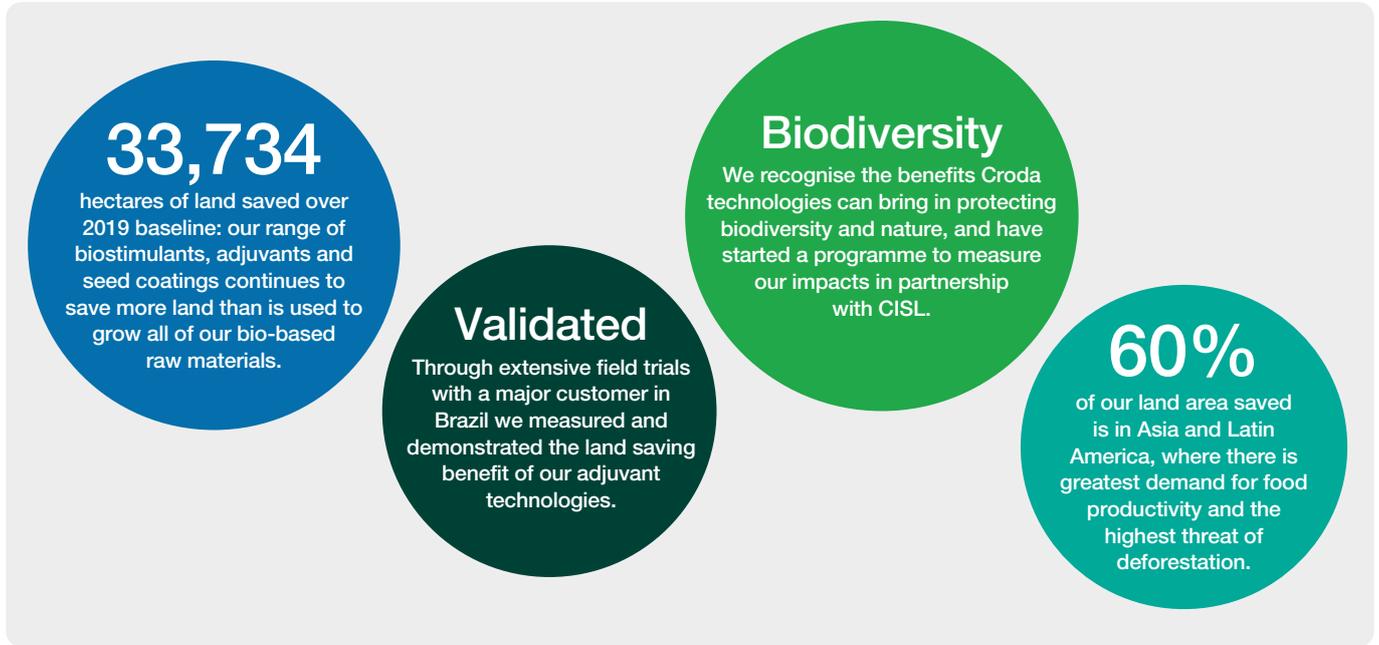


Land Positive

Our products will enable more land to be saved than is used to grow our bio-based raw materials. Our innovation will help customers to protect biodiversity and to mitigate the impact of climate change and land degradation, increasing the availability of land suitable for growing crops.



Land Positive by 2030

Land Use		SDG 2.3, 2.4		SDG 12.2		SDG 15.2, 15.3	
Objectives	Targets	Milestones and metrics	2021 progress				
We will save more land than we use. We will increase agricultural land use efficiency, protect biodiversity and improve food security by sourcing sustainably and inspiring innovation in our agrochemical businesses.	<ul style="list-style-type: none"> Throughout this decade, the land saved through the application of our crop protection and seed technologies will exceed any increase in land used to grow our raw materials by at least a factor of two, and by 2030 we save at least 200,000 hectares per year more than in 2019 	<ul style="list-style-type: none"> By the end of 2024, the land area saved through use of our technologies will be at least 80,000 hectares per year more than in 2019 	<ul style="list-style-type: none"> We continue to work with our key suppliers to gather details of improvements in yield, GHG data, soil health, water consumption and protection of biodiversity We have validated our land-saving data for our adjuvant technologies through extensive field trials with a key customer in Brazil We saved 33,734 hectares per year more than our 2019 baseline year and remain on track to hit our 2024 intermediate milestone and 2030 target 				

Crop Science Innovation		SDG 13.2		SDG 15.2, 15.3		SDG 17	
Objectives	Targets	Milestones and metrics	2021 progress				
We will invest in innovation projects and partnerships to support crop and seed enhancement in mitigating the impact of a changing climate and land degradation.	<ul style="list-style-type: none"> Through to 2030 we will bring an average of two crop technological breakthroughs to market each year that are in alignment with our SBTs and which help our customers mitigate the impact of climate change and land degradation By 2030, we will have established three new partnerships to contribute to the recovery of compromised farmland and protect biodiversity. We will work with customers, universities and business councils to achieve this 	<ul style="list-style-type: none"> By the end of 2024, we will have brought 10 qualifying technological breakthroughs to market 	<ul style="list-style-type: none"> We define a technological breakthrough as a new technology with a measurable significant effect and either a more sustainable route to an existing performance effect, or a new performance effect from an existing technology platform that is in line with our SDG goals We launched a second microplastic-free seed coating technology, extending our impact into key field crop markets Our research programmes were reconfigured to focus more explicitly on sustainability-led technologies that will drive our increasing benefits for nature and biodiversity We have secured our first commercial sale of microplastic-free seed coatings 				

Land Use and Crop Science Innovation

SDG Targets:
2.3, 2.4, 12.2, 13.2, 15.2, 15.3 and 15.5



Benefits for nature and biodiversity

We are increasingly aware of the benefits that our technologies can bring in protecting nature and biodiversity, and are making this an increasing focus of our innovation. We also recognise our responsibility to minimise the negative impacts we have on nature through our operations and supply chain.

All business is dependent upon nature, or impacts nature in some way. At the simplest level, land use may be that occupied by sites and operations. However, in many businesses the greater land use impact lies upstream in the supply chain with the sourcing of raw materials. Today's complex global supply chains make it challenging for any organisation to perform these calculations.

In 2021 the positive yield impact of our biostimulants, adjuvants and seed coatings, and the use-rate of those products per hectare of land, saved the equivalent of 125,958 hectares.

Accelerating our move away from fossil/ petrochemical feedstocks whilst also maximising the amount of land available for crops meant that, three years ago, we wanted a detailed understanding of our land footprint. This quantitative measure is essential for any business to set a baseline to understand its impact on nature and biodiversity. Equally important is an understanding of how our activity may impact biodiversity, deforestation, food security, soil health and water consumption.

We consider this holistic view of our land usage our 'land budget'.

This marks our continuing journey to our Land Positive Target of at least 200,000 hectares above the 2019 baseline.

Land footprint is a prerequisite to understand our impact on nature and biodiversity.

Demonstrating our land-saving impact

The effective delivery of active ingredients is increasingly reliant on incorporating adjuvants into plant protection formulations. Adjuvants are important not only in targeting the delivery of active ingredients but also in reducing negative impact on nature and biodiversity. Tween™ 24 is a novel adjuvant that can enhance the bioavailability of the active ingredient in a fungicide formulation, improving yield and reducing land and water used and associated CO₂ emissions. In partnership with a customer,

field trial studies were carried out in Brazil.

Conducted over three growing seasons, the study showed how incorporating Tween™ 24 into a fungicide formulation against soybean rust can significantly improve yield and reduce land use, as well as identify associated water and carbon savings. As a result of the yield improvement, a greater mass of crop can be produced per hectare, lowering the land area required to grow one tonne of soybeans; this can be expressed as a land saving. This land would typically require energy inputs, all of which will have associated carbon emissions; in reducing the land required to grow the crop, significant carbon and water savings can be achieved, these have been externally validated by Avieco (see page 23).

These trials have validated the assumptions used to calculate our land-saving data for our adjuvant technologies, demonstrating that our assumptions are justified and, in fact, conservative.

Investing for better breakthrough innovations

Croda Crop Care opened its new Product Validation Centre, located in Holambra near São Paulo, Brazil, in 2021. This state-of-the-art facility includes laboratories and greenhouses and is focused on serving our agrochemical customers, validating and substantiating claims and results from our formulation, microbiology and seed treatment laboratories.

Managed by a specialist team that includes agronomists, chemists and biologists from Croda businesses such as Crop Protection, Incotec and Plant Impact, the centre has the highest level of technical expertise, ensuring the generation of realistic and robust data. This specialist team now all under one roof enhances our ability to innovate and explore the use of digitalisation and new technologies to create more sustainable solutions for our agrochemical customers.

In 2021 our crop technologies delivered land area savings equivalent to 150,000 football pitches.



A 'nature positive company' is a company which takes action at scale to reduce the drivers of the degradation of nature, actively improve the state of nature itself (both species and ecosystems) and boost ecosystem services.

The Cambridge Institute for Sustainability Leadership (CISL)



Land Use and Crop Science Innovation *continued*

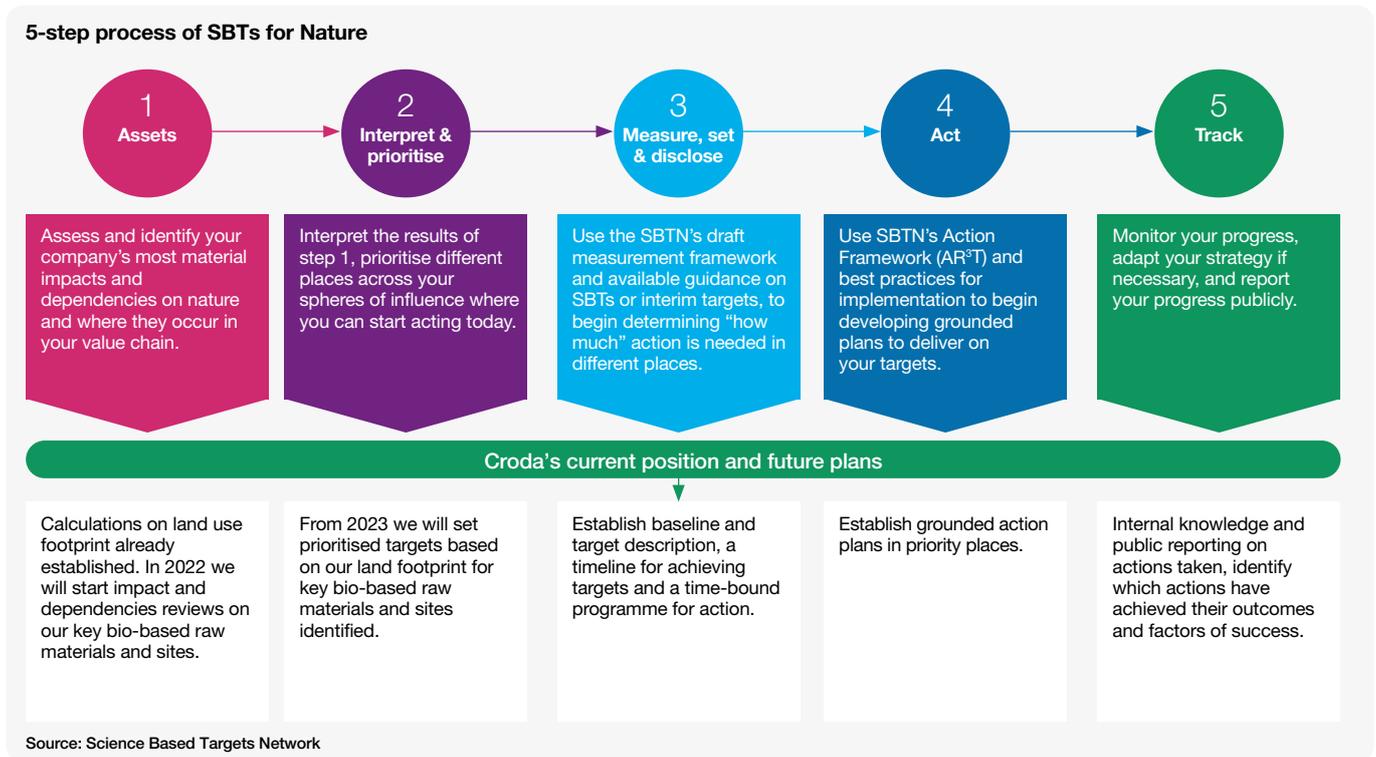
Value chain impacts

In the same way that scope 3 carbon embedded in supply chains is now an important focus, so too is the impact of business through its value chain. The Science Based Targets Network (SBTN) is developing guidance to set science-based targets for nature to define a clear pathway. This will enable value chains to address their impacts and dependencies on nature going beyond climate action to inform systematic solutions to reduce the risk of nature loss.

In 2021 we gathered in-house experts and took part in a workshop with Cambridge Institute for Sustainability Leadership (CISL) to develop our understanding of relevant and leading initiatives relating to nature. This included the concept of nature positive: requirements, challenges, and how it can be measured. Most importantly, it looked at developing a way forward on nature that will continue to deliver practical action in the field, further engage with employees, and enable a leadership position in line with emerging global biodiversity targets.

SBTN guidance describes a five-step process, starting with impacts and dependencies where we have a clear head start with our land budget metrics in terms of use and savings.

As we transform from Land Positive towards Net Nature Positive, we will better understand the ways that each of our major manufacturing sites and finished ingredients impact or depend upon biodiversity, and we will drive positive change in our raw material and supplier selection. Importantly, it will shape our customers' ingredient and supplier selection, and proactively contribute to their sustainability goals.



Purpose in Action

See Embedding our Purpose, Commitment and Difference P16

Global Digital Symposium

Innovative: Our Purpose in Action award winner

With the pandemic curtailing customer events and face-to-face meetings, we wanted to find new ways to reach our customers and continue supporting them with new ideas and innovation. Our Crop Care team hosted a three-day global Digital Symposium to communicate our sustainability ambitions and demonstrate the breadth of our technologies. During the event, our team of experts explored challenges and trends affecting the agrochemical industry. Through interactive live presentations and on-demand booths we demonstrated how Croda technologies can deliver more sustainable formulations. Topics shared with over 1,000 registrants included how microplastic-free solutions reduce the environmental impact of seed coatings, and the challenges and opportunities of formulating with biopesticides as part of integrated pest management systems.



Revitalising ecosystems, improving biodiversity and creating social and economic benefits for local communities.

Reforestation

Incotec, our Seed Enhancement business, and Land Life Company are collaborating in a pioneering project to accelerate global reforestation, embracing the demands of SDG 17, Partnerships for the Goals. This involves integrating Incotec microplastic-free smart coating technologies onto tree seeds, supporting scale up of reforestation efforts. These specialist coatings boost germination, increase resilience and survival, and enhance overall performance, and this is the first time such technologies have been applied to large-scale reforestation projects.

The first seeds are being introduced at sites in northern Spain, with the emphasis on planting where trees are needed most, revitalising ecosystems, improving biodiversity and creating social and economic benefits for local communities. Pending the outcome of this first trial it is expected that tens of thousands of pelleted tree seeds will be planted in different locations all over Europe starting in 2022.

Purpose in Action



See Embedding our Purpose, Commitment and Difference
P16

Biodiversity

Land Positive: Our Purpose in Action award winner

Natural wetlands are under threat in many locations, including France. Alban Muller, our recent acquisition for beauty botanicals, bought land adjoining its production site in France and for ten years has developed water treatment and biodiversity gardens. Developing banks and introducing certain plants encouraged the return of amphibians, while wooded ponds and hedgerows provide shelters for many bird, insect and small mammal species. Three hives and a beekeeping fallow area support colonies of bees and therefore pollination.

Water used in manufacturing is returned to the gardens, nourishing vegetation and supporting plant and animal biodiversity. As a result of the water gardens, the site has zero water waste for 300 days of the year. The project makes it possible to manage

effluents in a natural way without energy expenditure and with no negative impact on the environment – as well as helping with employee wellbeing.

