Our Public Policy Position:

Syngenta and climate change

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Introduction

Climate change is one of the largest obstacles facing today's food systems. Changes to temperature, as well as to the frequency and severity of extreme weather events, are already hampering crop yields and productivity around the world.[1] These effects are compounded by the increasingly warm and wet climates that many growers are working in, allowing weeds, pests, and fungal diseases in crops to thrive. Even the nutritional values of major food crops are affected by increasing CO_2 levels, having potentially harmful implications to human health and development.[2]

Agriculture and land use change are also significant contributors to climate change – in total being responsible for at least 23 percent of all man-made greenhouse gas emissions.[3] Much of this relates to land clearance and deforestation to expand agriculture; however, direct emissions of carbon dioxide, methane, and nitrogen from agriculture, form approximately half of this, at around 10-12 percent of all emissions.[4]

What can be done?

Syngenta is committed to helping farmers adopt sustainable agricultural practices to mitigate climate change and provide safe and nutritious food for a growing population. Through our solutions, digital services, and our network of partnerships, our work is helping farmers to address global challenges like climate change, empowering them to reduce their impact while remaining viable and productive.

While global populations continue to increase, food production systems need to produce more, more efficiently, in ways that protect the environment. This is both imperative and – using sustainable agricultural management practices – possible.

With the right knowledge, practices, and technologies, farmers can play an important role in tackling climate change, helping not only to mitigate carbon emissions from agriculture, but also sequestering more carbon into the soil. By supporting this, our food and agriculture systems could one day be able to remove more greenhouse gases from the atmosphere than they place into it.

As a world leader in food and agriculture at the forefront of research in sustainability, Syngenta is well-placed to help farmers employ the climate-friendly and productive practices needed to accomplish this.

The Good Growth Plan

Since 2013, we have measured our impact on sustainable agriculture through **The Good Growth Plan**. Our six commitments, set to be fulfilled by 2020, seek to empower global food systems to contribute to the

[1] Ray *et al*. (2019).
[2] Zhu *et al*. (2018)
[3] IPCC (2019).
[4] Smith *et al.* (2014)

UN Sustainable Development Goals (SDGs), including SDG 13: "*Climate action*". In this, our targets to *make crops more efficient* and *rescue more farmland* are especially relevant.

By *making crops more efficient*, we committed to increasing the average productivity of major crops by 20 percent, without using more land, water, or inputs. By applying advanced genetics, pest-resistance traits, and cutting-edge crop protection solutions, we have helped farmers increase the productivity of benefitted land by an average of 13 percent over our 2014 baseline.[5] We were able to measure this using our network of 1,443 reference farms, which grow 20 different crops across 39 countries. With increased yield, we are in turn enhancing the use-efficiency of the resources involved on a per unit output basis, meaning that the same amounts of land, energy, water, and nutrients, can produce more food, fuel, and fiber than before.

As part of this commitment, we started reporting the greenhouse gas footprint of the land benefitted by this commitment in 2017. As of 2018, our reference farm network showed an average greenhouse gas efficiency 8.8 percent higher than the 2014 baseline. Averaged over the five years of monitoring, 69 percent of our reference farms have outperformed our benchmark farms in terms of greenhouse gas efficiency.

Under our ambition to *rescue more farmland*, we have helped to save over 10.8 million hectares of farmland on the brink of degradation. As an integral part of this project, we have been encouraging and training conservation agriculture practices that reduce greenhouse gas emissions and increase carbon sequestration in the soil.

Revitalizing 2 million hectares of farmland in China

In China, we made a commitment to enhance soil health and fertility on at least 2 million hectares of farmland by 2023, an area representing around 2 percent of all farmland in the country. To do this, we are promoting simple solutions that are well-suited for the local environment and easy for farmers to adopt, including conservation tillage and cover cropping.

Along with these practices, we are working to encourage the incorporation of straw and crop residues into the soil to improve organic matter content. Not only does this improving the balance of nutrients and minerals in the soil, helping to improve crop productivity, but these methods help reduce greenhouse gas emissions and encourage carbon sequestration, turning the land into a net carbon sink.

Our commitment to *help biodiversity flourish* has given us further opportunity to improve carbon footprints in agriculture, having supported farmers to utilize marginal or less productive areas of their land to improve local biodiversity. We have been employing and encouraging the use of Multifunctional Field Margins serve as ideal locations to reintroduce and conserve wildlife, absorb surrounding air pollution, and sequester

[5] Syngenta (2019).

carbon from the atmosphere.[6] So far, upwards of 6.4 million hectares of farmland have benefitted from this commitment, exceeding our original target of 5 million by over 27 percent.

Global engagements to tackle climate change

Syngenta has been engaging in a range of collective efforts around the world, aiming to empower our food and agriculture systems to achieve carbon-neutrality and meet the 2°C target set by the Paris Agreement.

In 2018, Syngenta became a founding member of the Climate Smart Agriculture (CSA) 100 project, which brings together 100 leading food and agribusiness companies to make a measurable science-based commitment against climate change. The pillars of the project: productivity, resilience, and the mitigation of greenhouse gas emissions, form core components of our Principles for Sustainable and Responsible Agriculture, which describe our approach to empowering farmers and supporting the development of agricultural systems that function within planetary boundaries, and promote the rights, health, and well-being of all.

Along with the World Business Council for Sustainable Development, the World Economic Forum, and the Global Alliance for Climate Smart Agriculture, among others on CSA. Our joint aim is to reach interested and relevant stakeholders, develop policy advocacy and promote CSA approaches throughout entire food value chains.

Earlier in 2019, we also began a new partnership with The Nature Conservancy (TNC) designed to bring *Innovation for Nature*. Our collaboration brings together Syngenta's research and development capabilities and TNC's scientific and conservation expertise to scale up sustainable agricultural practices. This has already enabled us to expand our global efforts on sustainable agriculture, giving us the opportunity to apply and test innovative new techniques to enhance soil health, protect natural habitats, and enhance carbon sequestration in agriculture.

Syngenta and The Nature Conservancy against climate change

Syngenta and the TNC have been running projects around the world to encourage sustainable agricultural practices and protect native habitats. In Brazil, we began working to support the protection and restoration of forested areas in agricultural regions as far back as 2007, with a project to map rural soybean production in the state of Mato Grosso. In 2009, we came together once more to form the Soja+Verde project (Soy+Green), and we have since been expanding our efforts towards rejuvenating degraded soils on land used as pasture.

This year, we joined efforts to encourage and empower the use of climate-friendly conservation agriculture practices in the United States, with America's Conservation Ag Movement (ACAM). ACAM is an awareness and education program formed in collaboration with the US Department of Agriculture, NGOs, and a number of leading food and agriculture businesses, representing one of the largest public-private

[6] Arcadis, Bioversity International, and Syngenta (2018).

partnerships in history. As part of our contribution, Syngenta will be offering an entry level assessment tool along with its advanced precision and digital technology of AgriEdge, to help farmers assess their conservation practices and scope areas for improvement in their farm operations.

Enabling all farmers

Syngenta develops advanced solutions to the benefit of all farms and farmers. The commercial offering of our Crop Protection and Seeds businesses plays a large part in improving the productivity and efficiency of tens of millions of farms around the world, allowing farms to remain viable and achieve more without having to rely on increasingly scarce natural resources. With this technology available, the total area of arable land under cultivation no longer needs to increase to produce more food, for more people, helping to avoid emissions from deforestation and land conversion.

This is why we have been training farmers to apply conservation agriculture practices, helping them to improve soil fertility, yield, and reduce greenhouse gas emissions.

Farmers need solutions that will keep their crops safe from pests and disease, while at same time having improved resilience to extreme weather and changing conditions. Our products help to meet these needs, and we are focused on using our innovation, across areas including bio-controls and genome editing, to make this possible.

Digital solutions are also increasingly important to farmers, enabling them to gather the data and insight needed to make informed crop management decisions. In the field, we are developing solutions that build on precision agriculture technologies like drones and sensors, soil testing, efficient irrigation, and GPS-enabled machinery, to give farmers an integrated approach to production that is capable of reducing carbon emissions.

Improving our operations and supply chains

Not only are we aiding farmers to improve the environmental footprint of their businesses, we are also taking steps to reduce the impact of our own operations.

Since 2017, we have been measuring the direct impact that our own operations have on the environment by studying our carbon footprint, water usage, and waste production. Our findings have been published in our *Non-financial performance summary* of our 2018 Sustainable Business Report, and these metrics are already helping us to see how we can reduce the negative impact of our activity, both directly and indirectly.

In 2019, we finished developing targets with the Science Based Targets initiative (SBTi) to cut the intensity of our overall carbon emissions by at least 50 percent by 2030.[7] Currently, our total greenhouse gas footprint is approximately equivalent to 7.3 Mt CO_2 per year; 88 percent of which is represented by our

[7] Compared to a 2016 baseline.

supply chain. By committing to at least halve this, we are supporting efforts to prevent global average temperatures from reaching 2°C above the pre-industrial era.[8]

We have already made headway into reducing the footprint of some of our production sites, taking steps to incorporate more renewable energy for heating, cleaning, and operation. At De Lier, The Netherlands, we are investing in local infrastructure to heat and power our local Seeds research site with geothermal energy. When complete, this improvement could help us reduce the facility's total natural gas consumption by as much as 40 percent, corresponding with a 20 percent lower carbon footprint across the site.

Syngenta's Seeds multiplication farms offer unique opportunities to target the environmental impact of our business, serving as ideal locations to implement conservation agriculture practices. By applying practices such as crop rotation, permanent soil cover, and minimum or no tillage, we hope to promote carbon sequestration and turn our operations into a net carbon sink. We are working now to measure this impact, and see if more can be done to further reduce our footprint in the field.

The way ahead

As part of our plan to *Accelerate Innovation*, we have been hard at work to incorporate sustainability into our Research & Development strategy, having committed USD $2 billion into innovations designed to improve agricultural sustainability over the next five years as of 2019.

By 2025, we aim to report progress we have made against a few key performance indicators:

- Reducing emissions from energy use in our operations, supply chains, and logistics.
- Improving air quality by reducing hazardous air emissions in our operations and supply chains, including particulates and ground-level ozone.
- Reducing water use in our suppliers' operations, particularly in areas of high or extreme water stress.
- Improving the quality of waste and cooling water.
- Optimizing the use of natural resources and reducing waste; ending use of landfill sites, and increasing re-use and recycling in packaging and office-based operations.

Beyond these goals, we will continue engaging with farmers to bring them the knowledge, practices, and solutions they need to grow more, sustainably, and we will continue to explore how the agricultural sector can play a larger role in addressing climate change. We invite interested stakeholders to join us.

[8] SBTi (2015).

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