What are the issues around current farming methods?

- In recent decades, the agricultural sector has significantly increased productivity and drastically reduced the number of food insecure people worldwide, but with high costs to nature.
- In many parts of the world, intensification and expansion of agriculture has degraded soils and ecosystems, depleted water sources and reduced biodiversity. As a result, farmers often have no choice but to search for new land to work or to use soil as a substrate with massive synthetic inputs.
- Overuse of inputs is harming the long-term viability of farming, because it damages soils, reduces biodiversity and ultimately impairs our capacity to feed the world’s growing population. According to FAO, more than 25% of arable soils worldwide are degraded, and the equivalent of a soccer pitch of soil is eroded every five seconds.
- Average yields have increased up to the 1990s, but have been stagnating and even decreasing in some parts of the world since.
- Future demand for food will increase as the human population grows, and the environmental footprint of agriculture is expected to increase with it. This demand must be satisfied under changing climatic conditions, which will affect the quality and quantity of agricultural produce (Ebi and Loladze, 2019).

Why should farmers and conservationists work together to conserve soil biodiversity?

- Conserving soil biodiversity through sustainable farming methods can improve agricultural land health and productivity.
  - Improved soil biodiversity is closely correlated with an increase in carbon stored in the soil. Soils rich in carbon are healthier and more productive; they can store more water and are more resistant to erosion. They also require less inorganic fertilisers.
  - The global production of three of the most important food crops – maize, wheat and rice – could increase by up to 23.4%, 22.9% and 41.9% respectively between 2020 and 2050 if organic carbon in all the world’s agricultural soils were to increase by 0.4% annually thanks to enhanced soil biodiversity. This increase in productivity has an estimated value of US$ 135.2 Billion per year.
  - The potential productivity increases differ by region but would be highest in developing countries, helping to increase food security, reduce the need for inorganic fertilisers and offset the demand for further conversion of natural habitats for agriculture.
- Conserving soil biodiversity brings important benefits for society.
  - An annual increase of 0.4% of organic carbon stored in the world’s agricultural soils would sequester an additional 1 GtC per year on average – enough to offset the projected yearly increase in human-induced carbon emissions worldwide. The avoided social cost implied over the 2020-2050 time horizon is in the order of 600 Billion US$ per year in present value terms.
  - The 0.4% increase in organic carbon content in agricultural soils would enhance their capacity to store water by up to 37 billion m3, thereby reducing the need for irrigation and potentially saving costs of US$44 Billion per year.

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1 The parameter of a 0.4% increase in organic carbon was selected in relation to the quatre pour mille initiative (“four per thousand”), launched by the French government in 2016. This initiative aims to increase soil organic carbon annually by 0.4% of its current stock within the first 30-40 cm of soil, through the implementation of economically viable and environmentally sound agronomic practices.
What can be done to drive the transition to sustainable agriculture?

Steps that farmers, policy makers, government agencies and private companies can take include:

1. **Prioritise soil and landscape biodiversity for food and nature**
   - ambitious targets for land health adopted by the agriculture sector

2. **Wide adoption of agro-ecological approaches for managing agricultural landscapes**
   - agro-ecological approaches amplified and integrated into all relevant policies, instruments and institutions.

3. **Establish targets and indicators at national and global levels for sustainable agriculture**
   - targets aimed at achieving a net positive impact from agriculture on key biodiversity indicators by 2030, in particular related to stabilised land area, increase in biodiversity in agricultural landscapes, and reduced pollution and greenhouse gas emissions.

4. **Reward farmers for ecosystem services provided through sustainable farming**
   - Vast benefits of ecosystem services from agricultural land to society - related to food production, water, climate and nature - hold one key to incentivising sustainable agriculture.

5. **Promote change throughout the global food system to enhance sustainability**
   - national and international policy convergence to connect soils and land health with sustainable and healthy diets
   - public subsidies and private funding to be redirected from conventional to more sustainable agriculture, also helping meet public health objectives

6. **Build consensus on environmental stewardship in the agricultural sector**
   - improved dialogue between the agriculture and the conservation sectors, including more awareness of the value of biodiverse soils for farmers and of the conservation value of sustainable agriculture.

Can sustainable agriculture really meet global food demand – especially at a time of growing concerns over food insecurity in the context of the COVID-19 pandemic?

- Yes. The **total global food production currently exceeds what is required to ensure food security**. The current challenge is not total production but inequality in food distribution combined with over-consumption (HLPE, 2017). The transition to sustainable agriculture can have a negative short-term impact on yields before they recover. However, this impact can be compensated by measures that reduce the amount of food (and farmland) required, e.g. by minimizing losses and wastes along the supply chain (currently as much as 1/3 of the food produced), and by a global adoption of more sustainable diets.

- **Sustainable agriculture is generally more profitable for small-scale farmers** because the input costs (fertiliser, irrigation, etc.) are significantly smaller. This improves their food security as it makes it easier for them to buy needed supplies.

- The most pressing short-term concern in most countries in the wake of the COVID-19 pandemic is related to logistics, i.e. the processing and transport of food and the ability of the supply chain to function properly.

Can the adoption of sustainable farming methods help address other issues related to the pandemic – e.g. food self-sufficiency, concerns around intensive livestock farming…?

- Sustainable farming practices contribute to addressing concerns around intensive farming, especially improving animal welfare (e.g. through smaller herd sizes and outdoor holding), reducing threats for human health (less use of agrochemicals and reduced risk of zoonotic diseases emerging) due to the increased diversity in crops and species.
• Improving soil and land health will in the long run help reduce farmers’ vulnerability to increased climate change impacts (increase in temperatures and extreme event mostly: droughts, floods, pests…)
• More sustainable farming should reduce the area of natural ecosystems (e.g. forests) that are converted into farmland, and therefore reduce contacts between humans and wildlife and thus the risk of pathogens crossing the species barrier.