# A QUALITATIVE STUDY ON AGRICULTURE DOMAIN BY USING KNN, SVM, LS-SVM TECHNIQUES

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**Abstract**
This paper reviews various articles and documents on agricultural production. Agribusiness is one of the critical modern divisions in India and the nation's economy is profoundly subject to it for provincial maintainability. Agriculture contributes around 34% to the total national output (GDP) and gives work to around 36% of family units in the financial year 2016.Agribusiness influences atmosphere through outflows of ozone depleting substances (GHGs, for example, carbon dioxide, methane, and nitrous oxide. Agribusiness could be an answer for environmental change by the far reaching reception of moderation and adjustment activities.

_IndexTerms_ - : Agriculture; Climate change; Greenhouse gas emissions
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## I. INTRODUCTION

Agri business is the overwhelming area of Indian economy, assume the most essential part in the financial improvement of the nation. In India, Haryana is overwhelmingly a farming economy with the prevalence of wheat, rice, bajra, mustard, sugarcane, and cotton. In the previous year, commercial orientation of the state agriculture is more associated with mustard, vegetable; fruits etc and the area under pluses have declined significantly. The farming and associated keep on being given to the maintainable development and improvement of the Indian economy. Around 65% of the population in India still depended on farming for work and employment. It is able to continuity provide food and other resources to a growing world population is crucial importance for human existence and any human activity. However, there are many numbers of problem occurs in the ability of agriculture to fill human needs in the future, including climate change; forecasting; a high rate of biodiversity loss; land degradation through soil erosion, compaction, salinization and pollution; depletion and pollution of water resources; rising production costs; an ever lowering wide variety of farms and, connected with that, poverty and a lower of the agricultural population. Forecasting is the procedure of creating predictions of the future based totally on the past and present information and most typically with the aid of analysis of trend. Forecasting is the utilization of commended digests to impel the organization of moving toward patterns. It is a deep rooted marvel and discovers its application in relatively every stroll of life, e.g., climate forecasting, monetary anticipating, vitality estimating, transport determining, deals anticipating, innovation anticipating and edit yield determining. Kumar et al. [8] exhibit a fuzzy time arrangement model and two varieties of it to forecast wheat generation. The results it appears that evidently demonstrate that the models are not proper because the watching for blunder is excessive; it is presumably in light of the fact that they utilize just earlier years' respect gauge. Kumar and Kumar to introduce a fluffy time arrangement show for wheat Forecasting. Here, to the authors use only previous years' yield to forecast and obtain poor results.

Factors that affect agriculture
1. Physical Factors
**1. Physical Factors:**
(a) Climate
**1. Temperature:**
Most of the plants cannot grow if the temperature high and some plant cannot grow when the temperature is low.
**2. The Rainfall:**
Water is the main aspect in plant growth. The extremely high rainfall the yield is low and for common rainfall (300 mm – 600 mm) the yield is common or high. It suggests that the crop requires mild rainfall; extraordinarily high or low rainfall can be devastating for the crop.
**3. Wind:**
The Wind can have a destruction effect on crops many times. It increases the transpiration and intake of CO2. Robust wind affects the plant's existence each robotically and physiologically.
(b) Topography:
Topography impacts how crops are planted due to the fact IJ is the observe of the shape of the surface of the Earth. If the surface is flat than crops are planted in straight rows and in the hilly surface the crops are planted in a row that runs alongside
(c) Human:
Land tenure:
Land tenure is the connection, legally or typically described, between human beings, as humans or a group. Land tenure structures determine folks that can use and what sources for how long time, and beneath what situations practice. Land tenure in forests a rely of foods protection.

**2. Economic Factors**

(a) Market

The market is an crucial financial element in agriculture.If the distance of the market is near than the cost of transportation is low. Some crops like vegetable etc are near the market grow.

(b) Transport Facilities:

Transport is an critical aspect for the agriculture because if the transportation available than a huge influence at the distribution of agricultural device in the marketplace. These are some factors we discuss that are effects in the agricultural production.

## LITERATURE SURVEY

**Rajagopalan B, Lall 1999**, in this paper, the author developed a random sequence of daily weather parameters and also a metrological parameter which is based on a multivariate, non-parametric time sequence analysis. The historical data of weather and atmosphere is available at the site. A list of metrological variables and weather parameters tends to derive the solar radiation, humidity, maximum and minimum temperature, average wind speed, On the basis of random day data sample sampling is performed which denials of baseness.[1]

**X. K. Chen and C.H. Yang 2002**, in this paper discusses the characteristics of the agricultural complex giant system and puts forward Systematic Integrated Prediction Method of national grain output prediction, the key technique of which is an input-occupancy-output technique of complex system, non-linear prediction method and minimum sum of absolute value technique.[2]

**Durbin 2004**, this paper gives a trendy overview of time series evaluation in kingdom space version. It starts with a very basic concept of the simple Gaussian state space model. There are several time series problems mentioned in a practical way. This method is extensively as compared with the Box-Jenkins model.[3]

**Abdullah, Brobst, S, Pervaiz.I.,Umer M.,A.Nisar 2004**, In this paper, a survey has happened in Pakistan and they mentioned that in most farmers use pesticides for agriculture which is very harmful to the crops as well as environment. These studies have stated a harmful connection between insecticide usage and harvest yield in Pakistan. Hence the extreme use of insecticides is harmful to the farmers with adverse economic, ecological and public impacts. In this work, they used the techniques of data mining to use optimally the pesticide and natural resources. [4]

**Tripathi S, Srinivas 2006**, in this paper the author studies of climate impact in hydrology which is usually based on climate changes. In last two decades, the climate is changing drastically. In this, we utilize SVM-based economizing model is produced for a season with the goal that they can improve the expectation about precipitation, snowfall or some other natural factor.[5]

**Wu X, Kumar V, et al. 2008**, on this paper the Kumar reviewed most used a wide method of data mining, like as KNN, SVM, Apriori, C4.5 algorithm etc. These algorithms are the greatest influential data mining algorithms inside the studies and as well as the industrial field. On this paper, they provide a description of every algorithm and additionally an utility where those algorithms can be implemented.[6]

**Georg Rub, Rudolf 2008,** on this paper we talk Precision agriculture (PA) and information era (IT).Those are intently interwoven. In this paper, they deal with neural networks and their utilization in mining those facts. Our precise awareness is whether neural networks can be used for predicting wheat yield from affordably-to be had in-season records. Once this prediction is viable, the economic application is pretty straightforward: use information mining with neural networks for, e.g., optimizing fertilizer usage, in economic or environmental terms.[7]

**J. Ramirez-Villegas and A. Challinor 2012**, In this paper the researcher talk about climate change is an anticipated to ensure the right time of yield with the help of Intergovernmental Panel on Climate Change (IPCC). In this, he collects the meta-data from the from the previous year record and meteorological conditions he gets the result of the climate changes and gave the information.[8]

**Johnson, Michael D 2016,** in this paper, according to the author crop yield is mainly based on climate, metrological parameters. Any kind of changes in climate may affect the agriculture. Enhancements in the suitability and precision of harvest predicting by including near real-time, the agriculture which is done by remote sensing can be improved by refined statistical methods. The intention of this study has some reason. [9]

**OBJECTIVE**

In this, we discuss the elements that have an effect on our agriculture system. Our main objective to discuss these effects and solves the problem of them and we collect the data of different time and different stage. With the assist of that statistics we get a specific database and with that database, we do something in this sector. Our step by step objective is:

1. The key concept for use on these proposal paintings is taking records units which are amassed from diverse resources as input.
2. Then Classification is applied on a combined dataset and then addresses the analysis of crop yield production.
3. The goal of this work is to discover a version which could appropriately are expecting crop yields in India from weather and agricultural information.
4. Some studies have investigated crop prediction based on the historic climatic and production data.
5. In this we use three techniques KNN, SVM and LS-SVM to compare.

**CONCLUSION**

The goal of this paper is to talk about KNN, SVM, and LS-SVM method use in agricultural manufacturing and we work those strategies in a comparative study on agriculture and get that is the best for us these techniques. This work basically provides the comparative study of a various algorithm when we apply these algorithms on datasets.

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