

Considering the characteristic of the soil it may be said that it is suitable for cropping but due to lack of irrigation facility or water supply particularly in the dry-wet and dry-summer months, the production of the seasonal crops are not up to the expectation.

4. Crop Productivity

4.1 Introduction :

Productivity of a region or a country is one of the most important indices of the well being of the people inhabiting it. Productivity is defined as production per unit area and is influenced by various environmental factors such as rainfall, temperature, soil characteristic as well as agricultural practices followed by the people. About 80% of the female population in India, lives in the rural areas and more than 86% of them work in agricultural or allied activities (Borah, 1998). Rural men folk often work at distant urban areas and towns on various jobs. Thus the contribution of the women in agricultural activities is much higher than their male counterparts. This coupled with the fact that our economy still is mostly agro-based unmistakably point out to the significant contribution of our ladies to rational economy. Agricultural practice is basically a culture that varies among communities according to their tradition, level of development and the environment. As crop land productivity is a fundamental issue in the life of any community, it has attracted attention of various authorities both in India and outside and still remains a topic of considerable interest (Bhople and Palki, 1998; Danda, 2001; Cashdan, 2001). Despite perceptible interest on productivity studies, not much is known about the main agricultural produces of the ethnic communities in the Hili Block, Dakshin Dinajpur.

This part of the study gives an account of the crop cycle of major produces in the Block. The total cultivable area of this Block is about 7500 ha. The main crops cultivated by the tribal communities in the Block are:

- a) Cereals – Paddy (IR-8, IR-28, IR-30, Pusha 2-21, Ratna and Jaya), wheat (Sonora – 64, Janak, Giriza, Larama Rojo, Sophed Larma).
- b) Pulses – Arhar, Kalai and Khesari.
- c) Oil seeds – Mustard groundnut, coconut, linseed and sesame.
- d) Vegetables – Potato, tomato, brinjal, cabbage, cauliflower, chilli, ladies finger, papaw, sweet potato.
- e) Cash crops – Jute, bamboo and sugarcane.
- f) Minor crops – Ginger, radish, beat, onion, bitter guard, arum and spinach.

4.2 Methods:

Field observations and household survey was conducted through out the year. Land area used on different crops by the tribals at the Hili Block was recorded in acres. Productivity of randomly selected plots of 1 × 1m of different crop fields were measured following “Harvest method. The mean of 3-5 experimental plots was considered. Cultivated crops were recorded in terms of gm /m².

4.3 Results and discussion:

Table 4.1 shows land distribution pattern on different types of crops at the Hili Block among the three ethnic communities. It indicates that the major portion of land is cultivated for cereals by all the communities(Fig.-4.1). It is observed that the Oraons use 80% land for cereals which is considerably higher than the overall percent area (i.e. – 57.37%) employed by the three communities. Similarly, the Mundas put less area (45%) than the overall

average. Likewise the present area used for pulses is higher in the Mundas and lower among the Oraons. The Oraons also put less area for oil seeds.

Table – 4.1 : Distribution of land in acres for different types of crops (cereals, pulses, oil seeds and cash crops among the three ethnic communities (Santal, Munda and Oraon).

Types of Crops	Santal		Munda		Oraon	
	Area (in acres)	%	Area (in acres)	%	Area (in acres)	%
Cereals	229.24	54%	126.27	45%	175.20	80%
Pulses	89.31	21%	89.82	32%	10.95	5%
Oil seeds	59.54	14%	25.26	9%	6.57	3%
Cash crops (Jute, Bamboo & Sugar cane)	47.21	11%	39.33	14%	26.28	12%
Total	425.30	100%	280.68	100%	219.00	100%

Table 4.2 shows the land distribution on different cereals among tribals during 1998 – 99, compared with those for Dakshin Dinajpur District. It is observed that paddy is by far the most dominant cereal. Area employed on wheat by the tribal communities, however, is significantly higher in comparison to that of the district as a whole.

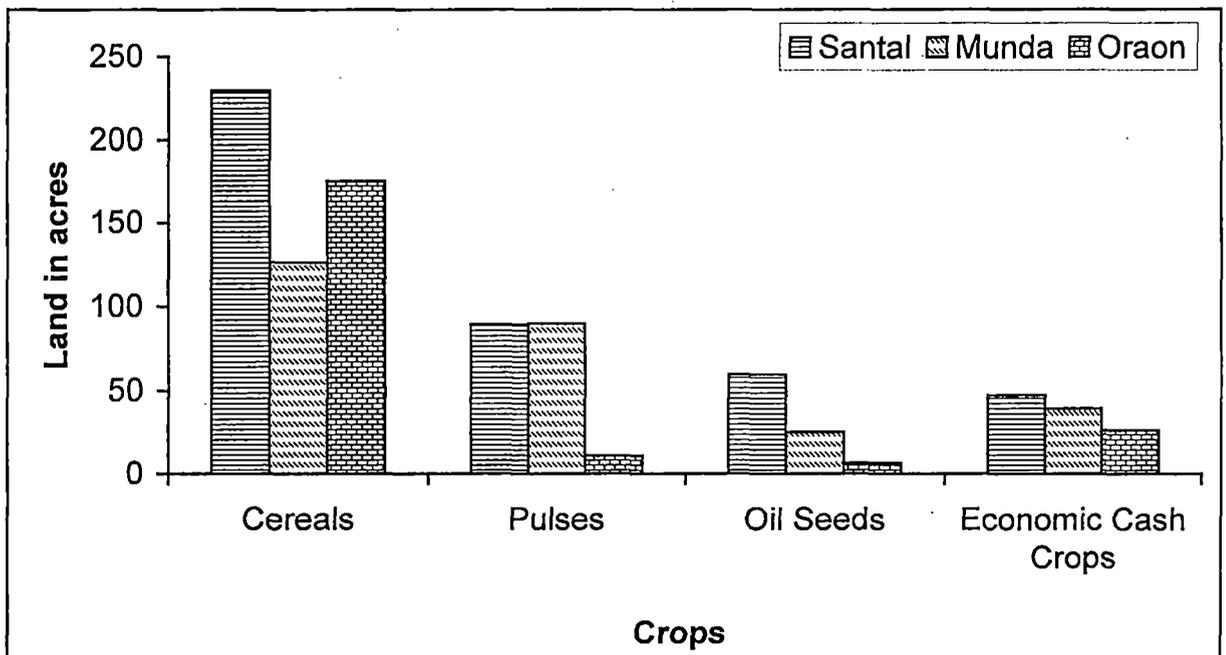


Fig. 4.1 : Different crops cultivated (in acres) by the Santals, Mundas and Oraons.

Table – 4.2 : Land in acres under major cereals in the tribal lands compared with those for Dakshin Dinajpur in 1998 – 1999.

Food grains	Santal	Munda	Oraon	Dakshin Dinajpur
Paddy	191.81 (83.67%)	102.52 (81.19%)	152.77 (87.20%)	414787.5 (98.38%)
Wheat	37.43 (16.33%)	23.75 (18.81%)	22.42 (12.80%)	6787.5 (1.62%)

Source : Annual plan on agriculture, Uttar & Dakshin Dinajpur 1999 -2000, office of the Principal Agricultural Officer, Uttar & Dakshin Dinajpur, Balurghat & Present study.

Table 4.3 shows crop yield measured in gm /m² among the tribal communities compared with Hili Block and Dakshin Dinajpur in 1998 – 99. It is observed that in general yield of paddy and wheat is more or less similar among the tribals. Yield is, however, higher in case of paddy in comparison to that for the Hili Block and the District but lower in case of wheat.

Table – 4.3 : Crop yield (gm/m²) in the tribal lands compared with those for Hili Block and Dakshin Dinajpur in 1998 – 1999.

Food grains	Santal	Munda	Oraon	Hili Block	Dakshin Dinajpur
Paddy	238.55	218.11	248.66	218.11	186.26
Wheat	249.52	258.35	215.95	381.55	413.51

Land areas under different kinds of pulses among the three ethnic communities and those for the District in 1998 – 99 are shown in table 4.4. The land area used for Kalai production is considerably higher than any other pulses. This indicates that Kalai is the most preferred pulse not only among the tribal communities but also in the District or that the soil and environmental factors in the area are more suitable for Kalai production. The land area put under Mung by the tribals is higher than that for the District. The area under khasari lathyrine containing pulse is higher among the Mundas and also in district as a whole. This is a critical situation because the tribals are not aware of the harmful effects of lathyrine on vision.

Table – 4.4 : Land in acres under major pulses in the tribal lands compared with those Dakshin Dinajpur in 1998 – 1999.

Pulses	Santal	Munda	Oraon	Dakshin Dinajpur
Arhar	2.95 (3.30%)	4.63 (5.16%)	0.24 (2.20%)	600.00 (5.36%)
Kalai	67.33 (75.40%)	63.79 (71.02%)	8.78 (80.20%)	8277.50 (73.92%)
Mung	14.47 (16.20%)	13.02 (14.5%)	1.44 (13.10%)	925.00 (8.26%)
Khasari	4.56 (5.10%)	8.38 (9.32%)	0.49 (4.50%)	1395.00 (12.46%)

Table 4.5 presents the crop yield measured in terms of gm /m² in the tribal land and Dakshin Dinajpur District in 1998 – 99. It shows that yield (gm /m²) of Kalai is about double to that of any other pulses. The production rate is more or less same for other pulses i.e., Arhar, Mung and Khasari among the three ethnic communities.

Table – 4.5 : Crop yield (gm/m²) in the tribal lands compared with those for Hili Block and Dakshin Dinajpur in 1998 – 1999.

Pulses	Santal	Munda	Oraon	Hili Block	Dakshin Dinajpur
Arhar	63.48	52.72	55.95	89.63	370.14
Kalai	97.16	108.89	92.54	-	-
Mung	44.87	55.95	54.12	-	90.92
Khasari	43.36	52.72	44.12	-	-

Means not available.

Mustard is by far the most important oil seeds in all communities and in the District (table - 4.6). This ought to be so because mustard finds multivarious use for example the seed is used as spice, the oil is used as the most common cooking medium as also as body oil while sesame and linseed is of occasional use as medicament and food. It is, however, observed that land area used for the two minor oil seeds is considerably higher among the communities than the District as a whole.

It may be mentioned that cultivation of Jute is on the decline because of the fall in its price in recent times. This actually is a serious problem all over West Bengal as plastic is substituting jute in a major way. The yield of the cash crops among the tribal communities is similar but is considerably lower than the District as a whole. Data on bamboo for the District is not available (Table – 4.9).

Despite high illiteracy (more than 80%) among the tribals their sense of seasonality with regard to cultivation of different crops are surprisingly sharp. Different crops are to be cultivated in different seasons and in different kinds of soil / land i.e., alluvial, clay, sandy, loam, upland and low land etc. The traditional judgements of the tribal in respect of all these factors are almost always without any flaw.

Presently, even the Hili Block tribals go for three paddy crops i.e., Aman, Kharali Boro and Barshali Boro in a year. They prepare the cultivate land by ploughing and manuring before sowing. The main paddy crop is Aman which is sowed during May – July. Of the lesser paddy the kharali Boro is sowed during December – January and the Barshali Boro in March – April. As paddy requires a lot of water and irrigation facility is sufficient the tribals cultivate paddy mostly in low land. During the winter months i.e., December. – January the tribals cultivate a variety of crops such as wheat, four types of pulses, oil seeds, potato and a host of vegetables. They harvest most of the crops at the onset of the warm season i.e., March – April. Most of the winter crops are cultivated in the available upland areas in the Block. In the monsoon the tribals cultivate mainly jute and Barshali Boro paddy (already mentioned), and a number summer vegetables such as lady's finger, bitter gourd, luffa, gourd, pumpkin, chilli, parbel and some other spices.

Besides a variety of fruits are also produced by the tribals. Some of which such as: mango, jackfruit, litchi, banana, berry, palm, watermelon, fruity etc.(Summer); plum, cucumber (winter) are seasonally cultivated and some others are produced through out the year such as : papaw, guava and coconut etc.

Table – 4.9 : Cash Crop yield (gm/m²) in the tribal lands compared with those for Dakshin Dinajpur in 1998 – 1999.

Cash crops	Santal	Munda	Oraon	Dakshin Dinajpur
Jute (Fibre)	298.81	272.66	288.91	325.49
Bamboo (Whole)	53800.00	55952.00	53681.64	-
Sugar Cane (Whole)	3766.00	3497.00	*	4737.41

* means do not cultivate

- means not available.

Table – 4.6 : Land in acres under major oil seeds in the tribal land compared with those for Dakshin Dinajpur in 1998 – 1999.

Oil Seeds	Santal	Munda	Oraon	Dakshin Dinajpur
Mustard	52.57 (88.29%)	21.48 (85.03%)	5.72 (87.06%)	50,000.00 (98.38%)
Linseed	2.09 (3.51%)	1.24 (4.91%)	0.28 (4.26%)	75.00 (0.15%)
Sesame	4.88 (8.20%)	2.54 (10.06%)	0.57 (8.68%)	750.00 (1.47%)

Table 4.7 presents oil seed yield in the tribal land, Hili Block and Dakshin Dinajpur District in 1998 – 99. Yield of mustard is much higher than that of the other oil seeds among the tribal communities. Mustard yield in the communities is also considerably higher compared to that of the District. Sesame yield on the other hand is high in the District than among the tribal communities.

Table – 4.7 : Crop yield (gm/m²) in the tribal lands compared with those for Hili Block and Dakshin Dinajpur in 1998 – 1999.

Oil Seeds	Santal	Munda	Oraon	Hili Block	Dakshin Dinajpur
Mustard	90.49	104.37	107.82	95.66	58.75
Linseed	37.34	34.43	31.63	62.73	61.76
Sesame	74.67	76.40	72.63	119.54	115.56

The tribals put more land for cash crop production than oil seeds. Of the cash crop they mainly produce jute which take up 82% to 93% land. Bamboos and sugarcane are cultivated in 6.8% to 10.0% and 7.2% to 9.90% land respectively. Interestingly the Oraons at the Hili Block do not go for sugarcane (Table – 4.8).

Table – 4.8 : Land in acres under major cash crops in the tribal land compared with those for Dakshin Dinajpur in 1998 – 1999.

Cash crops	Santal	Munda	Oraon	Dakshin Dinajpur
Jute	38.72 (82.02%)	32.55 (82.76%)	24.48 (93.15%)	21212.50
Bamboo	3.82 (8.09%)	3.94 (10.02%)	1.80 (6.85%)	-
Sugar Cane	4.67 (9.89%)	2.84 (7.22%)	*	1080.00

* means do not cultivate

- means not available.



Paddy plantation by two Santal adults.



Paddy plantation by tribal people.



Paddy plantation by a Santal mother with her daughters.

Paddy plantation by tribal women with their children.



A Santal child labour preparing the paddy field of his master.



An Oraon child labour ploughing his master's land with the help of bullocks.



A Santal old man ploughing paddy field with the help of bullocks.



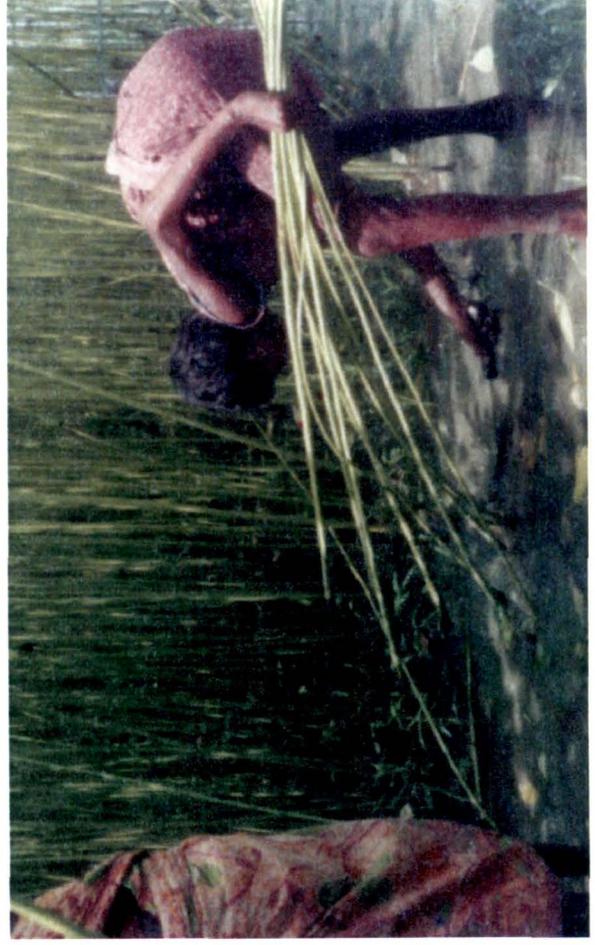
A Munda man ploughing his land for paddy plantation with the help of bullocks.



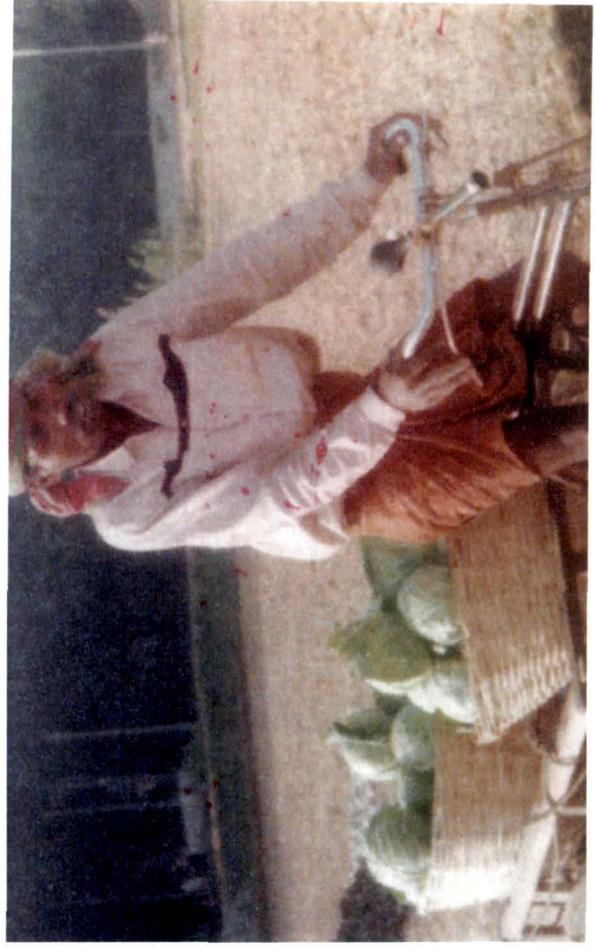
Tending potato plants by a tribal young.



Tribals stripping jute fibre.



A young tribal lady harvesting jute with her child



To market with cabbage



Collection of seedlings by a Santal male along with his mother.



Collection of seedlings by a Santal family.