



## Research Paper

### Socio-Economic Condition of Banana Growers in Middle Gujarat

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**Abstract:** The impact of drip irrigation technology on socio-economic condition of banana growers was studied by collecting data from 120 drip farms and 120 non-drip farms of Anand and Vadodara districts during 2017-18. It was revealed from the study that drip banana growers were younger as compared to conventional growers due to old ones don't want to use new technology. Drip growers were more educated as education played an important role in adoption of technology. Drip growers were less experienced, had smaller family size, had lesser labour force, had more diversified occupation and had bigger land holding size as compared to conventional growers. This can be due to that large farmers are more risk takers, had knowledge and education regarding technology and had higher investment capacity compared to other farmers. The income earners were more in drip banana growers, showed lower

dependency and higher work participation rate as compared to conventional growers.

**Keywords:** Education, family size, income and labour force

#### Introduction:

Banana, fruit of the family Musaceae, one of the most important fruit crops of the world. The banana is grown in the tropics as a staple food source. Cavendish, or dessert, bananas are most commonly eaten fresh, though they may be fried or mashed and chilled in pies or puddings. A ripe fruit contains as much as 22 per cent of carbohydrate and is high in dietary fibre, potassium, manganese, and vitamins B<sub>6</sub> and C. Leading producers of banana are India, China mainland, Uganda, Philippines, Ecuador, Brazil, Indonesia, Colombia, Cameroon and Tanzania *etc.* In India, leading banana producing states are Gujarat (13.73%), Andhra Pradesh (13.60%), Tamil Nadu (11.95%), Uttar Pradesh (10.10%) and

Maharashtra (10.08%)  
[www.indiastats.com](http://www.indiastats.com). In Gujarat, major banana growing districts are Bharuch, Anand, Surat, Narmada and Vadodara, which together contributes 72.2 per cent of total area in the year 2016-17.

One of the management strategies introduced to control water consumption in Indian agriculture is Micro Irrigation (MI), which includes mainly drip and sprinkler irrigation method. Drip irrigation provides slow, even application of low-pressure water to soil and plants as an alternative to sprinkler or furrow methods of irrigating crops. Drip irrigation can help you use water efficiently. Drip irrigation reduces water contact with crop leaves, stems, and fruit. Thus, conditions may be less favourable for disease development. It is proved that a use of irrigation water and its management in scientific way help to increase the agricultural production in many folds. The consequent effects of drip irrigation system are reflected in terms of generating more income in banana which ultimately improving the overall economic condition of banana growers. Therefore, the socio economic condition of banana growers was studied.

#### **Methodology:**

In Gujarat, Ahmedabad, Anand, Dahod, Kheda, Panchmahal, Botad, Mahisagar, Chotta Udepur and Vadodara are covered under middle Gujarat region. In middle Gujarat, Anand and Vadodara was purposively selected, as they are the major growing as well as producing districts of banana, contributing together 27.8% of area and 26.59% of production under banana in Gujarat. All the talukas of Anand and Vadodara districts were listed along with their area under banana crop. Looking to the relative share of each taluka to the total banana area in the district, Anand and Umreth taluka from Anand district and Vadodara and Sinor taluka from Vadodara district was

selected. In order to select villages, two villages randomly from each taluka were selected. Thus, in total eight villages were selected for the study. Further, 15 drip and 15 conventional banana growers from each selected villages were selected randomly. Thus total 240 banana growers comprising of 120 drip and 120 conventional irrigated farmers formed an ultimate sample for this study.

The primary data regarding socio-economic characteristics was collected by using pre tested interview schedule. For this study, data was collected for the year 2017-18, compiled, systematically analyzed and presented in tabular form. Techniques such as mean, percentage, ratios and simple comparisons were used in whole study for interpretation, wherever needed.

#### **Results and Discussion:**

The results and discussion of the selected drip and conventional banana growers are presented in the following tables:

**Socio-Economic Characteristics:** An understanding of these characteristics is expected to provide view of the general features prevailing in that area.

**1. Age of respondents:** The average age of farmers growing banana in conventional method was 49.88 years whereas it was 42.14 years in case of drip banana growers. Out of total respondents, around 34 per cent drip adopters and only 20 per cent conventional irrigated banana growers were found under young age group while around 65 per cent drip irrigated and around 80 per cent non-drip adopters were found under middle and old age group. This can be due to that parental occupation may have taken by middle and old age as young once were not capable of taking responsibility or not interested in doing agricultural practices. The drip banana growers were found younger as compared to conventional growers.

**Table 1: Distribution of respondents according to age group**

Sr. No.	Particulars	Category of Farmers		
		Drip	Conventional	Overall
1.	Young (up to 35 years)	41 (34.17)	24 (20.00)	65 (27.08)
2.	Middle (36-50 years)	52 (43.33)	46 (38.33)	98 (40.83)
3.	Old (>50 years)	27 (22.50)	50 (41.67)	77 (32.09)
	Total	120 (100.00)	120 (100.00)	240 (100.00)
	Average Age	42.14	49.88	46.01

**Source:** Field Survey

**Note:** Figures in parentheses indicate percentage to total farm in each category

## 2. Educational status of respondents:

This table shows that the literacy level of banana growers having drip irrigation system was more as compared to non-drip growers. Majority of growers (75%) completed higher level of education in case of drip compared to only 35% respondents in conventional. This is due to

that drip irrigation system is more innovative and complex technology which requires more knowledge for its adoption. Only 2.50 per cent drip growers were illiterate while in case of conventional growers 12.50 per cent respondents were illiterate.

**Table 2: Education level of head of the family**

Sr. No.	Particulars	Category of Farmers		
		Drip	Conventional	Overall
1.	Illiterate	3 (2.50)	15 (12.50)	18 (7.50)
2.	Primary (up to VII)	27 (22.50)	63 (52.50)	90 (37.50)
3.	Secondary (VIII to XII)	51 (42.50)	32 (26.67)	83 (34.58)
4.	College	39 (32.50)	10 (8.33)	49 (20.42)
	Total	120 (100.00)	120 (100.00)	240 (100.00)

**Source:** Field Survey

**Note:** Figures in parentheses indicate percentage to total farm in each category

**3. Experience of respondents:** This table indicates that majority (38.75 per cent) of the banana growers had experience of banana farming between 11 to 15 years followed by 16 to 20 years (25.42 per cent), more than 20 years (22.91 per cent)

and below 10 years (12.92 per cent). The average experience to cultivate this crop was more in conventional growers (16.96 years) as compared to drip growers (14.95 years).

**Table 3: Distribution of respondents according to the experience**

Sr. No.	Particulars	Category of Farmers		
		Drip	Conventional	Overall
1.	10 years or below	21 (17.50)	10 (8.33)	31 (12.92)
2.	11-15 years	41 (34.17)	52 (43.34)	93 (38.75)
3.	16-20 years	36 (30.00)	25 (20.83)	61 (25.42)
4.	>20 years	22 (18.33)	33 (27.50)	55 (22.91)
	Total	120 (100.00)	120 (100.00)	240 (100.00)
	Average Experience	14.95 years	16.96 years	15.95 years

**Source:** Field Survey

**Note:** Figures in parentheses indicate percentage to total farm in each category

**4. Organizational participation:** In overall category, among the different institutions the highest participation was observed in milk-cooperative society (30.83 per cent) followed by farmers club (16.67 per cent), seva sahakari (12.08 per

cent) and village panchayat (11.67 per cent). Around 29 per cent were not associated with any kind of institute. The similar kind of association was observed among drip and conventional growers.

**Table 4: Association of respondents with organization**

Sr. No.	Particulars	Category of Farmers		
		Drip	Conventional	Overall
1.	Village Panchayat	16 (13.33)	12 (10.00)	28 (11.67)
2.	Milk Cooperative Society	33 (27.50)	41 (34.17)	74 (30.83)
3.	Farmers Club	23 (19.17)	17 (14.17)	40 (16.67)
4.	Seva Sahakari	16 (13.33)	13 (10.83)	29 (12.08)
5.	Not Associated	32 (26.67)	37 (30.83)	69 (28.75)
	Total	120 (100.00)	120 (100.00)	240 (100.00)

**Source:** Field Survey

**Note:** Figures in parentheses indicate percentage to total farm in each category

**5. Family composition:** The average family size of conventional banana growers was 6.74 consisting 2.43 male, 2.12 females and 2.19 children but in case of drip growers the average family size was 6.34 consisting 2.36 male, 2.08 females and 1.90 children. In overall

category, the average size of family was 6.54. The average family size was less in drip growers may be due to higher literacy rate. Overall, around 55 per cent constituted for labour force per household looking for employment.

**Table 5: Family composition of respondents**

Sr. No.	Particulars	Category of Farmers		
		Drip	Conventional	Overall
1.	Male	2.36 (37.22)	2.43 (36.05)	2.39 (36.54)
2.	Female	2.08 (32.81)	2.12 (31.45)	2.10 (32.11)
3.	Children	1.90 (29.97)	2.19 (32.50)	2.05 (31.35)
	Average Family Size	6.34 (100.00)	6.74 (100.00)	6.54 (100.00)
	Labor force/household	3.29 (51.89)	3.91 (58.01)	3.60 (55.05)

**Source:** Field Survey

**Note:** Figures in parentheses indicate percentage to total farm in each category

**6. Income earners and non-earning dependents:** The Ratio of earners to non-earning dependents indicates to the work participation ratio and the division of the society into productive and unproductive members. This table indicates that all the three ratios found higher in drip compared to conventional growers. In conventional, 262 were income earners in a total of 809 members and thus, the ratio of earners to

non-earning dependents was 0.48. In, drip, 277 were income earners in a total of 761 members and thus, the ratio of earners to non-earning dependents was 0.57, which shows higher work participation rate. The earning member per household was only 2.18 in conventional, as compared to drip *i.e.* 2.31, which leads to a higher dependency ratio and lower work

participation rate. In overall, the earning member per household was 2.25.

**Table 6: Income earners and non-earning dependents of respondents**

Sr. No.	Particulars	Category of Farmers		
		Drip	Conventional	Overall
1.	Total family members	761	809	1570
2.	Income earners	277	262	539
3.	Non-earning members	484	547	1031
4.	Ratio of earners to non-earning members	0.57	0.48	0.52
5.	Proportion of earners to total members	36.40	32.38	34.33
6.	Average number of earners in household	2.31	2.18	2.25

**Source:** Field Survey

**Note:** Figures in parentheses indicate percentage to total farm in each category

**7. Occupation:** The data indicates that majority (37.08 per cent) of the banana growers were engaged in Farming + Animal Husbandry followed by only farming (35.83 per cent), Farming + Business (8.33 per cent), Farming + Service (7.09 per cent), Farming + Animal Husbandry + Service (6.67 per cent) and

Farming + Animal Husbandry + Business (5.00 per cent). The comparison between occupation of drip and non-drip banana grower's shows that generally drip adopters were having more diversified or profitable occupation, as technology needs more capital investment.

**Table 7: Distribution of respondents according to occupation**

Sr. No.	Particulars	Category of Farmers		
		Drip	Conventional	Overall
1.	Farming	44 (36.67)	42 (35.00)	86 (35.83)
2.	Farming + Animal husbandry	35 (29.17)	54 (45.00)	89 (37.08)
3.	Farming + Animal Husbandry + Business	6 (5.00)	6 (5.00)	12 (5.00)
4.	Farming + Animal Husbandry + Service	10 (8.33)	6 (5.00)	16 (6.67)
5.	Farming + Business	13 (10.83)	7 (5.83)	20 (8.33)
6.	Farming + Service	12 (10.00)	5 (4.17)	17 (7.09)
	Total	120 (100.00)	120 (100.00)	240 (100.00)

**Source:** Field Survey

**Note:** Figures in parentheses indicate percentage to total farm in each category

**8. Size of land holding:** The average land holding per farm was found higher (4.08 ha) under drip irrigation farming as compared to conventional farming (3.09 ha). Moreover, allocation of land under

banana cultivation was also higher in drip growers (1.79 ha) as compared to conventional growers (1.66 ha). This can be due to that large farmers are more risk takers, having knowledge, adoption

regarding technology and having higher investment capacity compared to other

farmers. The average farm size in overall category was 3.58 ha.

**Table 8: Operational size of land holding**

Sr. No.	Particulars	Category of Farmers		
		Drip	Conventional	Overall
	Average land holding (ha)	4.08 (100.00)	3.09 (100.00)	3.58 (100.00)
1.	Irrigated land holding (ha)	3.49 (85.54)	2.42 (78.32)	2.95 (82.40)
2.	Un irrigated land holding (ha)	0.59 (14.46)	0.67 (21.68)	0.63 (17.60)
	Area under banana crop (ha)	1.79 (43.87)	1.66 (53.72)	1.73 (48.18)

**Source:** Field Survey

**Note:** Figures in parentheses indicate percentage to total farm in each category

**9. Sources of irrigation:** This table shows that for drip irrigation majority of farmers (67.50 per cent) depends upon tube well followed by well (30.83 per cent). In case of conventional banana growers majority (42.50 per cent) used well as a source of

irrigation followed by tube well (36.67 per cent) and canal (20.83 per cent). The results were in confirmation with Birari *et al.*, 2004; Jadhav & Kumbhar, 2004; Dave *et al.*, 2016 and Bondar *et al.*, 2015.

**Table 9: Distribution of respondents according to source of irrigation**

Sr. No.	Source of Irrigation	Category of Farmers		
		Drip	Conventional	Overall
1.	Canal	2 (1.67)	25 (20.83)	27 (11.25)
2.	Well	37 (30.83)	51 (42.50)	88 (36.67)
3.	Tube well	81 (67.50)	44 (36.67)	125 (52.08)
	Total	120 (100.00)	120 (100.00)	240 (100.00)

**Source:** Field Survey

**Note:** Figures in parentheses indicate percentage to total farm in each category.

**Conclusion:**

In this study an attempt has been made to analyze the technological impact on socio economic condition of banana growers as India is the largest producer globally. Regarding socio-economic profile of respondents it was observed that drip banana growers were younger, more educated, less experienced, had smaller family size, had lesser labor force, had more diversified occupation and had bigger land holding size as compared to conventional growers. This can be due to that large farmers are more risk takers, had knowledge and education regarding technology and had higher investment

capacity compared to other farmers. The earners were more in drip banana growers, showed lower dependency and higher work participation rate.

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