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EMPIRICAL ANALYSIS OF CROP INSURANCE IN HARYANA STATE BY CUMULATIVE ANNUAL GROWTH APPROACH

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ABSTRACT--*Dynamic Agriculture is backbone of Indian economy which contributes about 14.00 percent to GDP as well as gives work to 57.00 percent of populace. The development of this division is a fundamental essential for comprehensive development just as decrease of neediness in India. In any case, Indian agribusiness experiences bunch issues and one of them is exorbitant hazard and vulnerability looked by the ranchers. For farming advancement, legislature of India executed different projects and ventures agribusiness subject to rainstorm which is constantly adaptable. It prompts working danger in development of various yields. Regular cataclysms may influence on the yield from farming area. To cover the hazard which may happen in future, there is have to some arrangement and yield protection is just instrument accessible to shield against creation chance in horticulture.*

Keywords--*Empirical analysis, crop insurance, Haryana.*

I INTRODUCTION

Horticulture is considered as the essential segment of Indian economy as a result of three reasons - One, roughly 70% of the Indian populace is reliant over the field of farming. Two, It establishes a huge portion of nation's national salary. Three, development of different divisions and generally economy relies upon execution of horticulture to an impressive degree. In addition, horticulture is a wellspring of business and nourishment security for vast lion's share of immense populace of India. Be that as it may, horticulture everywhere throughout the world is troubled with uncertainty and hazard factors. Disregarding different plans intended for securing and advancing the worry of cultivators, suicide by different ranchers are accounted for because of pay misfortune for various reasons that incorporate the disappointment of yield alongside later globalization impacts now-a days. In India, ranch livelihoods and rural creation are influenced every now and again by common disasters like floods, storms, dry season, twisters, tremors and avalanches. On account of these reasons farming is at the center of financial advancement and progress of Indian culture, and legitimate approach for horticulture division is pivotal to improve expectations for everyday comforts and to improve welfare of masses.

Harvest Loan and Crop Insurance plans are considered as the technique that causes the ranchers to adjust the salary of homesteads, ventures and defend the unfriendly impacts of misfortunes happening because of low costs

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of market or common perils. The nations which are of creating nature, needs to put incredible assets in the innovation of horticulture so as to support the efficiency in agrarian area. The method of interest in farming area itself conveys different potential dangers and such sort of dangers can be attempted by the banking and Insurance organizations.

Yield Insurance

Yield protection is one of the different kinds of protection that are offered to the individuals. This protection is coordinated to the ranchers and agriculturists. This Crop protection conspire has been going on since the hour of Kharif 1985. This protection strategy is a help plot for the ranchers whose harvests get ruined during normal catastrophes. The protection sum that is offered to the ranchers is equivalent to the Loan sum that has been dispensed to them. A specific measure of premium is charged against the yield protection. The misfortune that is acquired because of normal catastrophes is met by the Government. It is to be noticed that the protection covers just one yield. The harvest protection doesn't cover monetary help to various yields. The principle target of yield protection is to give protection inclusion and monetary help to the ranchers in case of disappointment of any of the informed harvest because of normal cataclysms, nuisances and maladies. The rundown of yields being secured for protection varies from state to state. By and large a significant number Kharif crops (Rice, Jowar, Bajra, Moog, Cotton, Onion, Potato, Tomato are the primary Kharif crops, from month of April to September) and Rabi crops (Wheat, Gram, Safflower, Onion, Potato, Sugarcane, Grapes are the principle Rabi crops, from month of October to March) are secured. These yields are guaranteed at the network/square/gram panchayat levels. Yield Insurance plans are of monstrous assistance to ranchers, furnishing them with money related security.

The plan of Crop Insurance was presented as a pilot plot in 1980s in restricted zones in 12 states. In 1985 (April), a CCIS for example Complete Crop Insurance Scheme was propelled covering all the willing states. The idea of Crop protection speaks to an agreement or technique which helps in verifying pay for the harm or loss of harvests on the installment of premium as picked by the General Insurance Corporation of India and the Government. In India, the plan of Crop Insurance was first endeavored in the year 1985. A decent arrangement of experimentation has gone as far back as 1985 has gone into the harvest protection. The plan of harvest protection over and again gets updated by the continuous focal governments and calling them with unmistakable names of plans, for example, changed yield protection, thorough protection, test protection, reexamined crop protection, and so forth.

Indian Crop Insurance system

The concept of Crop insurance presents a tool of risk management helping the farmers to use in present scenario of agriculture**.** Indian crop insurance depends on the following:

- Predominant form of Index based products
- Season and crop specific proclamation coverage and issuance.
- Associated to Crop loan.
- Additionally premium financed for loaned farmers.
- Multi-Agency based platform –but here the insurer is not having full type of control.

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- Claimed automated process.
- The insurance mainly acts as collateral, agency of lending.
- The insure sum is based on the cost of production or the yielding value.
- Privately build insurers enjoy similar level of support in the form of public insurer.
- The insurance with socially built dimension i.e. the government mainly helps in providing 2/3rd cost of the operating program.

Mechanism of Implementation

The mechanism of crop insurance scheme is dependent on:

- All the government supported schemes.
- GOI has announced that the scheme has to be approved by the StateGovt.
- Farmers (Non borrowing) – with the help of PACCS/ banks or intermediary.
- Payment being claimed from direct credit to the accounts in bank.
- Notification based on State wise Season by StateGovt.
- Bank Network Coverage-crop loans based compulsory coverage.

Evolution of Crop Insurance

- The concept of crop insurance came into existence in the year 1972 for H-4 cotton in context to 'single farm' concept. It covered 3110 farmers only.
- A scheme of pilot insurance got introduced in1979 on the basis of 'homogenous type of area' that was based on the yielding index. It was popularly known as PCIS i.e. Pilot Crop Insurance Scheme.
- In the year 1985, the concept of PCIS was changed into a nation-wide 'yielding index' on the basis of the concept based on crop insurance that covered millets, cereals, and pulses. PCIS was changed to CCIS i.e. Comprehensive Crop Insurance Scheme.
- Later on, the CCIS scope was developed in the year 1999 as NIAS (National Agricultural Insurance Scheme – NAIS). The updated or enhanced NAIS as the pilot scheme was launched in fifty districts.
- WBCIS (Weather Based Crop Insurance Scheme) was originated in2007.
- NCIP (National Crop Insurance Programme) was known from Rabi season(2013-14).

II RELATED WORK

Bjerge(2018)investigated the decision of farmers being affected by extreme events of weather in order to purchase the insurance index in India. Extreme event-based conditions of weather were identified from ancient precipitation of data and it provided matching with random household-based panel. In previous years, excessive rainfall during the period of harvest helps in increasing the demand of insurance, while inadequacy of rainfall in the growing and planting periods does not have any kind of effect. The latter part of the section can be interpreted by connection to irrigation, highlighting the significance of localized context.

Ghadiri (2017) explained distinct kinds of tools based on risk- management that has covered a large range on the basis of risks factors. It has been used in both the developing and developed nations. But the concept of insurance forms a costly tool. So, the modelling of new patterns of insurance stabilizing the income of the

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producers in one hand and lower the implementing cost of insurance were considered as the most significant issues among the research study in agricultural-crop insurance and risk management. This research deals with distinct types of modern patterns of agricultural crops insurance in the world as well as the country Iran. Based on conventional agriculture-based crops insurance patterns such as costs of implementation and issues related to asymmetric type of information, insurance-based plan on the basis of climate-indexes was considered as one of the effective tools in management of agricultural risk.

Yu (2017) exploited the changes related to exogenous policy. The use of around 180,000 Crop-Insurance observations, the researchers have estimated the effects of subsidies on premium basis based on the U.S acreage pattern across the major (seven) field crops. The researchers have also estimated an increase of 10% in the subsidy premiumcausinganincreaseofabout0.43%increaseintheacreage of a crop in a country holding the subsidy premium.

Sharma(2017)examined that the loans were mainly issued without analyzing the reimbursement capacity of borrowers and it was not at all supervised properly by the generous supervisors' that results in loan diversion process for the pointless reasons**.** The historical-based data helps in revealing the misutilization of credit being taken from institution-based sources for the purpose of agricultural. This paper has also discussed the effects of agricultural credit misutilization in Punjab.

Smith (2016) examined the scope, availability, and viability provided to poor farmers based on alternative strategies of risk management in order to address the short-term security of food crises, with a spotlight on both the informal and formal schemes of insurance. Then the researchers have considered the potential-based benefits and costs of alternative international aid and government policies that were expected to enhance and expand the array of strategies based on risk management used by the poor farmers. A major central problem in measuring the alternative type of approaches was the opportunity-based governmental cost and foreign fund aid, few of them we real located over the past decade to several projects of crop.

Rajarajan (2016) investigated the concept of crop insurance in terms of weather insurance which was provided earlier by GIC (General Insurance Corporation) and further on post basis, it was provided by liberalization of a different company-AIC (Agriculture Insurance Corporation). Such a cover on prior terms was provided with loans to the farmers. Lateron, it was expand eleventh those individuals not having loans. The downfall of such a cover was based on the insurance company paying claims only if the bureau of weather declares a flood or drought for the particular region. Moreover, it also involved various cases, where the farmers have highly suffered even without a flood or draught condition.

Sarangi, S.k., et. al (2016) depicted the dynamism of farming-based sector along with its environment, which was reflected in designed developments of new products of insurance. The technology-based implementation in the farming sector mainly involved the concept of investment. Frequently, such type of changes alter the enterprise-based risk profile. There were several possibilities when the concept of insurance for the insurers was considered as a key component based on the strategies of risk management. From administrative prospective, the bank-insurer association in terms of both the financial service providers needed similar client-based data. In a recently study of Odisha state, crops like cotton, Niger, jute, red grams, turmeric, banana, and ginger, the block-based selected farmers in few of the districts may take the benefit of such type of scheme.

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Hence, such type of concept as based on pre-conditions of crops cutting number of experiments that were initiated under the estimation-based surveys of general crop estimation.

Lusk (2016) investigated the distribution-based effects in context to the subsidized program of crop insurance in US.A model of equilibrium displacement was formed joining the disaggregate supply of farming commodities along with final customer demands of food. With the use of state-specific form of data over the production of farm commodity, payments of crop insurance, expenditures of food, and payments based on federal tax, the welfare effects in terms of removing the subsidies (premium) for crop insurance were evaluated for each U.S state.

Selvaraj (2015) investigated over the concept of Crop Insurance that makes up the damage or loss to developing crops resulting in a variety such as draughts or hail or, frost, disease, and flood. The producer's pays a premium, which further provides them protection on similar basis as incase of other insurance schemes. The concept of crop insurance has played an extremely supporting and significant role in boosting the discharge of institutional-based credit to the sector of agriculture. This study has made an attempt to determine solutions of the following questions i.e. 1. What is the level of farmer's awareness about the schemes of crop insurance? 2. What is level of satisfaction about the schemes of crop insurance schemes?

Ghazanfar (2015) investigated several factors determining the level of satisfaction and the behaviour of farmers in terms of post purchase in regard to the crop loan insurance(CLI)in Pakistan. On the basis of comprehensive literature review in terms of satisfaction purpose along with its linked variables, designing of a questionnaire was done and its reliability and validity was tested via a stratified, multistage suitable example of earlier farmers that were insured. ACSI i.e. American Customer Satisfaction Index was assumed for evaluating the expectation impact, quality of service and customer-based value on the satisfaction level of farmers.

III THE PROPOSED METHOD

3.1 Proposed Methodology

Compound annual growth rate (CAGR) is the that would be required for an investment to grow from its beginning balance to its ending balance, assuming the profits were reinvested at the end of each year of the investment's lifespan.

Formula and Calculation of CAGR

$$\begin{aligned} &CAGR=\left(\frac{EB}{BB}\right)^{\frac{1}{n}}-1\\ &\textbf{where:}\\ &EB = \text{Ending balance}\\ &BB = \text{Beginning balance}\\ &n = \text{Number of years} \end{aligned}$$

$$CAGR=(BBEB)n1−1$$

where:

EB=Ending balance *BB*=Beginning balance *n*=Number of years

To calculate the CAGR of an investment:

1. Divide the value of an investment at the end of the period by its value at the beginning of that period.

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2. Raise the result to an exponent of one divided by the number of years.
3. Subtract one from the subsequent result.

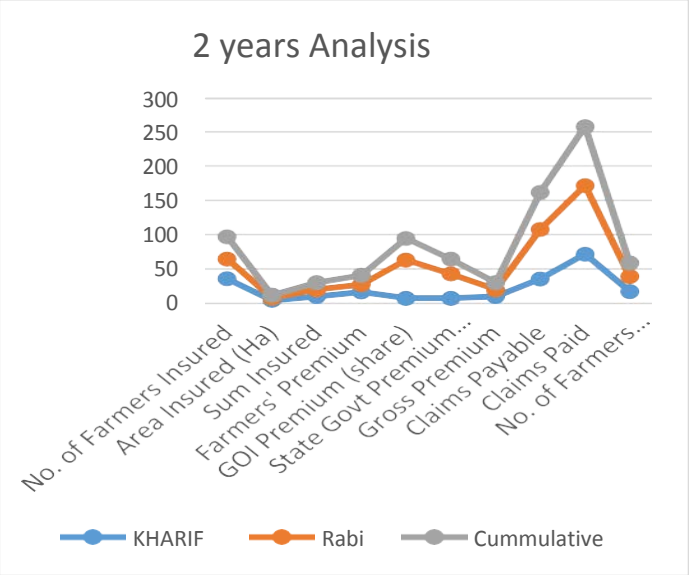
The compound annual growth rate isn't a true return rate, but rather are presentational figure. It is essentially a number that describes the rate at which an investment would have grown if it had grown the same rate every year and the profits were reinvested at the end of each year. In reality, this sort of performance is unlikely. However, CAGR can be used to smooth returns so that they may be more easily understood when compared to alternative investments.

IV RESULT ANALYSIS

4.1 Result Analysis

Dataset:

Collect seven years data from https://data.gov.in/keywords/insuranceand analysis of CAGR by two, four, six, seven years because of analysis of different parameters impact on crop and farmer growth



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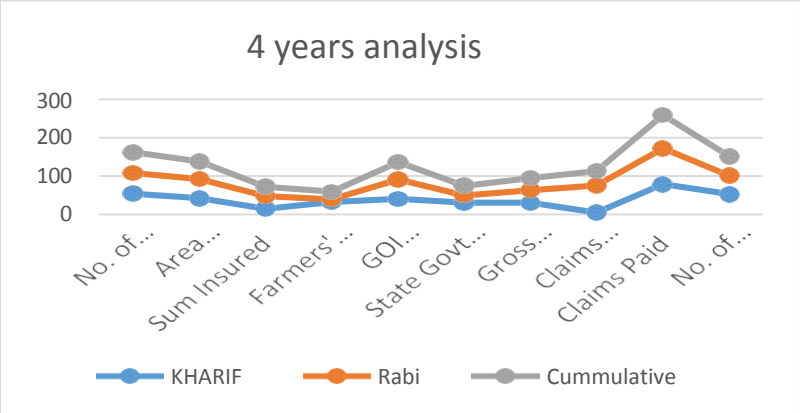

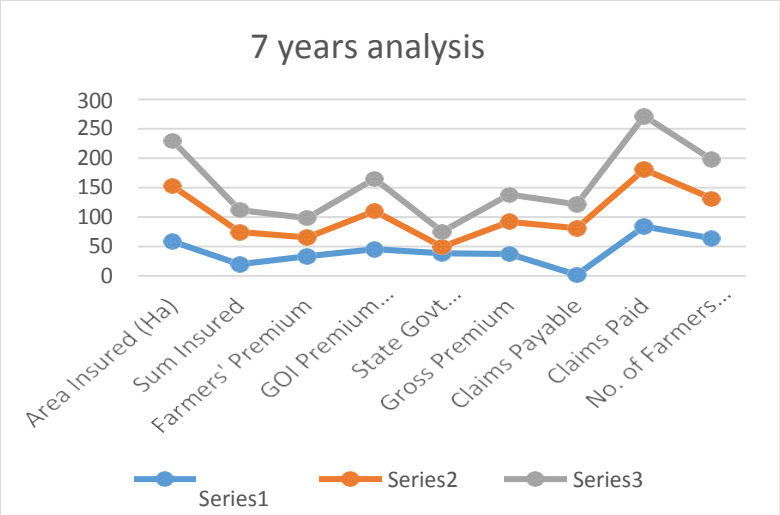

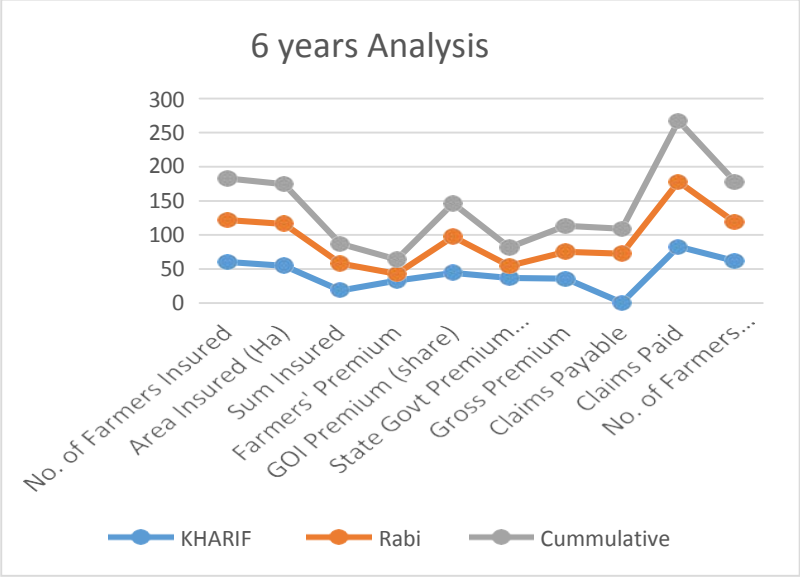

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V CONCLUSION AND FINDINGS

1. In result analysis the seven years crop insurance data of Haryana for Rabi, Kharif and cumulative
2. In summary, using2, 4,6and7yearsofstudy.These analyses do because we will review the growth of different parameters in different numbers of years and see the cumulative impact of crop growth.
3. In an analysis, use the number of farmer insured, area, farmer premium, claim, and the number of farmer growth.
4. In all years analysis number of framer, growth increase30-35%
5. Claim increase 30 -33% .these statistics show in Haryanafarmer and crop growth increase because of crop claim increase.

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