GROUP ONE

Exploratory Data Analysis on "Enhancing Ghanaian Agriculture Through AI-Based Agricultural Software".

1.0. Project Overview:

This data analyst capstone project aims to conduct a thorough exploratory data analysis (EDA) on "enhancing Ghanaian Agriculture Through AI-Based Agricultural Software" using Google Sheets on the survey collected.

Data Import and Overview: Questionnaire was the major research instrument used for the survey. The dataset was saved as an excel document and later imported into Google Sheet for further workings to be done. The data set was further studied to understand major components of the findings.

1.1. Data Cleaning and Preprocessing:

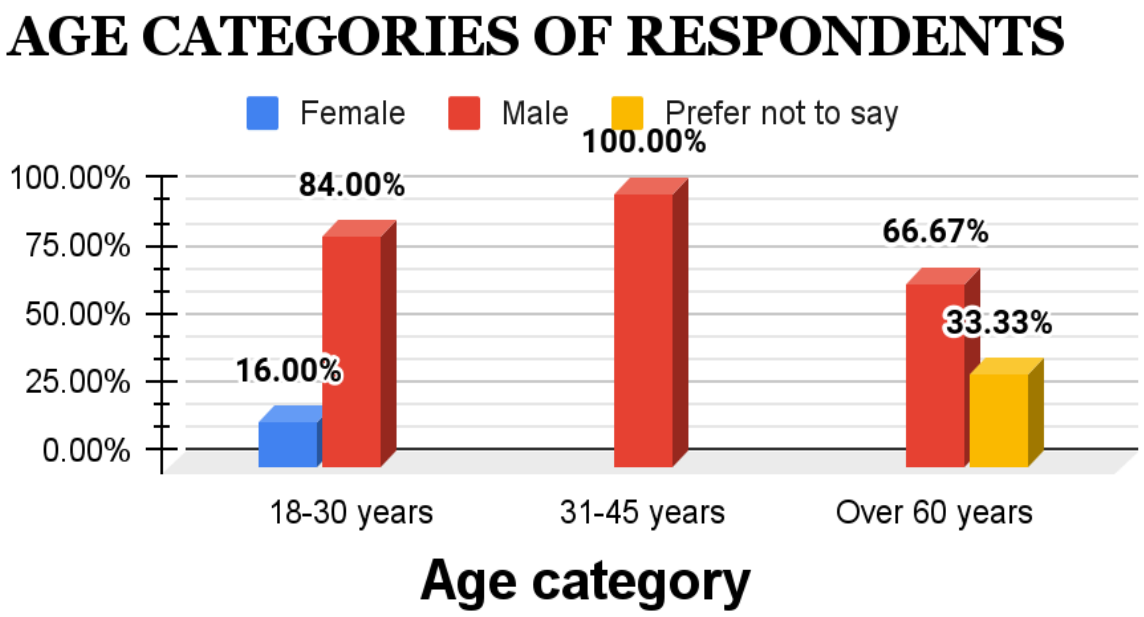
Some of the data was missing. It was assumed that those data were not complete and could affect the findings. Because missing data could affect the validity of the analysis, most of them were deleted. This ensured consistency in the analysis. However, some dataset was refilled using logical reasoning. For example, some respondents failed to answer whether they are farmers or not but indicated that they were rearing animals, which is also farming. Logically, this respondent is a farmer. Other data cleaning and processes were performed to get a valid dataset for the analysis. Some responses were codified to get the sense of the data.

1.2. Descriptive Statistics and Visualization

This section of the report presents the descriptive statistics of the study. The results discusses the age categories of the farmers, educational background,

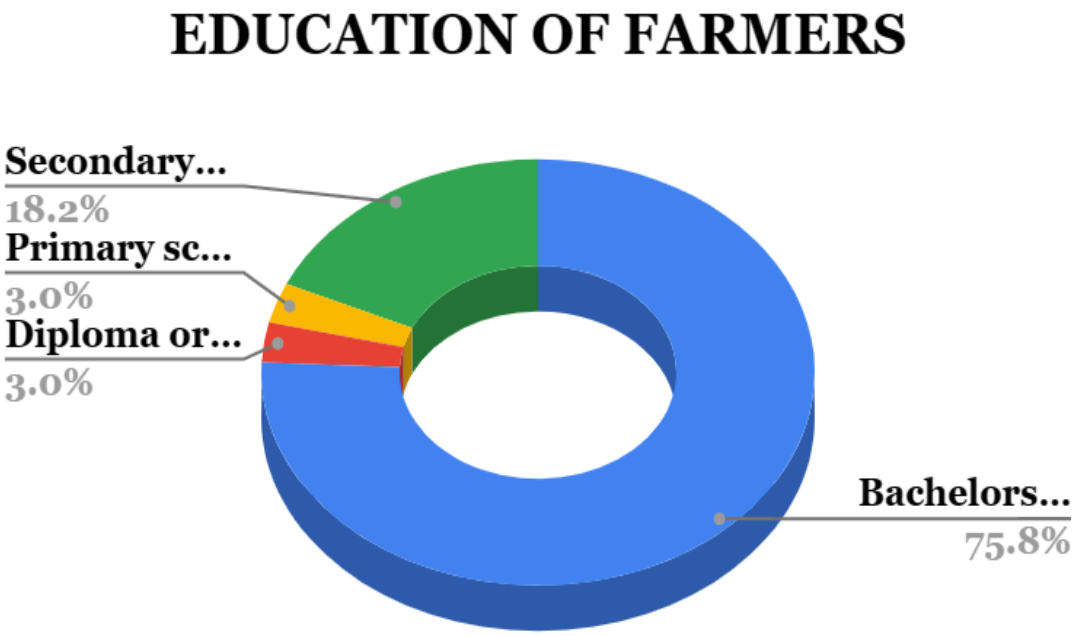
1.2.1 **Age categories of respondents**

The data depict a relatively large proportion of the farmers being within the age bracket of 18-30 years of which majority are males. This shows that agriculture is largely among men with low levels of female participation. Agricultural agencies such as the Ministry of Agriculture should map out programs that will encourage female participation in the agricultural sector.



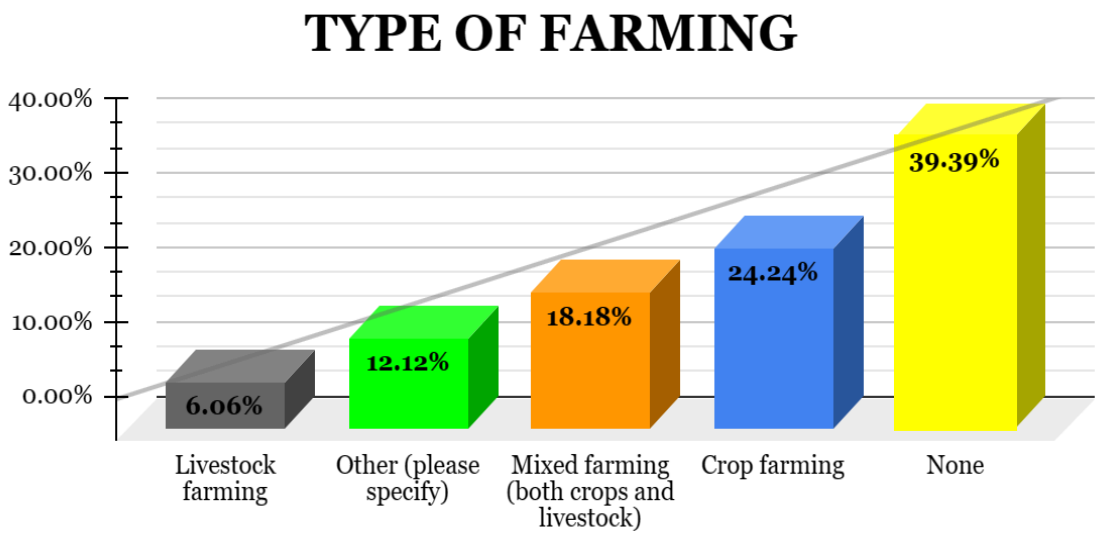
1.2.2 **Educational level of respondents**

The data reveal that most of the respondents are individuals with Bachelor's degrees (75.8%) followed by those with secondary school certificates.



1.2.3 **Farming type of Farmers.**

From the data, we see that a fair number of the respondents practiced crop farming with very few into livestock farming. This may be due to the difficulty and complexity associated with livestock farming.

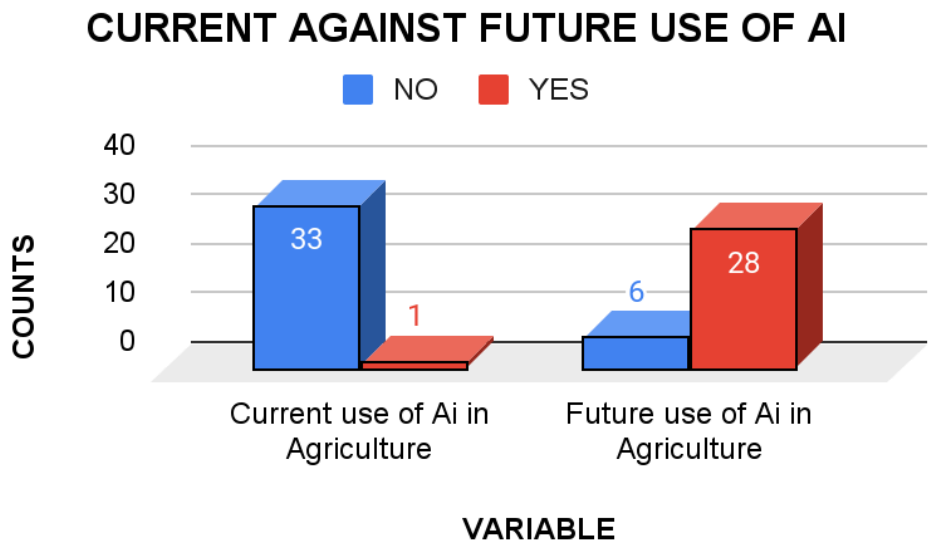


Type of Farming

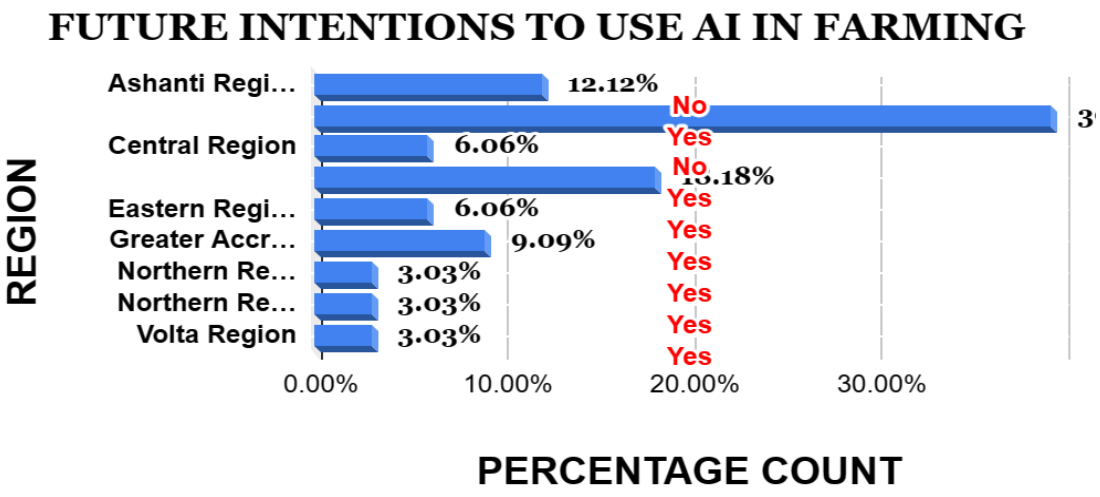
1.3 Ai awareness and future prospects.

The statistics of the dataset shows that the majority of the farmers knew about AI technology but the fear of cost and technical training has been a barrier for them to implement. Visualizations have been made to depict key findings of the research. The charts below shows the awareness and willingness to adopt AI agricultural technology in the future.

From the chart below, we observe an abysmal level of Ai adoption rate. However, there is a massive improvement in the adoption levels in the future.

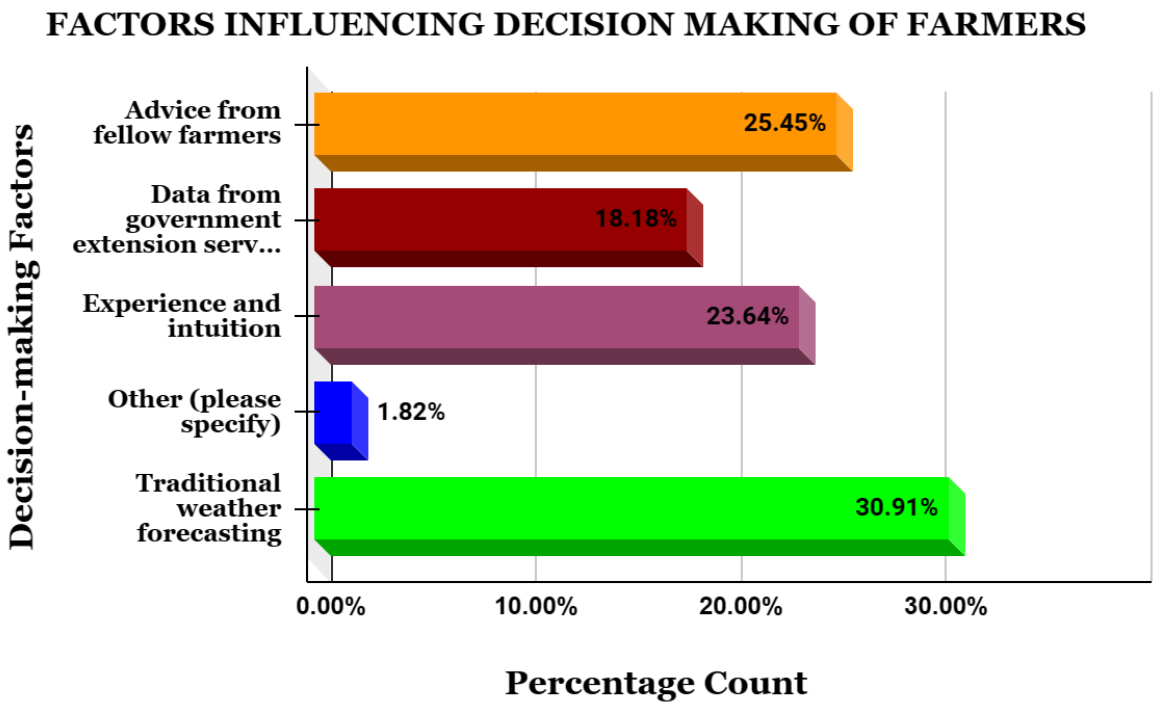


The chart below breaks down the Ai adoption intentions according to the regions. We observe that …


FUTURE INTENTIONS TO USE AI IN FARMING
REGION
Ashanti Regi...
Central Region
Eastern Regi...
Greater Accr...
Northern Re...
Northern Re...
Volta Region
12.12%
6.06%
6.06%
9.09%
3.03%
3.03%
3.03%
No
Yes
No
Yes
Yes
Yes
Yes
Yes
0.00%
10.00%
20.00%
30.00%
PERCENTAGE COUNT

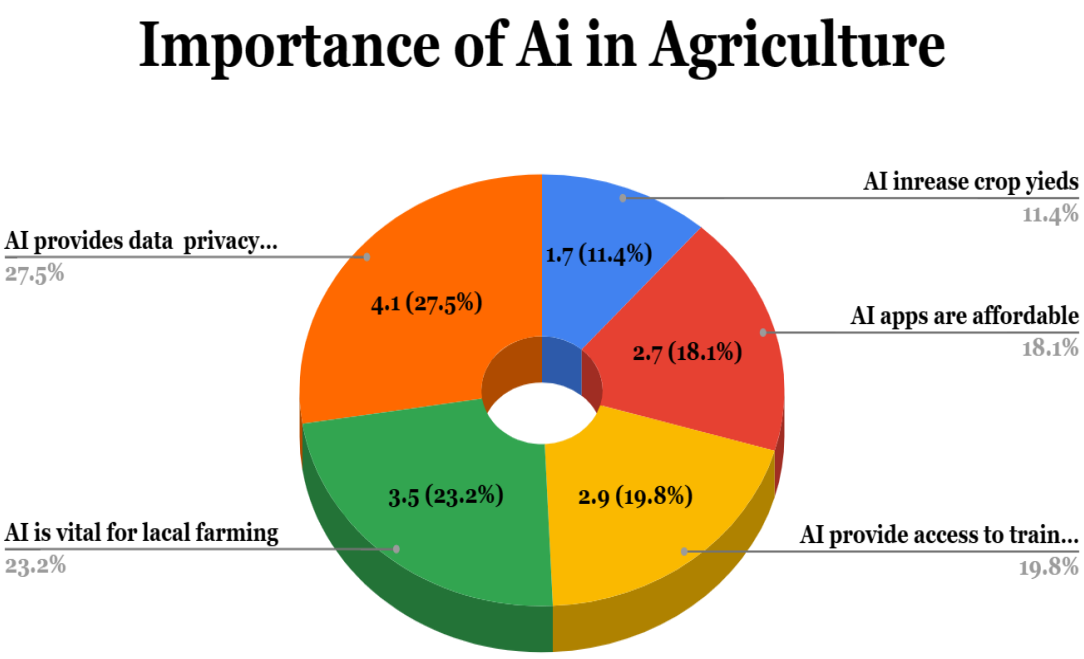
1.4. Factors influencing farming decisions among the respondents.

The chart below depicts the various factors that…



1.5. Perception of the importance of Ai usage in agriculture

This section of the report presents the perception of the respondents with respect to the importance of Ai in the agricultural sector. On a scale of 1 to 5 (where "1 = most important", 2=.....) the average values depicts the level of rating "most important" to "less important"



Furthermore, the study also identified various problems that Ai can solve among the enterprising ones are Management, planning, general operations, Pest control, soil nutrients analysis, Irrigation, Pest destroying crops, Planting and disease control, among others.

1.6 Challenges or Barriers to the use of Ai in Agriculture

This section presents the various challenges associated with Ai adoption in the agricultural sector. The constructs are scale on a 1-7 likert scale (where 1= strongly disagree, 2=...), the average value depicts the level of agreement or disagreement.