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# Wheat Supply Chain in Uttar Pradesh: A Case Study of Sultanpur District

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**Abstract:- The Present study is based on data collected from 100 farmers of different operational sizes across five villages of Sultanpur district of Uttar Pradesh in the Year 2006-07. Specific objectives of the study were to identify the different supply chains for disposal of wheat in market and to examine price spread under these chains. The major supply chains followed were–(1) Producer-Village trader -Consumer, (2) Producer- Village trader - Wholesaler- Retailer- Consumer and (3) Producer-Wholesaler -Retailer- Consumer. It was observed that price spread was minimum under Chain -1 (Rs.75.12 /ql) whereas the same was maximum under Chain-2 (Rs.215.01 /ql). The Chain was found to be the most efficient on the parameter of marketing efficiency too. Sultanpur district was characterized by low productivity of wheat (2.5 tonnes/ha) which was found to be much lower than average productivity of Punjab (4.20 tones/ha) and Haryana (3.89 tonnes/ha)(2009-12) states. The constraints encountered by farmers in production and marketing of wheat included technical, marketing, financial and managerial problems in order of their importance, respectively. A concerted effort to address all these issues will be helpful in increasing the production and improving the role this region in achieving food security for the nation.**

***Keywords***:- *Marketable and Marketed Surplus, Marketing Channel, Marketing Cost, Marketing Margin, Price Spread, Marketing Efficiency, Sultanpur, Uttar Pradesh.*

## I. INTRODUCTION

Wheat is the second most important crop of our country after rice supplying the bulk of calorie requirement of the people. The level of consumption of wheat is largely unaffected by changes in its price and the price of its substitutes. Income growth, demographic pressure and changing food habits have resulted in increased demand for wheat. Pingali (2007) found following five changes in the dietary pattern of people of Asia - (i) reduced per capita consumption of rice; (ii) increased consumption per capita of wheat and wheat based products; (iii) rise in high protein and energy dense diets; (iv)increased consumption of temperate zone products and (v) the rising popularity of convenience food and beverages. The first is commonly associated with income induced diet changes, while the latter four characterize westernization of diets in Asia (Byrd-Bredbenner et al., 2000; Hu, 2002).

In spite of the impressive increase in production and productivity, meeting the demand of increasing population is a challenging task. The existing marketing infrastructure created in our country is inadequate for marketing of food grains. Major problems facing the agricultural sector in India include lack of post harvest infrastructure, low value addition and poor quality of packaging and marketing. Under traditional system of marketing farmers have to pay a high level of marketing cost on account of a large number of intermediaries and several deductions levied on the receipt.

The area of wheat has increased from 27.04 million ha to 28.37 million ha, productivity from 27.04 qts/ha to 39.68 qts/ha and production from 442376 million tons to 412815 million tonnes between the period between 2000-2001 and 2020-21 (Table 1). During 2009-10 the wheat production in the country is expected to achieve a peak level of production i.e. 82 million tones. Uttar Pradesh contributes to the maximum area under wheat which is 28.37 million ha. But the state is also characterized by poor procurement facilities, low productivity and a number of production constraints. The Sultanpur district of Uttar Pradesh covered an area of wheat 107774 hectare) with productivity 39.68 quintal per hectare and production 412815 Metric tons (2020-21).

The present study was conducted to identify the different supply chains for disposal of wheat in market and to examine price spread under these chains. The study also examined the causes of low productivity of wheat.

## II. METHODOLOGY

The study was based on data collected from 100 households on different aspects of cultivation and marketing of wheat. Multistage stratified sampling procedure was used for selection of respondents of different categories namely marginal (58), small (23), medium (14) and large (5) of Sultanpur district. Data on different channels of disposal pattern was also collected from the farmers. A total of 30 market intermediaries were also interviewed to elicit information regarding marketing aspect of wheat. Average prices were taken for working out gross margins of various agencies and the costs incurred by these agencies. Data pertain to the agricultural year 2006-07. Following formula was used for computing marketing efficiency under different channels (Acharya and Agrawal, 2006):

$$\text{MME} = \frac{FP}{MC+MM}$$

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Where,
MME = Modified measure of marketing efficiency
FP = Farm level price
MC = marketing cost
MM = marketing margin

## III. RESULTS AND DISCUSSION

The country is observing a dramatic transformation in its food supply systems in response to rapid urbanization, diet diversification, and the liberalization of foreign direct investment in the food sector. The observed changes are in both the retail sector as well as in the production sector. This paper tries to identify existing supply chains in wheat marketing system. The result has been depicted as a value chain map in Figure 1. It can be found that farmers' produce reached the ultimate consumer through at least six value chains; village traders, wholesales, millers (both large and small) and distributors being major players between producers and consumers. However, data were available only for three value chains given below and detailed price spread and marketing efficiency analyses are limited to these three chains only:

- Producer- Villager trader- Consumer
- Producer- Villager trader-Wholesaler-Retailer-Consumer
- Producer- Wholesaler-Retailer-Consumer

Traditionally, these chains have also been called marketing channels. However, in this paper the two terms have been used synonymously.

Table 2 shows the movement of wheat through different value chains. It can be seen that the Chain III was the most important channel for the disposal of farmers' produce since 55 percent of the total produce followed this route. It is interesting to note that medium and large farmers mostly sold wheat through channel III whereas for marginal and small farmers, channel I was the most important route. This could be due to the reason that marginal and small farmers were in instant need of cash to meet immediate obligations and had poor access to wholesalers due to small quantities of their produce. It may further be noted that large farmers did not sell their produce through Channel I.

An analysis of price spread i.e. addition of marketing cost and marketing margin, is given in Table 3. It can be seen that the price spread was maximum in Channel –II (₹215.01) folllowed by channel-III (₹.171.32) and Channel-I (₹75.17), respectively. Consumers's purchase price was maximum under Channel II (₹1092/ql) and minimum under Channel – I (₹ 945/ql). Producers' share in consumer the rupee was found to be maximum under channel-I (92.05%) followed by channel-III (83.72%) and channel-II (80.32%), respectively. Thus it can be concluded that Channel – I was found to have minimum price spread and maximum producers' share in consumer the rupee under business as usual scenario. However, there is a need to study these parameters under for value added scenario by taking data at each stage. An examination of marketing efficiency (Table 4) showed that Channel – I was the most efficient one followed by Channel – III and Channel – II, respectively.

The survey also aimed at identifying constraints in wheat production and marketing (Table 4). Technical problems related to its scientific cultivation emerged to be the most important one. These problems included non-availability of modern cultivars, fertilizers, and improved technology. This was followed by marketing, financial and managerial problems, respectively.

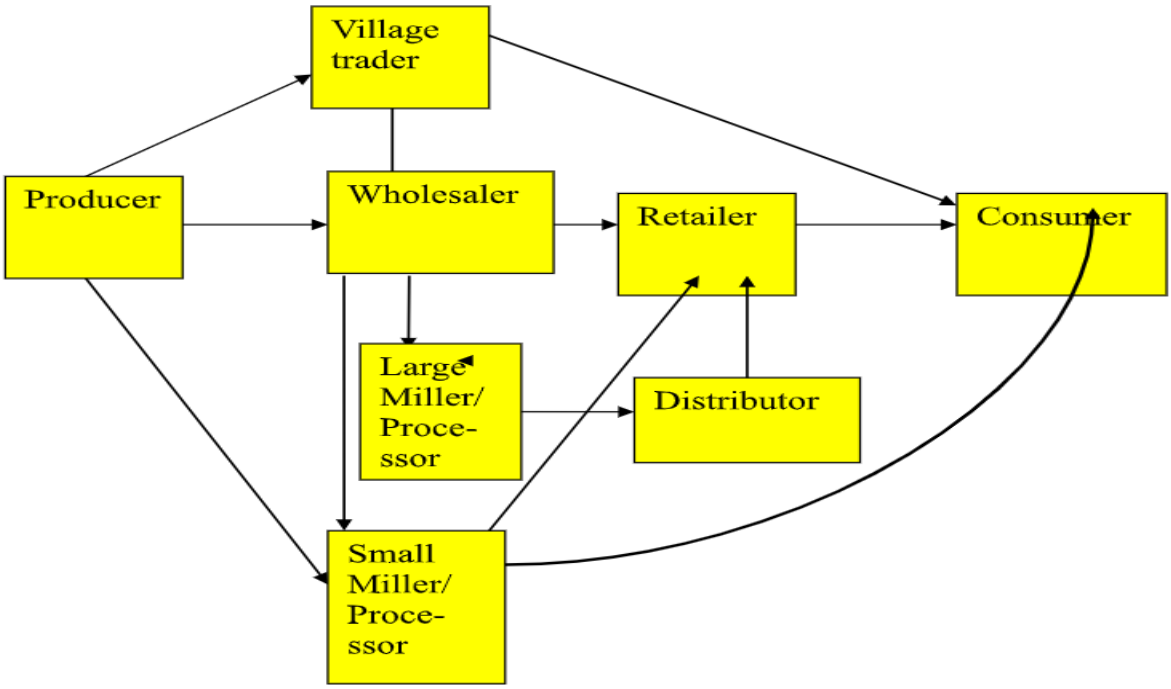


Fig 1: Wheat Value Chain Map for Sultanpur District of Uttar Pradesh

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Table 2: Disposal Pattern of wheat through different value chains in the study area

| Size of farms | No. of farms | Total Production (ql) | Quantity sold in quintals | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Channel-I | | Channel-II | | Channel-III | |
| | | | No. of farms | Quantity (ql) | No. of farms | Quantity (ql) | No. of farms | Quantity (ql) |
| Marginal | 58 (100) | 285 (100) | 33 (56.90) | 147 (51.58) | 15 (25.86) | 68.00 (23.86) | 10 (17.24) | 70.00 (24.56) |
| Small | 23 (100) | 290 (100) | 10 (43.48) | 85.00 (29.31) | 8 (34.78) | 100.00 (34.48) | 5 (21.74) | 105.00 (36.21) |
| Medium | 14 (100) | 296 (100) | - | - | 5 (35.71) | 51.00 (17.23) | 9 (64.29) | 245.00 (82.77) |
| Large | 5 (100) | 320 (100) | - | - | 2 (40.00) | 80.60 (25.18) | 3 (60.00) | 239.50 (74.82) |
| Total overall farms | 100 (100) | 1191(100) | 43 | 232.00(19.48) | 30 | 299.60 (25.15) | 27 | 659.50 (55.37) |

(Figure in parenthesis shows the percentages to the respective column)

Table 3: Price spread of wheat under different channels (₹/ql)

| S .No. | Particulars | Channel-I | Channel-II | Channel-III | Overall average |
|---|---|---|---|---|---|
| 1 | Producer's sale price. | 870.55 (92.05) | 877.79 (80.32) | 880.76 (83.72) | 876.37 (85.07) |
| 2 | Marketing cost incurred by producer | - | - | 34.28 (3.25) | 11.43 (1.11) |
| 3 | Marketing cost incurred by village trader | 33.84 (3.58) | 39.17 (3.58) | - | 24.34 (2.36) |
| 4 | Village trader's net margin | 41.33 (4.37) | 23.29 (2.13) | - | 21.54 (2.10) |
| 5 | Village trader's sale price./wholesaler's purchase price | - | 940.25 (86.03) | - | 313.41 (30.42) |
| 6 | Marketing cost incurred by wholesaler's | - | 65.44 (5.99) | 53.19 (5.06) | 39.54 (3.83) |
| 7 | Wholesaler's net margins | - | 21.16 1.94) | 16.59 (1.58) | 12.59 (1.22) |
| 8 | Wholesaler's sale price./retailer's purchase price | - | 1026.85 (93.96) | 984.82 (93.61) | 670.59 (65.09) |
| 9 | Marketing cost incurred by retailer's | - | 40.96 (3.75) | 40.91 (3.89) | 27.29 (2.65) |
| 10 | Retailer's net margins | - | 24.99 (2.99) | 26.35 (2.50) | 17.11 (1.66) |
| 11 | Total price spread | 75.17 (7.95) | 215.01 (19.68) | 171.32 (16.28) | 153.84 (14.93) |
| 12 | Consumer's purchase price | 945.72 (100.00) | 1092.80 (100.00) | 1052.08 (100.00) | 1030.21 (100.00) |
| 13 | Marketing Cost | 33.84 | 145.57 | 128.38 | 102.60 |
| 14 | Marketing Margin | 41.33 | 69.44 | 42.94 | 51.24 |
| 15 | Marketing Efficiency | 11.58 | 4.08 | 5.14 | 5.69 |

(Figure in parenthesis shows the percentage to total)

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Table 4: Major constraints found in the study area on different size group of farms

| S .No. | Particulars | Marginal | Small | Medium | Large | Total farmers | Rank |
|---|---|---|---|---|---|---|---|
| | | Number of the farmers | | | | | |
| 1. | Technical problem | 41 (71.00) | 13 (56.00) | 7 (50.00) | 2 (40.00) | 63 (63.00) | I |
| 2. | Marketing problem | 29 (50.00) | 11 (48.00) | 6 (43.00) | 2 (40.00) | 48 (48.00) | II |
| 3. | Financial problem | 24 (41.00) | 9 (39.00) | 5 (36.00) | 1 (20.00) | 39 (39.00) | III |
| 4. | Managerial problems | 23 (39.00) | 6 (26.00) | 3 (21.00) | 1 (20.00) | 33 (33.00) | 1V |
| Total sample farms | | 58 (100.00) | 23 (100.00) | 14 (100.00) | 5 (100.00) | 100 (100.00) | |

(Figure in parenthesis shows the percentage)

## IV. CONCLUSION

The major supply chains followed were–(1) Producer-Village trader -Consumer, (2) Producer- Village trader -Wholesaler- Retailer- Consumer and (3) Producer-Wholesaler -Retailer- Consumer. It was observed that price spread was minimum under Chain -i (Rs.75.12 /ql) whereas the same was maximum under Chain-ii (Rs.215.01 /ql). The Chain was found to be the most efficient on the parameter of marketing efficiency too. Sultanpur district was characterized by low productivity of wheat (2.5 tonnes/ha) which was found to be lower than average productivity of Punjab (4.20 tones/ha) and Haryana (3.89 tonnes/ha) states. The constraints encountered by farmers in production and marketing of wheat included technical, marketing, financial and managerial problems in order of their importance, respectively. A concerted effort to address all these issues will be helpful in increasing the production and improving the role this region in achieving food security for the nation.

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