

Syngenta Public Policy Position on Soil Conservation

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The Syngenta logo is positioned in the bottom right corner of the page. It features the word "syngenta" in a lowercase, white, sans-serif font. A small, stylized leaf icon is placed above the letter 'g'. The logo is set against a solid green background that spans the width of the page at the bottom.

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Introduction

A growing world population and an increasing demand for a safe and secure food supply presents an apparent conflict. While society wants more food of higher quality, greater choice, at an affordable price, it is entirely dependent on having enough healthy soil, clean water, and land – the increasingly scarce natural resources on which agriculture depends.

Food production has increased many fold with the advent of sophisticated farm inputs, better farm management practices and technologies with a focus on the major crops of wheat, corn (or maize), soya, rice and potatoes. To meet these ever increasing demands, agriculture has tended towards reducing the number of crops in rotation, leading to the dominance of particular monocultures, and using more invasive tillage practices that increase soil disturbance.¹

Modern farming systems produce many benefits, but can also degrade land in the long term. Intensive soil tillage using the mouldboard plough turns over topsoil in order to bury weeds, pests and decaying crop residues. This practice can also result in the loss of organic matter, a decrease in earthworm populations, a weaker soil structure, and compaction, leading to its degradation. In turn, degraded soil is more vulnerable to erosion, potentially leading to the runoff of nutrients and chemicals into natural water sources.²

<https://onlinelibrary.wiley.com/doi/full/10.1002/ldr.2879>

Sustainable soil management and use practices (for example minimizing mechanical soil disturbance such as minimum or no tillage, keeping soil under permanent cover, rotating crops, optimal nutrient management, reduced farm machinery traffic, etc.) aim to work more productively with nature to fulfil the need for producing more food and feed while protecting soil and water resources. For instance, the no tillage (no-till) system of cultivation with crop residue mulch conserves water, prevents erosion, maintains organic matter content at a higher level, and suppresses weed growth. In addition, it helps in cutting overall costs to growers – spending less on fuel and less time required to prepare the seedbed and allowing them to farm more hectares or to diversify their businesses.³

At the same time, multiple barriers exist to adopting sustainable soil management practices, and the benefits can vary from farm-to-farm.⁴ Farmers often lack resources to invest in new farm machinery and equipment, such as specialized tractors, “no-till drills” and agro-chemicals. This is particularly the case for smallholders, for whom such investments may prove a barrier. This effect may be compounded by the higher production costs associated with these practices in the initial years of adoption, which may not immediately result in higher yields to outweigh the new expenses. Personal beliefs, social norms and local

¹ Frison, Cherfas, and Hodgkin (2011).

² DeLaune and Sij (2012).

³ FAO (1993).

⁴ For example, no-till practices are not being fully used in many parts of the world. For instance, in China, only 0.3% of farmland benefits from no-till practices; in Australia the figure is 2.9%, in France 0.7% and in New Zealand 1.4%.

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customs or traditions, can similarly result in farmers being reluctant to adopt new methods incompatible with current production systems. There are also policy disincentives in many regions.

What role does Syngenta play?

Syngenta is committed to helping farmers meet society's demands for food while protecting the environment. As well as providing products and services, we are working to raise awareness about the challenges facing modern agriculture and to promote the adoption of sustainable soil management practices with our customers, growers large and small, as well as other stakeholders in the food chain. We are also working with partner organizations to raise awareness among policymakers of the benefits of these practices.

Our portfolio helps farmers adopt sustainable soil management practices, which also leads to the safe and efficient use of pesticides and seeds. Importantly, this enables farmers to reduce greenhouse gas emissions from agriculture. Improving the efficiency and productivity of food production systems through better soil management and crop technologies can significantly reduce emissions.

The secret is in the soil

Climate smart soil practices have tremendous potential to reduce farm greenhouse gas emissions and increase carbon sequestration. Minimum tillage, crop rotation, and effective nutrient management serve to enhance soil carbon stocks and influence the carbon fluxes between the soil and the atmosphere. Used in combination with permanent crop cover strategies, such as leaving crop residues or using cover crops and fallows, fields used in agriculture can effectively serve as carbon sinks, and help to remove carbon dioxide and other greenhouse gases from the atmosphere.

We have been encouraging farmers to adopt these practices and building the business case for climate smart agricultural practices as part of our contribution to the [Climate Smart Agriculture](#) project, led by the World Business Council for Sustainable Development. Not only this, but as a part of [Race to Zero](#), we're directly implementing these approaches to help reduce the carbon footprint of agriculture, particularly in China.

[Find out how agriculture can play a role in addressing change here.](#)

We invest in the research and development of new crop plant varieties with greater root biomass, which contributes to adding organic matter to the soil, improving soil fertility and health.

We also help and encourage farmers manage the land around their fields, by planting trees and establishing field margins. Studies have shown this helps to improve habitat and biodiversity as well as

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protect fields against some of the effects of heavy rains, floods and drought, increasing nutrient levels in soil and facilitating greater landscape connectivity.⁵

[The Good Growth Plan](#) is one way we measure and inform the public about how our products and services contribute to sustainable agriculture systems through six commitments. Under the commitment to *Rescue more farmland*, we have committed to improve the fertility of 10 million hectares of farmland on the brink of degradation by 2020 – an area the size of Iceland. Through this commitment we help farmers improve soil quality, resulting in more carbon retention in soil, enhanced water holding and soil fertility, and less erosion from sustainable soil management practices, including conservation agriculture. By the end of 2018, we managed to exceed our goal by benefiting a total of 10.8 million hectares with sustainable soil management practices through 157 projects in 41 countries.⁶

We are a part of the Race to Zero – a global initiative encouraging companies to work towards zero-carbon and zero-waste, particularly in China. Our aim is to enhance soil organic carbon on 2 million hectares of farmland in China over the next 5 years, which is equal to 2 percent of all farmland in China. Through this commitment, we aim to promote simple solutions that are suitable for the local environment and easy for farmers to adopt. Conservation tillage, planting cover crops and incorporating straw into the soil all help to reduce soil-based greenhouse gas emissions and increase carbon sequestration.⁷

We are also integrating healthy soil practices into our crop protocols and training for all our customers engaged with The Good Growth Plan.

Water: a reflection of how we treat the land

Water is essential to the crops we grow and protecting it is vital. The amount of clean water we have in large part depends on how we use soil and one of the best ways to ensure water sustainability is to ensure better land management.

Syngenta strives to minimize and eliminate the negative impact of our products on water resources, which is why we have been focusing on the potential sources of contamination to prevent its infiltration in the first place. As part of our Good Growth Plan commitment to [Help people stay safe](#), we have been training farmers on the safe and responsible use of crop protection products, knowing that a high proportion of water infiltrations are the result of improper use of agro-chemical solutions. As of 2019, we have trained a total of 33.8 million farm workers

This helps us to speak with farmers and advisors with a clear, unified voice and communicate commonly agreed and supported recommendations. This can be done by engaging with farmers on the most

⁵ WBCSD (2017).

⁶ Syngenta (2019).

⁷ According to Han, X. *et al.* (2018), the results of 68 experimental studies throughout China in different soil and climatic conditions and farming regimes showed that in comparison to straw removal, straw incorporation practice significantly sequestered soil organic carbon (in 0–20 cm depth) at the rate of 0.35 tons of carbon/hectare/year.

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important Best Management Practices (BMPs), which simultaneously contribute to farmers' health through the safe use of chemicals.

Through industry associations and partnerships, we have also been bringing stakeholders together to develop a common approach to protecting our valuable water resources, as well as taking action to mitigate the negative effects of agricultural practices by designing plant protection products that break down safely, over a shorter time.

Syngenta has developed some specific tools to enable these BMPs to be implemented. For example, in Europe, we have developed HELIOSEC® to deal with the safe disposal of water remnants left in spray tanks and water from washing spray equipment. HELIOSEC® holds these liquids in a plastic-lined container until the water has evaporated naturally by the sun and wind. The liner contains the remaining dried residues, which can then be disposed of safely. This tool is a simple, pragmatic and safe solution that contributes to agricultural sustainability and helps farmers comply with legislation.

We are also looking at ways of reducing the transfer of pesticides from treated land through runoff and soil erosion. We have developed a Runoff Tool, which diagnoses water issues on farm land and makes recommendations about which BMPs should be used to reduce water contamination while improving productivity. This tool can be tailored to local conditions, farm business needs and crop types. For spray drift, we have a range of nozzles that improve efficacy while reducing spray drift.

Further farm management tools and advice

In North America, we offer software and data management tools that can help growers track and measure stewardship and conservation practices such as nutrient management plans, soil health practice, resistance management plans, buffer zones and environmental efficiency indicators. For instance, our AgriEdge Excelsior® and its Land.db® farm management software, help farmers to make better decisions and gain a competitive edge through the powerful integration of data, analytics and agronomic experience. It combines secure data management across digital platforms and innovative product choices for every crop to help growers maximize and sustain their return on investment.

Soil nutrient management is crucial. We encourage farmers to manage nutrient and organic matter levels in soil, including applying organic and inorganic fertilizers at the right amount, right time, and right place. Another BMP we promote is controlled traffic, which limits heavy machinery traffic to "tramlines" or "paths", to prevent soil becoming extensively compacted over the whole field. This improves the capacity of the soil to retain water and increases crop yields.

Such tools and advice help farmers move toward sustainable agriculture step by step. We are also able to help farmers indirectly by working closely with retailers and suppliers in the food value chain, demonstrating the benefits of sustainable farming practices. Stakeholders in the food value chain are increasingly asking for sustainable practices from growers and highlight these in their consumer marketing.

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Partnerships and collaboration

We are raising awareness of the importance of healthy soil with value chain partners, government institutions and academics through a variety of collaborations.

We partner with the United Nations Convention to Combat Desertification (UNCCD) to support and strengthen international soil decision-making processes and policy frameworks.

In 2013, the partnership launched the Soil Leadership Academy (SLA), which aims to strengthen government policy processes and frameworks by showing key policy and decision makers how to take practical actions to achieve SDG 15 and its associated Target 15.3: to strive to achieve a land-degradation neutral world. The SLA is aimed at participants from UNCCD member nations.

The partnership is now in its fifth year. We jointly organized more than 30 workshops at the UNCCD COP12, in Ankara, in 2015, and at the UNCCD COP13 in Ordos, China in 2017, to engage and raise awareness of the importance of healthy soil and its conservation with the UNCCD member nations, associated civil society organizations, and academics. Further engagement will take place at the UNCCD COP14 in 2019.

We have co-authored a publication with the World Business Council for Sustainable Development on the Business Case for Investment in Soil Health. This publication aims to catalyse engagement from the global business community to invest at scale in soil health. It was launched on World Soil Day, December 5, 2018 at the UNFCCC COP24.

We are also working with the European Conservation Agriculture Federation (ECAAF) to promote conservation agriculture in Europe and beyond. We seek their scientific and technical advice to develop shared projects with an aim to improve farming practice by incorporating conservation agriculture practices. We jointly conduct training and capacity building events for farmers, as well as establish demonstration sites. So far, we have implemented conservation agriculture practices on more than 40,000 hectares of land through this engagement.

Conclusion

When looking at the adoption of sustainable soil management practices around the world, it is clear there is much more that needs to be done. But farmers are open to adopting practices that increase profit, manage risk and benefit long-term productivity. Farmers are also working to improve soil health and deliver clean water – efforts which have important synergies with climate change policies, sustainable development goals, food security, energy security and improvements in environmental protection.

The way ahead

We will continue engaging with farmers to bring them the knowledge, practices and solutions needed to increase their sustainability, emphasizing the importance of soil stewardship. We will continue to measure

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and report progress we made towards improving soil fertility and health in agricultural landscapes. We invite interested stakeholders to join with us.

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