Climate change is undermining all four dimensions of food security – availability, access, utilization and stability.

Reducing greenhouse gas (GHG) emissions in agriculture requires multiple actions, including more sustainable diets, measures to reduce deforestation, and the application of climate-smart agriculture practices and policies.

Agricultural trade could support climate change mitigation efforts and contribute to reducing global greenhouse gas (GHG) emissions from agriculture.

**Climate change and food security**

Climate change is putting at risk all four dimensions of food security – food availability, access, utilization, and stability. In particular, it affects vulnerable countries by threatening their food production capacity (FAO, 2018).

Urgent actions are therefore needed to transform agrifood systems to effectively support agricultural development and ensure food security in the context of a changing climate. In this regard, climate-smart agriculture (CSA) approaches aim at sustainably increasing agricultural productivity and incomes, adapting and building resilience to climate change, and reducing and/or avoiding greenhouse gas (GHG) emissions, where possible.

CSA addresses the trade-offs between food security and climate objectives. On the one hand, agriculture has to increase production to provide sufficient, safe and nutritious food to meet the demand of a growing global population. On the other hand, there is a pressing need for the sector to reduce its GHG emissions, and as increased production and agrifood trade are likely to increase them globally, policies should promote technologies with low emissions per unit of output produced and transported and, thus, contribute to climate change mitigation.

**Climate mitigation measures in agriculture and trade**

The measures used to combat climate change will be part of a broader set of land use, agriculture, and food policies. Shifts in diets, reducing food loss and waste, increasing agricultural productivity sustainably and reforestation all play a role in reversing the effects of agriculture on climate. Trade measures are sometimes used to generate incentives to reduce the carbon footprint of agricultural production, and these are subject to the rules and disciplines under the World Trade Organization (WTO).

**Subsidies that promote Climate-Smart Agriculture:** appropriate incentives can encourage farmers to take on climate-smart practices. For example, payments for environmental and ecosystems services designed to promote the adoption of practices that reduce emissions or encourage carbon sequestration could be implemented.

**Carbon taxes:** GHG emissions by agriculture could be addressed through taxation. Carbon taxes directly tackle the failure of the market to take the social costs of climate change into account. However, at the same time, a unilateral action to impose a carbon tax on food could put the country implementing such measure at a competitive disadvantage in global markets.

The carbon tax may result in carbon leakage – the displacement of lower carbon footprint domestic food by cheaper and higher carbon footprint imports from countries that do not take similar measures to reduce emissions. This could result in income losses for domestic producers and an increase in emissions globally.

Border Tax Adjustments (BTAs) based on carbon footprint could help trade contribute to mitigation efforts. Adjusting for the carbon tax means that the same rate applying to the carbon footprint of domestic products would be applied to imports. In this case, low-emitting suppliers would face a low tax and would be able to compete with domestic products, while high-emitting suppliers would face a high tax, which could potentially make them less competitive.

**Carbon labelling:** shaping consumer preferences towards agricultural and food products that are produced though
low-emitting methods could provide effective incentives for agriculture to further contribute towards climate change mitigation efforts. Product standards and labelling have supported the creation of a market for organic and fair-trade food products, and carbon labelling could contribute to reduced GHG emissions, given that the related requirements do not discriminate against imports.

Trade and mitigation: the challenges ahead

Measures such as carbon taxes and carbon footprint labelling can provide the necessary incentives to allocate production globally in line with both economic and GHG emission efficiency. This would promote production and trade of food products that use relatively fewer resources and have a low carbon footprint, thus addressing the trade-off between food security and GHG emissions targets. However, calculating emissions generated by food products is challenging at a technical level, and could also open the possibility for protectionist measures.

Although measuring the carbon footprint of food is methodologically challenging, policymakers will need to discuss how trade agreements could be supportive of such market-based solutions to climate change mitigation. International consensus on how to define and calculate carbon footprint, as well as on policy measures to facilitate trade in footprint products that are low in emissions will yield positive outcomes.

Actions to address key challenges:

- Encourage countries to apply a wide array of measures leading to climate change mitigation in agriculture necessary to meet climate targets, including providing incentives to farmers and formulating trade policies that are conducive to reducing GHG emissions.

- Support efforts for the estimation of the direct emissions involved in the production of food and the calculation of carbon footprint.

- Initiate discussions on appropriate measures to facilitate trade in low-carbon footprint products.

References