
Aide memoire

<i>Session</i>	Session 5 – planning for a changing climate
<i>Title of presentation</i>	Global models and scenarios for agriculture, biodiversity and climate
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Abstract

There are considerable opportunities for strong synergies between food production, climate mitigation, climate adaptation and promotion of biodiversity in agricultural ecosystems. However, current trends in agricultural practices are projected to lead to greatly increased land area used for agriculture and pollution making agriculture the principal driver of terrestrial biodiversity loss over the next decades. In addition, opportunities for greatly improving the capacity of agricultural ecosystems to mitigate and adapt to climate using nature-based solutions are underexploited. Global scale models and scenarios can provide insights into non-sustainable and sustainable trajectories in agricultural practices, and more broadly food systems, and to identify interventions that would provide the greatest benefits and synergies. This presentation will focus on updates of work carried out for the Global Biodiversity Outlook 4 and reports recently prepared for the CBD on the relationships between biodiversity and climate.

Key considerations

- Sustainable agricultural practices, including promoting soil carbon sequestration, could also potentially contribute to climate mitigation while reducing direct and indirect impacts on biodiversity (Aichi Target 7).
- Reductions of greenhouse gas emissions from agricultural systems of 0.3 to 1.2 PgC/yr could be achieved in the near future through measures including conservation tillage, use of biochar additions to some types of soils, improved fertilizer and water management and mitigation of non-CO₂ emissions especially methane from rice paddies and livestock.
- Sustainable and healthy diets could reduce global greenhouse gas emissions by the equivalent of ca. 0.3 to 0.6 PgC/yr compared to current trends, while also reducing disease (diabetes, cancer and coronary disease) and mortality. Healthy diets are also projected to greatly reduce expansion of cropland area to feed a growing global population and substantially reduce loss of biodiversity.
- A third of food is currently lost due to spoilage and waste. Processing losses are estimated to be 0.06 PgC/yr and food waste losses 0.08 PgC/yr: decreasing these losses would reduce the need to expand cropland area.

Key discussion points and conclusions

- There are plausible scenarios in which biodiversity protection, climate mitigation and feeding a growing population are broadly met simultaneously. The climate and biodiversity scientific communities will be working closely together to further explore these scenarios of sustainable futures.