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Success Stories of Papaya Farmers

B.C. BISWAS
Consultant
FAI, New Delhi – 110 067

Papaya is a delicious fruit produced throughout the year. It is used as vegetable if harvested prematurely, while ripe fruit is also widely used. Properly managed papaya crop yield is very high and gives high amount of profit. Success stories of two farmers, one form -Sholapur district of Maharashtra and another from Jalpaiguri district of West Bengal have been presented in this paper. Maharashtra farmer Ganapatrao Babanrao Goraekar obtained a yield of 138.75 tonnes / ha with a net profit of Rs. 50 3500 / ha (price of Rs.5 per/kg). West Bengal farmer Ranjan Das obtained a yield of 150t/ha with a net profit of Rs.4020,000/ha. He mainly harvested premature fruits and sold his crop as vegetable at a price of Rs. 3.5/kg.

CEREAL PRODUCTION SUCCESS STORIES are well documented. Of late, fruit and vegetable production is gaining ground. The area and production of fruit crops have increased from 2867, thousand ha and 28632.0 tonnes in 1991-92 to 5509.5 thousand ha and 58740 thousand tonnes in 2005-06 respectively. Both area and production have doubled in last 14 years, but the productivity (average) increase is not that spectacular. (1,4), because of low use of plants nutrient. Balanced use of plant nutrient results very high yield and profit.

The major fruit growing states in the country are Maharashtra, Andhra Pradesh, Tamil Nadu, Kerala, Gujarat, Karnataka, Bihar, U.P., West Bengal, Orissa, J&K., H.P. and U.K. **(Table 1)**. Among the fruits, papaya occupies a special place. Like banana it is available throughout the year and it is easy to cultivate. It produces more income per unit area only next to banana and has high nutritive and medicinal value. It is used as ripan fruit and vegetable and easy to digest. Papain prepared from dried latex of its raw fruits is used in meat tendering, manufacturing chewing gum, cosmetics, for degumming silk and to give shrink resistance to wool. In addition, it is also used in pharmaceutical industries, textiles, garment, cleaning paper and adhesive manufacturing, sewage disposal and so on (3).

Soil and Climate

Papaya is a tropical fruit, but it can also be grown in the mild sub tropical regions of the country up to 1,000 m above the sea level. Temperature is one of the most important climatic factors determining the success of papaya cultivation. Night temperature below 12^0 - 14^0 C for several hours during winter season affects its growth and yield. It is also very much sensitive to frost, strong wind and water stagnation.

Varieties of soils are suitable for its cultivation provided these are well drained and aerated. A rich, well-drained sandy loam soil is ideal for its cultivation. It also grows well in deep rich alluvial soils on banks and deltas of

Table 1 – Area, production and productivity of fruits in some important fruits growing states in India

States	Area ('000 ha)		Production ('000 mt)		Productivity (tonnes/ha)	
	1991-92	2005-06	1991-92	2005-06	1991-92	2005-06
Maharashtra	256.1	1618.7	3518.4	10586.3	13.7	7.2
Andhra Pradesh	313.1	619.7	4008.2	8409.2	12.8	12.4
Tamil Nadu	136.2	257.9	2316.7	5778.6	17.0	22.4
Kerala	236.3	340.3	1101.3	5050.8	4.7	14.8
Gujarat	84.5	269.5	1828.9	4677.6	21.6	17.3
Karnataka	209.3	263.0	3191.8	4241.8	15.2	16.1
Bihar	266.9	291.6	2799.2	3192.2	10.5	10.9
Uttar Pradesh	303.2	279.3	2449.8	3009.2	8.1	10.8
West Bengal	111.3	172.7	1131.7	2301.7	10.2	13.3
Orissa	136.3	237.5	978	1403.4	7.2	5.9
Jammu & Kashmir	119.1	167.5	700.8	1217.8	5.9	7.3
Himachal Pradesh	157.2	182.7	339.9	692.4	2.2	3.8
Uttar Khand	150.5	163.1	428.7	676.0	2.8	4.1
Total	2874.3	5509.5	28632.0	58740.3	10.0	10.7

Source : (4)

big river. It can also be grown in calcareous and stony soils provided these are dressed with heavy doses of organic manures. Soils with high pH (8.0) and low pH (5.0) should be avoided. (3)

Important Papaya Varieties

Honey Dew, Coorg Honey Dew, Washington, Pusa Delicious, Pusa Majesty, Pusa Dwarf, Co 1 to Co 7, Taiwan etc. are some of the important varieties.

Major Growing Belts

AP (Cuddapah, Medak, Kurnool, Ranga Reddy) Gujarat (Kheda, Ahmedabad, Jamnagar) and Orissa, Maharashtra (Sangli, Satara, Pune, Nashik, Sholapur, Nagpur, Amravati). M. P. (Dhar, Khandwa, Bilaspur, Ratlam, Guna), West Bengal (North 24 Parganas, Hoogly), Assam (Nagaon, Darrang, Karbi Auglong) are the major papaya growing belts. **(Table 2)**

Table 2 – Area, production and productivity of some important papaya growing states in India

States	Area ('000 ha)		Production ('000 mt)		Productivity (tonnes /ha)	
	2003-04	2005-06	2003-04	2005-06	2003-04	2005-06
A.P.	8.6	12.9	660.1	1009.2	76.8	78.2
Gujarat	4.9	7.7	191.3	323.0	39.0	41.8
West Bengal	8.5	9.5	245.7	263.7	28.9	27.7
Karnataka	3.2	3.5	221.7	230.1	69.3	66.1
Assam	7.1	8.1	104.2	130.5	14.7	16.1
Kerala	17.7	18.9	80.8	85.5	4.6	4.5
Total	58.2	73.1	1692.0	2317.2	29.2	31.7

Source : (4)

Success Story of a Maharashtra Farmer

Maharashtra is one of the important states in papaya cultivation in the country. Farmers in this state mainly cultivate "Taiwan Red Lady" variety. It gives high yield and bears both male and female flowers on the same plant. Therefore, plantation of male plants in addition to female plants in certain proportion is not necessary. The success story of a progressive papaya farmers finds a place herein.

Ganpatrao Bananrao Goraekar is the name of the farmer who belongs to Village Taoyari (Taluka, Barsi), district Sholapur, Maharashtra, Mobile 09226314608/ 09763637716. Sholapur is dominated by rainfed areas. Normal rainfall is 545mm. Bajra, Arhar, Soybean are main crops in *Kharif* while Jowar is the main crop in Rabi. Goraekar Saheb also earlier used to grow these traditional crops. On the advise of his relative who is the resident of Osmanabad district, he started papaya cultivation. The relative of Gorarekar Saheb provided him the technological packages of papaya cultivation. Within a year (from planting seedlings to harvesting) he obtained a yield of 138.75 tonnes / ha and made a profit of Rs.503500.00/ha. **(Table 3)**

Readers may be interested to know the techniques he adopted. The techniques of papaya cultivation adopted by him are mentioned below.

1. Land preparation in December 2007.

2. January 2008, irrigation through drip.

3. Planting of seedling on February, 2008 at spacing of 7ft x 7ft.

4. Seedling of variety Taiwan Red Lady 786 from a reliable nursery.

5. After a month of planting, 5 kg 19 : 19 : 19 and 2.5 kg urea / ha were applied through drip fertigation.

6. After 15 days the same dose was repeated.

7. After two months of planting ring was made around the plant and fertiliser at the rate 250 kg DAP, 500 kg neem cake and 188 kg urea/ha basis were applied.

8. After 3 months (250 kg DAP + 500 kg Neem cake + 750 kg MOP + 25 kg micronutrients mixture) were added.

9. From 4th month to 6th month drip fertigation was practised as mentioned.

(a) At the beginning of 4th month 12 : 61 : 0 – 30 kg /ha
(b) After 15 days 30 kg/ha 0 : 0 : 50 mixed fertiliser

Table 3 – Economics of papaya cultivation in Sholapur (Maharashtra)

Sl. No.	Item of cost	Cost / ha (Rs.)
1.	Total Cost	190250.00
2.	Total Plants / ha 2220	
3.	Yield (fruit/per plant)	
	50 average fruits weighing	
	1.25 kg - 138.75 t/ha	
4.	Total Income	
	(Price Rs.5000 / tonnes)	693750.00
5.	Net Profit / ha / yr	503500.00
6.	Cost Benefit Ratio	2.64

Source : (5)

(c) 15 days after that, 30 kg/ ha 13 : 0: 45

(d) 6th month 30 kg/ha 0 : 0 : 50 15 days after that 30 kg / ha 12 : 61 : 0

(e) At 7th month again 250 kg DAP + 188 kg MOP + 25 kg micronutrients + 37.5 kg S/ha were applied on ring.

All other recommended package of practices were adopted religiously by him. Weedings were done thrice. After three months support was provided to each plant to prevent the falling of plant due to high yield. Rainfall received during 2008 was less. Therefore, after planting in February 2008, up to March once in 4 days for 2 hours, in April once in two days for 3 hrs and in May every day 2 hrs drip irrigation was provided. Because of very hot weather he had to practice furrow irrigation on May 16, 2008. Thereafter on the availability of water and plant need, he used both furrow and drip method of irrigation. Pest and disease problems were not serious. The farmers of this area through tradition farming used to get very little profit. Though high-tech, Goraekar Saheb got very high yield and profit **(Table 3)**.

Success Story of a Bengal Farmer

Above, success story of Maharashtra farmer has been described. He used high-tech and was successful at the first attempt. Here we narrate the success story of an experienced papaya farmer who had about 20 years experience in papaya cultivation with the traditional variety.

Ranjit Das, a resident of village Jaichadpur PO., Bhutnirghat, district Jalpaiguri, West Bengal, Pin 735 211, (Mobile 09832338022) is the farmer under reference. He has 40 bigha /(about 5.33 ha) of land. He grows cereals like rice, maize and vegetables like potato, beet and carrot. And 0.8 ha high land was used for papaya cultivation.

Techniques Adopted

Variety used was "Ranchi". Per ha 30,00 female and 300 male plants were planted in a high land with good drainage facility.

The method of cultivation is detailed below :

1. Raising nursery for seedlings.

2. Land preparation with needed ploughings.

3. Addition of lime to rectify acidity problem.

4. Addition of 8 cart load of FYM and 22 bags oil cake.

5. Addition of 15 kg each of zinc sulphate and sohaga.

6. After a month, one kg FYM was added to each pit and two seedlings were planted in each pit.

7. When flowering started, male plants were reduced to only 10 percent by thinning.

8. If two female plants were found in a pit, the weaker one was removed and only one plant was kept in a pit.

9. Weeding after 2 months was done and one kg NPK 15:15:15 was applied in each pit.

10. Except in rainy season, irrigation was provided as and when needed.

11. In addition, 15 bags NPK 15:15:15 / ha were added thrice in a year.

12. Drainage was provided and earthing up was done after the first top dressing.

13. Regular field visit was done and suitable measures for pest and disease control were taken.

14. Normally he harvested the raw fruit but depending on the demand of the market, ripen fruits were also harvested.

15. Ranchi variety was selected because it gave better yield, size of fruit is small weighing about 1 kg which has higher demand in the market.

16. A yield of about 50-60 / plant was obtained.

17. He started papaya cultivation in about 650 sq-m area which was increased to 8000 sq. m.

18. After 2½ years the papaya plants were removed and some other suitable crop was grown and then again papaya plantation was done in the same land.

The economics of papaya cultivation by Ranjit Das has been given in **Table 4**. It is observed that a profit of 0.42 million rupees per ha was obtained.

Table 4 – Economics of papaya cultivation (Rs / ha) in Jalpaiguri (West Bengal)

Sl. No.	Item of cost	Cost (Rs / ha)
1	Cultivation cost up to 18 months	90,000.00
2	Cultivation cost 19-30 months	60,000.00
3	Cultivation cost up to 2½ years (Total Cost)	1,50,000.00
	Income	
1	up to 18 months	6,00,000.00
2	up to 30 months	6,00,000.00
3	Total Income (150 t/ha in 2½ years) Net Income in 2½ years Net Income per year / ha (Price Rs.3500 tonnes)	12,00,000.00 10,50,000.00 4,20,000.00
4	Cost Benefit Ratio	7.5

Source : (2)

CONCLUSION

THE FACT AND FIGURES PRESENTED IN this short article demonstrate that the area and production of the fruit crop have increased considerably in last 1½ decades. But the productivity (average) increase is marginal. Papaya is one of the important fruit crop intensively grown in India. It is grown through out the country and fruit are produced through out the years. If the crop is managed properly and high amount of plant nutrient in balanced proportion are added very high yield and profit are obtained. Papaya is highly sensitive to front, wind and water stagnation. Even one day water stagnation can result in complete failure of the crops. Therefore, high land with well-drained condition are to be selected for papaya cultivation.

Future Lines of Work

1. For providing balanced diet more emphasis is to be provided to higher production of fruits like papaya which has high nutritive and medicinal value.

2. Since crop management plays very important role to obtain consistent higher productivity, training in fruit crop management needs encouragement.

3. Total profit may be higher in high tech. horticulture, but cost benefit ratio may not. Therefore, cafeteria of techniques should be made available for the farmers.

4. Raw papaya is a very good vegetable and under well managed condition it gives higher yield and profit. Marketing facilities has to be created for marketing of papaya (both vegetable and fruit).

5. Provision for National Award for excellent performance are available for almost all sectors of activities but it is not there in crop production particularly for the small practicing farmers. National Award for excellent performance in crop management should be instituted to honour farmers who have demonstrated very high productivity over a period of time

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78th IFA Annual Conference at Paris 31 May – 2 June 2010

The 78th IFA Annual Conference will be held from 31 May – 2 June 2010 at Paris, France. The venue of the Conference will be the International Paris Le Grand. The Conference is restricted to representatives of IFA member companies and guests of the Executive Committee and Council.

Among the many presentations that will be made during the Conference, the two most important ones are :

a) Medium-term outlook for World Agriculture and Fertilizer Demand 2009-10–2014-15 and

b) Global Fertilizers and Raw Material Supply and Supply/ Demand Balances 2010–2014.

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