

An aerial photograph of a green combine harvester and a blue tractor in a golden wheat field. The combine is harvesting the wheat, and the tractor is positioned nearby. The background shows a line of trees and a body of water under a clear sky.

SEED TERMINATOR

TAKING INNOVATIVE WEED CONTROL EQUIPMENT MANUFACTURER TO NEXT LEVEL WITH 3DEXPERIENCE WORKS SOLUTIONS

Case Study

Seed Terminator added **3DEXPERIENCE** Works solutions on the cloud-based **3DEXPERIENCE** platform to its **SOLIDWORKS** design and simulation implementation to support collaboration across distributed teams, automate management of product data, and prepare for international growth.

Challenge:

Support collaboration between R&D, product development, and manufacturing across a widely distributed and growing team to take the company to the next level in throughput and growth.

Solution:

Add cloud-based **3DEXPERIENCE** Works data management, product lifecycle management, engineering change management, and design collaboration solutions to its existing SOLIDWORKS design and SOLIDWORKS Simulation installation.

Results:

- Improved collaboration across distributed product development team
- Formalized workflows and engineering change processes
- Realized scalable product data and lifecycle management solution
- Continued working efficiently despite COVID pandemic closures

Dr. Nick Berry's Ph.D. thesis on employing a mechanical mill on the back of a grain harvester to destroy weed seeds—instead of relying entirely on herbicides—led him to establish Seed Terminator and continue developing a sustainable approach to weed control in broadacre agricultural operations.

Founded in 2016 by Research and Development Director Berry, a farmer's son and mechanical engineer, Seed Terminator began with Berry's thesis, entitled "Optimization of an Impact Mill That Processes Chaff Exiting a Combine Harvester to Devitalize *Lolium Rigidum* (Annual Ryegrass) Seeds." Since then, the company has been developing its innovative seed-crushing technology and mill attachment products for major brand agricultural grain harvesters—including John Deere, Case IH, CLAAS, New Holland, and Massey Ferguson—in response to the growing resistance of weeds, including ryegrass, to herbicides, as well as growing concerns surrounding widespread herbicidal use.

According to Engineering Manager Dr. Roger Dunlop, Seed Terminator is an innovation company with the sole purpose of developing, manufacturing, and selling weed seed termination technology. The company's unique business model is built to collaboratively harness skills, expertise, and experience from both inside and outside the farm gate, tapping into the complete grain industry value chain. "We're a distributed team, working collaboratively with farmers, partners, and contributors across Australia and the world to develop this innovative technology," Dunlop shares.



"The ability to collaborate is becoming a key attribute in our success using **3DEXPERIENCE** Works solutions ... We've always been fast, but we're now moving from startup mode into our next growth phase and adding more team members, leading to our need for a better way to collaborate. We were also lucky to find our **3DEXPERIENCE** Works cloud-based collaborative solution in 2020 during the COVID pandemic, enabling us to continue working productively, often remotely."

— Dr. Roger Dunlop, Engineering Manager

"Although we've been using SOLIDWORKS® design and simulation solutions for R&D and product development from the very beginning, we needed a better way to communicate and collaborate across our distributed teams," Dunlop explains. "Dr. Berry heads up our R&D team on Kangaroo Island while I manage the current product development team in our home office near Adelaide. We also needed a method for improving collaboration with partners in other parts of Australia and around the globe, as well as a solution for managing product data and life cycles. In short, we needed to make the leap from startup to a full-production manufacturing concern and acquire solutions that would enable us to take that step."

After looking for available solutions and conferring with Central Innovation, the company's SOLIDWORKS reseller, Seed Terminator chose to add cloud-based collaboration, product data management, engineering change management, and product lifecycle management solutions from the **3DEXPERIENCE**® Works portfolio to its existing SOLIDWORKS 3D CAD design and SOLIDWORKS Simulation Professional analysis software installation. "The **3DEXPERIENCE** platform was the only solution that we could find that aligned with what we do and how we do it," Berry notes.

"We work as a distributed team and need to collaborate across vast distances, and saw investing in a server and PDM system as an old-school, outdated approach," Berry adds. "We see the cloud as the future for supporting growth, and the scalability of the **3DEXPERIENCE** platform as critical to continue to grow. Just as we were implementing the solutions, the COVID pandemic hit, making the value of these solutions immediately apparent."

COLLABORATION BREEDS INNOVATION

Using the Collaborative Designer for SOLIDWORKS role and additional roles associated with transparent product data management in the cloud, Seed Terminator designers and

engineers can quickly and easily collaborate over product designs created in SOLIDWORKS, providing the agility, efficiency, and collaborative input that results in innovative products. Tests have shown that a Seed Terminator mill spinning at 3,000 rpms kills 99 percent of weed seeds in the fields by crushing them into a fine powder, a sustainable kill rate that exceeds that of many herbicides, as weeds evolve resistance to them.

"The ability to collaborate is becoming a key attribute in our success using **3DEXPERIENCE** Works solutions," Dunlop says. "Our R&D team develops innovative concepts, which we in product development are charged with turning into polished products. We've always been fast, but we're now moving from startup mode into our next growth phase and adding more team members, leading to our need for a better way to collaborate. We were also lucky to find our **3DEXPERIENCE** Works cloud-based collaborative solution in 2020 during the COVID pandemic, enabling us to continue working productively, often remotely."

FORMALIZED WORKFLOWS AND DATA MANAGEMENT

3DEXPERIENCE Works solutions have not only provided Seed Terminator with cloud-based collaboration solutions but have also enabled the company to formalize and standardize its product development workflows, engineering change order processes, and approach to product data and lifecycle management. "As the number of different Seed Terminator products and models continues to grow, we simply have to manage both the data generated and the processes followed in a much more controlled, accurate, and consistent manner," Dunlop stresses.

"We have to adapt and configure our products to support all kinds of variants," Dunlop continues. "For example, in addition to fitting all the different major brands and types of harvesters, we need to fit many models within each brand. Faced with this complexity, we use SOLIDWORKS design configurations to simplify the creation of all of these design variants automatically from the base design and **3DEXPERIENCE** Works solutions to manage all of this product data and associated life cycles."

Focus on Seed Terminator

VAR: Central Innovation, Clayton, Victoria, Australia

Headquarters: 23 Aldershot Road

Lonsdale SA 5160

Australia

Phone: +61 428 517 316

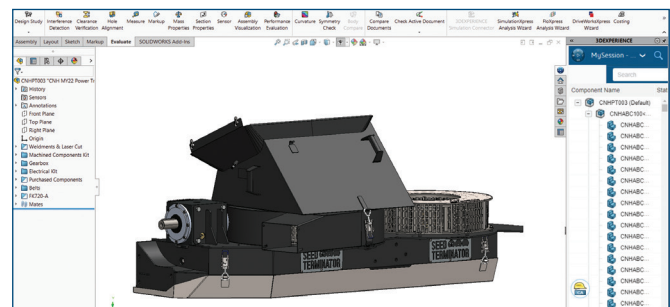
For more information

www.seedterminator.com.au

SCALABLE CLOUD-BASED SOLUTIONS SUPPORT GROWTH

The scalability of the **3DEXPERIENCE** Works portfolio is helping Seed Terminator grow from its R&D startup phase into its commercial manufacturing stage, as well as laying the foundation for future growth. "Although the ability to collaborate remotely and manage data in the cloud were leading requirements for us in selecting **3DEXPERIENCE** Works solutions, we also realized that we needed to prepare for growth as well to be able to grow in a controlled fashion," Dunlop says.

"There was significant setup time and onboarding to get **3DEXPERIENCE** up and running, but not dissimilar to the time investment associated with a traditional server/vault based PDM implementation," Dunlop continues. "The productivity gains afforded by **3DEXPERIENCE** Works solutions have given us the breathing space and structure that we need as we expand in the Australian and greater world markets."



Using SOLIDWORKS tools for design and simulation and validation, and **3DEXPERIENCE** Works solutions for collaboration and data management, Seed Terminator has realized the collaborative design environment that breeds innovation, enabling the company to leverage scalable solutions in anticipation of global growth.

Our **3DEXPERIENCE**® platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3DEXPERIENCE** Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating 'virtual experience twins' of the real world with our **3DEXPERIENCE** platform and applications, our customers push the boundaries of innovation, learning and production.

Dassault Systèmes' 20,000 employees are bringing value to more than 270,000 customers of all sizes, in all industries, in more than 140 countries. For more information, visit www.3ds.com.



Americas

Dassault Systèmes
175 Wyman Street
Waltham, Massachusetts
02451-1223
USA

Europe/Middle East/Africa

Dassault Systèmes
10, rue Marcel Dassault
CS 40501
78946 Vélizy-Villacoublay Cedex
France

Asia-Pacific

Dassault Systèmes K.K.
ThinkPark Tower
2-1-1 Osaki, Shinagawa-ku,
Tokyo 141-6020
Japan