

# Concept Note

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## FAO Symposium on The Role of Agricultural Biotechnologies in Sustainable Food Systems and Nutrition Rome, 15-17 February 2016

### *Food insecurity, malnutrition and climate change*

About one out of every nine persons does not have enough food to eat, while far more are malnourished. FAO projections suggest that by 2050 agricultural production must increase by 60 percent globally and by almost 100 percent in developing countries in order to meet the increased food demands of a population of around nine billion people. This increase must be achieved against a backdrop of a degraded natural environment, decreasing availability of and competition for land and water and decreasing productivity of natural ecosystems. At the same time we are faced with the uncertainties of climate change, which has already significantly affected agriculture and will adversely affect food production in the future. Due to climate change, key variables such as temperature, rain patterns, water availability, frequency and intensity of ‘extreme events’, sea level rise and salinization, will all change and have profound impacts on the crop, livestock, forestry and fishery sectors<sup>1</sup>. Some of the countries and populations that are most affected by climate change are those that are already food insecure and malnourished.

### *From sustainable production intensification to sustainable food systems*

Given that approximately 80 percent of the projected increase in agricultural production in developing countries will need to come from land that is already under cultivation, FAO has worked towards programmes and approaches that promote sustainable production intensification. This in essence encourages the adoption of production practices which take advantage of natural ecosystem processes with the addition of best management practices and technologies. Overall, increasing the efficiency of resource use reduces costs to producers. It can also protect and enhance local agro-ecosystems and safeguard biodiversity by preventing damage arising from overuse of inputs or overexploitation of resources. More sustainable production practices can also result in economic, social as well as environmental benefits. A cross-sectoral approach that brings together crops, livestock, forestry, fisheries, nutrition, food/feed safety, trade and economics and legal issues also contributes to more resilient production systems.

Sustainably increasing production alone is not sufficient to meet the increased demand for food as up to 30 percent of food produced is either lost or wasted along the value chain. Losses result, *inter alia*, from limitations in harvesting techniques, storage, processing and packaging. In general, low-income countries experience higher levels of losses compared with medium- and higher-income countries where food waste is caused mainly by consumer behaviour and retail practices. For poor smallholder producers, physical losses result in a decreased availability of food contributing to food and nutrition insecurity. Loss of food quality may also cause reduced nutritional status, economic value and public health status (food safety).

In increasing the amount of food available there is a need then to consider “food systems” that include the producer along the full value chain to consumers. The five Strategic Objectives<sup>2</sup> that make up FAO’s strategic framework cover sustainable agricultural production, value chains, sustainable diets and ultimately sustainable food systems. The sustainable production intensification concept, as formalized for crop production in *Save and Grow*<sup>3</sup>, and for aquaculture in *Sustainable intensification of aquaculture for food and nutritional security in the Asia-Pacific region*<sup>4</sup>, provides a way to embrace the topic progressively from a production perspective.

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<sup>1</sup> FAO. 2013. Climate-Smart Agriculture Sourcebook. <http://www.fao.org/3/a-i3325e/index.html>

<sup>2</sup> In particular, Strategic Objectives 1, 2 and 4 - <http://www.fao.org/docrep/018/mg994e/mg994e.pdf>

<sup>3</sup> FAO. 2011. Save and Grow: A Policymaker’s Guide to the Sustainable Intensification of Smallholder Crop Production. <http://www.fao.org/ag/save-and-grow/>

<sup>4</sup> FAO. 2014. Information note for the 32<sup>nd</sup> session of the FAO Regional Conference for Asia and the Pacific. <http://www.fao.org/docrep/meeting/030/mj303e.pdf>

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### *The need for innovation*

Innovation happens when individuals and groups adopt new ideas, technologies or processes that, when successful, spread through communities and societies. The 2014 edition of FAO's State of Food and Agriculture<sup>5</sup> was dedicated to innovation in family farming. It underlined that innovation in family farming is urgently needed to lift farmers out of poverty and help the world achieve food security and sustainable agriculture.

The suite of technologies available to farmers for this purpose should be as broad as possible, including those used to improve water management in irrigated and rainfed production systems; save labour; reduce post-harvest losses; improve natural resource management, including conservation agriculture, increasing soil fertility and integrated pest management. The suite of technological options should also include agricultural biotechnologies<sup>6</sup>, and full consideration needs to be given to their potential role in moving to more sustainable food systems that ensure adequate nutrition and food safety.

The FAO international technical conference on Agricultural Biotechnologies in Developing Countries<sup>7</sup> (ABDC-10), *inter alia*, acknowledged that the various applications of agricultural biotechnologies have not been widely used in many developing countries, and have not sufficiently benefited smallholder farmers and producers and consumers; and that more research and development of agricultural biotechnologies should be focused on the needs of smallholder farmers and producers. FAO has also recently documented an extensive series of case studies where agricultural biotechnologies have been applied to serve the needs of smallholders in developing countries<sup>8</sup>.

### *Justification for a symposium*

The symposium provides an opportunity to better understand possible contributions of agricultural biotechnologies to sustainable food systems that provide safe and nutritious food, in the face of climate change. The symposium is proposed as a means to assemble and validate scientific information and best practices for agricultural biotechnologies to inform its member countries of:

- Scientific and technological developments especially in regard to the tools and options available;
- Managing the risks and benefits associated with their application including biosafety and food safety considerations;
- The environmental, social and economic dimensions;
- Data management and sharing mechanisms.

**OBJECTIVES:** Building on the outcome of the ABDC-10 conference, provide a neutral forum for a review of the benefits, risks, challenges and opportunities of agricultural biotechnologies and their contribution to more sustainable food systems and improved nutrition in the face of an increasing human population and climate change.

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<sup>5</sup> FAO. 2014. The State of Food and Agriculture: Innovation in family farming. <http://www.fao.org/publications/sofa/en/>

<sup>6</sup> Based on the definition of 'biotechnology' in Article 2 of the Convention on Biological Diversity, as "any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use", FAO considers the term 'agricultural biotechnologies' to encompass a broad range of technologies used in food and agriculture for a number of different purposes, such as the genetic improvement of plant varieties and animal populations to increase their yields or efficiency; the characterization and conservation of genetic resources for food and agriculture; plant or animal disease diagnosis; and vaccine development.

<sup>7</sup> FAO. 2011. Biotechnologies for Agricultural Development: Proceedings of the FAO international technical conference on "Agricultural Biotechnologies in Developing Countries: options and opportunities in crops, forestry, livestock, fisheries and agro-industry to face the challenges of food insecurity and climate change" (ABDC-10). <http://www.fao.org/docrep/014/i2300e/i2300e00.htm>

<sup>8</sup> FAO. 2013. Biotechnologies at Work for Smallholders: Case Studies from Developing Countries in Crops, Livestock and Fish. By J. Ruane, J.D. Dargie, C. Mba, P. Boettcher, H.P.S. Makkar, D.M. Bartley and A. Sonnino (eds.) <http://www.fao.org/docrep/018/i3403e/i3403e00.htm>

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**SCOPE OF THE SYMPOSIUM:** The symposium will take a multistakeholder, multisectoral and multidisciplinary approach to the use of agricultural biotechnologies, from production along the value chain to consumers. The Symposium will not be an intergovernmental meeting and will not produce a final declaration.

**TARGET AUDIENCE/PARTICIPANTS:** The target audience for the symposium will include government representatives and non-state actors (including non-governmental organizations, civil society organizations, academia, research and development institutes, the private sector, producers' organizations and cooperatives) in countries that are faced with the challenges of taking decisions regarding the application and use of agricultural biotechnologies in developing more sustainable and productive food systems.

Recognized experts will be invited to make presentations and to participate in Panel discussions. Overall the Symposium is expected to include up to 400 participants. A selection process will be defined by an Advisory Panel in coordination with FAO's Office for Partnerships, Advocacy and Capacity Development (OPC) to include participants from member countries, academia, civil society and the private sector.

**EXPECTED RESULTS:** Symposium proceedings, including a compilation of key presentations and other information materials. Increased recognition and visibility of FAO as a trusted convener of evidence-based discourse on agricultural biotechnologies and ultimately more informed discussions on the role of agricultural biotechnologies in developing more sustainable food systems in the face of the challenges of climate change.

**STRUCTURE:** The Symposium is scheduled to take place over two and one half days, from 15 to 17 February 2016. There will be two plenary sessions, with six invited keynote speakers, in the mornings of 15 and 16 February 2016. In the afternoon of 16 February, a high-level ministerial segment is planned. There will also be three parallel sessions, one for each main theme, per day and the symposium will close on 17 February 2016 with a final plenary where outcomes from the parallel sessions will be reported.

The tentative symposium structure is set out in Annex I.

**TASK FORCE (TF):** Composed of representatives from across FAO, the TF serves as the executive body of the Symposium. The TF is chaired by Mr. Ren Wang, Assistant Director General of the Agriculture and Consumer Protection Department under the direct guidance of the Deputy Director General Ms. Maria Helena Semedo. The TF is responsible for the development and delivery of the Symposium.

**ADVISORY PANEL (AP):** The AP will provide advice and guidance to the TF on the thematic areas and overall structure of the Symposium. Apart from one representative of the private sector and one of the civil society, AP Members will be invited in their personal capacity as recognized experts in their field.

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### Annex I: Structure of the Symposium (tentative)

It begins in the morning of Monday, 15 February and ends at lunchtime on Wednesday, 17 February 2016. There are 3 main themes for the Symposium:

- Climate change (CC);
- Sustainable food systems and nutrition (SFS/N); and
- People, policies, institutions and communities (PPIC)

Three parallel sessions will be dedicated to each main theme (thus a total of 9 parallel sessions). Note, specific rooms have not yet been decided for the different parallel sessions. Also, **the titles of the parallel sessions are not finalized and those provided below are only indicative.**

Session	Green Room	Red Room	Iran Room
<b><u>Monday 15 February</u></b>	9.30: FAO welcome address		
Opening Plenary Session 9.30-12.30	10.00-12.00: Keynote addresses (four)		
	12.00-12.30: Discussion		
<i>2 Side events<sup>9</sup>: 12.30-14</i>			
<u>First Set of Parallel Sessions</u>  14.00-17.00	Parallel Session 1 (CC): Facing the challenges of climate change: Adaptation in the crop and forestry sector	Parallel Session 2 (SFS/N): Improving productivity through enhanced resource use efficiency	Parallel Session 3 (PPIC): Ex post impacts of applying agricultural biotechnologies for smallholders
<i>Poster session launch<sup>10</sup>: 17.30-19.00</i>			
<b><u>Tuesday 16 February</u></b>	Keynote addresses (two)		
Plenary Session 9.00-10.00			
<u>Second Set of Parallel Sessions</u>  10.00-13.00	Parallel Session 4 (CC): Facing the challenges of climate change: Adaptation in the livestock and fishery sectors	Parallel Session 5 (SFS/N): Post production issues, including food safety	Parallel Session 6 (PPIC): Policies and instruments
<i>2 Side events<sup>11</sup>: 13-14.30</i>			
Plenary Session 14.30-17.30	High-level segment		
<i>1 Side event<sup>12</sup>: 17.30-19</i>			
<b><u>Wed 17 February</u></b>	Parallel Session 7 (CC): Mitigating the impacts of agriculture on climate change	Parallel Session 8 (SFS/N): Nutrition and food quality	Parallel Session 9 (PPIC): Capacities and investments
<u>Third Set of Parallel Sessions</u> 9.00-12.00			
Closing Plenary Session 12.30-14.00	12.30-13.50: Reporting of outcomes from the parallel sessions		
	13.50-14.00: Closing remarks		

<sup>9</sup> In the Iran Room and the Sheik Zayed Centre

<sup>10</sup> Library or Atrium

<sup>11</sup> In the Iran Room and the Sheik Zayed Centre

<sup>12</sup> Iraq Room