

Life Sciences

Market sectors

Patient Health	Consumer & Veterinary Health	Crop Protection	Seed Enhancement
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Rapid expansion in Life Sciences

Daniele Piergentili
President Life Sciences

The Life Sciences team had a successful year, in which we have truly lived Croda's Purpose to use Smart science to improve lives™ and, at the same time, captured value in the fast-growing markets we supported.

In Health Care, we have strengthened our capabilities in drug delivery technologies. Our role in the fast development and supply of lipid systems for the mRNA vaccines is an example of our innovation and flexibility in action. We also stepped up our research into novel vaccine adjuvants, and continue to work closely with our partners to target next generation vaccines, many for target diseases which do not have effective immunisation programmes today.

In Crop Care, the majority of our investment has been focused on building technology

platforms with an improved biodegradability and carbon footprint – a clear commitment to our partners' sustainability roadmaps. An example is our microplastic-free range of seed coatings which have seen uptake across both field crop and vegetable applications this year.

The move we are making in Health Care from ingredients for consumer applications to delivery systems for biologics, and the commitment in Crop Care to develop delivery systems with a drastically improved sustainability profile are at the core of our desire to be 'future ready'.

 See Our strategy P20

Sector strategy

Expand to Grow Life Sciences

Sustainability

- Meeting the sustainability challenges of Crop Care customers with low carbon, bio-based and biodegradable delivery systems
- More than doubled number of World Health Organisation (WHO) vaccine projects we are working on, to support vaccines for 15 of the WHO's 24 priority diseases

Innovation

- Developing next generation sustainable crop care delivery systems based on biologics
- Working on over 150 COVID-19 applications
- Secured 130 new customers and 250 new programmes, two thirds for non-COVID applications
- Becoming more knowledge-intensive; 48% NPP as % total sales (2020: 27%)

Growth

- Realised significant benefits from Avanti acquisition
- Building a drug delivery business of global scale to unlock future opportunities in mRNA and gene therapy applications
- Doubled capacity in three key patient health care technologies



Life Sciences delivered significant sales, profit and margin growth in 2021. It is leveraging in-house developed and acquired technologies, building scale for the delivery of customers' drug, vaccine and crop science products. It is moving into faster growth, higher value/lower volume niches. The highest growth in 2021 was seen in Health Care, with reported sales up 80% year-on-year, driven by our focus on patient health platforms. Crop Protection delivered double digit percentage growth, reflecting strong demand from crop science customers. By contrast, the overall performance of Seed Enhancement was subdued.

Sales grew 46% in reported terms to £572.3m (2020: £392.5m). Underlying sales were over 40% higher, supplemented by over 13% growth from acquisition and partly offset by adverse currency translation of 8%. Within underlying growth, price/mix was 35% higher, reflecting growth in higher value products, with volume 5% higher.

IFRS operating profit increased by 79% to £201.0m (2020: £112.3m). Adjusted operating profit increased by 67% to £208.5m (2020: £124.5m). Return on sales increased to 36.4% (2020: 31.7%). As noted at the half year,

achieving this level of growth and profit improvement in such a short period has placed significant demands on the business and, as anticipated, the margin level moderated in the second half of the year as we invested in additional people and brought new capacity on stream to future-proof this growth, in addition to a mix impact from increased Crop Protection sales in the period.

2021 business performance

Health Care benefitted from the first full year of ownership of Avanti. This has exceeded expectations since its acquisition in August 2020 with its sales more than doubling over its full year 2020 performance. It has grown sales for clinical research delivery systems with its pharmaceutical R&D customer base. In addition, its in-house production of lipid systems components for COVID-19 vaccine applications has been supported by sales from Croda's UK lipid facility, which worked with Avanti in 2020 to support the world's first COVID vaccines. Croda's total lipid systems sales in 2021 were approximately US\$200m, primarily to our principal vaccine customers, accompanied by a rapidly building future sales pipeline of other nucleic acid applications.

Health Care's established patient health care platforms in speciality excipients and vaccine adjuvants also enjoyed strong growth in 2021, with underlying sales up over 40%. Alongside COVID-driven demand for therapeutic drugs and vaccines, this reflected strong demand for speciality excipients in biologic drugs, and for adjuvants for new vaccines and global expansion of existing protection, particularly in the developing world.

Within Crop Care, Crop Protection delivered robust sales growth as a result of strong demand, inflation recovery and continued diversification of its customer base. Seed Enhancement delivered a good performance in Latin America driven by continued good sales growth for field crops, but demand was constrained for vegetables.

Expand to grow in Life Sciences

We have established Life Sciences as a high value solution provider to pharmaceutical and crop customers. Our strategy is to Expand to Grow Life Sciences to deliver high single digit percentage organic sales growth with a return on sales well above 30%. We are deploying more capital into Life Sciences to develop sustainable solutions in our crop care businesses and to build a broad-based drug delivery business of global scale. We are also strengthening innovation, through technology acquisition and organic development. In 2021, NPP as a percentage of Life Sciences sales was 48% (2020: 27%), driven by the Avanti acquisition and the growing proportion of sales from higher value add technologies.

Within Life Sciences, the four businesses – Patient Health, Consumer and Veterinary Health, Crop Protection, and Seed Enhancement – each have a clear growth strategy. Patient Health offers the most significant global opportunity for growth, much of which can be delivered through organic investment. We are leveraging our unique purification and synthesis know-how by investing in people resource, R&D and operational scale up to become a leader in biopharma drug delivery across nucleic acids, proteins and vaccine adjuvancy. This builds on our significant progress to date, including meaningful sales of novel technologies, such as non-aluminium vaccine adjuvants and lipids for non-COVID-19 nucleic acid applications.

In 2021, we invested over £70m to scale up manufacturing capacity for our three patient health care platforms, reinforcing our leading positions in drug and vaccine delivery systems. Through recent investment, we have doubled our capacity for vaccine adjuvants at our GMP facility in Denmark, for speciality excipients at our US site and for lipid systems capacity in the Avanti, US and Croda, UK facilities. In addition,

we have committed a similar amount in further investment in these platforms. Whilst we are currently serving strong demand for emergency COVID-19 applications, this new capacity will increasingly unlock future opportunities in new mRNA and gene editing applications.

Across our three patient health technologies, we secured 130 new customers and 250 new programmes, two thirds of which were for non-COVID applications. We started working on 90 new COVID-19 projects, bringing the total to more than 150 in over 30 countries. 160 new non-COVID programmes included delivery of speciality excipients for oncology and immunosuppressant applications, support to the development of HIV and Ebola vaccines prioritised by the World Health Organisation, and the development of lipid systems for new mRNA vaccines such as influenza. We expect to see an ongoing expansion in the range of lipid systems for vaccines and therapeutic drugs, moving to a broader portfolio of customers and applications in the medium term.

In Consumer and Veterinary Health, we are continuing to grow in oral care, topical application and animal health solutions.

Our Crop Protection business is expanding its leading position in formulation ingredients to provide sustainable delivery systems for our crop customers. It is established as a key innovation partner to the major crop science companies and is increasing sales to medium-sized and smaller customers who now account for more than 50% of revenue. Crop Protection already provides low carbon, bio-based and biodegradable delivery systems, and is developing systems for next generation biopesticides and biostimulants that use microbials and RNA. Similarly, sustainability trends are driving Seed Enhancement, where we have secured our first commercial customers for seed coatings that are free from micro-plastics. It is also developing seed enhancement technologies that stimulate plant growth.

Supporting WHO priority vaccine development around the world

As part of our People Positive strategy, we are committed to using our smart science to promote healthy lives. By the end of 2024, we want our technology to be part of 10 phase three clinical trials across at least a quarter of the priority pipeline vaccines listed by the World Health Organisation.



We are currently working on more than 150 COVID-19 projects in over 30 countries, the majority of which utilise our vaccine adjuvant technologies acquired with Biosector in 2018, as well as our expertise in speciality excipients and lipid systems. We worked with countries around the world to support their vaccination programmes as vaccine development and production globalised. For example, our team in Indonesia worked with authorities to fast-track import of Croda ingredients as well as providing technical support to produce vaccines locally in response to escalating cases.

Laura Ciccardi, Sales Manager in Health Care at Croda, said: *"We are incredibly proud to be supporting the development of sovereign vaccine programmes around the world, helping to improve the supply and accessibility of COVID-19 treatments in both developed and developing nations."*

Looking beyond COVID-19 we are investing in next generation adjuvant technologies to become more involved with the fight against 24 other WHO-listed diseases such as malaria, HIV and tuberculosis. We are also increasing the collaboration across our patient health portfolio, recognising the benefits of Avanti and Biosector working together.