

## **CHAPTER - TWO**

### **AGRICULTURAL AND LANDUSE PATTERN.**

#### **INTRODUCTION**

Bangladesh has been beset with complex problems of agriculture over the years. The limited land area, uneven growth of population, large scale unemployments have been ailing the economy of the country. It is amazing to note that due to poor industrialization, majority of population of the country live in rural areas and agriculture continues to be their mainstay (Gupta, 72). This condition, is seen in whole Bangladesh. Agriculture is the most important economic activity and landuse feature is the same in Bagerhat district. From the point of view of agriculture, the landuse pattern of the district is classified into two types : viz (i) Non-cultivated lands and (ii) Cultivated lands. Most of the people in the district are directly or indirectly engaged in agriculture due to favourable physical, socio-economical and cultural factors of the region (Tamasker, 55). Thus, agricultural production plays an important role in the economy of the district in general and the economic condition of the people in particular. The present section of this chapter deals with the landuse and cropping pattern of the district. Discussions have also been made regarding the nature of constraints those have stood in the way of development in agriculture in the past and at present.

#### **2.1. LANDUSE PATTERN**

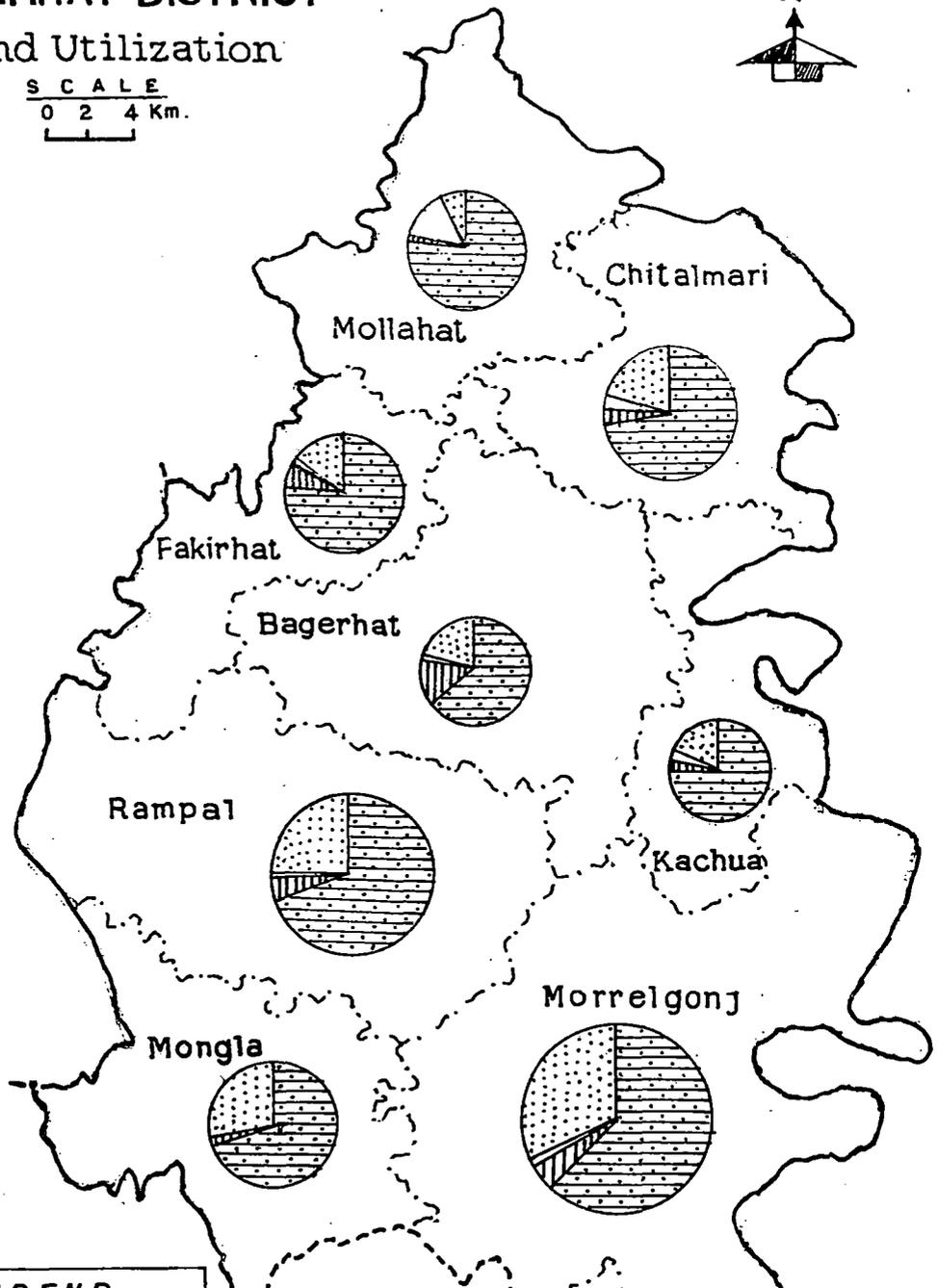
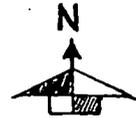
The landuse pattern of the district is determined by the various factors. Primary factors are physical, climate, and soil. Secondary factors are social, economical and occupational trend of the area. (Singh, 90). On the basis of landuse, the lands are broadly classified into two types, namely, (i) cultivated and (ii) non-cultivated lands. Cultivated lands are further classified into (a) cropped (b) orchard & (c) current fallows. Non-cultivated lands are classified as : (a) settlements (b) roads or paths (c) water bodies (d) rivers & canals and (e) miscellaneous use.

Bagerhat district presents a unique physio-cultural structure which has contributed to the evolution of a various landuse pattern. In terms of geographically, about 122, 726 ha are covered with forests, while another 3,818 ha. are shared by current fallows. Out of total utilized land, the cultivated land is 80.5% and non-cultivated land is 19.5%.

# BAGERHAT DISTRICT

## Land Utilization

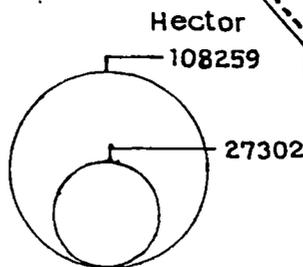
SCALE  
0 2 4 Km.



### LEGEND

DISTRICT BOUNDARY — — — — —  
P.S. BOUNDARY - - - - -

-  NON-CULTIVATED LAND
-  CURRENT FALLOW
-  ORCHARD
-  CROPPED AREA



Scale: 1cm = 140 Units

Fig-2.1

Ref. Table No. 2.1

Population density, land tenure system and technology in agriculture depend on landuse pattern of the district. About 87.5% of the total area are covered by crops and only 7.5% are orchard. Remaining 2.9% are current follows. (Table. 2.1.)

**Table - 2.1. Percentage of land utilization in different Police Stations of the District.**

Total Utilization are in percentage				Cultivated area in percentage			
Name of the P.S.	Cultivated Area	Non-Culti Vated Area	Total	Cropped Area	Orchard	Current Follows	Total
1. Bagerhat	79.9	20.1	100	82.5	16.7	0.8	100
2. Chitalmari	81.1	18.9	100	91.6	3.6	4.8	100
3. Fakirhat	86.0	14.0	100	90.7	7.6	1.7	100
4. Kachua	81.3	18.7	100	96.1	3.2	0.7	100
5. Mollahat	72.3	27.7	100	97.7	1.6	0.7	100
6. Mongla	93.4	6.6	100	82.5	1.5	16.0	100
7. Morrelgonj	68.2	31.8	100	92.5	6.8	0.7	100
8. Rampal	75.3	24.7	100	92.9	6.7	0.4	100
9. Sarankhola	86.5	13.5	100	78.9	20.9	0.2	100
<b>Distict average</b>	<b>80.5</b>	<b>19.5</b>	<b>100</b>	<b>87.5</b>	<b>7.6</b>	<b>2.9</b>	<b>100</b>

Source : *Bangladesh Bureau of Statistics, 1983.*

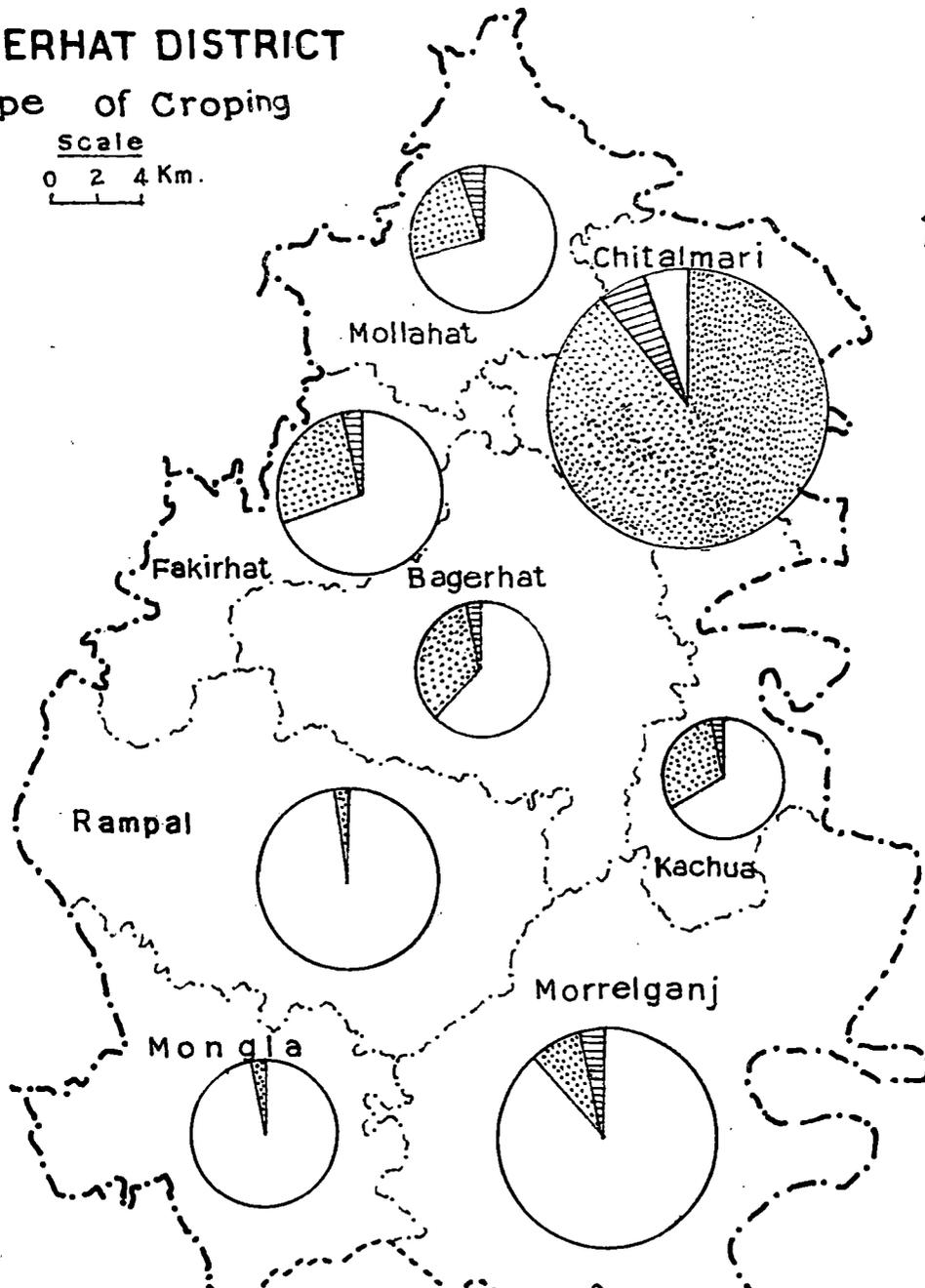
The net sown area in the district is 12,798 ha. which is considerably small for such a huge population. Police station-wise, Mollahat Police Station accounts highest share of the cultivated land (97.7%), Rampal and Mongla P.S. share 92.9% and 82.5% cropped land respectively. Another two police stations namely Kachua and Morrelgonj occupy next position with 96.1% & 92.6% respectively. The lowest percentage (78%) of cropped area is found in Sarankhola police station in the district. Table 2.1 and figure 2.1 presents a clear picture of the regional variations of various types of landuse in the district.

A large percentage of total geographical area of the district are available for cereal crops. A vast area of the district is mono cropped. Its percentage is 69% to the total and it can be understood from table 2.2 and figure 2.2. Among nine police stations, Chitalmari has the highest percentage (89%) in double cropping and Mollahat has lowest percentage (2%). About 7 & 6 percent (highest) of total cropped area are under tripple crops in the Mongla and Chitalmari Police Stations.

# BAGERHAT DISTRICT

## Type of Cropping

Scale  
0 2 4 Km.



### LEGEND

District Boundary — · — · —

P.S. Boundary - - - - -

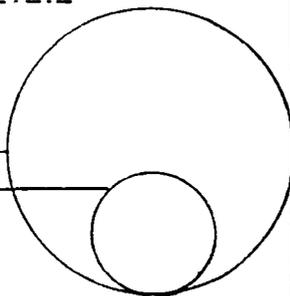
□ Single Crops

▤ Double "

▨ Triple "

15070 hectares

8875 hectares



Sarankhola

Fig-2.2

Ref. Table No. 2.2

**Table - 2.2 Types of Cropping pattern and their area in hector**

Name of P.S.	Mono crop area in ha.	%	Double crops area in ha.	%	Tripple crops area in ha.	%	Total area in hactor.	%
Bagerhat	4931	63	2850	35	266	2	8047	100
Chitalmari	494	5	8003	89	540	6	9637	100
Fakirhat	8108	69	3228	27	481	4	11817	100
Kachua	7059	65	3654	33	208	2	10921	100
Mollahat	1259	97	275	2	18	1	13025	100
Mongla	7998	68	2920	25	828	7	11746	100
Morrelgonj	24306	89	2520	9	488	2	2732	100
Rampal	18534	97	487	3	4	-	19024	100
Sarankhola	7403	73	2718	26	88	1	10209	100
<b>TOTAL :</b>	<b>79892</b>	<b>69</b>	<b>26655</b>	<b>28</b>	<b>2921</b>	<b>3</b>	<b>97158</b>	<b>100</b>

Source : *The Bangladesh census of agriculture & livestock, 1983 - 84*

## 2.2 SIZE OF LANDHOLDINGS

The size and distribution of agricultural lands play an important role in determining the quantity and quality of agricultural production. Due to huge density of population, majority of landholdings are small in size. In Bangladesh, the land is divided into a number of plots of varying sizes with the breaking of joint family system. Further division and fragmentation of landholdings in small plots have become the characteristics feature in the district. Thus, available tiny size of holding is one of the constraints in progress of agriculture. In the study area. Table 2.3 indicates that the cropped area of farm holdings in the district.

**Table 2.3 Percentage of under farm and nonfarm holdings in the district.**

Name of P.S.	Farm holds	Non-farm hold.	Total
Bagerhat	83.0	17.0	100
Chitalmari	84.0	16.0	100
Fakirhat	83.0	17.0	100
Kachua	85.0	15.0	100
Mollahat	78.2	31.8	100
Mongla	76.0	24.0	100
Morrelgonj	80.0	20.0	100
Rampal	73.0	27.0	100
Sarankhola	80.0	20.0	100
<b>District total</b>	<b>80.2</b>	<b>20.8</b>	<b>100</b>

Table 2.3 reveals that the highest percentage (85%) is in Rampal Police Station. About 80% percent of farm holdings are owned by farm-holders and 20% belong to non farm-holders.

In the study area, the majority of farm are small in size. Their cropped lands are divided into different kinds of farm sizes. In the the district, the farm holders are classified into three categories : (i) large size (above 7.5 ha) (ii) Medium size (1 - 7.5 ha.) and (iii) small size (below 1 ha). There are 69% of small size farms and 24% percent of medium size farms in entire district and large farms are very few. From table 2.3, it is noticed that highest percentage of small farms is in Fakirhat Police Station and lowest percentage is in the Mongla Police Station. On the contrary, Kachua occupies lowest percent in large farm and Mongla has highest percentage of large farm. Table 2.4 gives a further detail of the farm size distribution.(Figure - 2.3).

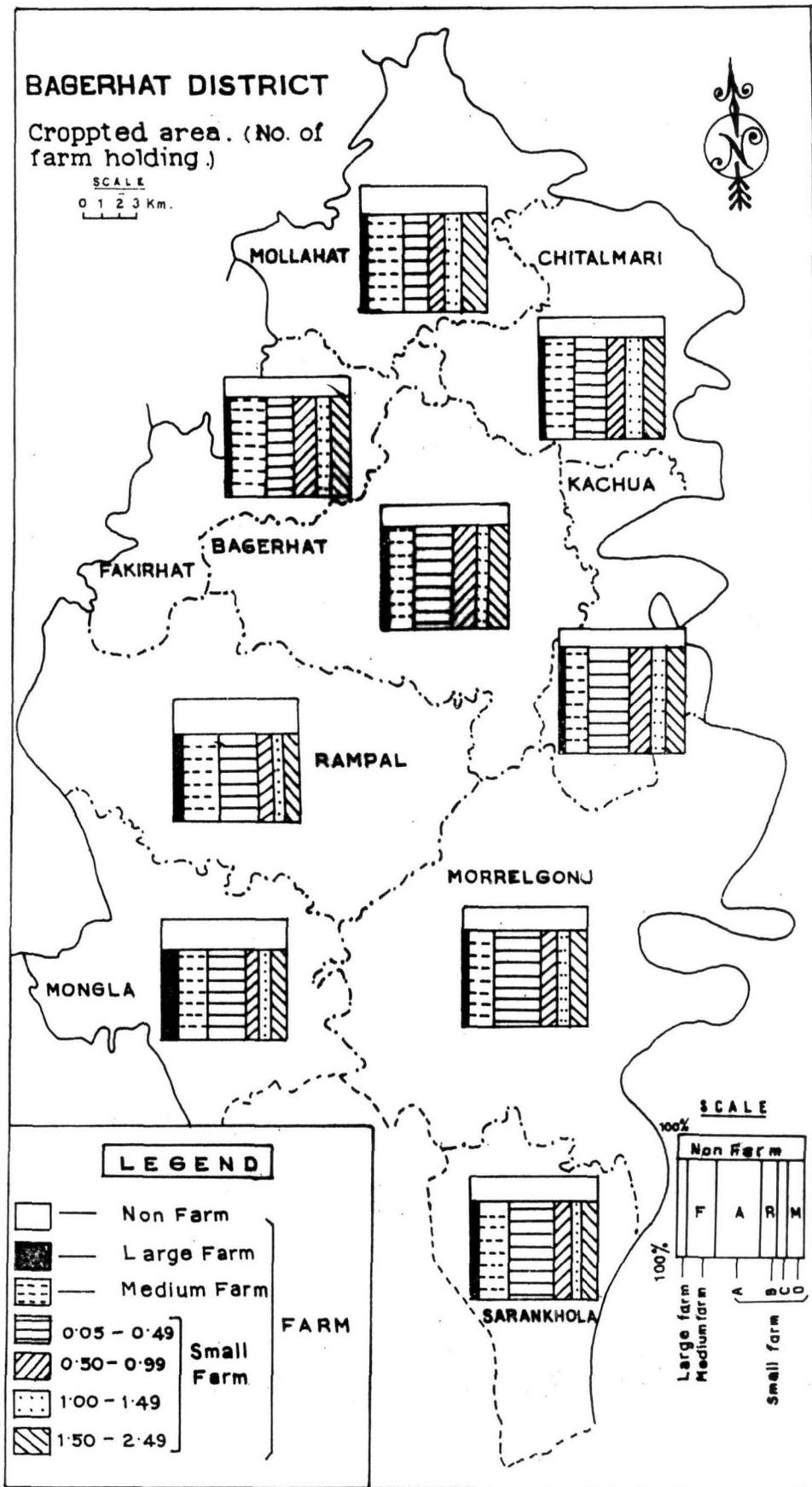
**Table 2.4 : Percentage of farm holders in different farm sizes.**

Name of the P.S.	Sizes of farms in percentage			
	Large above 7.5	Medium 1.0 - 7.5	Small below 1.0	Percentage to total
Bagerhat	5.0	22.9	72.1	100
Chitalmari	4.0	24.5	71.5	100
Fakirhat	5.90	5.9	88.2	100
Kachua	3.9	10.8	85.3	100
Mollahat	5.0	29.3	65.7	100
Mongla	12.9	23.3	63.8	100
Morrelgonj	5.9	21.4	72.7	100
Rampal	9.2	25.3	65.5	100
Sarankhola	5.5	25.4	69.1	100

Source : Thana Statistical Office, Sarankhola Police Station, 1995.

It is revealed from table 2.4 that major percentage of farm holders have less than .1 ha. Second highest number of percentage in medium farm holders have 1 to 7.5 ha. and lowest number of farm holders is in the large size farms.

It has been also found, from the comparison of different police stations, in regards of farm holdings that the highest percentage (29.3) of farm holders is medium size farms at Mollahat police station. It is noticed that less than 6 percent of large farm



holders are found in 7 police stations and remaining 2 police stations have 12% & 9% respectively. Again small farm holdings are divided into four groups. Out of total, 70 percent are small farm holdings, majority of the farm holdings are less than 0.20 ha in the district. (Table 2.5). Nearly 16 percent farm holding are found in 0.4 - 0.6 ha and very small proportion farm holders of 13.1 ha seen in the Sarankhola. The size of small farm holdings in the different police stations can be visualized from table 2.5

**Table : 2.5 Percentages of small sized farm holdings in the police stations.**

Name of P.S.	A	B	C	D	Total
	below 0.20 ha.	0.20 - 0.40 ha	0.4 - 0.6 ha	0.6 - 1.0 ha	percentage
Bagerhat	42.0	22.5	15.1	20.4	100
Chitalmari	30.5	23.7	20.6	25.2	100
Fakirhat	36.5	25.1	16.3	22.1	100
Kachua	42.8	22.6	16.2	18.4	100
Mollahat	27.2	22.0	20.2	30.6	100
Mongla	51.1	18.1	13.2	17.6	100
Morrelgonj	49.8	19.7	14.5	16.0	100
Rampal	53.2	21.9	14.9	20.0	100
Sarankhola	52.4	17.8	13.1	16.7	100
District total	41.8	21.4	16.0	20.8	100

It is also observed that the percentage of small farm holdings in different police stations are not uniform. The area of farm holdings in the size of land are four categories that is A (> .2 ha), B (.2 - .4 ha), C (.4 - .6 ha) and D (.6 - 1.0 ha) according to the land size. From table 2.5 and figure 2.3 it is found that three police stations have above 50% of 'A' category farm holdings. And remaining 6 police stations have below 43% percent of farm holdings. Out of 9 police stations 'C' categories farm holdings have below 13% in 2 Police Stations and above 14% farm-holdings are in 7 police stations. Lastly, 'D' categories farm holdings are equally shared by all police stations.

### **2.3 CROPPING PATTERN**

Rice, pulses, jute, wheat, oil seed, sugercane, & vegetables are the major crops all over the district. Rice is the most important crop mainly grown in the southern & eastern part of the district, with high rainfall, moderate temperature. Tidal lands and flood plain soil are favourable for the production of the crop. The area under different crops has been shown in table-2.6

**Table - 2.6 : Percentage of cropped area in the district.**

Sl. No.	Name of crops	Cropped area in ha.	% to Total
1.	Rice	324854	86.34
2.	Pulse	163060	3.42
3.	Oil seed	8564	2.28
4.	Jute	4101	1.44
5.	Sugercane	5439	1.24
6.	Vegetables	13146	3.40
7.	Spices	5489	1.46
8.	Wheat	231	0.06
9.	Others	1338	0.36
<b>Total ( all crops)</b>		<b>376222</b>	<b>100.0</b>

Source : Bangladesh Bureau of Statistics Office, Bagerhat, 1995.

It can be seen from table 2.6 that 324854 ha, of land, i.e. 86.34% of the total area of district are devoted for growing crops of *amon* rice. Most of the cropped area are devoted for growing *amon* crops in the district. Vegetable hold the second rank in cropped area and occupies 3.5% of the total area of the land. Pulses is an important crop in the area. Oil seed occupies third rank in the region. Jute and sugarcane rank fourth & fifth respectively. Other crops are not significant.

**Table 2.7 : Percentages of cropped area of cereals in Bagerhat district (1990).**

Name of the P.S	Percentage of area to total						Total
	Aus	Amon	Boro	Wheat	Millet	Others	
Bagerhat	5.0	81.1	13.80	0.02	0.10	0.02	100
Chitalmari	28.8	58.5	12.30	0.03	0.30	0.05	100
Fakirhat	19.6	76.7	3.60	0.20	0.03	0.07	100
Kachua	9.4	88.6	2.00	0.00	0.00	0.00	100
Mollahat	38.2	50.4	10.90	0.30	0.10	0.10	100
Mongla	0.3	99.6	0.65	0.01	0.03	0.01	100
Morrelgonj	7.8	91.8	0.20	na	0.10	0.10	100
Rampal	0.3	99.6	0.09	na	na	na	100
Sarankhola	20.8	79.2	0.00	na	na	na	100
<b>District Total</b>	<b>14.4</b>	<b>80.6</b>	<b>4.4</b>	<b>0.3</b>	<b>0.2</b>	<b>0.1</b>	<b>100</b>

Table 2.7 shows that more than 80% of the total cropped area of the district devoted to cereals crops. They occupy more than 90% percent of the area under *amon* crops (cereals) at three police stations. And only in two police stations *amon* occupy below

60% of their area. Comparing different police stations, it is found that *aus* is the second ranking, cereals. In the district, Mollahat & Chitalmari P.S. have highest percentage of *aus* paddy land. The sown area of *aus* crop is not significant in other police stations. *Boro* paddy ranks third in the region. Among the nine police stations, only three police stations have good production, *boro* rice occupies about 12% of the cropped area. (Appendix table IV ). Wheat & millet are at present is less important cereals crop in the regions.

## **2.4. SEASONAL RELATIONSHIP OF AGRICULTURAL CONDITION OF CLIMATE**

**Agriculture Calender :** The study of agricultural calender or Ergograph (Figure 2.4) shows that every month of the year has agricultural activity of some sort or others. The agricultural season in the district usually starts in the month of June with the break of the south-west monsoon. *Amon* rice covers more than 70% of the total cropped area. It is sown in nursery beds and later transplanted in July to prepare field for growing. The agricultural season of *aus* paddy is started from the month of March and harvested in July. *Rabi* (November to April) and *Kharif* (May to October) are two important crops in the study area. *Boro* paddy is an early summer crop sown in November and harvested in March. The growing season of *amon* crop is from July to November. The calender brings out clearly the clash and coincidence in the growing seasons of different crops. *amon* crops lands are generally single cropped and remains follow for the greater part of the year serving as grazing lands for the cattle. Pulses are grown on the same field where *amon* was harvested during the winter (October to March). If irrigation water is available, *boro* (HYV) paddy is grown in most areas on *amon* fields after its harvest and most of the other crops are normally sown by broadcasting method. From the calender, it is clear that the cultivators of *aus*, *amon* & cash crops depend on the rainfall and *rabi* crops is favourable for dry season in the study area.

## **2.5 AREA & PRODUCTION OF CROPS**

Area & production of crops fluctuate with the rainfall and the nature of natural calamities. The principal crop in the study area is paddy. The production of pulses is also high except paddy. Total cropped area in the district is 1,27,098 ha. and paddy shares about

# Ergograph giving climo- Agricultural condition of the District.

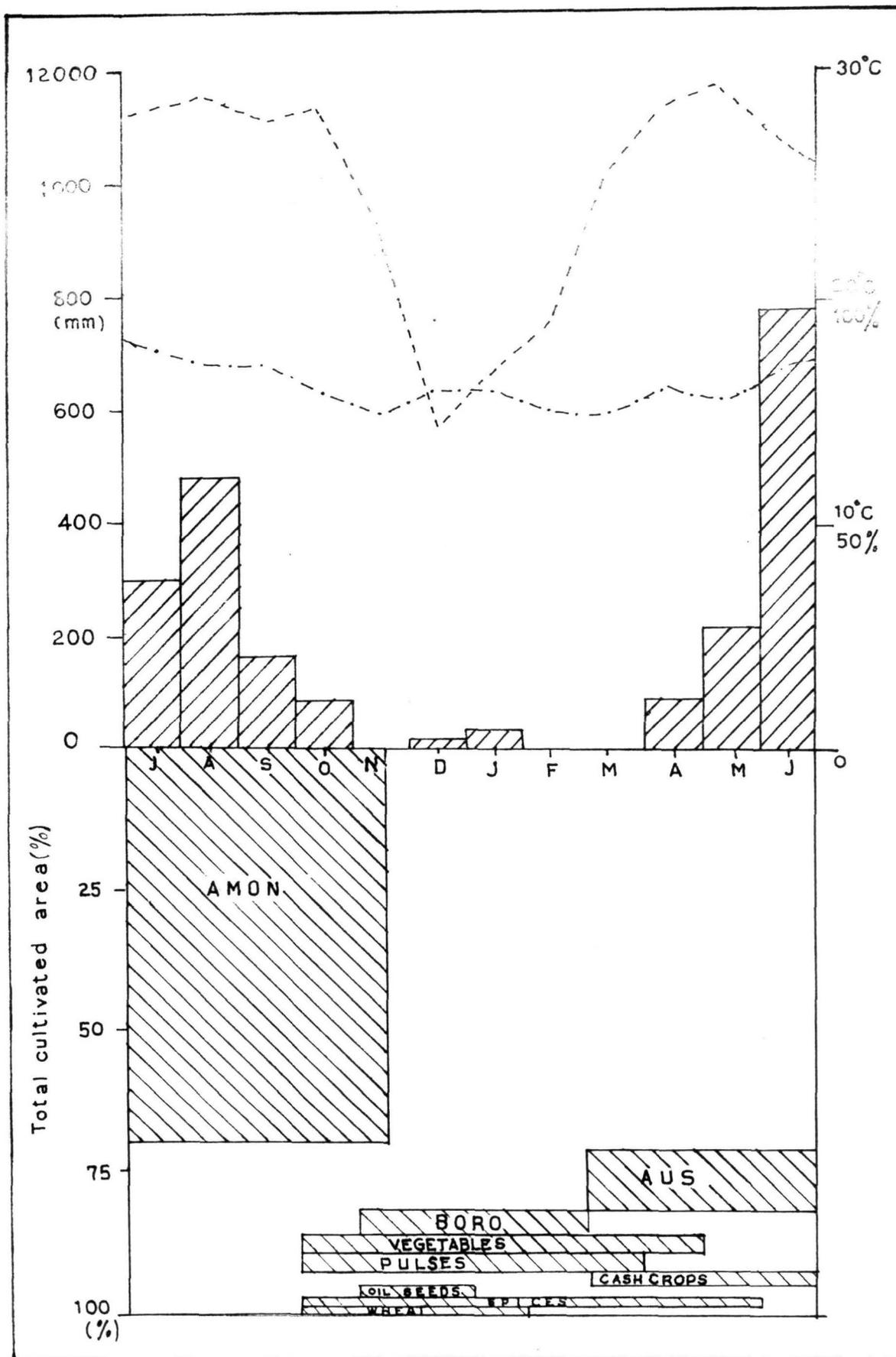


Fig-2.4

71 percent to the total. Pulses share 3.5% of the total area. In winter season, vegetables are important crops to grow in term of area under cultivations. They share about 3 percent of the total cropped area. Sugarcane is cultivated in limited area. Spices are also produced in small quantities. The area under jute is not high in the district, compare with the other districts of the country. The percentage of major crops in different police stations are shown in table 2.8.

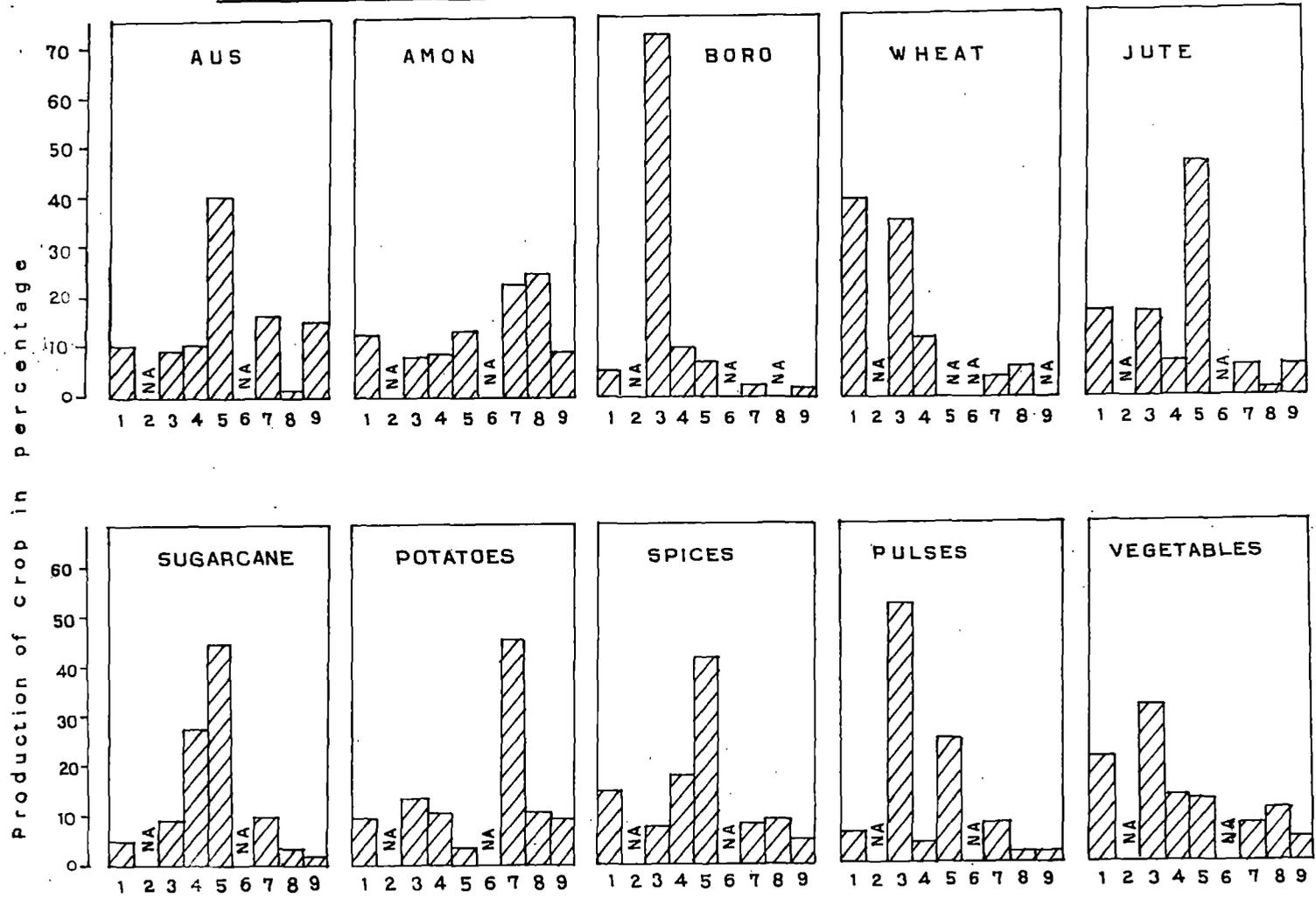
**Table - 2.8 Percentage share of major crops by the police stations (1990.)**

Name of the P.S.	Aus	Amon	Boro	Wheat	Jute	Sugercane	Potato	Pulses	Spices	Vegetables
Bagerhat	10.5	13.0	4.9	40.9	16.4	4.8	8.9	6.2	14.0	21.8
Fakirhat	8.5	7.6	75.7	35.9	17.0	9.3	13.0	52.1	7.1	31.5
Kachua	9.5	9.1	9.3	12.9	7.0	27.2	10.0	5.2	16.7	13.0
Mollahat	39.7	13.6	7.0	-	47.4	44.6	3.0	25.4	41.0	11.8
Morrelgonj	16.3	23.3	1.5	4.0	5.7	9.4	45.3	8.4	7.6	7.4
Rampal	0.2	24.7	0.0	6.3	1.3	2.6	10.4	1.7	8.5	10.3
Sarankhola	15.3	8.7	1.6	-	5.2	2.1	9.4	2.0	5.1	4.2
<b>Total</b>	<b>100</b>									

It has been found that about 39 percent of *aus* crop produce in Mollahat P. S. Rampal P.S. has the lowest percentage (29%) in the district. About 75 percent of the total *boro* paddy produce in Fakirhat Police Station and 7 & 9.5 percent in Mollahat & Kachua Police Stations. The district produces variety of *rabi* crops. Among these, potatoes, pulses, spices & vegetables are most important. But the rate of production of these crops is very low and not optimum. The highest percentage of *rabi* crops (e.g. potatoes, pulses, vegetables) in the district are produced in Morrelgonj (45.3%) Fakirhat (52.1%) and Mollahat P.S. (11.8%). (Table - 2.8). It is also found that most of the area in the district is mono cropped and the highest percentage is in Rampal police station. Major area of crops of each police station is covered by paddy and small area is covered by others crops. It is further revealed that among all kinds of paddy, *amon* occupies the highest share of total area. (Figure 2.5).

The district is not self-sufficient in production of *rabi* crops. So vegetables & food grains are imported from neighbouring district in dry season. Yet, the farmers are too much depended on *amon* paddy. It means that the failure of *amon* paddy affected very

**POLICE STATION-WISE PRODUCTION OF INDIVIDUAL CROP IN PERCENTAGE**



Name of the Police Station :-

1. Bagerhat 2. Chitalmari 3. Fakirhat 4. Kachua 5. Mollahat 6. Mongla 7. Morrelgonj 8. Rampal 9. Sarankhola .

NA - Not Available .

Fig- 2.5

adversely in the economic life of people in the area, yet farmer produce paddy, it can be stored easily by the individual method. Besides, there is always ready for sale in local markets for surplus production of the individual farmer.(Gupta, 92). As a results, the farmers produce the *amon* paddy in summer season.

## 2.6 IRRIGATION AND ITS USED DIFFERENT METHODS.

Irrigation is one of the most important achieving of high productivity. Irrigation helps not only in increasing the productivity but also ensures amount of crop production as well as introducing multiple cropping. Though the study area is located on heavy rainfall and tidal zone, but concentration of rainfall occurs in summer months only. Rest of the year has very low rainfall. Here, the sources of irrigation water are rivers, ponds, tanks and others. The main method of irrigation in the northern part of the district is ordinarily lift irrigation from tank or rivers As irrigation facilities are poor, so the people mainly depend on rain. The police stations of the southern part of the district are intersected by innumerable creeks and channels. So irrigational water is abundant. The district has 1286 tube wells and 13,567 ponds.(B.B. S. 1995). Most of the agricultural lands are irrigated by tidal water. The percentages of irrigated area in different police stations are shown in table 2.9.

**2.9 Table : Percentage of irrigated area of different Police Stations**

Name of P.S.	Total cultivated area	Total irrigated area	Percentage
Bagerhat	18741	309	1.6
Chitalmari	8609	589	6.8
Fakirhat	13273	378	2.9
Kachua	846	222	2.6
Mollahat	17956	556	3.1
Mongla	14057	162	1.2
Morrelgonj	29646	1205	4.1
Rampal	22157	140	0.6
Sarankhola	8366	313	3.7
<b>Total</b>	<b>133652</b>	<b>3876</b>	<b>2.9</b>

Source : District Agriculture Office, Bagerhat, 1995.

From table 2.9, it is found that the irrigated area of the district covers 3878 ha. which is only 2.8 percent of the total sown area. This consists of 2.5 percent of farm

holdings. Among nine police stations, the highest irrigated area is shared by Chitalmari (6.8) Police station and the lowest is shared by Rampal (0.6%) Police station. The area under irrigation has been increased significantly during the last decade. But still it is inadequate to total requirements for the district. Appendix table - 6.1, presents the distribution of irrigated area under various means of irrigation farms. It is found that 3.2 percent of farm area under irrigation, which is about 1016 ha in the small size. Remaining medium size & large size, farms of irrigated area are covered by 3.0% & 2.0% to the total area.

## 2.7 CROPS ASSOCIATION & COMBINATIONS

Identification of crop combination regions is a significant aspect of Agriculture Geography. It provides a good basis of regional planning. The different methods may be applied in the delineation of crop combination regions. To identify the dominant crops, the prevalent statistical methods have been used (Weaver 1954, Dois - 1956, Rafulla - 1957). Weaver method have been applied in the region. By applying the Weaver's method six crop combination regions are identified in the district. The police stations in different combinations are given in table - 2.10.

**Table 2.10 Crop combination of nine Police Stations**

Name of P.S.	1st rank	2nd rank	3rd rank	4th rank
Bagerhat	132.25(C)	1372.00(S)	1594.83(P)	1753.00 (V)
Chitalmari	432.64(C)	1010.29(CS)	1299.94(P)	3428.84(O)
Fakirhat	278.89(C)	1153.25(O)	1338.58(V)	1457.57(P)
Kachua	400.00(C)	1052.99(V)	1239.20(P)	1396.12(CS)
Mollahat	595.00(C)	884.55(P)	1042.38(O)	1205.48(CS)
Mongla	14.44(C)	1989.40(S)	1999.50(CS)	2190.60(V)
Morrelgonj	114.49(C)	1398.30(CS)	1632.88(S)	1780.25(V)
Rampal	1764.00(C)	1676.30(CS)	1968.39(S)	2172.02(V)
Sarankhola	64.00(C)	1511.60(S)	1771.00(P)	1967.78(V)

C - Cereals, P - Pulses, S - Spices, V - Vegetables, O - Oil seed.

It is observed from table - 2.10 that most of the police stations are mono cropped, growing *amon* rice, Pulses is the 2nd ranking crops in the district. And vegetables are the 3rd ranking crops in the study area. It is clearly seen that large scale production of

rice is common in the area. Because most of the crops grown in the area are food crops which are consumed by the producers. (Husain,72)

## 2.8 YIELD RATE OF PRINCIPAL CROPS

It is visualised from the study that the productions of different crops depend on intensity of rainfall, natural calamities and price of crops. Sometimes price of crops influences the area of cultivations. The agricultural inputs used by farmers is low due to poor economic conditions and lack of supply in time. The yield rate of crops are shown in table 2.11.

### 2.11 : Yeild rate of crops in 1990 in Quintal / ha.

Name of P.S.	Aus	Amon	Boro	Wheat	Jute	Sugar cane	Potato	Pulses	Spices	Veg.
Bagerhat	11.0	10.5	0.3	16.9	2.3	393.8	83.35	6.78	14.72	75.6
Chitalmari	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Fakirhat	10.1	13.0	69.4	18.7	2.2	562.5	84.9	4.9	15.2	82.9
Kachua	12.6	14.5	0.7	16.9	2.8	562.5	100.5	6.2	18.0	66.2
Mollahat	10.7	12.4	0.6	na	2.8	586.0	79.8	5.6	18.3	62.4
Mongla	na	na	na	na	na	na	na	na	na	na
Morrelgonj	18.1	13.2	0.9	14.9	2.6	445.3	91.1	6.5	4.6	58.9
Rampal	12.6	13.4	0.2	16.9	2.9	525.4	99.4	5.6	9.7	80.3
Sarankhola	16.4	12.7	1.1	na	2.0	421.9	75.5	6.1	9.8	50.7

The yield rates of different crops reveal that the local varieties of all types of paddy have low yield rate compared to the high yielding varieties in each police station. In the district, the yield rate per-ha of sugarcane is higher and yield rate of pulses is lower comparing the yield rate of other crops in the district, It is observed that the yield rates of high yielding variety of crops is higher except local varieties of *boro* paddy. *Boro* paddy has high production in Fakirhat (69%) police station compare to other police stations of the district. It is partly due to high fertility of soils and better irrigation system in this police station. In the second position, there are five police stations. The yield rate of local variety of *amon* paddy is high in Kachua Police Station and second position is occupied by Rampal Police Station. The average yield rate of *amon* in other five police stations is almost uniform. Another important crop is *aus* paddy. Sarankhola police

## YEILD RATE OF CROPS

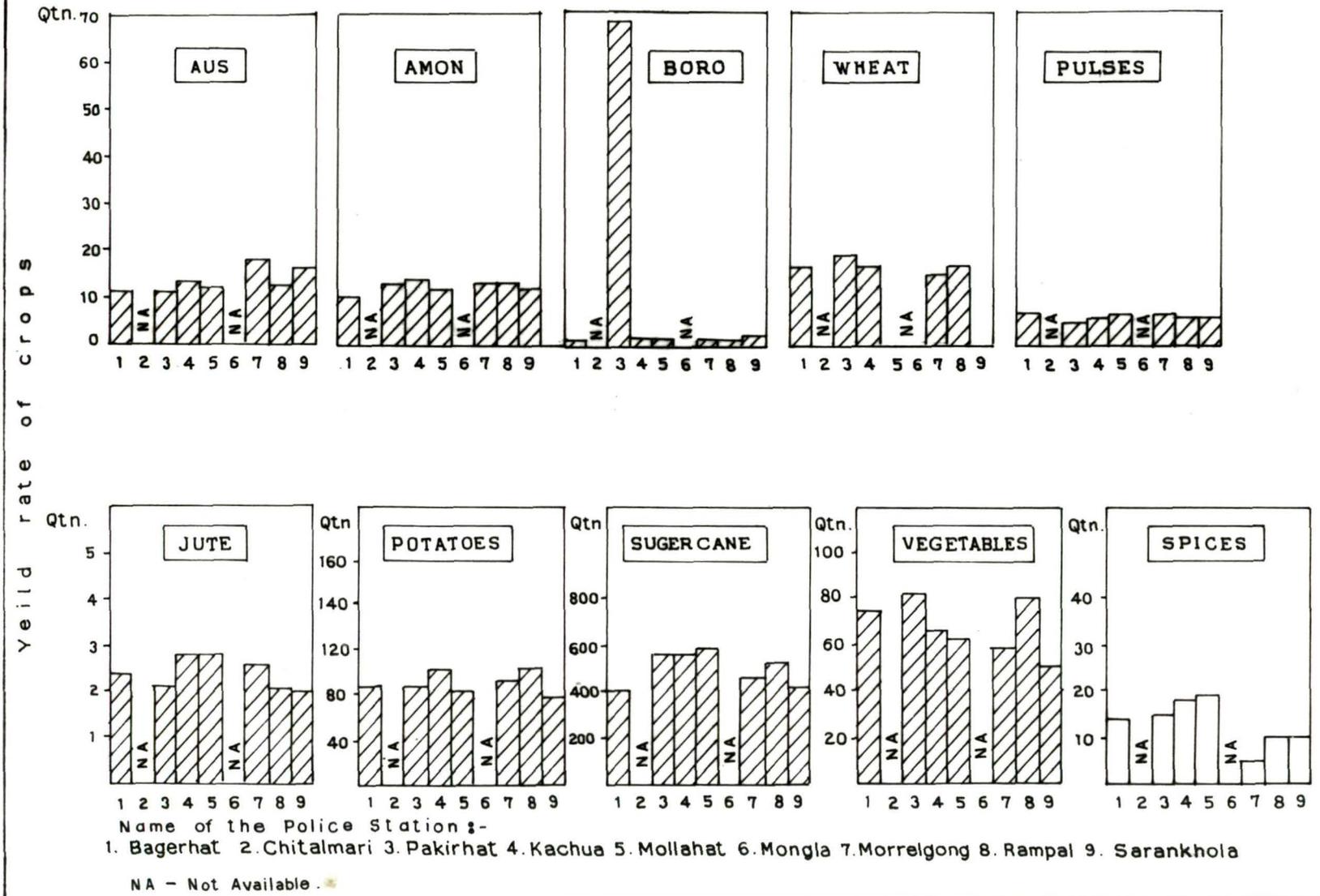


Fig-2-6

station occupies the first in *aus* production. Next position comes to Morrelgonj police station. The production of wheat, potatoes, pulses, spices, & vegetables are much low, (table 2.11 and figure 2.6). Sarankhola & Mongla police stations do not produce wheat.

## **2.9 MAJOR PROBLEMS OF AGRICULTURE**

It has been found that there are many problems in agricultural production which are described as follows :

**(1) Defective land holdings :** The production of the crops is not optimum due to defective landuse systems in the region. The land is extremely fragmented by the law of inheritance, most of which are uneconomical holdings where some agricultural lands are wasted in the demarcation of individual plots. Moreover, most of the families are very poor and economically handicapped for good investment. These fragmented plots are scattered in different parts within or outside the village causing waste of time and energy.

**(2) Indegineous methods of cultivation and Implements:** The traditional methods of cultivation are still predominant in the district (due to various constrains those stood in the way of implementation of advanced methods in agriculture). Primitive agricultural implements are used by the cultivations and as a result, the production is low (Jana, 1972). Ignorance in modern technology and poor economic conditions of the farmers are also found which hinders the implementations of modern technology in agriculture. The farmers do not get fertilizers and pesticides, according to their need. So they cannot used advance technology for high production.

**(3) Land Tenure System :** More than 47% of the total population of the district are agricultural labour and 48% of the total land owners have inadequate lands for their family. So the percentage of small and marginal land owners are high in this district.

**(4) Uncertainty rainfall :** Farmers in the district depend very much on the monsoon which is primary source of water for the cultivation of crops specially amon paddy. But 'Monsoon' sometimes uncertainly and affected the agricultural operations. On the contrary, the agriculture operation are also affected by heavy and concentrated rains which create stagnation of water in the fields and creat,floods.

**(5) Natural Calamities :** The agricultural operations are also affected by natural calamities. Various types of natural calamities are common in the district. Some of these are very devastating in nature. Sometimes a huge amount of crops, animals folks and human lives have been lost in natural calamities like cyclone, local severe storm, drought etc.

**(6) Frequency of Floods :** The district is one of the flood-prone areas in the country and flood occurs in almost every year. The cyclones & depressions affect these coastal areas in the district in every year. The frequency of floods varies from 3 to 4 times in the year and sometimes these are devastating in nature. The floods upset the economy of the region in general and inhabitants in particular by damaging crops, huge animals and other moveable properties. One such flood is occurred in the year 1969. Sometimes cultivation of crops is delayed and the production is declined.

**(7) Scarcity of Livestocks :** The cattle is the only livestock which help the cultivators in the field. They are used for ploughing the land and sometimes for carrying the products from field to home or market. They also drive carts for transporting commodities from one place to other. They also supply the most valuable organic manures to enrich the soil fertility and fuel for domestic use. Generally, the demand of livestock is very high at the times of planting and harvesting seasons. Sometimes it happens that the cultivation of crops is delayed due to lack of ploughing. The area was famous for milk, butter and other milk products in the past due to high concentration of livestock and abundant grazing land in *char* areas. But now the number of cattle are very few and the grazing lands were transferred to agricultural lands due to high pressure of population on land. As a result, the district now suffers from shortage of livestock and milk products.

**(8) Lack of irrigation facilities :** Total agricultural land is very limited, these are not fully utilised and the production of crops is not optimum due to poor irrigation system in the district. Only 25% of the total cultivated land are under different types of irrigation. Most of the land irrigated from *Khals*, ponds, tanks which are dried up in dry season.

**(9) Lack of Power Supply :** Electricity is widely used in agriculture in developed and developing countries in the world, for its easy availability and low cost. Many modern agricultural implements are easily operated with electricity or other energy. So power is

most essential for high production of crops. From the field study, it is observed that the electricity is available in a very few villages in the study areas.

**(10) Lack of marketing storing facilities :** Good and quick transportation of agricultural commodities to the markets are essential for sustained return of high prices. But the communication system in the district is poorly developed as already envisaged and the cultivators are forced to sale their products to traders at a low price. Moreover, the periodicity of local market is low and they only fulfill the local demand partly (Jana78). So, the farmer store their produce in their house where huge amount of produce got damaged due to perishable nature of goods and ensure low return to farmers. In interior areas there is no godown for storing of crops. So, the farmer store their crops on their own process and on own risk.

**(11) Lack of training Centre :** In the study area, there is no training or educational centre for the farmers for proper guidance in agricultural development. So, the farmers are not aware about the modern methods of production of high yielding of crops. The farmers do not use modern instruments, due to small size of plots and low economic conditions.

## **CONCLUSION**

From the analysis it can be concluded that the level of agricultural development in the district is dependent on monsoon rainfall. It may be mentioned that *amon* is the main crop. Moreover, earlier harvest of *amon* paddy by mid November would enhance the prospect of second crop like pulses, oilseed and vegetables. The residual moisture of the season can be utilised largely for the cultivation of *rabi* crops in the district.

It has been found also that about 81% of the total area is under cultivation. Remaining 19% of the total area under not available for cultivation. The percentage of irrigation area is higher in Chitalmari police station among the nine police stations of the district. Current fallow land is low in all the police stations. Only two police stations (Mongla and Sarankhola) are under forests sharing high percentages. In the district, only 2.8% area have irrigation facility. But the percentage of irrigation area to total is very low. The percentages of cultural waste (Marsh) are high in two police stations (Fakirhat & Mollahat). So it is not possible to increase the area under cultivation by transferring the cultural waste into an agricultural land. The percentage of area under

not available for cultivation is high for the high density of settlements and riverine tracts. These occupy a significant area in each police station. It is also observed that the sizes of farm holdings are mostly small and they share a large number in the district.

The district produces a variety of crops as jute, vegetables, wheat etc. but the most important one is paddy. The district is dominated by monocrop (85%). The yield rates of crops are very low due to lack of irrigation facility, high fragmentation of holdings and low inputs used. The method of cultivation is traditional & primitive. So, it is urgently necessary to improve the agricultural production by implementing modern methods of cultivation, maximising the use of inputs and introducing high yielding varieties of seeds. Thus, the district may be self sufficient in agricultural production in future. It is also necessary to increase irrigation facilities for multiple cropping. Suitable crops rotation ensures higher production and income from agriculture. In this way, the economic conditions of the people living in the rural areas can be improved to some extent.