analysing the importance of weather forecasting & study of agriculture in maharashtra

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**ABSTRACT**

**Introduction:**

Agriculture is the backbone of our economic system. It is the largest employer in the country and contributes 18% share in the GDP of the country. However, Indian agriculture productivity lags far behind its potential. There are many other circumstances where we see cases as farmer suicide, debt redundancy, low farm output, etc. In order to understand these issues this study has been conducted.

**Objectives:**

(1) To study the problems faced by the farmers.

(2) To study the association between the use of weather data, profits earned and loans taken by the farmer.

(3) To study the satisfactory level of the farmers in the current government.

# Methodology:

* Primary data was collected from farmers with the help of questionnaire.
* Various factors such as region, education, economic status, land area, type of crops, rain dependency, loans, etc. are taken into consideration.
* Statistical tools and techniques like Graphical representation, ANOVA, time series, regression analysis, etc. are used in this study.

**Results:**

* The Z-test revealed that the use of weather data is associated with getting more profits.
* There is no association between level of income vs. application for loans and application for loan waiver.
* There is no association between level of education and use of weather data.
* Satisfactory level in the current government- 48% Poor/very poor, 39% Neutral and 13% Good/very good.

**Conclusion:**

* From the study, it was found that there are many factors which knowingly/unknowingly, directly/indirectly affect the output in agriculture.
* We can also conclude that despite of having weather information available, it’s not being used properly.
* Although the government comes up with different schemes and initiative, they’re not being implemented properly.

**Keywords:** Loans, agriculture, weather, crop, etc.

Abstract

This research paper reviews a statistical study about the different types of agricultural methods being practiced in the state of Maharashtra. The study discusses various aspects which are important to agriculture such as weather, irrigation, financial support, crop insurance, etc. The study outlines the effects of one factor on another, such as weather on crop, financial support on production and so on. This analysis is carried out from the data collected from farmers from various districts of Maharashtra. Generalising the study suggests that though there is a huge potential available in agriculture but it’s not being properly used and exploited. Lack of governmental interference and improper implementation of schemes led to huge loses. This paper recommends few such focused priorities –

* Agricultural research and development centres should be set up in order to boost the productivity from the same farmland.
* Proper beneficiaries should be identified and hence be deposed for compensation, and the rest should be given some relaxation accordingly.

**Introduction**

Agriculture plays a crucial role in the economy of our country and it is also called as the backbone of our economic system. The agriculture sector is the largest employer of the Indian economy. In the year 2001-02, the agricultural sector of India had contributed around 22.39 per cent share of GDP and it is reduced up to 15.79 % in the year 2013-14 (Source : Central Statistical Organisation (CSO). At around 1,530,000 Sq. Km, India has the second largest amount of arable land in the world. However, Indian agricultural output lags far behind than its potential. The factors hindering the low productivity includes reasons such as weather problems, lack of irrigation facilities, price risk, high cost of inputs, lack of government interference, etc. The average size of land holding is very small, nearly 70% of the farmers owns land is less than 5 acres. This makes it difficult to implement modern big machinery in practice. Even though we have come this far in the age of technology we are still dependent on rainfall, specifically the monsoon rainfall, which is often incontinent and unevenly distributed across the country.

Agricultural realisation is an important step in the development of the agriculture through which we can figure out problems and requirements and respective changes needed in the growth of agriculture. In order to feed the increasing demand when the agricultural area remains constant, we need to bring in more sophistication in the principals and the techniques used in the traditional way of agricultural practiced. New techniques such as, use of meteorological weather information, crop combination analysis, regional irrigation analysis, hybrid crops, state of art machinery, different irrigation methods, livestock storage and inventory, etc. should be implemented.

**Aims and objective**

(1) To study the problems faced by the farmers.

(2) To study the association between the use of weather data, profits earned and loans taken by the farmer.

(3) To understand deeper insights regarding the use of weather data in agricultural practices.

(4) To study the satisfactory level of the farmers in the current government.

**Methodology**

1. The study is based on primary data collected from farmers using questionnaire.
2. Two stage sampling was carried out using simple random sampling two times.
3. At first stage 30 districts were selected from the state of Maharashtra.
4. At second stage 10 farmers were selected randomly.
5. Various statistical tools, graphs, diagrams, descriptive statistics, testing of hypothesis using Chi Square test are used.

**Results**

1. Using Chi-Square test.

* There is association between the use of weather data and earning profits.
* There is association between the use of weather data and age factor.
* There is association between education and use of weather data.

1. Using t-test.

* Proportion of farmers who got waiver and are eligible for loan waiver is equal to the Proportion of farmers who got waiver but are not eligible for loan waiver.

**Observations**

* While applying all the categories we were able to conclude that farmers from Jalna were the highest users of weather data and gaining maximum profits. Still Jalna ranked highest in application for loan waivers. Though they were not eligible one of them were given loan waiver.
* Similarly, farmer from Kolhapur were the least users of weather data and got almost nil profits, hence applied for loans and also for compensation scheme. Even though they were eligible, still they were rejected and didn’t get any compensation.
* Major problems faced by farmers include reasons like, i) Farmers don’t get proper value for their crop production, ii) High cost of inputs, iii) Lack of proper implementation of schemes by the government, etc.
* 85% of the farmers reviewed that the development in agriculture has declined or remained the same in last 5 years.
* 90% of the farmers were not satisfied with the performance of current government in agriculture sector.

**Conclusions**

* The proportion of farmers using weather data is only 38%. We can say that weather data is not perfectly used. Even though weather data is available it is not farmer friendly and difficult to understand.
* The government bodies don’t have a proper look on the background of farmers before dispensing compensation to them. There is no enough evidence to prove that the proportion of eligible farmers getting waiver is more than the proportion of ineligible framer getting waiver.
* Even though government invested millions of money in building cannels for irrigation, it is the least used irrigation facility and majorly depends on wells and tube wells.
* Even though crop insurance are available at very low cost very few indulge in taking crop insurance. If farmers are encouraged to take crop insurance they can take more risk in terms of investment and buying higher quality if seeds and fertilizers.
* All these above problems can be solved if a proper dedicated agriculture research department is setup at each state level which will work in in their respective expertise (Weather data, Irrigation, Soil testing, Crop decision, etc.).

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