

## Pineapple Production in Nagaland – A Regression Approach

**Key words :** Nagaland, Pineapple, Regression Approach.

Pineapple is one of the most important commercial fruit of the world. It is a good source of Vitamin A, B and fairly rich in Vitamin C, minerals like Calcium, Phosphorus and Iron. Pineapple is also used for juice, squash, jam, mixed jam and in canned form; fruit cane is used for preparing candy. The crop is annually grown per 2675 ha. with the production of about 52037 mt. (average of 5 years) in Nagaland. It has been observed that there are wide fluctuations year to year in the production of pineapple in Nagaland, which may be attributed mainly due to variations in area under crop.

Therefore, it is important to evaluate the factors governing the production of pineapple. Keeping these views, an attempt has been made to estimate the impact of area on the production of pineapple in Nagaland from 1992 – 93 to 2004-05.

Time series secondary data were collected for area and production of pineapple from the Directorate of Economics and Statistics, Government of Nagaland, Kohima level for the period 1992-93 to 2004-05. Multicollinearity in the data was evaluated which was found to be insignificant. Therefore, for a good measure a multiple linear regression approach was adopted.

$$\text{It is of the form: } Y = a + \beta_1 X_1 + \beta_2 X_2 + e \text{ — (1)}$$

Where Y = Total production of Pineapple in (mt)  
metric tonnes

$X_1$  = Total area (ha)

$X_2$  = Annual average rainfall ( mm)

e = Random disturbance term

a = Intercept

$\beta_1$  and  $\beta_2$  are the partial regression coefficients of the respective explanatory variables. The function was fitted by the method of ordinary least squares applied to the data. The result are compiled in the table.

The Coefficient of multiple determination ( $R^2$ ) for the pineapple was found to be 0.303. This indicates that 30.3 percent of the total variation in the production of pineapple was explained by gross cropped area  $X_1$  and average rainfall  $X_2$ . The partial regression coefficient of  $X_1$  and  $X_2$  for the elasticities of production of pineapple were positive respectively but insignificant. ANOVA for multiple linear regression was evaluated and coefficient of multiple determination ( $R^2$ ) was also found to be insignificant.

Crop	Constant	Regression Coefficient of		$R^2$
		$X_1$	$X_2$	
Pineapple	-1975.67	18.16 <sup>NS</sup> (1.866)	1313.33 <sup>NS</sup> (0.303)	0.30 <sup>NS</sup>

ANOVA for Regression

SV	SS	DF	MSS	F-Ratio
Regression	1.9E+09	2	9.5E+08	2.198 <sup>NS</sup>
Residual	4.3E+09	10	4.3E+08	
Total	6.2E+09	12		

NS - Non Significant

$R^2$ - Coefficient of multiple determinations

A linear effect of cropped area and rainfall has not significantly contributed for variation in the production of pineapple as evidence by the data.

In case of pineapple, further study is required to find out an efficient function and factors which are responsible for the production of pineapple in Nagaland.

#### LITERATURE CITED

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Department of Agricultural Economics & Statistics,  
SASRD,  
NU, Nagaland – 797106

**D S Dhakre**  
**Amod Sharma**

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