



Perception of farmers on the impact of lockdown due to Covid-19 on agriculture and oil palm cultivation in the state of Andhra Pradesh, India

M.V. Prasad*, T. Madhuridevi, K. Rajesh, S.S.N.M. Mahesh, K. Srikanth, M. Siva and R.K. Mathur

ICAR-Indian Institute of Oil Palm Research (ICAR-IIOPR), Pedavegi, West Godavari District, Andhra Pradesh-534450, India

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Abstract

A study was conducted to find the impact of lockdown due to the pandemic of coronavirus disease 2019 (COVID-19) on agriculture, in general, and on oil palm cultivation, in specific. Results revealed that the majority of the farmers contacted had 26-30 years of farming experience, were between 31-60 years of age, were educated up to high school level, with an average of four family members and possessed medium landholdings. The crops grown by these farmers include oil palm, maize, coconut, paddy, cocoa and vegetables. The majority of them had irrigated dry lands. All the farmers were aware about the reasons for the lockdown due to the COVID-19 pandemic. Areas where lockdown impact was visible on agriculture, either directly or indirectly, include labour availability, high cost of labour, harvesting, transport, and market prices. Resources affected due to lockdown were labour, fertilizers, harvesting, transport *etc.* All cultural practices were adopted in oil palm. The majority of the respondents perceived that oil palm was not affected compared to other crops during the lockdown; they opined to have obtained a good market price for oil palm during the lockdown period. Most of them informed that they received oil palm cultivation related messages sent by ICAR-IIOPR, Pedavegi. They perceived to be aware of the technologies during the lockdown period. Messages (SMS) on oil palm irrigation, cultivation practices, and fertigation were adopted. The need for Government assistance during the lockdown period was felt in the following aspects for different crops, *viz.*, marketing, cultivation assistance, and transport. Farmers perceived that lockdown might have long-term implications due to the non-availability of labour for harvesting crops. It is evident from the study that crops affected severely during the lockdown period require long term strategies to mitigate the problems faced. Farmers must be supported with minimum support price (MSP), transport facilities and *ad hoc* strategies to sell their products through the government purchase mechanism. A need for monitoring the increase in the prices of agricultural inputs was also felt.

Keywords: Effect of lockdown, COVID-19, impact, ICT, oil palm

Introduction

In India, lockdown was imposed to stop the spread of the coronavirus disease 2019 (COVID-19) pandemic for a period of 33 days in the first phase from March 24, 2020, to April 14, 2020; and later up to May 03, 2020, which was further extended to May 17, 2020. The farm economy took a severe hit when the lockdown halted transportation, stagnating the harvest and marketing. Further, during the peak harvest, the produce could not reach *mandis*

(primary agricultural markets), thus disrupting the supply chain (Ceballos *et al.*, 2021). The unavailability of migrant labourers also intercepted the harvest and post-harvest operations. The pandemic resulted in several challenges in procurement operations as well. The economic shock will likely be much more severe for India for two reasons. Firstly, pre-COVID-19, the economy was already slowing down, compounding existing problems of unemployment, low incomes, rural distress, malnutrition, and widespread inequality

*Corresponding Author: Mv.Prasad@icar.gov.in

(Jaacks *et al.*, 2021). Secondly, India's large informal sector is particularly vulnerable. Out of the national total of 465 million workers, around 91 per cent (422 million) were informal workers in 2017-18. Lacking regular salaries or incomes, the agriculture, migrant, and other informal workers were hardest hit during the lockdown period.

Here, we focused on the likely impacts on agriculture, supply chains, food and nutrition security, economic security and livelihoods. Impacts were seen specifically on production, prices of inputs and produce, marketing and banking services (NABARD, 2020). The Indian Council of Agricultural Research (ICAR) had issued state-wise guidelines for farmers to be followed during the lockdown period. The advisory mentions specific practices during harvest and threshing of various rabi (winter-sown) crops, and post-harvest storage and marketing of the farm produce (ICAR, 2020). Partial closure of rural markets and procurement options, combined with the insufficient supply of products, led to shortages of food supplies and dramatically increased prices, which particularly affected urban dwellers and the poor (Pavankumar *et al.*, 2020).

Under these circumstances, the general feeling that most crops were affected either directly or indirectly, by one or the other way due to lockdown since the movement of personnel and vehicles was restricted. This kind of lockdown was not imposed in India earlier, except in a few cases a few decades ago in Delhi and Andhra Pradesh, during the endemic incidence of diseases *viz.*, flu and cholera, respectively. An effort has been made to understand the impact of lockdown due to COVID-19 on agriculture, in general, and specifically on oil palm

cultivation. In this instance, variables consisting of personal parameters, lockdown parameters, and lockdown impact on oil palm cultivation were studied to understand perception of farmers' of the effect of lockdown on agriculture and oil palm cultivation in different dimensions.

Materials and methods

West Godavari district of Andhra Pradesh was selected purposively since Farmers FIRST project villages *viz.*, Challachintalapudi and Makkinavarigudem, exist in the district. A total of 75 oil palm growers were selected from these two villages at random. A structured interview questionnaire was prepared by considering the most pertinent parameters to study the impact of lockdown. A total of 33 items were selected for the questionnaire after pre-testing. Farmers' mobile database available with ICAR-IIOPR was used to interview the selected farmers. Due to the COVID-19 situation, data was collected through a phone-in survey. Data was collected on 33 parameters from 75 oil palm growers. The collected data were tabulated, frequency and percentage were calculated, and analyzed, appropriate inferences were drawn and presented below.

Results and discussion

Majority of the interviewed farmers were in the age group of 31-40 (28%), 41-50 (25%), 51-60 (25%), 61-70 (12%), 21-30 (7%) and 71 years and above (3%). It can be inferred that 78 per cent of the population is in the age group of 31-60 years (Table 1). The majority of the farm families have four members (33%), followed by five members (20%), six members (19%), two members (13%), three members (12%) and seven members and above

Table 1. Age of respondents and number of family members

Sl. no.	Age			No. of family members		
	Age	Frequency	Percentage (%)	Family members	Frequency	Percentage (%)
1.	21-30	5	7	2	10	13
2.	31-40	21	28	3	9	12
3.	41-50	19	25	4	25	33
4.	51-60	19	25	5	15	20
5.	61-70	09	12	6	14	19
6.	71 Above	02	3	≥ 7	2	3
	Total	75	100		75	100

Table 2. Experience in agriculture occupation

Sl. no.	Experience in agriculture	Frequency	Percentage (%)
1.	5-10	12	16
2.	11-15	10	13
3.	16-20	11	15
4.	21-25	9	12
5.	26-30	17	22
6.	31-40	11	15
7.	41 Above	5	7
Total		75	100

(3%). Forty-two per cent of farm families have dependents (Table 1).

The interviewed farmers had farming experience of 26-30 years (22%), 5-10 years (16%), 16-20 years (15%) and 31-40 years (15%), 11-15 years (13%), 21-25 years (12%), and 41 years and above (7%) (Table 2). The majority of the experienced farmers are in the age group of 31-60 years. Since middle-aged farmers are earning members, they are continuing in agriculture occupation.

Table 3. Crops grown in the selected villages

Crops	Frequency	Percentage (%)
Oil palm	64	85
Coconut	70	93
Maize	19	25
Banana	11	14
Tobacco	08	10
Paddy	14	18
Cocoa	12	16
Vegetables	08	10
Lemon	06	8
Fodder grass	01	01
Poultry	01	01
Fish Farming	01	01

The major crops grown by the farmers were oil palm (85%), coconut (93%), maize (25%), paddy (18%), cocoa (16%), banana (11%), tobacco (10%), vegetables (10%), lemon (8%) and fodder grass

(1%). Other occupations include poultry (1%) and fish farming (1%) (Table 3). The majority of the farmers undertook either coconut or oil palm-based cropping systems, followed by paddy. Since all the farms had irrigation sources, perennial crops were cultivated.

Table 4. Land owned (in acres) by farmers in the selected villages

No. of acres	Frequency	Percentage (%)
1-2.5	02	02
2.6-5.0	18	24
5.1-10.0	32	42
10.1-15.0	07	09
15.1-16.0	03	04
20.1-25.0	05	07
25.1-30.0	08	12
Total	75	100

The majority of the farmers (42%) owned 2-4 ha irrigated dry lands. Around 24 per cent of the farmers owned 1-2 ha, 9 per cent owned 4-6 ha, 7 per cent owned 8-10 ha, 7 per cent owned 10.4-12 ha, 5 per cent owned 18 ha and above, while 2 per cent owned 0.4 ha (Table 4). The majority of the farmers belonged to the small and medium categories.

Table 5. Education level of by farmers in the selected villages

Category	Frequency	Percentage (%)
Primary	18	24
High school	37	49
Intermediate	07	09
Graduate	04	06
Post graduate	02	03
Nil	07	09
Total	75	100

The majority of the farmers have obtained high school education (49%), followed by primary education (24%), intermediate (9%), uneducated (9%), graduate (6%), and post-graduate (3%) (Table 5). Almost all the farmers were aware about lockdown due to the COVID-19 pandemic since

they are literate. The farmers perceived that the lockdown would be necessary to stop the spread of COVID-19.

Table 6. Number of respondents receiving messages (SMS/WA) from ICAR-IIOPR

Category	Frequency	Percentage (%)
Received	69	92
Not Received	6	08
Total	75	100

The majority of farmers (92%) informed that they received the COVID related messages sent by ICAR-IIOPR, and 8 per cent informed they had not received messages due to network issues (Table 6).

Table 7. Perception of farmers on whether they were affected due to the lockdown

Category	Frequency	Percentage (%)
Yes	12	16
No	63	84
Total	75	100

Eighty-four per cent of farmers felt that the lockdown effect was not seen on oil palm cultivation right now; the remaining 16 per cent of farmers faced the effect due to lockdown (Table 7). This could be due to unawareness of relaxations given during the lockdown period for different purposes.

Table 8. Perception of farmers on areas of agricultural operations/items in which the effect of lockdown were visible

Sl. no.	Areas	Frequency	Percentage (%)
1.	Harvesting	03	04
2.	Labour	11	15
3.	Transport	02	3
4.	Market price	02	3
5.	High cost of inputs	05	7

Areas on which lockdown was visible on agriculture included labour availability (15%), high cost of inputs (7%), harvesting (4%), transport (3%) and market prices (3%) (Table 8). Due to the non-availability of marketing avenues, transport and prices could have been affected. Harvesting labour

and transporters were not available due to the period of relaxation during the lockdown since relaxation time was very short and rules were stringent in the initial lockdown phase.

Table 9. Perception of farmers on resources/farm operations affected due to lockdown in oil palm cultivation

Sl. no.	Resources/ farm operations affected	Frequency	Percentage (%)
1.	Irrigation	01	2
2.	Fertilizers	06	8
3.	Labour	20	27
4.	Pesticides	01	2
5.	Transport	05	7
6.	Harvesting	06	8
7.	Not affected	39	52

Respondents (Table 9) perceived (52%) that oil palm cultivation was not affected during the lockdown. The remaining resources affected due to lockdown to some extent were labour (27%), fertilizers (8%), harvesting (8%), transport (7%), irrigation water (2%), and pesticides (2%). This could be because relaxation time was very short, and the majority of the farmers were unaware of relaxation timings, as they opined.

Table 10. Perception of farmers on cultural practices adopted in oil palm during lockdown period

Category	Frequency	Percentage (%)
Yes	69	92
No	06	8
Total	75	100

The majority of the respondents (92%) adopted cultural practices in oil palm. The remaining 8 per cent of farmers faced problems in adopting practices (Table 10), which could be due to the non-availability of labour and transport during the lockdown.

Table 11. Perception of farmers on the impact of lockdown in oil palm in comparison with other crops

Category	Frequency	Percentage (%)
Impact perceived	5	7
No impact perceived	70	93
Total	75	100

Ninety-three per cent opined that oil palm was not affected compared to other crops during the lockdown (Table 11). Seven per cent of oil palm growers felt lockdown impact was perceived on harvesting. This may be due to relaxation timings being too short to proceed to fields, complete harvesting, and difficulty returning home during the initial phase of lockdown.

Table 12. Perception of farmers on the impact of lockdown on oil palm cultivation

Items / areas	Frequency	Percentage (%)
Reducing harvesting time for harvesting	10	13
No problem	65	87
Total	75	100

The majority of farmers (87%) perceived that there was no impact of lockdown on oil palm cultivation (Table 12), 13 per cent of farmers felt a problem in harvesting due to non-availability of labour, unsuitable lockdown timings to labourers; hence, within the relaxation time, the whole harvesting could not be completed in a day or two.

Table 13. Awareness of technologies during the lockdown period

Category	Frequency	Percentage (%)
Yes	66	88
Not required	9	12
Total	75	100

The majority of farmers (88 %) perceived receiving knowledge of the technologies during the lockdown period, while 12 per cent were not aware of the technologies (Table 13). This may be due to the non-availability of channels to know the crops/practices to be adopted under these circumstances and planning for the subsequent crop.

Table 14. Received messages (SMS/WA) on oil palm cultivation practices from ICAR-IIOPR

Category	Frequency	Percentage (%)
Receiving	72	96
Not Receiving	3	4
Not aware	0	0
Total	75	100

The majority (96%) informed that they received oil palm cultivation related messages sent by ICAR-IIOPR (Table 14), and four per cent of them informed that they had not received messages. This could be due to network reasons.

Table 15. Messages received on farm operations in oil palm

Practices	Frequency	Percentage (%)
Fertigation	8	10
Irrigation	12	16
Pest management	3	4
Disease management	2	3
Mulching	10	15
Total	75	100

Messages on irrigation (16%), mulching (15%), fertigation (10%), pest management (4%), and disease management (3%) were adopted (Table 15). Farmers might have felt these practices are essential and critical for crop growth and yield.

Table 16. Requirement of government assistance in oil palm cultivation

Govt. Assistance	Frequency	Percentage (%)
Market rate	45	60
Harvest equipments	01	2
Loans	02	3

The majority (60%) opined to having the best market price for oil palm cultivation during the lockdown period (Table 16), 2 per cent of farmers opined to getting assistance for harvest equipment, 3 per cent required loans from the government to meet expenses for inputs and labour costs.

Conclusion

The study indicated that oil palm was not affected due to lockdown compared to other crops due to a well-structured mechanism from planting to the sale of produce, pricing and deposit of money in farmers' accounts. Farmers perceived that lockdown might have long-term implications on agriculture due to the non-availability of labour for harvesting crops, transport, and remunerative prices. It is evident from the study that crops affected severely during the lockdown require long term strategies to overcome such problems. Farmers must

be supported with minimum support price, transport, relaxation timings for agricultural labour and ad hoc strategies to sell their products through the government purchase mechanism. An increase in prices of agriculture inputs must be monitored.

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