# TRAINING WORKSHOP
# CONCEPT NOTE

| Title | Advanced genomics and bioinformatics training workshop |
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| **Background** | In the last 10-15 years, computational biology and bioinformatics has increasingly attracted attention in developing countries, owing to the relatively low requirements in terms of capital and technological infrastructure vis-à-vis its wide scope of application in genetics, biochemistry and molecular biology research. Bioinformatics has enabled researchers in developing countries to make significant advances in diverse research areas such as pathogen detection, diagnostics, comparative genetics, metagenomics, molecular breeding, and diverse opportunities in biotechnology.<br><br>In Africa national research systems, wide disparities exist in human resources and infrastructural capacities to access and fully exploit the application scope of bioinformatics. Efforts to build capacities of researchers in Africa's national research systems have the potential to catalyze cutting-edge, hypothesis-based research that will accelerate Africa's scientific and technological development.<br><br>The BecA-ILRI Hub in collaboration with its partners has designed the training workshop on Advanced Bioinformatics to "train the trainer". The impact will go beyond the 25 researchers trained at BecA-ILRI Hub, thus expanding the network of NARS researchers with strengthened capacity for application of bioinformatics in research addressing pressing agricultural challenges in Africa. |
| **Objective(s)** | The objective of this training workshop is to provide an overview of the existing tools / pipelines available for next generation sequencing (NGS) analysis, as well as tools for data visualisation. The proposed course aims to equip bioscience researchers in east and central Africa with advanced skills in bioinformatics that are applicable to their areas of research. |
| **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. |

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| **Expected outputs and outcomes** | • At least 25 biosciences research scientists from NARS in east and central Africa equipped through comprehensive lectures and hands on training in practical aspects of Bioinformatics.<br>• New connections and networks created as a result of interaction during the training. |
| **Training Approach**<br><br>**Who can apply / selection criteria** | 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.<br><br>The Hub is seeking applicants from eastern and central Africa region who would like to advance their skills in bioinformatics. The training is targeting 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:<br>• 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).<br>• Strong affiliation with a national agricultural research program or institution or university in any of the above BecA countries.<br>• Currently engaged in agricultural biosciences research.<br>• Holders of BSc, MSc or PhD in biosciences or a related subject.<br>• Good working knowledge of written and spoken English.<br>• Endorsement by applicant's home institution through Letter of nomination/recommendation from head of department or institution head.<br>• ***Women candidates are particularly encouraged to apply.*** |
| **Key Dates**<br><br>**Partners** | Closing date for applications: midnight **10 August 2015**<br>Successful applicants will be notified by **14 August 2015**.<br>Workshop Dates: **7-18 September, 2015**<br><br>The training workshop is sponsored by;<br>• The Australian Department for Foreign Affairs and Trade (DFAT) through the BecA-CSIRO partnership<br>• The Syngenta Foundation for Sustainable Agriculture (SFSA)<br>• The Bill & Melinda Gates Foundation (BMGF)<br>• The UK Department for International Development (DFID) and<br>• The Swedish International Development Cooperation Agency (Sida) |

**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