VULCAN CERES

Better outcomes with fewer resources
and smaller carbon footprint

Vulcan Ceres

Vulcan Ceres is a suite of artificial intelligence (AI) applications helping farmers translate data into actionable insights, and make better decisions for yield and quality optimisation at a lower cost.

Ceres uses a multi-sensory approach to generate intelligence for micro-supervision. A combination of satellite, unmanned aerial vehicle (UAV), internet of things (IoT) data and your enterprise data are put through signal processing and AI pipelines to generate actionable insights.

Our AI applications have the potential to increase yield by 5-15% and optimise business costs such as fertilisers, weedicides and labour by 10-20%.

Vulcan Ceres comes bundled with third party data like satellite images and weather data that can be combined with your own datasets such as operational and geospatial information.

Ceres Hyperdata
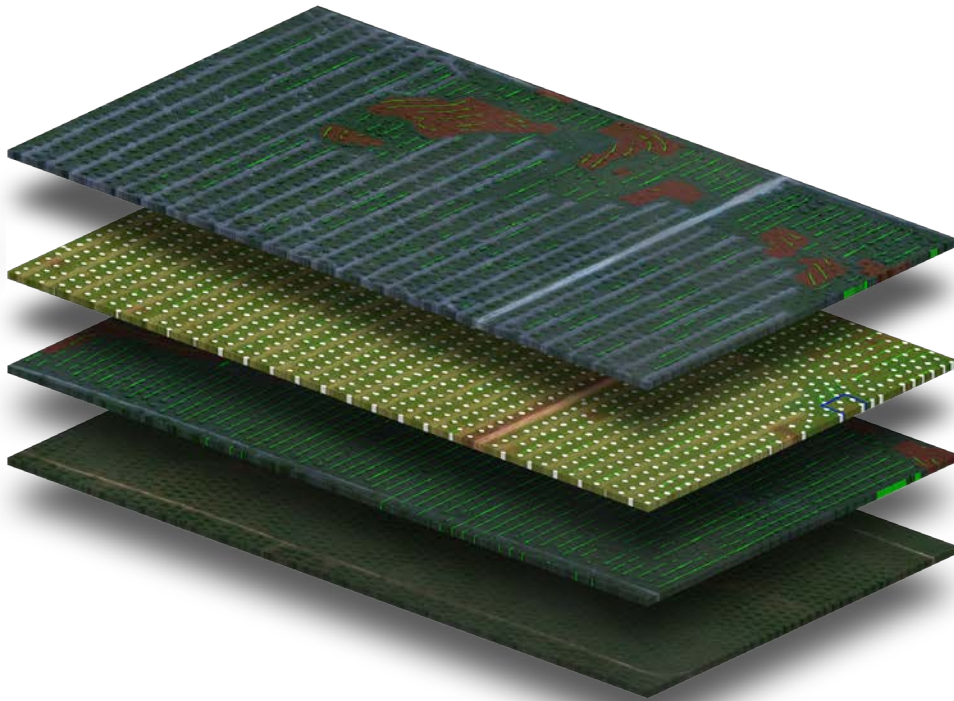
Ceres Hyperdata creates an analytical data model which is then consumed by our proprietary applications and/or integrates with your own analytical models or GIS applications.

Hyperdata also offers various GIS layers and data that agronomists can use to easily select areas for investigation and/or research. Data can be exported to integrate into their own research and analysis systems.

Ceres Sense+

The Sense+ module uses advanced AI models and image processing techniques to generate clean, rich images from satellite images and geospatial data for further processing.

Signal Processing:
- Auto Quality Control (QC) of Satellite & UAV images
- Haze Detection & Removal
- Cloud Detection & Removal
- Shadow Detection & Correction
- Crop Specific Vegetative Indices

The processed and cleaned images are then run through proprietary computer vision and deep learning AI pipelines to generate various vegetation indices for assessment of tree health, water stress, and biomass.

AI-Generated Layers:
- Tree Locations
- Tree Counts
- Planting Lines
- Blank Spots
- Thinning Alerts
- Nutrient Alerts
- Pest & Disease Alerts
- Health & Growth Alerts
- Various Vegetation Indices
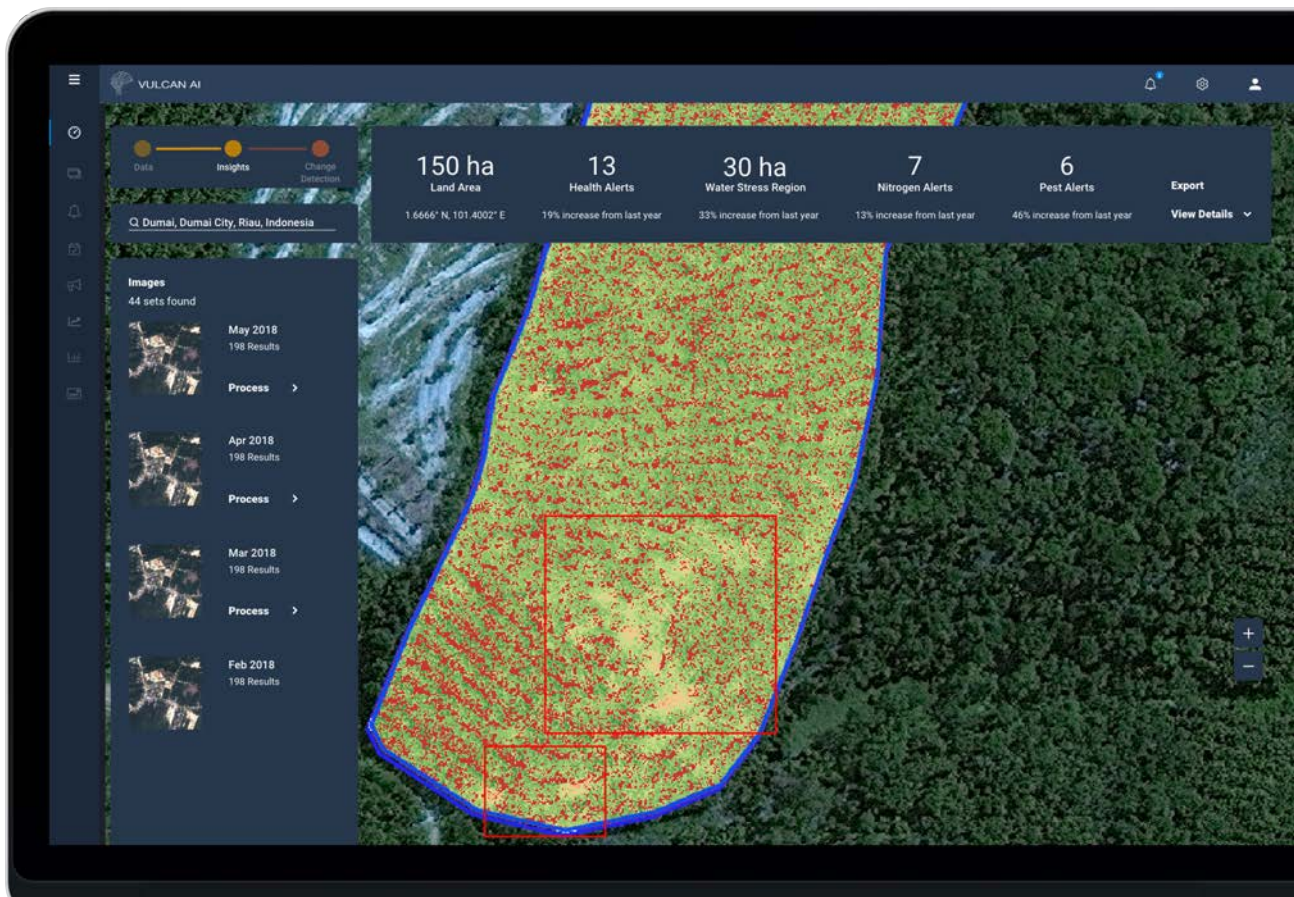
Ceres Replant+

The optimal density of trees is critical for proper sunlight and nutrient absorption. In very large plantations, it is difficult to check compliance with a prescribed planting scheme which may include proper terracing guidelines, gap between trees, and gap between planting lines.
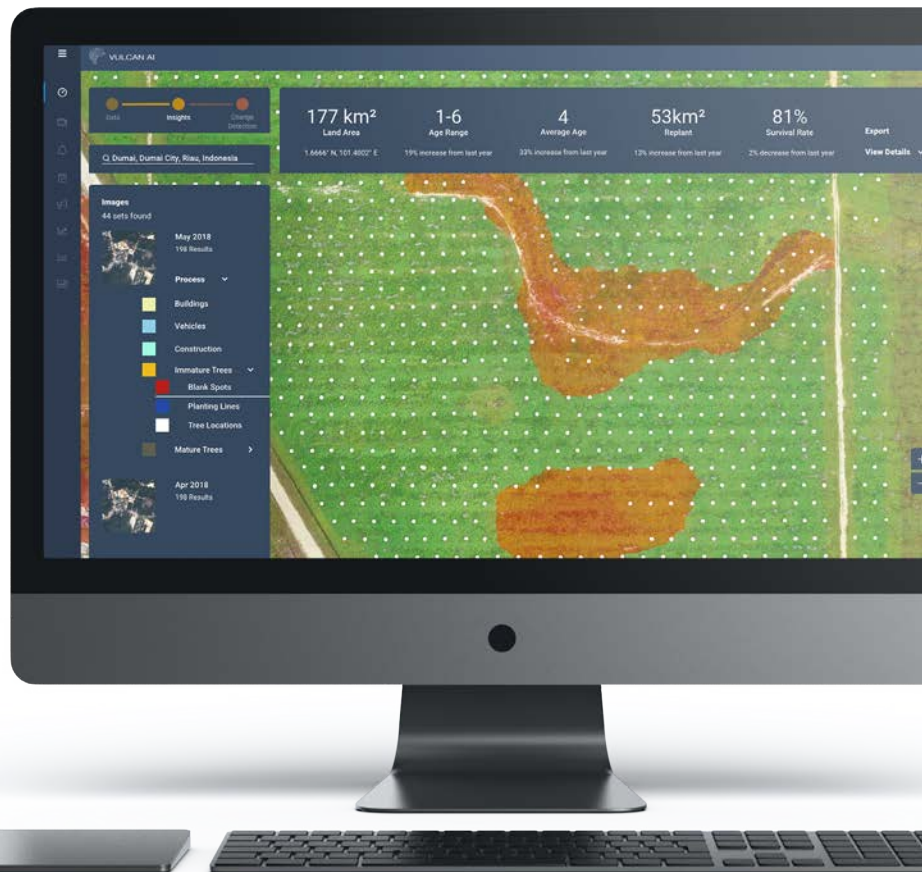
Ceres' AI pipelines automatically process remote sensing and UAV images to detect dead trees for replacement. It can also detect areas of high density where thinning activity may be conducted to improve productivity or yield.

Replant+ has an accompanying mobile and web app to help workers and farmers navigate to the right place, at the right time, to take the right action.

Ceres Health+

Ceres Health+ AI pipelines help to detect potential nutrient deficiencies and/or pest and disease incidence. Running satellite and UAV images through Health+ AI pipelines can identify potential areas suffering from nutrient deficiencies.

Various inputs including leaf sampling information, ground sensors, historical pest, disease incidence, and weather, are combined with Multi-Spectral and Hyper-Spectral Vegetation Indices to create AI-based pest and disease surveillance models. These models offer early detection of any yield limiters, enabling you to take rapid action to protect your crops.

Ceres SmartGrader
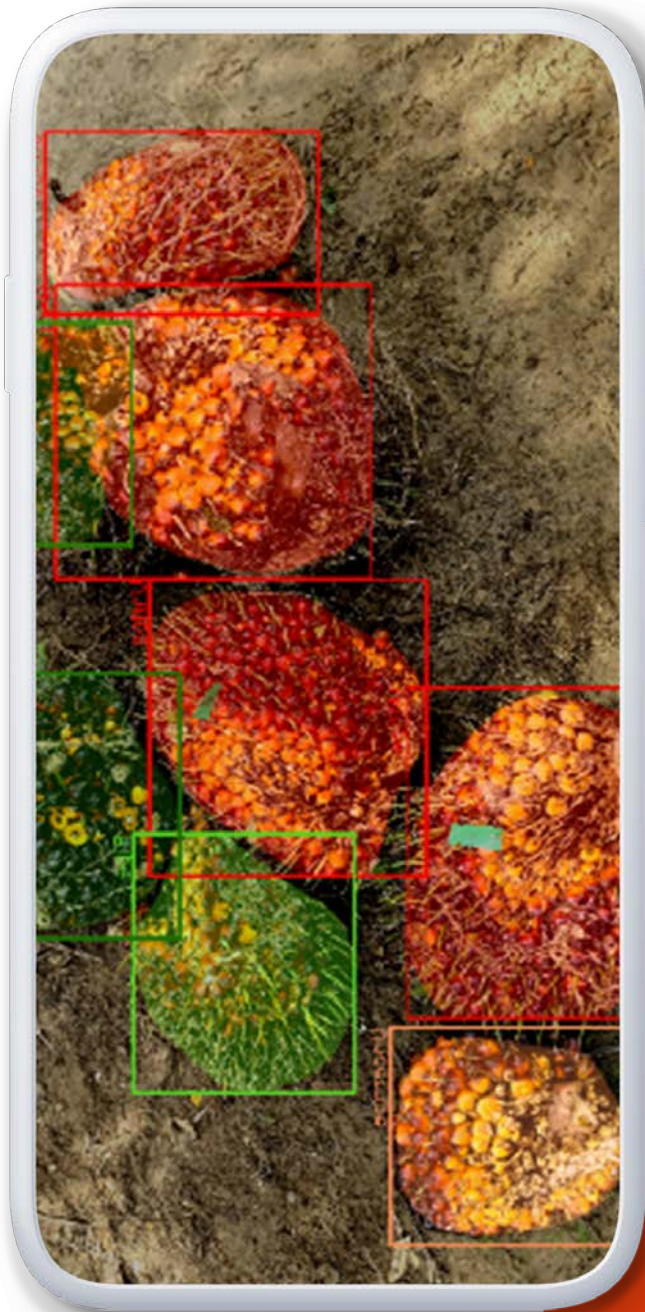
Ceres SmartGrader is a Vision-based QC system developed to work on fruits and plants.

SmartGrader is a mobile app—it uses the pictures of fruits taken on a smartphone to count and grade the fruits into different categories, based on ripeness, quality, bruising, pest attack, and compliance to harvesting guidelines. It can also be deployed at your manufacturing or packaging plant for fruit grading and sorting.

The data collected on the quantity and quality of a harvest can be integrated into other crop yield models. Allowing you to optimize fertilizer applications, refine harvest timings or to feed into downstream operations such as variable processing lines.

Ceres Trade+

Ceres Trade+ uses third party data such as satellite images and weather data at scale to generate updated signals for forecasting crop yield.

AI models are used to automatically extract relevant signals such as total area under plantation, age/planting distribution, health and growth trends. These signals combined with crop-specific yield models predict the yield by regions.

Our approach focuses on cost-effective sensing by optimising the mix of low resolution and high-resolution images and AI models to forecast yield with higher accuracy.

Forecasts can be used in commodity trading platforms. Ceres Trade+ can access competitor and market intelligence for an early view of upcoming supply and prices to improve trading profits or margins.

Get Started

You start with a 4-6 week pilot where we configure and set up our applications, integrate our Hyperdata and your enterprise data into our AI pipelines for a selected subset and use case.

The outputs are then put through both desktop and in-field validation. Once you've seen the results Vulcan Ceres can deliver for you, sign up to an annual application subscription. We'll then work with you to scale up to the full area under cultivation.

Vulcan Ceres applications are cloud-based and accessible on the web or mobile. The pricing model is flexible and can be structured as an Annual Enterprise License for big growers or Pay as You Go ($ per Hectare) for smallholders.

Capability Briefing & Assessment
2 hours
Get insights into Vulcan Ceres capabilities and high-value use cases. Select relevant modules from Ceres and assess if any new capabilities are required.

Real-World Pilot for Vulcan Ceres
1-2 weeks
We process relevant data provided by you and integrate with Vulcan Hyperdata. Then, we configure AI pipelines to generate results in your areas of interest.

Enterprise Deployment
4-6 weeks
Scale and deploy the selected Ceres applications. Set up user access and configure reports.

VULCAN AI
INTELLIGENCE | APPLIED | AT SCALE | NOW

Helping enterprises do more with less