Using Data to Aid Growers to Treat Canola Crops

Large amounts of data helps large scale agriculture company

Overview

A well planned data analytics program collecting and analyzing farm data can offer benefits to companies and farmers in identifying seed treatment levels, driving operation efficiencies and cost savings.

With significant advancements in data collection, and the amount of data that can be collected, companies can now embrace this data to drive insights and aide in decision making. However, the application of this data is a meaningful challenge that many companies face.

Machine learning is a megatrend that is driving business and agriculture data which is a great opportunity to evolve from data collection to data-analytics.

The Challenge

Our client leads in aiding growers to utilize tabular historical data to drive better decision-making about treating canola crops with fungicide treatments for the upcoming growing season(s). This historical data includes weather and treatment data. Bayer Crop Science capitalized on this data availability to:

- Build a statistical model to model percent treatment
- Use model results to simulate product pricing and incentive programming scenarios
- Find what is more likely to drive additional product treatment

- **Industry:** Pharmaceutical and Life Sciences
- **Location:** Calgary, AB (headquarters of Canadian Agriculture arm of business)
- **Size:** 110,000 employees globally (1,400 in Canada)

Company Bio

The company is a multinational pharmaceutical and life science company. The work described herein was completed with the Canadian Agribusiness arm of the company.

"Imagine you have to manage hundreds of data captured directly at a farm that produces tons of agricultural products. This information collected by sensors and other high-tech devices is what we call Big Data, and it is completely transforming global agriculture" [1]

Statistical model built on historical data

Model results consistent with historical treatment levels

Ability to simulate 'what if' scenarios

The Solution

The solutions that were provided are three separate machine learning models which model the percentage treatment of fungicides for Canola crops in thee distinct zones using historical weather data.

Raven Bay directly engaged with stakeholders to understand the needs for determining percentage treatment and through a user friendly approach, developed and delivered a machine learning and analytics solution that met the clients needs.

The Result

Raven Bay delivered three machine learning models that provided Bayer Crop Science with:

- **Models that simulate percentage treatment for each zone**
- **User friendly interface for uploading updated data for testing various 'what if' scenarios**
- **Allows for additional insight in data that was preciously unknown**

About Raven Bay

As a full-service management consulting and analytics firm able to deliver solutions in both the business & technical realms utilizing the same set of resources; thereby shortening delivery timelines and providing more holistic solutions for our clients. Our proven methodologies & hands-on experience enabling organizations to achieve the benefits of an effective analytics program through this offering also accelerate the development & value realization of the unique Governance Model we will create for you.

[1] https://www.cropscience.bayer.com/en/Blogs/Corporate-Blog/2017/Luis-Valdes-Garcia-big-data-for-best-results

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