

## Constraints Influencing Profitability of Agriculture by Tenant Farmers in Andhra Pradesh

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### ABSTRACT

This paper examines the profitability and constraints influencing the profitability of agriculture by tenant farmers. Response Priority Index (RPI) is a tool utilized for analysing the responses which have been collected from the farmers and given ranks based on highest priority to the responses of constraints. The present study has been conducted in three districts of Andhra Pradesh viz., Srikakulam, West Godavari and Kurnool. Sorghum from field crops, chilli, cotton and tobacco from cash crops and maize + red gram intercropping were found more profitable than other crops in Andhra Pradesh. The main constraints of the farmers identified were escalation of input costs, non availability of labour, market facilities, lower price for produce, higher rental values, non availability of credit and insurance. Findings from the study suggested that cropping pattern with diversity and use of optimum quantity of inputs needed to improve the profitability. Inputs should be availed mostly with subsidy for the required quantity. Proper regulation in rental values is needed. Government should focus on improvement of market and financial facilities to surpass the distress sales and there is a need to establish a formal agreement between tenant farmer and owner of the land to overcome the problems in availing facilities of credit, insurance etc.

**Keywords :** Constraints, Credit and Price and Marketing Profitability, RPI and Tenant farmer.

Tenancy is the agreement between land owner and tenant farmer in the terms of fixed money, fixed produce or shared produce. As per Land Committee Report (GoAP, 2006), 55-60 percent of lands surveyed in five randomly selected villages in five coastal districts of the state of Andhra Pradesh are under lease and 100 percent of tenancy is informal because of stringent rules. Tenant farming is mainly followed by small, marginal farmers and land less labourers. Majority of the land owners leased their land to the land less labours or small peasants. About 36 per cent of the tenant households were landless and another 47.5 per cent were owned 0.5 ha or less. Tenant farmers reluctantly depend on money lenders and landlords as the financial institutions shut their doors to them due to lack of collateral security for the credit (Prasad *et al.*, 2012). Tenant farmers rarely get bank credit and they don't get any subsidies (Raju, 2019).

### MATERIAL AND METHODS

Multi stage sampling method was adopted for selecting sample respondents. In Andhra Pradesh three districts were selected based on the criteria of maximum number of tenant farmers by taking into the consideration of Loan Eligibility cards (LECs) and Certificate of Cultivation (CoC) from three regions namely North Coastal, South Coastal and Rayalaseema. Four mandals in each district comprising of 12 mandals and two villages from each mandal

comprising of 24 villages were selected. Finally in each village 15 farmers were selected at random making a total sample of 360 farmers, comprising of 137 tenants, 133 owner cum tenants and 90 owners. However, the primary data pertaining to the constraints faced were collected from tenant farmers and owner cum tenants farmers only for the agricultural year 2017-18.

### Analytical tools

Tabular analysis was used to calculate cost of cultivation, gross income and net income. Response Priority Index (RPI) was employed to carryout responses of constraints which are influencing profitability and described as:

### Response Priority Index (RPI)

In the quantification of constraints expressed by the farmer, there was a problem whether to give more emphasis for number of responses to a particular priority or to the highest number of responses to a constraint in first priority, as both lead to different conclusions. To resolve this, Responses-Priority Index (RPI) as a product of Proportion of Responses (PR) and Priority Estimate (PE) was adopted. The PR for the  $i^{\text{th}}$  constraint will give the ratio of number of responses for a particular constraint to the total responses. The RPI was arrived as given below

$$(RPI)_i = \frac{\sum_{j=1}^k f_{ij} \cdot X_{[(k+1)-j]}}{\sum_{i=1}^I \sum_{j=1}^k f_{ij}}$$

Where,

$(RPI)_i$  = Response Priority Index for  $i^{th}$  constraint.

$\sum_{j=1}^k f_{ij}$  = Total number of responses for the  $i^{th}$  constraint.

$f_{ij}$  = Number of responses for the  $j^{th}$  priority of  $i^{th}$  constraint ( $i=1,2,3,\dots,I; j=1,2,3,\dots,k$ ).

$k$  = Number of priorities.

$X_{[(k+1)-j]}$  = Scores for  $j^{th}$  priority.

$\sum_{i=1}^I \sum_{j=1}^k f_{ij}$  = Total number of responses to all constraints.

Here, larger the RPI, higher the importance for the particular constraint.

## RESULTS AND DISCUSSION

### PROFITABILITY OF TENANT FARMERS

Farm profitability across ownership of land varies depending upon the cost of cultivation, productivity, income obtained after sale of their produce. Farmers under various ownership who managed their crops with lesser expenses and getting remunerative prices have realized higher gross returns for their produce. However, net returns were becoming mostly negative in both tenant and owner cum tenant due to addition of rental values of lands. In this context the detailed comparative explanation of cost of cultivation, gross income and net income are given below for tenant and owner cum tenant only.

#### Profitability of Farmers in Srikakulam District

As shown in the Table 1 during *kharif* season, tenants recorded highest cost of cultivation (Rs. 77665/ha) in rice due to higher expenses on inputs and rental value for their leased land. Owner cum tenant farmers recorded Rs. 75,064/ha. In *rabi* season, groundnut recorded the higher cost of cultivation of Rs. 84567 and Rs. 79702 for tenant and owner cum tenant farmers, respectively. As rice fallow pulse crops like blackgram and greengram were cultivated with limited operations.

During *kharif* season, rice gross income was highest with owner cum tenant (Rs. 60896/ha) and tenant (Rs. 59278/ha). In case of *rabi* season, tenant and owner cum tenant farmers recorded the highest gross income with groundnut of Rs. 101295 and Rs. 76946, respectively.

There was no positive net income recorded with owner cum tenant farmer sample in both *kharif* and *rabi* season. In *rabi* season, positive net income was recorded with groundnut crop for tenant farmers *i.e.* Rs. 16728 due to remunerative price for the groundnut produce during the assessment year.

#### Profitability of Farmers in West Godavari District

As per Table 2 during *kharif* season, cost of cultivation was highest for groundnut (Rs. 116283/ha) followed by maize (Rs. 104086) for tenant farmers due to higher rental values of land in the district. In case of owner cum tenant farmers, maize was having the highest cost of cultivation (Rs. 122819) followed by rice (Rs. 81958/ha). During *rabi*, tobacco recorded the highest cost of cultivation with an amount of Rs. 242357/ha and Rs. 211947/ha for tenant and owner cum tenant respectively due to higher operational cost along with the rental values of land.

In *kharif* season highest gross income was recorded for groundnut with an amount of Rs. 92495/ha by tenant farmer followed by rice (Rs. 66452/ha) and maize (Rs. 65208/ha) respectively. Maize recorded highest (Rs. 75286/ha) gross income by owner cum tenant. In *rabi* season, highest gross income was recorded for tobacco with an amount of Rs. 250659/ha and Rs. 249330/ha for tenant and owner cum tenant respectively followed by groundnut (Rs. 109421/ha) and rice (Rs. 90441/ha.) for tenant farmers respectively.

In *kharif* season, there was no positive net income recorded with the crops. In *rabi* season the highest and positive net income was recorded with tobacco with an amount of Rs. 8302/ha and Rs. 37383/ha for tenant and owner cum tenant respectively. For tenants, the next highest positive net income was for ground nut crop with an amount of Rs. 6126/ha. There was no positive net income recorded for any crop with respect to owner cum tenant farmer, except tobacco.

#### Profitability of Farmers in Kurnool District

From the Table 3 during *kharif* season, it was clear that cost of cultivation was high in case of chilli crop for all the three types of ownership but highest was recorded with owner cum tenant farmer *i.e.* Rs. 224262/ha followed by tenant (Rs. 219229/ha).

The next highest was recorded with tenant farmer for groundnut with an amount of Rs. 100220/ha followed by rice (Rs. 97177/ha). The lowest cost of cultivation for tenant farmers was recorded with maize + redgram inter crop (Rs. 72488/ha) and sorghum for owner cum tenant with an amount of Rs. 58089/ha. In case of *rabi* season, highest cost of cultivation was recorded with bengalgram for tenant farmers (Rs. 74574/ha) and maize for owner cum tenant farmers (Rs. 76844/ha).

In *kharif* season, highest gross income was recorded with chilli crop with an amount of Rs. 262508 and Rs. 256875 for owner cum tenant and tenant farmers respectively. In case of tenant farmers, next highest gross income was recorded with cotton (Rs. 96990) and groundnut (Rs. 94337) where as for owner cum tenant, highest gross income was observed with

groundnut (Rs. 106514) and cotton (Rs. 92527), respectively. In *rabi* season, both tenant and owner cum tenant farmers were getting highest gross income by growing bengalgram *i.e.* Rs. 74770 and Rs. 71452.

The final parameter of the sample farmers in Kurnool district was net income which showed the profitability of their crops which led to better livelihood. During *kharif* season for all three kinds of farmers, chilli crop was considered as the most profitable one compared to other crops by overcoming all the expenses with a surplus amount of Rs. 37646/ha and Rs. 38245/ha for tenant and owner cum tenant farmers respectively. For tenant farmers the next crop with highest net income was maize + redgram with an amount of Rs. 17230/ha. After chilli, groundnut was having next highest net income with an amount of Rs. 20661/ha for owner cum tenant. In *rabi* season tenant (Rs.7842/ha) and owner cum tenant (Rs. 15571) were getting highest net income from sorghum crop.

### Profitability of Farmers in Andhra Pradesh

The details of costs, returns and profitability of sample farmers in Andhra Pradesh are presented in the Table 4 for *kharif* and *rabi*. In *kharif*, cost of cultivation was highest for chilli crop with an amount of Rs. 219233/ha and Rs. 224261/ha followed by groundnut (Rs. 113816/ha and Rs. 85854/ha) for tenant and owner cum tenant categories respectively. The third highest cost of cultivation was recorded with cotton crop with an amount of Rs. 95582/ha for tenant and Rs. 83315/ha for owner cum tenant farmers. During *rabi* season, tobacco recorded the highest cost of cultivation with an amount of Rs. 242357/ha and Rs. 211947/ha for tenant and owner cum tenant respectively. For tenant farmers, the next highest recorded crop was maize (Rs. 104313/ha) followed by rice (Rs. 98653/ha). The next highest value of cost of cultivation for owner cum tenant farmers was recorded with rice (Rs. 94335/ha) followed by maize (Rs. 92415/ha).

The highest gross income during *kharif* was recorded with chilli for tenant and owner cum tenant with an amount of Rs. 256880/ha and Rs. 262506/ha respectively. The next highest gross income was recorded in cotton (Rs. 96988/ha) followed by groundnut (Rs.92778/ha) for tenant farmers. Groundnut (Rs. 106516/ha) recorded the next highest gross income followed by cotton (Rs. 92527/ha) for owner cum tenant. During *rabi* season tobacco recorded highest gross income of Rs.250659/ha and Rs.249330/ha for tenant and owner cum tenant respectively. This is followed by groundnut and rice (Rs.105809/ha and Rs.90441/ha) for tenant while rice (Rs.89449/ha) followed by groundnut (Rs.76947/ha) for owner cum tenant farmers.

The positive and highest net income during *kharif* was observed in case of chilli crop with an amount of Rs. 37647 and Rs. 38245 for tenant and owner cum tenant respectively. Maize + red gram (Rs.17230) followed by cotton (Rs.1406) crops were also profitable after chilli for tenant farmers. Groundnut (Rs.20662) followed by cotton (Rs.9213) recorded the next highest net income in case of owner cum tenant farmers.

During *rabi* season, positive and highest net income for tenant farmers was recorded with groundnut (Rs.10838) followed by tobacco (Rs.8302) and sorghum (Rs.7842). Highest net income was recorded with tobacco (Rs.37383) followed by sorghum (Rs.15571) in case of owner cum tenant farmers.

Bhatt (2008) reported similar results from his study *i.e.* net returns obtained were lower in leased in land due to high amount of rent paid for leased-in land. Prakash *et al.* (2013) revealed that leased in cultivator's cost of cultivation and net returns were different from owned land cultivators.

### CONSTRAINTS

Sample farmers in study area were requested to identify the constraints for increasing the profitability. Response Priority Index was computed to prioritise the constraints faced by the farmers and the results obtained are presented in Table 5. These results indicated the ranks of the constraints across the districts for tenant and owner cum tenant farmers.

In Srikakulam district, the major constraints faced by tenant farmers included escalation of input costs followed by lower prices for produce, non availability of labour, higher rental values, non availability of credit and insurance, market facilities, etc.

Input costs were increased more than income due to increase in quantity of input use as well the price of inputs. However availability of inputs through subsidy was limited to the respondent farmers. Lower price to output was realised due to poor market linkages and distressed sales. Labour availability was poor as majority of the rural people were migrated for other works influencing labour wages to increase. Rental values of land were the extra burden to the farmers when they realise lower yields from the crop. Credit availability from financial institutions for tenant farmers were very low. Because of lack of collateral security the financial institutions were providing less financial support. Sometimes insurance also was not availed by the tenant during times of crop failure as most often, the owners have already availed the loan in previous years. Market facilities provided by the government organizations existed at mandal level only. Owner cum tenant farmer faced the escalation of input costs as

**Table 1. Profitability of farmers in Srikakulam district**

Season	Crop	Cost of cultivation (Rs./ha)		Gross Income (Rs./ha)		Net income (Rs./ha)	
		Tenant	Owner cum tenant	Tenant	Owner cum tenant	Tenant	Owner cum tenant
<i>Khariif</i>	Rice	77665	75064	59278	60896	-18387	-14168
<i>Rabi</i>	Blackgram	33084	26579	17509	14063	-15574	-12516
	Greengram	26599	27662	13614	16530	-12985	-11132
	Groundnut	84567	79702	101295	76946	16728	-2755

**Table 2. Profitability of farmers in West Godavari district**

Season	Crop	Cost of cultivation (Rs./ha)		Gross Income (Rs./ha)		Net income (Rs./ha)	
		Tenant	Owner cum tenant	Tenant	Owner cum tenant	Tenant	Owner cum tenant
<i>Khariif</i>	Blackgram	65913	-	36507	-	-29407	-
	Groundnut	116283	-	92495	-	-23788	-
	Maize	104086	122819	65208	75286	-38888	-47533
	Rice	91548	81958	66452	67966	-25096	-13992
<i>Rabi</i>	Tobacco	242357	211947	250659	249330	8302	37383
	Blackgram	76148	-	28981	-	-47166	-
	Groundnut	103295	-	109421	-	6126	-
	Maize	104313	94622	85802	78157	-18511	-16465
	Rice	98653	94335	90441	89449	-8212	-4886

**Table 3. Profitability of farmers in Kurnool district**

Season	Crop	Cost of cultivation (Rs./ha.)		Gross Income (Rs./ha.)		Net income (Rs./ha.)	
		Tenant	Owner cum tenant	Tenant	Owner cum tenant	Tenant	Owner cum tenant
<i>Khariif</i>	Blackgram	78517	60409	55535	57171	-22981	-3237
	Chilli	219229	224262	256875	262508	37646	38245
	Cotton	95584	83314	96990	92527	1406	9213
	Groundnut	100220	85853	94337	106514	-5883	20661
	Jute	-	64442	-	65786	-	1344
	Maize	80138	69920	56075	64558	-24063	-5362
	Rice	97177	76077	71785	63756	-25391	-12320
	Redgram	80390	73271	63362	58976	-17028	-14295
	Sorghum	79500	58089	57682	60816	-21819	2726
	Maize + redgram	72488	67390	89717	71157	17230	3767
<i>Rabi</i>	Bengalgram	74574	73485	74770	71452	196	-2033
	Sesamum	-	62903	-	54464	-	-8439
	Sorghum	54402	42321	62244	57892	7842	15571
	Blackgram	-	52233	-	41478	-	-10755
	Maize	-	76844	-	65373	-	-11472

**Table 4. Profitability of farmers in Andhra Pradesh**

Season	Crop	Cost of cultivation (Rs./ha.)		Gross Income (Rs./ha.)		Net income (Rs./ha.)	
		Tenant	Owner cum tenant	Tenant	Owner cum tenant	Tenant	Owner cum tenant
Kharif	Blackgram	74393	60410	58933	60412	-25085	-3238
	Chilli	219233	224261	256880	262506	37647	38245
	Cotton	95582	83315	96988	92527	1406	9213
	Groundnut	113816	85854	92778	106516	-21038	20662
	Jute	-	64440	-	65784	-	1344
	Maize	83957	75608	57531	65711	-26425	-9896
	Rice	85297	77787	63638	63842	-21659	-13945
	Redgram	80390	73271	63362	58976	-17028	-14295
	Sorghum	79500	58089	57682	60816	-21819	2726
Maize + redgram	72488	67390	89717	71157	17230	3767	
Rabi	Bengalgram	74574	73485	74770	71452	196	-2033
	Blackgram	43317	29246	20235	16914	-23081	-12332
	Maize	104313	92415	85802	76570	-18511	-15846
	Sesamum	-	62903	-	54464	-	-8439
	Sorghum	54402	42321	62244	57892	7842	15571
	Greengram	26599	27662	13614	16530	-12985	-11132
	Groundnut	94971	79702	105809	76947	10838	-2756
	Tobacco	242357	211947	250659	249330	8302	37383
	Rice	98653	94335	90441	89449	-8212	-4886

**Table 5. Constraints faced by sample farmers in Srikakulam, West Godavari Kurnool Districts and Andhra Pradesh**

S.No.	Constraints	Srikakulam				West Godavari				Kurnool				Andhra Pradesh			
		Tenant		Owner cum		Tenant		Owner cum		Tenant		Owner cum		Tenant		Owner cum	
		RPI	Rank	RPI	Rank	RPI	Rank	RPI	Rank	RPI	Rank	RPI	Rank	RPI	Rank	RPI	Rank
1	Escalation of input costs	0.83	1	0.84	1	0.72	2	0.8	1	0.82	2	0.89	1	0.79	1	0.85	1
2	Non availability of labour	0.61	3	0.75	2	0.58	4	0.7	2	0.47	4	0.79	2	0.55	4	0.75	2
3	Market facilities	0.29	6	0.3	5	0.2	6	0.3	6	0.27	6	0.47	4	0.25	6	0.34	6
4	Lower price for produce	0.69	2	0.67	3	0.51	5	0.6	4	0.44	5	0.62	3	0.54	5	0.63	3
5	Higher rental values	0.58	4	0.65	4	0.84	1	0.7	3	0.62	3	0.34	6	0.68	3	0.57	4
6	Non availability of credit and insurance	0.5	5	0.28	6	0.65	3	0.4	5	0.88	1	0.4	5	0.69	2	0.36	5

major constraint followed by non availability of labour, lower price for produce, rental values, market facilities and non availability of credit and insurance.

In West Godavari district among the constraints faced by tenant farmers higher rental values was the major constraint followed by escalation of input cost, non availability of credit and insurance, non availability of labour, lower price for produce and market facilities. In west Godavari district rental values were more than the other districts in the study area. This was due to the facility of growing two seasonal

crops owing to the availability of assured irrigation facility. Owner cum tenant farmers faced the major constraint as escalation of input costs followed by non availability of labour, higher rental values, lower price for produce, non availability of credit and insurance and market facilities.

In Kurnool district tenant farmers faced non availability of credit and insurance as the major constraint followed by escalation of input cost, higher rental values, non availability of labour, lower price for produce and market facilities. Owner cum tenant

farmer faced the major constraint as escalation of input costs followed by non availability of labour, lower price for produce, market facilities, non availability of credit and insurance and higher rental values.

In Andhra Pradesh, among the constraints for tenant farmers, escalation of input costs was the a major constraint followed by non availability of credit and insurance, higher rental values, non availability of labour, lower price of produce, and market facilities. Owner cum tenant farmer faced the major constraint as escalation of input costs followed by non availability of labour, lower price for produce, higher rental values, non availability of credit and insurance and market facilities. Hossain and Bayes (2007) found the similar results that the returns for tenants were decreased because of a gradual increase in input prices and labour wages.

Sharma et al., (2008) also expressed the same results i.e., higher input cost was a problem to the tenants. Prasad et al., (2012) and Haque (2013) reported that majority of the cultivators failed to access bank loans and insurance.

### CONCLUSION

The results found that sorghum from field crops, chilli, cotton and tobacco from cash crops and maize + red gram intercropping were found more profitable than other crops in Andhra Pradesh. The results suggested that cropping pattern with diversity and use of optimum quantity of inputs will help the tenant farmers to realize the positive net income. The major constraints observed by tenant and owner cum tenant farmers were escalation of input costs, higher availability of credit and insurance due to non aware of the registration and utilization of LECs and CoCs, etc. Other constraints were rental values, lower price for the produce due to poor market linkage, non availability of labour and market facilities. The farmers opined that inputs should be availed mostly with subsidy for required quantity. Proper regulation in rental values is needed. Government should focus on credit for

tenants and manage to arrest other malpractices from owners for availing insurance. There is a need to establish a formal agreement between tenant farmer and owner of the land to overcome the problems like credit, insurance, besides providing market facilities nearer to the villages.

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