



Syngenta Accelerates Agricultural Innovation with Progress-Powered Enterprise AI Search Platform

CASE STUDY



INDUSTRY

Food & Agriculture

PRODUCT

Progress® Data Platform
Progress® MarkLogic®

COUNTRY

UK

SUMMARY

Syngenta, a global leader in agricultural tech, faced the challenge of accelerating its R&D efforts as its scientists spent countless hours searching through data across multiple, unconsolidated repositories. To address this, Syngenta developed the AI-powered Synapse platform, built on the Progress® Data Platform with Progress® MarkLogic® at its core and enhanced with knowledge graphs and natural language processing (NLP) capabilities. As a result, Synapse helps scientists find relevant research 40% faster while focusing more on innovation.

Challenge

Founded in 2000, Syngenta provides millions of farmers with sustainable solutions to grow and distribute crops and seeds worldwide. A science-led agricultural technology leader, the company leverages more than 70 years of its industry research to discover new chemical compounds and bring cutting-edge products to market. But Syngenta's scientists were spending thousands of hours looking for the relevant information to support the research and development phases and unintentionally increasing operational costs trying to pull what they needed. In some cases, scientists relied on the "collective memory" of other Syngenta employees, and when those employees left, critical information could be lost forever.

The organization's vast amounts of research data were not in a centralized location but scattered across numerous repositories and diverse silos. The data was also in different formats, from Word documents to JPEG images to PDFs. Syngenta was using an enterprise search tool that only understood basic keywords and not industry-specific terms. When employees looked for information regarding chemical structures, the tool could not recognize the structure in a document file or provide the extra context. Existing study data often became buried, resulting in duplicated research effort and increased costs.

These obstacles highlighted a major bottleneck in the R&D process. Product Safety Lead Geraint Duck put it simply: "If we can speed up the time it takes our scientists to find relevant information, they can decide quicker, and we can understand risks quicker. They can spend more time on value-added activities as a result."

Solution

Duck and his team wanted to empower R&D scientists to discover and explore relevant studies in an intuitive and efficient way. A search application had to be equipped with advanced filters, interactive visualizations and elaborate document previews to show the complete set of information related to a question and enable scientists to navigate complex chemical data down to the smallest detail.

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Geraint Duck
Product Safety Lead, Syngenta

Together with Datavid, a Progress implementation partner, Syngenta built Synapse, an enterprise AI search application powered by the Progress Data Platform with Progress® MarkLogic® software at its core. Both organizations wanted to utilize the platform’s powerful multi-model data management, search and knowledge graph capabilities.

Datavid and Syngenta first centralized years of R&D data into a single, searchable knowledge base by ingesting and harmonizing millions of documents into the MarkLogic platform. Most of these documents came from internal file systems, such as the company’s own SharePoint, and external data sources, like the EPA website.

Thanks to the native semantic capabilities of the Progress Data Platform, the documents were semantically tagged, connected and organized into a knowledge graph, which, just like synapses in neural networks, allows the most relevant information to a researcher’s question to be instantly retrieved, also laying the groundwork for AI systems to understand context, answer complex questions and reason over vast amounts of data.

In this way, Syngenta was able to counter the impact of deepening silos and terminology ambiguity resulting from multiple company mergers.

By integrating optical character recognition (OCR) capabilities with the platform, Synapse extracts text from different file formats and provides accessibility to hard-to-search content to make AI-driven search and analysis easier.

Results

Syngenta has advanced its overarching goal of accelerating R&D, its core driver of market competitiveness, by reducing time wasted searching for critical information across silos by 40%. Every hour spent locating data can now be reinvested in innovation, contributing to faster time-to-market.

The enterprise search capabilities of Synapse have transformed day-to-day operations. Scientists can now see all relevant project information within minutes on a single platform. Synapse also supports visualizations, ontologies and automated notifications for new documents, making research data more accessible, connected and actionable.

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Product Safety Lead, Syngenta

R&D teams are uncovering existing studies for the first time, valuable research previously ‘lost’ in enterprise silos, through these advanced semantic search features.

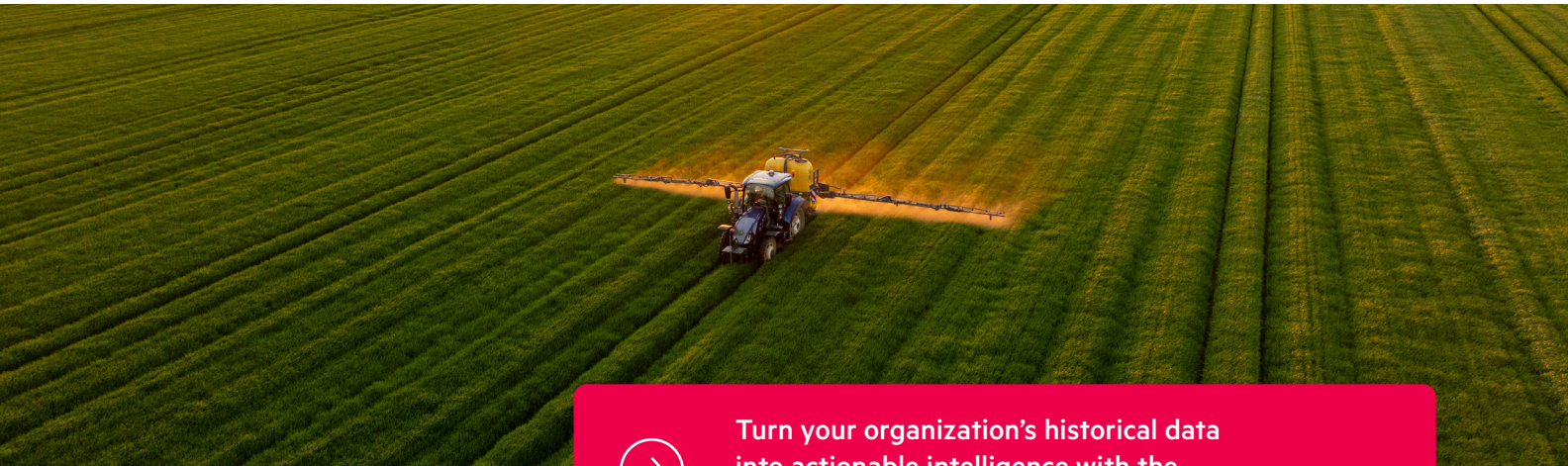
As Duck explained, “Synapse delivers significant benefits for R&D staff. It allows scientists to search across multiple studies in natural language and explore all relevant research information in one place. R&D teams can find information they might not have known existed and avoid wasting valuable time searching for it.”

Beyond powering semantic search, the Synapse platform serves as the foundation for Syngenta's next phase of innovation: incorporating AI chatbots and intelligent agents that will help researchers expand and advance scientific discovery. With this approach, Syngenta is well-equipped to support future product development and bring innovations to market faster than ever, while it leads the way with AI in agriculture technology.

About Syngenta

Syngenta is one of the world's leading agriculture companies. Their ambition is to help safely feed the world while taking care of the planet. The company aims to improve the sustainability, quality and safety of agriculture with world class science and innovative crop solutions. Their technologies enable millions of farmers around the world to make better use of limited agricultural resources.

To learn more, visit www.syngenta.com.



Turn your organization's historical data into actionable intelligence with the Progress Data Platform.



About Progress Software

[Progress Software](https://www.progress.com) (Nasdaq: PRGS) empowers organizations to achieve transformational success in the face of disruptive change. Our software enables our customers to develop, deploy and manage responsible AI-powered applications and personalized digital experiences with agility and ease. Businesses of all sizes get a trusted provider in Progress, with the products, expertise and vision they need to turn AI disruption into a competitive advantage. Millions of developers and technologists at hundreds of thousands of organizations depend on Progress every day. Learn more at www.progress.com

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Worldwide Headquarters

Progress Software Corporation
15 Wayside Rd, Suite 400, Burlington, MA 01803, USA
Tel: +1-800-477-6473

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