

# Oracle Government Data Intelligence for Agriculture

**Oracle Government Data Intelligence for Agriculture** (Agriculture Intelligence) provides complete visibility into agriculture data and performance so governments can lead their food system into a state of greater resilience.

- Gain insights into critical drivers of food security and risk factors
- Monitor and forecast agriculture production with reliable, timely data
- Forecast risk factors like adverse weather to drive proactive interventions
- Automate response plan development and easily track intervention programs

Oracle Agriculture Intelligence combines open, proprietary, and government-owned data into a seamless solution to empower governments with a unified, authoritative source of truth. The application delivers a holistic view of the critical drivers of food security—both present and future—to equip leaders with reliable, timely data and advanced predictive analytics. This enables more effective decision-making to help address challenges with precision and foresight and build resilient food systems.

## Crop production forecasting

Built with the performance and scalability of Oracle Cloud Infrastructure (OCI), Oracle Agriculture Intelligence is a powerful SaaS application with a robust data science foundation. Harnessing AI and machine learning (ML), it forecasts the production of a country's most valuable crops while they're still in the growing phase. The platform integrates diverse datasets, including nationwide satellite imagery, to deliver a comprehensive analysis of current crop conditions. Government leaders and teams gain early visibility into potential shortfalls or surpluses weeks before harvest, enabling proactive risk mitigation and opportunity maximization. Predictive insights also identify adverse weather events threatening crop production, and intervention planning is seamlessly managed within the application—ensuring swift and effective responses.

# Features

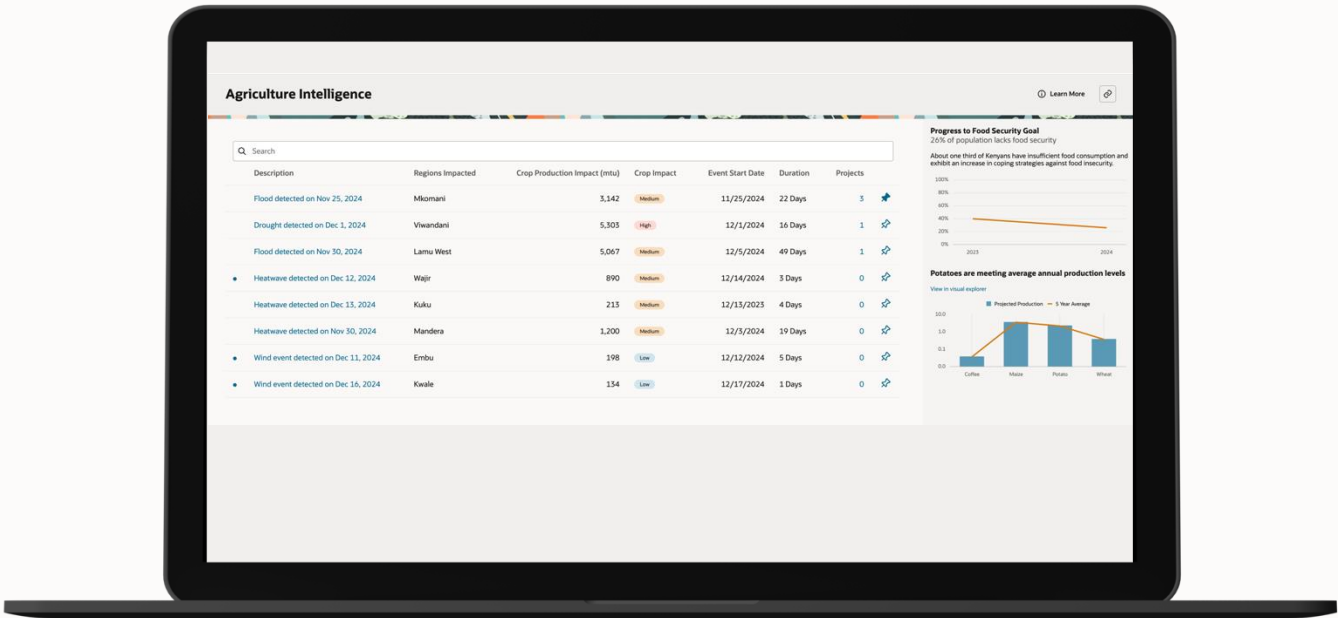
## Insights

Oracle Agriculture Intelligence harnesses advanced data analysis to extract meaningful insights by identifying trends, patterns, relationships, and anomalies within vast datasets. These actionable interpretations enable users to make well-informed decisions, optimize strategies, and improve project outcomes. Crop production insights are derived from an array of robust data sources, including comprehensive satellite imagery that spans the entire country, precise weather data, detailed soil information, historical production records, and other relevant inputs. Delivering these insights with high temporal and geographical resolution, Oracle Agriculture Intelligence ensures a deep understanding of the affected region, the production at risk, and what crop is affected most to support more accurate response planning and efficient resource allocation.

## Comprehensive dashboard for agricultural insights

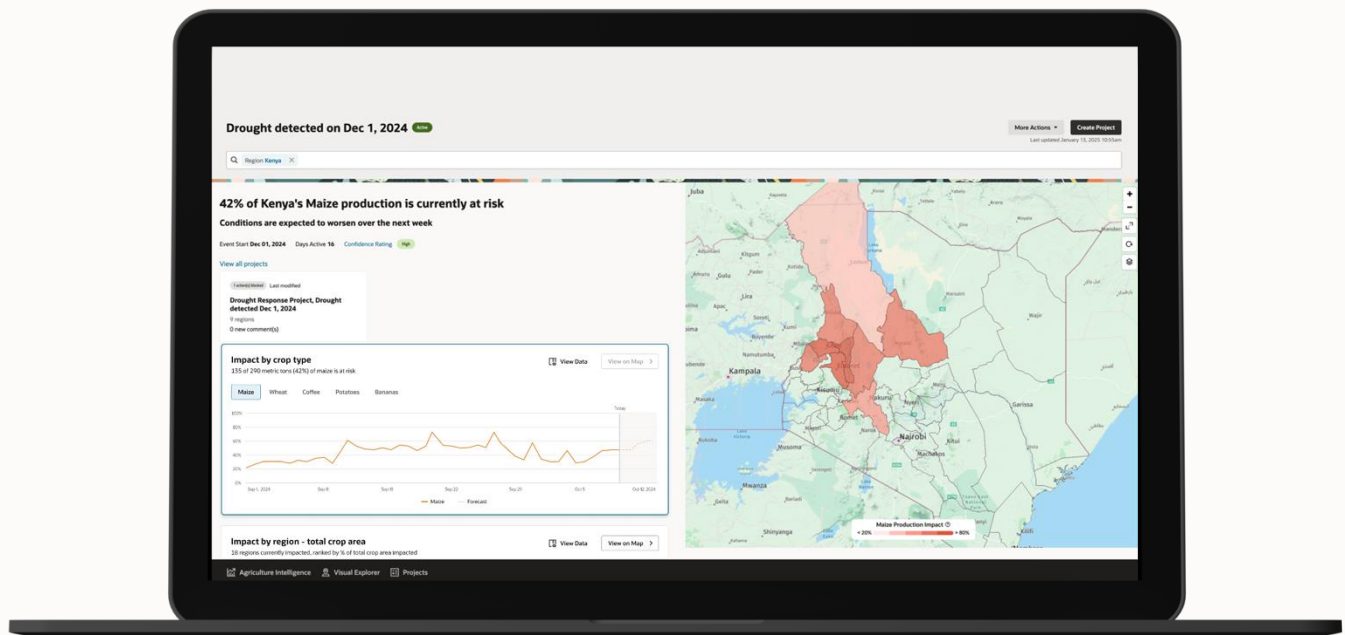
A user-friendly overview provides clear visibility into progress toward the country’s primary agricultural goals, along with real-time insights and crop production forecast.

- Page layout is designed to help users focus on the most critical areas requiring attention, ensuring swift and effective decision-making.
- Advanced search and filter capabilities make it easy to locate specific information, focus attention, and save time.
- A detailed and transparent methodology section explains the logic and data science underpinning the application.



## Actionable insights details

- Detects insights before and while a production-threatening adverse event occurs
- Presents weather-related threats to crop production early and across all municipality levels
- Indicates impact to crop production by priority crop type
- Accumulates event details for better decision-making
- Shows geographical visualization across all administrative regions
- Indicates other impact areas including production, relevant infrastructure, and population centers
- Retains data over time
- Displays all data related to a threat including best practices to create a response plan



## Oracle Agriculture Intelligence Benefits:

Access a wide range of integrated data, including satellite and weather data, with high temporal and geographical precision

Capture comprehensive insights by integrating diverse data sources

Gain real-time visibility into crop production across the country

Develop interventions based on best practices and track further developments

Proactively manage risks by identifying weather-related threats in advance

Stay ahead of potential challenges with predictive insights

Respond quickly to emerging threats with streamlined planning

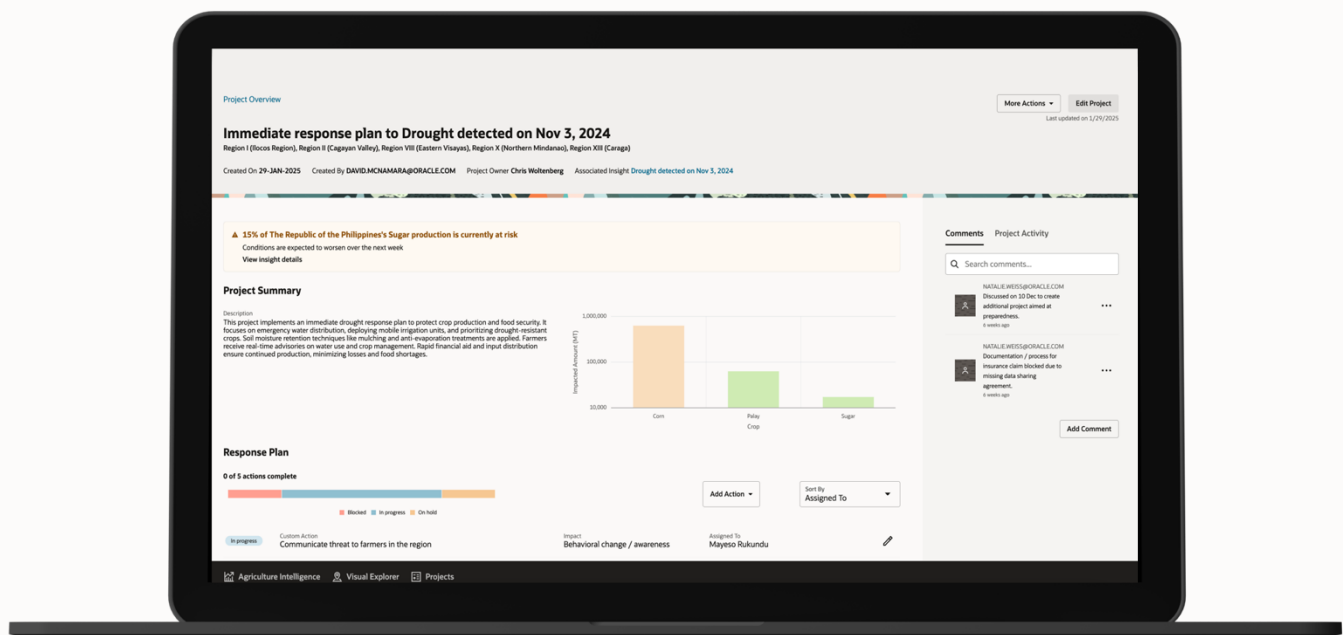
Leverage advanced analytics to uncover trends and optimize strategies

# Projects

## Effortless project and response plan creation

Projects are initiated in response to food security threats and are always tied to a specific insight and the region they address. These projects focus on managing response plan items and identifying the most effective actions and interventions to mitigate risks, ensuring the country transitions to a state of preparedness for similar threats in the future. Response planning is guided by best practices, and the outcomes of actions taken—along with their impact—are fed back into the model. This feedback loop enhances understanding of the effectiveness and success of interventions, continuously improving future response strategies.

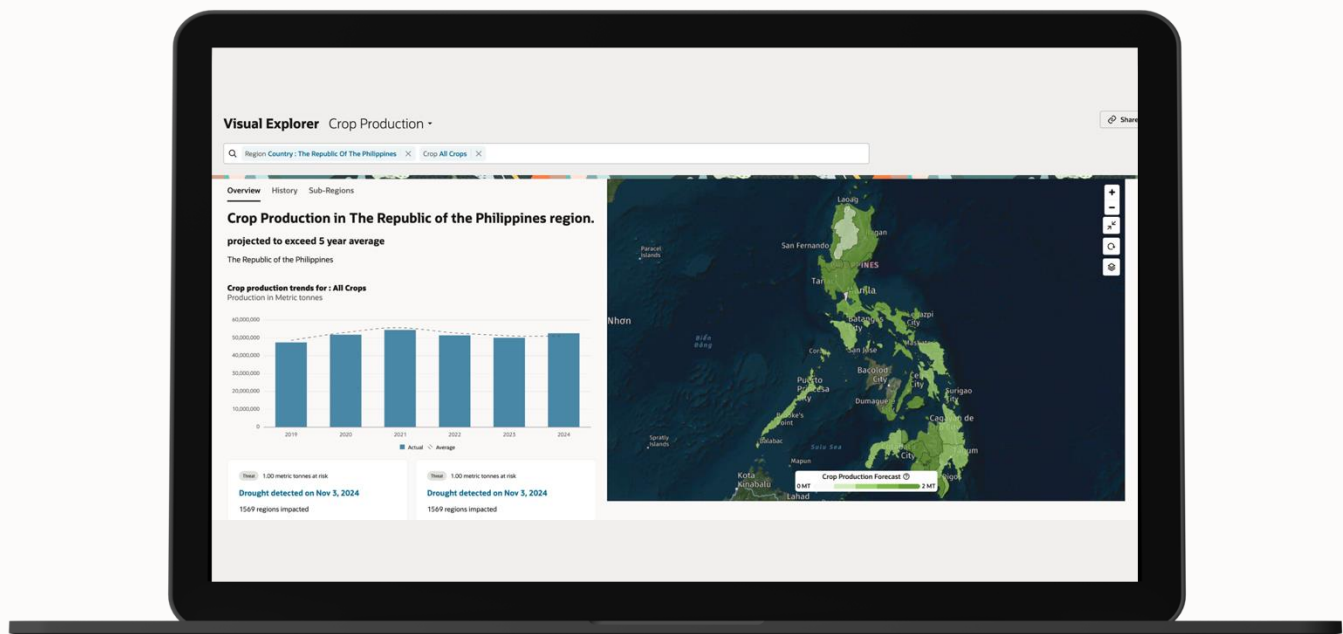
- Projects are initiated directly from actionable insights, ensuring the latest event and impact data remain seamlessly associated.
- Intervention planning is guided by a curated library of best-practice actions, with the flexibility to add custom actions tailored to specific needs.
- A dedicated comment section allows teams to document additional project-related information to foster transparency and collaboration.
- A clear, intuitive overview provides real-time visibility into the status of all intervention plan items to keep teams aligned and informed.
- Automatic notifications highlight significant developments in associated insight data, enabling timely adjustments and proactive responses.
- A user-friendly project overview allows for easy searching, sorting, and filtering to quickly find relevant projects.
- Each project can be shared effortlessly via a unique URL, allowing seamless collaboration and accessibility across teams and stakeholders.
- Project and action tracking establishes data used to predict future effectiveness and potential scenarios.



# Key Indicators

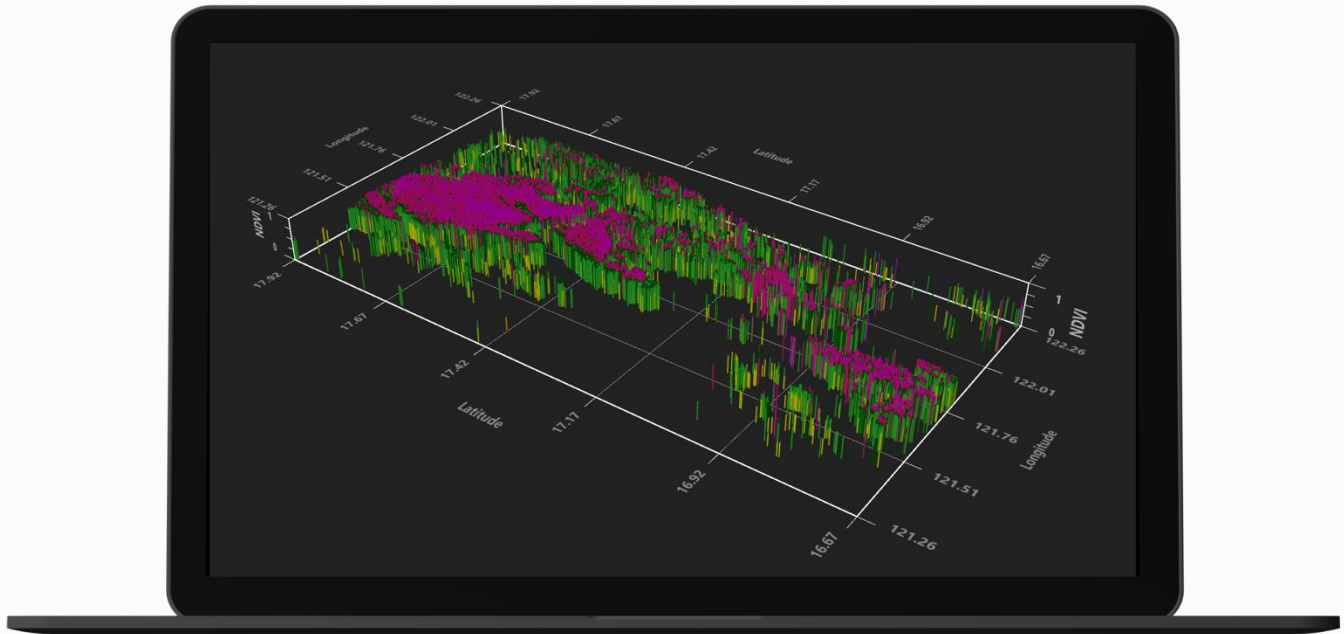
## Visual Explorer to reliably monitor crop production

- Identify where crop of interest is grown across the entire country
- Predict crop production across all regions well before harvest, enabling proactive planning
- Work with aligned data and map views for immediate, intuitive understanding of trends and priorities
- Detect crop production trends over time and compare them against the country's historical production data
- Access detailed information regarding production history, area, forecasts, and yield metrics
- Monitor production progress to determine whether adjustments or interventions are needed, down to every administrative level
- Identify underperforming or overperforming regions to focus investigations and plan targeted interventions
- Uncover potential risks to crop production, even in the absence of adverse weather events
- Switch seamlessly between production and performance views of the same data to draw diverse and actionable conclusions
- Visible and accessible crop production insights highlight major risks to this season's crop yield while allowing for continuous monitoring



## Data science behind the application

Oracle Agriculture Intelligence is powered by a robust data science foundation, leveraging a range of data sources at scale including satellite imagery, weather data, and advanced predictive analytics. Utilizing cutting-edge technologies such as AI, ML, and Bayesian inference, the system identifies crops based on the unique signatures of a country's key priority crops—enabling precise identification of what crops are growing where, with high geographical and temporal resolution. Using this data, crop production models forecast expected harvest yields for the year. Advanced detectors monitor adverse weather events, assess their potential impact on crop production, and quantify the risk posed by the threat.




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