SUSTAINABLE AGRICULTURAL PRACTICES

World Agriculture Forum Working Group 1 – Terms of Reference

The global agriculture sector faces immense challenges as it contends with the need to feed and nourish a growing population amid climate change, shrinking resources of land and water, degrading soil quality, and significant food losses and waste. Addressing these issues requires a fundamental shift in approach, as the current agricultural systems are unable to sustainably feed an estimated 9 billion people by 2050 while preserving the environment and also providing fair livelihoods for farmers. The global agricultural system needs to support a robust agribusiness and trade ecosystem, while also protecting nature and biodiversity, which is essential for planetary and human health. In much of the developed world, as well as in parts of Asia or Latin America, agriculture has undergone a profound metamorphosis from subsistence-based practices to dynamic economic powerhouses. Nonetheless, this progress has not been uniform or consistent, and much remains to be done, especially in Africa. In recent decades, scientific advances in seeds and fertilizers, globalization and technological advancements have accelerated this evolution, driving agriculture toward unprecedented innovation and precision, at least in some countries and for some crops.

This Working Group formed under the aegis of the World Agriculture Forum will address the various interconnected dimensions of sustainable agriculture and ecological best practices for production centered around scientific evidence and innovation in the field, producing robust position papers to inform decision making across sectors.

Agriculture, producing the world's food whether on land or in the water, through crops, animals, fish and other sources, is intrinsically linked to sustainable development and economic growth:

- Agriculture is responsible for an estimated 1/3 of greenhouse gas emissions and is a major stress on the planet's water resources and biodiversity. In turn, increasing average temperatures and extreme weather events such as floods, droughts and hurricanes have made the adoption of more resilient crops and farming practices more urgent than ever.
- 80% of people who face the highest levels of hunger are those involved in farming, livestock and fishing, and vulnerable populations including women and children. Agriculture is a humanitarian lifeline.
- Growth in the agriculture sector is two to four times more effective in raising incomes among the poorest than other sectors.

- Agriculture is crucial to economic growth:in 2023, it accounted for 4.1 percent of global gross domestic product (GDP), and in some developing countries, it can account for more than 25% of GDP.

At the international level there is a clear call for more sustainable practices that will allow increased yields and earnings for the farmers, while concomitantly less deforestation and biodiversity loss, lower water usage, pollution, and soil degradation and contamination. Precision agriculture and the optimization of inputs, adapted to and appropriately used by small and large-scale producers, could lead to sustainable intensification and more efficient use of resources.

There are many innovations in agricultural methods: mechanization and artificial intelligence (AI) applications, plant breeding, varieties that use less water and are more resistant to temperature variations; more environmentally-friendly pest and disease control; vertical farms, hydroponics in the deserts and urban agriculture; or the so-called climate smart agriculture. Also increasing global development debates that center around climate change adaptation and mitigation as well as biodiversity conservation which have brought to the fore concepts such as agroecology or regenerative farming, need further definition and clarity in scope and applicability.

There are clear trade-offs to be considered in terms of costs and benefits, for everyone involved along the whole value chain, in the short, medium and long term. There is no silver bullet.

Through this Working Group, the World Agriculture Forum aims to tackle these challenges head-on and take a leading role in defining a clearer, operational framework for sustainable agriculture.

Specific topics to consider that address the environmental, social, and economic aspects of sustainability can include, among others:

1. ***Soil Health and Management***
   Practices for improving soil fertility and reducing erosion
   Methods including crop rotation, cover cropping, and reduced tillage
   Soil carbon sequestration to combat climate change
2. ***Technology and Precision Agriculture***[1]
   Use of technology (e.g., remote sensing, drones, sensors, and data analytics) to optimize inputs
   Digital tools for monitoring soil health, water use, pests and diseases and crop productivity, as well as to contribute to crop insurance initiatives
   Automation and robotics to reduce labor and improve efficiency which may need to be linked to consolidation of land holdings e.g. small farm large field initiatives to assure economies of scale.
   Science based technologies to both increase productivity and protect the environment

[1] There will be a separate WG on Digital and AI applications in agriculture.

3. ***Water Conservation and Management***
    - Efficient irrigation systems and techniques, such as drip irrigation
    - Water recycling and rainwater harvesting
    - Protecting watersheds and reducing runoff and pollution
    - Water rights
4. ***Biodiversity and Ecosystem Health***
    - Pollinator health and natural habitats around farms
    - Integrated Pest Management (IPM) to reduce reliance on chemical pesticides
    - Crop diversity and resilient crop varieties to enhance biodiversity and to manage diseases
5. ***Carbon Emissions Reduction and Climate Adaptation***
    - Strategies to reduce greenhouse gas emissions (e.g., methane, nitrous oxide)
    - Carbon offset programs and regenerative practices such as agroforestry
    - Climate adaptation methods for handling the changing climate and extreme weather events
6. ***Agroecology and Regenerative Agriculture***
    - Streamlining definitions to take account of numerous global initiatives and the understanding that there is no single solution
    - Reviewing regenerative practices that can produce sufficient food while maintaining or restoring ecosystems
    - Case studies and examples of successful regenerative agriculture models and the corresponding regulatory framework
7. ***Nutrient Management and Fertilizer Use***
    - Techniques for optimizing nutrient use efficiency (e.g., slow-release fertilizers, targeted application)
    - Alternative sources of nutrients, including organic fertilizers and biofertilizers
    - Addressing nutrient runoff and pollution to protect waterways and human and animal health
8. ***Social and Economic Sustainability***
    - Fair labor practices, rural development, and producer well-being
    - Market incentives and policy recommendations to support sustainable agricultural production
    - Economic viability of sustainable practices and access to resources
9. ***Policy, Regulation, and Market Incentives***
    - Policies supporting sustainable agriculture, policies on inputs, carbon credits, and subsidies
    - Certification programs for organic, low input or sustainable farming
    - Opportunities for novel technologies such as gene editing
    - Consumer awareness initiatives to promote demand for sustainable products
10. ***Global Challenges and Collaborative Solutions***
    - Addressing global issues such as food and nutrition security, desertification, and deforestation
    - Strategies for addressing challenges in different eco-regional or geographical contexts.
    - International collaboration for knowledge exchange and technology transfer

These topics form a broad, interdisciplinary yet interconnected framework for the working group to develop actionable insights and recommendations on sustainable agricultural practices. These may be eco-regionally or geographically targeted, and may be tailored to specific regional challenges, with a focus on collaboration between researchers, policymakers, agribusiness leaders and farmers, which will enrich the knowledge products and insights of the Working Group.

Members of the World Agriculture Forum Council will be invited to join the Working Group along with other relevant experts. The Working Group will identify a Chair to lead the Working Group and a member of the World Agriculture Forum Secretariat will assist with coordination, planning meetings, peer reviews, publication of the various outputs and dissemination through high level events, interviews etc. Working Groups may also be called upon to assist with the preparation of specific fundraising proposals in line with their thematic focus. Each Working Groups will provide reports to the World Agriculture Forum periodically and will lead a stream of events at the annual World Agriculture Summit.