



## USE OF CHI-SQUARE TEST FOR RETAILER

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**ABSTRACT** In this research paper with the help of survey method attempt was done to verify whether retailers are gaining large share of profit and having complete control over transactions. Supply Chain Management (SCM), currently a popular topic in research literature, breaches the boundaries of many academic disciplines. Many approaches are used by researchers and practitioners to reduce food loss and waste. To reduce the food loss it's important to study and give appropriate action for the entire food supply chain. Most countries at government level use different approaches to minimize loss, for example, at the production stage government supports farmers to improve availability of agricultural extension services, to have market access and to improve harvesting techniques. In addition, improving access for handling and storage, improving processing and packaging technologies, conducting consumer education campaigns, etc. are suggested and used in different areas. In our project we have verified with the help of Chi-square test retailer. We have used Chi-square test for retailer. In this project I want to prepare fuzzy model.

**KEYWORDS :** Chi-square test retailer**INTRODUCTION :-**

Agricultural produce includes food-grains, vegetables & fruits. Among these agricultural produce, vegetables & fruits are the most perishable items which need different marketing strategy as well as financial strategy.

Yavatmal is an agricultural city in the state of Maharashtra, located in Vidarbha region in central India. The cluster type of sampling is take for this project. The objectives of the present study will be to survey the retail vegetable market & fruit market in order to know the ways of costing & selling the perishable items & how they accounts for loss due to perishable nature of items. The scope of the present study will be restricted to Yavatmal town only.

**LITERATURE REVIEW**

Supply Chain Management (SCM), currently a popular topic in research literature, breaches the boundaries of many academic disciplines. Food supply chains (FSC) are distinct from other product supply chains. The fundamental difference between FSC and other supply chains is the continuous and significant change in the quality of food products throughout the entire supply chain until the points of final consumption [1] [2]. In addition, FSC is complex as compared to other supply chains due to the perishable nature of the produce, high fluctuations in demand and prices, increasing consumer concerns for food safety [3] [4] [5] [6] and dependence on climate conditions [6].

**Research Methodology :-**

The data can be collected from producer, i.e. farmer, wholesaler, retailer & consumer of vegetable & fruits. Questionnaire properly designed in Marathi language, is used for this purpose. Secondary data can be made available from Panjabrao Krishi Vidyapith Research Centre at Yavatmal, related books & from Internet.

The factors included in the questionnaire :-Questionnaire given in Appendix-I constituted of sections -

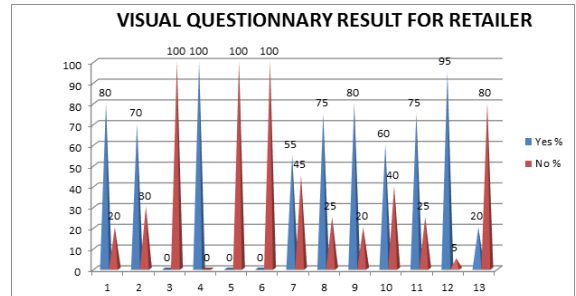
A -Personnel information.

B -Opinion about important related factors relating to many factors of agriculture as a profession & practice.

**Results & Discussions****VISUAL QUESTIONNAIRE RESULTS FOR RETAILER :**

Sr No	Activity	Yes %	No %
1	Shelf life of perishable Agriculture produce to be purchased for resale is known.	80	20
2	Balance life of Perishable Agricultural produce purchased fir resale is known	70	30
3	Vegetables/ Fruits purchased directly from the producer	0	100
4	Only perishable product ready for eating is purchased for resale	100	0
5	Any processing carried out for improving the shelf life of perishable product	0	100

6	Perishable product store in cold storage after purchasing	0	100
7	Cost of spoiled product found in the purchased material is added in the sale cost of balance material	55	45
8	While deciding the selling cost of material its reducing life due to perish nature is consider.	75	25
9	Initially charging higher cost for selling a recovering the invested amount	80	20
10	While deciding the sale cost there is restriction due- to selling of same product by other traders	60	40
11	Selling cost depend on the place chosen for sale.	75	25
12	After recovery of purchased cost, sale cost of balance material will be changed according to balance life of product.	95	5
13	Financial position improved due to retail business of perishable vegetables / fruits	20	80

**INTERPETIATION**

1. Out of 20 retailers, 16 retailers are known the shelf life of perishable Agricultural produce to be purchased for resale.
2. Out of 20 retailers, 14 retailers are known the balance life of perishable agricultural produce purchased for resale.
3. All 20 retailers not purchased vegetable and fruits directly from the producer.
4. All 20 retailers have purchased perishable product ready for eating for resale.
5. All 20 retailers not carried out any processing on perishable product for improving their shelf life.
6. All 20 retailers not store vegetable and fruits in the cold storage after purchasing.
7. Out of 20 retailers, 11 retailers are adding the cost of spoiled product found in the purchased material in the sale cost of balance material. Balance retailer's think that only due to their bad luck spoiled material received to them.
8. Out of 20 retailers, 15 retailers have considered the reducing life due to perish nature of material while deciding the selling cost of

that.

9. Out of 20 retailers, 16 retailers have initial charging higher cost for selling for recovering the invested amount.
10. Out of 20 retailers, 12 retailers think that, while deciding the sale cost there is restriction due to selling of same product by other retailers.
11. Out of 20 retailers, 15 retailers think that, selling cost depend on the place chosen for sale.
12. Out of 20 retailers, around 19 retailers will be changed the selling cost of balance material according to balance life of product after recovery of purchased cost.
13. Out of 20 retailers, only 4 retailers that their financial position improved due to retail business of perishable vegetable/ fruits Because those 4 retailers compare them to other street vendors but fact is that is that no one in the position to purchased and manage their own shop also not in the position to stay in well established house. Also not in the position to save and maintain wealth for their need /requirement.

#### TESTING OF HYPOSTHESIS BY CHI-SQUARE TEST

Null hypothesis = H<sub>0</sub> = retailers are gaining large share of profit and having complete control over the transaction

Sr. No	Observed %	Expected	(O-E)	(O-e) <sup>2</sup> /e
1	80	100	-20	4.0
2	70	100	-30	9.0
3	0	100	-100	100.0
4	100	50	50	50.0
5	0	100	-100	100.0
6	0	100	-100	100.0
7	55	100	-45	20.3
8	75	100	-25	6.3
9	80	100	-20	4.0
10	60	50	10	2.0
11	75	10	65	422.5
12	95	50	45	40.5
	690	960	-270	858.5

#### CONCLUSION

$$\chi^2 = \sum (O - E)^2 / E = 858.5$$

Degrees of freedom = d.f. = (n-1) = 12 - 1 = 11

From table value of  $\chi^2$  for 5 % of significances = 19.675

Since the observed X is very lager than the table value, hence the null hypothesis that the retailer are gaining large share of profit and having complete control over the transactions is wrong.

Hence our hypothesis that the retailers carry out the business under compulsion without having control over the transactions is proved.

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