


# Crop Analysis

📅 Updated on 04 Mar 2024 • ⌚ 15 Minutes to read • Contributors 

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## What is Crop Analysis?

Crop analysis is the process of evaluating different aspects of crops to make informed decisions about agricultural practices, maximize crop yields and ensure sustainable farming. This analysis involves the collection and interpretation of data related to crop health, growth and yield potential.

Skydeck uses machine learning models to automatically perform crop analysis allowing you to leverage drone-surveyed data to extract valuable insights regarding crop performance traits. This includes plant stand count, crop uniformity, NDVI assessment and average crop height. Skydeck takes this assessment and summarizes these details in a user-defined grid report, facilitating straightforward comparisons between different seeds under evaluation.

**Plant Stand Count** in crop analysis involves determining the exact number of plants in a particular area of land and comparing this to the expected numbers, giving farmers the percentage and actual number of missing plants in an area. The best time to conduct a plant stand count is at the emergent stage when the crop is just a seedling (measuring about 16-20cm).

**Uniformity** refers to the consistency of a crop's growth and yield across a selected area of land. Crop uniformity can help in determining the spacing of crops, time of sowing, fertilization, irrigation and crop selection.

**NDVI** or **N**ormalized **D**ifference **V**egetation **I**ndex is used to estimate the density of the vegetation by measuring the difference between near-infrared and red light. This data is spectrometrically collected by remote sensing devices such as drones and satellites i.e. the near-infrared light is strongly reflected by the vegetation whereas red light is absorbed.

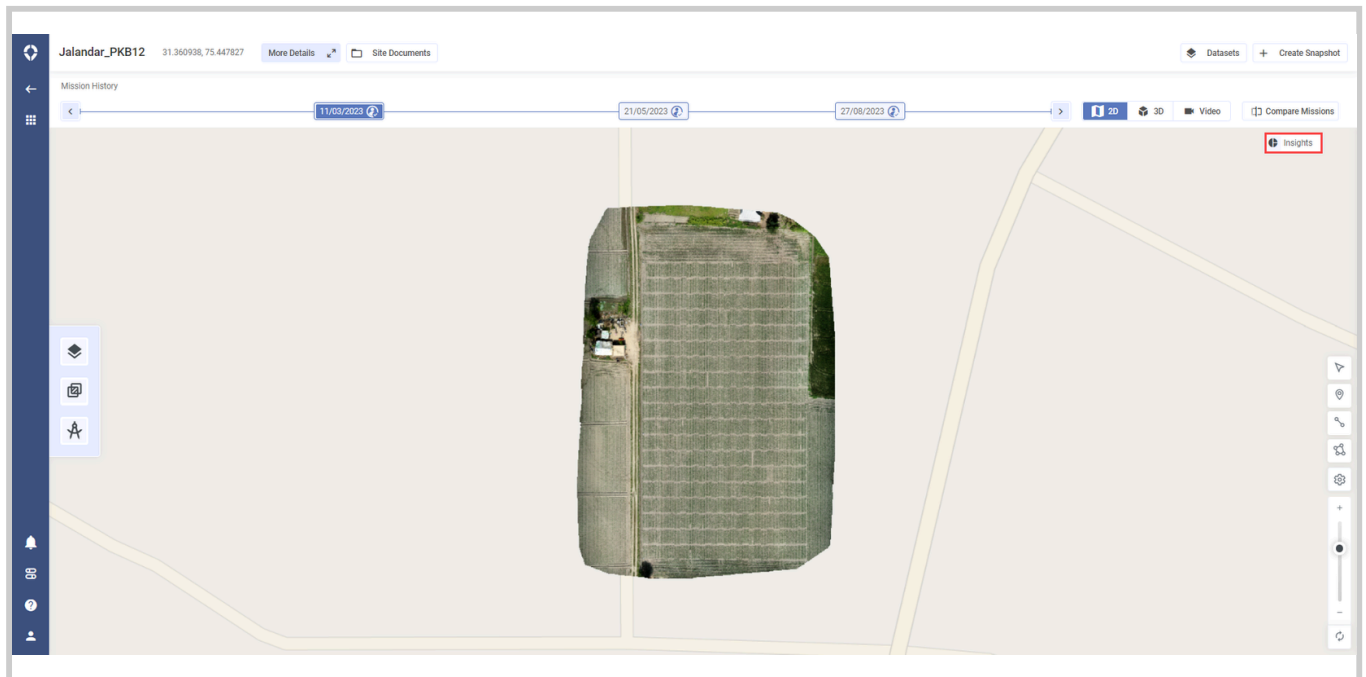
### Uses of Crop Analysis

- **Varietal Selection:** Crop analysis allows researchers to assess and compare different crop varieties for traits such as size, shape and health. This helps in selecting and breeding seeds with desirable characteristics.

- **Yield Prediction:** Crop analysis assesses factors such as plant health, growth patterns and environmental conditions and helps estimate potential crop yields. This information is valuable for planning harvesting, storage and marketing strategies.
- **Pest and Disease Detection:** Crop analysis techniques help in monitoring crops for signs of pests and diseases. This helps in identifying areas of crop infestations and targeted pest control measures.
- **Environmental Adaptation:** Researchers can use this analysis to study how different seed varieties adapt to various environmental conditions. This helps in developing seeds that perform well under specific climate and soil conditions.

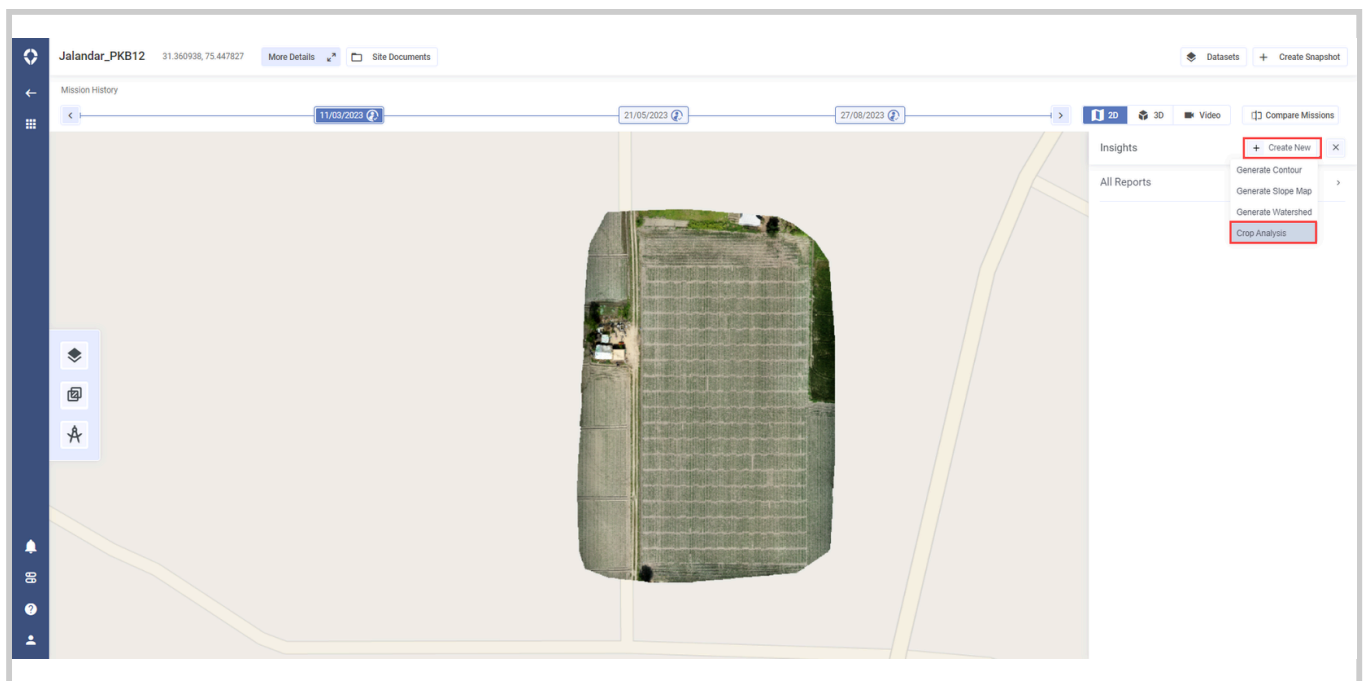
## Generating Crop Analysis

1. Open the site and select the snapshot where you want to generate the crop analysis.
2. On the map area, click **Insights**.



Create Insights

3. In the **Insights** panel, click **Create New** and then click **Crop Analysis**.



### Generate Crop Analysis

4. Select the analysis you want to run.

**The Plants Stand Count is a mandatory option, which cannot be deselected.**

**The option to include NDVI in the grid report will be available only if the NDVI data for the survey is generated and uploaded to the snapshot.**

5. To mark the area for the crop analysis, click **Demarcate the area**. A blue dot appears next to your cursor.
6. On the map or satellite image, click the starting point of the area you want to demarcate.
7. Move your cursor to the new boundary point and click to define one edge of the polygon. This is displayed as a blue line on the map.
8. Repeat step **7**, as needed, to draw all sides of the polygon.
9. When you reach the last point, double-click to mark the last point. A line is automatically drawn from the last point to the starting point to complete the polygon. The demarcated area is highlighted in red.

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### Demarcate Boundary for Crop Analysis

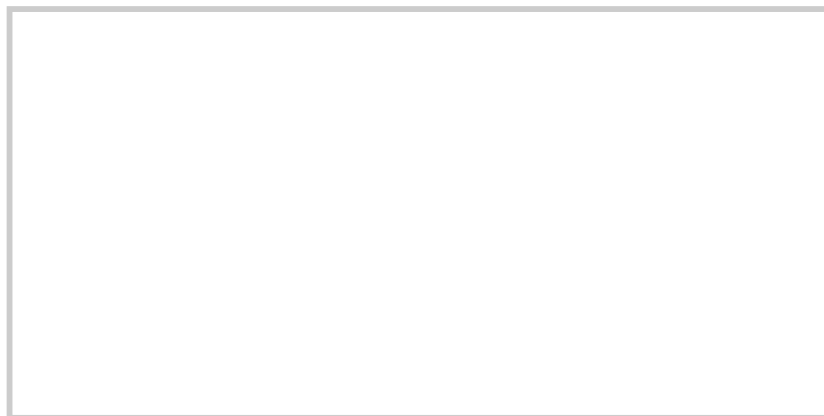
10. To reset the boundary, click **Reset the area boundary**.

11. Select the **Crop type** from the dropdown.

**Ensure that the corn crop is at V1 Stage without overlap between adjacent crops.**

**Soil color can impact the accuracy; similar crop and soil colours may cause inaccurate results.**

12. To split the demarcated area into separate sections or grids for better analysis, click **Create a Grid**.



Create Grid

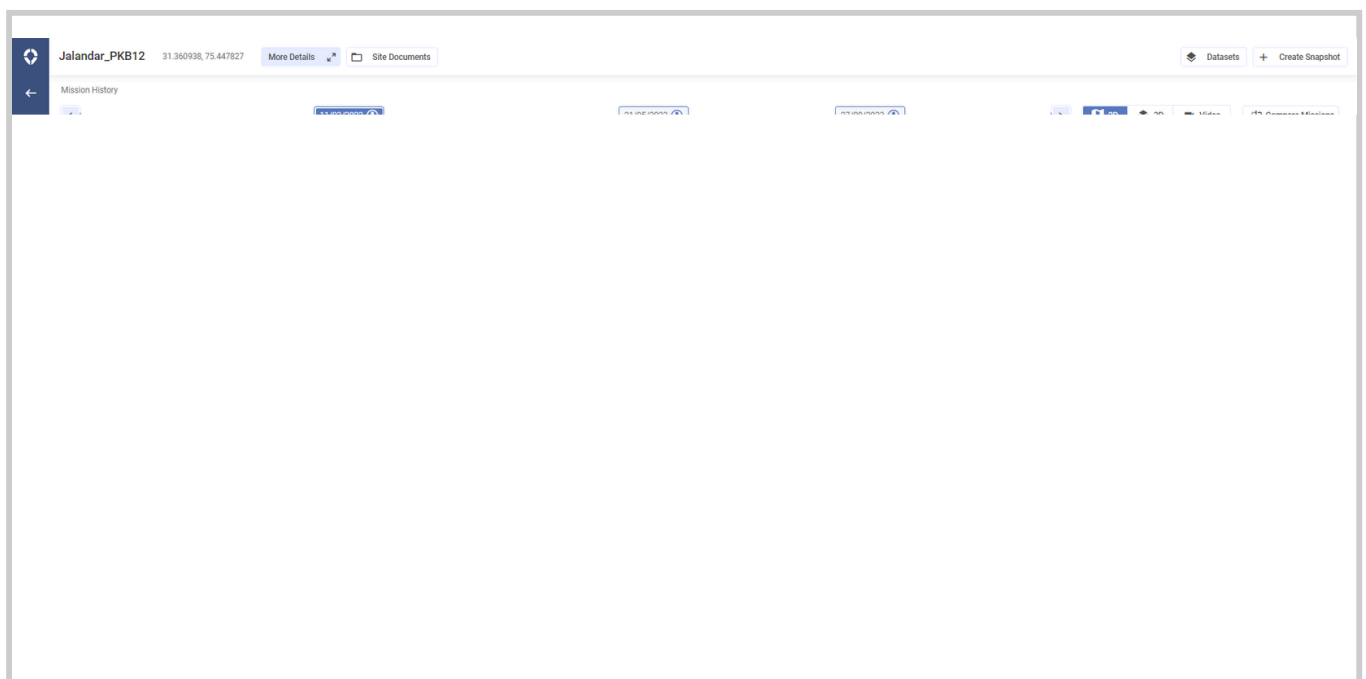
13. Enter or select the following information for creating a grid:

Field	Description
Grid name	Enter the name of the grid.
Grid anchor coordinates	<p>Displays the coordinates for the point of origin (displayed as a blue dot) of the grid.</p> <p><b>You can change the coordinate values either by entering new values here or by moving the blue dot on the demarcated area.</b></p>
Grid columns	Enter or select the number of columns to be created in the grid.
Grid rows	Enter or select the number of rows to be created in the grid.
Grid cell width (m)	Enter or select the width of the grid cell (in metres).
Grid cell height (m)	Enter or select the height of the grid cell (in metres).
Cell gap - Horizontal (m)	Enter or select the horizontal gap (in metres) to be placed between the grid cells.
Cell gap - Vertical (m)	Enter or select the horizontal gap (in metres) to be placed between the grid cells.
Plot Orientation (Deg)	<p>To align the grid with the demarcated area, enter or select the degree by which you want to rotate the grid.</p> <p><b>Increasing the degrees value rotates the grid anti-clockwise and decreasing the degrees value rotates the grid clockwise.</b></p>
Flip the grid	This flips the grid at a 90 degree angle. This means that a grid in a horizontal position will be flipped into a vertical position and vice versa.

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### Grid Alignment

14. Click **Generate Grid**. The grid is created. You can edit and delete this grid or create a new grid by clicking **Add another grid**.
15. Click **Run crop analysis**.



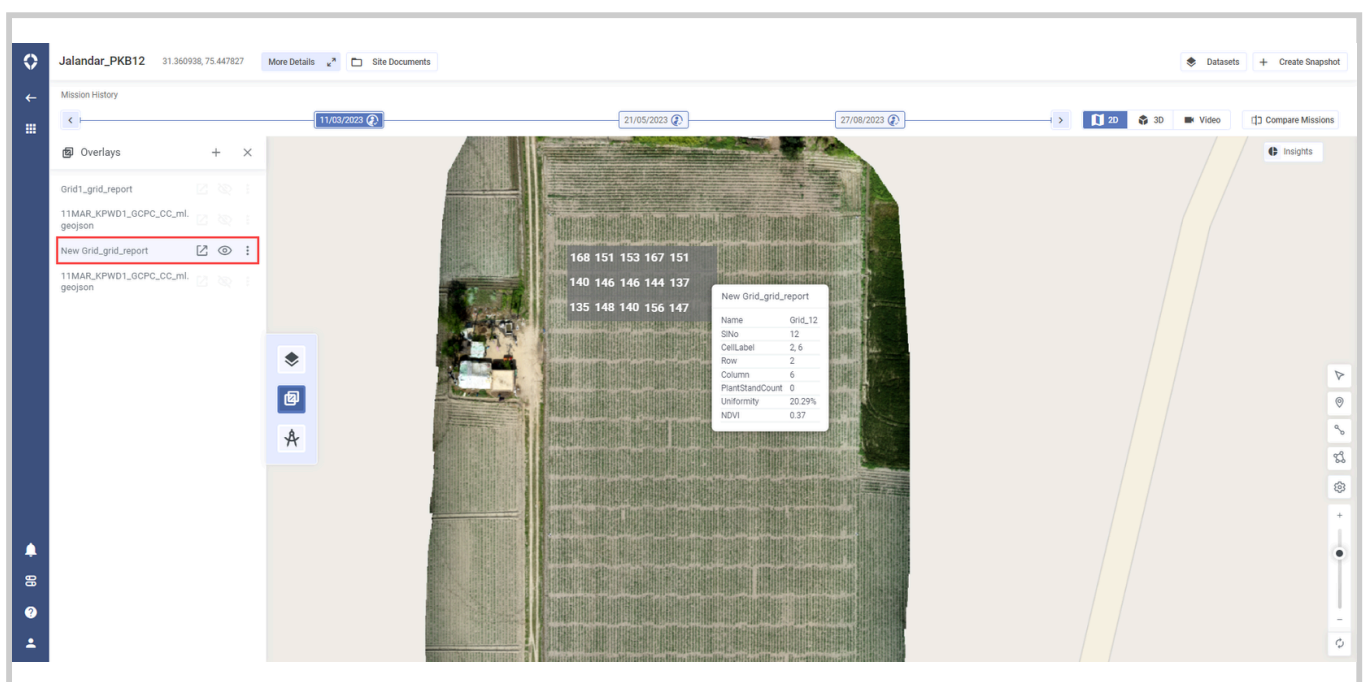
### Run Crop Analysis

16. In the **Token Quotation** popup, click **ACCEPT**. The crop analysis report starts generating.

## Crop Analysis in Progress

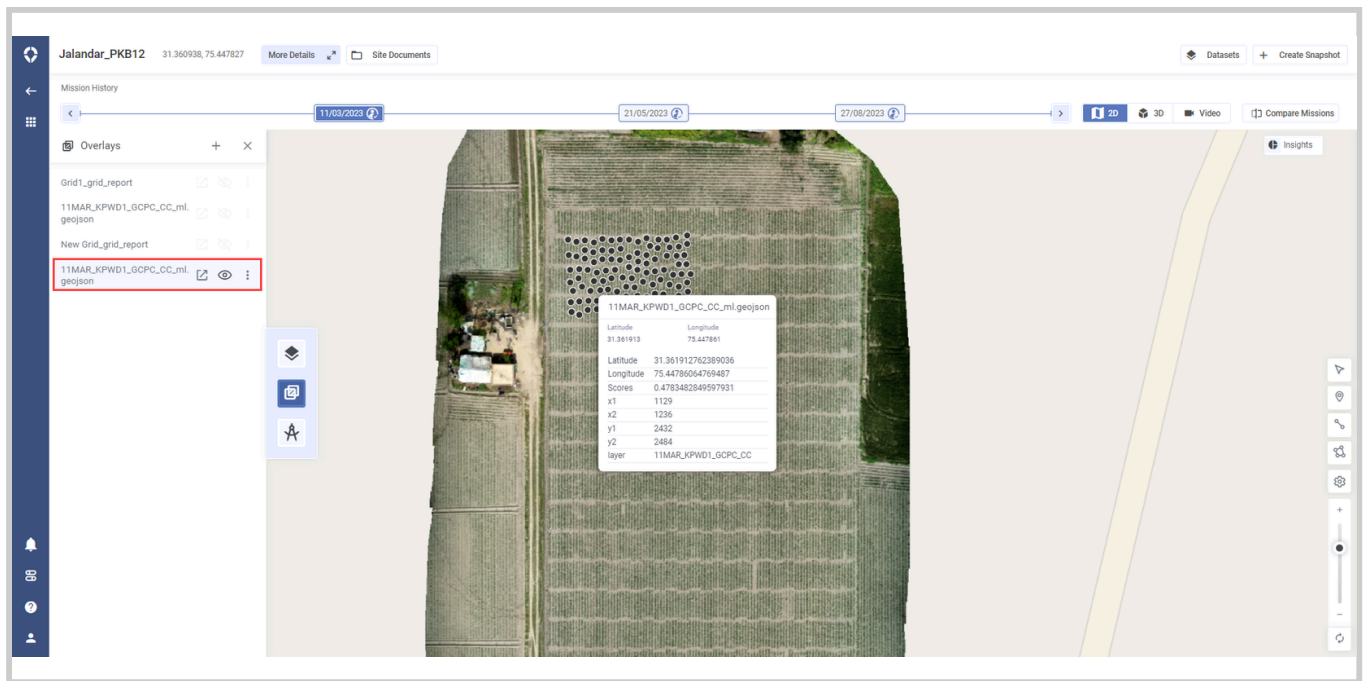
Once generated, the completion status is displayed in the **Insights** panel under **All Reports** and the following two reports generated are displayed in the overlays panel.

- **Grid report:** This report shows the plant stand count, uniformity and NDVI values.



## Grid Report

- **Plants Stand Count report:** The report presents plant data through a visual representation of dots. As you zoom in, the number of dots representing the plants increases, revealing individual plant clusters and their accurate identification as derived from the model. This data visualization approach enables a closer examination of plant patterns and densities, aiding in the evaluation and management of plant populations.



## Plant Stand Count Report

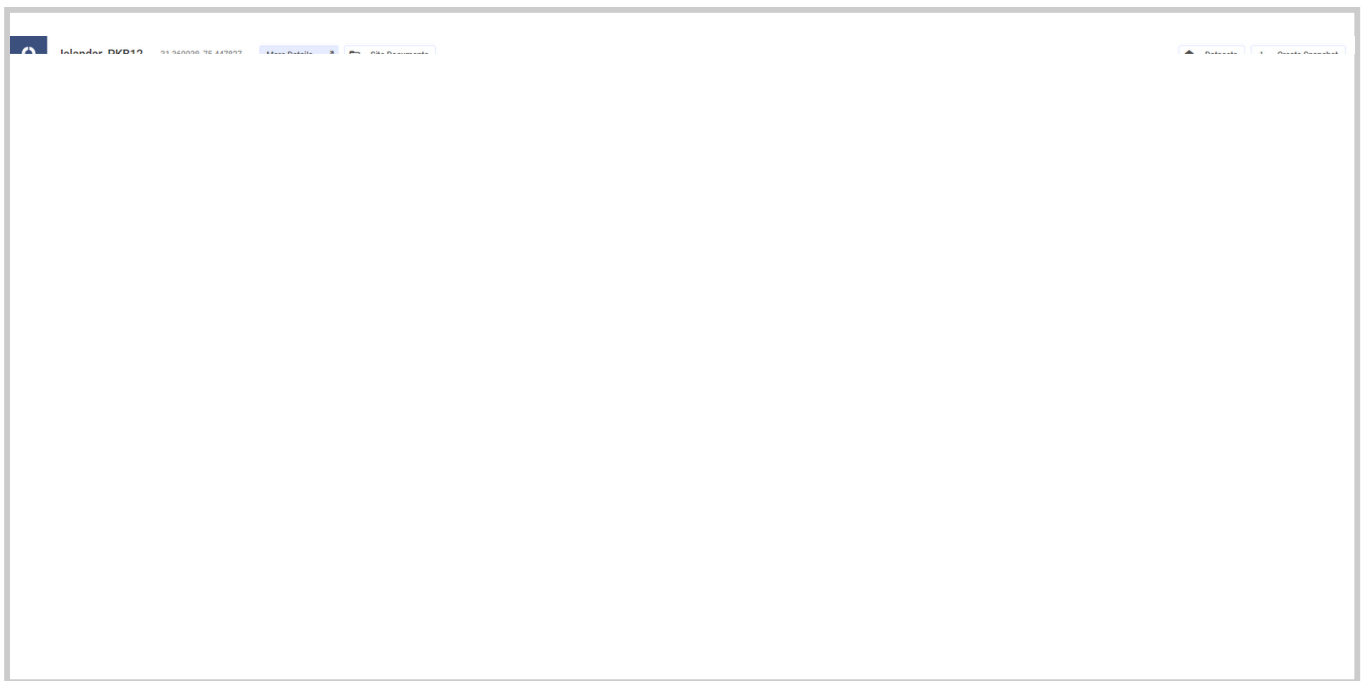
You can download these reports as a PDF. To know more, click [here](#).

## Viewing Crop Analysis Report

You can set visualization rules for each of the two reports that are generated during crop analysis.

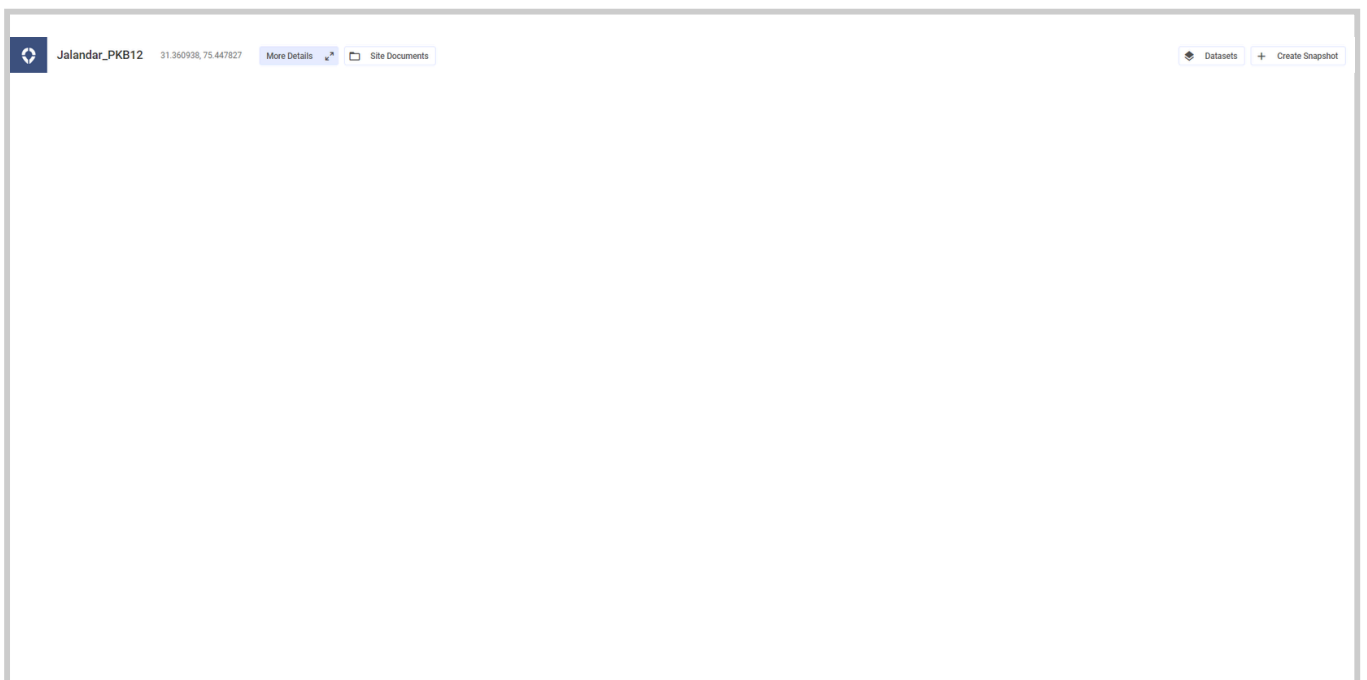
- Setting visualization rule for Grid report
  - a. From the **Overlays** panel, select the grid report report you want to visualize and click the **expand** icon. A pop-up is displayed with options to customize the report.
  - b. Use the slider to set the **Opacity** of the selected report.
  - c. To create a **Visualization rule**, click **Add a new visualization rule**.





### Add Visualization Rule

- Enter the key, for example, **Plant Stand Count** and under **Conditions**, click **Add Rule**.
- Define the conditions for the visualization rule.
- Select the condition from the dropdown and enter or select the value for the condition.
- Select the colour to be displayed for the defined condition. OR If you want to hide the contour for the defined condition, click **Use Color**.
- Once you have added all the rules click **Apply Rule**. The grids will be hidden or displayed in the chosen color as per the defined rule(s).

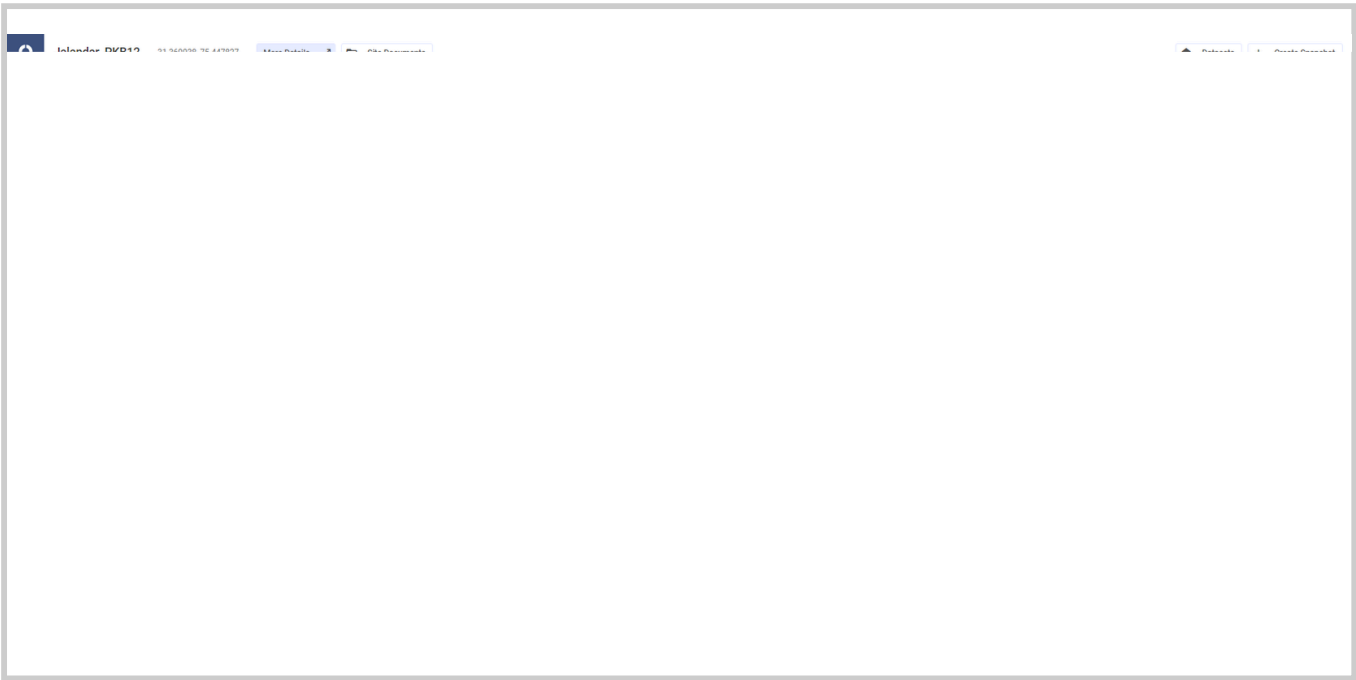


### Visualization Rule Applied

For example, as per the visualization rules defined as shown above, grids with Plant Stand Count less than 100 are hidden and grids with Plant Stand Count more than 150 are

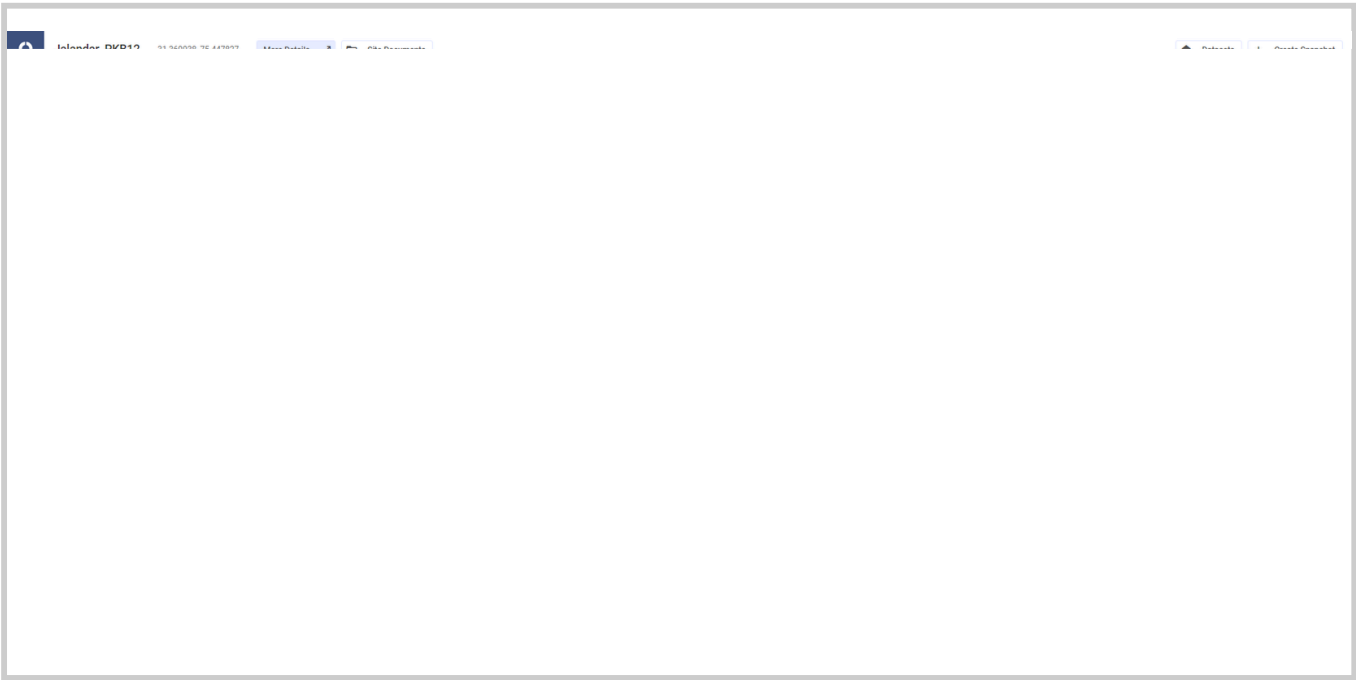
displayed in red.

- a. To delete the visualization rule, click the **delete** icon and then click **Delete Visualization Rule**.



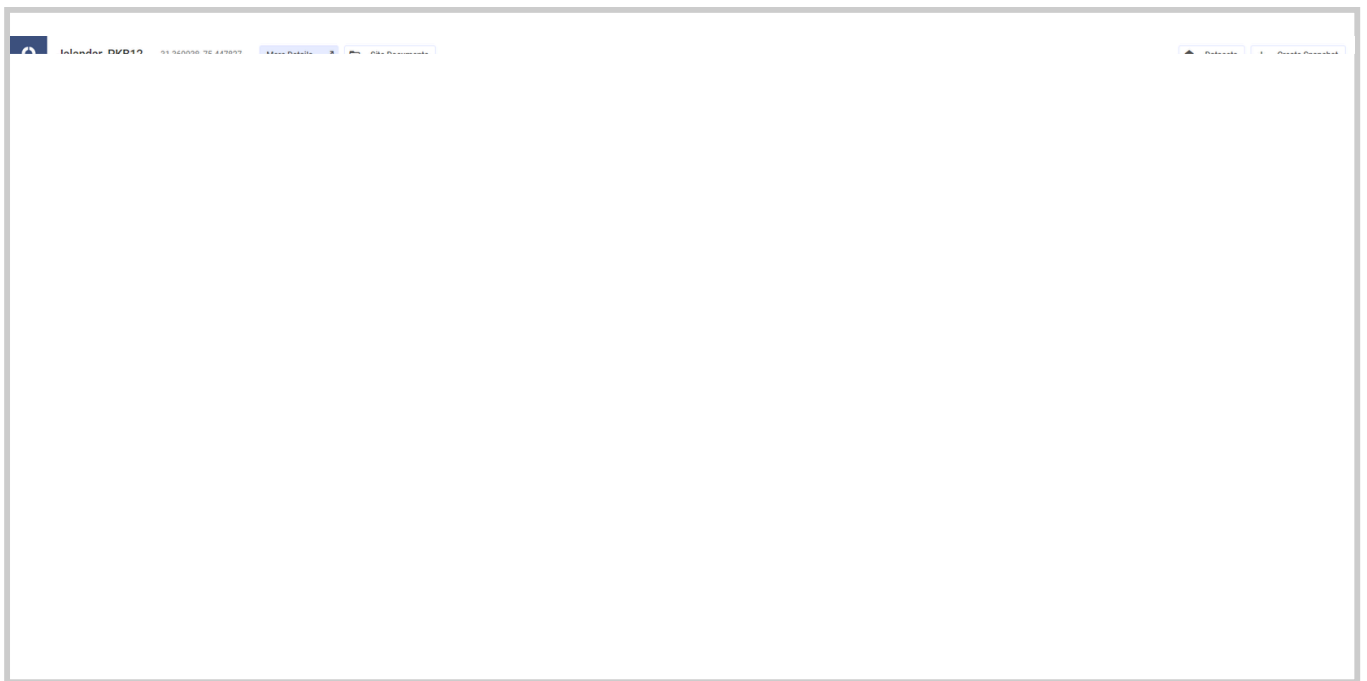
Delete Visualization Rule

- a. To view the grid in a different color, click on the **colored dot** and select the color from the given color palette.



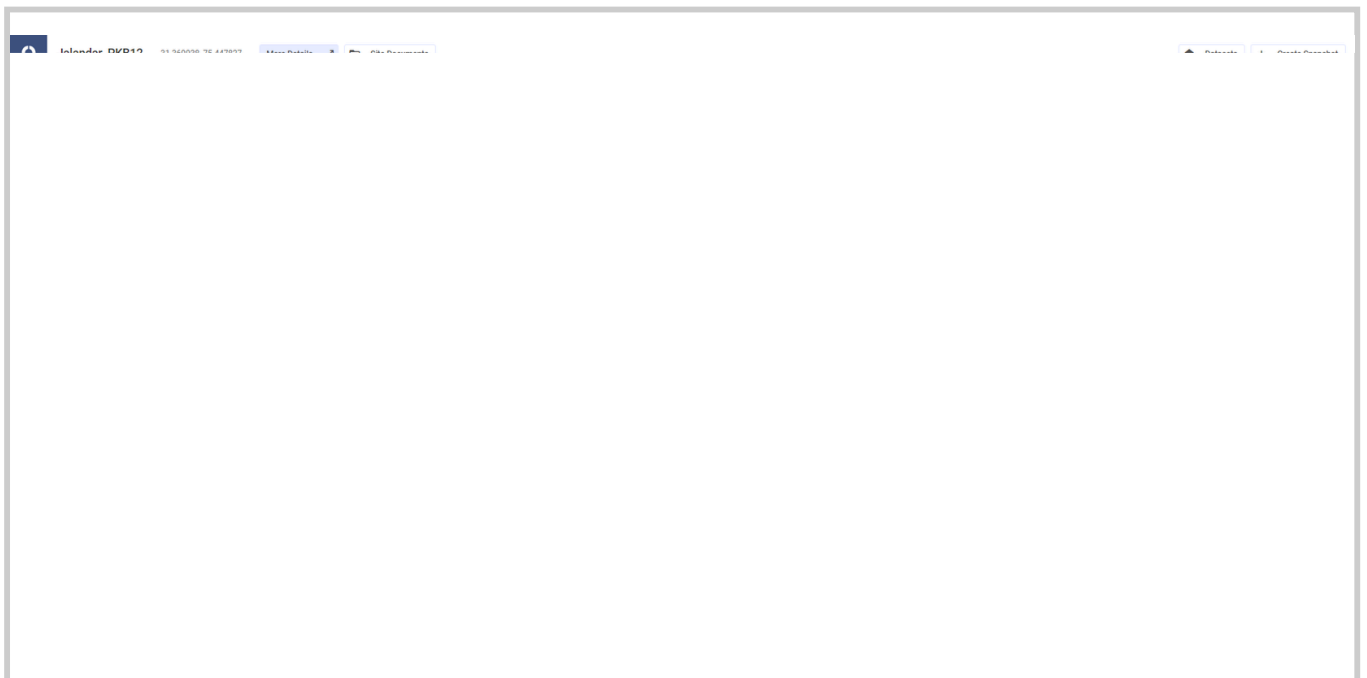
Customize Grid Color

- a. To download this report as a PDF, click **Download Overlay**



### Download Overlay

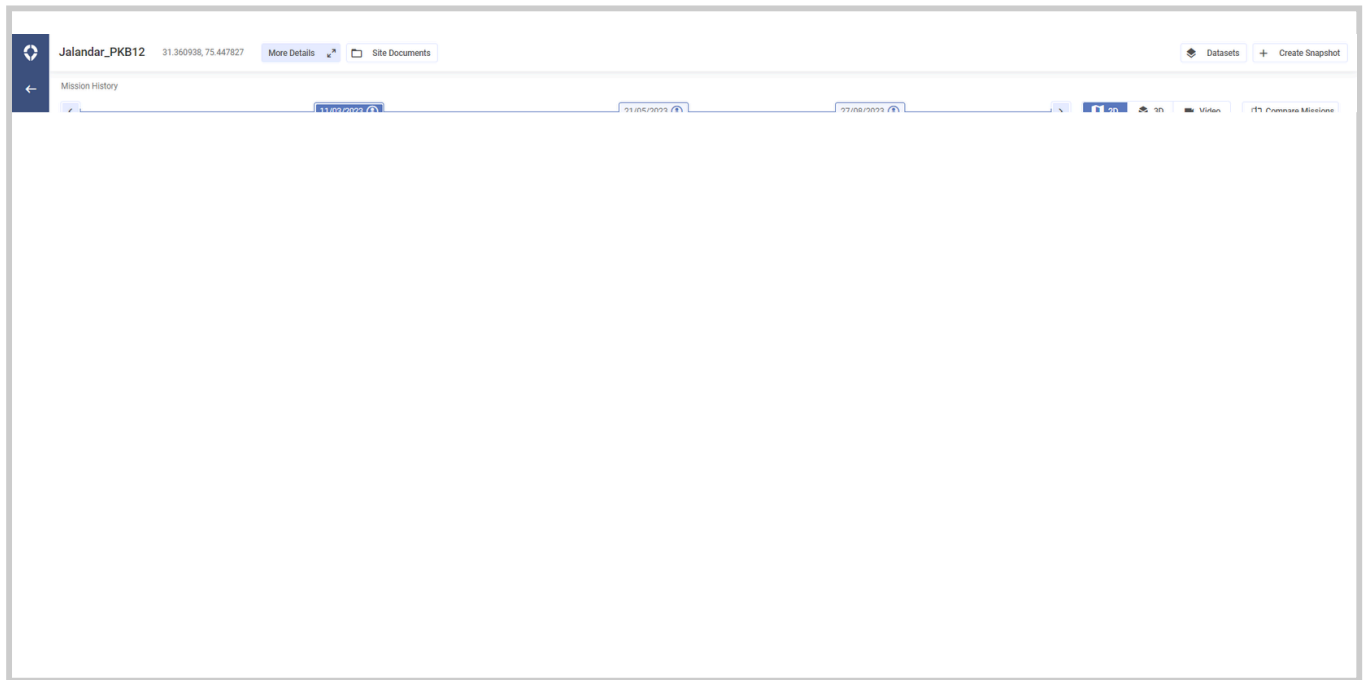
- Setting visualization rule for the Plants Stand Count report
  - a. From the **Overlays** panel, select the crop analysis report you want to visualize and click the **expand** icon. A pop-up is displayed with options to customize the overlay.
  - b. Use the slider to set the **Opacity** of the selected report.
  - c. To create a **Visualization rule**, click **Add a new visualization rule**.



### Add Visualization Rule

- a. Enter the key, for example, **Scores** and under **Conditions**, click **Add Rule**.
- b. Define the conditions for the visualization rules.
- c. Select the condition from the dropdown and enter or select the value for the condition.

- d. Select the color to be displayed for the defined condition. OR If you want to hide the contour for the defined condition, click **Use Color**.
- e. Once you have added all the rules click **Apply Rule**. Points will be hidden or displayed in the chosen colour as per the defined rule(s).



### Visualization Rule Applied

For example, as per the visualization defined as shown above points with a score of less than 0.5 are hidden and points with a score of 0.6 are displayed in red.

- a. To delete the visualization rule, click the **delete** icon and then click **Delete Visualization Rule**.



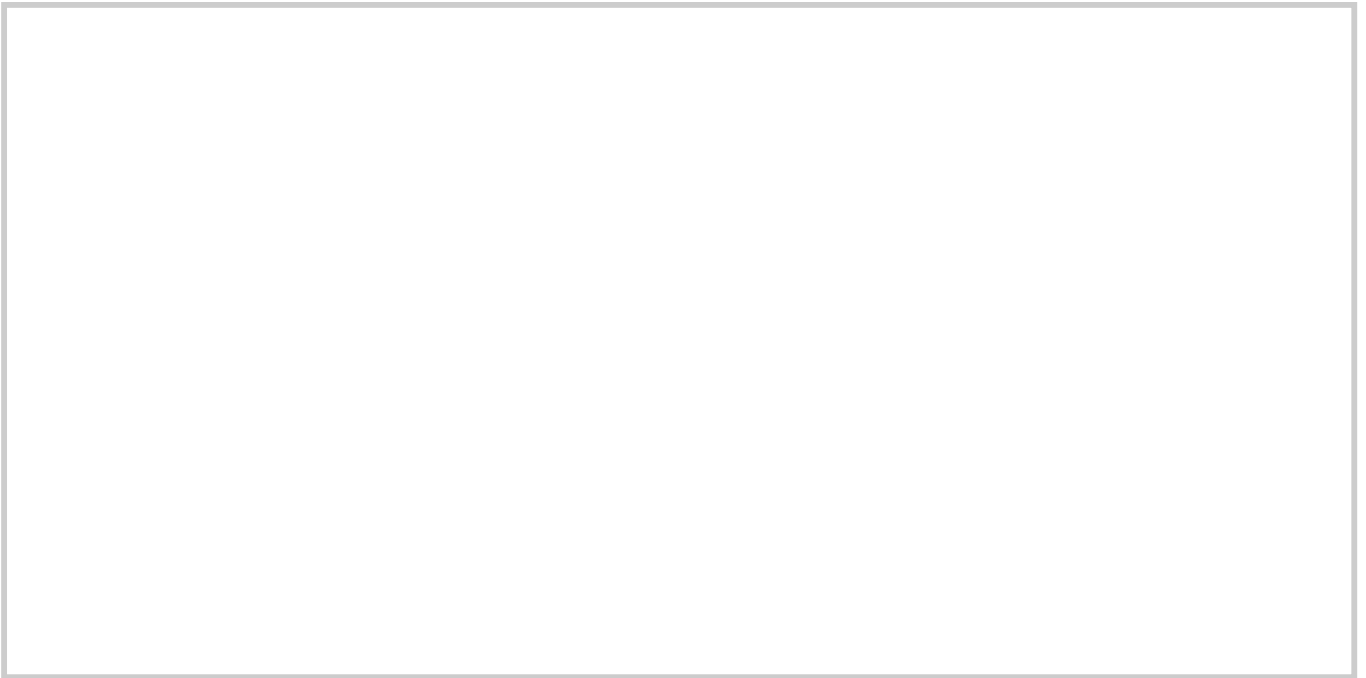
### Delete Visualization Rule

- a. To view the points in a different color, click on the **colored dot** and select the color from the given color palette.



### Customize Point Color

- k. To download this report, click **Download Overlay** and select the format from the dropdown.

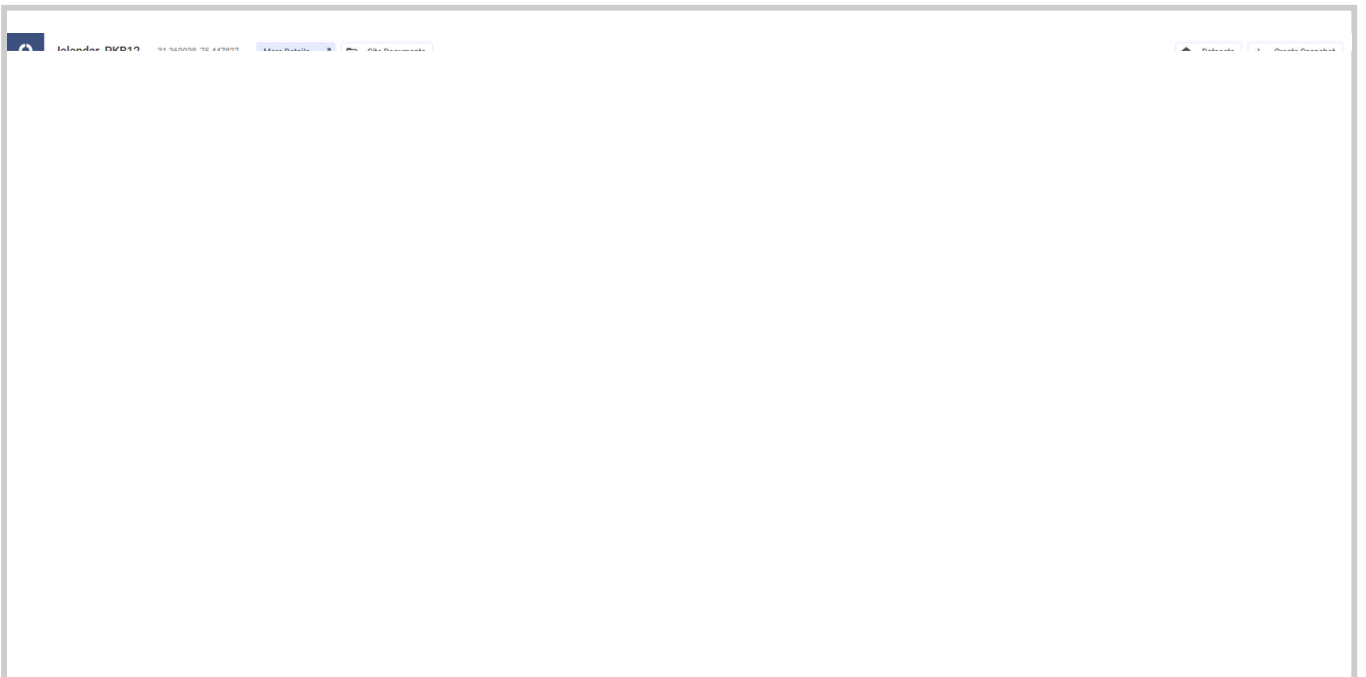


Select Format for Download

## Downloading the Crop Analysis Report

You can download the crop analysis report after applying the visualization rules.

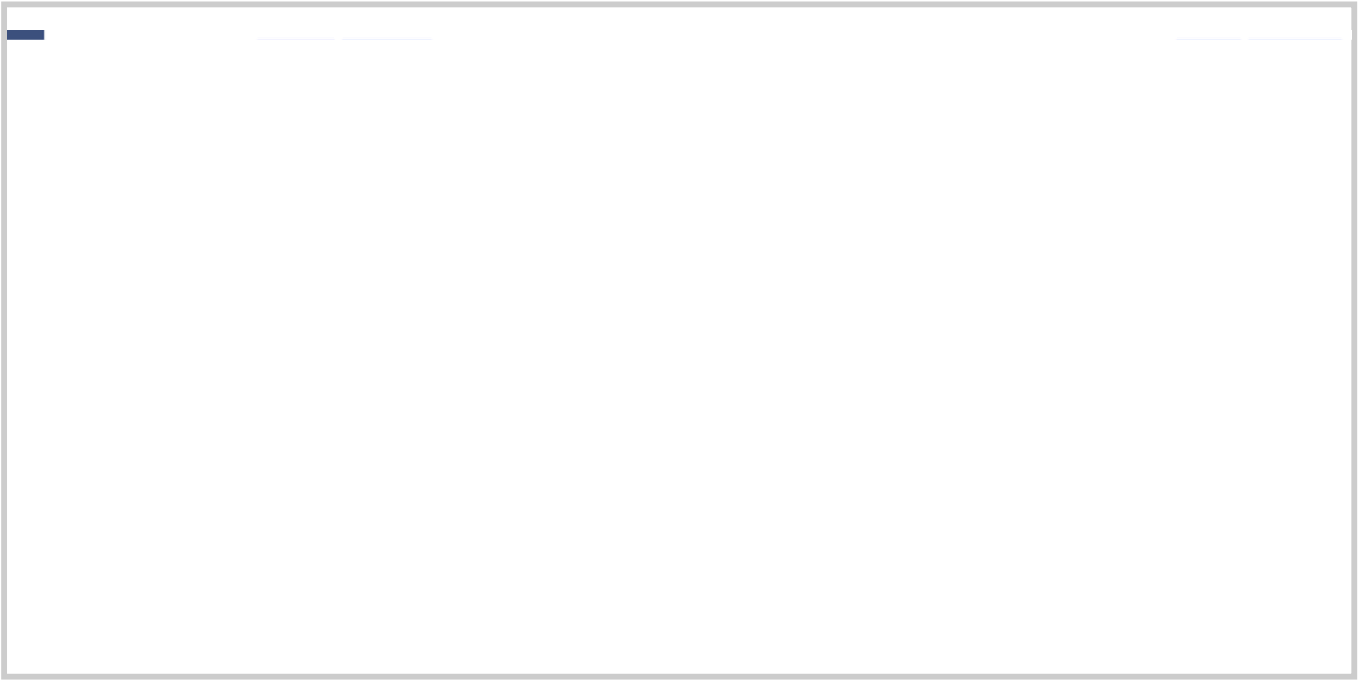
1. In the **Insights** panel, under **All Reports**, click the **three dot** menu next to the report to be downloaded and then click **Save as PDF**.



Download Crop Analysis Report as PDF

The **Generate Crop Survey Report** pop-up is displayed. The range of the visualization rule parameters is set by default as per the report result.

2. Modify the range of **Visualization Rules** if required and click **Download PDF Report**.



Visualization Rule for PDF Report

←

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