# TRAINING WORKSHOP
# CONCEPT NOTE

| Title | Introduction to Molecular Biology and Bioinformatics (IMBB) |
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| **Background** | Biosciences have greatly enhanced the ability to quickly and accurately diagnose disease-causing agents, determine the genetic diversity of organisms including 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. Despite 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.<br><br>A number of NARS in the eastern 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 at the embryonic stage. 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 improved and new technologies for agriculture.<br><br>The main target group is researchers at NARS in eastern 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 African national agricultural research systems working knowledge of basic molecular biology and bioinformatics that can be applied to address technology gaps in their own agricultural research programs, 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 pathogen isolation and morphology, nucleic acid purification, molecular diagnosis by polymerase chain reaction (PCR), RLFP-PCR and isothermal nucleic acid amplification (LAMP) PCR, DNA sequencing, bioinformatics and other matching 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 IMBB Training. |

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| **Expected outputs and outcomes** | *Outputs*<br>At least 25 agricultural biosciences researchers from African NARS equipped with practical knowledge of basic molecular biology and bioinformatics.<br><br>*Outcomes*<br>Strengthened practical skills in basic molecular biology, bioinformatics and diagnostics for application to agricultural biosciences research in African NAR. |
| **Training Approach** | The workshop will comprise series of lectures, extensive hands-on practical, group discussions and experience sharing by and with 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 African NARS who require basics skills in molecular biology and bioinformatics to support their research. The training is targeting early career researchers in NARS, based on evidence of productive 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>• The call primarily targets nationals of BecA countries (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 MSc or PhD, or equivalent, 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 are particularly encouraged to apply.* |
| **Key Dates** | Closing date for applications: midnight 17th March 2017 (Nairobi time)<br>Successful applicants will be notified by 31st March 2017.<br>Workshop Dates: 1-12 May, 2017 |
| **Workshop Venue** | Rwanda Agriculture Board, Rubona Centre, Rwanda. |
| **Donors** | The training workshop is sponsored by;<br><br>• 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;<br>• The Bill & Melinda Gates Foundation; |

Development Cooperation Agency;
- The Syngenta Foundation for Sustainable Agriculture;
- The Department for International Development (DFID)

**Partners**

- Rwanda Agriculture Board