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Market Constraints in Crop Diversification: A Special Reference from Paddy to Vegetable

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Abstract: Agriculture is facing a problem of unequal production of commodities and low income of farmers. The majority of farmers are still based on conventional crop patterns i.e. wheat and paddy. Paddy crop production is based on a high amount of water and chemical fertilizers. That results in waste of water and land degradation to a large extent. Yet there is no availability of an efficient substitute for this crop. Vegetable market infrastructure is not up to mark in north India. As a result, almost 30-40 percent of crops were destroyed due to a lack of infrastructure. As a matter of fact, the vegetable is perishable in nature. It required more facilities than other produce. In the present research paper, an attempt has made by scholar to examine the market constraints of a vegetable among different producers. The study was based on primary data.

Keywords: Paddy, Vegetable, Market Acknowledgment- The present research paper is part of ongoing research on crop diversification.

I. INTRODUCTION

Crop diversification is the most helpful tool for farmers to increase their income by the fixed and small size of land holdings. A change in crop diversification implies a change in the proportion of land and other sources. Side by side this change also depends on many market forces and other factors. It is important here to acknowledge the effect of paddy production on land and water efficiency. Paddy is a very highly water-intensive crop. For the growth of plants, many chemical fertilizers were used by farmers as a result it affected the landwater as well as the health of the soil also. To tactile with this problem many experiments were conducted by scholars from time to time. As a result, it was concluded that some vegetables and crops may be substituted with paddy with the condition of availability of the market and production condition of those vegetables. Therefore, crop concentration and diversification not only provide the idea of a region dominated by specific crops but also play a role in guiding the strengthening agriculture economy and land planning. Keeping this in view present research paper is an attempt in this direction to examine the market behavior of different produce.

II. LITERATURE REVIEW

Rajinder G. (2020) in his research work examines trends and performance of agriculture in Haryana. The study was based on secondary data. To compute the growth behavior of trends and performance of agriculture production Haryana farm area, yielding, income, and production were filtered. The study concludes that the government launched different schemes in Haryana to enhance the efficiency of agriculture production. Such as insurance schemes those cover almost all food grains crops. To overcome soil degradation government, adopt an organic pattern of farming. The government set a target to achieve triple production of horticulture in Haryana for that a module was prepared to convert 15 percent area under crop diversification. Finally, the study offers some suggestions regarding the proper price remuneration to the farmers, etc. **S.C. Nagpure et al**

(2017) in their study examined the trend in crop concentration and diversification and advantageous crops in different districts of Maharashtra. The study was based on secondary data from 45 years i.e. from 1970-71 to 2014-15. For the purpose of research tools Herfindahl index and Simpson Diversity Index have been used. The study concludes that over the period of study, crop diversification has increased significantly in the western Vidarbha region. Crop concentration analysis revealed that sugarcane, other oil seed, another high-value crop, and wheat were emerging as the most concentrated crops in Yavatmal, Buldhana, and Amravati districts on another hand concentration of bajara-jowar, mung, rice, etc are being reduced because the farmers are gaining more profit in the production of the high-value crops as compared to other food grain crops like bajra, jowar, mung, rice. Finally, the study suggested that, while framing the policy on cropping plan for this region, the government should concentrate to motivate the farmers for cultivating food crops through the state department of agriculture for increasing the area and production of food crops by providing good remuneration prices, better marketing facilities, providing new agricultural technology at cheaper cost.

N.D. Basavaraj et al (2016) The nature, extent, and determinants of crop diversification have been analyzed in the Gadag district of Karnataka over space and time. It was hypothesized that crop diversification is more in the northern dry zone (NDZ) than in the northern transitional zone (NTZ). The primary data were collected from 30 sample farmers from each of the selected taluks representing different zones such as the northern dry zone (NDZ) and northern transitional zone (NTZ). The study has revealed a higher growth rate in the area under horticultural crops and pulses than in cereals, oilseeds, fiber, and other crop groups. Over the years, though the share of cereal crop groups has decreased significantly, it still occupies the major share of the cropped area reflecting farmers' concern for food security. The share of fruits and vegetables in the total cropped area has increased significantly. Crop diversification ensures livelihood security to the farmers and as market development has a direct bearing on crop diversification, there is a need to develop more markets in the study area.

III. RESEARCH METHODOLOGY

The study was carried out in the NCR district of Haryana. Haryana scored the maximum average yield of many crops. Almost 50 percent of the workforce was engaged in agriculture occupation in the state. Karnal is well known as DHAN KA KATORA of India. On another hand, Sonipat produces the maximum mushroom in the country.

Research Design-

Paddy is a very static crop as compared to vegetables. The present research work presents a brief of constraints followed by vegetable growers during their marketing actions. The present study would be applied descriptive-cum-analytical research design in nature to find out the above-said objectives.

Selection of Crops

Based on the literature review done in the second chapter the following vegetables are selected for the study.

1. Tomato
2. Okra
3. Bottle gourd

Data Collection: The study is compiled using primary & secondary data collection sources.

Sources of Data

This study is based on primary & secondary data which has been collected through a semi-structured questionnaire. The first section of this questionnaire has demographic questions. The second section pertains to statements based on their objectives with cost and other constraints faced by farmers.

Method-1**Reliability Analysis**

The most often used indicator of internal consistency is Cronbach's alpha ("reliability"). Cronbach's alpha merely gives you a totally reliable coefficient. Higher numbers signify more reliability. The Cronbach's alpha is calculated by:

$$\alpha = \frac{Nc}{v + (N - 1)c}$$

Where-

N= No. of Items

c= Average inter-item covariance

v= Average Variance

The Overall Cronbach's Alpha value is 0.707.

Method-II

Explain the average farmers who reported a common presentation of problems during the marketing of vegetables. Simple average and percentage methods were used to highlight the problem.

1) Demographic Profile

This is based on the demographic profile of farmers including primary occupation, area for agriculture, etc. for selection of farmers in Haryana. The age and education of the head of the household play an important role in the adoption of technology and the diversification of agriculture. As it was observed from the survey that young and educated farmers are very alert regarding new experiments in agriculture. This shows the demographic profile of farmers based on gender. In this, maximum observers are from the male category with 81% value while the rest are from the female category. This shows the demographic profile of farmers based on age category. In this, maximum observers are from 41-50- & 51-60-years category with 32% value.

Table 1: Demographic Profile based on Agriculture as Primary Occupation

Agriculture as a Primary Occupation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	40	8.0	8.0	8.0
	Yes	460	92.0	92.0	100.0
	Total	500	100.0	100.0	

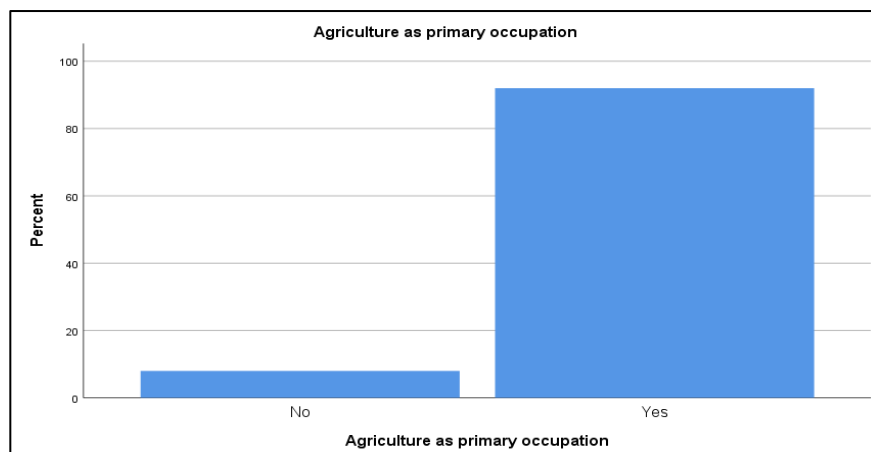


Fig 1: Demographic Profile based on Agriculture as Primary Occupation

This shows the demographic profile of farmers based on primary occupation category. In this, maximum observers are from joint family category with 86% value. After this, 14% farmers are from nuclear family.

IV. DATA ANALYSIS

Range of problems 1-5

1. Very high problem
2. Some problem
3. Miner problems/ or faced occasionally
4. No problem
5. Comfortable

Objective- Common Problems reported by farmers-

Table 2: Range of problems reported by different categories of farmers

(Percentage of farmers)

Problems	Small	Medium	Large
Transportation	1-68%	3-48%	4-38%
	2-28%	2-32%	4-36%
	3-4%	4-20%	5-26%
Packaging material	2-46%	4-54%	4-58%
	3-36%	5-29%	5-36%
	5-18%	3-17%	3-6%
Market approach	1-78%	1-42%	4-67%
	2-12%	2-31%	5-26%
	3-10%	4-27%	3-7%
Sale on time	5-64%	3-49%	2-38%
	3-20%	4-35%	3-36%
	4-16%	2-21%	4-26%

Source- Primary Survey

Table 2 shows the range of market-related problems among the different categories of farmers. The table shows that transportation was faced maximum by small farmers followed by medium and large farmers. In the case of medium farmers a mixed response was reported. Whereas in the case of large farmers, only a few farmers were comfortable with transportation. Packaging material is an essential article in marketing. The table shows that the majority of small farmers were facing that kind of problem, in the case of large farmers table shows that the majority of farmers were comfortable. Packaging material is following the law of decreasing price while increasing quantity. As a result, large farmers produce more quantity as compared to small and medium farmers so they required a large quantity of that article, and they enjoyed low prices as compared to other categories.

Furthermore, the table explains about market approach, in this variable many components were involved i.e distance from the market for specific produce an environment of cold storage, etc. table shows that small farmers faced a such problem in big numbers whereas large farmers were taking it the easy way. Finally, in the case of the sale the table shows that small farmers produce very few amounts as compared to large farmers, as a result, their quantities were sold away in fewer periods as compared to other farmers. Large farmers produce more production as a result they had to wait for purchasing agencies during that operation. It was also observed that a big portion of large farmers was turned into waste due to not selling on time.

Objective: To examine the marketing behavior of paddy and vegetable growers.

H_{01} : There is no significant relationship between the marketing behavior and the observer's responses.

In data analysis, the researcher has prepared charts and tables to analyze the data so that the data can be easily understood and used in the research. In this research, the researcher has used the chi-square test technique and Reliability analysis with

descriptive statistics to study the reliability and overall mean value of all statements. Statistical data were analyzed using the SPSS tool. Chi-Square Test was used to analyze the presence of an association between demographic variables and statements influencing the selection of cars by customers.

The table shows the values of market-related constraints. The table shows that price functional and storage problems scored the highest mean value followed by transportation cost and an unorganized market system. In some cases, std values are also high as given in the table. Transportation faculties were the only component that reported that showed disagreement, where packing material showed moderate in this regard.

Table 3 Analysis based on Market-Related Constraints

Item Statistics				
	Mean	Std. Deviation	N	Status
Marketing-Related Constraints: Lack of suitable packaging material	3.12	1.279	500	Moderate
Lack of cold storage facilities	3.90	1.229	500	Agree
Lack of transportation facilities	2.24	1.136	500	Disagree
High cost of transportation	3.60	1.302	500	Agree
Unorganized marketing system	3.60	1.181	500	Agree
Too much fluctuation in prices	3.94	1.242	500	Agree
Heavy loss in transportation	3.58	1.118	500	Agree

V. CONCLUSION

It may be concluded from the above result that transportation was faced maximum by small farmers followed by medium and large farmers for the marketing of vegetables. Whereas in the case of large farmers, only a few farmers were comfortable with transportation. Packaging material is an essential article in marketing. The result shows that the majority of small farmers were facing that kind of problem, in the case of large farmers table shows that the majority of farmers were comfortable. Packaging material is following the law of decreasing price while increasing quantity. As a result, large farmers produce more quantity as compared to small and medium farmers so they required a large quantity of that articles, and they enjoyed low prices as compared to other categories. In the case of the market approach, in this variable, many components were involved i.e distance from the market for specific produce an environment of cold storage, etc. Finally, in the case of a sale, the table shows that small farmers produce very few amounts as compared to large farmers as a result their quantity was sold away in fewer periods as compared to other farmers. Large farmers produce more production as a result they had to wait for purchasing agencies during that operation. It was also observed that a big portion of large farmers was turned into waste due to not selling on time.

In the case of market-related constraints of produce it may be concluded that the price fluxional and storage problem scored the highest mean value followed by transportation cost and an unorganized market system. In the same case, std values are also high as given in the table. Transportation faculties were the only component that reported that showed disagree, where packing material were shows moderate in this regard.

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