

Pattern of Cultivation and Crop Holiday Conditions in the Delta Region of Andhra Pradesh

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Abstract

Konaseema, comprising of sixteen fertile mandals, is often called the rice bowl of Andhra Pradesh - but it may have to change this moniker soon since 40,000 farmers in thirteen out of the sixteen mandals did not cultivate their land in the year 2011. An unviable minimum support price (MSP) for rice as well as other factors forced farmers in Andhra Pradesh to leave their lands fallow. When the farmers do not sow the crop and leave the land fallow, it is termed as Crop Holiday. The main objective of the present study is to concentrate on the prototype of cropping and reasons for declaration of crop holiday by the farmers, explore the factors that lead to crop holiday, its consequences, and to suggest some remedial measures.

Keywords: crop holiday, food grains, fertilizers, input-output ratio, cost of cultivation

JEL Classification: Q1, Q13, Q14, Q18

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Indian agriculture, especially food grains production, has made an impressive progress in the recent decades due to wide technological and institutional changes with better irrigational facilities, application of high yielding variety (HYV) seeds, use of fertilizers and pesticides, and so forth (Rao, 1992). However, adopting technology is dependent upon investment to purchase inputs, which leads to an increase in the cost of cultivation (Dutt & Sundaram, 2010). Andhra Pradesh is one of the important states in India, which recorded a considerable progress in the output of the agricultural sector and a reduction in the cost of cultivation.

In Andhra Pradesh, the Godavari Delta region is famous as the 'rice bowl,' with abundant paddy fields, and is an irrigated and multi cropping area in the state. Farmers of this Delta region obtained surplus yields until the year 2012. But owing to various perceptions, the Delta region is not exempted from adverse conditions like- hike in input costs and regressive marketing conditions, improper release (supply) of canal water for irrigation, and so forth. Such conditions lead to the declaration of *crop holiday* (not sowing of crop) by the farmers.

Objectives and Methodology of the Study

The main objective of the study is to concentrate on the prototype of cropping and reasons for declaration of crop holiday, explore the factors that lead to crop holiday, its consequences, and to suggest some remedial measures. Furthermore, the study also evaluated the steps taken by the government. The cropping pattern was analyzed for the period from 1981-82 to 2011-2012 with a view to find out the authentic conditions of cropping in the study area. Farm business income (FBI) of 300 farmers (sixty farmers from five villages) in the Godavari delta region was considered for analysis. To find the weight of input-output levels, the input output ratio (IOR) method was followed (Chand, 2007). Mean and ratio method were used for analysis of the data.

↳ **Estimation of Agriculture Cost Output Value and FBI :** The term 'cost' generally refers to the outlay of funds for

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productive services. Cost outlays for productive services are directly related to the laws of production. The costs of any production period include the value of resources service transformed into product in this single period rather than the value of the resource itself (Mruthyunjaya & Kumar, 1989). Cost of the cultivation is classified into 2 categories - Cost A_1 and Cost A_2

Cost A_1 includes (1 to 12 items):

- 1) Value of hired human labour,
- 2) Value of owned and hired bullock labour,
- 3) Value of owned and hired machine labour,
- 4) Value of owned and purchased seeds,
- 5) Value of owned and purchased manure,
- 6) Value of fertilizers,
- 7) Value of pesticides ,
- 8) Depreciation on farm implements, farm buildings, and so forth,
- 9) Irrigation charges,
- 10) Interest on working capital,
- 11) Land revenue, cess and taxes, and,
- 12) Other miscellaneous expenditure.

Cost A_2 = Rent paid for leased-in land and Total Cost = Cost A_1 + Cost A_2 .

Other Technical Terms

- (1) Total output value = total output multiplied by price

Table 1. Average Trends in TC of Cultivation, FBI, and IOR in the Kharif season

S.No.	Input items	Average cost (percentage to the total output per hectare)		
		1981-82*	1991-1992**	2011-12***
1	Value of Seed	6.65	13.80	3.80
2	Value of Organic Fertilizers	5.31	3.14	0.86
3	Value of Inorganic Fertilizers	16.67	43.79	12.06
4	Value of Total Fertilizers	21.98	46.93	12.92
5	Value of Hired Labour	36.62	156.25	43.03
6	Bullock Labour	1.96	1.96	1.96
7	Value of Machine Labour	5.48	48.30	13.30
8	Irrigation Charges	1.49	10.05	2.77
9	Value of Pesticides	1.26	34.39	9.47
10	Other Expenses	8.58	12.45	16.78
11	Total costs (including others)	3209 (76.87)	13809 (75.27)	33823(74.86)
12	Value of Output	4175 (100.0)	18347 (100.0)	45183 (100.0)
13	Farm Business Income	966	4538	11360
14	Input-Output Ratio	1:0.77	1:1.33	1:3.33

Source: *M.B. Swamy (1995). Analysis of costs and returns in agriculture – A study in Konaseema Region in East Godavari District (M. Phil Dissertation). Visakhapatnam : Andhra Pradesh.

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(2) Farm Business Income (FBI) = Total output value - total input costs

(3) IOR = Input Costs/ Output Value

Results and Analysis

(1) Trends in TC of Cultivation, FBI, and IOR in 1981-2012

(a) During Kharif Season: Favourable farm conditions prevailed in the value of output per hectare for the Kharif Paddy even though the cost of cultivation significantly increased during 1981- 82 to 2011-12. Hired labour and fertilizer cost registered an increase higher than the other costs in these three decades. The cost of cultivation increased from ₹ 4175 to ₹ 45183, which equaled to 76.87% and 74.86% during the above- mentioned period (Table 1). Obviously, the percentile growth of cost of cultivation during 1981-2012 increased by 1150%, and output value was 1263%. Thus, FBI is recorded at 113 %. The input output ratio value was 1:0.77 in 1981-82, 1:1.33 in 1991-92, and 1:3.33 in 2011-12 respectively. The average rate of the farm business income (FBI) recorded a surplus until 1991-92, but declined in 2011-12. Obviously, the percentile growth of cost of cultivation during 1981-2012 increased by 1120%, and the output value was 1243%. Thus, FBI is recorded at 123%.

Table 2. Trends in TC of Cultivation, FBI, and IOR in the Rabi Season

S.No	Input items	Average cost (percentage to the total output per hectare)		
		1981-82*	1991-92**	2011-12***
1	Value of Seed	2.57	3.58	2.56
2	Value of Organic Fertilizers	0.92	----	-
3	Value of Inorganic Fertilizers	23.57	19.11	8.07
4	Value of Total Fertilizers	24.49	19.11	8.07
5	Value of Hired Labour	33.09	37.88	33.72
6	Value of Contract Labour	---	0.58	0.94
7	Value of Bullock Labour	1.92	1.97	0.16
8	Value of Machine Labour	9.67	8.78	7.96
9	Irrigation Charges	0.14	0.70	1.88
10	Value of Pesticides	3.87	4.23	5.90
11	Value of fuel/ Electricity	2.70	2.07	2.01
12	Other Expenses	4.50	0.93	1.02
13	Cost A ₁	82.95	79.78	62.21
14	Rent Cost A ₂	2.35	1.83	1.04
15	A ₃ Total Cost (TC)	4185 (85.30)	18716 (81.61)	52315 (78.21)
16	Value of Output	4906 (100.00)	22934 (100.00)	66891 (100.00)
17	Farm Business Income	721 (14.70)	4217 (18.39)	25280 (37.79)
18	Input - Output Ratio	1:1.52	1:1.53	1:1.61

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(b) During Rabi Season: In the Rabi season, the cost of cultivation as well as production also increased during the period from 1981-2012. Out of the total cost, value of hired labor and total value of fertilizers occupied a major share. Meanwhile, a similar trend was observed in case of other input costs. The total cost increased from ₹ 4185.07 to

Table 3. Trends in TC of Cultivation, FBI, and IOR of all Crops

S.No	Input items	Average cost (percentage to the total output per hectare)		
		1981-82*	1991-92**	2011-12***
1	Value of Seed	2.05	2.67	7.18
2	Value of Organic Fertilizers	1.73	0.76	1.00
3	Value of Inorganic Fertilizers	19.29	8.97	8.78
4	Value of Total Fertilizers	21.02	9.73	9.78
5	Value of Hired Labour	23.72	17.21	17.00
6	Value of Contract Labour	2.07	6.73	12.64
7	Value of Bullock Labour	1.69	1.41	3.31
8	Value of Machine Labour	3.68	4.18	2.52
9	Irrigation Charges	2.17	0.44	1.30
10	Value of Pesticides	1.58	0.86	2.90
11	Value of fuel/ Electricity	0.93	1.28	0.00
12	Other Expenses	2.79	6.40	1.02
13	Cost A ₁	61.70	50.91	57.74
14	Rent A ₂	1.89	3.62	4.24
15	Cost A ₃	81.21	70.85	70.01
16	Value of Output	4489 (100.00)	21751 (100.00)	79398 (100.00)
17	Farm Business Income	18.78	29.14	29.99
18	Input - Output Ratio	1:1:57	1:2:20	1:1:61

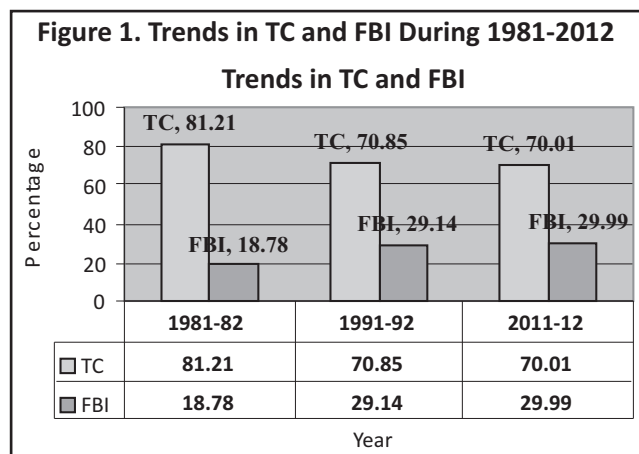
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*** Field survey

₹ 52,315, equaling to 85.30% and 78.21% during the above mentioned period (refer to Table 2). Obviously, the percentile growth of cost of cultivation during 1981-2012 increased by 1150% and output value was 1263% . Thus, FBI is recorded at 113% .

(c) Trends in TC, FBI, and IOR of all Crops : Data relating to cost of cultivation and farm business income per hectare of all crops is presented in the Table 3. It can be seen that the cost A₃ per hectare was recorded at ₹ 2855, and it was ₹13483



in 1991-92 and ₹ 55587 in 2012. In other words, the cost of all crops declined moderately during the study period from 81.21% to 70.01%. As found in various seasons, the cost /value of hired labor and other input costs to the total value of output hiked, but gradually declined during the study period. In 2012, the value of contract labor, fertilizers, and rent A₂ increased continuously. The average value of output per hectare varied from ₹ 4906 to ₹ 66891. It was due to changes in cropping pattern from agricultural products to prawn cultivation. The value of FBI was 18.78% in 1981-82 and it increased to 29.14% in 2012. The IOR was recorded at 1:1.57 in 1981-82, 1:2.2 in 1991-92, and 1:1.61 in 2012. This analysis clearly shows that a positive and substantial farm business income was earned by the cultivator households (Figure 1). Thus, this raises a question about what are the factors that caused the farmers to declare a crop holiday in the study area.

(2) The Concept of Crop Holiday : Crop holiday was declared in the Delta region frequently due to various reasons. In the 2011-12 paddy season, the Delta region of the East Godavari district presented a picture of desolation and despair, as farmers gave up on paddy cultivation for the Kharif season for want of a remunerative price and as farming became impossible on several other counts. According to official estimates, crop holiday was observed in 80,000-90,000 acres in the area, but it could be more than one lakh acres according to unofficial estimates. “It is a crying shame that farmers in the area have been driven to this point of despair by an insensitive and insensible Government.” The State Government failed to provide marketing facility to the paddy output in the last Rabi season and no storage space was available in the district or elsewhere in the State. Hence, the farmers came to the conclusion that paddy cultivation was no longer possible. Later, the State government constituted a committee under the leadership of Mr. Mohan Kanda, former Chief Secretary, Government of Andhra Pradesh to look into the issues relating to crop holiday and to suggest remedial measures.

(3) Factors Affecting Crop Holiday

(a) Bumper Harvest : Andhra Pradesh received an unprecedented average rainfall of 1,330 mm, 30% in excess over the normal in 2010. As a result, there was a record yield of 40 quintals per acre on an average. Adding to this, due to low relative prices of maize and sugarcane in the past two years, there was a 5 % increase in the area under paddy cultivation in the Kharif season and a 10.8% increase in the Rabi (area under paddy cultivation) season. This led to an all time record Rabi production of 70 lakh tonnes in 2011-12, a 30% increase over the previous year (Table 4).

Table 4. Area, Production, and Yield of Rice in Andhra Pradesh

Years	Area (Lakh ha)		Production (Lakh Tonnes)		Yield (Quintal per Acre)	
	Kharif	Rabi	Kharif	Rabi	Kharif	Rabi
2000-01	30.04	12.39	82.34	42.24	27.41.	34.01
2001-02	24.26	13.99	65.01	48.89	26.79	34.96
2002-03	21.09	7.13	50.54	22.73	23.97	31.89
2003-04	21.09	8.66	58.42	31.11	27.72	35.94
2004-05	22.15	8.71	63.93	32.08	28.86	36.83
2005-06	25.26	14.56	63.77	53.27	25.24	36.59
2006-07	26.41	13.37	69.49	49.23	26.31	36.81
2007-08	25.78	14.06	81.91	51.33	31.78.	36.50
2008-09	28.04	15.87	83.80	58.61	29.89	37.00
2009-10	20.63	13.78	59.56	48.82	28.87	35.43
2011-12*	29.22	17.59	75.07	70.15	25.69	39.88

*Advance Estimates

Source: Directorate of Economics and Statistics, Government of Andhra Pradesh

(b) Lack of Storage Facilities : According to government statistics, the State produced 14 million tonnes of rice in the agricultural year 2011-12. This was an increase of 32% over the previous year (2010-11). But the storage capacity of Food Corporation of India (FCI) for rice in the state is 3.6 million tonnes. Even during the last Kharif and Rabi seasons, the warehouses were full and the government did not procure paddy from most of the farmers. The result was that paddy remained stacked in open fields in several villages. Many schools also functioned as storage houses.

(c) Faulty Procurement as per MSP (Minimum Support Price) : Analysts and farmers' groups say the problem lies in the State's procurement system and the way MSP is calculated. Other States procure paddy directly from farmers and give it to the millers for processing, while Andhra Pradesh buys through the millers, who handover 75% of the procured paddy to FCI after processing it. They allowed selling the remaining 25% in the open market. FCI reimburses the millers and pays for the processing and transport costs after millers produce documents showing they have paid MSP to the farmers. According to some farmers, the millers often prepare false documents and bribe officials to get the same approved, and also, they get double profit by buying paddy at a lower price and selling the by-products like broken rice, bran, and husk at good prices. Therefore MSP, which aims to avoid distress sale and protect farmers from exploitation, fails to protect them from growing inflation.

According to a farmer, the Commission for Agricultural Costs and Prices, which fixes MSP every year, never considers inflation, increase in cost of cultivation, cost of living, management, and transport expenses, and therefore, there is no corresponding increase in MSP. With the onset of the monsoon, farmers sold paddy at a throwaway price, at even one-third of the MSP or even less. Majority of the farmers who sold their crop to millers suffered a loss of around (on an average) ₹ 5,000- ₹ 8,000 per acre when compared to what the MSP would have enabled them to earn. In 2006, the Commission on Farmers Welfare, headed by agricultural scientist M. S. Swami Nathan, recommended that MSP should be 50% over the cost of cultivation. The Centre is yet to accept the recommendations of the committee.

(d) Labour Wages Increased Due to NREGS : Labour charges have been increasing every year due to scarcity of labour. Laborers are interested in NREGS work so that they can earn better wages while working for the least number of hours. Thus, marginal productivity of labour is very low (Vaidyanathan, 2000). Continuous hike in diesel prices leads to an increase in the rent of machinery and consequently, leads to an increase in the cost of cultivation.

(e) Transport Cost : It is evident that the transport cost increased from ₹ 16 to ₹ 25 per bag. Due to improper release of water, the crop schedule shifts to the heavy rainy season, which leads to crop loss.

(f) Export Constraints: Since the warehouses are full and there is no space for new procurement, big farmers and leaders of both the ruling and opposition parties demanded that the Centre should allow Andhra farmers to export at least 2.5 million tonnes each of Sona Masuri and other superfine varieties of rice. The then Chairperson of Confederation of Indian Farmers' Association said that this will help farmers get a better price for their produce just the way farmers in Punjab and Haryana get by exporting basmati varieties as well as Pusa 1121, a non-basmati variety, and 0.1 million tonnes of Sona Masuri.

(4) Consequences of Crop Holiday

➤ Due to crop holiday, about 1.68 lakh metric tonnes of paddy was lost in the Kharif season.

➤ Crop holiday resulted in reduction in sale of fertilizers worth ₹ 100 crores, which means no sale of nearly 1700 metric tonnes of Urea, 500 MT of DAP, 1000 MT of complex and other fertilizers.

➤ About 1.5 lakh workers lost their employment worth ₹110 crore, especially in 6 mandals out of the 16 mandals of the Konaseema/ Delta region.

➤ About 90 thousand marginal and small farmers suffered in this regard.

➤ Banks and cooperative societies disbursed loans amounting to about ₹ 217 crores in the year 2010 to 72,504 farmers. But due to crop holiday, they may not provide loans to the farmers and consequently, the farmers have to approach money lenders for their financial needs.

✍ Possibility to extend salt affected area due to spread of salt water by damaged drains and canals led to scarcity of dry grass at 1.20 lakh tonnes.

✍ Cockroaches and rats attacked the coconut crop as no crop was growing on the fields.

(5) Arguments Against Crop Holiday : Some of the officials argued that the bumper harvest of paddy in Andhra Pradesh in 2011-12 brought the farmers trouble rather than benefit. It began with no miller turning up at mandies until April end to lift the paddy, causing prices to plunge. The officials informed that the intention of the farmers of Godavari district was not crop holiday, but they wanted to reschedule their cropping time so as to avoid the November cyclones. The officials also gave a report that the farmers wanted to go for early Rabi of the year and early release of water for next Kharif, most probably by May.

The Chief Minister of Andhra Pradesh had asked the East Godavari district collector and other concerned officials to enumerate the statistics about labour that required employment in case of non-cultivation during Kharif in some areas in the district. The officials informed the Chief Minister that ₹ 50 crore of works had been identified to be taken up under MGNREGS in 13 mandals.

(6) Commission's Report on Crop Holiday : The AP Government appointed the Mohan Kanda committee to identify the circumstances that led to the declaration of crop holiday by the farmers, provide measures to prevent recurrence of such incidents, and to suggest suitable modifications to the cropping schedule in Konaseema region so that risks of weather and market are minimized. The Committee visited the Konaseema area and interacted with the farmers, organizations, and officials from various departments, federations, corporations, and bankers to understand the circumstances leading to such a situation. They reported to the Committee that high cost of cultivation not being covered by MSP, an ineffective procurement system, lack of storage capacity, crop failure on account of frequent cyclones, improper maintenance of the drainage system, delay in releasing canal water, non-availability and high cost of labour, and lack of suitable farm machinery were among the major reasons for declaring crop holiday by the farmers.

Suggestions

✍ The farmers demanded the implementation of Swaminathan's recommendations of MSP at 50% more than the cost of cultivation and also to provide them compensation amounting to ₹ 10,000 per acre to avoid crop holiday.

✍ The Government should establish proper storage facilities and purchase paddy in time by procuring the rice itself rather than leaving it on the millers.

✍ The drainage system should be repaired and the water should be released within the stipulated time period for the sowing of the crops.

✍ Impose moratorium on collection of loans and reschedule the loans to avoid debt burden.

✍ Link the NREGS works to agricultural works by scheduling the tasks properly between both works so that it does not affect the crop season.

✍ Issue proper guidelines for the farmers that would enable them to fix the correct prices for paddy.

✍ Construct link roads from villages to market yards to reduce the cost of transportation.

✍ Sell fertilizers through cooperative societies rather than the private dealers to avoid artificial scarcity of fertilizers and pesticides.

✍ Provide subsidies to purchase machinery that can replace labour as labour availability has become scarce, and therefore, expensive (because of NREGA activities).

Conclusion

It is clear that the returns in the Kharif paddy season recorded loss, and recorded surplus in the Rabi season. This was due to differences in the cost of cultivation during both the periods. However, the input - output ratio gradually

declined from 1: 1.34 to 1: 0.93 during 1981-82 and 2011-12. It is clear that unless paddy is procured by the government, the farmers are not going to benefit. Thus, they had no option but to change their cropping pattern. This lopsided policy actually becomes the root cause of the crisis of crop holiday. Crop holiday may lead to scarcity of food grains and food security. Prices of paddy will increase in the future; but this increase in prices would benefit only the millers. Some of the demands of the farmers are not extraordinary, and at the same time, price stability of food grains is also essential.

The Mohan Kanda committee reported to the Government to carry out sustained and pro-active procurement of paddy, de-silting of canals, ensuring availability of farm machinery on custom hiring basis, diversification of the farming system, encouraging village based industries, removing encroachments in drains, providing medium term measures such as early opening of canals, carrying out repairs in the drainage system, enhancing storage facilities, announcement of the MSP and export policy in advance, bringing about greater coordination among various departments, and implementing long term measures such as the creation of agro-service centers, improving infrastructural facilities like roads and so forth. Thus, the Government should react positively and protect the farmers, or else, the problems of the farmers would snowball into huge problems like low productivity of crops.

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