

Assessing the Impact of Covid-19 on Sugarcane farmers in Haryana and Uttarakhand



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**Agricultural Economics Research Centre
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Research Study No. 2020/02

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Preface

The present study has been undertaken for the Ministry of Agriculture & Farmers Welfare. The study attempts to assess the impact of Covid-19 on the sugarcane farmers in the states of Haryana and Uttarakhand. The study utilized the telephonic based survey data for analysis, collected by the Agricultural Economic Research Centres, Delhi during the initial phase of the Covid-19 pandemic period - April to June 2020.

This study is an attempt to assess the impact of pandemic on the labour, machinery and related inputs and any distortion in the supply chain. The study analysed the financial support received by the farmers and the constraints faced by the farmers during initial phase of the Covid-19 Pandemic.

Our sincere thanks to the Ministry of Agriculture & Farmers Welfare for the support provided during the lockdown phase. We would also like to place on record our appreciation of our colleagues in the Agricultural Economics Research Centre, University of Delhi for their support.

June, 2020

Yogesh Bhatt

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Assessing the impact of Covid-19 on sugarcane farmers in Haryana and Uttarakhand

1. Introduction

1.1 Background

The Covid-19 virus has unexpectedly threatened the life and food security all over the world. It is an unusual and gravest global health crisis that has serious social, economic and political ramifications. Both the developed and developing countries are equally impacted due to the menace of this virus. All the sectors in most of the countries have been badly affected. The economic growth in majority of the countries has been projected to shrink by 1% due to complete pause of economic activities and fall in consumer spending. India is not an exception. The real gross domestic product (GDP) is likely to contract by 1.5 percent in 2020-21 (*RBI Publication, 2020*). The manufacturing and service sectors have already been crumbled. Agriculture sector, however, has shown a ray of hope and expected to be the key driver of economic growth. There are reports that agriculture sector has been least affected. The projections revealed that agriculture may achieve around 3 percent growth rate. It is mainly due to bumper harvest of most of the commodities. While the virus was spreading, most of the rabi crops were ready for harvest or already harvested. The third advance estimates revealed record food grain production; 295.7 million tonnes in 2019-20 compared to 285.2 million tonnes in the previous year (Ministry of Agriculture and Farmer's Welfare, May 15th, 2020).

The sugarcane is an important crop in several parts of India. The crop has been harvested during the lockdown period. The production of sugarcane has dropped to 358.1 million tonnes in 2019-20 (Third advance estimates) from 405.4 million tonnes in 2018-19. The sugar production is expected to fall from 33.16 million metric tons in 2018-19 to 26.85 million metric tons in 2019-20. The production has not been affected due to Covid-19 and lockdown. However, there are estimates that sugar consumption may have fallen by 1-1.5 million tons due to Covid-19 and lockdown (*Solomon et. al., 2020*). The lower demand from institutional consumption (such as hotels, restaurants and other miscellaneous food establishments) may impact the sugar demand, as the consumption of sugar in India from this section is estimated to be around 65% of total domestic sugar sales (*USDA-FAS, 2020*). The lower demand has resulted due to fall in income and closure of hotels and restaurants. The

sugar mills are also affected, as they are already struggling to pay the cane arrears of about INR 16,000 crore.

There were apprehensions that the sugarcane farmers have been adversely affected due to Covid-19 and lockdown. The reasons provided were unavailability of labour for harvesting of sugarcane, non-availability of transport to carry the produce to the mill, and delay in payment from the sugar mills. The mill owners were affected due to non-availability of labour for processing of the sugarcane. It is in this context, we conducted a study to examine the impact of Covid-19 and lockdown on the sugarcane farmers on their routine agricultural activities, more specifically related to sugarcane.

1.2 Review of literature

The present situation has raised few doubts about how the Indian agriculture will be impacted by the Covid-19 pandemic. The media reports show that farmers and agricultural labourers have been affected. There are apprehensions that the sugarcane farmers may be affected due to non-payment of their produce, thereby unable to repay the crop loan. The farmers usually will require more financial support for next crop season. In case farmers are unable to repay the loan amount, they will be forced to borrow from informal sector at a very exorbitant interest rate. However, the government has announced deferring the repayment of all crop loans.

The initial phase of Covid-19 started when the sugarcane harvesting was at the peak. This was also the time for manual planting of sugarcane in the north India. For the upcoming season the impact of monsoon will also decide the severity of Covid-19 impact on Indian agriculture. There are projections for a normal monsoon, which assures for good agricultural year.

There are very few, if any, evidence based research and empirical studies on the impact of Covid-19 and lockdown on farmers and agriculture sector, due to the paucity of data and the difficulty of collecting the same during the lockdown period. The most of the publications are either perceptions, media reports or the ex-ante analyses of the possible implications of the crisis. Broadly, the focus areas are to measure the impact of Covid-19 on production and consumption. Most of the blogs proposed some measures to reduce the agony of the farmers. For example, Carberry and Padhee, 2020 suggested that the harvesting, procurement and supply chain operations must function smoothly. The authors have given other suggestions for encouraging e-commerce, logistics and export supportive infrastructure in medium to long term

measures. The availability of labour and proper supply of inputs and machinery for harvesting and sowing operations will maintain production flow. But the demand generation is an important and critical factor to absorb the supply. The direct financial support to the vulnerable sections will help the consumption flow (*Carberry and Padhee and IFPRI, 2020*).

The mismatch in supply and demand will have an impact on prices of agricultural commodities. Ramakumar, 2020 reported that the crises in harvesting and marketing of agricultural commodities have led to a fall in the farm prices of a range of commodities, especially perishables.

The impact of Covid-19 is also observed on sugar sector. The steep decline of institutional consumption of sugar, shortage of labour and limited port operations, will have direct impact on domestic sugar consumption, production and exports (*Solomon et. al. and USDA-FAS, 2020*). This is due to the limited access to transportation, and non-availability of inputs and labour. The fall in consumption and demand has led to a significant drop in sugar prices globally. Thus, sugar export may not become an attractive strategy for many countries including India. A decline in crude oil prices has also made diversion of cane to ethanol production uneconomical.

The safe-guard to reduce the impact of Covid-19, especially on farmers, through financial supports from the government is to be analysed in future. The benefit of such direct financial assistance, such as through recently launched cash transfer scheme ‘Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)’ can be a big relief to the farmers during such times. This has given a big relief to the farmers. *Varshney et. al. (2020)* found that the PM-KISAN scheme has significantly helped those farmers, who are more dependent on agriculture and have poor access to credit.

This suggests that the role of the government is very critical in ensuring finance to the farmers, through either direct cash transfer or provide credit on easy terms and conditions. The other suggestions pouring in are offering of unemployment allowances through MNREGA, increase MGNERGA wage rates, and timely distribution of food grains through PDS. Some reports also suggested increase in MSP for kharif crops. On marketing side, there are proposals for medium and long-run through restoration of supply chains flow, logistics and infrastructural development.

1.3 Objectives

This study is an attempt to document the impact of the Covid-19 and the lockdown on sugarcane farmers, and investigate the problems encountered by them during post-harvest operations and ensuing kharif crop. The study also suggests possible ways to overcome the menace of Covid-19 and lockdown to minimise the impact of Covid-19 and lockdown

Plan of the study

The study is divided into four sections. After the first Section on introduction, the following Section provides methodology, including sampling approach and source of data. Results and discussion are given in Section 3. The last Section summaries the findings and listed few recommendations for implementation.

2. Methodology

The present study is an outcome of a telephonic survey with the sugarcane farmers, who were earlier surveyed during December 2019 for a larger study on ‘Sugarcane Transportation and Harvesting Cost’. The survey was a part of the coordinated study conducted in eight sugarcane producing states by various Agricultural Economic Research Centres (AERCs) located in different states of India.

2.1 Sampling approach

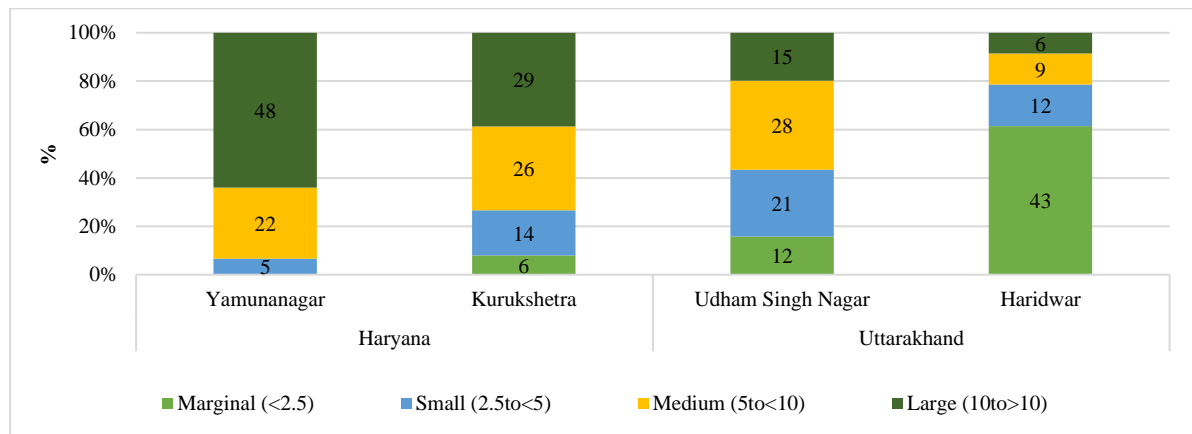
A multi-stage sampling technique was adopted to select farmers. At the first stage, the states were selected based on the production of sugarcane. Eight major states were selected from the data provided in the *State-Wise Crop Complex Selection* published by the CACP for the main study. At second stage, districts were selected. From each of the states, two districts, having largest proportion of sugarcane area to the total sugarcane area of the state, were selected. While selecting the districts, due care was taken that the districts are from different agro-eco regions of the state. At the third stage of sampling, two sugarcane growing villages were randomly chosen. Finally, from each village, 50 farmers were selected, and making a sample of 200 farmers from each state. Stratified random sampling was done to select farmers. Number of farmers from different holding sizes were selected using the probability proportionate sampling technique. A cluster of villages is considered, in case the required sample size was not available from the selected villages.

This study is confined to two states, namely Haryana and Uttarakhand. In these two states, we approached all the 400 sample farmers, who were surveyed earlier during December 2019. A total of 296 farmers responded to our queries, while 104 farmers did not respond. The details of the respondent farmers and their land holding are given in Table 1 and Figure 1.

Table 1: Sample size of farmers covered in study districts

State	District	Samples size	
Uttarakhand	U. S. Nagar	76	
	Haridwar	70	
	Total farmers	146	
Haryana	Yamunanagar	75	
	Kurukshetra	75	
	Total farmers	150	
Uttarakhand & Haryana		Overall total	296
Total non-respondent farmers			104

Figure 1: Size of land holding of sampled farmers



2.2 Data and data sources

This study pertains to two states, namely Haryana and Uttarakhand. The reason for choosing these states is lays in the survey domain area assigned to the AERC Delhi centre by the Ministry of Agriculture. Besides, Haryana is the state known for ushering ‘green revolution’ during 1960s and 1970s. The districts in Uttarakhand also witnessed the ‘green revolution’ as that of Haryana. These states are not the top sugarcane producing states, but the sample farmers are significantly allocating their acreage under sugarcane. Moreover, the selected districts are major sugarcane growing districts in these states.

The study utilized primary survey of the selected districts. This was conducted telephonically due to lockdown and non-availability of transport. The time period of the telephonic survey is the initial week of June 2020.

3. Results and discussions

In this section, the results of the primary survey are discussed. As stated earlier, the impact of Covid-19 and lockdown are studied on the availability of labour for performing agricultural activities and impact on post-harvest operations. This section also reports on how supply chains are affected. This includes the problems associated with the transportation, sugar mills, market and prices. Some of the suggestions from the farmers on their expectations from the government are also documented.

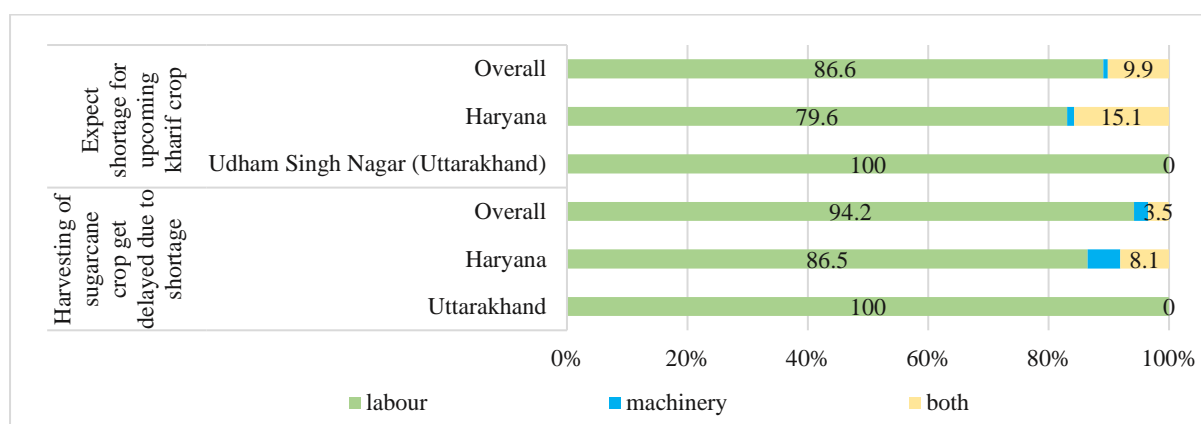
3.1 Impact on labour, machinery and other inputs

Majority of the sample farmers (95%) in both the states reported to have adverse effect of lockdown. In Uttarakhand, almost all the farmers (99%) responded that they were negatively affected, while in Haryana, about 91% reported to be affected. The farmers were then asked in detail about the impact on specific agricultural activity.

Harvesting of crops was the key agricultural activity when lockdown was imposed. As high as 94% of the sample farmers indicated that they were ‘not able to harvest the sugarcane’ in time due to shortage of labour (Figure 2). In fact, sugarcane growing areas of Uttarakhand and Haryana are labor-scarce regions. Movement of labour was restricted due to non-availability of transport that delayed sugarcane harvesting. Similarly, majority of sugarcane farmers (about 87%) are expecting labour shortage for sowing of upcoming kharif crop. In Uttarakhand, the shortage is reported only in Udham Singh Nagar district. Availability and use of machinery is still limited for harvesting of sugarcane.

A large number of respondents (61%) reported that they are expecting labour shortage for various agricultural operations in upcoming kharif season (Figure 3, Table 2). The main reasons ascertained by the sample farmers are: (i) non-availability of labour, (ii) higher wages due to high risk, and (iii) fear of infection. Seed and fertilizers for kharif crops are important farm inputs, these require cash to purchase. About 30% farmers responded that they were unable to go to market to buy agricultural inputs (Figure 3, Table 2). Only 9% responded that ‘seed and fertilizer’ shops were closed. 27% faced financial problems and only 11% did not receive remunerative prices for the produce they sold during the lockdown period. All these problems, except labour constraints, are more pronounced in Uttarakhand than Haryana.

Figure 2: Shortage of labour and machinery



Note: 1. Author's computation. 2. The 'state' level results are supplemented by the 'district' level results. 'District' tables are reported in the 'Appendix I' for most of the state level tables and graphs. Note 1 and 2 applies to all the tables and graphs.

Figure 3: Impact on agriculture related activities (%)

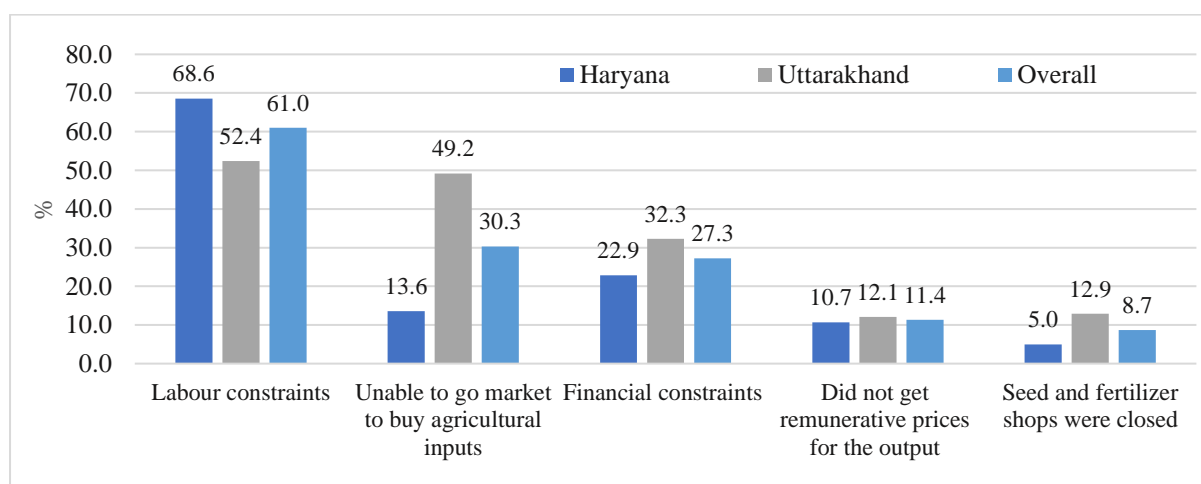


Table 2: Impact on agriculture related activities (%)

State	Labour constraints	Unable to go market to buy agricultural inputs	Financial constraints	Did not get remunerative prices for the output	Seed and fertilizer shops were closed
Haryana	68.6	13.6	22.9	10.7	5.0
Uttarakhand	52.4	49.2	32.3	12.1	12.9
Overall	61.0	30.3	27.3	11.4	8.7

Note: Labour constraints {i.e. shortage of labour, labour denied to work, demanded higher charges due to high risk, don't want to use labour}, Agricultural inputs needed for agriculture {i.e. – fertilizer, irrigation, labour, seeds etc.}, Financial constraints {i.e. no cash for performing agricultural activities, can't buy any input though it is available in the market etc.}.

3.2 Impact on supply chain

Impact on transportation

During the lockdown, the transportation was adversely affected. However, there was no restriction for the movement of agricultural commodities. Therefore, farmers faced limited problem related to restrictions on transportation during Covid-19 lockdown phase. The

responses from both the states reveal that only 5% farmers were unable to get transport and 7% lost some of the harvested crop (Figure 4, Table 3).

Figure 4: Impact on transportation related activities (%)

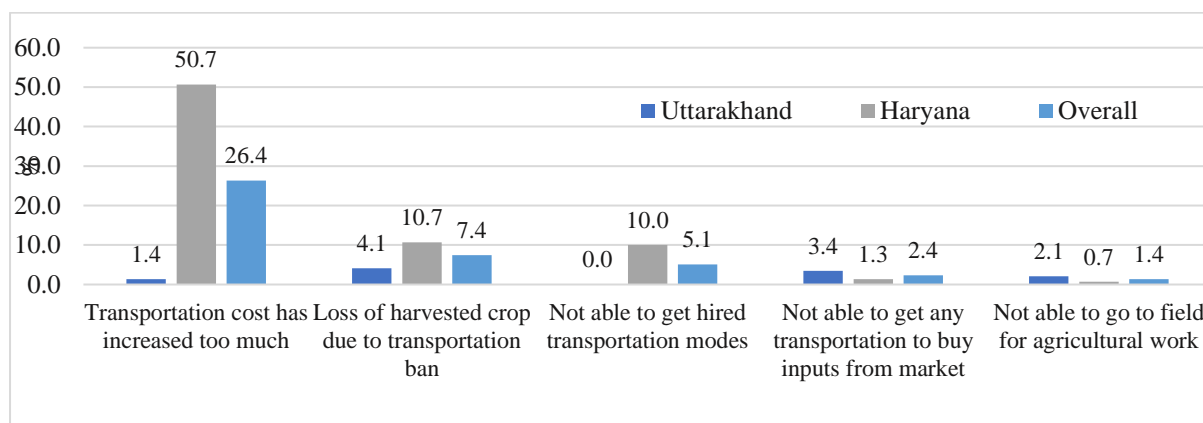


Table 3: Impact on transportation related activities (%)

State	Transportation cost has increased too much	Loss of harvested crop due to transportation ban	Not able to get hired transportation	Not able to get any transportation to buy inputs from market	Not able to go to field for agricultural work
Uttarakhand	1.4	4.1	0.0	3.4	2.1
Haryana	50.7	10.7	10.0	1.3	0.7
Overall	26.4	7.4	5.1	2.4	1.4

Impact on marketing

Post-harvest issues are critical in the supply chain of agricultural commodities. During the lockdown period, there were considerable media reports that the supply chains of major agricultural commodities were disrupted. Contrary to such reports, it was observed that majority of farmers (2/3) did not face any problem in disposing their produce (Figure 5, Table 4). In Haryana, above 92% farmers were able to sell their produce in the market of their choice. In contrast, only 50% farmers in Uttarakhand were able to sell their produce in the preferred market. Interestingly, all the sample farmers (with some exception in district Yamunanagar) have not paid any additional fee for selling their produce (Table A.5). Overall, nearly 82% of farmers were satisfied with the prices received by them. Farmers in Haryana were more satisfied as compared to Uttarakhand farmers. However, those who were not satisfied with the marketing and prices reported that: (i) trading by few shops, (ii) limited market arrival; (iii) lower demand due to less buyers; (iv) lower market prices; and (v) poor quality of produce due to damaged crop (Table 5).

Figure 5: Impact on marketing related activities (%)

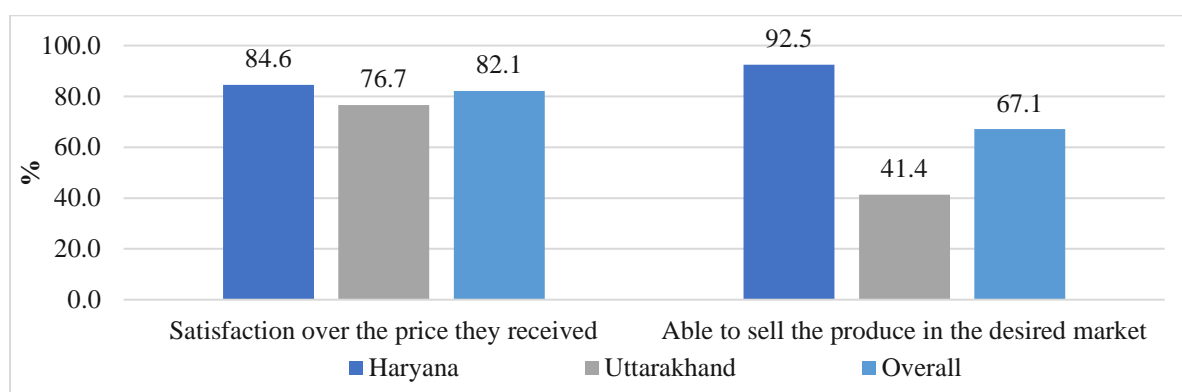


Table 4: Impact on marketing related activities (%)

State	Satisfaction over the price they received	Able to sell the produce in the desired market	Paid any additional market fees
Haryana	84.6	92.5	4.4
Uttarakhand	76.7	41.4	0.0
Overall	82.1	67.1	3.1

Table 5: Reason for not getting reasonable price (%)

State	Low market rate	Lower price than MSP due to damaged crop	Lower price than MSP because other sales points closed	Lower price than MSP due to lockdown	No buyer due to lockdown
Uttarakhand	64.3	7.1	14.3	14.3	0.0
Haryana	0.0	4.8	0.0	85.7	9.5
Overall	25.7	5.7	5.7	57.1	5.7

Problems faced at the sugar mill

The farmers were asked few questions related to their experiences at the mill. These were to ascertain their views if ‘additional’ support received by them during the Covid-19 lockdown period. They were also asked if they faced any problem at the sugar mill/purchase center. The responses revealed that farmers did not get any ‘additional’ support/facility during the lockdown period. Nearly 60% reported that there was business-as-usual situation, and 40% were not satisfied over the support received. They felt that things got worse than before (Figure 6). The major problems were: (i) delay in receiving payments (86%), (ii) sugar mill or its centers were not functioning on a regular basis (45%), (iii) long queues or long waiting time at the sale point (36%), and (iv) delay in receiving dispatch slips (30%) (Table 6, Figure 7). In fact, these problems are usual problems, but their magnitude increased during the lockdown

period. Unfortunately, the ‘social distancing’ and ‘regular disinfection of the mills’ received very less weight as per farmers’ responses.

The survey also documented some other problems, which farmers faced during the Covid-19 pandemic. These include: (i) mill closed temporarily, (ii) early closure of mills’ gates; (iii) loss of cane as no uniform time period for receiving slips, and (iv) inaccurate measurement or weighing system.

Figure 6: Satisfaction over 'additional' support received at the sugar mill

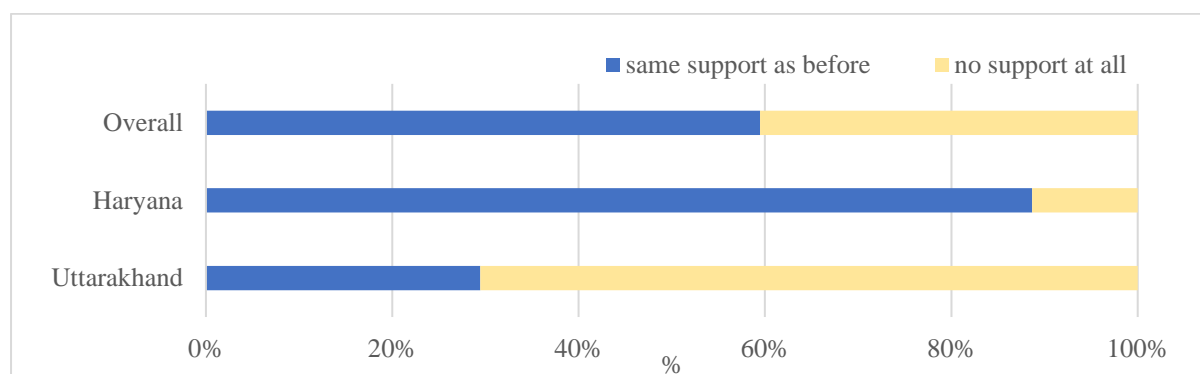


Figure 7: Problems faced at the sugar mill

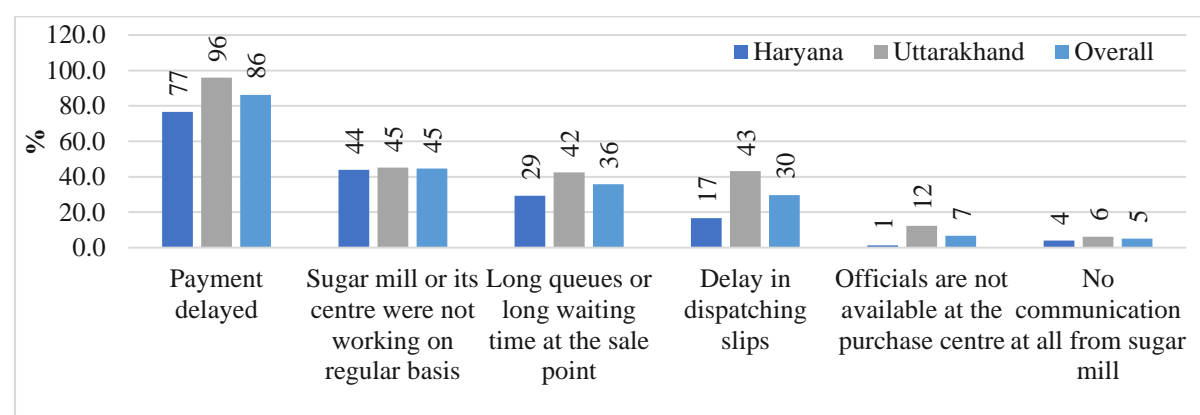


Table 6: Problems faced at the sugar mill (%)

State	Haryana	Uttarakhand	Overall
Payment delayed	76.7	95.9	86.1
Sugar mill or its centre were not working on regular basis	44.0	45.2	44.6
Delay in dispatching slips	16.7	43.2	29.7
Long queues or long waiting time at the sale point	29.3	42.5	35.8
Officials not available at the purchase centre	1.3	12.3	6.8
No communication from sugar mill side	4.0	6.2	5.1
No purchase centre established near village	6.7	2.7	4.7
Payment not made	2.0	2.1	2.0
Social distancing guidelines not followed	2.7	0.0	1.4
Sugar mill not disinfected regularly	0.7	0.0	0.3

3.3 Financial assistance and payment constraints

Financial assistance received

About 60% of the farmers have already received the financial support under the PM-KISAN scheme as an advance installment in their bank account (till the date of survey, June 5, 2020) (Figure 8). The responds were almost same in both the states. The farmers received Rs. 2000, that was announced by the Finance Minister as a part of the economic package. This provided big relief to the farmers to meet expenses for agricultural activities.

Payment related constraints

This is the most common concern among the farmers as their sugarcane payment from the mill usually got delayed mainly due to administrative, management and operational inefficiencies. The survey found that nearly 70% of the farmers have received either full or partial payment in their accounts (Figure 8). Of these farmers, 22% received the payment within a week, 47% in a month, 20% in two months, and only 11% after two months (Figure 9). About one-third of the farmers were still waiting for the payments; majority of them (81%) have no idea about the timeline to receive the payment (Figure 10).

Figure 8: Financial assistance received

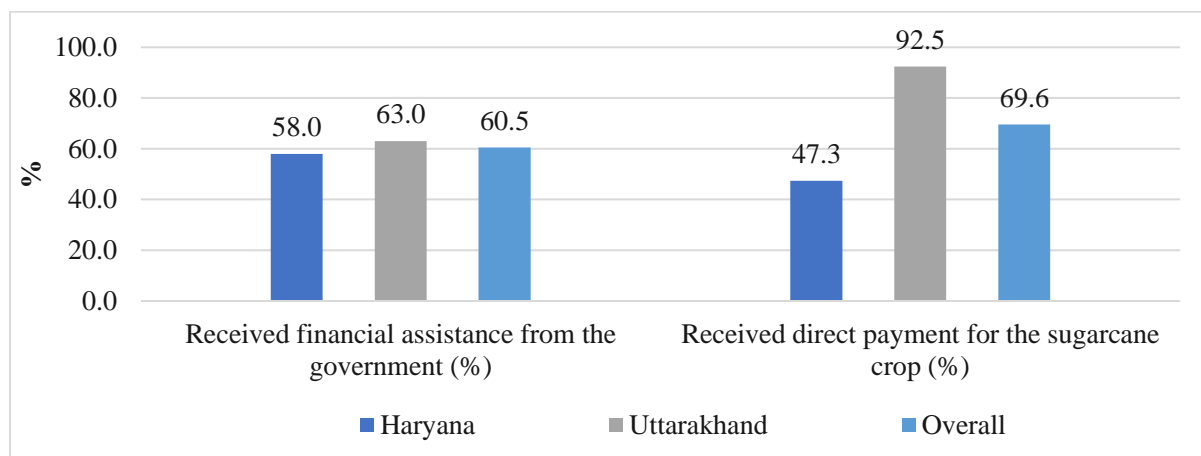


Figure 9: Sugarcane payment – if received, days it took to receive the money in account

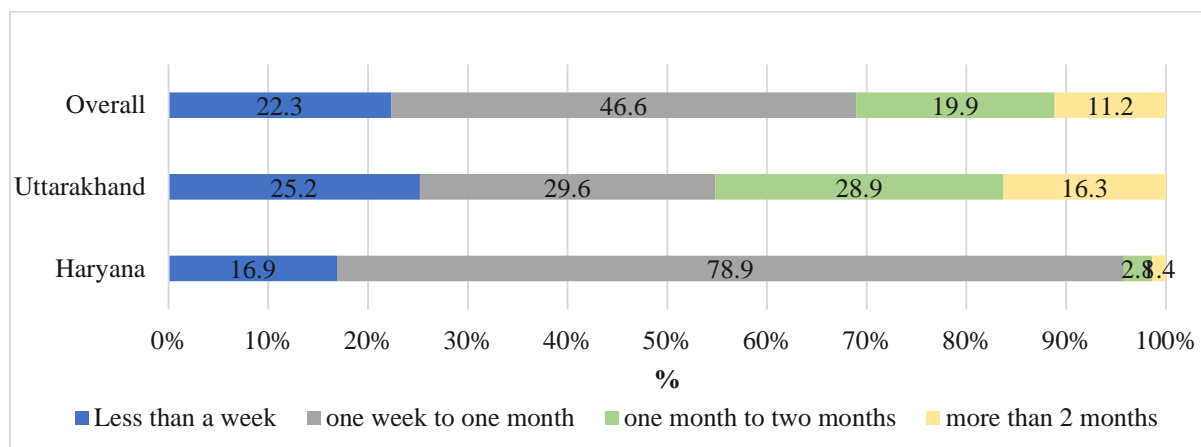
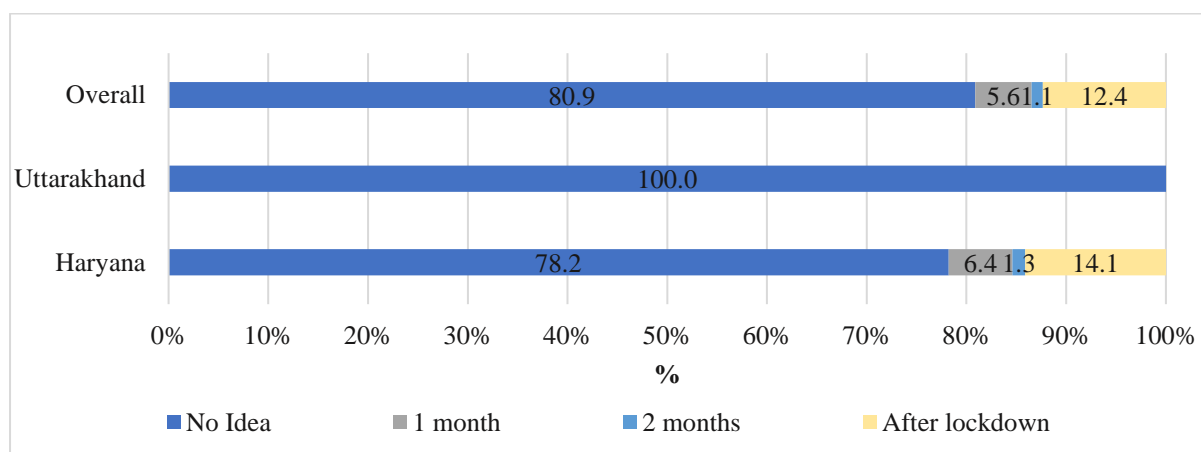


Figure 10: Sugarcane payment – if not received, assurance received from the officials



3.4 Government's support/assurance needed

Farmers were asked about what support or assurance they expect from the government pertaining to (i) harvesting and selling of sugarcane, (ii) harvesting and selling of rabi crops, and (iii) sowing of summer or kharif crops. Not all the farmers responded on this. Broadly, 59% of farmers in Haryana need assurance on timely payment for sugarcane crop (Figure 11). Assurance of financial support and reopening of mills were other important support that farmers sought on an urgent basis in Uttarakhand. About the rabi crop harvesting and selling, 68% of the farmers in Haryana need assurance on adequate labour availability at lower wages (Figure 12). Non-availability of labour is observed as a major constraint amidst Covid-19 lockdown period. Due to labour supply constraint, wages increased due to higher bargaining power and risk of infection.

Compare to the rabi (past) season, a large number of farmers sought assurance on various issues for summer/kharif season. Most of the respondents desired availability of (i)

adequate labour at normal wages (mainly in Haryana), (ii) agricultural inputs at subsidized rates, and (iii) timely availability and sufficient quantity of fertilizers (in Uttarakhand) (Figure 13).

Figure 11: Support/assurance needed from government - sugarcane harvesting and selling

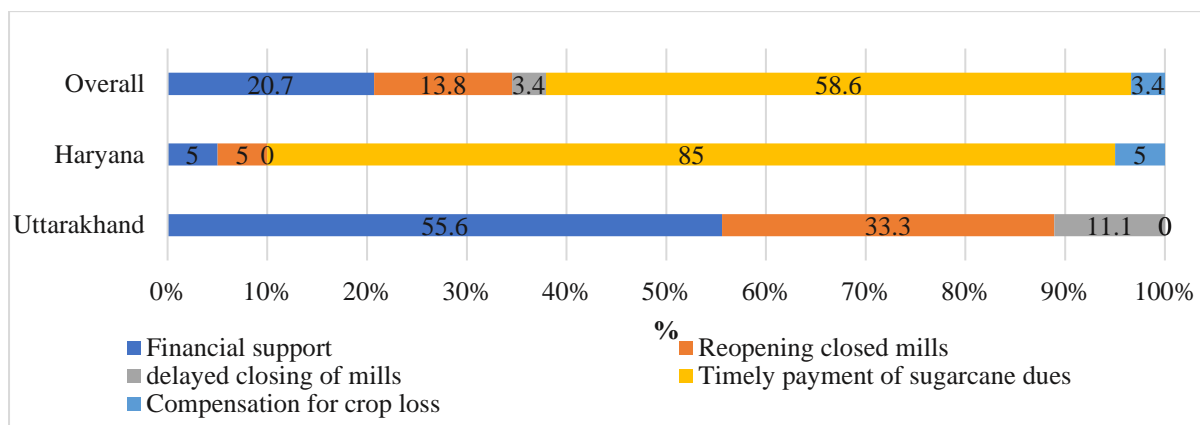


Figure 12: Support/assurance needed from government - rabi crops harvesting and selling

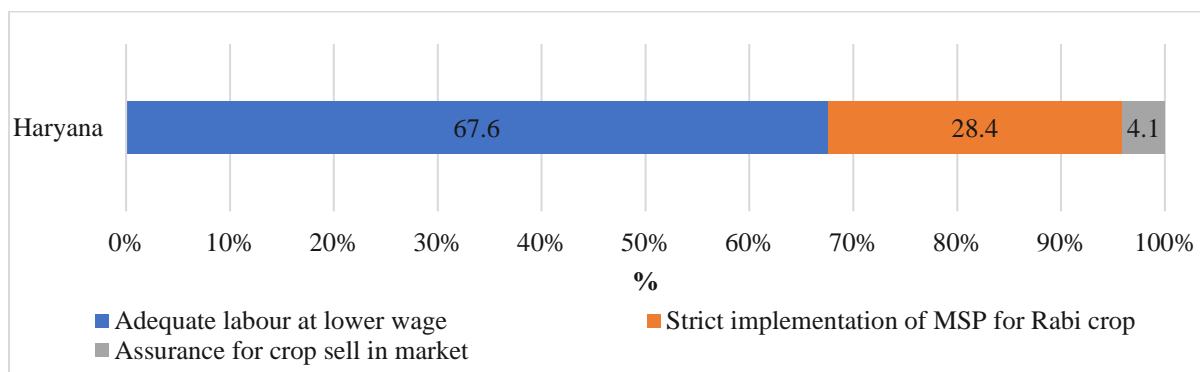
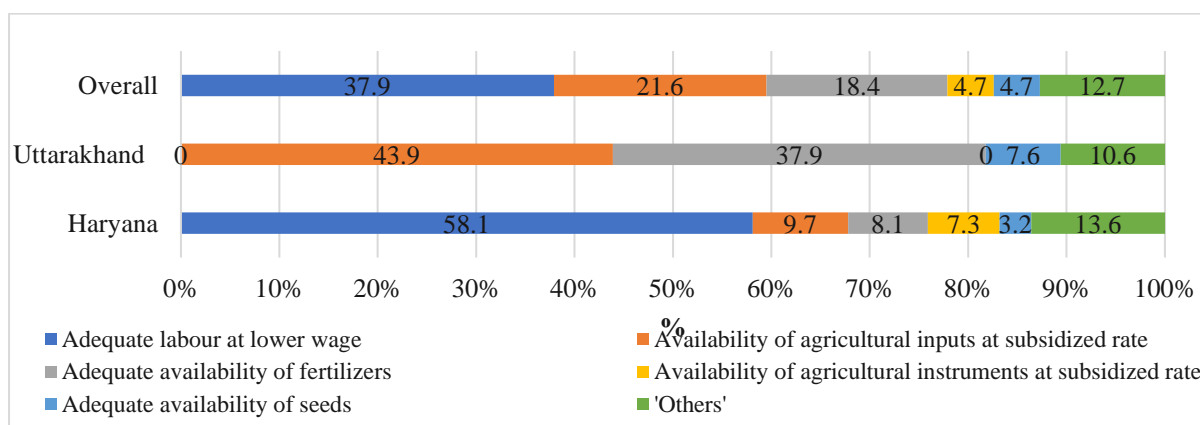


Figure 13: Support/assurance needed from government - for summer/kharif crops sowing



Note: Others include (i) assurance for timely payment for kharif crop, (ii) ensuring financial support, (iii) ensure irrigation facility through canal/tube well, (iv) assurance for crop sell in market, (v) ensure higher MSP for Kharif crop and (vi) ensuring adequate availability of pesticides.

4. Conclusion and policy implications

The study attempted to elicit sugarcane farmers' responses on impact of Covid-19 lockdown in Haryana and Uttarakhand. The main issues analysed were: (i) impact on availability of labour and machinery for harvesting of sugarcane, (ii) impact on the supply chain, including transportation, marketing and sugar mill related issues, (iii) impact on the financial health of farmers, and (iv) assurance sought from the government for the upcoming kharif season. The key findings are briefly as follows:

Farmers faced shortage of labour for harvesting, which delayed harvesting of sugarcane. Majority of the farmers received the payment for their sugarcane but one-third are yet to receive it. The usual problems at the mills were further aggravated during the lockdown period. Farmers did not receive any 'additional' support at the mill during the lockdown period. Majority of them found no change in functioning of mill operations. However, the routine problems were aggravated during the lockdown. The common concerns were delay in payment, long waiting time, and irregular mill operations. Farmers remain indifferent to the issues of maintaining social distancing and wearing masks. On mill side, there was no sanitization in common areas.

Contrary to the perceptions and media reports, no major supply chain distortions were reported. Few farmers reported receiving lower prices to their produce because of lower demand and less market arrival. It was encouraging to find that the farmers did not need to pay any additional market fees during the lockdown. Nearly 60% farmers have already received advance installment of PM-KISAN scheme. A majority of the farmers sought government's intervention for timely payment of their sugarcane. They need sufficient labour for land preparation and sowing operations of kharif crops. Farmers also sought assurance from the government on timely and adequate quantity of fertilizers and inputs for upcoming kharif crops.

Policy implications

Following policy implications emerged from the study:

- There is a need to ensure adequate availability of labour at normal wages. Growing cost of harvesting and scarcity of labour for sugarcane are major concerns. Farm machinery is not available for some of the labour-intensive sugarcane operations, such as harvesting,

bundling and loading/unloading. Future research on developing low-cost farm machines will reduce cost and wastages.

- There is a need to develop an effective and transparent mechanism of ensuring timely payment of sugarcane dues to the farmers. Sugarcane dues are perpetually growing, which need to be corrected.
- Functioning of sugar mills was erratic during the lockdown period. Non-availability of labour in the mills was also a problem. Besides, there are administrative, management, financial and operational problems in better functioning of sugar mills. Modernization and mechanization of sugar mills will improve their efficiency and make India a global leader in sugar sector.
- Existing subsidies may be converted in to direct cash transfer. The quick disposal of advance instalment of PM-KISAN supports the suggestion that some of the subsidies may be amalgamated with the scheme to benefit the farmers. The advantages of the scheme are (i) quick transfer in farmers' accounts, (ii) full amount is transferred without any leakage, and (iii) free from any administrative hassles.

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Appendix
Appendix I

Table A. 1: Farmers impacted by covid-19 situation during last three months

State	District	Response (%)
Uttarakhand	U. S. Nagar	98.7
	Haridwar	100.0
Haryana	Yamunanagar	89.3
	Kurukshetra	92.0

Table A. 2: Impact of Covid-19 on harvesting and sowing operations

State	District	Harvesting of sugarcane crop get delayed due to shortage			Expect shortage for upcoming kharif crop		
		labour	machinery	both	labour	machinery	both
Uttarakhand	U. S. Nagar	100	0	0	100	0	0
	Haridwar	100	0	0			
Haryana	Yamunanagar	80	13.3	6.7	73.4	1.6	18.8
	Kurukshetra	90.9	0	9.1	93.1	0	6.9

Table A. 3: Impact on agriculture related activities

State	District	Unable to go market to buy agricultural inputs	Seed & fertilizer shops were closed	Financial constraints	Labour constraints	Did not get remunerative prices for output
Uttarakhand	U. S. Nagar	16.1	1.8	8.9	100.0	10.7
	Haridwar	76.5	22.1	51.5	13.2	13.2
Haryana	Yamunanagar	25.7	4.3	45.7	98.6	21.4
	Kurukshetra	1.4	5.7	0.0	38.6	0.0

Note: Labour constraints {i.e. shortage of labour, labour denied to work, demanded higher charges due to high risk, don't want to use labour}, Agricultural inputs needed for agriculture {i.e. – fertilizer, irrigation, labor, seeds etc.}, Financial constraints {i.e. no cash for performing agricultural activities, can't buy any input though it is available in the market etc.}

Table A. 4: Impact on transportation related activities (%)

State	District	Not able to get hired transportation modes	Transportation cost has increased too much	Loss of harvested crop due to transportation ban	Not able to go to field for agricultural work	Not able to get any transportation to buy inputs from market
Uttarakhand	U. S. Nagar	0.0	1.3	2.6	3.9	6.6
	Haridwar	0.0	1.4	5.7	0.0	0.0
Haryana	Yamunanagar	13.3	13.3	21.3	1.3	2.7
	Kurukshetra	6.7	88.0	0.0	0.0	0.0

Table A. 5: Impact on marketing related activities (%)

State	District	Satisfaction over the price they received	Able to sell the produce in the desired market	Paid any additional market fees
Uttarakhand	U. S. Nagar	70.0	40.0	0.0
	Haridwar	83.3	42.9	0.0
Haryana	Yamunanagar	70.3	85.3	9.4
	Kurukshetra	97.2	100.0	0.0

Table A. 6: Reason for not getting reasonable price (%)

State	District	Low market rate	Lower price than MSP due to damaged crop	Lower price than MSP because other sales points closed	Lower price than MSP due to lockdown	No buyer due to lockdown
Uttarakhand	U. S. Nagar	100.0	0.0	0.0	0.0	0.0
	Haridwar	0.0	20.0	40.0	40.0	0.0
Haryana	Yamunanagar	0.0	5.3	0.0	84.2	10.5
	Kurukshetra	0.0	0.0	0.0	100.0	0.0

Table A. 7: Satisfaction over 'additional' support received at the sugar mill

State	District	same support as before	better support than before	no support at all
Uttarakhand	U. S. Nagar	26.3	0.0	73.7
	Haridwar	32.9	0.0	67.1
Haryana	Yamunanagar	78.7	0.0	21.3
	Kurukshetra	98.7	0.0	1.3

Table A. 8: Problems faced at the sugar mill

State	District	Haryana		Uttarakhand	
		Yamunanagar	Kurukshetra	U. S. Nagar	Haridwar
	long queues or long waiting time at the sale point,	42.7	16.0	0.0	88.6
	no purchase centre established near village at all	1.3	12.0	0.0	5.7
	officials are not available at the purchase centre	2.7	0.0	0.0	25.7
	no communication at all from sugar mill	5.3	2.7	11.8	0.0
	social distancing guidelines are not followed	5.3	0.0	0.0	0.0
	payment not made	2.7	1.3	3.9	0.0
	Payment delayed	56.0	97.3	96.1	95.7
	sugar mill not disinfected regularly	1.3	0.0	0.0	0.0
	delay in dispatching slips/	30.7	2.7	0.0	90.0
	sugar mill or its centre were not working regularly	1.3	86.7	3.9	90.0

Table A. 9: Financial assistance received

State	District	Received any financial assistance from the government (%)	Received any direct payment for the sugarcane from mill (%)
Haryana	Yamunanagar	48.0	81.3
	Kurukshetra	68.0	13.3
Uttarakhand	U. S. Nagar	78.9	86.8
	Haridwar	45.7	98.6

Table A. 10: Sugarcane payment – if received, days it took to receive the money in account

State	District	Less than a week	one week to one month	one month to two months	more than 2 months
Haryana	Yamunanagar	4.9	91.8	1.6	1.6
	Kurukshetra	90.0	0.0	10.0	0.0
Uttarakhand	U. S. Nagar	51.5	48.5	0.0	0.0
	Haridwar	0.0	11.6	56.5	31.9

Table A. 11: Sugarcane payment – if not received, assurance received from the officials

State	District	No Idea	1 month	2 months	After lockdown
Haryana	Yamunanagar	0.0	28.6	0.0	71.4
	Kurukshetra	95.3	1.6	1.6	1.6
Uttarakhand	U. S. Nagar	100.0	0.0	0.0	0.0
	Haridwar	100.0	0.0	0.0	0.0

Table A. 12: Support needed from government -sugarcane harvesting and selling

State	Uttarakhand		Haryana	
	District	U. S. Nagar	Haridwar	Yamunanagar
Ensuring Financial support		62.5	0	5
Ensuring Reopen closed mills		37.5	0	5
Ensuring delayed closing of mills		0	100	0
Ensuring Timely payment of Sugarcane		0	0	85
Ensuring compensation for crop loss		0	0	5

Table A. 13: Support needed from government - rabi crops harvesting and selling

State	Haryana		
	District	Yamunanagar	Kurukshetra
Ensuring adequate labour at lower wage		62.3	81
Strict implementation of MSP for Rabi crop		35.8	9.5
Assurance for crop sell in market		1.9	9.5

Table A. 14: Support needed from government - for summer/kharif crops sowing

State	Uttarakhand		Haryana		
	District	U. S. Nagar	Haridwar	Yamunanagar	Kurukshetra
Adequate labour at lower wage		0	0	53.9	77.3
Availability of agricultural inputs at subsidized rate		0	47.5	10.8	4.5
Adequate availability of fertilizers		0	41	9.8	0
Availability of agricultural instruments at subsidized rate		0	0	8.8	0
Adequate availability of seeds		100	0	3.9	0
'Others'		0	11.5	12.7	18.2

Note: Others include (i) assurance for timely payment for kharif crop, (ii) ensuring Financial support, (iii) ensure irrigation facility through canal/tube well, (iv) assurance for crop sell in market, (v) ensure higher MSP for Kharif crop and (vi) ensuring adequate availability of pesticides.

Appendix II

Agricultural Economics Research Centre, University of Delhi

(Questionnaire to assess the Covid-19 situation among sugarcane farmer)

(Note: this questionnaire is in continuation with the main study on 'sugarcane transportation and harvesting cost', hence the basic farmer's profile and land details are already covered. This part of work is specifically on Covid-19 situation analysis.

Date: / / State. Schedule No.

(Note: Please match schedule numbers in order as per the original survey on sugarcane study)

Question 1: Have you faced any impact of covid-19 situation during last three months?

Question 2: How did you get impacted by covid-19?

(1- Not able to harvest the sugarcane crop because a) shortage of labour b) shortage of machinery c) both 2- Not able to sow the crop for next season because a) shortage of labour b) shortage of machinery c) both, 3- Unable to go market to buy agricultural inputs needed for agriculture {i.e. – fertilizer, irrigation, labor, seeds, anything else (mention)}, 4- Seed and fertilizer shops were not open, 5- Financial problems {i.e. no cash for performing agricultural activities, can't buy any input though it is available in the market etc., 6- Labour problems {i.e. shortage of labour, labour denied to work, demanded higher charges due to high risk, don't want to use labour, 7. did not get good price for the output).

Question 3: Have you received any financial assistance from the government?

{i.e. Rs. 2000 direct transferred in your bank account or any support from state government}

Question 4: What kind of 'additional' support have you received from/at the sugar mill or from/at the purchase centre?

(1- same support as before, 2- better support than before, 3- no support at all {situation get worse than before}).

Question 5: What problems did you face at the sugar mill or at its purchase centre, if any?

(1- long queues or long waiting time at the sale point, 2- no purchase centre established near village at all, 3- officials are not available at the purchase centre, 4- no communication at all from sugar mill, 5- social distancing guidelines are not followed 6- payment not made 7. Payment delayed 8- sugar mill not disinfected regularly 9- Others (specify) _____.

Question 6: Were you able to sell the produce (all crops harvested) at the mundi or in market (yes/no). If yes,

- i) Are you satisfied with the price you received?
- ii) If not, reasons for not getting reasonable price?
- iii) have you paid any additional market fees for this?

Question 7: Have you faced any transportation related problem and any increase in transportation cost?

(1- Not able to get hired transportation modes to sell produce, 2- transportation cost has increased too much, 3- loss of harvested crop due to transportation ban, 4- not able to go to field for agricultural work, 5- not able to get any transportation to buy inputs from market, 6- any other problem).

Question 8: Have you received any direct payment for the sugarcane crop you sell at the sugar mill or its purchase centre (yes/no)? If yes, how many days it took to receive the money in account? If no, any payment related assurance you received from the officials {amount, time, mode etc.}?

Question 9: What support/assurance from government do you exactly need on urgent basis related to the – 1) sugarcane harvesting for selling, 2) for rabi crops harvesting and selling, 3) for summer/kharif crops sowing, 4) in general?

Question 10: Your suggestions to improve the present covid-19 situation in your village/local area which will help to perform agricultural activities?



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