

Sharing of groundnuts between farmer and Worker

Vasudha Balraj Girgaonkar
 Department of Mathematics
 Walchand College Of Engineering ,Sangli
 Maharashtra,India

Abstract: In this article an attempt is made to establish Mathematical model of sharing of groundnuts between farmer and worker in the field. We get two formulae one is for the profit of farmer and another is for profit of worker in the field. This method is useful for the society.

Keywords: Groundnuts, sharing between farmer and worker in the field.

I. INTRODUCTION

In era of 1801 -1999 there was sharing of groundnuts is not in rupees but in terms of groundnuts only. It is observed that sharing of groundnuts between farmer and worker , then we thought that we can make a mathematical model of this process of sharing groundnuts method on the basis of mathematical knowledge. In this Mathematical model we have got two new formulae one is for share of farmer (S_F) and another is for share of worker (S_W) if we increase the number of steps we get the share of farmer (S_F) increases and share of worker (S_W) decreases hence there is negative correlation. This method can be described by following steps.

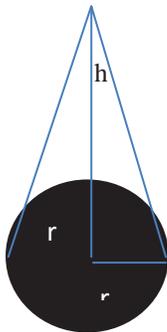
Step1: Make heap of groundnuts which is given by worker in the field.

Step2: Make two equal parts of the groundnuts.

Step3: Take away one part of it and leave other part as it is.

Step4: Again make two equal parts of remaining heap and take away one part and leave another part as it is.

Step 5 : Now make four equal parts of remaining heap and give one part to the labor and three parts to the to the farmer, from these steps we can form two formulae which can be used to decide the share of farmer and worker.



Let $V = \frac{1}{3} \pi r^2 h$ be the Volume of cone.

Let us consider the heap of groundnut is similar to volume of cone.

$$\text{Let } V = \frac{1}{3} \pi r^2 h \quad (1)$$

II. PROCESS OF MATHEMATICAL FORMULATION

Step 1- Make two equal parts of V as $V = \frac{V}{2} + \frac{V}{2}$

Step 2 - Give one part to the farmer and leave remaining part as it is

Step3 - Make two equal parts of it and give one part to the farmer leave remaining part as it is.

$$\frac{V}{2} = \frac{V}{4} + \frac{V}{4}$$

Step 4 - Make four equal parts of remaining heap and give one part to the worker and remaining three parts to the farmer.

$$\frac{V}{4} = \frac{V}{16} + \frac{V}{16} + \frac{V}{16} + \frac{V}{16}$$

Step 5 - Now collect the share of farmer as

$$S_F = \frac{V}{2} + \frac{V}{4} + \frac{3V}{16}$$

and the share of worker as $S_W = \frac{V}{16}$

From equation (1) we can write

$$S_F = \frac{V}{2} + \frac{V}{4} + \frac{3V}{16} = \frac{8V+4V+3V}{16} = \frac{15}{16} \times \frac{1}{3} \pi r^2 h$$

$$S_F = \frac{15}{48} \pi r^2 h \quad \text{Which is formula for share of farmer}$$

and formula for share of worker is.

$$S_W = \frac{V}{16} = \frac{1}{16} \times \frac{1}{3} \pi r^2 h = \frac{1}{48} \pi r^2 h$$

Now if we know the radius and height of cone that is heap then we can directly find out the shares of farmer by using the formula ' S_F ' and shares of worker by using the formula ' S_W '. The name of this method in local language is 3 shares of 16 by this method if the farmer is in profit then it is more useful to society and if worker is benefited then it will be only his profit.

In industry also we can apply these formulae to decide the share of worker if we are giving his salary in terms of his/her production capacity. Another use of this method is if we take more steps in this process then it is useful to society because the product will go to the market and more people can get benefited by groundnuts. In

this study of the method of sharing of groundnuts my native place has more importance. I am also thankful to my colleagues for discussion while preparing this paper.

REFERENCES

- [1] J.N. Kapur Mathematical Modeling Wiley Eastern Limited New Delhi 1988.
- [2] Agriculture surrounding, keen observation.