Bangladesh being an agricultural country, its economy predominantly depends on agricultural yield growth and allied agro industry products. In Bangladesh, agriculture is largely influenced by rainwater and temperature which is highly unpredictable. Growth of agriculture also depends on diverse soil parameters, crop rotation, soil moisture, surface temperature and also weather aspects which include temperature, rainfall, humidity etc. Bangladesh now is rapidly progressing towards technical development. Thus, technology will prove to be beneficial to agriculture which will increase crop productivity resulting in better yields to the farmer. The research suggests area based beneficial crop rank before the cultivation process. It indicates the crops that are cost effective for cultivation for a particular area of land. To achieve these results, we are considering six major crops which are Aus, Aman, Boro, Potato, Jute and Wheat. The prediction is based on analyzing a static set of data using Supervised Machine Learning techniques. This static dataset contains previous year’s data taken from the Yearbook of Agricultural Statistics and Bangladesh Agricultural Research Council of those crops according to the area. The research intents to do a comparative analysis on K-Nearest Neighbor’s and Multiple Linear Regression algorithms to obtain these predictions. The past ten years (2004- 2013) of Bangladesh have been considered making this dataset to ensure learning and training of the algorithm and increasing the accuracy rate of the prediction and for testing we used one year (2014) for computing accuracy.

***Index Terms:*** *Supervised Machine Learning, Multiple Linear Regression, K-Nearest Neighbor Regression, Agriculture, Prediction, Learning Dataset, Test Dataset, Error Percentage and Prediction Accuracy.*