



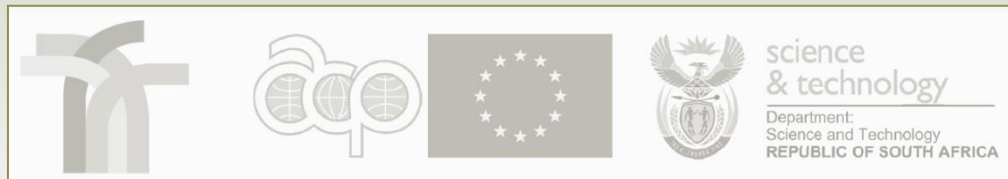
Application of “omics” to Biosafety Workshop  
19-30 October 2015  
Pretoria and Johannesburg, South Africa



# Rationale

- “...70% of the region's population depends on agriculture for food, income and employment. Hence the performance of this sector has a strong influence on food security, economic growth and social stability in the region.”

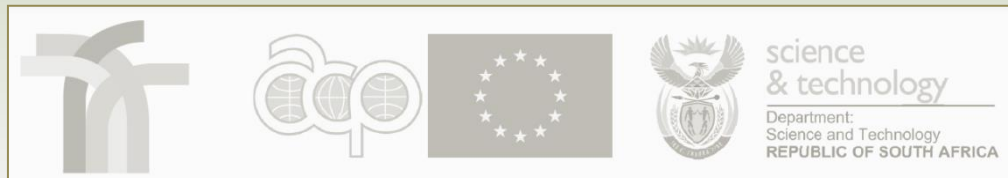
<http://www.sadc.int/themes/agriculture-food-security/>



# Rationale

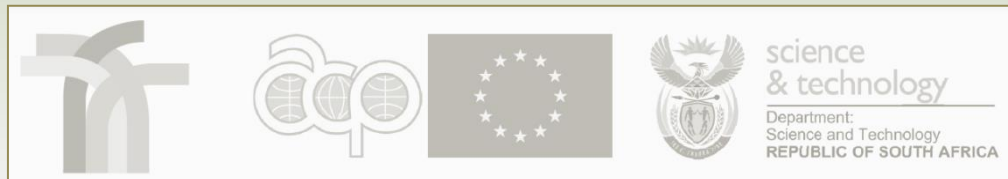
- “In 2008, southern Africa had an estimated population of 135 million people; a moderate estimate has overall regional population increasing roughly 70 percent between 2010 and 2050 to about 241 million.”

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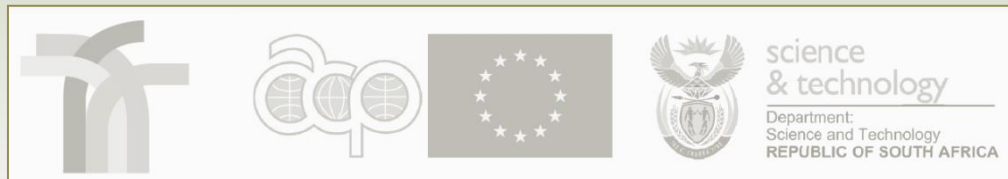
# Rationale

- Agricultural productivity in SADC needs to be drastically increased
- BUT: Not all available tools or technologies are being utilised
- Modern biotechnology presents a solution
- Uptake/acceptance is limited due to a variety of reasons



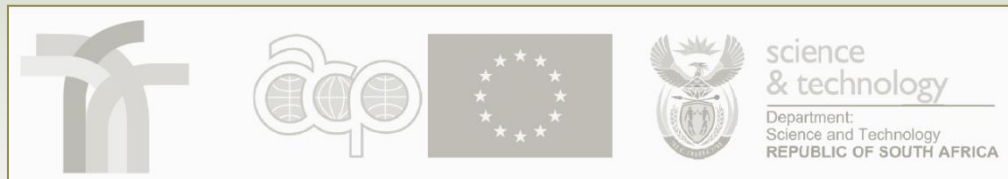
# Uptake of (bio)technologies?

- Misinformation about biotech is widespread
- Knowledge of new biotech solutions and regulation lacking
- Biosafety and food safety courses/knowledge do not reach everyone
- Information is not fully disseminated



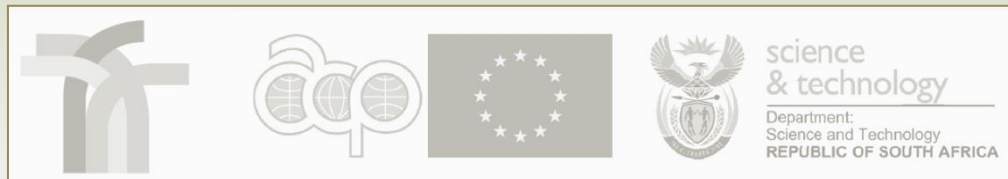
# Action objectives

- OVERALL:
- To increase agricultural productivity and ensure access to safe food in the Southern African region, through greater public awareness of modern biotechnologies



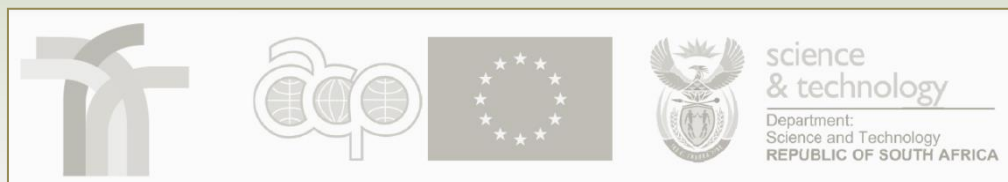
# Action objectives

- SPECIFIC:
- To facilitate informed decision making on the use of Genetically Modified Organisms (GMOs) in agriculture and food by enhanced knowledge of stakeholders



# Project partners

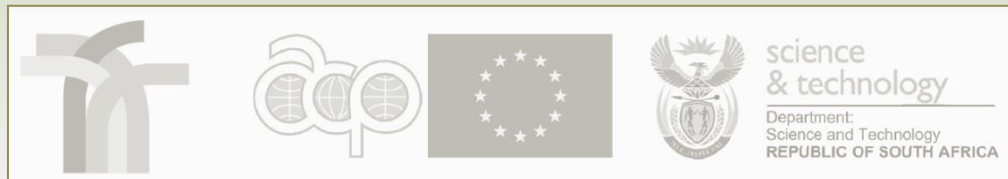
- South Africa
  - ARC, CSIR, Universities of Johannesburg & Pretoria
- Namibia
  - University of Namibia
- Zimbabwe
  - University of Zimbabwe
- Denmark
  - Technical University of Denmark (DTU)
- Other platforms/institutions
  - SADC and Europe





# Expectations?

- Take on board the importance of training and capacity building in decision-making
- Network and make regional contacts
- Learn from countries who are at different stages of adoption
- Participate in Action activities
- Disseminate knowledge



Day	Theme	Where	Facilitators	Programme
Monday 19 October	Introduction to GMASSURE, “-omics” technologies, background, delegate roles and expectations, GMO’s developed for Africa	Plant Sciences Complex Boardroom, University of Pretoria, Hatfield	Dr Kingstone Mashingaidze Dr Lerato Matsaunyane Dr Charles Hefer Prof Jasper Rees Nicky Olivier Dr Stoyan Stoychev Prof Ian Dubery Dr John Becker	<b>9:00</b> Welcome and introduction to GMASSURE <b>9:30</b> Delegate self-introductions, roles they fulfil and workshop expectations <b>10:30</b> Tea <b>11:00</b> Introduction to genome-wide analysis of crops <b>11:30</b> Brief outlines of planned workshop modules (15 min each) <b>12:30</b> Lunch <b>13:30</b> GMOs developed for Africa: the WEMA and IMAS projects <b>14:30</b> Group discussion: context, constraints, required traits, any other aspects <b>16:00</b> Closure

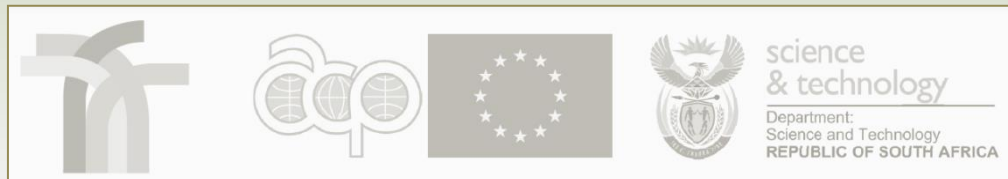
Tuesday 20 October	<b>Genomics</b> <i>Lectures, demonstrations, analysis, facilities tours</i>	Agricultural Research Council Biotechnology Platform, Onderstepoort, Pretoria	Dr Charles Hefer Prof Jasper Rees	Arrival: 8:30 Start: 9:00 Tea: 10:30 Lunch: 12:30 Tea: 15:00 End: 17:00
Wednesday 21 October		Ecology Computer Lab 4-55, Plant Sciences Complex, University of Pretoria, Hatfield		
Thursday 22 October	<b>Trascriptomics</b> <i>Lectures, hands-on laboratory work, analysis</i>	Ecology Computer Lab 4-55, Plant Sciences Complex, University of Pretoria, Hatfield	Nicky Olivier	Arrival: 8:00 Start: 8:30 Tea: 10:00 Lunch: 12:30 Tea: 14:45 End: 16:45
Friday 23 October				
<b>Weekend</b>				
Monday 26 October	<b>Proteomics</b> <i>Lectures, round table discussions, demonstrations</i>	CSIR Knowledge Commons (Sedibeng Board Room), Brummeria, Pretoria	Dr Stoyan Stoychev	Arrival: 8:30 Start: 9:15 Tea: 11:00 Lunch: 12:30 Tea: 15:00 End: 16:30
Tuesday 27 October		CSIR Biosciences, Bldg 20, Brummeria, Pretoria		
Wednesday 28 October	<b>Metabolomics</b> <i>Lectures, demonstrations</i>	C2 Lab 333, Chemistry/Biochemistry Department, University of Johannesburg, Auckland Park Campus	Prof Ian Dubery	Arrival: 9:00 Start: 9:15 Tea: 10:45 Lunch: 12:30 Tea: 14:45 End: 16:15
Thursday 29 October				
Friday 30 October	Combined closing meeting Combined discussions Delegate expectations and way forward	FABI Boardroom, University of Pretoria, Hatfield	Prof Jasper Rees Dr Charles Hefer Nicky Olivier Dr Stoyan Stoychev Prof Ian Dubery Dr John Becker	Start: 9:00 Tea: 10:30 Lunch: 12:30 End: 15:00



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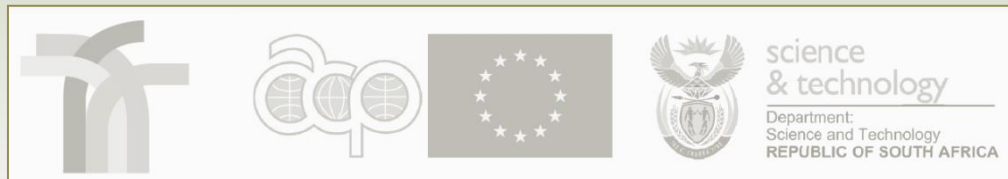
# Activity categories

- Biosafety and food safety training
- Countering misinformation
- Provision of learning materials online
- Training in new biotech developments and regulation
- Information dissemination in beneficiary countries



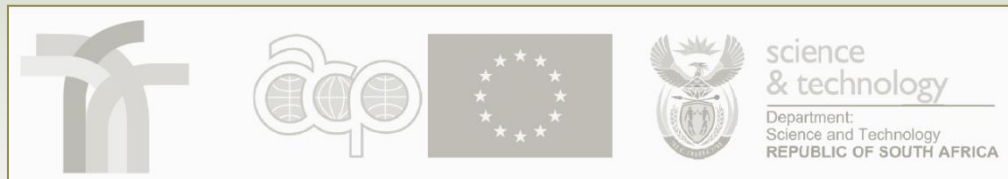
# Biosafety training

- Two week-long training courses
  - Namibia; Zimbabwe
- At least one participant per SADC country
- Expert trainers with support from Europe
  - Groningen
- Successful events concluded in both countries



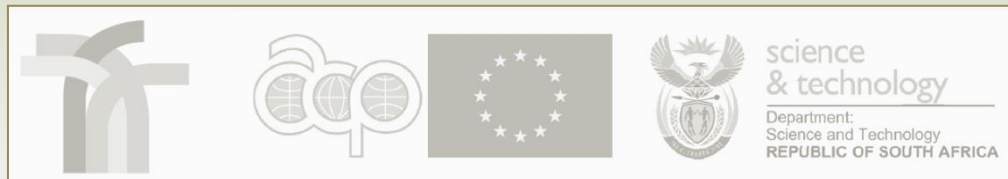
# Food safety training

- Week-long training course in SA
  - methods for determination of food and nutrition safety in a GMO context
- At least one participant per SADC country
- European trainers
  - DTU



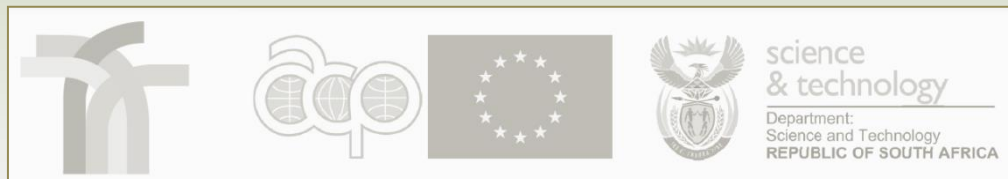
# Countering misinformation

- Establishment of a website
- Creation of an online panel
  - scientists/biotechnologists answer GMO queries
- Production of newsletters and brochures
  - objective information
- Workshops to discuss cultural and religious issues
  - SA, Namibia and Zimbabwe



# Online provision of training material

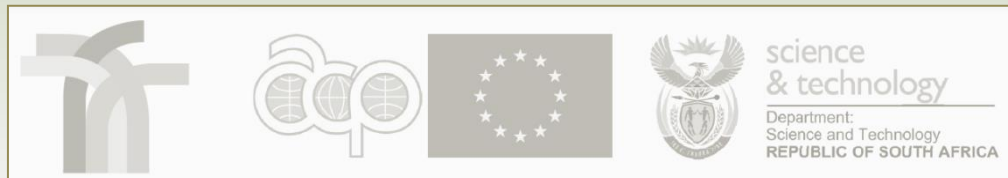
- Bio- and food safety training materials
  - video of training events
- Development of context-specific biosafety training material for SADC
- Production of CDs and DVDs for distribution
  - alternative means





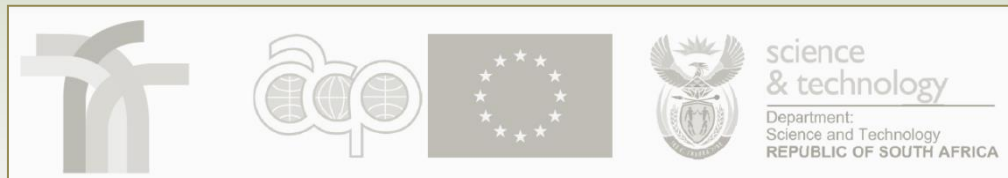
# New biotechnology developments and regulation

- Profiling of genes, proteins and metabolites in GMOs
  - comparison to conventional crops
  - relation to food and crop safety
- Impact of new biotechnologies
  - regulation of new technologies



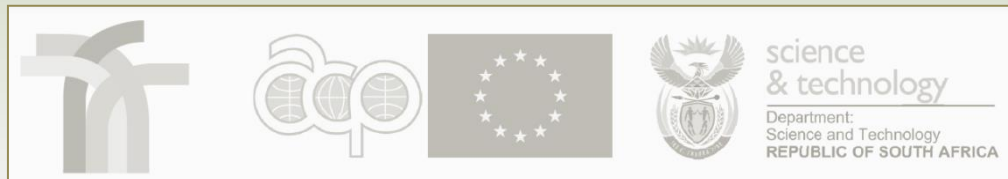
# Information dissemination

- Stakeholder/interactive workshops
  - SA, Namibia, Zimbabwe
  - forum for information dissemination
- Development of resource material for extension officers
- Short course on science communication



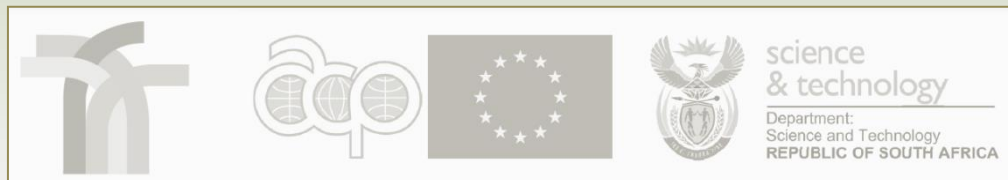
# Expected results

- Increased capacity of stakeholders
- Increased understanding of biotechnology and biosafety issues
- Increased networking on GMO issues
- Improved/informed decision-making by regulators



# Application of “omics” to Biosafety workshop

- Increase awareness of technologies and their outputs
- Gain confidence in the technology
- Ascertain transgene effects within the crop of interest
- Gain perspective on variability between crops
  - and GMOs and their counterparts
- Expand your own research interests, adopt?



# Introductions

- Name
- Country
- Institutional affiliation and mandate
- Role in biotechnology
- Potential contribution to project
- Status of biosafety regulation

