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Issues and Challenges Faced by Small and Marginal Farmers during COVID-19 Pandemic

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJAEES/2023/v41i92018

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/101615>

Original Research Article

Received: 13/04/2023

Accepted: 15/06/2023

Published: 21/06/2023

ABSTRACT

Agriculture is an important sector of Indian economy as it contributes about 17 per cent to the total GDP and provides employment to over 60 per cent of the population. Among 60 per cent of total workforce, 82 per cent of farmers in India were small and marginal farmers. Sudden outbreak of COVID-19 pandemic impacts small and marginal farmers to carry out their farming activities. Hence, it is important to study various issues faced by small and marginal farmers during COVID-19 pandemic. The study has been conducted in North western zone of Tamil Nadu and a total sample size of 320 has been fixed for the study based on Cochran's sample size estimation. Problem confrontation Index (PCI) has been computed to measure various issues faced by small

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and marginal farmers during COVID-19 pandemic. From the calculated PCI value, it has been concluded that the farmers faced major issues such as wastage of the produce (919), drop in regular farm income (915), hike in input price (868), limited government support (844) and lack of access to market (816). Hence, the government should take necessary steps to ensure fair functioning of local mandis and markets in terms of open auction, price negotiations and logistics, proper unloading and storage of farmers' perishable produce to overcome their issues to stabilize their standard of living.

Keywords: COVID-19; issues; Problem Confrontation Index (PCI); marginal and small farmer.

1. INTRODUCTION

Agriculture plays a pivotal role in overall Indian economic growth. 54.6% of total workforce engaged in agricultural and allied activities and the share of agriculture accounts for 18.80 per cent of the country's Gross value added for the year 2020-21 [1]. Among 60 per cent of total workforce, 82 per cent of farmers in India were small and marginal farmers [2]. It is important to study various issues faced by small and marginal farmers in the present scenario. Several problems related to small and marginal farmers' livelihood includes unfavourable weather condition, drought, flood, lack of adequate use of quality inputs, absence of timely agro advisories, poor extension services, and occurrence of crop failure. Lack of knowledge, lack of access to wider market and varied crop prices in different market were considered as the major problem [3].

Sudden outbreak of COVID-19 pandemic brings greater impact on various agricultural activities. Farmers are well - managed with their daily occurrence of issue related to farming but it is new to the small and marginal farmers to face issues raised due to COVID-19 pandemic. Farmers were muddled to overcome the challenges raised due to COVID-19 pandemic situation. Hence, it is need of the hour to study various issues faced by small and marginal farmers and to propose suitable suggestions to tackle COVID-19 issues. E.B. Nchanji and C.K. Lutomia [4] reported that hardships faced by bean farmers during COVID-19 pandemic in Eastern Africa includes about one third of the farmers (33.90%) faced problem in accessing labour for farm operations followed by 29 per cent and 23 per cent of the farmers faced difficulty in accessing agricultural inputs and farm finance. They also found that 44 per cent of the farmers in Kenya and 33.3 per cent of the farmers in Burundi reported that they faced difficulty in accessing agricultural credit whereas more than half of the farmers (57.00%) in Tanzania found difficulty in accessing farm labor

and inputs for farm operations during COVID-19 pandemic. Farmers suffered in harvesting and selling their produce due to labor shortage [5].

Farmers disrupted with the halt of various agricultural operations due to labor unavailability and other resources, they also worried about procurement of their produce and farmers also struggled with transportation, warehousing and marketing of the produce [6]. Harris et al. [7] stated that above four fifth of the farmers (80.00%) reported decline in sales whereas 90 per cent of the farmers reported drop in farm income and 62 per cent reported disruptions to the habitual food consumption. Thus the small and marginal farmers mainly affected with lack of access to market, lack of access to inputs and farm finance, because the farmers suffered with COVID-19 restrictions implemented by state government. It is important to make an in-depth study on the issues faced by small and marginal farmers on regional basis. Hence, the study mainly focused on various challenges faced by small and marginal farmers during COVID-19 pandemic.

2. METHODOLOGY

The study has been conducted in North western zone of Tamil Nadu. It includes Kaveripattinam, Dharmapuri, Vazhapadi and Namagiripettai blocks of Krishnagiri, Dharmapuri, Salem and Namakkal district. These blocks have been purposively selected for the study based on the perishable cultivation of fruits, vegetables and flowers. A total sample size of 320 has been fixed for the study based on Cochran's [8] sample size estimation. Equal proportion of population from each district has been selected for the study. 80 respondents from each district, thus approximately 320 respondents have been selected for the study. Data were collected with a well-structured interview schedule. Six major issues have been identified from the study. From six major issues, numerous challenges have been listed. Each farmer was asked to indicate the extent of problem confrontation of each

challenge by using a four point rating scale such as high, medium, low and not at all and weights were assigned to these responses as 3, 2, 1 and 0 respectively [9]. The problem confrontation score obtained by summing up the weights of response of the problem and therefore, the problem confrontation score could vary from 0 to 350, where 0 indicating no problem and 350 indicating high problem confrontation. Mean value of each challenge was computed and on the basis of individual mean value a rank order of individual challenges was prepared.

Problem Confrontation Index (PCI) was computed as used by Rahman and Rahman [10]. The PCI was computed by using the following formula

$$PCI = (P_{hp} \times 3) + (P_{mp} \times 2) + (P_{lp} \times 1) + (P_{np} \times 0)$$

Where,

- PCI = Problem Confrontation Index
- P_{hp} = Number of respondents with high problem
- P_{mp} = Number of respondents with medium problem
- P_{lp} = Number of respondents with low problem
- P_{np} = Number of respondents with no problem.

Thus, the PCI of individual problem could range from 0 to 960, where 0 indicating no problem and 960 indicating high problem in major issues such as Social, Institutional, Economic, Financial, Physical and Psychological issues.

3. RESULTS AND DISCUSSION

Issues experienced by small and marginal farmers during COVID-19 pandemic were categorized into six major issues such as social issues, institutional issues, economic issues, financial issues, physical issues and psychological issues. The results of the challenges experienced by small and marginal farmers were listed in the Table 1.

Based on the rank order, the foremost problem have been described here, from social issues, "lack of farmers group meetings" got the highest score (802) and hence was ranked as the 1st problem followed by lack of communication with other farmers (644) ranked second. This might be due to fresh COVID-19 restriction imposed by Tamil Nadu government to avoid social gatherings which leads to lack of frequent contacts among small and marginal farmers. Due

to lack of contacts, most of the farmers were not aware of various development interventions carried out by state government. Interruption of children's education and lack of recognition among fellow farmers in the community got PCI score of about 461 and 185 and ranked as third and fourth problem in the social issues. Thus, school closures due to COVID-19 pandemic makes children to disconnect from education, mostly students from class 1 to 5 attained their learning gaps. Lacks of recognition among fellow farmers were considered as the least problem.

Regarding institutional issues, from the calculated PCI value, it could be concluded that limited government support (844) ranked first. Thus the government initiated various development interventions with respect to COVID-19 pandemic such as door delivery of seeds and fertilizers, providing helpline service, helps in marketing their produce through uzhavar santhai, but these development interventions had not benefitted and reached the farming community. Lack of contact with state department officials with the calculated PCI score of 790 ranked second followed by lack of contact with NGOs (668) ranked third and lack of contact with KVK scientist (599) ranked fourth. Even though, the farmers enjoyed various relaxations provided by state government, they were stucked with mobility restrictions and they could not have any direct access with institutions.

Regarding economic issues, from the calculated PCI rank value, it could be concluded that wastage of produce ranked first (919). Thus most of the farmers cultivated vegetables and flowers like tomato and jasmine which are highly perishable, markets also closed they can't able to store the produce as soon as it went rotten and their entire produce got wasted and their total investment becomes loss. Drop in regular farm income with PCI score of about 915 ranked second, hike in input price (868) ranked third, Labour shortage and increased labour charge (815) ranked fourth, Distress sale of produce (804) ranked fifth. Due to market closure and lack of proper markets, farmers experienced drop in their regular income and distress sale of produce at lower produce. Because of lack of access to inputs, farmers experienced hike in their input price and labor charge during COVID-19 pandemic. The findings were in line with Jacks LM et al. [11], thus more than half of the respondents (53.00%) reported higher harvesting costs and transport costs and also experienced delay in harvesting the produce during COVID-19 pandemic.

**Table 1. Issues and Challenges faced by small and marginal farmers during COVID-19 pandemic
(n = 320)**

Issues and Challenges		Extent of participation				PCI	Mean	Rank
		Low	Medium	High	Not at all			
I.	Social issues							
1.	Interruption of children's educational opportunities	195	109	16	0	461	1.441	III
2.	Lack of recognition among fellow farmers in the community	137	24	0	159	185	0.578	IV
3.	Lack of communication with other farmers	60	196	64	0	644	2.013	II
4.	Lack of farmers group meetings	4	129	180	7	802	2.506	I
II.	Institutional issues							
1.	Lack of contact with state department officials	11	148	161	0	790	2.469	II
2.	Lack of contact with University/KVK scientist	108	145	67	0	599	1.872	IV
3.	Lack of contact with NGOs	72	148	100	0	668	2.088	III
4.	Limited Government Support	0	116	204	0	844	2.638	I
III.	Economic issues							
1.	Lack of timely planting of crops	146	77	0	97	300	0.938	IX
2.	Non- availability of inputs in time	38	145	137	0	739	2.309	VII
3.	Hike in Input price	0	92	228	0	868	2.713	III
4.	Delay in harvesting the produce	2	152	166	0	804	2.513	VI
5.	Labour shortage and hiked labour charge	0	145	175	0	815	2.547	IV
6.	Distress sale of produce	24	108	188	0	809	2.518	V
7.	Decreased demand for the produce	46	153	121	0	715	2.234	VIII
8.	Wastage of produce	0	41	279	0	919	2.872	I
9.	Drop in regular farm income	0	45	275	0	915	2.859	II
IV.	Financial issues							
1.	Rise in the farmers debt	119	178	0	23	475	1.484	II
2.	Lack of credit investment to continue farming	91	156	73	0	622	1.944	I
3.	Delay in loan repayments	163	113	0	44	389	1.216	III
V.	Physical issues							
1.	Lack of access to input shops	58	178	84	0	666	2.081	III
2.	Lack of access to local market	0	144	176	0	816	2.550	I
3.	Lack of access to mandis	72	132	116	0	684	2.138	II
4.	Lack of access to farmers market	113	207	0	0	527	1.647	VI
5.	Lack of access to banking institutions	240	28	8	44	320	1.000	VII

Issues and Challenges		Extent of participation				PCI	Mean	Rank
		Low	Medium	High	Not at all			
6.	Lack of storage infrastructure	93	123	104	0	651	2.034	IV
7.	Lack of acquisition of machineries	140	176	4	0	504	1.575	V
VI.	Psychological issues							
1.	Lack of confidence to continue farming	58	145	117	0	699	2.184	VI
2.	Stress in farm produce sale	0	148	172	0	812	2.538	I
3.	Stress due to restrictions on mobility	30	155	135	0	745	2.328	III
4.	Experienced fear and insecurity	87	134	99	0	652	2.038	VII
5.	Increased concern towards health security	32	151	137	0	744	2.329	IV
6.	Hesitation to make new investments	56	128	136	0	720	2.250	V
7.	Mental fear of losing savings	18	131	171	0	793	2.478	II
8.	Getting frustrated when others won't follow precautionary measures for COVID-19	114	137	67	2	589	1.841	VIII

(*) Multiple responses obtained

From the financial issues, based on PCI value, it could be inferred that lack of credit investment to continue farming (622) ranked first followed by rise in farmers debt (475) and delay in loan repayment (389). The findings were in line Mohanraj and Balasubramaniam [12], thus the small and marginal farmers experiencing medium to high level of farm debts. Due to COVID-19 restrictions, farmers hits with lack of farm labor, their crops left unharvest and farmers also struggled with transporting and marketing their produce, farmers couldn't sell their produce and they experienced complete economic loss during COVID-19 pandemic, which leads to increased debts and delayed loan repayments.

From the physical issues, based on the calculated PCI value, it could be inferred that small and marginal farmers could not able to access their local market (816) ranked first followed by lack of access to mandis (684) ranked second followed by lack of access to input shops (666) ranked third, lack of storage infrastructure (651) ranked fourth, lack of acquisition of machineries (504) ranked fifth, lack of access to farmers market (527) ranked sixth, lack of access to banking institutions (320) ranked seventh. Thus due to various imposed restrictions by state government and fear of COVID-19 infection among small and marginal farmers reduced their access to various outlets such as market, mandis, input shops and banking institutions. Thus the small and marginal farmers expressed that due to pandemic, markets were also closed and they couldn't able to store their produce due to its high perishability while the farmers were supported with cold storage infrastructure, their income could be standardized. The findings were in line with Asegie et al. [13], thus the farmers could not able to access market, mandis and input shops due to mobility restrictions.

Regarding psychological issues, from the calculated PCI value, it has been concluded that stress in farm produce sale (812) considered as the foremost problem followed by mental fear of losing savings (793) ranked second followed by stress due to mobility restrictions (745) and increased concern towards health security (745) ranked third followed by hesitation to make new investment (720) ranked fifth, lack of confidence to continue farming (699) ranked sixth followed by experiencing fear and insecurity (652) ranked seventh and getting frustrated when others won't follow precautionary measures for COVID-19 pandemic (589) ranked eighth. As a result of various restrictions of COVID-19 pandemic,

farmers' experienced severe stress in selling their produce and also they felt hopeless to continue their investments in farming leads to frustration, fear and insecurity, Thus during COVID-19 pandemic, small and marginal farmers affected in both economical and psychological ways.

4. CONCLUSION

From the study, among various problems wastage of produce considered as the foremost problem, thus the farmers make their investment totally on crop cultivation, but they couldn't able to sell their produce, which makes them economically and psychologically weak during COVID-19 pandemic. Even though the state government took necessary measures to ensure smooth operation of agriculture related activities, thus exemptions failed to meet small and marginal farmer's needs. Thus the major results from the study includes farmer's experienced limited government support, labor shortage during harvest, wastage of produce and drop in regular farm income. Thus COVID-19 pandemic hits small and marginal farmers very hard. Government should take steps to ensure fair functioning of local mandis and markets in terms of open auction, price negotiations, logistic, proper unloading and storage/ handling of farmers' perishable produce during as well as after COVID-19 pandemic. To overcome small and marginal farmers' sufferings of economic loss during COVID-19 pandemic, necessary measures to be taken to reduce their costs and to increase their revenue through collective purchase of inputs, family farming and collective marketing to gain remunerative price for their produce.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

ACKNOWLEDGEMENTS

I truthfully thank Indian council of Social Science Research (ICSSR) for their grant for my research work through the fellowship of ICSSR centrally administered doctoral fellowship for the period (2021–2023).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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DOI: 10.1016/j.heliyon.2021.e08550

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Peer-review history:

The peer review history for this paper can be accessed here:
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