CROP CUTTING EXPERIMENTS OF RABI OILSEEDS & WHEAT CROPS IN PUNJAB: A COMPARATIVE STUDY

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Abstract

The Crop Cutting Experiment is a procedure used to investigate the over all yield of the area. It is the most important step, as the qualities acquired through this are the base for the nationwide yield esteems.Yield cutting investigations are normally led so as to acquire reasonable, exact and precise gauge of yield of vital harvests which incorporate rice, maize, bajra, groundnut, sugarcane, cotton, wheat, grain and rabi oilseeds. These trials are directed through stratified arbitrary inspecting strategy accepting square as an essential unit of arranging. The paper is written with the objective to study the yield estimation of rabi oilseeds and wheat agricultural crops and majorly for the comparative study between crops is done for the planned and analyzed crop experiments over the years to analyze the change.

Keywords: Agriculture, Crop Cutting Experiments, Yield of Area.

Introduction

Agriculture insights has extraordinary significance for the organizers for arranging of most critical financial strategies for improvement of the economy. Yield zone and harvest creation shapes the foundation of any agricultural measurements framework. In India, crop region figures are ordered based on total specification while the harvest yield is evaluated based on test review approach. The entire nation is separated into three general classes based on the technique embraced for the chronicle yield zone insights.

A number of crops commodities are grown in India. So it is required to carry out the crop cutting experiment to check the overall production and productivity of the area. In early times, most of Indian population (almost 60 %) depends upon agriculture even to satisfy their basic needs. Agriculture is the backbone of India. In India agriculture is facing serious challenges like scarcity of agricultural labor, in peak working seasons but also in normal time. This is mainly due to the increased non farm job opportunities having higher wage, migration of labour force to cities and low status of agricultural labors in the society.

In India, two type of crop cutting methods are used, like-

- Manual methods of crop cutting
- Combination Crop Cutting Machine

The crop cutting is important stage in agriculture field. Currently Indian Farmer used conventional method for crop cutting i.e. cutting crop manually using labour but this method is very lengthy and time consuming.

1. Manual method of crop cutting

The cutting and threshing machine for seed separation are used. In this method the crops are removed as mentioned in the traditional method. These method crops are tied together to from a bundle. These bundles are garnered and taken to threshing machine. This machine separates the seed from the crops.

2. Combine crop cutting machine

The combination of crop cutting machine is to combine three operations like as cutting, reaping and winnowing into single process. It is the most economically labour and time savingmethod

Equipment/Material Required For Conduct Of Crop Cutting Experiment

- Measuring tape as per requirement (30 or 50 meter)
- Weighing balance as per requirement (Beam or Spring balance)
- Set of weights (1 Gram, 2 Gram, 5 Gram, 10 Gram, 20 Gram, 50 Gram, 100 Gram, 200 Gram, 500 Gram, 1 Kg, 2 and 5 Kg)
- String or rope (30 meter)
- Four Pegs
- The Hessian Cloth: is a coarsely woven fabric usually made from vegetable fibers and jute. Known for its plain weaving and durable quality, these are eco-friendly and are used for the packaging of various varieties of goods like grains, sugar, pulses and others.
- Cloth bags for keeping the produce for drying
- Two strong water proof bags (one for keeping crop cutting equipments and other for keeping schedules and papers etc.)

Studying the present mechanisms.

A. Agricultural farm Machinery and Equipment:

Manual labour takes time and is not effective as they can work for 3 to 4 hours at a stretch. Even if the land holding is small, it takes two or three day completely harvests the soybean crop. Also the planting is not done with proper care. The machine focus the project is to make combination of harvesting and collecting machine for the small scale farmers in India who have land holding less than two acres, to harvest grain more efficiently. The level of mechanization has been increasing steadily over the year of the joint efforts made by the Government and the private sector.

B. Land holding.

Even though the adoption of farm mechanization is increasing in India, it is mostly region specific. Farm mechanization has very low growth rate in regions such a hilly and sloppy land. The decreasing trend in operational land holding is also observation the growth of agricultural mechanization. High costs of machine and maintenance, non-availability of appropriate agricultural machines and equipment that cater and suit the requirement of small scale farms, non- availability and difficulty in getting bank credit and small land holding are some of the factors that hinder farm, mechanization and force farmers to follow the traditional ways of agricultural operation. The use of farm machinery is also dependent on infrastructure and services available in the rural areas.

Objectives of the Study

- To study about the importance of Crop cutting in yield production fromcrops.
- To study about crop cutting mechanics followed in Punjab
- To analyze the crop cutting experiments of Rabi Oilseeds and Wheat crops by Government of Punjab

Literature Review

A. Design and Development of manually Operated Reaper Mr. P. B. Chavan, Mr. D. K. Patil, Mr. D. S. Dhondge

Various approaches have been proposed for improving mechanized type of crop cutter in agriculture field. Designing a reaper machine to harvest grains more efficiency. The research work focusing on harvesting operation to the small land holder to cut varieties of crop in less time and at low cost by considering the factors of power requirement, ease of operation , field condition , time of operation and climatologically condition.

B. Fabrication and performance test of an Ultraportable Crop cutter Mr.G Maruthi Prasad Yadav,GMDJaveedBasha

To increase the productivity and profit, ways of cutting, reducing cost and how to solve the problems related to workers were suggested in this study. It also fabricated various cutting ofcrop varieties during the time of cutting in the "Fabrication And Performance Test Of An Ultraportable Crop Cutter".

C. "Design and fabrication of small scale Sugarcane Harvesting Machine" Adarsh J Jain, Srinivas Rarod, Vinay N Thotad and Kiran

This fabrication model for small scale harvesting machine consists of petrol engines and mechanisms which are used in this machine. This is comparison to manual harvestinghas capacity to cut sugarcane and crops at faster rate and at economically cheaper prices.

D. Design of tractor front mounted Pigeon pea stem cutter Atul R. Dange, S. K. Thakare, I Bhaskarao and Umar farooq.

In this research work, the study on the cutting energy and force required for the pigeon pea crops. The commercially available blade- been attached to the lower end of the arm of pendulum type dynamic tester which cut the stalk at 9'00 to the stalk axis with knife velocity ranging between 2.28m/s to7.23 m/s the diameter of stem at42.6 % (wb) moisture content. The cutting force is directly proportional to cross sectional area "stem cutter design".

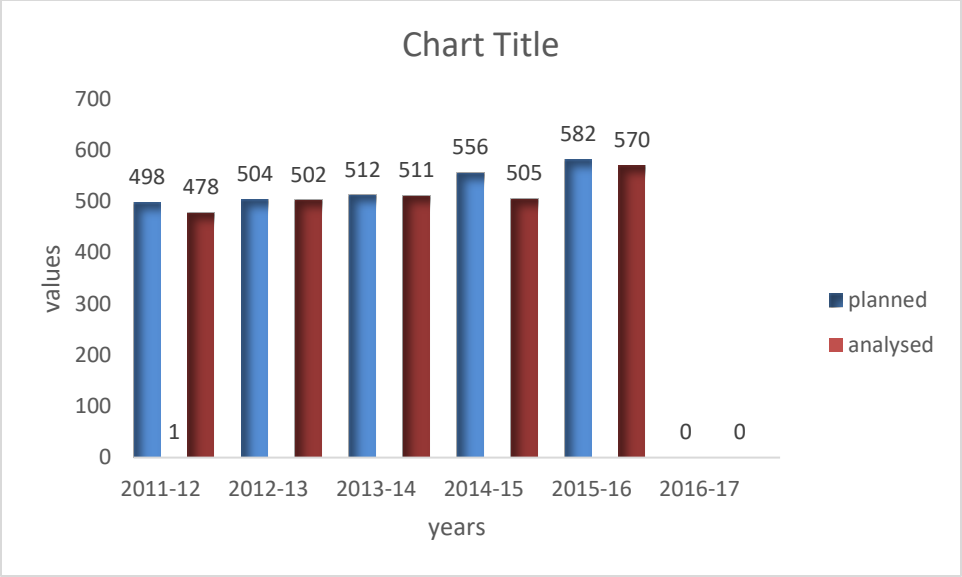
Research Methodology

The present study is conducted on agricultural commodity in Punjab. The study is descriptive in nature. The literature and data are mainly based on secondary source, which has been collected from commodity market, their various publications, commodity market bulletins, annual reports of Forward Market Commission (FMC) and other publications& internet sources. The various reports and records issues and maintained by the Government of India (GOI) at agripb.gov.in are also used in the study, who conducted the experiments through stratified random sampling technique taking block as a primary unit of planning and for representing every crop and toachieve the reliable yield estimation on the basis of these crop cutting experiment results and statistical wing estimates the crop yield.

Data Interpretation

1. **Rabi oilseeds:**

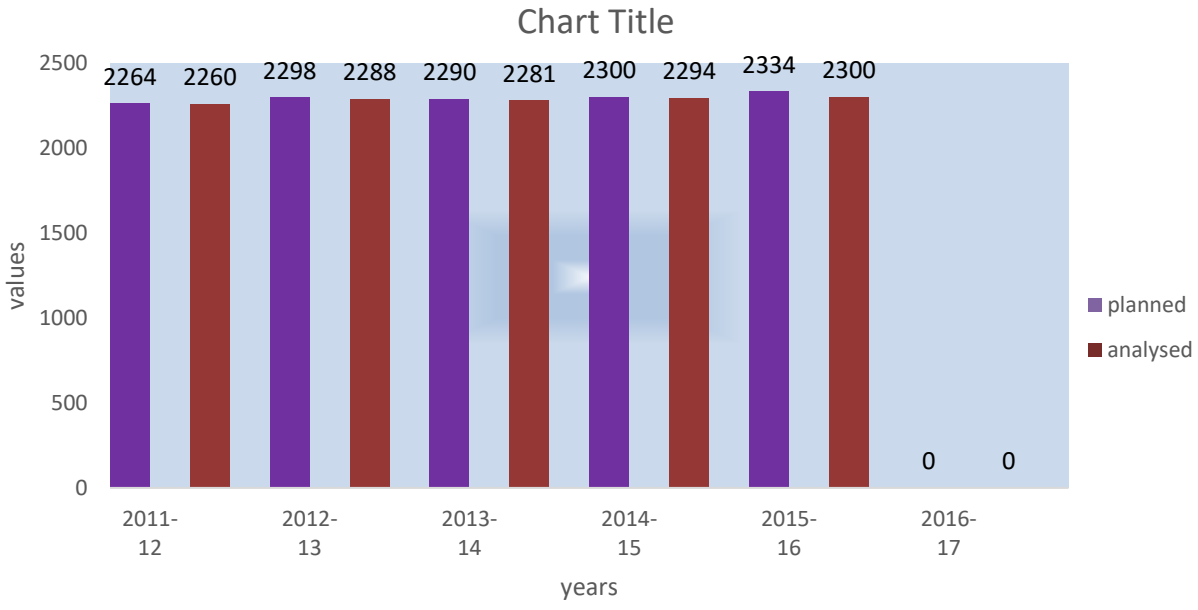
Crop	2011-12		2012-13		2013-14		2014-15		2015-16		2016-17	
	Planned	Analyzed	Planned	Analyzed	Planned	Analyzed	Planned	Analyzed	Planned	Analyzed	Planned	Analyzed
Rabi oil seeds	498	478	504	502	512	511	556	505	582	570	--	--



It has been observed that planned crop cutting experiments are analyzed according to the set targets in each year over the last years.

2. Wheat :

Crop	2011-12		2012-13		2013-14		2014-15		2015-16		2016-17	
	Planned	Analysed	Planned	Analysed	Planned	Analysed	Planned	Analysed	Planned	Analysed	Planned	Analysed
Wheat	2264	2260	2298	2288	2290	2281	2300	2294	2334	2300	--	--



It has been observed from the above data that there is a little shortage in achieving the set targets for crop cutting experiments over the past few years.

Conclusion

It is observed from the above graphs and tables that in case of both Rabi oilseeds and Wheat crops, the set targets are underachieved accordingly but are always near to their targets. The reasons may be the changes that are seen in the weather, use of more labor intensive techniques in comparison to capital intensive techniques for crop cutting, actual production or productivity, or due to decline in technology which effects the yield per hectare of crops. So there is need to make changes in the experimental techniques, planned targets and majorly for rabi oilseeds as the difference between planned and analyzed are huge in comparison to wheat.

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