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A CASE STUDY

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Regression models for assessment of post harvest grain losses for rice combine harvester

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ABSTRACT

Rice is harvested, when the panicle start changing its colour, the depended factor of moisture content and timely harvesting is one of the vital operations for getting optimum yields. To understand the complex conditions, regression equations would judge or forecast the suitable time for the machine (Escorts make class combine harvester) and crop (rice) parameters before harvesting. These equations would help to suffice for minimising the pre and post harvest grain losses.

Key words : Rice, Combine harvester, Post harvest grain losses, Regression models, Moisture content

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INTRODUCTION

Rice (*Oryza sativa* L.) is a staple food in India (Pillai, 1996), which is the second most important cereal crop after wheat. It is having high calorific value of 21.2 per cent (U.S.D.A., 1970) as compared to other crop. It is a member of the graminae family along with wheat and corn. Rice is one of the three crops on which human being largely depend for their daily food requirements. Today, the consumption of rice is greater than before because of increase in population, migration of peasants to cities and improvement of living standards (Yadav and Yadav, 1992). This might be due to distribution of people and food habit and also environmental determinations. Bridging the gap between the demand and production of food grains is an important task before the scientists. The solutions to bridge the gap are: improve post harvest management practices, put more land under cultivation, introduce high yielding varieties and improve husbandry practices. Minimizing the post harvest losses is practically viable. Post harvest losses implies a measurable quantitative and qualitative loss of a given product that occurs during different phases of processing right from harvest to till bagging (He *et.al.,*1997). Harvesting is one of the vital operations in crop production and timely harvesting is essential for getting optimum yields. The percentage of ripe grains in the panicles determines the harvesting time. The crop is ready for harvest when 80 per cent of the panicles turn straw-coloured and the grains in the lower portions of the panicle reach the hard-dough stage.

In recent years, there has been an acute shortage of agricultural labourers during harvesting season due to increased employment opportunities in urban areas for rural youth. Due to non-availability of labour and increased demand in work efficiency, an introduction of rice combine harvester becomes a need of the hour. Its introduction will balance these aspects simultaneously without any delay, as late harvesting would result in increased grain losses. One of the important reasons for late harvesting

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