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# Agricultural patterns of Gadaba primitive Tribe in the Vizianagaram district of Andhra Pradesh

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***Abstract:*** *In this study an attempt is made to analyse the features of tribal agriculture economy of Gadaba Primitive Tribe by selecting a 60 households in the interior hill tract villages of G.L.Puram tribal mandal in the Vizianagaram District of Andhra Pradesh. The analysis of the farm activities indicate that dry and wet cultivation under Kharif and Rabi seasons and Podu cultivation are in practice. It is identified that the sample households are growing nontraditional crops along with traditional crops. The cropping pattern indicates that 41.39 percent under Paddy cultivation. The proportion of irrigated area in cropped area is only 22.16 percent and the average size of irrigated area of all farms is only 0.34 acres. The proportion of irrigated area increased along with size group of farms. The analysis of input – output ratio also reveals the same trends relating to costs and net returns of different major crops. Ultimately the agricultural patterns of primitive Gadaba households reveal that, in spite of the efforts made by the governmental and non-governmental institutions Podu cultivation is still much prevalent, to the extent of 42.48 percent of total gross cropped area due to the availability of low gradient hilly slopes in the study area.*

***Key Words:*** *Primitive Tribal Groups (PTGs), Podu cultivation, Input-output Ratios, Cost of cultivation*

## INTRODUCTION

During the post-independence period, development of modern means of transport, roads and bus se rvices have opened up the tribal areas in recent decades and several non-tribals came into contact with the tribal and contributed for the magnetization of tribal economy. Due to the thrust of the directed contact with the Hindu and Christian culture also expected rapid socio-cultural and economic transformation of the tribal economy. For these changing agents and modern forces, tribals have shown fewer signals for transformation.

The most important reason for their inability to respond the continuous efforts of the government policies and changing agents may be due to socio-cultural heterogeneity (Vidyarthi, L.P. & Rai K.K.), low level of literacy and awareness, inadequate infrastructure and input supply and the indifferent attitude of the tribals in general. Improvement in the quality of life and levels of socio-economic conditions of tribals are sought to be examined in terms of endogenous and exogenous factors (Haimendorf). At low levels of growth or stagnation traditionalism perpetuates itself and internal growth impulses are very weak. Hence in tribal societies extraneous factors play a significant role.

Social change was the consequence of non-economic factors, but over a period of time in causation with the other proximate causes the internal growth impulses may be internalized in

the tribal economy (Ranjit Gupta). All these factors works as prime movers of change in the matrix of analysis as part of the process of cumulative causation. The analysis reveals that the improvement in the socio-economic conditions in the tribal areas is having the complexity of process(Buddadeb Chowdari & Sumitra Chowdari). In the light of these aspects an attempt is made in this study to examine the agricultural patterns of Gadaba tribe in the Vizianagaram district of Andhra Pradesh.

**Agricultural Patterns in the Tribal Areas:**

Agriculture in the tribal areas differs from that of the plain areas. Even though the innate character is the same for both types of geographical farming. But, Podu or shifting cultivation is a unique feature of tribal agriculture. No longer are the tribals of this district settled agriculturists, albeit shifting cultivation is a vestige transition of tribal society from one of food gathering and hunting stage to that of settled agriculture. Tribal society in India as studied not only in relation to caste but also in relation to peasant society (K.P.Singh). Tribes have come to be defined by the features of a segmentary system, this means that tribes are conceived of not only small in scale but also a representative of a structural type, which is quite different from the more complex social system, in which the peasantry and gentry co-exist (Sharma A.K). The small agricultural producers with the help of simple equipment and family labour produce mainly for their own consumption and for the fulfillment of their obligation to the holders of political and economic power. In support of the theory of the transformation of tribes into peasants, slowly tribes have moved away from hunting or shifting agriculture to terraced or settled agriculture, others note that tribes have shifted to plough agriculture.

I fact more often tribes have been described as peasants without the criteria used for defining peasants being adequately applied. The pattern of land ownership in the study area reveal that the area was under the rule of Zamindars and Muttadars during the British regimes and tribals of this area gave up their traditional practices of communal ownership of land and sought sustenance through individual ownership (Parthasarathy .G). Land becomes the commodity of the mart, even though land transactions were few and far between. But land transfer to non-tribals through loan transactions or usufruct mortgages becomes a common feature. It was only through the 1917 and 1959 movements that land was restored to the tribals but the ownership structure remained skewed. All the selected villages are un-surveyed villages. Against this background an attempt is made in this study to analyze the agricultural patterns of Gadaba tribal households.

**Gaps in the already existing Literature:**

The analysis of the agriculture production patterns to identify the different aspects relating to agriculture production, a review of the earlier empirical and analytical studies on agricultural production patterns are considered as source. While going through the emperical studies conducted on agriculture production patterns by Heady, Hanumantha Rao, Dipika Majumdar, Khan and Tripathy, Radhakrishna, Saini, Chowdary etal, Wellisz, Radha krishna along with the

general aspects relating to agriculture, the identified important factors explaining the agricultural production costs are: land, human labour, bullock labour, fixed capital expenditure, working capital expenditure, farm manure and fertilizers, irrigation expenditure, tractor hours, total irrigated area sown, irrigation moisture index, soil type index, farm size and expenditure on seeds. But in this study as the objective of the study is to examine the different aspects relating to tribal agricultural production patterns the important aspects like average size of operational land holding, cropping patterns and intensity of cropping, irrigation facilities average per acre yields of the selected crops and input output ratios are taken into account. In estimating costs four basic factors gross cropped area, hired human labour, working capital expenditure, proportion of irrigated area to the gross cropped area are considered.

**Methodology used in the study:**

Multi stage stratified random sampling method is used in the present study. There are four stages in which sampling process is carried out. The first stage is selection of district, the second stage consists of selection of mandal, the third stage consists of selection of villages and the forth stage is of selection of households. Out of the nine districts of Andhra Pradesh which have concentration of tribal population Vizianagaram District is selected due to the fact that the district has drawn world wide attention through the tribal participation in the political upheaval of 1969-71. Another weighty reason is that studies so far undertaken on tribals of this district are confined to review the activities of GCC, ITDA and tribal revolts but no study is undertaken about the agriculture conditions of tribal economy of this district. Also the increasing density of population in the scheduled area, continuous degeneration and poor quality of the soil combined with scarcity of minor irrigation facilities in the scheduled area of Vizianagaram have been largely responsible for selecting Vizianagaram district.

The second stage of sample consists of selection of mandal. The selected G.L.Puram is only the tribal concentrated mandal out of 37 mandals of Vizianagaram district. Out of 37, 19 mandals have tribal population in Vizianagaram district, with a total of 11,9304 tribal population. G.L.Puram alone is having 33.69 percent of total tribal population of the district. Also G.L.Puram mandal is having 89.54 per cent tribal population. Due to concentration of tribal population, the ITDA is located at G.L.Puram. Also all the major tribes are residing in this mandal. The heavy concentration of tribals is the main reason for selecting G.L.Puram mandal for the study. The third stage of sample consists of selection of villages. The G.L.Puram mandal consist of 113 revenue villages and five uninhabited villages formed by 24 panchayats and 290 hamlets. To examine the socio economic conditions of Gadaba tribe in Vizianagaram District, the specific tribe population concentration is considered in the selection of villages. With a stratification procedure based on the specific tribe population concentration the 24 panchayats are classified into 3 categories. Specific tribe population with 80 per cent and less than 90 per cent in the respective panchayats are considered as criteria for selection. After identification of specific tribe concentration in the panchayats, from

the Gadaba concentrated panchayats two villages are selected.

As for the geographical features of the selected villages are concerned out of the two Gadaba villages one village is purely hill area without any road or transport facility. Another villageis also a very interior hill area but having with road point and bus route. The last stage of sample consists of selection of households from different tribes and size groups of farms. From each Gadaba concentrated village 30 households andfrom the two villages a total of 60 Gadaba households are selected. The selected households are stratified into four strata, namely marginal farms, small farms, medium farms and large farms based on the extent of land owned by each household.

Primary data from households is collected with the help of structured schedule. Draft household schedule has been prepared and canvassed in the sample villages to collect the household data. Trustworthy informants are picked up in every village, besides the headman, the sarpanch and the priest of the village, reliable persons are selected representing the older generation as well as youth as informants. The schedule has been canvassed with 60 households to elicit information about the socio-economic characteristics in view of the set objectives.. The Secondary data has been obtained from the annual reports, action plan and other documents of the ITDA office, Parvatipuram. The district handbook of statistics of different years is obtained from the Chief Planning Officer, Vizianagaram. G.L.Puram mandal information has been obtained both from MRO and MDO offices. In analyzing the data apart from tabular analysis with averages and percentages, different statistical techniques are used at appropriate places.

**Features of Agricultural Economy of Gadaba Tribes:**

In the selected villages the size of the land holding of the tribal farming family is small due to a high degree of a pauperization of the small people as marginal and small landowners. Distribution of sample households according to class-size group is presented in the following table.

**Table-1: Distributions of Gadaba Households according to farms**

| Marginal | Small | Medium | Large | Total |
|---|---|---|---|---|
| 30 (50.00) | 20 (33.33) | 8 (13.33) | 2 (3.33) | 60 (100.00) |

The size-group is fixed in proportion with the prevailing conditions in the villages. In the total of 60 Gadaba tribe are selected. Across different size group of farms marginal farms (50 percent), small farms (33.33 percent), medium farms (13.33 percent) and large farms (3.33) are categorized for the in depth study of tribal agricultural patterns. It may also be noted that the marginal farms are found in large number among the Gadaba tribal communities. All the selected heads of households are permanent residents in the respective sample villages and have been staying there from more than 10 years.

**Average size of Operational Land Holding:**

In the tribal areas of Vizianagaram there is a lot of pressure on land due to the increase in tribal population and in-migration of non-tribal people. The per household availability of cultivable land has declined over a period of time. Table 2 presents the details pertaining to the average size of operational land holding (OLH) of the sample households.

Table- 2: Total and Average Size of the Operational Land Holding of Gadaba Households

| Total Land | OLH Average | Current Fallow | Net Area sown | Average Net Area Sown | Gross Cropped Area | Average Cropped Area. |
|---|---|---|---|---|---|---|
| 186.76 (100.00) | 3.11 | 36.32 (19.45) | 150.47 (80.57) | 2.51 | 198.36 | 3.31 |

The average size of OLH of all tribes and size groups is recorded as 3.11 acres. The average size of OLH of different size groups is in commensurate with the relative economic status of the sample households. The smallest size of OLH of 1.52 acres is owned by marginal farms (MRF) and also it may be noted that a large part of the land is Patta land given by the Government to the tribals for settled cultivation practices. The total tribal farmer sample households own an extent of 186.756 acres of land. The net area sown of all the sample households is 150.47 acres after deducting the current fallow of 36.32 acres of the OLH out of the total land, highest proportion of lands held by the small farms followed by medium farms and marginal farms. In the study area the land leased out to non-tribals and leased to the other tribals is found very low. It may be due to prospective legislation, alienation regulations and flow of institutional credit with a wide network.

**Cropping Pattern and Intensity of Cropping:**

The tribal people in Vizianagaram area usually deal with wet, dry and *Podu* cultivation. The farmers raise both dry and wet crops. The dry land is rain fed while the wetlands are irrigated by streams; *Podu* cultivation is much prevalent due to the availability of low gradient hilly slopes. *Podu* is largely undertaken by Gadaba tribes. Among the different size groups of farms except large farms all other farms are undertaking *Podu* cultivation. Considerable changes have taken place in agriculture sector; so far the cropping pattern is concerned. The tribal farmers are used to grow cereals and millets in the past. However, due to efforts made by governmental agencies tribals have come to know about growing non-traditional and commercial crops and still a large portion of the gross cropped area is used for growing food crops. The season-wise distribution of gross cropped area details are presented in Table *3*

Table-3: Season Wise Distribution of Gross Cropped Area of the Gadaba Households

| Kharif | Rabi | Podu | Total |
|---|---|---|---|
| 78.37 | 36.37 | 83.62 | 198.36 |

| | | | |
|---|---|---|---|
| (39.51) | (18.34) | (42.48) | (100.00) |

The table indicates that, about 78.37 acres of the gross cropped area is under Kharif crop while 36.37 acres is under *Rabi* crop and a highest of 83.62 acres is under Podu cultivation. The large and medium farms cultivating relatively large proportion of the gross cropped area under *Kharif* season. It implies that the marginal farms are depending more upon the *Podu* cultivation than the remaining size groups. Gadaba tribes are conducting higher proportion of total Podu cultivation in the study area and their area under Kharif and Rabi seasons is very low. The sample tribal households have reported that 16 types of food and non-food crops are raised by them in the entire gross cropped area under Kharif, Rabi, and Podu.

Among them ten major crops have been identified on the basis of relative proportion of cropped area of each crop in the total gross cropped area 10 crops have been identified as the major crops by the sample households; the data relating to cropping pattern in the study area reveal that the area under the major 10 crops constitutes about 85.13 percent of the groups cropped area. It may be observed that as much as 37.51 percent of the total area of the major crops is under paddy cultivation. The total area under cereals and millets of the gross cropped is very high.

The tribal farmers have been growing commercial crops like turmeric, jingle, and vegetables in a considerable area. Also it is noticed that, in the study area, it has been estimated that more area is under shifting cultivation, among the major crops considered in the study, crops like ragi, red gram, samai, jowar, bajra, turmeric and a variety of mixed crops are grown under Podu cultivation. Though Paddy is also grown the area under this crop is negligible. More than 90 percent of the Podu is held by marginal and small farms. In spite of the strenuous efforts made by the governmental and non-governmental agencies the practice of Podu cultivation is prevalent particularly in the villages of the hilly areas. It seems that some more efforts of the above mentioned agencies are needed to persuade the tribals not to resort to this primitive method of cultivation.

Intensive cultivation is not much prevalent in the tribal economy as it prevails in the non-tribal economy. However, because of huge investments made for the provision of irrigation facilities recently it has become possible to raise more number of crops. However, the intensity of cropping is very limited. The Intensity of cropping of the sample tribal farmer is relatively high among marginal and small farmers when compared to other farmers. It is observed that in the study area intensity of cropping cannot increase beyond certain limit because of the underrating nature of the terrain and the limited water resources.

**Irrigation Facilities:**

The north coastal Andhra Pradesh has non-perennial rivers. Land provides good harvest only under rain-fed clouds of Southwest and Northeast monsoons. The tribals for a long time were neglected in building irrigation tanks or canals for cultivation of lands. In the study area, irrigation facilities were meager in spite of the ground water potential and the existence of hill streams. The *ITDA* established separate engineering

department to provide irrigation facilities and made efforts to construct check dams across the hill streams wherever possible. Due to these facilities the tribal cultivator is able to raise crops that can be raised under irrigation facilities. Table 4 shows the average and proportion of irrigated land in the total non-Podu operational land holdings.

The proportion of irrigated area in the operational land holding is 20.53 percent. The average size of irrigated area of the large farmer is higher while the lowest is that of the marginal farms. Average size of irrigated area of all tribes and farms is estimated to only 0.34 acres. This shows that substantial efforts are still needed to be made by the governmental agencies in this area to provide irrigation facilities that suit the local conditions.

Table: 4: Distribution of Irrigated Area of the Gadaba Tribal Households

| OLH Non-Podu | Irrigated Area | Proportion of Irrigated Area in OLH Non-Podu | Average Size of Irrigated Area |
|---|---|---|---|
| 114.74 | 20.53 | 17.89 | 0.34 |

**Cost of Cultivation:**

In tribal agriculture estimation of cost of cultivation involves difficulties. The value of family labor is only estimated in terms of imputed market wage rate. Payments are made either in cash or kind, or both. Method of payment varies depending upon the type of operation. Value of productivity calculated on the basis of local market prices which have been utilized for all practical purposes. The total cost includes the following items. The value of family labor imputed at market wage rate. Value of hired labor, bullock labor, either owned or hired is construed as consisting of two bullocks along with adult male working for eight hours a day, the value of fertilizers is calculated at market prices and the value of compost is imputed. Seeds either home produce or purchased are valued at the market prices and the rental value of own land is excluded from the cost of cultivation.

**Costs in Non-Podu Cultivation:**

Non-Podu cultivation involves both dry and wet cultivation. The tribal agriculture is subject to different farming systems like irrigated (Wet), Unirrigated (Dry) and Podu farming. It may be noted that per acre cost of cultivation of a crop may vary across seasons, farming systems. So the net return per acre of a crop becomes important. An attempt has been made here to make an estimation of the per acre costs, output and net returns of the major crops. Table -5 shows the per acre costs and returns of cultivation of major crops

It is evident from the analysis that the per acre cost of paddy is higher than all other crops followed by mixed crops i.e. bajra, jingle, red gram and ragi. Of the total cost, it may be observed a relatively larger proportion is spent on human labour ranging from 44.51 percent in the case of paddy to 61.02 percent in case of jingle. The per acre cost on bullock labour is also ranging from 10.79 percent in case of paddy to 24.59 percent in case of red gram. A higher cost on seeds and seeding has been spent on mixed cropping is high while the lowest cost is incurred in the case of ragi. The per acre cost on fertilizer is high incase of paddy and while it is very low incase of red gram. The per acre costs on pesticides, irrigation and transportation is either null or negligible.The per acre costs and returns of the major crops across size groups of farms indicate that the net return from paddy is the highest across the major crops. Since paddy is a major crop grown by all size groups of farms and constitutes substantial proportion in the gross cropped area, a more detailed analysis has been made with regard to paddy crop. The per acre costs and return on paddy grown under Kharif and Rabi seasons under irrigated and unirrigated are presented in Table 6.

It is observede that the per acre costs and the output of paddy under Kharif in irrigated area is higher than other categories of paddy. The net returns per acre under irrigated Rabi are

relatively higher than other categories of paddy. This is because of the low cost per acre due to the amount spent on human and bullock labour. It is also evident that, paddy grown under irrigation in Kharif and Rabi seasons is more remunerative than paddy under Kharif and Rabi in irrigated area across different tribes and size groups of farm households. The per acre total costs, total output and net return of paddy crop of irrigated and un-irrigated area under Kharif and Rabi seasons across different size groups of farms also shows that paddy grown under irrigation in Kharif and Rabi seasons is more remunerative than un-irrigated Kharif and Rabi crops .

**Costs in Podu Cultivation:**

The primitive method of land usage under shifting or Podu cultivation is even now existence in widely separated places throughout the world, especially in regions of high rainfall and temperature, where conditions are favorable for the quick growth of plants. The chief characteristic features of shifting cultivation are rotation of fields, employment of communal labour, use of fire for clearing the land, keeping the land fallow for a number of years for regeneration of forests, ritual performance, use of human labour as chief in put, non-employment of drought animal and use of very crude and simple implements like dibble stick, sickle, scrapper etc. In some part of India, hunting and food gathering are important subsidiary occupations of shifting cultivation.

Tribal households reported that, they have been raising several crops under Podu, but only major crops are considered in this study on the basis of their relative importance of cropped area. The per acre costs and returns of major crops. It can be noticed from the Table that, except for turmeric, a higher proportion of the total cost is incurred for human labour for all most all crops, followed by seeds and seedlings. The use of fertilizers is almost nil incase of Gadaba households. Consequently the total cost per acre is relatively low to that of non-Podu cultivation. The per acre costs and returns of major crops under Podu cultivation indicate that per acre cost on human labour are the highest component followed by seed and seedlings across almost all tribes and size groups of farms. The net returns from different crops which are grown under Podu and non-Podu cultivation only to the crops grown commonly in both the farming systems among the crops, paddy and mixed cropping are more and more remunerative under non-Podu cultivation. Ragi and red gram are more remunerative under Podu cultivation.

The average yield per acre of selected major crops grown by the sample households. Though the yields of different crops are not comparable in view of variation in prices, such a comparison under different farming systems would be useful. The per acre yield of paddy vary across different seasons and farming systems. It is higher under irrigated area in Kharif season and lowest under unirrigated area in Rabi. The per acre yields of ragi and red gram under Podu cultivation are relatively more than those under non-Podu except bajra. The per acre yield of all other crops are relatively low in Podu cultivation.

**Input Output Ratios:**

Similarly the input- output ratios calculated for different crops under Podu and non-Podu reveal that the input

output ratios explain that crops like paddy and mixed cropping are more remunerative under non-Podu farming system, than under Podu cultivation. The ratios are less in Podu farming in the case of ragi and red gram than under non-Podu farming system because of the relatively lower cost of production under Podu cultivation. Though some crops are remunerative under Podu cultivation the tribal farmer should be made aware of the renills of Podu cultivation. The governmental agencies have to guide more the tribals towards plantation crops and horticulture. Though the *ITDA* G.L.Puram is putting efforts to motivate the tribals towards plantation of cashew, the response from the Gadaba tribes in the hill tracts where much Podu cultivation is prevalent is very limited. A regulation may be made that plantation crops like cashew, mango, banana, tamarind etc., only should be grown in the old patches of Podu land.

**CONCLUSION:**

The analysis of the farm activities indicate that dry and wet cultivation under Kharif and Rabi seasons and Podu cultivation are in practice. The average operational land holding, net area sown and gross cropped area of the sample households corresponds with the size group of households. It is identified that the tribal cultivators are growing non-traditional crops along with traditional crops. The cropping pattern indicates that 42.48 percent is under Paddy cultivation and the total area under cereals and millets of the gross cropped area is as high as 59 percent. The proportion of irrigated area in cropped area is only 22.16 percent and the average size of irrigated area of all farms is only 0.34 acre. The proportion of irrigated area increased along with size group of farms.

An analysis of per acre costs and returns under non-Podu cultivation shows that a large proportion of the cost is spent on human labour. Under non-Podu cultivation, it has been estimated that the net returns per acre from paddy under irrigated Kharif and Rabi are higher when compared to all other categories of crops. Similarly paddy under irrigation in both the seasons is more remunerative. The comparative analysis reveals that paddy and mixed cropping are more remunerative under non-Podu cultivation. The analysis of input-output ratios also reveals the same trends relating to costs and net returns of different major crops. The value of total costs, total output and net returns are very high in case of paddy under non-Podu and they are very high in case of turmeric in Podu.

The per acre costs and return on cultivation of paddy under non-Podu reveal that the total costs are high incase of irrigated area under Kharif and net returns are very high in case of irrigated area under Rabi. The comparative picture of net returns per acre in Podu and non-Podu cultivation indicate that in case of paddy and mixed cropping non-Podu is remunerative and in case of ragi and red gram Podu cultivation is remunerative. However, the average per acre yields of selected major crops is very high in case of non-Podu cultivation rather than Podu cultivation. Similarly except in case of mixed cropping the input output ratios are relatively high in all major crops under non-Podu cultivation.

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