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Cropping Pattern and Cropping Intensity of Tribal Agriculture

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ABSTRACT

India half of the population depending on c. Indian agriculture is dependent on monsoons. Monsoons are erratic and undependable. Nearly 60% of the cultivable land in India is dependent on monsoons, which is contributing nearly 42% of the total production from agriculture. With respect of cropping pattern in Khammam districts, cotton was the predominant crop followed by maize, paddy and ground nut crop. Where as in Warangal district paddy was the predominant crop followed by maize, cotton and ground nut crop. The gross cropped area (32.41, 37.36) in Khammam and Warangal district and cropping intensity was increasing trend with farm size.

Key words: *Cropping, Paddy, Paddy, Monsoons.*

INTRODUCTION

India is one of the countries having the largest concentration of tribal population in the world. According to 2011 census the population of the scheduled tribes in the country were 8.43 crores, constituting about 8.2 per cent of the total population indicating approximately one tribesman for every fourteen Indians. Majority of tribal population is concentrated in nine states i.e. Madhya Pradesh, Bihar, Orissa, Gujarat, Rajasthan, Assam, Maharashtra, West Bengal and Andhra Pradesh. Though 80 per cent of tribals depend on agriculture as the main source of livelihood, they still remain below the poverty line[1,4]. Each tribal group possesses its own strong socio- economic and cultural ethos. There are some tribal groups which are, even now, at food-gathering stage, while others practice shifting or 'Jhum' cultivation. Some tribal areas are not easily accessible while in some others small scale industrialization has brought a change in their way of life.

Integrated Tribal Development Agency, Warangal and Khammam Districts

The Integrated Tribal Development Agency (ITDA) came into existence on 1st October 1979 with headquarters at Eturnagaram, Warangal district and in Khammam district ITDA was formed on ITDA head quarter under the Society Registration Act: 1974-75 1st at Khammam, 1974-75 Shifted to Palwancha and 1979 Shifted to Bhadrachalam 1993.

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These two ITDAs were functioning with a view to implement developmental programmes in sectors like education, irrigation, agriculture, animal husbandry, cooperation, industries, medical and health etc. The overall objective of the ITDA is the development of tribals in their economic, social and cultural aspects. The agency prepares separate action plans for each year.

MATERIALS AND METHODS

Selection of District

Warangal and Khammam districts were selected purposively. The Integrated Tribal Development Agency has been operating in these districts for more than 30 years. Warangal district has considerable tribal population of about 7.99 lakhs which constitutes 30 percent of total population in the district and Khammam district has considerable tribal population of about 11.44 lakhs which constitutes 34 percent of total population in the district. Comparative Among the two districts high tribal population exists in Khammam district. This ranks first in the state in tribal population

Selection of mandal

The area of operation of Integrated Tribal Development Agency in Warangal district extends to 13 mandals. Out of 13 mandals 3 mandals viz., Eturnagaram, Tadwai and Mangapet were selected for the detailed study because Tribal Development programmes were well initiated in these 3 mandals extending to 64 villages in Eturnagaram, 21 villages in Tadwai and 33 villages in Mangapet mandals. Thus out of 396 villages covered by Integrated Tribal Development Agency in the entire district, 118 villages (24.36%) in these 3 mandals were covered by the study.

The tribal population is considerably large in these three mandals when compared to other mandals. Out of the total tribal population of 5, 30,656. Eturnagarm, Tadwai and Mangapet have population of 11,776, 11876 and 11560 respectively.

In Khammam district 3 mandels viz., Palwancha, Mulkalapally and VRC puram were selected for the detailed study. Tribal Development programmes were well initiated in these 3 mandals extending to 53 villages in Palwancha, 34 villages in Mulkalapally and 37 villages in VRC puram mandals. The tribal population is considerably large in these three mandals when compared to other mandals. Out of the total tribal population of 7, 65,565 in the district,Palwancha, Mulkalapally and VRC Puram have population of 29,368, 21,417 and 16,112 respectively.

Selection of villages

From each mandal two villages were selected at random making the total of 12 villages from two districts.

Selection of farmers

The farmers in each selected village were arranged in descending order taking the size of holding into consideration. They were grouped into suitable categories. The farmers were selected at random depending upon his availability. The size groups are follows:

Small	:	0-1 ha.wet land or 0-2.5 ha. dry
Medium	:	1-2 ha.wet land or 2.5-5 ha. dry
Large	:	2 ha above wet or 5 ha. dry

The number of farmers was taken as 9 under each category randomly. Hence, the total sample size was 108.

Cropping intensity

It is the gross cropped area divided by net cropped area multiplied by 100.

$$C.I. = \frac{\text{Gross cropped area}}{\text{Net area sown}} \times 100$$

RESULTS AND DISCUSSION

Cropping intensity

The particulars of copped area, area cultivated more than once, gross cropped area and cropping intensity are presented in table 1

It can be observed from the table, that I.T.D.A Badrachalam**,** Khammam and I.T.D.A Eturnagaram, Warangal districts, in I.T.D.A Badrachalam**,** Khammam, the net cropped area of the tribal farms ranged from 11.64 hectares on small farms to 43.10 hectares for large farms with an average net cropped area of 26.18 as a whole. It was 23.79 hectares on medium farms. The cropping intensity was the highest on medium farms (125.72%) and the lowest on small farms (118.21%). The same was noticed for large and pooled farms are 124.26 percent and 123.79 percent respectively.

Table 1: Pattern of cropped area and cropping intensities on sampled farms (in ha)

Particulars	Khammam				Warangal			
	Small farms	Medium farms	Large farms	Pooled farms	Small farms	Medium farms	Large farms	Pooled farms
Net cropped area	11.64	23.79	43.10	26.18	11.84	27.57	44.10	27.84
Area cultivated more than once	2.12	6.12	10.45	6.23	3.57	10.76	14.23	9.52
Gross cropped area	13.76	29.91	53.56	32.41	15.41	38.33	59.33	37.36
Cropping intensity	118.21	125.72	124.26	123.79	130.15	139.02	134.53	134.19

In I.T.D.A Eturnagaram, Warangal district, the net cropped area of the tribal farms ranged from 11.84 hectares on small farms to 44.10 hectares for large farms with an average net cropped area of 27.84 as a whole. It was 27.57 hectares on medium farms. Cropping intensity is a good yard stick for land use planning. Through this measure, the production on the farm can also be assessed easily. The cropping intensity was the highest on medium farms (139.02%) and the lowest on small farms (130.15%). The same was observed for a large and pooled farm was 134.53 percent and 134.19 percent respectively. By and large, it was more than 100 implying that all the available area was made use of[5].

Cropping pattern

Cropping pattern assumes significant place in the economic analysis as it has direct influence on the employment, expenditure, gross and net returns from agriculture. An analysis of existing cropping pattern on the sampled farms is presented in table 2.

The important crops grown on the sampled farms were cotton, maize, paddy and ground nut. From the figures shown in the table, that in I.T.D.A Badrachalam**,** Khammam, it can be observed that the area allocated for important crops such as cotton, maize, paddy and ground nut constitute 36.75 percent, 15.39 percent, 42.73 percent and 5.13 per cent total cropped area on the small farms. The tribals have increased the area under paddy but it requires higher investment for cultivation but at the same time yields high gross returns too. In case of medium farms, the area allocated for cotton, maize, paddy and ground nut constituted 49.22 percent, 16.92 percent, 29.20 percent and 4.66 per cent total cropped area respectively. It was observed that the area under cotton for Medium farms was more as cotton is high income yielding compare to other crops. It is seen that large farms allocated 56.14 percent, 20.14 percent, 19.18 percent, and 4.54 per cent respectively to the total area under cotton, maize, paddy and groundnut crops. It can be further observed from the analysis that, on the sample as a whole, cotton is the predominant crop followed by other crops each accounting for 51.00 percent, 18.70 percent, 25.72 percent, and 4.58 percent respectively[3].

Table 2: Existing cropping pattern on the sampled farms (ha)

Particulars	Khammam				Warangal			
	Small farms	Medium farms	Large farms	Pooled farms	Small farms	Medium farms	Large farms	Pooled farms
Cotton	1.29 (36.75)	3.17 (49.22)	6.91 (56.14)	3.79 (51.00)	1.75 (32.71)	3.87 (32.74)	5.12 (28.51)	3.58 (30.60)
Maize	0.54 (15.39)	1.09 (16.92)	2.48 (20.14)	1.39 (18.70)	1.02 (19.07)	1.53 (12.94)	2.67 (14.87)	1.74 (14.87)
Paddy	1.50 (42.73)	1.88 (29.20)	2.36 (19.18)	1.91 (25.72)	1.46 (27.29)	3.86 (32.66)	6.25 (34.80)	3.85 (32.91)
Ground nut	0.18 (5.13)	0.30 (4.66)	0.56 (4.54)	0.34 (4.58)	1.12 (20.93)	2.56 (21.66)	3.92 (21.82)	2.53 (21.62)
Total	3.51 (100)	6.44 (100)	12.31 (100)	7.43 (100)	5.35 (100)	11.82 (100)	17.96 (100)	11.7 (100)

The important crops grown on the sampled farms are cotton, maize, paddy and ground nut. From the figures shows in the table, and I.T.D.A Eturnagaram, Warangal districts, it can observed that the area allocated for important crops such as cotton, maize, paddy and ground nut constitute 32.71 percent, 19.07 percent, 27.29 percent and 20.93 percent total cropped area on the small farms. The tribals have increased the area under paddy requires higher investment for cultivation but at the same time yields gross returns too. In case of medium farms, the area allocated for cotton, maize, paddy and ground nut constitute 32.74 percent, 12.94 percent, 32.66 percent and 21.66 percent total cropped area respectively. It is observed that the area under cotton for medium farms is more as cotton is high income yielding compare to other crops. It is seen that large farms allocated 28.51 percent, 14.87 percent, 34.80 percent, and 21.82 percent respectively to the total area under cotton, maize, paddy and groundnut crops. It can be further observed from the analysis that, on the sample as a whole, cotton is the predominant crop followed by other crops each accounting for 30.60 percent, 14.87 percent, 32.91 percent, and 21.62 percent respectively.

CONCLUSION

In Warangal district the gross cropped area accounted for 15.41 ha, 38.33 ha, 59.33 ha and 37.36 ha. on small, medium, large and farms. The cropping intensity (%) was 118.21, 125..72, 124.26 and 123.79 in respect of small, medium, large and pooled farms of tribals in Khammam district, where as in Warangal district the cropping intensity (%) was 130.15, 139.02, 134.53 and 134.19 in respect of small, medium, large and pooled farms of tribals. Compared to Khammam district cropping area and cropping intensity was more in Warangal district.

An analysis of cropping pattern of the selected farms revealed that cotton (51.00%) was major crop followed by other crops in Khammam district under ITDA area, whereas in Warangal district paddy (32.91%) was major crop followed by other crops under ITDA area.

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