

Science Council of Japan Public Symposium

## **Food Security and Safety**

**—Potentials of agricultural biotechnologies for the improvement of  
yields and quality of food—**

### **Summary report**

Date: 9 (Sun) October 2016 from 13:00 to 17:30

Venue: Science Council of Japan

Hosting organizations: Subcommittee on Genetically Modified Crops, Science Council of Japan  
/ Kyoto University

Supporting organization : Council for Biotechnology Information Japan

## Contents

Contents.....	1
Summary.....	2
Acronyms .....	4
Background.....	5
Objective.....	5
Scope .....	5
Participants .....	6
Proceedings.....	7
Hosting organizations .....	8
Supporting organization .....	8
Contact.....	8

## Summary of the discussion

Public Symposium on Food Security and Safety - Potentials of agricultural biotechnologies for the improvement of yields and quality of food – was jointly organized by Subcommittee on Genetically Modified Crops, Science Council of Japan<sup>1</sup> and Kyoto University<sup>2</sup> in Tokyo on 9 October 2016. Council for Biotechnology Information Japan (CBIJ)<sup>3</sup> joined this event as a supporting organization.

Ryu Osugi (Executive member, Committee on Agriculture, Science Council of Japan) explained the background and objectives of the symposium in his opening remarks. He also introduced Science Council of Japan to the participants, saying that this is a representative organization of Japan for summarizing opinions from cultural/social/natural sciences and disseminating the relevant information both domestically and internationally. Next, Mbuli Charles Boliko (Director, Liaison Office in Japan, Food and Agriculture Organization of the United Nations (FLOJAO)<sup>4</sup>) stated that FAO believes elimination of world hunger and malnutrition is possible for achieving the Sustainable Development Goals (SGDs) and works for it.

Masami Takeuchi (Food Safety Officer, Agriculture and Consumer Protection Department, Food and Agriculture Organization of the United Nations (FAO)<sup>5</sup>) explained that ‘food safety’ is one of the most important pillars to achieve ‘food security’ and all the foods including Genetically Modified (GM) foods need to be evaluated on their safety. She stressed that information sharing on the results of safety assessment is crucial for preventing food crisis, indirectly though. Yasufumi Imai (Director, Council for Biotechnology Information Japan) and Satoshi Takashima (Deputy Director General, Food Safety and Consumer Affairs Bureau, Ministry of Agriculture, Forestry and Fisheries (MAFF)<sup>6</sup>) introduced the current status of GM crops and their related activities. Cultivation land for GM crops has been increasing and as of now it is estimated to be 180 million hectares. However, there are still many consumers who are worried about GM foods and thus, appropriate and sufficient communication and increase of social understanding need to be further addressed. Fumihiko Sato (Chair, Subcommittee on Genetically Modified Crops, Science Council of Japan) stated that Japanese plant science is at the world forefront, while applications of the research results have been limited to several species. In order for Japan’s technology to be expanded in a global scale, it is hoped that field experiments of GM crops are actually conducted. Masami Kojima (Newspaper reporter, Mainichi shinbun) pointed out that social understanding on GM crops has not been improved. To end this current status, it is important for individuals and groups who have the common goals to cooperatively set concrete action goals for the improvement of social acceptance and make efforts on these goals. Kosuke Shiraishi (PhD student, Graduate School of Agriculture<sup>7</sup> / Programme student, Graduate

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<sup>1</sup> Science Council of Japan: <http://www.scj.go.jp/en/>

<sup>2</sup> Kyoto University: <http://www.kyoto-u.ac.jp/en>

<sup>3</sup> Council for Biotechnology Information Japan: <http://cbijapan.com//index>

<sup>4</sup> Liaison Office in Japan, Food and Agriculture Organization of the United Nations: <http://coin.fao.org/cms/do/en/office.html?officeCode=LOJ>

<sup>5</sup> Food and Agriculture Organization of the United Nations: <http://www.fao.org/home/en/>

<sup>6</sup> Ministry of Agriculture, Forestry and Fisheries: <http://www.maff.go.jp/e/>

<sup>7</sup> Graduate School of Agriculture: <http://www.kais.kyoto-u.ac.jp/english/>

School of Advanced Leadership Studies<sup>8</sup>, Kyoto University) kicked off the panel discussion by sharing his internship experience at FAO. He stated that Japan's challenges on this topic are the internationalization of the relevant information and its dissemination. During the panel discussion, it was recognized that Japan's system of safety assessment on GM crops are advanced. It was also acknowledged that developers are expected to make sustainable crops that are easily accessible and beneficial to consumers. Prof Sato (facilitator) concluded the panel discussion by saying that he would share the discussing points with the member of Science Council of Japan and discuss how science technology should be developed and how those technologies could be used by Japanese citizens.

As closing remarks, Shuichi Kawai (Dean, Graduate School of Advanced Integrated Studies in Human Survivability, Kyoto University<sup>9</sup>) summarized discussions of the symposium and stated that he as a university professor would like to support researches on biotechnologies for the world's sustainable development. To obtain big supports from society for the achievement, improvement of the understanding on technological developments in Japanese society and effective and sufficient communication need to be further addressed.

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<sup>8</sup> Graduate School of Advanced Leadership Studies: <http://www.gsais.kyoto-u.ac.jp/sals/en/about/index.html>

<sup>9</sup> Graduate School of Advanced Integrated Studies in Human Survivability, Kyoto University: <http://www.gsais.kyoto-u.ac.jp/en-top/>

## **Acronyms**

CBIJ	Council for Biotechnology Information Japan
GM	Genetically Modified
GMO	Genetically Modified Organism
FAO	Food and Agriculture Organization of the United Nations
NPBT	New Plant Breeding Techniques
NPO	Non Profit Organization
SDGs	Sustainable Development Goals

## Background

World population is now more than 7.3 billion and the Food and Agriculture Organization of the United Nations (FAO)<sup>10</sup> estimates that about 795 million people, or one in nine, were suffering from chronic undernourishment in 2014-2016<sup>11</sup>. Furthermore, it is predicted that the effects of global climate change caused by the human activity are serious on food security<sup>12</sup>. We need urgent task force on food security and safety.

Whereas modern agriculture considerably improves the food production during the last several decades, we also face their environmental effects. Thus, we need more advanced agricultural systems for the sustainable production of food. Agricultural biotechnologies including genetic modification has great potentials for improving the yield and quality of crops. Whereas agricultural biotechnologies have provided large benefits in our daily life, there are many public debates to use agricultural biotechnologies on the biodiversity, ethical problems and the safety issues. Japan is one of the largest countries to import genetically modified (GM) crops and maintains very high research activities in agricultural biotechnologies. Those GM crops are authorized for food/feed use and cultivation after scientific risk/safety assessment under the related laws. However currently there is no field to grow them.

## Objective

The principal aim of this symposium is to promote discussion on the current and future situation of global food security and safety, on present status of application of agricultural biotechnologies, and on its potentials for food security and safety, and also what Japanese science and technologies can contribute to food security and safety since we are one of the largest consumers of agricultural biotechnological crops. To fulfill above goal, we invite stakeholders on this issue from an international organization (i.e, FAO), the government, academia, private industries as well as consumers to discuss how we challenge food security and safety in near future.

## Scope

The scope of the symposium is the science based and neutral discussion on the use of the agricultural biotechnologies, targeting the students being involved in the relevant research field and consumers. Other interested governmental officers and research experts in the area of biosafety are also welcome to join the event. Political factors related to the use of biotechnologies are excluded from the scope of the symposium since these issues should be addressed in another opportunity.

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<sup>10</sup> Food and Agriculture Organization of the United Nations. <http://www.fao.org/home/>

<sup>11</sup> FAO, IFAD and WFP. 2015. *The State of Food Insecurity in the World 2015. Meeting the 2015 international hunger targets: taking stock of uneven progress*. Rome, FAO. <http://www.fao.org/3/a-i4646e.pdf>

<sup>12</sup> FAO. 2008. *Climate change and food security: a framework document*. Rome, FAO. <http://www.fao.org/forestry/15538-079b31d45081fe9c3dbc6ff34de4807e4.pdf>

## Participants

Among 205 people registered, a total of 156 people actually participated in the symposium. Figure 1 shows the affiliation of the participants. 57 participants (37%) are from general public, 31 (20%) from industries, 30 (19%) from Universities, 14 (9%) from research institutions, 6 (4%) from the government, 5 (3%) from NPO and 3 (2%) from international organizations.

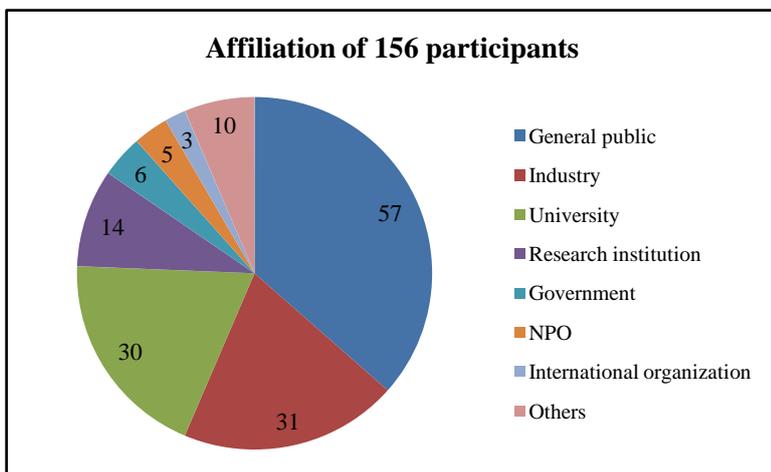


Figure 1. Affiliation of the participants  
Digits in the graph indicate the number of people in each group

Figure 2 shows the expertise of the participants. 43 participants (28%) are from general public. 36 people (23%) specialize in agriculture, 17 (11%) in environment, 15 (10%) in biotechnology, 13 (8%) in food, 5 (3%) in microbiology/cell biology, 3 (2%) in biosafety and 2 (1%) in health/sanitation.

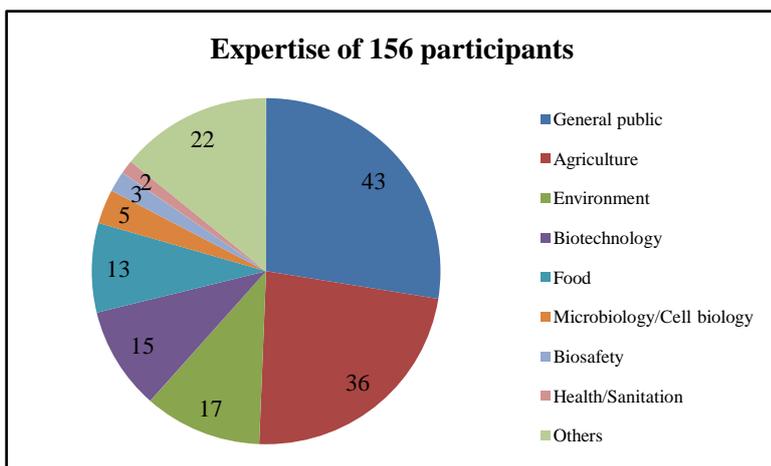


Figure 2. Expertise of the participants  
Digits in the graph indicate the number of people in each group

## Proceedings

- 13:00—13:10 House-keeping announcement  
Kosuke Shiraishi (PhD student, Graduate School of Agriculture / Programme student, Graduate School of Advanced Leadership Studies, Kyoto University)
- 13:10—13:25 Opening remarks  
Ryu Osugi (Executive member, Committee on Agriculture, Science Council of Japan)
- 13:25—13:35 Opening remarks from FAO liaison office in Japan (FAO LOJ)  
Mbuli Charles Boliko (Director, Liaison Office in Japan, Food and Agriculture Organization of the United Nations)
- 13:35—14:05 Key note speech  
Agricultural biotechnologies for food security: Is our food enough and safe in 2050?  
Masami Takeuchi (Food Safety Officer, Agriculture and Consumer Protection Department, Food and Agriculture Organization of the United Nations)
- 14:05—14:25 Report on industries' activities  
Yasufumi Imai (Director, Council for Biotechnology Information Japan)
- 14:25—14:45 Report on the governmental activities  
Satoshi Takashima (Deputy Director General, Food Safety and Consumer Affairs Bureau, Ministry of Agriculture, Forestry and Fisheries)
- 14:45—15:05 Report on academic activities  
Fumihiko Sato (Chair, Subcommittee on Genetically Modified Crops, Science Council of Japan)
- 15:05—15:25 Report on consumers' activities  
Masami Kojima (Newspaper reporter, Mainichi shinbun)
- 15:25—15:50 Questions
- 15:50—16:10 Break
- 16:10—17:10 Panel discussion
- Japan's challenges and social understanding towards GMOs
  - Contribution of Japan's science technology including new plant breeding techniques to the global food supplies
- Facilitator: Sato  
Panelists: Takeuchi, Imai, Takashima, Kojima  
Youth commentator: Shiraishi
- 17:10—17:20 Closing remarks  
Shuichi Kawai (Dean, Graduate School of Advanced Integrated Studies in Human Survivability, Kyoto University)

## Hosting organizations

### Subcommittee on Genetically Modified Crops, Science Council of Japan

Fumihiko Sato            Chair, Subcommittee on Genetically Modified Crops, Science Council of Japan  
Ryu Osugi                Executive member, Committee on Agriculture, Science Council of Japan

### Kyoto University

Shuichi Kawai            Dean, Graduate School of Advanced Integrated Studies in Human Survivability,  
Kyoto University (GSAIS)  
Yasuyoshi Sakai        Professor, Graduate School of Agriculture, Kyoto University (SGA)  
Yosuke Yamashiki      Professor, GSAIS, Kyoto University  
Kosuke Shiraishi        PhD student, SGA, Kyoto University  
Programme student, Graduate School of Advanced Leadership Studies, Kyoto  
University (GSALS)

### Supporting organization

#### CBIJ

Yasufumi Imai            Director, CBIJ  
Yukie Sasaki             Corporate Engagement Lead, Monsanto Japan Limited  
Rei Ozaki                 Biotechnology Affairs and Regulatory Representative, Du Pont Kabushiki  
kaisha  
Rieko Hatta               Senior Specialist, Regulatory and Stewardship, Seeds, Syngenta Japan K.K.

The present paper is translated and summarized personally by Kosuke Shiraishi (one of the organizers) using the original report on the symposium written in Japanese. The original report was prepared by the symposium secretariats based on presentations of the speakers, questioner and its answers from the speakers. Contact information for the report is as follows.

### Contact

Symposium secretariats

Kyoto University

Yosuke Yamashiki (Prof, GSAIS) • Kosuke Shiraishi (PhD student, GSA / Programme student, GSALS)

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HP for announcement <http://www.gsais.kyoto-u.ac.jp/blog/2016/07/13/20161009>

HP for report