

Third Global Science Conference on Climate-Smart Agriculture

Montpellier, March 2015 - Synopsis of key-note talks during plenaries (P) and parallel (L) sessions.

Session	Synopsis
PLENARY 1	INAUGURAL SESSION
KEY-NOTE: From Wageningen to Davis and Montpellier	The global science conference on climate-smart agriculture conference takes place in Montpellier after Wageningen and Davis. What have we learned through the first two conferences?
PLENARY KEY-NOTES	
KEY NOTE: CSA Science-Policy Interface: bringing findings of CSA science to policy-makers.	How can results from CSA science and research support effective policy making? What can we learn from two existing mechanisms in the area of climate change and food security: the Committee on World Food security and its High Level Panel of Experts, the UNFCCC?
KEY-NOTE: Land degradation and climate-smart agriculture	Land degradation has implications both for agricultural sustainability and for climate change adaptation and mitigation. How can we define the interactions between climate-smart agriculture and land degradation?
PLENARY 2	GLOBAL DIMENSIONS
<i>Key-Note P2.1 Climate change, risks, extremes and uncertainties</i>	What are the observed and projected changes in the climate system? What are the uncertainties associated to these projections? What are the regional consequences of climate change, including climatic variability and extreme events?
<i>Key-Note P2.2 Climate-smart agriculture: conceptual framework and brief history</i>	Starting with FAO early publication on CSA (2010), up to FAO CSA Source book (2013), including facts about the CSA Alliance. Overview of conceptual framework for CSA, drawing on the scientific literature and discussing the links between climate change adaptation, mitigation and food security.
<i>Key-Note P2.3 Impacts and adaptation of agriculture to climate change and climatic variability</i>	What are the observed and projected impacts of climate change on agriculture? What are the socio-economic consequences and how do these contrast across regions and agricultural systems? How can adaptation counterbalance projected climate change impacts? What are the associated uncertainties? How can adaptation support food security and where are there potential tradeoffs?
<i>Key-Note P2.4 Supply and demand based greenhouse gas mitigation</i>	What are the key mitigation strategies both from the supply side and from the demand side? How can we mitigate GHG emissions from food systems while improving food security?
PARALLEL SESSIONS 1	REGIONAL DIMENSIONS
<i>Session L1.1 Africa</i>	These sessions will cover several biomes and agricultural systems within the region. Contributed papers can address both biophysical issues (e.g. soils, water, crops, livestock, plant and animal genetics and health...) and socio-economics (e.g. poverty alleviation, gender issues...) in link with CSA. Regional based contributions on climate-smart strategies (see L2 sessions) will also be appreciated. In each session a first key-note will cover the state of the art on climate change and agriculture and a second key-note will introduce the 'policy side' of CSA within the region (based on case studies).
<i>Session L1.2 Australasia</i>	
<i>Session L1.3 Latin America</i>	
<i>Session L1.4 Europe</i>	
<i>Session L1.5 North America</i>	
PLENARY 3	KEY QUESTIONS FOR CLIMATE-SMART AGRICULTURE
<i>Key-Note P3.1 Resilience and adaptation</i>	Does an increased resilience of farming systems (or food systems) lead to an increased adaptation to climate change and how can resilience be increased? Are there adaptation options which are needed quite independently from the changes in resilience?

<i>Key-Note P3.2 Sustainable intensification and mitigation</i>	Does sustainable intensification lead to an increased mitigation of GHG emissions, to an increased carbon sequestration? How can sustainable intensification be developed? Are there some mitigation options which are quite independent from sustainable intensification?
<i>Key-Note P3.3 Agroecology, soils and ecosystem adaptation</i>	Should land be spared or shared to reach climate-smart goals for food, fibre and bioenergy production? How can agroecology, soil restoration and ecosystem adaptation contribute to climate-smart agriculture?
<i>Key-Note P3.4. Food security and food systems</i>	Food systems encompass production, transformation, transport, retail, consumption and access to food. Agriculture and climate-smart agriculture is part of food systems, and at the same time conditioned by them. What are the contributions of climate-smart agriculture to more sustainable food systems and to food security and poverty alleviation in the context of a rising demand?
PARALLEL SESSIONS 2	CLIMATE SMART STRATEGIES
<i>Session L2.1 Developing and evaluating climate-smart practices</i>	Climate-smart agriculture is a relative term, implying that practices need to be identified, developed and their impacts assessed in order to identify context specific CSA practices. Case studies showing field, animal and farm scale practices, assessment methods and indicators will be presented. Moreover, the development of metrics linking adaptation, mitigation and food security will be explored during the session.
<i>Session L2.2 Facing climatic variability and extremes</i>	Climate change impacts on agricultural supply chains involve uncertainties, interactions, nonlinearities and tipping points. How to reduce and cope with uncertainties in impact and vulnerability projections, develop adaptation and transformation strategies, increase the resilience of farming systems and design coping strategies will be the focus of this session. In addition, improved means for communicating risks and uncertainties to policy-makers and stakeholders need to be investigated. Contributed presentations linking adaptation and mitigation, or either of these dimensions with food security will be appreciated.
<i>Session L2.3 Combining mitigation, adaptation and sustainable intensification</i>	Improved policies and institutions are needed to maximize the synergies and minimize the tradeoffs between the three pillars of CSA: sustainably increasing agricultural productivity contributing to food security; adapting and building resilience to climate change; and reducing greenhouse gas emissions while increasing carbon sequestration. Further understanding of the key barriers to realizing synergies and generating trade-offs between these pillars is required, also taking into account: i) the large diversity of agricultural and food systems, ii) the potential for leakage and for negative side-effects outside the system studied and iii) the risks for long-term maladaptation and for reduced resilience.
<i>Session L2.4 Breeding and protecting crops and livestock</i>	The adaptation of plant seeds and animal breeds to future climatic conditions requires the conservation of genetic diversity, targeted breeding approaches and the development of upstream biological sciences (genetics, physiology...). Crop and livestock species will face increased challenges from pests, pathogens, emerging and re-emerging diseases often associated to changes in the geographical distribution of both vector and host species. Presentations will focus on these challenges and on climate-smart breeding and health strategies.
<i>Session L2.5 Overcoming barriers: policies and institutional arrangements to support CSA</i>	Overcoming multiple barriers (e.g. risk aversion, knowledge and resource access gaps, low adaptive capacity, etc.) is required for developing adaptation and mitigation practices and contribute to food security. A better understanding of these barriers is needed and instruments for public policies, cutting across the land sector (agriculture, forestry and landscapes) could be developed. Presentations on barriers, governance, and policies (including trade

	and economics) related to climate change and addressing the multiple objectives of CSA are of particular interest.
PARALLEL SESSIONS 3	TOWARDS CLIMATE SMART SOLUTIONS
<i>Session L3.1 Climate adaptation and mitigation services</i>	Climate-smart agriculture requires the development of decision support tools, including climate services, mitigation and adaptation services for farmers and stakeholders. Such tools and services may involve the development of data bases, models, technologies (e.g. remote sensing, sensors) and participatory approaches. The session will focus on the development of these methods and on perspectives for integrating and upscaling tools while reducing uncertainties.
<i>Session L3.2 Climate- smart cropping systems</i>	Food systems encompass the production, transportation, retail and consumption of food. Climate friendly and climate safe food systems need to combine improved access and availability of food with adaptation and mitigation goals. Presentations will contribute to our understanding of emerging solutions in this area and how can they be scaled-up
<i>Session L3.3 Climate- smart livestock</i>	Livestock production contributes to a large fraction of agricultural GHG emissions, to food security and is vulnerable to climate change. Presentations will discuss the potential for climate-smart livestock systems.
<i>Session L3.4 Climate- smart landscapes, watersheds and territories</i>	Landscapes integrate agricultural and non-agricultural (e.g. forestry) components. Carbon mitigation and climate adaptation can be developed at the landscape scale (e.g. combining reduced deforestation, agro-forestry and integrated crop-livestock systems) and have strong interactions with the management of water resources. The session will address examples of landscape and watershed management and discuss the potential of integrated systems that could deliver ecosystem services in a sustainable way.
<i>Session L3.5 Investment opportunities and funding instruments</i>	The scaling-up of practices that potentially benefit development, food security and climate change adaptation and mitigation into sustainable agriculture development frameworks may require specific investments or changes in economic incentives, e.g. weather index based insurance systems, carbon markets, productive safety nets, debt finance loans, direct investment, grants and subsidies...These approaches will be presented and discussed during the session, as well as methods and case studies to answer the following questions for public and private investors: Where to invest in order to obtain the best leverage? What will be the impact of a given investment on the three pillars of CSA?
<i>Conclusion: Road map for Climate-Smart Agriculture research</i>	Building upon the findings of this conference, including the links to policy-making, how to coordinate research to better understand the impact of climate change on food security, in order to inform policy choices?