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Management of Value Chain in Indian Agriculture, A Study of Experiences of Farmers in Karimnagar District of Telangana State, India

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Abstract – **Management of value chain in agriculture is very important to achieve the maximum yield and remunerative price realization for the agricultural produce of the crop grown . Availability of the market information meant to fetch better price realization is not being effective due to the constraints of smaller land holding size and the poor economic situation of the farmers. The middlemen are exploiting the farmers in terms of lower price being offered. Governmental agencies with their levy purchase policies are only doing lip service, and are ineffective in adding to the value of the agriculture. The governments are able to provide the infrastructure in terms of irrigation, power, market yards and rural road connectivity. But the delivery systems and processes of these infrastructures are the weak links in the chain. Though the inputs supply chain delivery is satisfactory, the interdependence of the same along with marketing facilities and infrastructure is making the farmer vulnerable to the inefficient and ineffective delivery systems processes which is adversely effecting the value chain in agriculture. The farmers in Karimnagar district in Telangana state in India are not able to manage the value chain to their maximum benefit.**

Keywords – **Management, value chain, Indian Agriculture, Farmers.**

INTRODUCTION

About 68.86% of the 1.21 billion population(Source: Census of India 2011) lives in the villages in India , which also amounts to 11.4% of the world population(World Population : 7.3 Billion Source: United Nations -- Department of Economic and Social Affairs , Population Division). They are primarily dependent on agriculture or its allied activities. Though agriculture sector contributes to a meager 18% of the GDP according to Indian Economic Survey by Government of India 2014, it is still the largest provider of employment.

Agriculture in India is a concurrent subject by which both Central Government and State Governments attempt to manage the value chain to achieve the targeted production of food and non food crops. Central Government makes policy frame works, offers subsidies for fertilizers and equipment, provide crop loans, insurance, announces minimum support price for certain crops, and also purchases certain crop prude on levy for Public Distribution. While State governments provide irrigation, ensures timely inputs like seeds, fertilizers, pesticides, establishes market yards and manages them to help farmers to market their products. Private companies also contribute in terms of inputs supply and also purchase certain produce. State and private research organizations and agricultural universities develop and transfer the state of the art technologies to the farmers to maximize yields.

LITERATURE REVIEW

Some amount of research was done on many of the key elements of the value chain in agriculture.The report of the working group of the 12 th Five Year Plan 2012-17 listed out in detail the major issues and concerns relating to the high cost of goods and services because of too many intermediaries, inadequate infrastructure for storage, sorting, grading or post-harvest management , lack of transparency of price setting, ill equipped and untrained Mandi staff, Essential Commodities Act impeding free movement, storage and transport of agricultural produce etc.

Marketing agricultural produce including agricultural Market Information:

Vadivelu et al (2013) emphasized the importance of market information to the farmer to get maximum price advantage, while Subrahmanyam KV et al (1978) talked about communication of the market intelligence and information and its relevance to the farmer. Rahman Muhammad Fazlur (2003) developed a system for providing agrarian pricing information to the rural Indian populaces. Dhankar (2003) studied the agricultural marketing information system network (Agmark Net) in India. ITC e-Choupal launched in June 2000 carries the mandi prices across the state on daily basis which is useful not only to farmers but also the manid commission agents. ITC e-Choupal offers the prices that ITC hopes to buy at. (www.echoupal.com)

The essence of all these above quoted literature is that market intelligence and information is very important to the farmer to market his produce at the best price possible.At the same time, the timeliness of the information and efficiency and effectiveness of the institutions that deliver are as important as the information itself.

Agricultural Infrastructure:

L.Venkatachalam (2003) clarifies that infrastructure includes all basic services, facilities, equipment and institutions needed in the value chain.He also talks about the importance of the delivery systems and processes of the same.Binswanger et al (1993) stressed the importance of road connectivity in increasing the output. Similar empirical study by Ahmed and Hussain (1990) that" *the fertilizer usage in the agricultural sector increases with the improvement in the quality of roads"*. A recent empirical study by Minten (1999) documented the

relationship between access to infrastructure, output markets and rural agricultural prices using community survey in MADAGASKAR. Therefore agricultural infrastructure is very crucial in the value chain.

Input supply chain

The working group of 12 th five year plan (2011) on agricultural inputs estimated the gap of demand and supply of seeds, fertilizers in India. Shoji Lal Bairwa et al (no date) that raising the productivity of crops depends on farm inputs and services. Choughlan (2002) dealt with marketing channels delivering inputs. Inputs form an important role in the value chain.

RESEARCH GAP

The value chain includes spectrum of pre-production, production and post production activities in which the farmer is in the center, managing down stream and up stream activities trying to manage to achieve maximum yields and price realization for the chosen crop. There is little research done earlier on management of value chain perspective in agriculture comprehensively regarding marketing of agricultural produce by farmers, infrastructure availability and its implication on the productivity and availability and access to quality inputs like seeds, fertilizers and pesticides in Telangana State in India. Hence the researcher attempted to conduct research on the subject.

SIGNIFICANCE OF THE STUDY AND OBJECTIVE

Famous Hudson Maxim says " All progress is born of inquiry. Doubt is often better than over confidence, for it leads to inquiry, and inquiry leads to invention". Research provides the basis for nearly all government policies in Indian economic system.

The objective of the study is to study the experiences of farmers in managing the value chain which could provide insights to the government for course correction , if any, needed.

RESEARCH DESIGN:

An exploratory research design was adopted through which a comprehensive survey was conducted to collect the primary data from the farmers to capture the management experiences of farmers.It was felt appropriate to conduct research on three very important aspects of management of agriculture viz: marketing of agricultural produce, agricultural infra structure and input supply chain consisting of agricultural inputs. For the purpose of the above study, one agriculturally diversified (in terms of crops) district Kareemnagar,in the 29 th and latest formed(2014) state of Telangana, India was selected and a survey conducted.

TELANGANA STATE AND KARIMNAGAR DISTRICT

Karimanagar district has a net sown area under agriculture of 5,70,740 hectares, while the area that is sown more than once is 3,00,914 hectares. The total area sown is 8,71,654 hectares . The food crops are grown in 6,09,935 hectares. According to Bureau of economics and statistics, Telangana- 2013-14,variety of crops are grown in this district like like rice, maize, jowar, millets, pulses and grams of all types, commercial crops like cotton, chillies, turmeric, horticultural crops like variety of fruits, vegetables and flowers. Hence Karimanagar district is selected for the purpose of the research.

METHOD OF SAMPLE AND ITS SIZE

The researcher surveyed the farmers in three mandals out of the 57 mandals (purposive sampling) of Karimnagar district. In each mandal, three villages were selected based on the diversity of agricultural crops that are grown by the farmers through stratified sampling. Within each village 25 farmers were randomly surveyed using an administered questionnaire. In all, 225 valid samples were collected.

QUESTIONNAIRE

The questionnaire was framed in English, and the translation was done in the native language- Telugu, spoken and understood by the farmers . Apart from the initial demographic questions like age, education , experience in farming, land holdings, sources of irrigation , crops grown, questions on marketing of agricultural produce, quality infrastructure like irrigation, power , road connectivity and agricultural market yards were posed to the farmers . The primary data thus collected was tabulated systematically and analized to test the hypotheses formulated.

PROFILE OF THE FARMERS

The profile of the farmers like land holding, education, years of experience, source of irrigation is estimated to have influence on the management of value chain of agriculture.

Land holding :

For the purpose of arriving at the land holding size, both own land and land taken on tenancy was combinedly considered.More than half of the farmers (54.2%) are marginal (22.7%--< 1 Hectare) and small (31.6%-1-2 Hectares) farmers having less than 2 hectares. 36% of the farmers are semi medium having 2 to 4 hectares. Medium farmers having 4 to 10 hectares are only 9.8%. Large farmers having more than 10 hectares are less than 0.5%..

Educational qualification of farmers:

Of the farmers surveyed, 22% never went to school, only 8.9% of the farmers studied upto primary level ie 5 th grade and less, 11.8% studied between 5 th and 10 th grade(secondary school) , 5.5% of them studied in the college ie. Degree and a mere 1.8% studied in the university.

Number of years of experience in cultivation:

It is considered that number of years of experience in cultivation has a bearing on the yields and securing better prices. Close to half (47.6%) of the farmers surveyed have above 20 years of farming experience. 16.4% of the farmers have 16-20 years, while 17.8% have 11-15 years of experience. 18.2% of the farmers have less than 10 years of farming experience.

Source of irrigation

Irrigation facility is considered to be the most critical agricultural infrastructure, which is provided by the state government. Telangana state is located in deccan plateau above mean sea level in such a way that the surface irrigation is difficult and the water has to be lifted up to irrigate the agricultural lands. Therefore, the farmers mostly depend on tube wells for irrigating their lands apart from rain water. The survey reveals that 90.2% of the farmers depend on tube wells for irrigation. Only 6.2% of the farmers depend on pure rain fed irrigation. The source of irrigation is considered to have a significant influence on the selection of the crop and productivity.

VALUE CHAIN MANAGEMENT OF AGRICULTURE BY FARMERS WITH RESPECT TO MARKETING OF PRODUCE, INFRASTRUCTURE AND INPUT SUPPLY LIKE SEEDS, FERTILIZERS AND PESTICIDES.

SECTION -I
DATA ANALYSIS

The most important aspect of the management of value chain relates to post production activity , more specifically marketing the agricultural produce. Market information system is considered to play a vital role in deciding when to sell and to whom to sell. The paper attempted to capture responses from the farmers as to whether they would use the market information system to maximize the price realization of their produce.

1. Food grain farmers preference to hold the produce to sell at a later date

79.5% of farmers are not preferring to hold the produce, to sell at a later date, even if they have market information that the prices may go up. Only 18.7% of them do not prefer distress sale. Further analysis revealed that 88.2% farmers in marginal farmer (<1 hectare) category preferred to sell the produce right at the time of harvest , while only 64% of the farmers in medium size holding category(4-10 hectare) preferred to sell the produce right at the time of harvest. The higher the land holding size, the preference to distress sale is decreasing. Even further analysis had shown that 98.3% of the economically poor farmers did not prefer to hold the produce, while 51.9% of the economically better placed farmers preferred to hold the produce to sell at a later date to fetch better price.The economic condition of the farmers is clearly influencing their decision to sell right at the harvest time.The analysis clearly shows that the food grain farmers of larger land holding and economically better placed ones are able to manage better the aspect of marketing the produce in the value chain , while food grain farmers of smaller land holdings and economically poorer farmers are forced , by their condition, to resort to distress sale and are not able to manage the aspect of marketing the produce in the value chain.

2. Commercial crop farmers preference to hold the produce to sell at a later date

70.7 % of the farmers are not preferring to hold the produce to sell at a later date. 24.9% of them prefer to hold the sale decision and sell at a time when the prices are better. The decision to sell at the time of harvest is different between food grain farmers (79.5%) and commercial crop farmers (70.7%), meaning that the commercial farmers are willing to wait more than the food grain farmers to some extent. Further analysis revealed that 82.4% farmers in marginal farmer (<1 hectare) category preferred to sell the produce right at the time of harvest , while only 54.5% of the farmers in medium size holding category(4-10 hectare) preferred to sell the produce right at the time of harvest. The higher the land holding size, the preference to distress sale is decreasing, which is holding true both for the food grain farmers as well as commercial crop farmers. Even further analysis done has revealed that 98.3% of the economically poor farmers did not prefer to hold the produce, while 57.7% of the economically better placed farmers preferred to hold the produce. The economic condition of the farmers is clearly influencing their decision to sell right at the harvest time.The result of the above analysis clearly shows that both the food grain and commercial crop farmers of larger land holding and economically better placed ones are able to manage better the aspect of marketing the produce in the value chain , while food grain and commercial crop farmers of smaller land holdings and economically poorer farmers are forced , by their condition, to resort to distress sale.

Whom do the farmers prefer as buyers is the next question, because preference of the buyer may have influence on the price.

3. Farmers preferred buyers—middlemen or private millers or government .

A good 30.2% of the farmers are preferring to sell to middlemen who are arriving at their farm to buy the produce. While large number of them -36.9% are preferring to sell directly to millers and or private companies. Only 25.3% of the farmers are preferring to sell their produce to the government agencies. 7.6 % of the farmers prefer to sell to more than one agency of private and government. Further analysis is done about the correlation between the preference of the buyer and the price realization. The result shows that 55.9% of the farmers who sell to middle men claim that they get lower realization while, 37.3% of the farmers who sell to millers and private agencies get low realization and 38.6% of the farmers who sell to government agencies get lower realization.. This analysis establishes that farmers preferring to sell to middlemen are getting lower realization for their produce than the farmers who are

selling to millers or private agencies and government agencies directly. It also establishes that majority of the farmers , forced to sell their produce right at the time of harvest in their own farm and prefer to sell middlemen are not able to manage their marketing link of the value chain for their betterment.

Since Government also is a buyers of crop produce, the response of the farmer about the benefit of Levy purchase government and minimum support price is elicited in the next question..

4. Do farmers get better price with the government actively purchasing through levy and minimum support price.

95.6% of the farmers agree that if the levy exists , there will be competition between government and other buyers leading to better price realization. In the current year ie 2015, the Central Government announced its policy that it would not procure food grains on levy this year, due to huge stocks lying in the Food Corporation Of India. In such a situation farmers are perceiving that their interest are jeopardized. Levy purchase by the government (central and state) plays a significant role in helping the farmer manage the value chain from marketing stand point.

Having seen the marketing part of the value chain, the next question is about infrastructure.

5. Farmers experience on irrigation infrastructure part of the value chain.

61.8% of the farmers are claiming that they are not having good irrigation facilities while 37.7% of the farmers claimed that they had adequate irrigation facilities. However for another question, as to how important is the irrigation availability for the crop production, they said that irrigation plays a vital role in the yield of the crop. The response that the irrigation facilities are not adequate is born out of the fact that 90.2% of the farmers in Karimnagar district are dependent on tube wells for irrigating their farms. A further analysis was done to check the relationship between the availability of good irrigation facilities and the level of production, the results had shown that 63.6% of the farmers having poor irrigation facilities had in fact got lower production levels, while 64.3% of the farmers who said that they had good irrigation facilities had average level of production. This analysis has established that the farmers who are receiving good irrigation facilities are able to manage their value chain better than the ones not having adequate irrigation facilities. The functioning of the tube wells is dependent on power supply both in supply time as well as in sufficient voltage . Hence the next question followed on power, whether the power received by the farmer is for sufficient time. And the responses are analyzed below.

6. Farmers experience on power infrastructure part of the value chain.

Power availability as an element of infrastructure is considered critical for the irrigation especially in the context of the Karimanagar farmers who are dependent on tube wells . 98.7 % of the farmers experienced that the electricity is supplied by the government was for the required amount of time. There is another factor that influences the irrigation apart from power in the case of tube wells is the ground water table level. Therefore, even if the power availability is claimed to be excellent ie 98.7%, 61.8% of the farmers did report poor irrigation facilities. The gap between excellent power availability and poor irrigation is explained by low ground water table. Therefore, for the farmer to manage this part of infrastructure in terms irrigation and power is very important for addition to the value chain of agriculture.

The next question relates to the markets yards and the benefit to the farmers.

7. Farmers enagement with market yards

The opinion is about the adequacy of the market yards is equally divided. 45.3% of the farmers are of the opinion that they do not have adequate market yards for the number of farmers in their district, while 45. 8% of the farmers opined that the market yards are adequate.Though about half the farmer population perceive that the market yards available in their area are adequate, the tendency of the farmers is to sell their produce right in their farm right at the time of harvest (79.5% in case of the food grain farmers and 70.7% in case of commercial crop farmers) is high due to the hardships that they have to go through to take the produce to the market yards to sell . In the subjective answers given by the farmers to the researcher, the farmers are quite critical about the way the market yards function. It shows that mere availability of infrastructure is not enough, but even the ease of using them is also important.

Rural road connectivity is very important for the farmer to transport his inputs into his farm and his produce to the markets. Therefore logically the next question asked was about the condition of the rural road connectivity, and the responses are obtained.

8. Farmers` experiences of the rural road connectivity.

It is revealed that 57.8% of the farmers are of the opinion that the rural road connectivity is good for them while 37.3% of the farmers opined that rural road connectivity for them is not good. The rural connectivity is estimated to have an influence on the transportation costs of agricultural inputs and produce.

After the infrastructure, the input supply chain forms a very important part of the value chain.

9. Farmers` experiences with input supply from timely availability stand point.

53.3% of the farmers experienced timely availability of inputs. While 46.2% of the farmers experienced that the inputs are not made available in time. We shall see in the further analysis, the inter dependence of the inputs and the yield level in the statistical section.

10. Farmers` experiences with input supply from qualityst and point.

Here again the experience is quite divided and varied. . 49.3% of the farmers claimed that the quality inputs are made available to them, while 49.8% of the farmers claimed that only some times , the quality inputs are made available. The inputs in the value chain is very important that it will decide the yield levels.A further analysis is done to see if the levels of production are in tune with the input contribution in the value chain.

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In the above paragraphs one has seen the data analyses of the management of value chain in terms of marketing the produce, infrastructure and the inputs . It is necessary to test the data with appropriate statistical tools to arrive at the correlations and influences of the independent variables on the dependent variables. Therefore the following Section II deals with the statistical analysis with relevant statistical tools.

SECTION II
STATISTICAL TESTING OF THE DATA

Hypothesis: 1

Farmers of food grains resort to distress selling due to poor finaicial condition , despite having market information.

Table 1: Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square	58.514[a]	6	.000	Hypothesis Accepted

Keeping financial condition as the independent variable and the distress sale of food grains as the dependent variable, a chi square test was conducted. (Refer table 1) . The result of the test shows the influence of financial condition on distress sale.

Hypothesis: 2

Commercial crop farmers resort to distress selling due to poor finaicial condition , despite having market information.

Table 2: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square	53.593[a]	4	.000	Hypothesis Accepted

Keeping financial condition as the independent variable and the distress sale of commercial crops as the dependent variable, a chi square test was conducted. (Refer table 2) . The result of the test shows the influence of financial condition on distress sale.

Hypothesis -3

Sale to middlemen leads to lower realization of price of the agricultural produce.

Chi-Square Tests (Table 3)

	Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square	148.389[a]	20	.000	Hypothesis Accepted

Keeping preference of the buyer as the independent variable and price realization as the dependent variable, a chi square test was conducted. (Refer table 3) . The result of the test shows that independent variable of preference of buyer has an influence on the price realization, the dependent variable.

Hypothesis 4

Influence of irrigation on the level of production

With availability of good irrigation facilities as dependent variable and level of production as dependent variable, a chi square test was conducted .(refer table 4) . the result shows the influence of irrigation on level of production.

Table 4: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square	107.123[a]	12	.000	Hypothesis Accepted

Hypothesis 5

Influence of power supply on the level of production

Table 5: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square	30.412[a]	9	.000	Hypothesis Accepted
N of Valid Cases	225			

Chi Square test was done testing the influence of availability of good power supply on their farm to the increased level of production.

Hypothesis 6

Adequacy of market yards and its influence on price realization

Adequacy of market yards as independent variable and price realization as dependent variable, chi square test was conducted to the correlation and proved. (Refer Table 6).

Table 6: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square	27.517[a]	9	.001	Hypothesis Accepted

Hypothesis 7

Middlemen and market yard officials are responsible for the lower price realization of the agricultural produce.

Table 7: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square	35.564[a]	9	.000	Hypothesis Accepted

Hypothesis 8

Influence of quality inputs on improved level of production

A ch square test was conducted with availability of quality inputs as independent variable and and the level of production as dependent variable and the influence is proved (Refer Table 8)

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Table 8: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	57.091[a]	6	.000

SECTION III
FACTOR ANALYSIS

Twelve variables were considered for factor analysis, from the primary data collected from the farmers covering marketing of agricultural produce including market information systems , infrastructure and supply of inputs like seeds, fertilizers and pesticides. These variables form very important part in the management of value chain in agriculture.

Factor analysis was done to reduce the data to limited factors/ components which would have considerable correlation among the variables and at the same time having the maximum variance .

Table 9 :KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.591
Bartlett's Test of Sphericity	Approx. Chi-Square	698.614
	df	66
	Sig.	.000

The KMO value 0.591 is more than 0.5 and hence the sampling is very much adequate. The Barletts test shows a significance 0.000 of less than 0.05, hence the Factor analysis is valid and suitable.(Refer Table 9)

Table 10: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.667	22.222	22.222	2.667	22.222	22.222	2.166	18.047	18.047
2	1.790	14.913	37.136	1.790	14.913	37.136	1.870	15.587	33.634
3	1.496	12.468	49.604	1.496	12.468	49.604	1.823	15.196	48.830
4	1.243	10.362	59.966	1.243	10.362	59.966	1.336	11.136	59.966
5	.966	8.052	68.018						
6	.915	7.625	75.643						
7	.872	7.268	82.911						
8	.735	6.128	89.039						
9	.524	4.364	93.403						
10	.387	3.221	96.624						
11	.225	1.879	98.503						
12	.180	1.497	100.000						

Extraction Method: Principal Component Analysis.

The twelve variables of marketing produce including information, infrastructure and inputs , got reduced to just four factors amounting to a variance of 59.966%.(Refer Table 10)

Table 11: Rotated Component Matrix[a]

	Component			
	1	2	3	4
Hold_Intent_FoodGrains	.866			
Hold_Intent_Commercial	.864			
Fin_Soundness	.765			
Preferred_Buyer				.761
Better_Realization_if_Levy_Exists				
Rating_Electricity_Supply_Time			.811	
Rating_Electricity_Voltage			.821	
Adequacy_Market_Yards				
Low_Price_Due_To_Middlemen_Officials				.631
Time_Availability_Inputs		.866		
Availability_Quality_inputs		.899		
Use_Of_ICT_For_Higher_Production				

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

The factor analysis extracted (by principal component analysis and by rotation) just four factors from a list of twelve variables . The first factor primarily comprising of three variables from marketing agricultural produce explained 22.222 % variance, the second factor primarily comprising of two variables from supply of agricultural inputs explained 14.913 % variance, the third factor primarily comprising of two variables from agricultural infrastructure explained 12.468%, and the fourth factor primarily comprising of two variables relating to preference of the farmer to sell his produce to explained 10.362% . Cumulatively the four factors explained a variance of 59.966 %.The above factor analysis has assigned influence of agricultural marketing and the market information, supply of agricultural inputs, agricultural infrastructure and preference of buyer by farmers in descending order respectively on the value chain of agriculture experienced by the farmers.

FINDINGS AND CONCLUSIONS

Management of value chain in agriculture by the farmers is very important to achieve optimum results in terms of yields and price realization. Pre production, during production and post production activities managed by the farmers in an effective and efficient way is directly responsible for the value addition in the value chain of agriculture.

This research revealed that though the farmers are receiving market information, they are not able to maximize the price realization due to the constraints of smaller land holdings and poor economic condition . They are compelled to make distress sale of their produce at the time of harvest right in their farm itself.. This situation is being taken undue advantage by the middlemen who are exploiting the farmers by offering lower price realization for the produce. The ground reality is that the existence of levy purchase by both the central and state governments is also not helping the farmers to get better price. The smaller land holdings, poor economic condition, preference of middle men as buyers are adversely affecting the price realization of the produce which is hurting the farmers` interests.

The study also revealed that the availability of good irrigation facilities has a positive influence on the yields. Karimanagar district farmers are predominantly dependent on bore wells for their irrigation for which good power supply in quantity and quality is a must. Though the farmers are receiving good quality power for sufficient time, the yields are affected by the lower ground water table, minimizing the value chain. Though the infrastructure in terms of market yards is available, due to inconveniences and lack of farmer friendly policies at the market yards, the farmers are not able to utilize the services of the yards for the betterment of the price realization. Inspite of the the rural road connectivity in the district being satisfactory, farmers are still resorting to distress sale at the farm itself. The study has thrown up new issue that establishment of agricultural infrastructure is essential but not sufficient factor for the improvement of the value chain in agriculture.

Farmers in the subject district , despite receiving good quality input supplies like seeds, fertilizers and pesticides are not able to maximize the value both in terms of yields and price realizations, because of the interdependence of the marketing and infrastructural factors along with input supply chain . This aspect is abundantly extracted from the factor analysis. Marketing the agricultural produce effectively is of very high importance , followed by the quality and timely supply of input supply chain, which is followed, in order of importance , by the efficient delivery of the infrastructure. Effective and efficient management of all the three factors of marketing the produce, input supply chain and infrastructure is pivotal in the management of value chain in agriculture.

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