

## JAPAN

### Subsidiary Body for Scientific and Technological Advice (SBSTA)

#### *Issues related to agriculture*

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Q1. What experience does your country have with the identification of adaptation measures in the context of agriculture?

Thank you co-chairs and good afternoon colleagues, I would like to take this opportunity to briefly share Japan's experiences in the identification of adaptation measures, taking into account the diversity of the agricultural systems.

In recent years, yield loss and lower quality in crops due to higher temperature and damages caused by record-breaking high temperature, heavy rain and heavy snow have been becoming factors that could threaten the basis of agricultural production and rural livelihood in Japan. In August last year, "MAFF Adaptation Plan (MAP)" was formulated, as a result of one and a half year of consideration, under which various measures, including impact assessments, R&D and policies measures are promoted under the strong cooperation between national and local governments.

The MAP provides for specific adaptation actions in crops for which impacts are already observed and socio-economic interest is greater, including rice and orchards.

#### (1) Paddy Rice

- lower grain quality due to higher temperature is already observed widely across the nation; yield loss is also reported in some specific areas and in extremely hot years
- under temperature rise by more than 3 degree Celsius, all regions except for some northern area are expected to experience yield loss; in some reports, rate of first-class quality rice is expected to decrease by 30% in mid-century and by 40% at the end of this century in Kyusyu region, if new better-adapted varieties are not introduced
- elevated CO2 conditions also will have impacts on both yields and quality of rice grain
- necessary adaptation measures include development of resistant varieties, development of breeding materials with resistance to high-temperature sterility, nutrition and water management practices better suited to higher temperature condition, and timely pest/disease control based on the output of early warning systems

#### (2) Orchards

- reported impacts include insufficient or delayed coloring of maturing-stage apple and grape fruits, peel puffing due to high temperature and frequent rains, and sun burn of fruits due to higher temperature and intense solar radiation in citrus unshu
- northward shift is expected in areas suitable for cultivation of citrus unshu and apple year by year

- necessary adaptation measures include mitigation of peel puffing in citrus unshu, prevention of sun burn of fruits through the use of light-shielding material, development of practices for reducing insufficient coloring or sun burn of apple fruits, development of new varieties, and shifting orchard lands to higher altitude areas

MAP is currently at the very first stage of its implementation, and the MAFF is developing various measures, including R&D on adaptation technologies, dissemination and support to farming communities engaging in adaptation measures. Preliminary result of the implementation of MAP suggests the importance of taking into account local contexts, precise impact assessment and projection and co-benefits.

#### (1) Local contexts

Japan's land covers a wide range of climatic zones from subarctic in the north to subtropical in the south, and accordingly farming systems differ widely across regions. So, national adaptation measures must take into account regional circumstances and promote actions by local entities.

For this reason, the MAFF;

- 1) publishes, every year, the reports on the observed farm-level impacts and adaptation measures taken, for the reference by extension-service officials and policy and administrative personnel of each layer of governments,
- 2) has launched a support program for local adaptation planning, through information sharing on local climate change impacts and adaptation measures, and
- 3) further promotes the support to farming communities for organizational structuring for local adaptation and verification of adaptation measures.

#### (2) Precise Impact Assessment/Projection

While impact assessment/projection is the foundation for appropriate adaptation planning, it entails a certain degree of uncertainty and such an uncertainty becomes greater as we focus more on specific regions in the geographical coverage or as we target nearer future in the time frame. The existence of such an uncertainty poses a challenge to adaptation planning, and might even create a risk of maladaptation.

Based on the "Guidance on Research Projects related to Climate Change and Agriculture", the MAFF has been engaging in fundamental reinforcement of impact assessment/projection, as the priority in climate change research.

#### (3) Co-benefits

Adaptation is a dynamic and mid- to long-term efforts according to the current projection and future observed changes, and often does not entail perceived immediate effects. Adaptation measures could be better adopted by farmers if they are connected to various co-benefits in terms of productivity, farmers' households and climate mitigation.

I will finish by reemphasizing that Japan is in a position to commit ourselves to further exchanges in scientific knowledges and policy experiences, including through the SBSTA

process on agriculture. In this regard, Japan is considering to organize a side event highlighting international research on climate change and agriculture, at the occasion of COP22.

Thank you.