

# **A Linear Programming Approach for Land Allocation of The Commercial Crops in A Plantation**

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## **Abstract**

India being an agrarian country, more than 60% of population depends on agriculture for their livelihood. Commercial crop is a backbone of Indian agriculture and currently contributes to around 16% of GDP. But the varying levels in the prices of the commercial crops and the increasing costs for agriculture activities along with the resource constraints has made the farmers think about determining the right crop mix so as to maximize the income. Therefore, in order to gain maximum benefits in agricultural activities, a lot of focus is now on the implementation of scientific methods of farming. This research thus focuses on determining the right mix of crops to maximize the income for the four commercial crops, namely arecanut, pepper, coconut and rubber considered in the study.

In this research, the LP technique was used in planning the agricultural activities for the two different farms. Primarily, a linear programming technique was applied to determine the optimum mix of crops that should have been followed by the farmer so as to fetch the maximum income considering the resource constraints. Later, the results obtained using LP technique and traditional methods of farming adopted by the farmer for the allocation of the crops were compared and it was found that the LP technique were superior to traditional methods. Since reallocation in the existing farm land is not viable due to the limitation in commercial crops, suitable suggestions were given with respect to the cropping combinations that can be applied practically. A sensitivity analysis was then carried out to determine the optimal capital requirement for the respective farms.

## **Keywords**

Commercial crops, Linear Programming Technique, Optimization of Crops.

## **Biographies**

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