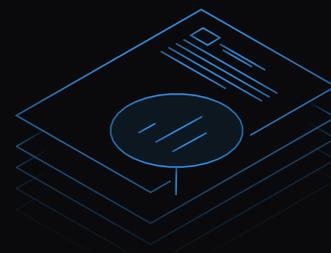# Harris Farm Markets Taps DataRobot for Demand Forecasting

In the retail grocery business, it isn't easy to manage produce items on the shelves – keeping apples at their peak freshness, or the right assortment of cucumbers. Grocery chains everywhere struggle to predict their perishable needs, but Harris Farm Markets, a grocery retailer in New South Wales, Australia, has faced especially challenging circumstances. First, wildfires made obtaining supplies unpredictable, and then COVID drove sudden spikes in demand. All this made the difficult task of demand forecasting that much harder.

With over two dozen stores and an expanding geographic footprint, the chain needed a way to consistently meet consumers' demand for variety and freshness. Harris Farm Markets Head of IT, Phil Cribb turned to DataRobot to implement an artificial intelligence and machine learning platform that could generate accurate predictions, with minimal labor on the part of the IT team.

"The genesis of the company is very much around fresh produce. That equates to roughly about 50 percent of the business and it's obviously highly seasonal, it fluctuates a lot," Cribb said. "Traditionally it's been very much 'touch, feel, see.' We relied on the experience of the people in the buying teams."

The sheer scale of the task defies a manual approach. Harris Farm runs about 20,000 SKUs, or stock keeping units, with a subset of concurrent fresh produce running at 1200 – Pink Lady apples alone have more than half a dozen SKUs of their own. Multiply that across the breadth of the produce sub-categories, and it becomes clear that a better approach to predicting produce demand was needed. "We wanted to use the latest advances in analytics to support that key decision-making process," Cribb said.

Implementing a "Trusted Source"

Cribb worked with DataRobot to put in place data-driven decision-making for the chain's stocking operations, starting with a core subset of products and then iteratively improving to include additional demand forecasts.
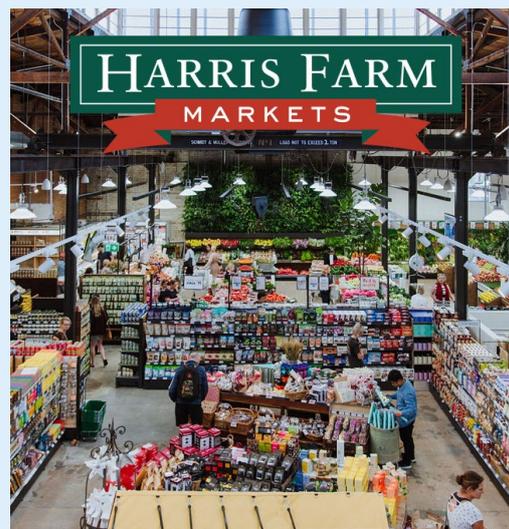
Company Info:

Name: Harris Farm Markets

Location: New South Wales, Australia

Industry: Retail Grocery

Harris Farm Markets is a family operated grocery retailer specializing in fruit and vegetable, gourmet meat, seafood and bakery. With more than 25 physical stores Harris Farm Markets aim to reconnect Aussies with the joy of food and bring the best that nature has to offer to their customers each day.

The system needed to take into account a wide range of data points, from seasonal impacts to customer numbers, and generate accurate forecasts. "We wanted to provide a more trusted source of information without all the heavy lifting: Trusted, curated sources of information that would be easy to access," Cribb said.

DataRobot initially came on line with around 100 AI models after a few months, focused primarily on demand forecasting for fresh produce. Predictions from these models are fed into a custom-built buyers' app that Harris Farm had already been using, with the whole scoring pipeline set to automatically run in a two-hour window every night, based on data from the previous day. Buyers can start buying at 2 a.m., and stock arrives in store in time for morning opening. A few months in, Harris Farm tweaked the model to target deployments by store, thus allowing the chain to turn off deployments for a store that might be undergoing renovations, for example.

Deployments

400 for demand forecasts

30 for customer-number forecasts

Net result: More accurate predictions and a vastly increased capacity to manage perishable inventory.

In total, this has resulted in 400 deployments for demand and 30 for customer-number forecasts, using 25 individual models for hourly numbers and five clustered models for daily numbers. The net result: more accurate predictions and a vastly increased capacity to manage perishable inventory.

The Value of an AI Platform

The powerful analytic and predictive capability has helped Harris Farm cope with a steadily rising SKU count, something that had increased complexity in recent years. In addition, wastage has declined significantly, which has reduced costs and improved profits.

While the platform can support the needs of highly specialized data scientists, it's simple enough for a non-scientist to get the necessary outputs. Cribb said the grocery chain also benefits from DataRobot being a cloud-based solution. "With continual updates, we're getting essentially the latest and greatest, without having to go out and doing all of that investigation ourselves," he said.

"We know that we can just trust the platform. We can trust that there is a roadmap for enhancements, as new techniques and new algorithms become available," he said. "We don't have to be engaged across all of the data science literature in the world. We've essentially got hundreds of specialists supporting us through DataRobot."

"I would estimate that we're probably getting a tenfold capacity of our resources just through using DataRobot."

Phil Cribb
Head of IT
Harris Farm Markets

By reducing the workload around data science, the platform has freed Harris Farm to focus on bottom-line considerations. "We're not really thinking about the technical parts as much anymore. We're spending that time understanding and interpreting our own business needs," Cribb said.

Predicting Results

With DataRobot's outputs laid into the grocery chain's own internal dashboard, Harris Farm has been able to generate more accurate and timely predictions. Even before an emerging trend has become evident to experienced buyers, the data will surface the change and drive action.

"We can see the deltas, work out which way it's going, look at the drift," Cribb said. "If there is something that's starting to turn within our business, we have a data-driven prediction, we can see that graphically in real-time."

While Harris Farm initially wanted deeper data-driven insights around produce, Cribb noted that the same methodologies could be leveraged to better understand customer behaviors. Suppose 200 cars suddenly turn up at a given store. DataRobot's predictive capability could help drive ground-level response to that sudden and unexpected business need.

"The speed of that response is really the most important thing," Cribb said. "It matters to our customers, and to us as a business. That's why we want to adopt a mindset that really focuses on data in every role in the company."

To that end, various team members across the business have stepped up to help improve the outputs. They're feeding in a wider breadth of data around the customer experience and the quality of produce. As the data mindset takes hold across the enterprise, the models steadily improve.

As much as he appreciates the demand forecasting capability DataRobot has brought to the table, Cribb is even more pleased to know that he has a partner that can support his needs over the long haul. "It's not just the platform, it's the people," he said. "They're always there to engage, to answer questions, and provide ideas. We can just keep hitting them with data, and they always have a super-slick new algorithm that works within our dataset."

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— Phil Cribb

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