

## Nick Challoner provides insight into how our dynamic innovation model creates disruptive technologies



Nick Challoner is Group Chief Scientific Officer

**NC** We are the leading innovator in the markets in which we operate, growing by creating new market and technology niches with our novel product and service offerings.

By selling direct to customers and collaborating with them at our innovation centres around the globe, which are located close to customers, we gain a detailed insight into their current and future challenges, enabling us to identify new opportunities for growth.

Our innovation ecosystem is unique with our R&D advances increasingly driven by our partnerships. These partnerships with leading scientists in universities and SMEs enable us to access specialist, world class expertise and facilities. We now have more than 500 open innovation partners working with us on over 100 active projects at any one time.

Our partners contribute to the high proportion of New and Protected Products (NPP) we sell as well as the continued differentiation of our portfolio. Through our strategy, we are becoming a more knowledge-intensive company, with recent acquisitions contributing to the strong increase in NPP that we have seen this year.

Together with our partners, we are developing novel ingredients that deliver better results for our customers with a reduced impact on the planet. Each project aims to either improve the sustainability of our products, raw materials and manufacturing processes, or create new ingredients that deliver sustainability benefits in use to our customers and their consumers. Even better if they achieve both.

For example, we work with partners to help access the latest thinking in biotechnology, drawing on recent advances in the ability to harness the biological world. Biotechnology can help meet growing consumer demand for more sustainable and personalised products, and so has the potential to transform chemical industries.

One challenge is that innovation often happens in pockets, disconnected from the real-world impact. Croda's cross sector expertise and ability to look across industries provides us with a unique opportunity to connect disruptive innovation in areas such as biotech with tangible business benefits.

 See Key Performance Indicators for NPP metric P45

### Driving innovation in the crop care market

Agriculture is responsible for approximately 20% of carbon emissions globally, so it is not surprising that the environmental impact of the agricultural industry is becoming a high-profile issue. While the industry has traditionally relied on chemical fertilisers and pesticides, the potential of biologics in crop care is now better understood. The role of predators to control insects in greenhouses is well established but micro-organisms and naturally occurring compounds also have potential as biostimulants and biopesticides.

Through Croda's acquisition of the Incotec Seed Enhancement business in 2015 and the Plant Impact Biostimulants business in 2018, we are well placed to address some of the challenges in the adoption of biologics. These include the survival of micro-organisms before use, compatibility with application methods and variations in environment.

We have developed new technology, which when applied to soybean seeds results in stimulation of shoot and root growth, and increased yields. We are now evaluating this biostimulant in different seed application technologies. In collaboration with Royal Holloway University of London, we are also further developing seed enhancement as the optimal method of microbial application. We are also using Artificial Intelligence (AI) to address the big data challenge of optimising biologics for specific environments.

Carola Peters (pictured, right-hand page), a research scientist at our Incotec Seed Enhancement business in the Netherlands, said: "Over time a larger proportion of seeds will be treated before they are sown and crops will be sprayed less."

 See Sector review: Life Sciences P26



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**Carola Peters,**  
Research Scientist, Incotec Seed Enhancement

# Sustainability + Innovation

# = Growth

We increased innovation spend in 2021 by over

**50%**

**88%**

of new products directly contribute to our priority SDGs

Open innovation partners and initiated projects

