

The Covid-19 Pandemic and Agriculture in Rural India: Observations from Indian Villages

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INTRODUCTION

This note analyses the impact of the Covid-19 pandemic on the production and cost of cultivation of crops grown in the monsoon (kharif) season. The note is based on a survey of 164 informants from 26 villages across 13 States of India. The survey, conducted by the Foundation for Agrarian Studies (FAS) between mid-September and mid-October, 2020, was based on telephone interviews.¹ Detailed socio-economic surveys of 24 of these villages have been conducted by the FAS over the past decade under a programme of village studies titled the Project on Agrarian Relations in India (PARI). In addition, in 2020, interviews were conducted in two village panchayats, Adat and Tholur, in Thrissur district, Kerala.

The 26 villages are drawn from a diverse cross-section of villages in India. Based on previous survey data, a socio-economic classification of households was undertaken for all the PARI villages. Sample households were selected from the FAS database. In Kerala, two village panchayats were surveyed by Deepak Johnson of the Economic Analysis Unit, Indian Statistical Institute, Bangalore, in 2018–19. Of the 164 informants, 22 were from landlord/rich capitalist farmer households, 36 from rich/middle peasant households, 45 from poor peasant households, 38 from manual worker households, and the remaining 23 from households engaged in business and other non-agricultural activities. In the Kerala villages, two informants were interviewed from each of the following groups: households with operational holdings of less than 1 ha., of 1–2 ha., and of more than 2 ha.

The interviews were conducted with the full consent of the informants. The questions in the interviews sought primarily to understand the effects of the pandemic on agricultural production, employment, income, and food security in rural India.

SURVEY VILLAGES

The survey villages represent diverse agroecological regions with varied levels of economic development ([Table 1](#) and [Figure 1](#)). The villages are also characterised by different agricultural production systems and agrarian relations.

Table 1 Study villages, by agroclimatic zone and source of irrigation

Village	State	Agroclimatic zone	Major source of irrigation
Ananthavaram	Andhra Pradesh	Krishna–Godavari Zone	Canal and groundwater
Bukkacherla	Andhra Pradesh	Scarce Rainfall Zone of Rayalaseema	Groundwater*

Village	State	Agroclimatic zone	Major source of irrigation
Katkuian	Bihar	North West Alluvial Plain Zone	Groundwater
Nayanagar	Bihar	North West Alluvial Plain Zone	Groundwater
Alabujanahalli	Karnataka	Southern Dry Zone	Canal
Siresandra	Karnataka	Eastern Dry Zone	Groundwater
Zhapur	Karnataka	North East Dry Zone	Groundwater*
Adat	Kerala	Central Zone	Canal
Tholur	Kerala	Central Zone	Canal
Gharsondi	Madhya Pradesh	Gird Zone	Canal and groundwater
Nimshirgaon	Maharashtra	Western Maharashtra Plain Zone	Groundwater
Warwat Khanderao	Maharashtra	Western Maharashtra Plain Zone	Groundwater*
Tehang	Punjab	Central Plain Zone	Canal and groundwater
Hakamwala	Punjab	Western Zone	Canal and groundwater
Rewasi	Rajasthan	Western Dry Region	Groundwater
Palakurichi	Tamil Nadu	Cauvery Delta Zone	Canal
Venmani	Tamil Nadu	Cauvery Delta Zone	Canal
Kothapalle	Telangana	North Telangana region	Canal
Mainama	Tripura	Mid-Tropical Plain Zone	River lift
Khakchang	Tripura	Mid-Tropical Hill Zone – Jampui Hills, and rest under Mid-Tropical Plain Zone	Groundwater
Muhuripur	Tripura	Mid-tropical Plain Zone	River lift
Harevli	Uttar Pradesh	Bhabar and Tarai Zone	Canal
Mahatwar	Uttar Pradesh	Eastern Plain Zone	Groundwater
Panahar	West Bengal	Old Alluvial Zone	Groundwater
Amarsinghi	West Bengal	New Alluvial Zone	Groundwater
Kalmandasguri	West Bengal	Terai Zone	Groundwater

Note: * = less than 10 per cent of gross cropped area in the village is irrigated.

Source: FAS (n.d.).



Figure 1 *Location of study villages*

Source: FAS (n.d.).

In villages with a high share of irrigated area, public canals are the predominant source of irrigation in Ananthavaram in Guntur district of Andhra Pradesh, Alabujanahalli in Mandya district of Karnataka, Gharsondi in Gwalior district of Madhya Pradesh, Tehang in Phillaur district and Hakamawala in Mansa district of Punjab, Kothapalle in Karimnagar district of Telangana, Palakurichi and Venmani villages in Nagapattinam district of Tamil Nadu, and Harevli in Bijnor

district and Mahatwar in Balia district of Uttar Pradesh. These villages fall under the command areas of different canal irrigation systems. However, groundwater irrigation is also used as supplementary irrigation for cultivation, particularly in the rabi season. The two villages surveyed in Kerala fall in the low-lying, *kole* wetland region and are irrigated by canal.

Groundwater is the main source of irrigation in the surveyed villages of eastern India (Katkuian and Nayanagar in Bihar and Panahar, Amarsinghi, and Kalmandasguri in West Bengal) and in Nimshirgaon in Kolhapur district of Maharashtra. Water lifted from rivers using diesel or electric pumps is the main source of irrigation for lowland cultivation in Mainama (Dhalai district) and Muhuripur (South Tripura district) in Tripura.

When socio-economic surveys were conducted under PARI, the share of irrigated area in total gross cropped area (GCA) was less than 10 per cent in Bukkacherla, Zhapur, Warwat Khanderao, and Khakchang. In Siresandra and Rewasi, the share was around 50 per cent. The sources of irrigation were tubewells, and cultivation depended on monsoon rains.

KHARIF CULTIVATION DURING THE PANDEMIC

Of the 164 respondent households in the sample, 129 households farmed land during the kharif season.

In villages where irrigation was greater than 50 per cent of GCA, rice was the main kharif crop (Table 2). Some villages also had perennial crops sown in the kharif season. For instance, sugar cane was the important crop in Katkuian and Nayanagar in Bihar, Nimshirgaon in Maharashtra, and Harevli in Uttar Pradesh. In the other villages, the crops were more diversified with different pulses and millets mostly grown in the kharif season (Table 2). For instance, finger millet was the main crop in Siresandra in Karnataka; lentil, sesame, and groundnut in Zhapur in Karnataka; and pearl millet, cluster bean, and green gram in Rewasi in Rajasthan. In Warwat Khanderao, Maharashtra, cotton was the main monsoon crop along with different pulses. *Jhum* or slash-and-burn cultivation was the main agricultural activity in Khakchang, Tripura, during the monsoon. In the two villages surveyed in Kerala, only banana was grown in the kharif season. The main crop in these two villages was lowland rice, cultivated in the rabi season.

Table 2 Major crops in the kharif season, survey villages, 2020–21

Village	State	Major kharif crops
Ananthavaram	Andhra Pradesh	Rice, black gram
Bukkacherla	Andhra Pradesh	Groundnut
Katkuian	Bihar	Rice, sugar cane
Nayanagar	Bihar	Rice, maize, sugar cane
Alabujanahalli	Karnataka	Rice, finger millet, mulberry, sugar cane
Siresandra	Karnataka	Finger millet, mulberry
Zhapur	Karnataka	Lentil, sesame, groundnut
Adat	Kerala	Banana

Village	State	Major kharif crops
Tholur	Kerala	Banana
Gharsondi	Madhya Pradesh	Rice
Nimshirgaon	Maharashtra	Soyabean, sugar cane
Warwat Khanderao	Maharashtra	Cotton, pulses
Tehang	Punjab	Rice
Hakamwala	Punjab	Rice, cotton
Rewasi	Rajasthan	Pearl millet, cluster bean, green gram
Palakurichi	Tamil Nadu	Rice
Venmani	Tamil Nadu	Rice
Kothapalle	Telangana	Rice, cotton
Mainama	Tripura	Rice
Khakchang	Tripura	Mixed cultivation
Muhuripur	Tripura	Rice
Harevli	Uttar Pradesh	Rice, sugar cane
Mahatwar	Uttar Pradesh	Rice
Panahar	West Bengal	Rice, jute
Amarsinghi	West Bengal	Rice
Kalmandasguri	West Bengal	Rice, jute

Note: In the survey villages of Tamil Nadu, there are two main seasons in which rice is cultivated, *kuruvai* (August to October) and *samba* (September–October to February) (see [Surjit 2008](#) for details).

Source: FAS telephone survey, 2020.

Increase in Area Sown

The official estimate showed that there was an increase in the area sown in the current kharif season (2020–21). The area under kharif crops in 2020–21 was 1116.88 lakh hectares, an increase of 4.8 per cent over 2019–20 (according to a statement issued on September 25, 2020).² The higher acreage in 2020 has been attributed to a good and timely monsoon. The area under rice cultivation, the main kharif crop, was recorded at 407.14 lakh hectares, 5.6 per cent higher than in the previous year. At the same time, the area under oilseeds increased by 9.8 per cent, followed by a 4.1 per cent increase in the area under pulses and a 1.2 per cent increase in the area under coarse cereals. However, there was a marginal decrease in the area under sugar cane, jute, and cotton cultivation in 2020–21, as compared to the previous year.

In this regard, three observations are particularly relevant. First, region-specific factors (combined with a generally good and timely monsoon) contributed to the increase in area under cultivation. In Bihar, for example, there was a distress-driven return to farming during the pandemic year. In the two villages in northern Bihar where labour outmigration, especially from households of landless workers, is traditionally high, many migrant workers did not return to the cities for work during the lockdown. Instead, they leased small plots of agricultural land for personal cultivation. In Nayanagar (Samastipur district, Bihar), a Scheduled Caste migrant worker informed us that for the first time in his life, he had leased 0.4 acres (10 *cottah*) to cultivate rice for family consumption.

Secondly, a capitalist farmer from Tehang village in the Doaba region of Punjab told us that, because of the increase in costs of cultivation during the pandemic, he leased in an additional five acres of land in order to increase his total income.

Thirdly, in canal-irrigated villages, the good monsoon helped to increase the area sown on previously fallow or uncultivated land. In Palakurichi and Venmani villages in Nagapattinam district, Tamil Nadu, kharif cultivation entirely depends upon water being released from the Mettur Dam on the Cauvery river. A rich peasant from Venmani said: “After almost 11 years, the farmers were able to cultivate the *kuruvai* [a short-duration rice crop] because the Mettur Dam was opened in early June in this year.”

Increase in the Cost of Cultivation

The survey data also show that, while there was an increase in the area sown, there was also a sharp increase in the cost of cultivation of several kharif crops across all States. This was on account of increases in the cost of material inputs (seeds, fertilizers, and pesticides), machine use, and hired labour.

Increase in the Costs of Material Inputs

Although not widely reported across classes and regions, there was an increase in the input costs of seeds, fertilizers, and pesticides in 2020 over the previous year (Table 3). A poor peasant from Ananthavaram village, Guntur district, Andhra Pradesh, reported that, because of limited stock in the local inputs shop, the per-acre cost of fertilizer for rice in 2020 had gone up to Rs 1,300 from Rs 1,150 in the previous year. In the two villages in Bihar, shortage of urea supply resulted in an increase in urea prices from Rs 350 per 45-kg bag to Rs 400 per bag. Farmers from Hakamwala village in Punjab told us that the price of cotton seed had increased by Rs 50 per packet in the lockdown period. Respondents attributed the increase in the costs of inputs to disruptions in the supply of inputs during the lockdown.

Table 3 Increases in the costs of inputs during lockdown, study villages, kharif season, 2020–21

State	Village	Main crop	Increase in cost in 2020 as compared to 2019	Reason
Andhra Pradesh	Ananthavaram	Rice	Fertilizer (per acre): Rs 1,300 from Rs 1,150	Low or no supply
Bihar	Katkuian	Rice	Pesticide (per acre): Rs 4,950 from Rs 3,900	Increase in pest attacks (due to heavy rain)
Bihar	Nayanagar	Rice	Urea (per bag): Rs 400 from Rs 350	Low or no supply
Punjab	Hakamwala	Cotton	Seed increased by Rs 50 per packet	Low or no supply
Rajasthan	Rewasi	Pearl millet	Seed increased by Rs 50 per kg	Low or no supply
West Bengal	Amarsinghi	Rice	Seed and fertilizer increased	Low or no supply

State	Village	Main crop	Increase in cost in 2020 as compared to 2019	Reason
West Bengal	Kalmandasguri	Rice	Fertilizer (per acre): Rs 3,500 from Rs 3,150	Increase in prices

Source: FAS telephone survey, 2020.

Hike in the Price of Diesel

The increased cost of cultivation in 2020 is associated with a hike in diesel prices, which significantly pushed up cultivation costs across States. The price of diesel in Punjab rose in June from Rs 62.03 to Rs 71.98 per litre, an increase of 16 per cent in a month. June is normally the busiest time for land preparation, irrigation, sowing and transplanting, and plant protection (all mechanised operations), and farmers incurred higher costs at the beginning of the season this year. Marginal and small peasants, who comprise the majority of those who hire machines for these operations, were also disproportionately affected. For instance, the survey shows that the increase in cost of hired machines for ploughing ranged from 10 to 50 per cent more than in the kharif season of the previous year (Table 4).

Table 4 *Increase in machine rent for ploughing, kharif season, study villages, 2020–21 in per cent*

State	Village	Increase in machine rent for ploughing in 2020 as compared to 2019*
Andhra Pradesh	Ananthavaram	30–50
Bihar	Katkuian	25–35
Bihar	Nayanagar	15–25
Karnataka	Siresandra	25
Madhya Pradesh	Gharsondi	25
Maharashtra	Nimshirgaon	10
Rajasthan	Rewasi	10–25
Tamil Nadu	Palakurichi	25
Telangana	Kothapalle	15–25
Uttar Pradesh	Harevli	20
Uttar Pradesh	Mahatwar	20
West Bengal	Amarsinghi	20
West Bengal	Kalmandasguri	15

Note: * = These are approximate figures given by the respondents.

Source: FAS telephonic survey, 2020.

Similarly, the cost of irrigation increased significantly for poor peasants in the villages where diesel-operated pumps are the primary means of irrigation. A landless manual worker from Katkuian village (West Champaran district, Bihar), who leased in one acre of land for rice cultivation this year, said that

rental payments for the pumps increased because of the increase in the price of diesel this year. As a result, the cost of irrigating my rice crop increased to Rs 5,500 an acre in this year. The cost was Rs 3,500 an acre in the previous year.

Increase in Wage Costs

Another important source of the increase in cost of cultivation was the increase in the cost of hiring labour in the kharif season. Two patterns emerged from the survey. First, the increase in the cost of hiring labour varied by region. The increase in wage rates was higher in relatively well-irrigated regions than in relatively dry regions (Table 5). This is because rice cultivation, which is labour-intensive, predominated in these irrigated regions.

Table 5 Summary of changes in wage rates in sowing/transplantation, kharif season, study villages, 2020–21

State	Village	Type of contract	Increase in wage rate in 2020 as compared to 2019
Villages where irrigated area is greater than 50 per cent of gross cropped area (GCA)			
Andhra Pradesh	Ananthavaram		Rs 500 per acre
Punjab	Tehang	Piece-rated	Rs 2,000 per acre
Punjab	Hakamwala		Rs 500 per acre
West Bengal	Panahar		Rs 300 per acre
Bihar	Katkuian		Rs 50–100 per day
Tamil Nadu	Palakurichi	Time-rated	No change
Tamil Nadu	Venmani		No change
Uttar Pradesh	Harevli		Rs 50 per day
Karnataka	Alabujanahalli	Piece-rated and time-rated	No significant change
Villages where irrigated area is less than 50 per cent of GCA			
Andhra Pradesh	Bukkacherla		Rs 100 per day (males); Rs 50 per day (females)
Karnataka	Siresandra	Time-rated	No significant change
Karnataka	Zhapur		No significant change
Maharashtra	Warwat Khanderao		No significant change (cotton)

Source: FAS telephone survey, 2020.

Secondly, classes responded differently to the increase in the cost of hiring labour.³ In Punjab, some large farmers shifted to mechanised operations during the sowing and transplanting of kharif rice, whereas relatively smaller farmers were unable to shift to mechanised operations because of high rental costs. In Tehang, Jullundur district, Punjab, AS, a big capitalist farmer, grew rice over a larger area than before and shifted to direct seeding of the crop. Hiring or buying the machinery for this involved an additional cost, which a large farmer could afford, and AS adopted the technology to avoid losing sowing days during the season.

On the other hand, small peasants in several States expressed concern about the high costs of hiring machinery.

In many rice-growing areas, farming is heavily dependent on migrant workers. In the case of Punjab, agricultural labourers from Bihar and eastern Uttar Pradesh are employed for these operations, whereas in Ananthavaram, a coastal village in Guntur district of Andhra Pradesh, inter-district migrant workers are employed for sowing.

As [Table 5](#) suggests, the increase in the cost of hired labour, as reported by farmers in regions that are relatively well irrigated, resulted in an overall cost increase. However, this increase varied across regions. In Ananthavaram, Guntur district, Andhra Pradesh, wages for sowing and transplanting rice rose from Rs 3,500 the previous year to Rs 4,500 this year. This increase was not entirely paid out to labourers, as reported by a large farmer in the village, as it included the cost of transportation of seedlings. In Tehang, in the Doaba region of Punjab, the increase in cost of rice transplantation was much higher, Rs 2,000 per acre.

The increase in wage costs was less in villages where farmers had already been hiring local labourers in the pre-pandemic period. In Alabujanahalli village, Mandya district, Karnataka, the cost of transplanting rice increased by Rs 200 per acre. Respondents from Hakamwala in Punjab, where the practice of hiring local labourers from the village was already in place, reported an increase of Rs 500–600 per acre in the amount paid as wages.

Bukkacherla in Andhra Pradesh, Nimshirgaon in Maharashtra, and Panahar in West Bengal, all of which depend on labourers from neighbouring villages or districts, also faced labour shortages, which then drove up the wages of hired labourers during the pandemic period. A landlord from Panahar village in Bankura district, West Bengal, reported that workers from the western part of the State who traditionally transplant and harvest rice did not come this year because of the lockdown and fear of infection. The cost of hiring local labourers on piece-rated wages for rice transplantation increased by Rs 300 per acre. In Muhuripur village, Tripura, because of the absence of migrant labourers from Bangladesh, a similar situation was observed.

In contrast, many workers who migrate from Katkuian and Nayanagar in Bihar and Amarsinghi in West Bengal for agricultural and non-agricultural work returned to their villages during the pandemic. This ensured an abundant supply of workers for agricultural operations in these villages. The rich peasants of these villages reported that there was a marginal increase in the wage rate for rice transplantation, mainly because of the urgency of completing the task. Poor peasants used family labour and exchange labour to complete agricultural operations. AR, a poor peasant from Nayanagar in Bihar, reported that he used exchange labour to transplant rice on their half-acre plot of land.

SUPPLY CHAINS AND OUTPUT PRICES

The Covid-19 pandemic had an adverse impact on an agricultural sector already burdened by a poor marketing system. Agricultural supply chains were affected severely during the lockdown ([Ramakumar 2020](#)). [Rawal and Verma \(2020\)](#) reported that the number of operational *mandis* reduced during the rabi crop selling period, i.e., April 2020. There was a decline in the total quantity of rabi produce sold when compared to the same marketing period in 2019. This evidence of disruption in the agricultural supply chain has three broad facets. First, the current survey reveals that there was an extremely high increase in the cost of marketing for cultivators during the lockdown due to increased transportation costs. Secondly, in the study villages in Bihar and Madhya Pradesh, the prices of winter maize and wheat crashed, leaving small cultivators with low incomes. Finally, farmers faced an economic crisis following specific instances of heavy rainfall and crop failure, and therefore became dependent on higher amounts of loans before the kharif season.

Official data from Agricultural Marketing Information System Network (AGMARKNET) show that, even in regulated markets, particularly in 2020, more than 45

per cent of the major kharif crops were sold below the minimum support price (MSP).⁴

Realised Prices and Cost of Marketing for Farmers in the Rabi Season, 2020

A rapid assessment survey conducted by the FAS during the lockdown (April–May, 2020) showed that local markets collapsed, gravely affecting the sale of rabi crops by poor peasants. The disruption in the supply chain led to a slump in local farm harvest prices for most agricultural produce (Modak, Bakshi, and Jonson 2020). A huge crash in the prices realised by farmers along with increases in the cost of marketing were reported by several studies conducted in rural India (Reardon *et al.* 2020; Ceballos, Kannan, and Kramer 2020). In our study, we collected detailed information on sale of agricultural produce in the rabi season, including marketing agency, realised prices, and transport facilities. The data further established instances of severe price crash of certain crops during the lockdown, which has affected the lower rungs of the peasantry the worst. Table 6 reports the magnitude of the fall in prices for rabi crops across States. Two noteworthy points emerge. First, Punjab, where the presence of APMC *mandis* and implementation of MSP helped farmers realise better prices, performed better than other States. A serious lack of institutional mechanisms for marketing and dependence on local traders in several survey villages appear to have been crucial factors in the price decline. Specifically, the prices of maize and wheat, the two most important rabi crops, fell.

Table 6 Prices realised by farmers, rabi season, 2020

State	Village	Affected crops	Prices in 2019–20	Prices in 2020–21
Andhra Pradesh	Ananthavaram	Maize	Rs 2,500 per quintal	Rs 1,400 per quintal
Andhra Pradesh	Bukkacherla	Banana	Rs 10,000 per tonne	Rs 7,000 per tonne
Bihar	Katkuian	Wheat	Rs 2,000 per quintal	Rs 1,500 per quintal
Bihar	Nayanagar	Wheat, maize	Rs 2,300 per quintal	Rs 1,300 per quintal
Karnataka	Siresandra	Tomato	Rs 150 per box	Rs 70 per box
West Bengal	Kalmandasguri	Potato		Declined by Rs 100 per bag
West Bengal	Panahar	Potato	Rs 1,000 per bag	Rs 700 per bag

Source: FAS telephone survey, 2020.

Secondly, the prices that farmers received for vegetables fell sharply in the survey villages in West Bengal and Tripura.

An increase in transportation costs also affected crop incomes in the rabi season. Marketing costs increased sharply because of the increased demand for motor vehicles to transport produce. In Hakamwala in Punjab, MS, a poor peasant farming three acres of land, does not own a tractor or trolleys with which to transport his produce to the nearby *mandi*. He reported that he hired ten tractor trolleys at a cost of Rs 500 each for two days to sell his produce – this increased his marketing cost by Rs 10,000.

RISE IN INDEBTEDNESS/INFORMAL CREDIT FOR FARMING

Poor peasant and manual worker households across the study villages reported that they had taken loans to meet increased costs of cultivation in the kharif

season. The loans were taken from input dealers, moneylenders, local traders, and others at interest rates ranging from three to six per cent per month. There have been instances of farmers being denied formal loans (such as Kisan Credit Card loans) because they could not repay previous loans taken during the lockdown. A poor peasant from Nayanagar village in Bihar had this to say:

I have taken a loan of Rs 16,000 from a merchant and input dealer at a four per cent monthly interest rate. The interest rate of informal loans increased to four from three per cent this kharif season, because many poor people are seeking credit these days.

A poor peasant from Ananthavaram village in Guntur district of Andhra Pradesh reported:

I usually take an advance of Rs 20,000 from the private trader at the beginning of the kharif crop season. This year, maize production was very low, and so I had to take additional loans to cover the expenses of kharif crops.

In contrast, landlords and rich capitalist farmers and rich peasants were in a better situation – most managed to get loans from commercial and cooperative banks, besides meeting additional expenses from their own savings.

CONCLUSION

There are three main findings of the survey. First, there was an increase in the acreage and output under kharif crops in 2020–21. This increase was, first, because of good and timely rainfall, and secondly, many households, including those with migrant-worker earnings in a normal year, returned to farming during the pandemic year, leasing in small plots of land. Thus, in some areas, the increase in acreage and output in kharif production was driven by the loss of work for migrant labour. Secondly, increases in costs of inputs, diesel, and hired labour significantly increased the aggregate cost of cultivation of kharif crops. Lastly, the increase in MSP between 2019–20 and 2020–21 for kharif crops (for instance, 3 per cent for rice, 5 per cent for cotton, 2–4 per cent for different pulses, and 5 per cent for oilseeds) did not compensate for the increase in the cost of cultivation of kharif crops. As a consequence of increased costs and a less-than-adequate increase in output prices, farm households will not reap the full benefits of increased production this kharif season. In fact, incomes may actually be less than in the previous year. A heavily indebted class of poor peasants who are primarily dependent on informal credit is also under severe income distress.

If higher levels of foodgrain production are to translate to higher farming incomes, input prices must be further regulated, more formal credit disbursed to farmers, and higher procurement prices assured to them.

NOTES

1 FAS also conducted a rapid assessment survey among 52 informants from 21 villages across 10 States in April–May 2020 to understand the immediate effects of the pandemic and the lockdown on production (see details in [Modak, Bakshi, and Johnson 2020](#)).▲

2 GoI (2020).▲

3 In earlier FAS surveys, it was observed that in most of the highly irrigated regions, the prevalent arrangement was of hiring labourers at piece-rated contracts for timely sowing operations. Also, the use of mechanised sowing and transplanting for crops such as maize, and now direct seeding of rice, was observed among the upper strata of farmers in the study villages of Punjab.▲

4 AGMARKNET is a sponsored project of the Directorate of Marketing and Inspection (Ministry of Agriculture), Government of India. Data on arrivals and prices of different agricultural commodities can be sourced from <https://agmarknet.gov.in/>.▲

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