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## How did the COVID-19 pandemic affect the farmers in Imphal West district of Manipur state?.: Garrett's ranking analysis

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### Abstract

The COVID-19 pandemic affects the livelihood of farmers in a country. The present study was conducted to identify the top nine major constraints confronted by the Imphal West district farmers of Manipur state during the implementation of COVID -19 nationwide lockdown due to the outbreak of COVID-19 pandemic in our country. The sample size of 109 farm households from two blocks of Imphal West district were selected by using simple random sampling technique. Garrett's ranking analysis was used here to find out the major constraints experienced by the farmers of Imphal West district. The study identified that majority of farmers expressed high wage of labour as most priority constraint followed by higher transportation cost and higher input cost in agriculture. Henceforth, suitable control measures and suggestions should be taken by the policy makers or stakeholders of the state to manage the identified constraints for the betterment of farm livelihood.

**Keywords:** COVID-19, constraints, farm households, manipur, rural livelihood, garrett's ranking

### 1. Introduction

Coronavirus disease (COVID-19) caused by the deadly virus SARS-CoV-2 resulted in adverse effects and extreme challenges for livelihood of mankind. World Health Organization (WHO) declared COVID-19 a pandemic on 11 March 2020 as it was reported more than 14000 deaths and affected more than 190 countries rapidly, antagonistically influencing the lives and livelihoods of millions across the world (WHO, 2020) [9]. India announced its first infection on 30<sup>th</sup> January 2020. Considering that the disease is highly infectious, the nationwide lockdown was enforced from 25<sup>th</sup> March 2020 to control the spread of the COVID-19 pandemic. The COVID-19 pandemic has important adverse consequences on the economy and the people of the country. The challenges to the agriculture sector are vulnerable due to the effects of COVID-19 lockdown. Manipur was known as one of the NE states of isolation in the hills and it was a magnificent state surrounded by nine hill ranges. Nearly 52.81 per cent of earners in total numbers of the state were belongs to the farming community where agriculture is the main occupation. The government of Manipur strictly implemented a nationwide lockdown period which has stopped rural farm households from doing daily farm activities. It seriously affected the farmer's income, employment pattern and health care in rural households. During the COVID-19 lockdown, there were less and no economic activities among the rural farm households which caused an adverse effect on rural livelihood. The state government closed the Ima Keithel, Asia's largest women's market which stopped supplies to reach the customers Satysai and Ravi (2020) [7]. Any effect on farming activities of rural farm households during COVID-19 lockdown would have a negative impact on the livelihood of the farmers. Therefore, the study was attempted to analysis the major constraints faced by the farmers of Imphal West district of Manipur during COVID-19 pandemic that has disrupted the livelihood security of Manipur farmers. The main scope of the study was to identify and address the constraints which could be useful and helpful for the policy makers and several stakeholders of the state by which proper planning will be made with remedial to the farmers of Manipur.

### 2. Methodology

The present study was conducted in Imphal West district of Manipur chosen purposively since it was reported the highest number of COVID-19 positive cases among all the districts in Manipur. There were four blocks in the district, two blocks i.e., Patsoi and Hiyangthang selected purposively on the basis of higher agricultural importance.

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A list of farmers was prepared constitute as sampling frame, in that 10% of sample size of total 109 farmers were chosen randomly from the four villages; two villages from each selected block by simple random sampling technique. Constraints related to COVID-19 pandemic for the farmers livelihood were identified and asked individually to rank the constraints faced by them based on their view and experience. For quantification of ranking, Garret's ranking technique will be used. It is a technique used to study the preference, changing of orders of constraints and advantage into numerical scores (Garret and Woodworth, 1969) [4]. Converting the rank value of respondents into score value by using the formula (i). The major feature of Garret's ranking method was that the constraints were ranked according to how serious they were from the viewpoint of farmers using a simple frequency distribution (Zalkuwi *et al.*, 2015)

$$\text{Per cent position} = \frac{100(R_{ij}-0.5)}{N_j} \text{----- (1)}$$

Rij = Rank given for i<sup>th</sup> variable by j<sup>th</sup> respondents and Nij = Numbers of variables ranked by j<sup>th</sup> respondents. The total number of respondents whose scores will be combined and will be divided by the sum of the individual respondents' scores for each constraint. The constraints will be ordered in accordance with these mean scores for all of the constraints, which will be placed in decreasing order.

### 3. Constraints related to COVID-19 Pandemic for Manipur farmers

Using the Garrett ranking approach, it was possible to analyze various problems encountered by the farmers of Manipur during COVID-19 lockdown. The selected farmers were asked to rank the nine constraints identified for the purpose of the study as 1,2,3,4,5,6,7,8,9 in order to decide their preference in the selection of constraint. The calculated percentage position from the rank 1 to rank 9 and their respective Garrett table value was given in the table 1. For each constraint, the total score was calculated by multiplying the number of respondents and finally the constraints were ranking as 1 to 9.

**Table 1:** Garrett Table values for the corresponding percent positions of constraints

Rank	Percentage Position	Garrett Table
1	100(1-0.5)/9	6
2	100(2-0.5)/9	17
3	100(3-0.5)/9	28
4	100(4-0.5)/9	39
5	100(5-0.5)/9	50
6	100(6-0.5)/9	61
7	100(7-0.5)/9	72
8	100(8-0.5)/9	83
9	100(9-0.5)/9	94

### 4. Results and Discussion

The result showed the various constraint faced by the farm households in the Patsoi block of Imphal West district from the table 2. The analysis showed that major five constraints during COVID-19 lockdown were higher wage of labour (64.07), Higher input cost in agriculture/livestock farming (56.78), Higher transportation cost in marketing (56.44), Lack of own capital (52.78) and Lack of ample sources of employment generation in a village (47.73). Additionally, there are constraints like Lack of market for selling produce milk and live animals (47.68), Lack of availability of inputs such as seeds, feeds, fodder, pesticides etc. (46.25), Low prices for the products in the market (42.29) and Distress sale (37.93).

From the table 3, the results showed that top five constraints during COVID-19 lockdown faced by the farm households in the Hiyangthang block of Imphal West district. They were higher wage of labour (63.74), Higher transportation cost in marketing (59.90), Higher input cost in agriculture/livestock farming (57.64), Lack of own capital (54.04) and Lack of market for selling produce milk and live animals (53.48). Additionally, there were constraints like Lack of ample sources of employment generation in a village (43.54), Lack of availability of inputs such as seeds, feeds, fodder, pesticides etc. (41.84), Low prices for the products in the market (39.92) and Distress sale (37.90).

**Table 2:** Constraints ranking position related with COVID-19 lockdown in Patsoi block

Sl. No	Constraints	Rank									Total number of respondents	Total score in Patsoi Block	Total Mean	Rank
		1	2	3	4	5	6	7	8	9				
1	High wage price of labour	21	12	5	7	4	2	4	3	1	59	3780	64.07	I
2	Higher input cost in agriculture /livestock farming	7	10	11	9	10	4	3	1	4	59	3350	56.78	II
3	Higher transportation cost in marketing	12	7	9	9	4	6	3	5	4	59	3330	56.44	III
4	Lack of own capital	5	10	6	11	5	7	7	3	5	59	3114	52.78	IV
5	Lack of market for selling produce, milk and live animals	3	5	9	4	11	9	3	7	8	59	2813	47.68	VI
6	Lack of ample sources of employment generation in a village	4	4	5	8	8	8	11	5	6	59	2816	47.73	V
7	Lack of availability of inputs such as seeds, feeds, fodder, pesticides etc.	3	5	7	4	7	8	10	8	7	59	2729	46.25	VII
8	Low prices for the products in the market	4	1	4	5	4	11	9	11	10	59	2495	42.29	VIII
9	Distress sale	0	4	3	4	6	3	9	16	14	59	2238	37.93	IX

The overall results of constraints analysis of Imphal West district of Manipur were shown in the table 4. It indicated that higher wage of labour (63.92) during COVID-19 lockdown was first major constraints faced by the farm households for obtaining livelihood security. This result supports with Satysai and Mohapatra (2020) [8] who reported increase in the wage prices of the agricultural labour due to shortage of

labour because of the restriction and fear of COVID-19. The wage rates, according to the farmers, were set based on the number of hours worked. Prior to the COVID-19 pandemic in their area, there was a difference in the daily rate of labour for men and women. But during the COVID-19 pandemic, things changed and in some villages, rates were equal for men and women, and the wage was determined by the number of hours

worked. Due to their inability to sow a crop in time for the season, this places farmers in an unprecedented scenario. Higher transportation cost in marketing (58.03) was reported as second major constraints as due to the COVID-19 lockdown's restrictions on movement, the farm households were unable to find a mode of transportation for marketing their agricultural produce. Even though there may be an exemption for agricultural activities, farmers in the particular region reported a significant increase in the standard transportation costs, with some places seeing an immediate double-up. This finding matches with the results of Ramakumar (2020) [6] and Dev (2020) [3]. Higher input cost in agriculture and livestock farming (57.17) was identified as

third major constraints the COVID-19 lockdown created a shortage in availability of fertilizers, pesticides, herbicides, and seeds with these the lack of inputs, the price of inputs started. Approximately 35% of farmers spent more on fertilizer, with prices ranging from 50% to 80%. The total cost of cultivation will rise as a result of the higher percentage of the cost, which will also lower profits and increase on the farm households especially for the marginal farmers. Further, during the COVID-19 pandemic days majority of farmers other than the top three constraints, they told that the lack of own capital (53.36) which eventually caused the farming to end coincides with the findings of Jaacks *et al.* (2021) [5] and Satysai and Mohapatra (2020) [8].

**Table 3:** Constraints ranking position related with COVID-19 lockdown in Hiyangthang block

Sl. No	Constraints	Rank									Total number of respondents	Total score in Hiyangthang Block	Total Mean	Rank
		1	2	3	4	5	6	7	8	9				
1	High wage price of labour	17	6	7	8	5	3	2	2	0	50	3187	63.74	I
2	Higher input cost in agriculture/livestock farming	8	8	10	7	7	3	2	1	4	50	2882	57.64	III
3	Higher transportation cost in marketing	9	6	13	5	10	2	3	2	0	50	2995	59.90	II
4	Lack of own capital	5	11	2	10	6	4	4	5	3	50	2702	54.04	IV
5	Lack of market for selling produce, milk and live animals	5	8	4	10	5	7	6	1	4	50	2674	53.48	V
6	Lack of ample sources of employment generation in a village	1	4	4	3	7	9	9	4	9	50	2177	43.54	VI
7	Lack of availability of inputs such as seeds, feeds, fodder, pesticides etc.	1	4	6	1	2	8	9	11	8	50	2092	41.84	VII
8	Low prices for the products in the market	3	1	1	4	5	7	7	12	10	50	1996	39.92	VIII
9	Distress sale	1	2	3	2	3	7	8	12	12	50	1895	37.90	IX

Farmers also reported that lack of market for selling their crop produce, milk and live animals (50.34) due to the COVID-19 lockdown which resulted in loss of profit and the income to the household. Besides that, they said that because the Mahatma Gandhi National Rural Employment Guarantee

(MGNREGA) was not in functioning, there were difficulties during the COVID-19 pandemic due to a lack of ample sources of employment generation in a village (45.81). The results of the present study were similar with the findings of Cariappa *et al.* (2021) [2] and Arumugam *et al.* (2020) [1]



**Fig 1:** Constraints confronted by farm households in Imphal West district during COVID-19 lockdown

**Table 4:** Constraints ranking position related with COVID-19 lockdown in Imphal West district of Manipur

Sl. No	Constraints	Rank									Total number of respondents	Total score in Imphal West	Total Mean	Rank
		1	2	3	4	5	6	7	8	9				
1	High wage price of labour	38	18	12	15	9	5	6	5	1	109	6967	63.92	I
2	Higher input cost in agriculture / livestock farming	15	18	21	16	17	7	5	2	8	109	6232	57.17	III
3	Higher transportation cost in marketing	21	13	22	14	14	8	6	7	4	109	6325	58.03	II
4	Lack of own capital	10	21	8	21	11	11	11	8	8	109	5816	53.36	IV

5	Lack of market for selling produce, milk and live animals	8	13	13	14	16	16	9	8	12	109	5487	50.34	V
6	Lack of ample sources of employment generation in a village	5	8	9	11	15	17	20	9	15	109	4993	45.81	VI
7	Lack of availability of inputs such as seeds, feeds, fodder, pesticides etc.	4	9	13	5	9	16	19	19	15	109	4821	44.23	VII
8	Low prices for the products in the market	7	2	5	9	9	18	16	23	20	109	4491	41.20	VIII
9	Distress sale	1	6	6	6	9	10	17	28	26	109	4133	37.92	IX

## 5. Conclusion

The COVID-19 pandemic created an unprecedented situation not only for the farmers but for all the people and the government in the world. We know that Indian farmers are usually confronted with many constraints while doing farming operations. This has been significantly increased due to the COVID-19 pandemic. Based on Garrett's analysis it was concluded that higher wage of labour followed by higher transportation costs and higher prices of agricultural inputs were found to be the top three constraints faced by the farmers of Imphal West during the COVID-19 pandemic. The findings of the study would be useful and helpful for the policymakers of the state to the Government of Manipur in the event of an unprecedented situation in future.

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