SUSTAINABLE FOOD SYSTEMS

Building sustainable food systems requires work in all three dimensions of sustainable development: social, economic, and environmental.

- Sustainable food systems support the economic viability of producers, healthy diets, equitable livelihoods, conserve natural resource conservation, and climate change mitigation and adaptation.
- One of the most powerful approaches for enhancing sustainability is improving the productivity and efficiency of agriculture.
- Sustainable productivity growth, or producing more with less resources – less land, less water, fewer inputs – is critical for meeting the world's food needs, shrinking agriculture's environmental impact, and improving the livelihoods and wellbeing of farmers, fishers, and ranchers.
- More efficient use of resources reduces the environmental impact of agriculture and lowers costs for producers and consumers.
- Sustainable agricultural practices – no or low-till agriculture, cover crops, precision agriculture, perennial crops, agroforestry, and integrated pest management – build soil health, protect biodiversity, and reduce agriculture's GHG footprint.
- Sustainable agricultural development supports and promotes approaches that reduce, recover, recycle, and repurpose agricultural byproducts, including development of new value-added bio-based products.
- Global food systems contribute up to one third of emissions resulting from human activity. Climate-smart agriculture and forestry practices can help adapt to and mitigate climate change in ways that build strong communities and markets.

"We envision a renewed food system in which food is recognized as one of the most important ways to promote health and protect our bodies from disease, and where food production is recognized as a key means to build our economies, conserve and restore our working lands, and ensure robust ecosystem services."

U.S. Agriculture Secretary Tom Vilsack
Chicago Council Global Food Security Symposium – May 11, 2021

- Preventing and reducing food loss and waste are critical to addressing the climate crisis; nearly 8 percent of all greenhouse gas emissions come from food loss and waste. In fact, if food loss and waste were a country, it would be the world's third largest emitter of greenhouse gases.
- Achieving goals on more sustainable agricultural production will require scaling up conservation and innovation.
- Sustainability efforts must be evaluated against measurable outcomes: food and nutrition security, affordability, and accessibility; producer and food system workers' income and wellbeing; and environmental indicators.

Sustainability means balancing social, economic, and environmental dimensions for resilient and sustainable food systems.

Cactus pear: Nature's 'green gold' for improving farmer livelihoods. Cactus crops are gaining increasing interest across the globe, in particular cactus pear (Opuntia ficus indica), because of its unique characteristics, which provide resilience to climate change impacts and population pressures. Cactus pear can grow on land where no other crops are able to grow; and it can be used to restore degraded land. The Green Gold moniker derives from its ability to grow well in arid and semi-arid conditions, even under increasingly harsh conditions due to climate change. Farmers can cultivate the fruit as an income generating activity that also provides nutrition for livestock and humans alike. Cactus pear offers a high nutritional value rich in carbohydrates, amino acids, vitamins, and water, as well as health benefits by reducing cholesterol and triglyceride levels. As a hardy, quality fruit for human consumption with minimal agronomic inputs, it is ideal for low-income rural communities in dry areas.

https://www.cgiar.org/innovations/cactus-pear-natures-green-gold-for-better-farmer-livelihoods/
Photo by: Sawsan Hassan

https://www.cimmyt.org/news/happy-seeder-can-reduce-air-pollution-and-greenhouse-gas-emissions-while-making-profits-for-farmers/
Photo by: Dakshinamurthy Vedachalam

"Happy Seeder" can reduce air pollution and greenhouse gas emissions while making profits for farmers. The Happy Seeder is a tractor-mounted machine that cuts and lifts rice straw, sows wheat into the soil, and deposits the straw over the sown area as mulch. Data from usage in India indicates that using the Happy Seeder agriculture technology to manage rice residue when fields are transitioned to wheat has the potential of generating roughly 20 percent more profits per hectare for the average farmer. It also reduces the environmental footprint of traditional rice residue field burning, reducing air pollution and greenhouse gas emissions per hectare by more than 78 percent. Residue burning has enormous impacts on human health, soil health, the economy, and climate change.

Cereal Systems Partnership for enhanced efficiency and productivity in Bangladesh. Promoting a combination of improved varieties, better cropping practices, conservation agriculture techniques and institutional change, The International Maize and Wheat Improvement Center (CIMMYT) works through several projects to help farmers in South Asia grow more crops using the resources available to them, creating more income for their families and laying the basis for food security in this fast-growing region. The Cereal Systems Initiative for South Asia mechanization and irrigation project in Bangladesh (CSISA-MI) seeks to transform agriculture in southern Bangladesh by unlocking the potential productivity of the region's farmers during the dry season through surface water irrigation, efficient agricultural machinery, and local service provision. CSISA-MI is a partnership between CIMMYT and International Development Entrprises under the USAID Feed the Future Initiative.

https://csisa.org/csisa-mi/