**One-Page Written Explanation of DAX Logic**

This analysis leverages Data Analysis Expressions (DAX) to transform raw agricultural data into dynamic, actionable insights. By creating calculated measures and columns, we can evaluate crop performance, resource efficiency, and livestock profitability across different regions.

The Measures and logic we derived are as follows:

* I wrote a measure using the SUM function to calculate the total crop yield in Kilograms from the Crop production table, this helps to calculate the total harvest weight.
* The DAX function I used to calculate average yield per crop helps to calculate the mean yield across all records. To make it dynamic per crop type, we use it in a matrix visual with the crop type field. The AVERAGE function ensures we understand the typical output for any given crop.
* The top performing crop measure is a more advanced, dynamic measure. It uses the TOPN function to return the top 1 crop type from the entire table (ignoring filters with ALL), ranked by the [Total Revenue] measure in descending order. CALCULATE then extract the name of that top crop. This allows the "top crop" to change based on other filters applied to the report (e.g., per region)
* Region with the highest yield measure identifies the top-performing region by total harvest weight. It demonstrates the power of CALCULATE to modify filter context, using TOPN and ALL to find the highest-yielding region dynamically.
* Percentage contribution per crop measure calculates the percentage of total revenue that each crop contributes. The numerator is the revenue for a specific crop (in the current filter context). The denominator uses CALCULATE with ALL to remove the filter on crop type, giving the grand total revenue across all crops. The DIVIDE function safely handles the division.

The combination of these DAX formulas transforms static data into an interactive analytical tool and this logic empowers users to quickly identify key trends, optimize resource allocation, and improve overall agricultural decision-making.

**Some key insights:**

* The percentage distribution of each crop to total revenue clearly visualizes the business's dependency on certain crops.
* By analyzing the **top-performing crop by revenue**, management can make data-driven decisions on where to invest more resources, promote certain crops in specific regions, or negotiate better prices.
* The **total harvest weight** provides a clear picture of overall production capacity.