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Assessment of Performance of Papaya (Carica Papaya) Var. Red Lady in Western **Undulating Agroclimatic Zone**

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ABSTRACT: Papaya (Carica papaya L.) is a tropical fruit which can be farmed effectively in subtropical climates. The fruit has a great nutritional and therapeutic value and rich in Vitamin A (2020IU/100g) making it very popular among the farmers of Odisha. A study on Red Lady's performance in farmers' fields in the rainfed western undulating agro-climatic zone of Odisha was carried out in 2019–2020 and 2020–21. According to the study, the plant had a maximum fruit weight of 1.32 kg and a height of 267.89 cm. Furthermore, it was discovered that, in comparison to the local variety, the fruit length, fruit diameter, and fruit cavity diameter measured 17.24 cm, 11.92 cm, and 7.25 cm, respectively, and that the yield per plant (38.89 kg), yield per hectare (114.75 t/ha), and B:C ratio (3.22) was higher. The study suggests that in order to increase output and profits, growers should switch to Papaya var. Red lady from their native varieties.

Keywords: Papaya, Rainfed, Red Lady, Varietal evaluation, Agro climatic zone.

INTRODUCTION

One of the main fruits farmed all around the nation is papaya. It is a member of the Caricaceae family. It was first discovered in Southern Mexico and Costa Rica, and it exhibits a variety of sexual expressions, including monoecious, dioecious, and gyno-dioecious. It grows well in tropical climates, but it can also be effectively grown in subtropical regions with temperatures between 28 and 30°C. States such as Odisha, Andhra Pradesh, Gujarat, Kerala, Madhya Pradesh, Maharashtra, and others are major producers of papayas. When the fruits are mature, they are prized as a table fruit, and when they are not, they are appreciated as a vegetable. Unripe papaya fruits contain a lot of papain, a photolytic enzyme that aids in the digestion of proteins. The soft fruits are also used medicinally and as a meat tenderizer.

The ripe and mature fruits are also utilized to make value-added goods like jam, candies, ready-to-serve beverages, tooty fruity, and many more. The accumulation of lycopene is what gives the flesh its red color, while the conversion of lycopene to beta-carotene and beta-cryptoxanthin is what gives the flesh its yellow color.

Extreme crop damage is caused by unfavorable weather conditions such as temperature, humidity, and temperature fluctuations. This can result in a number of

anomalies, including decreased vegetative growth, delayed flowering, dropped flowers and fruits, improper fruit development, and decreased fruit quality in papaya (Jana et al., 2010; Meena et al., 2012; Singh et al., 2008). It was shown that most farmers used native cultivars. The physico-chemical attributes, yield, and quality of the local cultivars cultivated are subpar. Farmers still do not have a widespread understanding of hybrid types. The current study was conducted to assess the performance of papaya hybrids while keeping the situation in mind.

MATERIALS AND METHODS

In the Kalahandi district during the 2019–20 academic year, the study was carried out utilizing field data and observational data collected in farmers' fields that were in rainfed situation. Initially, in February, papaya seedlings of the Red Lady type were cultivated in poly bags and housed in shade net homes at the nursery. Following the Odisha university of agriculture and technology, Bhubaneswar, Odisha, 2019 Package of Practices, planting took place in May and June over a 0.13 ha area at each location, with a pit size of 45 cm \times 45 cm \times 45 cm and a spacing of 1.8 m \times 1.8 m. Fifty plants from the agroclimatic zone provided the data.

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RESULTS AND DISCUSSION

The papaya variety Red Lady was found to perform exceptionally well in every district selected for the testing, indicating that it was a good fit for cultivation in Odisha. When compared to local papaya varieties, papaya var. Red Lady shown promising results in terms of plant height, fruiting height, fruit characteristics, etc., according to the data (Table 1). Red Lady has an elongated fruit shape, which contributes to its high fruit length.

The differences in fruit weight, diameter, and length may be explained by the fact that each genotype has a unique fruit development nature that can be influenced by a number of physiological phenomena, such as the plant's photosynthesis, photosynthetic efficiency, and rate at which photosynthates move from source to sink. Comparisons were made between the outcomes and Das (2013); Tyagi *et al.* (2015). 119.67 t/ha was a promising outcome for the variety Red Lady compared to 32.5 t/ha for the indigenous variations. The Table 2 shows the economic statistics and the B:C ratio. Red Lady achieved the highest B:C ratio, net return, and gross return.

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	183.68	125.63	1.72	17.45	13.25	147.65	22.52	6.03
Local check	245.96	195.68	0.78	13.96	08.75	184.96	37.45	7.15
C.D	18.56	09.78	0.02	0.23	0.45	10.49	2.25	0.34
S.E(m)	08.32	04.65	0.01	0.11	0.21	03.59	0.87	0.11

Table 1.

Variety	Total fruit yield per plant (kg)	TSS (per cent)	Acidity (per cent)	Papain yield (Kg/ ha)	Benefit: cost ratio
Red Lady	35.74	14.34	0.34	384.59	2.1
Local check	26.78	10.85	0.15	266.2	1.6
C.D	1.45	1.14	0.14	23.54	
S.E(m)	2.98	NS	0.09	41.95	

Table 2.

CONCLUSIONS

Drawing conclusions from the current study, it can be said that the western Odisha agroclimatic conditions are ideal for the growth of the papaya variety "Red Lady." For greater production and productivity with higher returns, farmers can use this variety instead of local kinds.

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