A Study The Farmer's Perception Towards Organic Farming Over Conventional Farming In Gujarat

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ARTICLE INFO	ABSTRACT
	The sustainability of organic farming is associated with the farmers' experience, quality of the information provided, management of risks, and compliance with legislation. The objectives of this study the perception of farmers about organic farming with its challenges and factors to do organic farming. To address the research objectives, in-depth semi-structured interviews and structured interviews will be conducted with 10 villages of Gujarat. In many studies, it has been noticed that the primary challenges faced by the organic farmers were the control of insects and weeds and weather-related issues. In some other studies it has been noticed that organic farming is costly than conventional farming. There is social, economic and technological support required to promote organic farming in Gujarat where government also can play a major role. The present study provides rich and deep information about the farmer's perception towards organic farming and extension services. The outcome of the research undertaken will enable planners, policy makers and the related Cooperative Extension personnel to better understand perceptions of the farmers to devise viable and workable policies and plans that address the concerns and challenges of the farmers. **Keywords:** Convectional Farming. Organic Farming, Economic benefits, Growing market Demand, health Concerns

Introduction:

Organic farming (OF) is an agricultural technique that employs ecologically friendly methods of weed, insect, and disease management. The International Federation of Organic Agriculture Movements' (IFOAM) guidelines represent the values and practices of OF as health, ecological, justice, and caring. Individual agricultural experts and farmers launched the organic movement around 1920 in response to industrialised agriculture.

Organic farming has received substantial attention in recent years all around the world. It has the potential to be a useful answer to many environmental concerns. It has shed light on many of the environmental and sustainability issues linked with conventional farming. "Organic agriculture is an all-encompassing production management method that supports and improves agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It prioritises the use of management approaches above off-farm inputs, acknowledging that regional circumstances necessitate regionally customised solutions. This is done by employing agronomic, biological, and mechanical processes, rather than synthetic components, to carry out any given function within the system (Commission, 1999). Organic farming is a farming/agriculture system/method that focuses on maintaining soil health and producing organic goods. Organic farming is a strategy that emphasises the use of natural processes and inputs to produce crops and raise animals without the use of synthetic fertilisers and pesticides in order to preserve the product's health and nutritional content while also providing a healthy and natural product to customers. The primary goal of this research is to address the issues farmers encounter while transitioning to or implementing organic agricultural techniques. This study will contribute to a better understanding of farmers' perspectives and attitudes towards organic farming. It will also help you understand the advantages and disadvantages of organic agricultural techniques, as well as their influence on the environment, society, and the economy.

The country experienced significant food scarcity as a result of its growing population and lack of agricultural area. The government purchased food grains from foreign nations in order to meet the needs of citizens. To improve food security, the government of India determined to enhance food production, and hybrid and convectional farming is a simple method to do it. The Green Revolution (led by M. S. Swaminathan) became the government's most important programme in the 1960s. There have been several complications discovered in the human body as a result of excessive fertiliser use. Several hectares of land were cultivated with hybrid seeds, artificial fertilisers, and pesticides. As a result, the country's food output from land has increased, but the quality and health are deteriorating by the day. India has a surplus of food grains and was once again an exporter of them. However, due to the negative impacts of chemical farming, such as increasing costs, loss of soil fertility, environmental concerns caused by pesticides, and so on, both customers and farmers in India are gradually becoming more convinced of organic farming and products. Customers feel that organic products are healthier and are ready to pay a premium for them. Several farmers in India are switching to organic farming in response to local and international demand for organic food.

Literature Review:

The literature on organic farming explores diverse geographic regions and focuses on understanding the perceptions, challenges, and factors influencing farmers' adoption of organic practices.
Alotaibi et al. (2021) identified communication barriers and information sources among organic farmers in central Pennsylvania, revealing that profitability, biodiversity conservation, health, and environmental benefits drive their practices. Farmers mainly rely on discussions, news, and literature for information.**Zhllima et al. (2021)** found that subjective norms, behavior control, and positive attitudes encourage Albanian farmers to convert to organic farming, while perceptions of EU policy and environmental attitudes act as deterrents.**Pushpa Malkanthi (2020)** highlighted that gender, age, education, and profits influence Sri Lankan farmers' attitudes towards organic farming, emphasizing the need for targeted interventions in rural areas.**Kalyani (2021)** reported positive perceptions of organic farming in Tamil Nadu, with correlations to education and socioeconomic status, noting that cost does not deter farmers, who focus on output and profit.**Zewide (n.d.)** emphasized the need for research on sustainable organic farming methods in Ethiopia, comparing organic and conventional practices to highlight potential benefits.**Azam & Shaheen (2019)** identified economic, social, marketing, and policy factors as key to adopting organic farming in India, stressing the importance of government support for its promotion. **Wolde (2015)** noted that Ethiopian farmers face financial and knowledge barriers to adopting organic practices, recommending training and credit access to change attitudes.**Verburg et al. (2022)** discussed systemic challenges in the Dutch organic dairy sector, advocating for policy interventions and stakeholder collaboration to promote sustainable agriculture.**Sapbamrer & Thammachai (2021)** analyzed the impact of organic farming on sustainable development in Europe, calling for research to address challenges in transitioning from conventional methods.**Krause & Machek (2018)** compared profitability and efficiency between conventional and organic farming in the Czech Republic, suggesting further research on financial and ecological variables.**Prospects of Organic Farming in India (2021)** highlighted barriers like low initial yields and certification costs, advocating for integrated strategies to promote organic farming and food security.**Ghimiray (2008)** positioned Bhutan as a leader in organic farming due to its legislative support and biodiversity, emphasizing the need for training and stakeholder engagement to address challenges.**Kumara & Biswas (2010)** underscored the potential of organic farming to match conventional profitability in premium markets, highlighting the need for market expansion and supportive policies. Overall, these studies underscore the multifaceted nature of organic farming adoption, with economic, social, and environmental factors playing crucial roles. They emphasize the importance of policy support, market development, and research to overcome challenges and promote sustainable agriculture globally.

Research Gap:

Despite the increasing popularity of organic farming in India, there is still a lack of understanding about farmers' perception towards organic farming in western India. While many studies have been conducted in different parts of India. Mostly in southern Indian states which include Andhra Pradesh, Tamil Nadu, Kerala and Ganga Ghat region in the north, etc. as well as global regions other than India like Saudi Arabia, Ethiopia, Pennsylvania, Africa, Sri Lanka, Albania, etc. Despite many research conducted in different regions of India and other countries also. But no such notable research has been founded to be seen in Western region of India especially in Gujarat. While some studies have explored farmers' attitudes and knowledge towards organic farming, there is a research gap in understanding the factors that influence farmers' adaptation of organic farming practices, as well as challenges they face in transitioning to organic farming in western India. Therefore, there is a need for further research to explore the perception of farmers towards organic farming in western India, which can help to form policies and interventions aimed at promoting the adaptation of organic farming practices in the region.

Objective of study:

1. To understand the perception of farmers about organic farming.
2. To study the challenges to choose organic farming over conventional Farming.
3. To study the factors that influence farmers' decision to switch over to organic farming from conventional farming.

Methodology:

Research design: The study used a mixed-methods approach that involves both Focus interview and structured questionnaire. The study began with focus/in -depth interview to gain a deeper understanding of Farmer's perspectives and experiences which helped to understand and prepare a questionnaire to collect data on the extent of adoption of organic farming practices among farmers, and their perceptions towards the benefits and challenges of organic farming.

This study followed the Single Cross-sectional Exploratory Research. All the farmers across Gujarat were sampling frame for the research study. Primary data was collected through semi structured interview the structured questionnaire and secondary data was extracted from available existing pool of literature. The study was carried forward by primary survey of 200 respondents from different villages grouped in different zones. Data was collected using a structured questionnaire that includes closed-ended questionnaire and interviews/focus group discussions. For the easy of farmers, the questionnaire was prepared in 'Gujarati' based on the regional language preferences so that farmers can easily understand the questions which will eliminate the chance of miscommunication and misinterpretation of questions and inappropriate/incorrect answers. Quantitative data collected through the structured questionnaire were analysed using SPSS software. The analysis focused on identifying trends, patterns, and relationships among variables related to farmers' perceptions of organic farming, challenges faced, factors influencing decisions, and awareness of government schemes.

Data Analysis

The data used in the research is collected from farmers of distinctive groups based on their age, experience, land ownership, region in which they lived, etc. The below data shows the distribution of farmers based on such factors. Out of all farmers majority of them were of age between 26 years old to 35 years old followed by the group of farmers of 46-55 years of age holding an amount of experience in the fields.
Distribution of farmers based on Education Qualification.

Sr. No.	Education Qualification	No. of Farmers
1.	Primary School	50
2.	High School	61
3.	Diploma	19
4.	Bachelors' Degree	62
5.	Post Graduate Degree	6
6.	Other	2
Total		**200**

Distribution of Farmers based on the region they belong to.

Sr. No.	Region/Zone/Area	No. of Farmers
1.	Porbandar	56
2.	Ranavav	30
3.	Rana Kandorna	85
4.	Kutiyana	23
5.	Jetpur	6
Total		**200**

Hypothesis Testing

One-Sample Wilcoxon Signed Rank Test
H0 (Null Hypothesis): Farmers do not perceive organic farming to be more environmentally friendly than conventional farming.

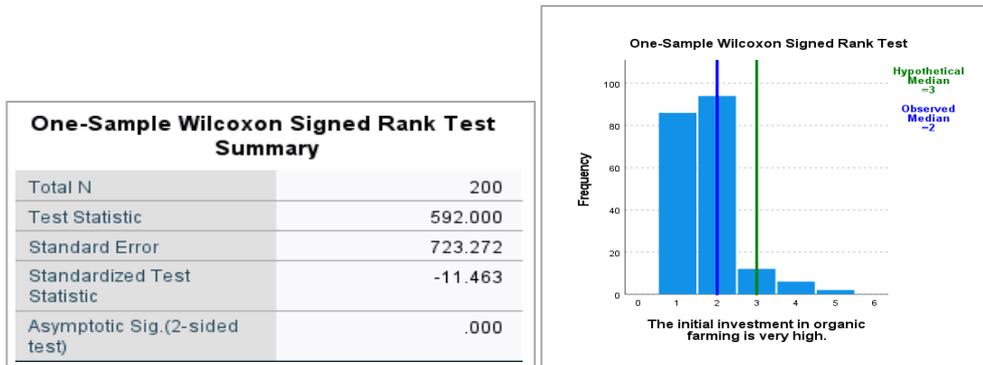| One-Sample Wilcoxon Signed Rank Test Summary	
Total N	200
Test Statistic	38.000
Standard Error	739.917
Standardized Test Statistic	-12.995
Asymptotic Sig.(2-sided test)	.000
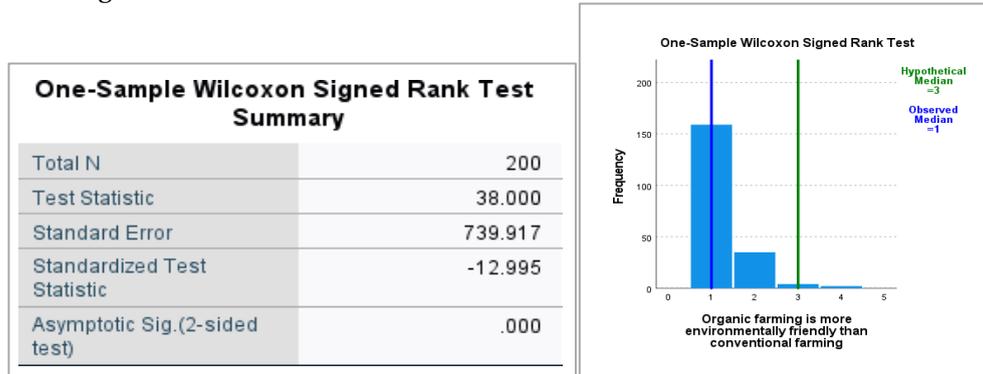
H1 (Alternative Hypothesis): Farmers perceive organic farming to be more environmentally friendly than conventional farming.

The One-Sample Wilcoxon Signed Ranked Test result provides robust evidence to suggest that farmers do perceive organic farming to be more environmentally friendly than conventional farming. The statistically significant result (p-value = .000) i.e. <0.05 indicates that the median perception score is significantly different from the neutral value of 3. This means that the farmers' perception leans towards organic farming being more environmentally friendly. Hence, we reject the null hypothesis.

H0: Farmers do not believe that the initial investment in organic farming is higher than in conventional farming.
H2: Farmers believe that the initial investment in organic farming is higher than in conventional farming.

One-Sample Wilcoxon Signed Rank Test Summary	
Total N	200
Test Statistic	592.000
Standard Error	723.272
Standardized Test Statistic	-11.463
Asymptotic Sig.(2-sided test)	.000

The One-Sample Wilcoxon Signed Rank Test result provides robust evidence to suggest that farmers believe the initial investment in organic farming is higher than in conventional farming. The statistically significant result (p-value = .000) indicates that the median perception score is significantly different from the neutral value of 3. This means that farmers agree that the initial investment is higher. Hence, we reject the null hypothesis.

H0: Farmers do not perceive that organic farming practices contribute to long-term soil health.
H3: Farmers perceive that organic farming practices contribute to long-term soil health.

One-Sample Wilcoxon Signed Rank Test Summary

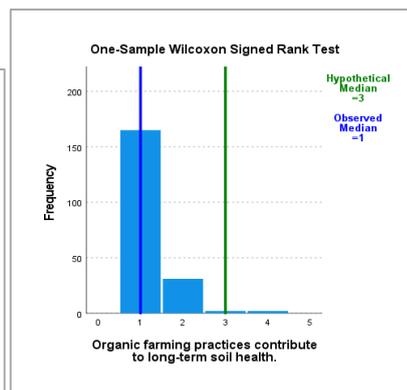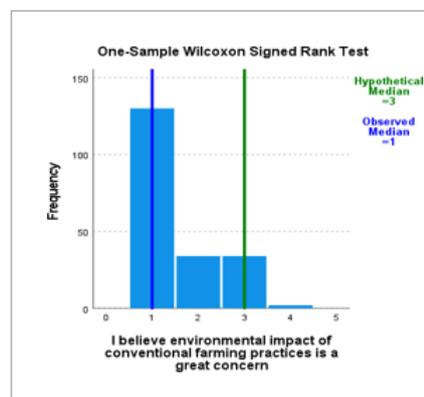| Total N	200
Test Statistic	34.000
Standard Error	746.622
Standardized Test Statistic	-13.148
Asymptotic Sig.(2-sided test)	.000

The One-Sample Wilcoxon Signed Rank Test result provides robust evidence to suggest sthat farmers perceive organic farming practices to contribute to long-term soil health. The statistically significant result (p-value = .000) indicates that the median perception score is significantly different from the neutral value of 3. This means that farmers agree that organic farming practices contribute to long-term soil health. Hence, we reject the null hypothesis.

H0: Farmers do not consider soil fertility as a crucial factor in deciding to adopt organic farming.
H4: Farmers consider soil fertility as a crucial factor in deciding to adopt organic farming.

One-Sample Wilcoxon Signed Rank Test Summary

Total N	200
Test Statistic	37.000
Standard Error	581.295
Standardized Test Statistic	-11.859
Asymptotic Sig.(2-sided test)	.000

One-Sample Wilcoxon Signed Rank Test Summary

Total N	200
Test Statistic	338.500
Standard Error	729.486
Standardized Test Statistic	-12.104
Asymptotic Sig.(2-sided test)	.000
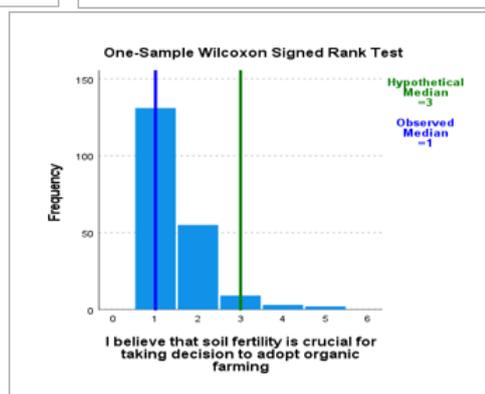
The One-Sample Wilcoxon Signed Rank Test result provides robust evidence to suggest that farmers consider soil fertility as a crucial factor in deciding to adopt organic farming. The statistically significant result (p-value = .000) indicates that the median perception score is significantly different from the neutral value of 3. This means that farmers agree that soil fertility is a crucial factor. Hence, we reject the null hypothesis.

H0: Farmers do not perceive the environmental impact of conventional farming practices as a significant concern.
H5: Farmers perceive the environmental impact of conventional farming practices as a significant concern.
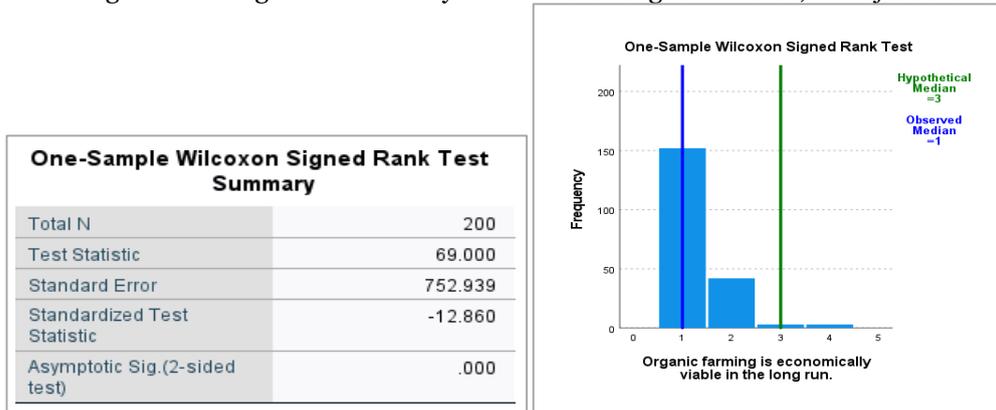
The One-Sample Wilcoxon Signed Rank Test result provides robust evidence to suggest that farmers perceive the environmental impact of conventional farming practices as a significant concern. The statistically significant result (p-value = .000) indicates that

the median perception score is significantly different from the neutral value of 3. This means that farmers agree that the environmental impact of conventional farming practices is a significant concern. Hence, we reject the null hypothesis.

H0: Farmers do not believe that organic farming is economically viable in the long run.
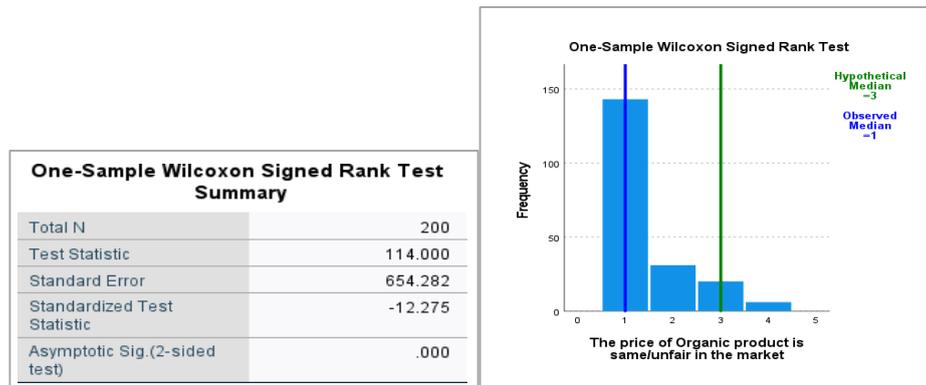**H6:** Farmers believe that organic farming is economically viable in the long run.

The One-Sample Wilcoxon Signed Rank Test result provides robust evidence to suggest that farmers believe organic farming is economically viable in the long run. The statistically significant result (p-value = .000) indicates that the median perception score is significantly different from the neutral value of 3. This means that farmers agree that organic farming is economically viable in the long run. Hence, we reject the null hypothesis.

One-Sample Wilcoxon Signed Rank Test Summary

Total N	200
Test Statistic	69.000
Standard Error	752.939
Standardized Test Statistic	-12.860
Asymptotic Sig.(2-sided test)	.000

H0: Farmers do not perceive the market price of organic products to be unfair compared to conventional products.
H7: Farmers perceive the market price of organic products to be unfair compared to conventional products.

One-Sample Wilcoxon Signed Rank Test Summary

Total N	200
Test Statistic	114.000
Standard Error	654.282
Standardized Test Statistic	-12.275
Asymptotic Sig.(2-sided test)	.000

The One-Sample Wilcoxon Signed Rank Test result provides robust evidence to suggest that farmers perceive the market price of organic products to be unfair compared to conventional products. The statistically significant result (p-value = .000) indicates that the median perception score is significantly different from the neutral value of 3. This means that farmers agree that the market price of organic products is unfair. Hence, we reject the null hypothesis.

Hypothesis Test Summary

|	Null Hypothesis	Test	Sig.a,b	Decision
1	The median of Organic farming is more environmentally friendly than conventional farming equals 3.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.

2	The median of the initial investment in organic farming is very high. equals 3.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
3	The median of Organic farming practices contribute to long-term soil health. equals 3.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
4	The median of I believe that soil fertility is crucial for	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
	taking decision to adopt organic farming equals 3.			
5	The median of I believe environmental impact of conventional farming practices is a great concern equals 3.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
6	The median of Organic farming is economically viable in the long run. equals 3.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
7	The median of the price of Organic product is same/unfair in the market equals 3.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
a. The significance level is .050.				
b. Asymptotic significance is displayed.				

The results of the One-Sample Wilcoxon Signed Rank Test provide compelling evidence across multiple dimensions of farmer perceptions towards organic farming compared to conventional farming. For each hypothesis tested, the p-value is .000, which is less than the significance level of 0.05. This indicates that the median perception score for each statement is significantly different from the neutral value of

3. Consequently, we reject the null hypothesis for all statements.
The first objective of the study was to understand the perception of farmers about organic farming. Based on the results of the One-Sample Wilcoxon Signed Rank Test, we can conclude that farmers have a strong and statistically significant perception regarding various aspects of organic farming. The test results, with p-values all less than 0.05, indicating the robust evidence that farmers have a well-defined and positive perception of organic farming, particularly in terms of its environmental benefits and long-term viability, while also acknowledging challenges related to initial investment and market pricing. Thus, the first objective of understanding farmers' perceptions about organic farming has been successfully fulfilled.
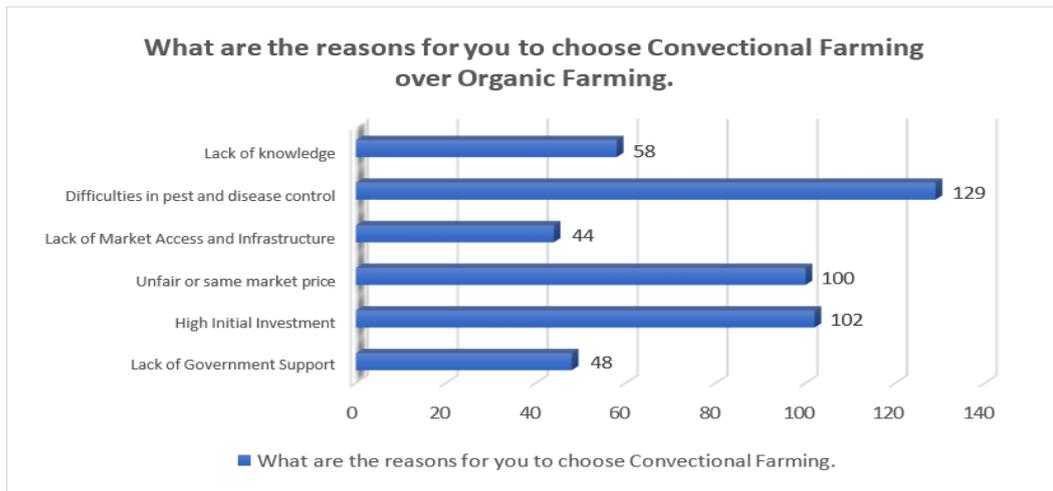
The above bar graph shows the reasons for which farmers choose conventional farming over organic farming. Pest and Disease control be the primary reason for majority of farmers (129 farmers) for not choosing organic farming followed by High amount of initial investment (102 farmers) and Unfair or same price of organic and conventional product in the market. Apart from this weeding has also been a major challenge for farmers as it becomes costlier for them to allot labour for hand picking the grass and weeds.

Mann-Whitney U test
Ho: There is no significant difference in the perception of challenge between organic and conventional farmers.
H8: There is significant difference in the perception of challenge between organic and conventional farmers.

Test Statistics[a]

	Pest and Disease Control	Lack of Infrastructure Support	Low yield in the initial stage	Soil Fertility/Health	The price of Organic product is same/unfair in the market	The initial investment in organic farming is very high.
Mann-Whitney U	2943.500	2352.500	1388.500	2394.000	2484.500	3030.000
Wilcoxon W	10324.500	9733.500	8769.500	9775.000	9865.500	10411.000
Z	-2.194	-3.713	-6.935	-3.756	-4.062	-1.640
Asymp. Sig. (2-tailed)	.028	<.001	<.001	<.001	<.001	.101

a. Grouping Variable: What farming method do you practice, Organic farming method or Conventional farming method?

Ranks

	What farming method do you practice, Organic farming method or Conventional farming method?	N	Mean Rank	Sum of Ranks
Pest and Disease Control	Organic Farming	58	99.75	5785.50
	Conventional Farming	121	85.33	10324.50
	Total	179		
Lack of Infrastructure Support	Organic Farming	58	109.94	6376.50
	Conventional Farming	121	80.44	9733.50
	Total	179		
Low yield in the initial stage	Organic Farming	58	126.56	7340.50
	Conventional Farming	121	72.48	8769.50
	Total	179		
Soil Fertility/Health	Organic Farming	58	109.22	6335.00
	Conventional Farming	121	80.79	9775.00
	Total	179		
The price of Organic product is same/unfair in the market	Organic Farming	58	107.66	6244.50
	Conventional Farming	121	81.53	9865.50
	Total	179		
The initial investment in organic farming is very high.	Organic Farming	58	98.26	5699.00
	Conventional Farming	121	86.04	10411.00
	Total	179		

Since the p-value for all factors/challenges (except the challenge of initial invest being very high) is less than

0.05, we reject the null hypothesis and conclude that there is a significant difference in the perception of challenge between organic and conventional farmers. There are significant differences in the perception of challenges related to pest and disease control, lack of infrastructure support, low yield in the initial stage, soil fertility/health, and the market price of organic products between organic and conventional farmers but there is no significant difference in the perception of the initial investment in organic farming between the two groups. The study reveals that pest and disease control, lack of infrastructure support, low yield in the initial stage, soil fertility/health, and the market price of organic products are significant challenges to choose organic farming over conventional farming. These findings highlight the need for targeted interventions to address these specific challenges to support the adoption and sustainability of organic farming. Enhanced pest management strategies, improved infrastructure, support for initial yield improvement, soil health programs, and fair market pricing are essential to encourage more farmers to switch to and sustain organic farming practices.

Logistic Regression

Ho: There is no significant relationship between the challenges influencing farmers' decisions and their choice to adopt organic farming over conventional farming.
H8: There is a significant relationship between the challenges influencing farmers' decisions and their choice to adopt organic farming over conventional farming.

Classification Table[a,b]

			Predicted		
			OBJ3		Percentage Correct
Observed			1.00	2.00	
Step 0	OBJ3	1.00	0	58	.0
		2.00	0	142	100.0
	Overall Percentage				71.0

a. Constant is included in the model.
b. The cut value is .500

Classification Table[a]

			Predicted		
			OBJ3		Percentage Correct
Observed			1.00	2.00	
Step 1	OBJ3	1.00	40	18	69.0
		2.00	17	125	88.0
	Overall Percentage				82.5

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Environmental Concerns	-.271	.311	.759	1	.384	.763
	Economic Benefits	-1.109	.287	14.921	1	<.001	.330
	Growing Market Demand	.811	.361	5.066	1	.024	2.251
	Health Concerns	.279	.283	.970	1	.325	1.321
	Soil Fertility/Health	.020	.322	.004	1	.951	1.020
	Lack of Infrastructure Support	.016	.227	.005	1	.944	1.016
	Pest and Disease Control	.290	.325	.797	1	.372	1.337
	Low yield in the initial stage	-1.049	.330	10.080	1	.001	.350
	Constant	3.699	.630	34.447	1	<.001	40.393

a. Variable(s) entered on step 1: Environmental Concerns, Economic Benefits, Growing Market Demand, Health Concerns, Soil Fertility/Health, Lack of Infrastructure Support, Pest and Disease Control, Low yield in the initial stage.

Based on the logistic regression analysis, economic benefits, growing market demand, and concerns about initial low yields emerge as significant factors influencing farmers' decisions to adopt organic farming. Conversely, environmental concerns, health considerations, soil fertility, lack of infrastructure support, and pest/disease control do not significantly impact these decisions and stand as challenges in front of farmers. These findings provide valuable insights into the factors challenging farmer behaviour towards organic farming adoption. Farmers perceiving greater economic advantages and responding to market demands are more inclined towards organic practices, whereas apprehensions regarding low initial yields act as a deterrent. In contrast, variables such as environmental concerns, health considerations, soil fertility, lack of infrastructure support, and pest/disease control did not exhibit significant influence. These findings underscore the importance of economic incentives and yield improvement strategies in promoting organic farming adoption among farmers.

Kruskal-Wallis Test
Ho: There is no significant difference in the perception of various challenges between different zones/areas.

H9: There is significant difference in the perception of various challenges between different zones/areas.

Test Statistics[a,b]

	Lack of Infrastructure Support	Pest and Disease Control	Low yield in the initial stage	The price of Organic product is same/unfair in the market	The initial investment in organic farming is very high.	Economic Benefits
Kruskal-Wallis H	29.136	17.694	15.153	18.223	16.542	11.687
df	4	4	4	4	4	4
Asymp. Sig.	<.001	.001	.004	.001	.002	.020

a. Kruskal Wallis Test

b. Grouping Variable: Zone / Area

Ranks

	Zone / Area	N	Mean Rank
Lack of Infrastructure Support	Porbandar	56	78.41
	Ranavav	30	78.85
	Rana Kandorna	85	121.47
	Kutiyana	23	94.20
	Jetpur	6	142.00
	Total	200	
Pest and Disease Control	Porbandar	56	112.30
	Ranavav	30	100.55
	Rana Kandorna	85	89.32
	Kutiyana	23	98.04
	Jetpur	6	157.83
	Total	200	
Low yield in the initial stage	Porbandar	56	110.65
	Ranavav	30	74.68
	Rana Kandorna	85	99.55
	Kutiyana	23	98.22
	Jetpur	6	157.00
	Total	200	
The price of Organic product is same/unfair in the market	Porbandar	56	104.07
	Ranavav	30	91.10
	Rana Kandorna	85	92.68
	Kutiyana	23	116.48
	Jetpur	6	163.75
	Total	200	
The initial investment in organic farming is very high.	Porbandar	56	103.25
	Ranavav	30	85.03
	Rana Kandorna	85	106.17
	Kutiyana	23	77.11
	Jetpur	6	161.50
	Total	200	
Economic Benefits	Porbandar	56	111.14
	Ranavav	30	94.17
	Rana Kandorna	85	90.52
	Kutiyana	23	106.35
	Jetpur	6	151.75
	Total	200	

As the p value for all the challenges is less than the significant value of 0.05 we reject the null hypothesis and conclude that there is significant difference in the perception of various challenges between farmers of different zones/areas.

H0: There is no significant difference in the perception of various challenges between different age groups.
H10: There is significant difference in the perception of various challenges between different age groups.

Test Statistics[a,b]

	Lack of Infrastructure Support	Pest and Disease Control	Low yield in the initial stage	The price of Organic product is same/unfair in the market	The initial investment in organic farming is very high.	Economic Benefits
Kruskal-Wallis H	32.153	38.348	57.212	34.240	17.853	60.439
df	4	4	4	4	4	4
Asymp. Sig.	<.001	<.001	<.001	<.001	.001	<.001

a. Kruskal Wallis Test

b. Grouping Variable: Age

Ranks

	Age	N	Mean Rank
Lack of Infrastructure Support	18-25	37	112.91
	26-35	58	119.42
	36-45	31	87.89
	46-55	42	62.15
	56 and Above	32	114.41
	Total	200	
Pest and Disease Control	18-25	37	140.70
	26-35	58	94.57
	36-45	31	101.82
	46-55	42	89.15
	56 and Above	32	78.38
	Total	200	
Low yield in the initial stage	18-25	37	144.05
	26-35	58	97.77
	36-45	31	79.21
	46-55	42	61.60
	56 and Above	32	126.78
	Total	200	
The price of Organic product is same/unfair in the market	18-25	37	139.08
	26-35	58	92.42
	36-45	31	99.73
	46-55	42	83.88
	56 and Above	32	93.09
	Total	200	
The initial investment in organic farming is very high.	18-25	37	124.99
	26-35	58	103.17
	36-45	31	73.05
	46-55	42	102.50
	56 and Above	32	91.31
	Total	200	
Economic Benefits	18-25	37	144.03
	26-35	58	76.14
	36-45	31	88.71
	46-55	42	78.10
	56 and Above	32	135.16
	Total	200	

The p-value (<0.001) for all the factors is less than significant value of 0.05 hence we reject the null hypothesis. Hence it can be concluded that farmers of different age group perceive challenge differently. There is significant difference in the perception of various challenges between farmers of different age groups.

H0: There is no significant difference in the perception of various challenges between farmers with different years of experience in farming.
H11: There is significant difference in the perception of various challenges between farmers with different

years of experience in farming.

Test Statistics[a,b]						
	Lack of Infrastructure Support	Pest and Disease Control	Low yield in the initial stage	The price of Organic product is same/unfair in the market	The initial investment in organic farming is very high.	Economic Benefits
Kruskal-Wallis H	17.733	24.573	26.232	23.244	15.093	29.320
df	4	4	4	4	4	4
Asymp. Sig.	.001	<.001	<.001	<.001	.005	<.001

a. Kruskal Wallis Test

b. Grouping Variable: How many years of experience do you have in farming?

Ranks			
	How many years of experience do you have in farming?	N	Mean Rank
Lack of Infrastructure Support	Less than 5 Years	35	103.91
	6-10 Years	64	118.59
	11-15 Years	22	85.05
	16-20 Years	31	70.35
	More than 20 Years	48	100.44
	Total	200	
Pest and Disease Control	Less than 5 Years	35	134.20
	6-10 Years	64	99.17
	11-15 Years	22	92.41
	16-20 Years	31	93.81
	More than 20 Years	48	85.73
	Total	200	
Low yield in the initial stage	Less than 5 Years	35	129.09
	6-10 Years	64	102.32
	11-15 Years	22	71.91
	16-20 Years	31	70.77
	More than 20 Years	48	109.53
	Total	200	
The price of Organic product is same/unfair in the market	Less than 5 Years	35	133.26
	6-10 Years	64	97.55
	11-15 Years	22	90.14
	16-20 Years	31	85.29
	More than 20 Years	48	95.13
	Total	200	
The initial investment in organic farming is very high.	Less than 5 Years	35	110.93
	6-10 Years	64	106.00
	11-15 Years	22	63.95
	16-20 Years	31	112.50
	More than 20 Years	48	94.56
	Total	200	
Economic Benefits	Less than 5 Years	35	133.30
	6-10 Years	64	81.60
	11-15 Years	22	99.02
	16-20 Years	31	81.40
	More than 20 Years	48	114.79
	Total	200	

Similar to previous test the p-value (<0.001) for all the factors in this test are also less than significant value of 0.05 hence we reject the null hypothesis. Hence it can be concluded that farmers with different years of experience in farming perceive challenge differently. There is significant difference in the perception of various challenges between farmers with different years of experience in farming.

H0: There is no significant difference in the perception of various challenges between farmers with different amount of land owned.

H12: There is significant difference in the perception of various challenges between farmers with different amounts of land owned.

Ranks			
	How much land do you own?	N	Mean Rank
Lack of Infrastructure Support	No land	11	65.36
	Less than 5 Bigha	1	159.00
	5-10 Bigha	20	106.50
	11-20 Bigha	17	107.88
	21-30 Bigha	18	82.39
	31-40 Bigha	43	87.36
	More than 40 Bigha	90	111.32
	Total	200	
Pest and Disease Control	No land	11	97.50
	Less than 5 Bigha	1	192.50
	5-10 Bigha	20	122.88
	11-20 Bigha	17	115.85
	21-30 Bigha	18	93.19
	31-40 Bigha	43	116.77
	More than 40 Bigha	90	85.66
	Total	200	
Low yield in the initial stage	No land	11	57.09
	Less than 5 Bigha	1	188.00
	5-10 Bigha	20	105.38
	11-20 Bigha	17	97.06
	21-30 Bigha	18	69.06
	31-40 Bigha	43	101.91
	More than 40 Bigha	90	110.02
	Total	200	
The price of Organic product is same/unfair in the market	No land	11	87.82
	Less than 5 Bigha	1	159.00
	5-10 Bigha	20	105.65
	11-20 Bigha	17	123.47
	21-30 Bigha	18	93.47
	31-40 Bigha	43	114.00
	More than 40 Bigha	90	90.87
	Total	200	
The initial investment in organic farming is very high.	No land	11	64.68
	Less than 5 Bigha	1	133.50
	5-10 Bigha	20	64.15
	11-20 Bigha	17	91.15
	21-30 Bigha	18	71.94
	31-40 Bigha	43	127.03
	More than 40 Bigha	90	107.39
	Total	200	
Economic Benefits	No land	11	71.73
	Less than 5 Bigha	1	193.50
	5-10 Bigha	20	107.33
	11-20 Bigha	17	104.35

	21-30 Bigha	18	79.50
	31-40 Bigha	43	115.41
	More than 40 Bigha	90	97.82
	Total	200	

Similar to previous test the p-value (<0.001) for all the factors in this test are also less than significant value of 0.05 hence we reject the null hypothesis. Hence it can be concluded that farmers with different years of experience in farming perceive challenge differently. There is significant difference in the perception of various challenges between farmers with different years of experience in farming.

Ho: There is no significant difference in the perception of various challenges between organic and conventional farmers.
H13: There is significant difference in the perception of various challenges between organic and conventional farmers.

Test Statistics[a,b]

	Lack of Infrastructure Support	Pest and Disease Control	Low yield in the initial stage	The price of Organic product is same/unfair in the market	The initial investment in organic farming is very high.	Economic Benefits
Kruskal-Wallis H	15.248	5.551	47.463	18.086	8.250	54.417
df	2	2	2	2	2	2
Asymp. Sig.	<.001	.062	<.001	<.001	.016	<.001

a. Kruskal Wallis Test

b. Grouping Variable: What farming method do you practice, Organic farming method or Conventional farming method?

Ranks

	What farming method do you practice, Organic farming method or Conventional farming method?	N	Mean Rank
Lack of Infrastructure Support	Organic Farming	58	124.38
	Convenctional Farming	121	91.55
	Both	21	86.12
	Total	200	
Pest and Disease Control	Organic Farming	58	110.56
	Convenctional Farming	121	94.25
	Both	21	108.71
	Total	200	
Low yield in the initial stage	Organic Farming	58	140.89
	Convenctional Farming	121	80.86
	Both	21	102.10
	Total	200	
The price of Organic product is same/unfair in the market	Organic Farming	58	118.92
	Convenctional Farming	121	89.40
	Both	21	113.55
	Total	200	
The initial investment in organic farming is very high.	Organic Farming	58	112.52
	Convenctional Farming	121	99.22
	Both	21	74.69
	Total	200	
Economic Benefits	Organic Farming	58	142.48
	Convenctional Farming	121	80.31
	Both	21	100.90
	Total	200	

The Kruskal-Wallis tests confirm that perceptions of various challenges differ significantly between organic and conventional farmers. This supports the alternative hypothesis (H1) that there is indeed a significant difference in how these groups perceive challenges related to organic farming. Except for pest and disease control where the p-value (0.062) is higher than significant value of 0.05 indicating pest and disease control

one of a major challenge faced by organic farmers.

The comprehensive analysis reveals that several significant challenges deter farmers from adopting organic farming. Key challenges include pest and disease control, lack of infrastructure support, low initial yields, and perceived unfair pricing of organic products. Economic benefits and growing market demand significantly influence farmers' decisions to adopt organic farming, whereas environmental and health concerns, as well as soil fertility/health, are less influential. These findings highlight the need for targeted support and interventions to address these challenges and encourage more farmers to transition to organic farming.

Linear Regression

H0: There is no significant association between economic benefits, growing market demand, and concerns about low initial yields, and farmers' decisions to adopt organic farming.

H14: There is a significant association between economic benefits, growing market demand, and concerns about low initial yields, and farmers' decisions to adopt organic farming.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	177.905[a]	.270	.386

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Classification Table[a]

			Predicted		
			OBJ3		Percentage Correct
Observed			1.00	2.00	
Step 1	OBJ3	1.00	36	22	62.1
		2.00	14	128	90.1
	Overall Percentage				82.0

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Environmental Concerns	-.561	.303	3.428	1	.064	.571
	Economic Benefits	-1.568	.255	37.971	1	<.001	.208
	Growing Market Demand	.921	.298	9.555	1	.002	2.512
	Health Concerns	.222	.288	.595	1	.441	1.248
	Soil Fertility/Health	.135	.292	.214	1	.644	1.145
	Constant	3.144	.482	42.628	1	<.001	23.201

a. Variable(s) entered on step 1: Environmental Concerns, Economic Benefits, Growing Market Demand, Health Concerns, Soil Fertility/Health.

Based on the logistic regression results we fail to reject the null hypothesis for Environmental Concerns (p-value =0.064), Health Concerns (p-value =0.441), and Soil Fertility/Health(p-value =0.644), indicating no significant association with farmers' decisions to adopt organic farming. Contrary to this we reject the null hypothesis for Economic Benefits (p-value <0.001) and Growing Market Demand (p-value =0.002), indicating a significant association with farmers' decisions to adopt organic farming.

The logistic regression analysis supports the hypothesis that economic benefits and growing market demand are significant factors influencing farmers' decisions to adopt organic farming. Environmental concerns, although not statistically significant in this analysis, may still play a role in influencing some farmers' decisions. Health concerns and soil fertility/health factors do not appear to be significant drivers in this context.

Results and Discussion

The study's conclusions offer complex perspectives on farmers' attitudes, difficulties, motivators, and the efficiency of government assistance in promoting organic farming. Understanding the factors that influence farmers' decisions to adopt sustainable farming techniques requires knowledge of these findings. According to the report, most farmers believe that organic farming is better for the environment and the long-term health of the soil than conventional agricultural practices. This favourable opinion is consistent with global movements in favour of sustainable agriculture, which place an increasing emphasis on maintaining soil fertility and cutting back on chemical inputs. Yet, worries about the increased upfront cost and the allegedly unjust market price of organic goods draw attention to important obstacles that farmers must overcome in order to use organic farming methods. Analysis of challenges revealed that pest and disease control, infrastructure support, and initial yield constraints are significant concerns among farmers opting for organic farming. These challenges pose practical barriers that impact operational efficiency and economic viability. The disparity in perceptions between organic and conventional farmers regarding these challenges underscores the need for targeted interventions, such as tailored support for pest management strategies and improved infrastructure development, to facilitate smoother transitions to organic practices. Economic incentives and market demand emerged as pivotal factors influencing farmers' decisions to adopt organic farming. The study found a significant correlation between the market's increasing demand for organic products with higher

adoption rates and perceived economic benefits. Contrarily, farmers acknowledged the importance of environmental and health issues, but these factors had less of an impact on adoption choices than economic ones.

Key Findings

- Most farmers believe that organic farming is good for the environment and will improve the soil over the long run. However, major obstacles to wider adoption include worries about the initial expenditure, managing pests and diseases, and maintaining market competitiveness.
- Farmers' adoption of organic farming is mostly driven by increased market demand and economic rewards. These elements influenced adoption decisions more than health and environmental issues, emphasising the critical role that market dynamics and financial incentives play.

Future Directions:
Future research can be done focusing on longitudinal studies to monitor the long-term impacts of organic farming adoption on environmental sustainability, soil health, and farmer livelihoods.

Conclusion:

In conclusion, the findings from this study provide valuable insights into the perceptions and challenges faced by farmers regarding organic farming in uujarat. While there is a growing recognition of the environmental and economic benefits associated with organic agriculture, practical barriers such as high initial investment costs and pest management challenges remain significant. Addressing these barriers requires a multifaceted approach that includes targeted financial support, improved infrastructure, enhanced training, etc. By implementing these recommendations, policymakers, agricultural stakeholders, and development agencies can foster a conducive environment for the sustainable growth of organic farming in uujarat, contributing to agricultural sustainability, environmental conservation, and rural livelihood improvement in the region.

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