

Original Research Article

Evaluation of different Jack Fruit Cultivars for their Physical Parameters Fruit

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ABSTRACT

An experiment was conducted on “Evaluation of different jackfruit cultivars for their physical parameters fruit” As Jackfruit (*Artocarpus heterophyllus* L.) is one of the most important and unusual fruit of the Moraceae family. The present investigation was carried out to explore the “Physical parameters evaluation of different jackfruit genotypes” during 2016-17 on 13 genotypes of jackfruit studied at Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. An experiment was laid out in one way classification having thirteen genotypes. among all the genotypes, the genotype GDJF-13 were found superior in respect to fruit weight, breadth of fruit while, Bulbs weight/ fruit (kg) and Flakes weight/fruit (kg) and for the fruit length the genotype GDJF-09 was found superior and maximum rind thickness was found in genotype GDJF-10.

Keywords

Physical parameters, Fruit weight, Fruit length, Rind thickness, Breadth of fruit and flakes weight

Introduction

Jackfruit (*Artocarpus heterophyllus* Lam.) is an important and indigenous fruit crop of India belonging to family Moraceae. It is mostly grown in tropical or close to tropical climates of country. It is native to parts of South and Southeast Asia and is believed to have originated in the south western rain forests of the Western Ghats in the Indian Subcontinent.

It is a very large and evergreen tree grown for its gigantic and spined oval fruits. It is one of the largest tree borne fruits in the world. The primary economic product of jackfruit is the

fruit which is used both when mature and immature. When unripe (green), it is remarkably similar in texture to chicken, making jackfruit (in brine) is sometimes referred to as “vegetable meat”.

The ripe jackfruit is a good source of minerals as well as vitamins A and C. It is also used for the preparation of pickles, dehydration of leather, thin papads, canned fruits and nector from the pulp. The ripened fruit is normally fibrous, xylose, arbinose and galactose. The juicy pulp of the ripe fruit is eaten fresh as a desert, ripe jackfruit is naturally sweet with subtle flavouring can be used to make a variety of dishes, including

custards, cakes, or mixed with shave ice. Ripe jackfruit arils are sometimes seeded, fried, or freeze-dried and sold as jackfruit chips.

India is the second largest producer of jackfruit in the world and it is considered as the motherhood of jackfruit. In India, it has wide distribution in Assam, Tripura, Bihar, Uttar Pradesh, the foothills of the Himalayas and South Indian states of Kerala, Tamil Nadu and Karnataka. The area and production of jackfruit in India during 2014-15 was 118 ha and 2088 MT, respectively.

Jackfruit plays a significant role in Indian agriculture and culture. It was cultivated in India 3,000-6,000 years ago. It is popularly known as poor man's fruit in the eastern and southern parts of India (AAPARI, 2012).

The jackfruits are good source of energy ranges from 95 Kcal, Protein 1.72 g, Fat 0.64 g, Carbohydrates 23.5 g, Fibre 1.5 g, Calcium 34 mg, Iron 0.60 mg, Magnesium 37 mg, Thiamine 0.105 mg, Riboflavin 0.155 mg, Niacin 0.920 mg, Vitamin C 13.7 mg. Fresh fruit is a good source of potassium, magnesium, manganese and iron. Potassium is an important component of cell and body fluids that helps controlling heart rate and blood pressure.

Materials and Methods

The experiment entitled "Evaluation of deferent jackfruit cultivars for their physical parameters fruit" was carried out in Analytical laboratory, Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola during the year 2016-17. The different genotypes of jackfruits were collected from the various region of Vidarbha viz., Korchi, Dist. Gadchiroli; Akot, Dist. Akola. During the experiment three replications, thirteen treatments and

randomise block design were laid out in the field. The following thirteen genotypes were collected that is mentioned in table 01.

Results and Discussion

In this chapter for analysis of result data Fully matured ripe fruits of jackfruit were collected from different area of Vidarbha were evaluated for fruit growth parameters.

As per the result indicate on the above table: 02. The maximum weight (5.10 kg) was recorded by genotype GDJF-13 which was at par with the fruits of GDJF-12 with (4.92 kg). However, minimum weight of fruit (1.18 kg) was observed in genotype GDJF-9. The variation in the fruit weight of different genotypes might be due the genetic constituent of cultivars and environmental variation.

The variability noticed in the present study is the manifestation of cross pollinated progeny of jackfruit. The present findings are in confirmation with the findings of Mitra and Maity (2002), Rai *et al.*, (2003), Reddy *et al.*, (2004), Singh *et al.*, (2011), Anu *et al.*, (2015) and Goithoilou *et al.*, (2017) in jackfruit.

Significantly longest fruit length (42.67 cm) was observed in the genotype GDJF-9 which was followed by GDJF-13 (36.00 cm) while the genotype GDJF-7 recorded the minimum length of fruit (20.80 cm), the variation in fruit length of jackfruits of different genotypes might be due to genetic makeup and environmental conditions of jackfruit trees grown in different locations. This is confirmation with the findings of Rai *et al.*, (2003), Crag and Hardley *et al.*, (2006), Ruby *et al.*, (2010) and Singh *et al.*, (2011) in jackfruit. And with respect to the rind thickness of different fruits came to be non-significant.

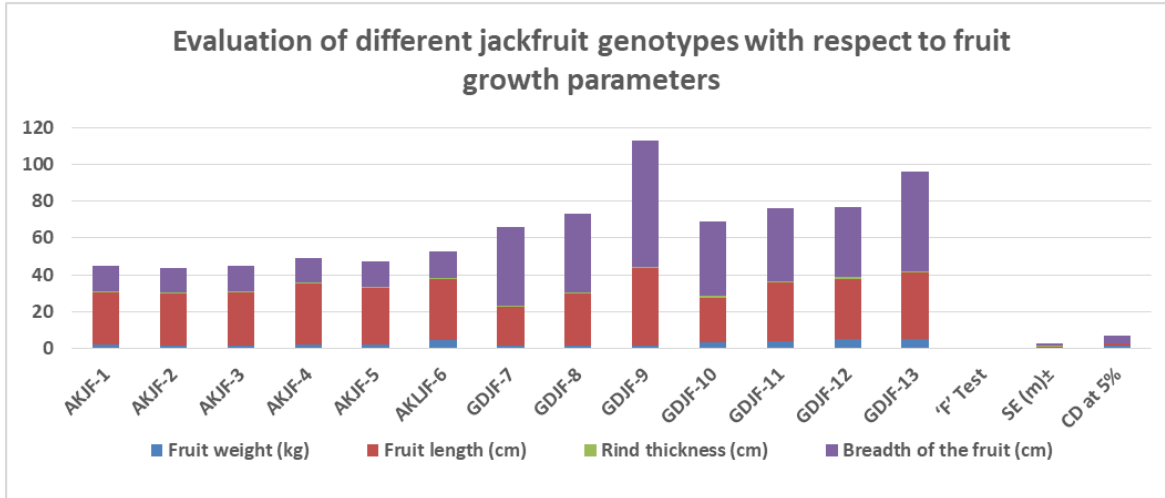
Table.1

List of Genotypes		Treatments
1.	AKJF-1 (Akot jackfruit -1)	T1
2.	AKJF-2 (Akot jackfruit -2)	T2
3.	AKJF-3 (Akot jackfruit -3)	T3
4.	AKJF-4 (Akot jackfruit -4)	T4
5.	AKJF-5 (Akot jackfruit -5)	T5
6.	AKLJF-6 (Akola jackfruit -6)	T6
7.	GDJF-7 (Gadchiroli jackfruit -7)	T7
8.	GDJF-8 (Gadchiroli jackfruit -8)	T8
9.	GDJF-9 (Gadchiroli jackfruit -9)	T9
10.	GDJF-10 (Gadchiroli jackfruit -10)	T10
11.	GDJF-11 (Gadchiroli jackfruit -11)	T11
12.	GDJF-12 (Gadchiroli jackfruit -12)	T12
13.	GDJF-13(Gadchiroli jackfruit -13)	T13

Table.2 Evaluation of different jackfruit genotypes with respect to physical parameters/ fruit growth parameters

Name of genotypes	Fruit weight (kg)	Fruit length (cm)	Rind thickness (cm)	Breadth of the fruit (cm)	Bulbs weight/ fruit (kg)	Flakes weight/fruit (kg)
AKJF-1	2.06	28.37	0.63	13.97	0.34	0.25
AKJF-2	1.58	28.10	0.53	13.60	0.28	0.23
AKJF-3	1.62	28.97	0.57	13.80	0.41	0.38
AKJF-4	2.00	33.40	0.63	12.93	0.27	0.16
AKJF-5	1.98	30.67	0.93	13.47	0.41	0.26
AKLJF-6	4.31	33.33	0.87	14.30	0.39	0.21
GDJF-7	1.44	20.80	0.80	42.93	0.14	0.25
GDJF-8	1.39	28.50	0.70	42.40	0.20	0.05
GDJF-9	1.18	42.67	0.63	68.67	0.76	0.19
GDJF-10	2.95	24.33	1.07	40.67	0.32	0.15
GDJF-11	3.70	32.33	0.63	39.33	0.36	0.25
GDJF-12	4.92	32.67	1.03	37.97	0.56	0.38
GDJF-13	5.10	36.0	0.90	54.33	1.68	0.87
'F' Test	Sig.	Sig.	Non-Sig.	Sig.	Sig.	Sig.
SE (m)±	0.50	0.50	0.13	1.44	0.03	0.18
CD at 5%	1.40	1.40	-	4.11	0.10	0.55

Fig.1 Evaluation of different jackfruit genotypes with respect to fruit growth parameters



However, maximum rind thickness was observed in the fruits of genotype GDJF-10 (1.07 cm) which was followed by GDJF-12 (1.03 cm). The minimum rind thickness (0.53 cm) was observed in the fruit of genotype AKJF-2. Similar findings reported that Murlidharan *et al.*, (1997), Jagdeesh *et al.*, (2007) and Rahman *et al.*, (2016) in jackfruit. The variation in rind thickness may be due to difference between genotypes and environmental conditions. In respect to breadth of fruit, significantly maximum breadth of fruit (68.67cm) recorded from the genotype GDJF-9 which was followed by the genotype GDJF-13 (54.33 cm). Whereas, minimum breadth of fruit (12.93 cm) was observed in the genotype AKJF-4. The present findings indicates variation in fruit breadth of different genotypes, the genotypes AKJF-1 to AKLJF-6 which were collected from Akola districts had lower breadth of fruits while fruits collected from Gadchiroli district and higher values for fruit breadth. This might be due to the variation in agroclimatic condition of this region which has influenced fruit breadth. The similar findings were reported that, Mitra and Maity (2002) and Singh *et al.*, (2011) in jackfruit. In respect to bulb weight per fruit. Significantly maximum bulb weight per fruit

(1.68 kg) was observed in the genotype GDJF-13 while minimum bulb weight per fruit (0.14 kg) was observed in GDJF-7. The differences in the bulbs weight per fruit may be attributed to the differences in the genetic makeup of different jackfruit genotypes grown in different agroclimatic conditions.

This is with the reports of APPARI (2012). Jackfruit shows a considerable range of variation in morph agronomic characters and this may be because it is cross pollinated and are mostly propagated by seed. Similar variation in the bulbs weight per fruit in jackfruit are also reported by Anu *et al.*, (2015) and Rahman *et al.*, (2016) and maximum flakes weight per fruit (0.87 kg) was recorded in the genotype GDJF-13 which was followed by AKJF-3 and GDJF-12 (0.38 kg). However minimum flakes weight per fruit (0.05 kg) was observed in the genotype GDJF-8. Rai *et al.*, (2003) also reported the variation in the flakes weight which might be due to the genetical characteristics of the plant. This is in agreement with the finding of Anu *et al.*, (2015) and Rahman *et al.*, (2016). As per above result and discussion the experiment is concluded that every genotype have deferent physical parameters in physical parameters of jackfruit among all the

genotypes, the genotype GDJF-13 were found superior in respect to fruit weight, breadth of fruit while, Bulbs weight/ fruit (kg) and Flakes weight/fruit (kg) and for the fruit length the genotype GDJF-09 was found superior and maximum rind thickness was found in genotype GDJF-10..

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