genomics Congress at Raipur, India.

Green manure/legumes (Bolivia)

Currently we have concluded an initial set of project activities oriented towards beginning a first set of trials of legume crops in October and November, and towards the baseline study that will be used in evaluating the progress of the project. We have also been carrying out final planning of the evaluation of the project, and of an additional sub-project oriented towards nutritional outcomes such as increasing the consumption of legumes in local diets.

In an opening round of surveys with about thirty communities, we learned more about local cropping systems including details of crop rotation and crop management, how soil and land areas are zoned by local communities, and identification of communities and collaborating farmers for legume trials. We also took a round of soil samples that were analyzed for basic parameters of interest in the research. Dominant findings from these surveys were:

- The importance of potatoes as a dominant crop, and of animal manures in growing this fundamental Andean staple.
- Differences between fields closer to communities, with more intense management and a wider variety of crops, and fields farther away with a simpler rotation and fallow periods that are frequently longer.
- A range of soil types with local names, and a predominance of moderately acid loams and clay loams, with some higher-pH soils at lower elevations.
- A range of Phosphorus levels in soils, from deficient to very high, which may have implications for the use of legumes in crop rotations. This was matched and possibly explained by reported rates of manure application that ranged from insufficient to heavy, compared to other smallholder systems in the tropics.
- The identification of annual and perennial niches for legume grain crops, green manures and improved fallows.

Native potato (Peru)

Activities

- Improvement of greenhouse facilities for mass rearing of the pest *Tecia solanivora*.
- Collection of adult pests to initiate egg-laying for the rearing facility. Collecting and counting of eggs.
- Multiplication of the granulosis virus (biocontrol agent). After a month, 1320 diseased larvae were obtained. Similarly, a baculovirus formulation was produced. Tests were made to purify the virus particles.
- A leaflet on production and formulation of the biological control agent was produced.

Potato moth (Ecuador)

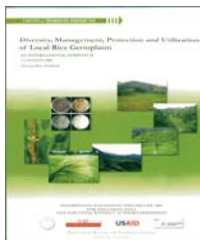
El presente informe tiene por objeto dar a conocer las acciones preliminares que han venido desarrollando las instituciones responsables del proyecto. Cabe señalar que para la PUCE, aún no se ha podido concluir el proceso del primer desembolso del dinero, debido a imprecisiones en la traducción al castellano del documento: Acuerdo de Donaciones. Actualmente, una vez superado este impase, el Acuerdo de Donaciones ya ha sido firmado para proceder con los trámites respectivos. El INIAP-Carchi recibió el financiamiento en Septiembre del presente año.

FECHA	ACTIVIDAD	DESCRIPCIÓN / IMPLICACIONES
17-09-05	La Lic. Verónica Chevasco viajó a Francia	Verónica Chevasco, becada por el IRD y la Embajada de Francia, fue a la Universidad de Rennes I, a realizar un Masterado en Ecología, Evolución y Etología. La investigación de laboratorio de la tesis está relacionada al estudio de interacciones entre parasitoides y microorganismos. Una vez concluidos los estudios de especialización la estudiante se reintegrará a las actividades de control biológico dentro de este proyecto.
13-09-05	Aspectos nutricionales relacionados al proyecto	Se envió a la Fundación PUMA un documento presentando los diferentes aspectos nutricionales que se pueden relacionar al presente proyecto.
13-10-05	Taller "Formulación de	Se realizó el primer taller de actividades sobre nutrición con el

	actividades en nutrición”	propósito de integrar aspectos nutricionales al presente proyecto. De entre los principales participantes se contó con la presencia del Ing. Eduardo Peralta e Ing. Elena Villacrés (INIAP-Cotopaxi) y Dra. Fadia Orozco (Proyecto Ecosalud-CIP).
	Reactivación de la crianza masiva y virus	La Unidad de Validación y Transferencia de Tecnología-Carchi (UVTT-Carchi) (INIAP) han reactivado la crianza masiva de la plaga (polilla guatemalteca), y la multiplicación tanto del virus PhopGV como del virus Anchilibí.
	Investigaciones puntuales	Se ha legalizado la contratación como becaria de la Egresada María Herrera, quién ha elaborado el perfil de tesis “Evaluación de métodos de multiplicación, recolección y almacenamiento de dos cepas virus entomopatógenos de <i>Tecia solanivora</i> ”. (UVTT-Carchi)
		Selección de un candidato a tesis, egresado en Agronomía, para realizar estudios acerca de la comparación de distintas formulaciones y dosis de bioplaguicidas virales. (UVTT-Carchi)
	Personal	Contratación de una asistente de laboratorio. (UVTT-Carchi)

Rice biodiversity (Thailand)

- We gratefully acknowledge the approval of our project renewal by the McKnight Board, and favourable recommendations by the Oversight Committee and the CCRP Director, Rebecca Nelson. The new project, entitled "Agrodiversity for in situ Conservation of Local Rice Germplasm in and near its Center of Diversity" will include two new partners: Lao Agriculture Research Center (LARC) and Cambodian Agricultural Research and Development Institute (CARDI), as well as all of the original partners from the first project.
- On 1-2 August 2005 the project held an international symposium on "Diversity, Management, Protection and Utilization of Local Rice Germplasm" in Chiang Mai, Thailand, in August. The symposium was attended by one hundred participants, half from outside the project, including rice researchers from China, Taiwan, India, Japan and Vietnam.



- At the invitation of the Department of Agricultural Extension, of Thailand's Ministry of Agriculture and Cooperatives, the project team from CMU attended a national meeting on 19 September 2005 in Bangkok to discuss how to control weedy rice. The meeting was attended by about 200 people, including about 40 farmers from affected areas, private sector and government officers. The control methods we have been developing in the project in collaboration with farmers are likely to be effective for now and in the next 2-3 years. However, very close monitoring is essential in this highly dynamic situation.
- The early maturing local rice varieties are now (early October) ripening in Tee Cha. Although there are some pest problems (damages by cattle and rats), those farmers whose rice supply from

last season is running out are very happy. The corn is also being harvested. Farmers are beginning to appreciate the value of feeding corn to pigs, which they think is giving better growth as well as saving the rice for their own use.

- Manop Leesawatwong completed his Ph.D. with thesis entitled "Determinants of Rice Milling Quality and Price."

Publications

1. Youpensuk S, Rerkasem B, Dell B, Lumyong S. 2005. Effects of arbuscular mycorrhizal fungi on a fallow enriching tree (*Macaranga denticulata*). Fungal Diversity 18: 189-199.

2. Maneechote C, Samanwong S, Zhang X Q and Powles S B. 2005. Resistance to ACCase-inhibiting herbicides in a population of sprangletop [*Leptochloa chinensis* (L.) Nees] in Thailand. Weed Science 53: 290-295.

3. Leesawatwong M, Jamjod S, Kuo J and Dell B. 2005. Nitrogen fertilizer increases seed protein and milling quality of rice. Cereal Chemistry 82:588-593.

4. The booklet on "Weedy Rice" by Chanya Maneechote proved to be so popular with farmers and field agents that the second printing of 10,000 copies (following the first printing of 5,000 copies), paid for by a consortium of agricultural supply companies was quickly distributed. Public and private funds together are supporting the third printing of 5,000 copies now under way.



Sweetpotato diversity (Kenya)

- Virus research in Kenya and LSU. Douglas Miano completed the virus survey work in Kenya. The survey was to establish the presence of Sweet potato virus G (SPVG), Ipomoea vein mosaic virus (IVMV) and Sweet potato leaf curl virus (SPLCV). SPVG and IVMV were not detected in any of the samples collected using NCM ELISA. SPLCV was also not detected using real-time PCR. However, symptoms observed from the field indicate strongly that geminivirus(es) are present in the country. The primers used for SPLCV are highly specific and may not detect SPLCV variants or other geminiviruses. Douglas is in the process of using degenerate primers to detect other geminiviruses that could be present.

A repeat experiment on the distribution of SPFMV and SPCSV in field-grown sweet potato vines was completed. Contrary to what has been published, the results indicate that it is difficult to get a virus-free cutting from an already virus infected field-grown sweet potato vine for propagation. Such a cutting would have to be too small for handling and survival in the field. A number of germplasm identified as resistant SPVD in Kenya were sent to USDA-APHIS for cleaning. These materials are for use in identifying markers for resistance, and for studies on reaction of resistant and susceptible plants to infection by SPVD.

Plant genomic DNA has already been extracted for marker identification using AFLP. Douglas returned to LSU to finish course work and dissertation.

- Participatory sweetpotato variety evaluations in Kenya. Local sweetpotato accessions collected from western Kenya were evaluated for their agronomic performance at KARI- Kakamega and Alupe sub-centre during the 2004/05 short and 2005 long rain seasons. The results of the short rain trials indicated that most of the local accessions have low root yield and are susceptible to sweetpotato virus diseases. The root yields ranged between 2.5 to 14.6 tons/ha while 95% of the clones were affected by virus disease. The most outstanding accessions were Njiake, Umala 1, Ondijo, Nyiri and Mwezi mbili. The long rain trials will be harvested in November 2005. One outstanding local variety 'Nyathi odiewo' is already undergoing on-farm testing with 70 farmers Siaya and Busia districts.

Participatory on-farm evaluation of new orange-fleshed varieties is being conducted by the Mariwa Bible group (Siaya district), Bulindo PLAR and Abakhaywa farmer field schools (Busia district) in Western Kenya. In Eastern Kenya, 7 sweetpotato varieties were established in the April 2005 long rains, with 15 farmer in Kangundo and Kathiani divisions of Machakos District. Varieties Kemb10, Ex shimba, Ksp20 and SPK OO4 had higher storage root yield than the local check (Munyilya). But the local check had the highest foliage yield.

In Central Kenya also, 7 sweetpotato varieties were established in the April 2005 long rains, with 15 farmers (10 farmers from the former FFS and 5 non-FFS members) in Ndeiya division in Kiambu District. Some incidences of viral infection were observed on some varieties. Zapallo and Japanese were highly affected by the drought. The FFS has covered most of the FFS curriculum. They have evaluated the use of sweetpotato leaves as a vegetable and in mashed food (mukimo). The majority particularly men prefer deep green to light green food color.

- Farmer workshops/training and seed distribution activities in Kenya. In Western Kenya 3 FFS facilitators in Butula division, Busia district were trained for two days. The training focused on sweetpotato production, simple research methodologies, and AESA. The training was conducted by a KARI-staff and an extension officer from Kakamega district. In addition 40 farmers (31 women and 9 men) from the same division were trained on the identification and control of sweetpotato pests and diseases and positive selection of sweetpotato planting material. Another group of 48 farmers (36 women and 12 men) were trained at Ulamba village, Wagai division, Siaya district and Busibwabo village, Matayos division, Busia district. The training focused on pest and disease identification, management of seed multiplication units and rapid multiplication of sweetpotato planting material. In South Western Kenya, 3 farmer workshops were held at KARI Kisii between July and September 2005. A number of issues were agreed upon and notable among them were that Farmers field schools (FFSs) and Farmer research groups (FRGs) would not only be used to carry out variety evaluation but also in development of packages for production, processing, utilization and marketing of orange-fleshed sweet potatoes.

In the dry areas of Kangundo and Kathiani in Machakos district a simple method of preserving planting material was demonstrated using the 'gunny-bag' method. This method does require little watering and can be used to preserve a lot of planting materials. In Embu district the CBOs who are bulking sweetpotato seed held two workshops on various aspects of sweet potato management practices.

Distribution of sweetpotato seed materials has been done for a number of farmer groups and institutions both within and outside the project area. Three farmer groups in Kiambu district (Nderu, Thigio and Tiekunu) were issued with planting materials of seven sweetpotato varieties. The crop is performing well apart from varieties Zapallo and Japonese which have been affected by drought. Bulking plots were established in Embu in May for seven varieties Ex-Simba, Bungoma, Japonese, SPK 004, Zapallo, Narspot and KSP 20. From here 3 community based organizations (CBOs) were supplied with vines for seed multiplication with the aim of commercializing the planting material as they disseminate the orange-fleshed sweetpotato (OFSP). The varieties are well established but cannot yield enough planting material for the coming rains.

Publications:

- Mcharo, M., D. La Bonte, C. Clark, M. Hoy, and J. Oard. 2005. Molecular Marker Variability for Southern Root-Knot Nematode Resistance in Sweetpotato. *Euphytica* 144:125-132.
- Mcharo, M., D. La Bonte, R. Mwangi, and A. Kriegner. 2005. Associating molecular markers with virus resistance to classify sweetpotato genotypes. *J. Am. Soc. Hort. Sci.* 130: 355-359.

Tef (Ethiopia)

- Twelve tef breeding activities are being carried out in the field in two to five locations, as it is the main growing season in Ethiopia. The season was good and materials are showing good performance. One of these activities is variety verification trial, which will be evaluated by the National Variety Release Committee in the coming quarter.
- Four tef researchers, one each from Debre Zeit, Holetta, Melkassa and Adet Research Centers received training on Introduction to SAS Software and Basic Biometrical Techniques, and Scientific Paper and Proposal Writing at EARO headquarter from July 4 -15, 2005. The Tef and the Highland Pulses Projects jointly organized the training. One tef researcher from Melkassa Center (Mr. Hussien Harun) traveled to Wageningen University, The Netherlands in August 2005 to pursue his M.Sc study in Bioinformatics.
- The manuscript entitled "Expressed Sequence Tag Analysis in Tef [*Eragrostis tef* (Zucc) Trotter] authored by Ju-Kyung Yu, Qi Sun, Mauricio La Rota, Hugh Edwards, Hailu Tefera, and Mark E. Sorrells" has been submitted to Genome journal. The preparation of another manuscript entitled "Construction of genetic linkage map of tef [*Eragrostis tef* (Zucc.) Trotter] authored by Yu, Ju-Kyung, Ramesh V. Kantety, Elizabeth Graznak, Hailu Tefera and Mark E. Sorrells" is completed for submission to the journal Theoretical and Applied Genetics. Moreover, the paper " Identification of quantitative trait loci for improvement of lodging resistance in tef [*Eragrostis tef* (Zucc) Trotter]: Ju-Kyung Yu, Elizabeth Graznak, Flavio Breseghello, Ramesh V. Kantety, Hailu Tefera and Mark E. Sorrells" is under preparation for submission to the journal BMC Genetics.

Wheat scab (China)

- The Wheat scab (China) project team sent a very detailed update filled with photographs. These will be incorporated into their web page in the coming weeks.

- Wheat scab (*Fusarium* Head Blight, FHB) is a destructive disease of wheat in the warm and humid areas of the world amounting to billions of dollars in crop losses annually. Finding adequate sources of FHB resistance is a dire need for many wheat breeding programs. *Leymus racemosus*, a wild perennial grass relative of wheat, is highly resistant to FHB. CCRP research team funded by McKnight Foundation at Nanjing Agricultural University and Kansas State University have successfully transferred this resistance into wheat. A total of nine wheat-perennial grass introgression lines with three different resistance genes of *L. racemosus* origin were identified. A paper titled “Development and characterization of wheat-*Leymus racemosus* translocation lines with resistance to *Fusarium* head blight” has been published in the international journal, “Theoretical and Applied Genetics”. An electronic copy is available online of this journal.
- A workshop supported by CCRP of McKnight Foundation on Plant Genomics and Mycotoxin was successfully held in Nanjing Agricultural University, China from June 26th to July 1st, 2005. This workshop was co-sponsored by Cytogenetics Institute, Nanjing Agricultural University, China and the Wheat Genetics Resource Center, Kansas State University, USA. In this workshop, Professor Jiming Jiang from Wisconsin University, Dr. Yanhong Dong from Minnesota University, Dr. Lili Qi from Kansas State University, USA and Professor Peidu Chen from Nanjing Agricultural University, China presented lectures on the following topics:
 1. ‘The limitations and potential of fiber-FISH in plant genome mapping’ by Jiming Jiang.
 2. ‘*Fusarium* head blight, mycotoxins and their detection’ by Yanhong Dong.
 3. ‘Genome research enhancing germplasm development’ by Lili Qi.
 4. ‘Molecular cytogenetics and chromosome manipulation’ by Peidu Chen.
- Besides theoretical lectures, there was hand on technical training on genome mapping techniques of In situ hybridization, Fiber FISH and DON detection by GC/MS(gas chromatography/Mass spectrometry). Forty- eight scientists and graduate students from eighteen universities and institutes in China attended this workshop. This workshop generated lot of excitement among the participants and provided them with new tools for genome mapping and mycotoxin detection for the control of *Fusarium* Head Scab. (See pictures: Workshop 1-8 on the [Wheat scab \(China\)](#) page).
- New wheat germplasm with high resistance to *Fusarium* head blight have been developed and evaluated in multiple years and multiple locations (Nanjing and Jianyang in China, and Kansas State University in USA). Molecular markers were used to document that these lines contain new sources of resistance not previously available to wheat breeders.

Publications

Several publications have been added to the [Wheat scab \(China\)](#) page of the CCRP Web.