



Performance of Papaya (*Carica papaya*) var. Red Lady in Agro Climatic Zones of Assam

Bhoirab Gogoi, Shourov Dutta, Dorodi Priyom Duarah, Lipika Nath, Angana Sarmah, Bhaskar Baruah, Manoranjan Neog and Prasanna Kumar Pathak

Krishi Vigyan Kendra, Jorhat, Assam Agricultural University, Jorhat – 785112 (Assam)

ABSTRACT

Papaya (*Carica papaya* L.) is a tropical fruit which can be cultivated successfully in subtropical conditions. The fruit has a high nutritional and medicinal value and rich in Vitamin A (2020IU/100g) making it very popular among the farmers of Assam. A study was conducted during 2019-2020 and 2020-21 on performance of Red Lady at farmers' field under rainfed conditions representing four agro climatic zones of Assam. The study revealed that the plant height was 281.27 cm tall with maximum fruit weight of 1.65 kg. Additionally, the fruit length, fruit diameter and fruit cavity diameter were found to be 19.22cm, 12.84 cm and 6.51 cm respectively with Yield per plant (40.72 kg), Yield per hectare (119.67 t/ha), B:C ratio (4.27) was found higher against the local varieties in all the locations. From the study, it can be inferred that the farmers may adopt Papaya var. Red lady over their local varieties for better yield and returns.

Key Words: Evaluation, Papaya, Rainfed, Red Lady, Variety.

INTRODUCTION

Papaya is one of the major fruit crop grown throughout the country. It belongs to the family *Caricaceae*. It has many sex expressions such as monoecious, dioecious and gynodioecious and was originated in Southern Mexico and Costa Rica. It is suitable for tropical conditions but can be grown in subtropical region successfully in favourable climate of 28-30 °C of temperature. Assam holds the 9th position (7.21 thousand hectares) in terms of area and 8th (147.40 thousand MT) in terms of production in the country (Anonymous, 2018). Major Papaya growing states are Andhra Pradesh, Gujarat, Kerala, Madhya Pradesh, Maharashtra etc. The fruits are highly valued as a table fruit when ripe and as a vegetable in the unripe condition (Babu, 2000). Unripe Papaya fruits are a rich source of Papain, a photolytic enzyme which helps in protein digestion. The tender fruits are also used as meat tenderizer and for medicinal purposes. The mature and ripe fruits are also used for preparation of

value added products like tooty fruity, jam, candies, ready to serve drinks and many more. The red colour of the flesh is due to accumulation of lycopene and the yellow colour is due to conversion of lycopene to β -carotene and β -cryptoxanthin (Hirschberg, 2001). The adverse climatic factors like temperature, humidity temperature fluctuations cause heavy crop damage which leads to various abnormalities like reduced vegetative growth, delay in flowering, flower and fruit drop, improper fruit development, reduction in quality of fruit in papaya (Jana *et al*, 2010; Meena *et al*, 2012; Singh *et al*, 2010). Farmers in Assam mostly found to practice local cultivars. The local cultivars grown are poor in yield, quality and physico-chemical properties. The knowledge regarding the hybrid varieties are still yet to popularize among the farmers. Considering the situation in view, the present investigation was undertaken to evaluate the performance of Papaya hybrids in various districts of Assam.

Corresponding Author's Email: bhoirab.aau@gmail.com

1,*Krishi Vigyan Kendra, Jorhat, Assam Agricultural University, Jorhat – 785112

2Krishi Vigyan Kendra, Karbi Anglong, Assam Agricultural University, Diphu-782462

3Krishi Vigyan Kendra, Kamrup, Assam Agricultural University, Kahikuchi-781015

4Krishi Vigyan Kendra, Barpeta, Assam Agricultural University, Howly-781316

5Krishi Vigyan Kendra, Sonitpur, Assam Agricultural University, Napam-784028

6Krishi Vigyan Kendra, Udalguri, Assam Agricultural University, Rowta-784508

7,8Directorate of Extension Education, Assam Agricultural University, Jorhat-785013

MATERIALS AND METHOD

The study was conducted using observational and field data in the farmers' field under rainfed conditions at different districts *viz.* Kamrup, Golaghat, Karbi Anglong, Barpeta, Sonitpur and Udalguri during the year 2019-20. At the beginning, Papaya variety Red Lady seedlings were raised in poly bags in the month of

February and kept at nursery under shade net houses. The planting was done in the month of May-June in an area of 0.13 ha at each location with a pit size of 45 cm × 45 cm and with a spacing of 1.8 m × 1.8 m as per the Package of Practices of Assam Agricultural University, 2019. The data were collected from 50 plants from each agro climatic zones of Assam.

Table 1. Experimental areas undertaken in the district.

Sr. No.	Agro-climatic Zone	KVKs involved
1	Upper Brahmaputra Valley Zone	Golaghat
2	North Bank Plain Zone	Sonitpur, Udalguri
3	Lower Brahmaputra Valley Zone	Barpeta, Kamrup
4	Hill Zone	Karbi Anglong

RESULTS AND DISCUSSION

It was observed that the papaya variety Red Lady suited well to be cultivated in Assam condition as it was found to perform very well in all the districts taken for the trial. The data (Table 2) revealed that papaya *var.* Red Lady showed encouraging results in comparisons to the local papaya varieties in respect to plant height, fruiting height, Fruit characters etc. The fruit length of Red Lady is high due to its elongated fruit shape. The variation in fruit length, fruit diameter and fruit weight might be based on the fact that every genotype has its own nature in development of fruit which may be varied due to various physiological

phenomenon, *viz.*, photosynthetic efficiency, rate of translocation of photosynthates from source to sink and photo respiration of the plant. The results were contrast with Das (2013) and Tyagi *et al* (2015). The variety Red lady showed encouraging result in yield per hectare of 119.67 t/ha as compared to the local varieties (32.5 t/ha). The data on economics and B:C ratio are represented in the bar diagram (Fig. 2 and 3). The highest gross return, net return and B:C ratio was obtained in Red Lady. It inferred that the variety Red Lady was more profitable for cultivation than the local varieties.

Table 2. Yield attributing parameters.

Variety	Plant height (cm)	Fruiting height (cm)	Avg. fruit weight (Kg)	Fruit length (cm)	Fruit diameter (cm)	Days to flowering	No. of fruits per plant	Shelf Life (days)
Red Lady	198.68	134	1.65	19.22	12.84	153.22	24.68	5.65
Local	281.27	247.06	0.745	15.78	9.89	193.62	39.66	6.75
C.D	23.27	11.57	0.03	0.34	0.56	11.82	2.14	0.25
SE(d)	10.56	5.65	0.01	0.15	0.25	5.78	0.97	0.09

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CONCLUSION

Based on the results obtained from the present investigation, it can be concluded that the papaya variety “Red Lady” is well suited for growing in agro climatic conditions of Assam. Therefore, the farmers can opt for this variety rather than using local varieties for higher yield and productivity with higher returns.

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