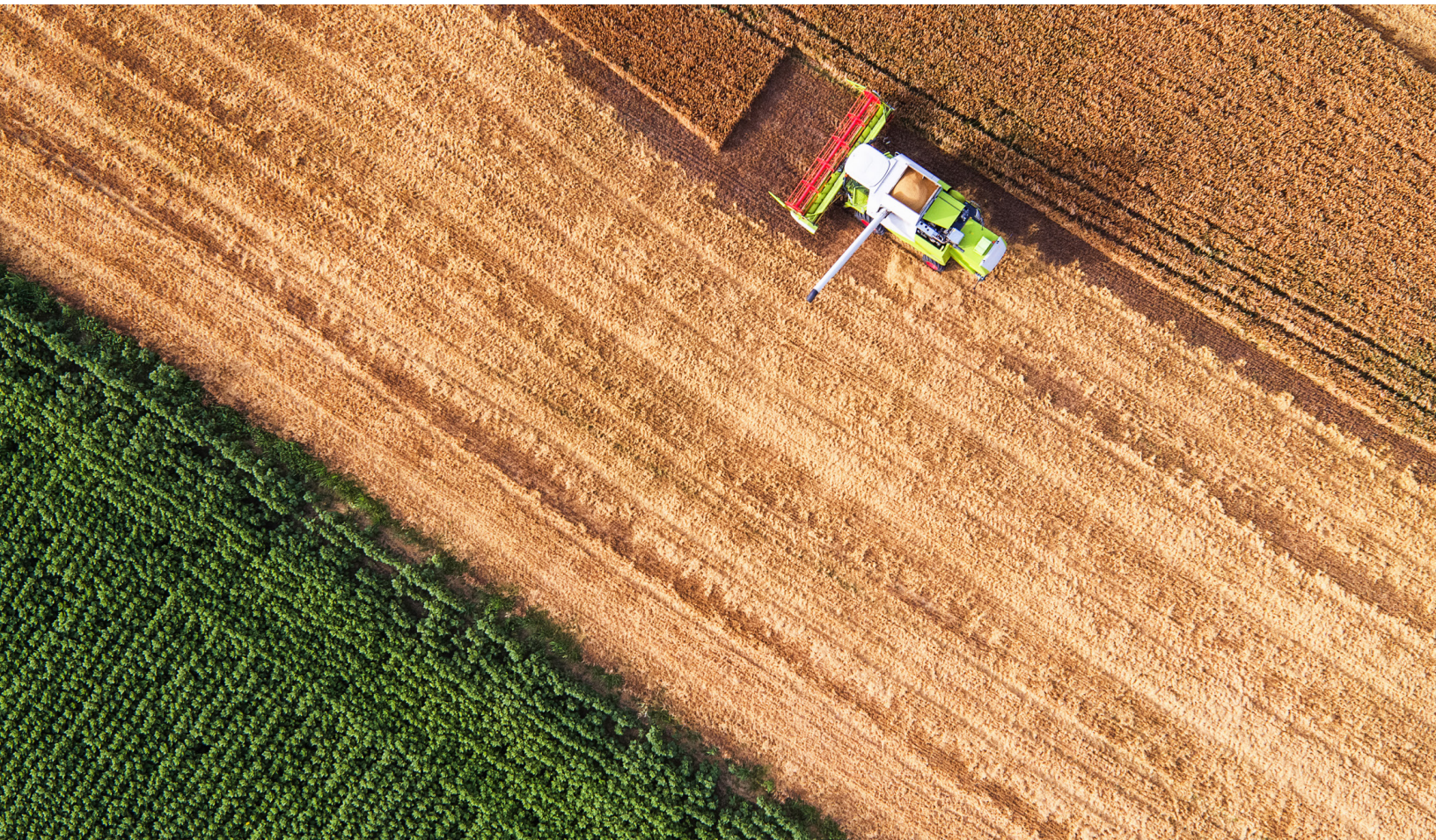


CASE STUDY

# Syngenta & Benchling: Driving faster seed and agricultural development at a global scale





## GOAL

Make data an advantage for Syngenta by building a truly global data infrastructure to deliver new seeds and products that fit the needs of growers over a faster timescale.

Syngenta is an innovation powerhouse in seeds and agricultural products, with teams in over 90 countries. Their R&D focuses on designing seeds with desirable genetics that require fewer inputs—land, water, pesticides, nutrients— while producing great outputs. Growers depend on Syngenta for hardier, higher quality crops as geographies of fungal and bacterial diseases shift, climates fluctuate to more extremes, and the demand to feed the global population grows. Benchling enables Syngenta to communicate and collaborate both with internal teams and external regulatory bodies more clearly and quickly, greatly accelerating the pace of their science.

## COMPANY PROFILE

Number of employees: 10,000+

Industry: Agriculture

Location: Switzerland

## KEY RESULTS

48%

improvement in ease of finding legacy data or protocols

72%

improvement in ease of sharing data across global teams

79%

of users agreed that Benchling has helped improve the quality of data capture



“We have seen increases in productivity. We have seen that those colleagues are spending anywhere between 20%-50% less time capturing the data [...] that time is time that is given back to people to focus on the research.”



BJ Carey, Knowledge Management Lead of Scientific Data



## CHALLENGES

### Balancing customization and standardization

Syngenta wanted standardized data for cross-company analysis, but each department had its own preferences and needs for recording and recalling data.

### Collaboration across the globe

Handoffs between different geographies, languages, time zones, and areas of expertise while using paper records led to bottlenecks.

### Managing many regulatory requirements

Different countries maintain complex, shifting regulatory requirements around product safety that all need to be met.

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## THE STORY

Syngenta has maintained its position as a global leader in agricultural science and technology, particularly in seeds and crop protection products, by cultivating innovation. One of the strengths that drives this culture of innovation is diversity throughout the company. Syngenta benefits from a diversity of roles, from regulators to molecular scientists, as well as a diversity of geographies, leading to differing climates, conditions, tool availability, and cultural norms. Another key aspect to Syngenta's success is scale. Researchers are able to test hundreds of thousands of products at a time, share with labs, greenhouses, and regulatory agencies in many countries, and create a stock that can be distributed globally.

One individual working to channel diversity and scale into innovation is Charlie Baxter, Head of Traits, Regulatory, and Product Safety. He works in Syngenta's Seeds group, a group using biotechnology alongside conventional breeding technologies to bring new characteristics into the seed varieties that farmers grow around the world. By investing in Benchling, he has been able to capture the strength of all the different people working together to bring new seeds to fruition while also enabling different roles at Syngenta to collaborate more cohesively—both internally and with regulatory agencies around the world.



## **Benchling meets specific use cases without sacrificing organization-wide standardization and structure**

One of the biggest challenges in digitalizing a manual process for hundreds of users with many different roles is managing the tension between standardization and customization. Charlie wanted to be able to equip his different teams with tools that were tailored enough for individuals to realize value—such as easy data recall, faster data entry, and team-wide adoption—without sacrificing the benefits of company-wide standardization, like the ability to track parent-child relationships across multiple groups or instant output analysis at the end of a pipeline.

In order to find room for customization, Charlie first established underlying common elements across all groups that required rigidity. Once these foundational elements are established, Benchling offers a lot of flexibility to suit individual working preferences and surface role-relevant information. Teams can take advantage of Benchling's codeless configuration to easily model their specific workflows. Such customization allows different users to interact with Benchling intuitively and efficiently, while tracking information seamlessly through the entire lifecycle of a product. Greenhouse growers can share harvested seed counts of a specific product, bench scientists can annotate the genetic edits and corresponding phenotype for those seeds, and business analysts can understand yields for that product in Brazil compared to Iowa.

Creating the right amount of customization has helped drive adoption, leading to more data stored in a secure digital system. For Syngenta, the data they're capturing isn't just for immediate use, but also stored for use years into the future. The information being recorded is part of Syngenta's growing understanding of science in that area.

## **Better collaboration accelerates the pace of discovery and production**

Collaboration is unavoidable at a company the size of Syngenta working on agricultural products. The company continually faces the challenge of delivering to the needs of growers



over a reasonable timescale, because of how long the product cycle can become. The technology scientists work with is complex, and

As more and more people started using Benchling, it became easier and easier to talk about different products with a shared vernacular. Because all entities are registered only once and in a single place, scientists can finally discuss them and their characteristics using unique identifiers. BJ Carey, Syngenta's Knowledge Management Lead of Scientific Data, has taken advantage of Benchling's template feature to allow researchers to enter seed characterization data consistently no matter if the volume of data points is in the tens or the millions. This has helped scale up workflows within Benchling, facilitating seamless collaboration across teams and rapidly accelerating their pace for experiments at the highest level of throughput.

Furthermore, sharing information in real-time makes it easier to run activities concurrently in different locations. BJ and his team can make decisions and move the pipeline forward because of how rapidly they can analyze data, gain insights, and make connections between the work of scientists in different geographical locations. A research team in Beijing can use results from an experiment conducted the day before in North Carolina, and share next steps with field teams in Idaho and Argentina to run parallel experiments on the ground.

### **Benchling equips Syngenta with the tools necessary to guarantee safety and quality**

Ultimately the most important aspect to Syngenta's work is guaranteeing the safety and quality of their products. In addition to overlapping safety requirements globally, each country also has its own unique set of regulatory requirements. Syngenta needs to explain to regulators how their products operate and share safety results, which involves a broad range of different experts and different types of data. Putting all this information together is crucial to effectively communicate with regulators and policymakers as they discuss the technologies they're working with and how they might fit into the regulatory framework that exists.



Gaining regulatory approval in over 20 countries in a timely manner requires clear data visibility and rock-solid safety documentation for every aspect of the product. Even as different countries institute new or amend existing laws and regulations, Syngenta can be confident about product quality and safety. Furthermore, Benchling's Validated Cloud provides a solution with the rigor and security necessary for recording requisite data and demonstrating continued efficacy and safety in Syngenta's products. Securing generated data in a controlled way will protect the investment in R&D Syngenta makes every year. The proprietary data is critical to the future success of Syngenta.

## Conclusion

Syngenta is helping feed the growing global population more sustainably and at a higher quality by continually pushing the boundaries of agriculture and technology. The products they deliver to growers around the world enable a more sustainable future for everyone. Benchling helps Syngenta deliver these products faster by supercharging collaboration between teams across the globe, and between Syngenta and regulatory agencies.



“The core value that Benchling has provided to Syngenta is an opportunity to capture and maintain organizational memory for the science and the work that we’re doing. You see challenges and problems before they happen. When we capture the process in a way that’s visible, we are able to make decisions more quickly.”



BJ Carey, Knowledge Management Lead of Scientific Data







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