



# Is Maize Profitable under Technology Adoption- A Partial Budget Analysis

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## Abstract

Maize is cultivated worldwide and having wider adaptability under varied agro climatic conditions. Boosting agricultural productivity has been an issue of paramount importance to enhance farmer's income. Agricultural technology helps to shifts the production function up, enabling higher quantity and better quality of output and enhancing farmer income is explicit. Measuring the impact provide insights to refine technologies and in devising strategies for up scaling. Keeping this in view the current research has been undertaken with the objective to evaluate the costs and returns from cultivation of Maize under technology adopters and non-adopters category. Perambalur districts topped the list of districts ranked according to the total area under maize cultivation and hence selected for study. Partial budgeting is powerful technique used to estimate the direct economic benefit at farm-level by adoption of technologies. From the results of the study it was found that increment in the profit realized by maize growing marginal farmers being adopters was Rs 12,880 /ha and for small farmers it was Rs.13,850/ respectively. Providing education, skill training, creating awareness among the farmers regarding various improved cultivation techniques, encouraging and providing incentives to farmers to adopt technology helps farmers to improve their income. Hence it is apparent that the technology adoption is cost efficient and enhancing income of farmers.

**Keywords:** Maize; Technology Adoption; Partial Budgeting; Small Framers; Marginal Farmers

## Introduction

Maize is cultivated worldwide and having wider adaptability under varied agro climatic conditions. It is an important cereal crop after wheat and rice. Farmers affected by price volatility in sugarcane, turmeric and vegetable shifting to maize cultivation. The State's maize contribution to the national yield is roughly around 7.25 per cent. Perambalur district stands first in Maize and Cotton cultivation in Tamil Nadu. Agriculture is the primary occupation of Perambalur district. Perambalur district having 1,75,739 ha of geographical area,

of which 93,581 ha is cropped area. Maize and cotton are the important crops of Perambalur district which accounts 80 percent of the total cultivated area. Perambalur district stands first in maize cultivation [1]. Thus, boosting agricultural productivity has been an issue of paramount importance to enhance farmer's income. Agricultural technology helps to shifts the production function up, enabling higher quantity and better quality of output from a given set of inputs. The role of technologies in enhancing farmer income is explicit, quantifying it is important, though challenging. With the Government of India announcing its ambitious target of

doubling farmer's income by 2022, research focusing on measuring the effect of the specific technologies on farmers income and livelihood becomes important. Analyzing the adoption of technologies and measuring the impact also provide insights to refine technologies and in devising strategies for upscaling [2]. Keeping this in view the current research has been undertaken with the objective to evaluate the costs and returns from cultivation of Maize under technology adopters and non-adopters category.

## Data

Three-stage sampling procedure was adopted for the study. In the first stage, Perambalur districts were purposively selected because Perambalur districts topped the list of districts ranked according to the total area under maize cultivation [3-5]. In the second stage Perambalur and Kunnam taluks from the Perambalur district were selected based on the taluk wise area under maize cultivation. List of progressive farmers were collected from agriculture department and randomly selected then selected farmers were interviewed through pre tested schedule.

## Methodology

Partial budgeting is powerful technique used to estimate the direct economic benefit (or loss) at farm-level by adoption of technologies [6]. To estimate additional costs and returns from growing one hectare of crops by adopting improved technology rather using conventional practice for the increasing farmer's income. The partial budgeting technique was employed to arrive at the net gain by adopters over non-adopters. It is an estimated change in net farm income and the effect on revenue and cost due to the technology's adoption.

## Results

Partial budgeting is a planning and decision-making framework used to compare the costs and benefits of alternatives faced by a farm business. It is especially useful in evaluating budgets that involve small, specific, and limited changes within an intervention by helping to determine the profitability of that change. The partial budget can be divided into three main sections: (I) costs, (II) benefits, and (III) analysis and the results are presented in following Table 1.

Perambalur District							
Marginal Farmers				Small Farmers			
Added Income 10680		Reduced Return		Added Income 16150		Reduced Return	
Reduced Cost		Added Cost		Reduced Cost		Added Cost	
Seed	500	Human labour	1570	Seed	950	Human labour	1950
Bullock labour	600	fodder	1600	Bullock labour	900	fodder	2200
Total	1100			Total	1850		4150
Added income +Reduced cost	11780	Reduced income+ Added cost	3170	Added income +Reduced cost	18000	Reduced income+ Added cost	
Net change =12880				Net change =13850			

**Table 1:** A comparative economics of respondents based on technology adoption rate across various farm-categories-Maize crop.

It is evident from the below Table 1 that increment in the profit realized by maize growing marginal farmers being adopters was Rs 12,880 /ha and for small farmers it was Rs.13,850/respectively. From the components of partial budgeting, the added returns were attributed mainly through the increased productivity obtained by adopting technology. The reduction in cost incurred was due to the value of seeds and bullock labour. However, the cost on fodder and human labour contributed to the increase in cost of technology. It is concluded from the partial budgeting analysis that the adoption of technology would provide an additional profit to the farmers [7,8].

## Conclusion

Farmers are diverting to maize cultivation from rice and wheat. The reasons are low cost of production, higher profitability, and higher demand in poultry industry. The farmers are allocating a major share of their total cultivable land to maize. Farmers adopting technology for cultivating maize have got higher output compared to that of farmers not adopting technology. From partial budgeting it is apparent that the technology adoption is cost efficient. The study has revealed that adoption technology would help increase maize production and it has proved to serve as an

alternative method for conservation cultivation. Providing education, skill training, creating awareness among the farmers regarding various improved cultivation techniques, encouraging and providing incentives to farmers to adopt technology helps farmers to improve their income. Hence it is apparent that the technology adoption is cost efficient and enhancing income of farmers.

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