TRAINING WORKSHOP
CONCEPT NOTE

Title	Introduction to Molecular Biology and Bioinformatics
Background	Biosciences have greatly enhanced the ability to quickly diagnose diseases, determine the genetic diversity of pest and pathogen populations, understand host-pathogen interactions, speed the development of new varieties of crops, combine genes from a wide array of organisms in transgenic technologies and develop strategies for their management. In spite of this, the benefits of the numerous bioscience research products available are yet to be fully felt in Africa. Opportunities linking modern biosciences to agricultural improvement to solve some of Africa's major agricultural problems remain largely untapped. A number of NARS in the east and central Africa region have basic equipment for conducting some molecular biology techniques, and have access to the internet for bioinformatics analysis, but the skills to apply the technologies to agricultural research remain largely. This training workshop seeks to address the skills gap in basic molecular biology and bioinformatics, to increase the capacity of African scientists and institutions to conduct biosciences research and to develop and deliver new technologies for agriculture. The main target group is researchers at NARS in east and central Africa who are actively engaged in biosciences research, and who need the skills to address technology gaps in their own research programs.
Objective(s)	To give agricultural biosciences researchers from east and central Africa the working knowledge of basic molecular biology and bioinformatics that can be applied to address technology gaps in their own agricultural research programmes, and that can be disseminated to other researchers at their home institutes.
Scope of the training workshop	Selected applicants will attend an intensive 10-day training workshop consisting of lectures and hands on training in DNA purification, polymerase chain reaction (PCR), DNA sequencing, bioinformatics and other aspects. Participants will also experience the research discovery process whereby potentially novel DNA sequences acquired by each participant will be analyzed and discussed during the bioinformatics sessions. Bioscience experts from the BecA-ILRI Hub and research partners will deliver the Training.

Expected outputs and outcomes	**Outputs** At least 25 agricultural biosciences researchers from NARS in the ECA region equipped with practical knowledge of basic molecular biology and bioinformatics. **Outcomes** Strengthened practical skills in basic molecular biology, bioinformatics and diagnostics for application to agricultural biosciences research in NARS in the ECA region.
Training Approach	The workshop will comprise a series of lectures, extensive hands-on practical, group discussions and experience sharing by participants. Pre- and post- workshop evaluations will be conducted by both participants and trainers.
Who can apply / selection criteria	The Hub is seeking applicants from eastern and central Africa region who require basics skills in molecular biology and bioinformatics to support their research. The training is targeting graduate students and early career researchers, based on evidence of productive scholarship and research, relevance of the workshop to applicant's current research, and visible engagement in agricultural research within a national research institute or university. Additionally, applicants must meet the following criteria: • Only nationals of BecA countries are eligible (Burundi, Cameroon, Central Africa Republic, Congo Brazzaville, Democratic Republic of the Congo, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Kenya, Madagascar, Rwanda, São Tomé and Príncipe, Somalia, South Sudan, Sudan, Tanzania, Uganda). • Strong affiliation with a national agricultural research program or institution or university in any of the above BecA countries. • Currently engaged in agricultural biosciences research. • Holders of BSc, MSc or PhD in biosciences or a related subject. • Good working knowledge of written and spoken English. • Endorsement by applicant's home institution through Letter of nomination/recommendation from head of department or institution head. • ***Women candidates are particularly encouraged to apply.***
Key Dates	Closing date for applications: midnight **25th March 2015 (Nairobi time)** Successful applicants will be notified by **30th March 2015**. Workshop Dates: **11th – 22nd May, 2015**
Partners	This training workshop has been organized in partnership with the African Research Consortium for Ecosystem and Population Health (Afrique One). The training workshop is sponsored by; • The Australia Government Department for Foreign Affairs and Trade (DFAT) through a partnership between Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO) and the BecA-ILRI Hub; • The Bill & Melinda Gates Foundation; • The Swedish Ministry for Foreign Affairs through the Swedish International

Development Cooperation Agency;

- The Syngenta Foundation for Sustainable Agriculture;
- The Wellcome Trust, and
- Alliance Global

Workshop Venue

The **Biosciences eastern and central Africa-International Livestock Research Institute (BecA-ILRI) Hub** is a world-class agricultural research and biosciences facility located at and managed by ILRI in Nairobi, Kenya. It provides support to African and international scientists conducting research on African agricultural challenges and acts as a focal point for learning, interaction and strategic research — enabling collaborations in the scientific community to benefit African farmers and markets within the region. The Hub was established as part of an **African Union/New Partnership for Africa's Development (NEPAD) African Biosciences Initiative**, which employs modern biotechnology to improve agriculture, livelihoods and food security in eastern and central Africa. ILRI is a member of the CGIAR Consortium. **CGIAR** is a global agriculture research partnership for a food-secure future. Its science is carried out by the 15 research centers that are members of the CGIAR Consortium in collaboration with hundreds of partner organizations.

The BecA-ILRI Hub hosts and conducts research in crop, microbe and livestock areas where new developments in science offer promise to address previously intractable problems constraining Africa's development. Capacity building is a major goal of all activities. The scope covers agriculture and food security and their intersections with human health and nutrition, and the sustainable use of Africa's natural resources. Further information is available at

http://hub.africabiosciences.org/
www.ilri.org