

## DEVELOPMENT OF AGRICULTURE SECTOR

### 4.1 Introduction:

Agriculture is the back bone of the district and an overwhelming 65% of its population lived in rural areas and is engaged in agriculture. The major *kharif* crops are Paddy & Maize and the same for *rabi* crops are Wheat and Oil Seeds. The district has 8 blocks but as far as Agriculture is concerned there are 6 working blocks with Block Sanour merged with Bhunerheri and Block Patran merged with Block Samana. The district headquarters is situated in Baradari Gardens of Patiala city where as the block offices are situated as tabulated below:

S.No	Name of the Block	Situation of Block Office
1	Patiala	Zila Parishad building, Patiala
2	Nabha	FTC, Nabha
3	Samana	Warrich Road, Samana
4	Patran	As above (merged with Samana)
5	Bhunerheri	Baradari, Patiala
6	Sanour	As above (merged with Bhunerheri)
7	Rajpura	Near SDM residence, Rajpura
8	Ghanour	In the same building as of Rajpura

Apart from this, Patiala city hosts the offices of District Training Officer, Project Officer (Reclamation), Cane Development Officer and PD ATMA

### 4.2 Land Use

The total geographical area of Patiala District is 332445 Ha. Out of this area 81.5 % area is under cultivation, Forest cover 3.80% and 11.37% area is under non agricultural use. During

*kharif* season area under Paddy, Maize and Cotton is 85.5%, 0.5% and 0.13% respectively where as in *rabi* season, area under Wheat and Oilseeds in the District is 90.2% and 0.35% of the net sown area respectively.

**Table: Land Utilization Statistics (preceding 3 years average)**

**Table : 14**

(Area in 000'

hectares)

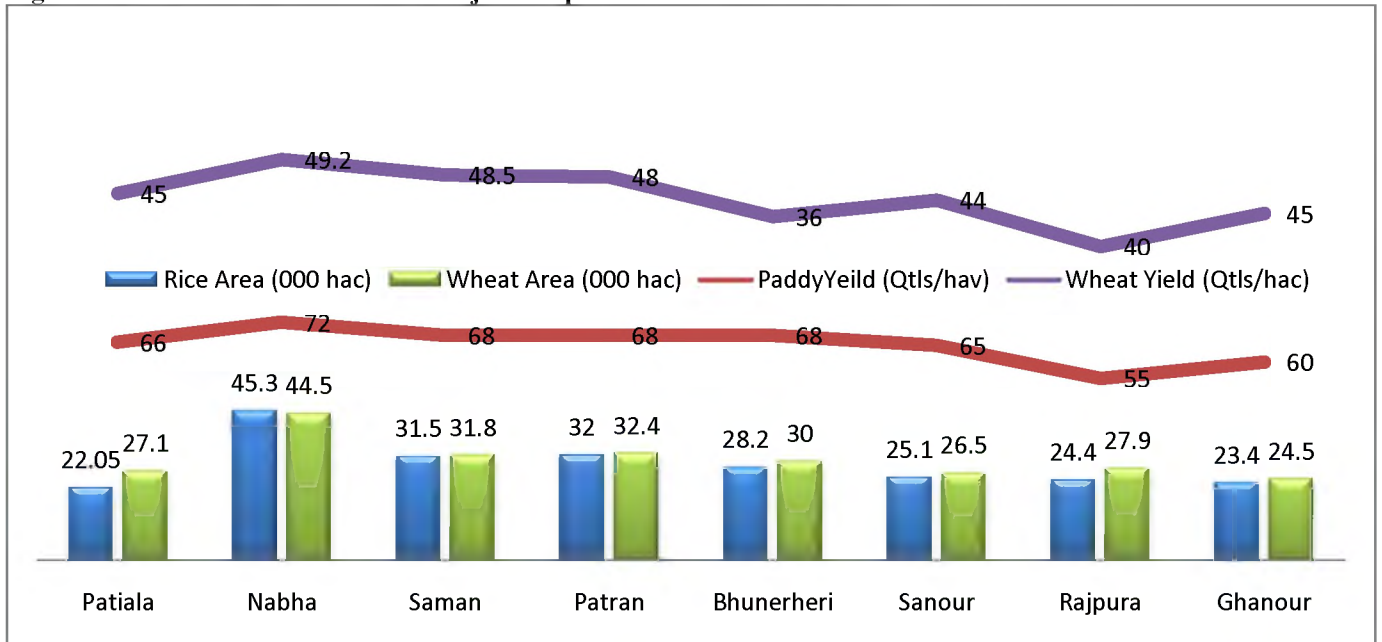
Block	Geographic area	Forest Area	Under Non-agril. Use	Culti. waste	Perma- nent pastur es	Land under miscellan eous tree crops and groves	Curre nt Fallo ws	Other Fallo ws	Net sown area	Gross croppe d area	Croppi ng intensit y (%)
<b>Patiala</b>	37.973	0.73	4.894	0	0	0.28	-	0.57	31.69	59.84	197
<b>Nabha</b>	63.557	3.94	10.364	0	0	0.2	0.32	1.12	51.22	99.57	199
<b>Saman a</b>	40.596	1.08	3.244	0	0	0.077	0.134	0.41	36.16	68.5	198
<b>Patran</b>	37.918	0.86	3.094	0	0	0.039	-	0.39	36.66	68.5	194
<b>B.heri</b>	38.513	2.91	4.494	0	0	0.2	0.524	0.53	32.7	61.84	197
<b>Sanour</b>	35.967	1.2	5.114	0	0	0.19	-	0.5	29.46	55.62	199
<b>Rajpura</b>	40.28	0.93	3.546	0.367	0.007	-	1.04	0.034	28.19	26.705	199.8
<b>Ghanou r</b>	34.646	0.773	3.047	0.313	0.005	-	0.118	0.021	25.16	23.643	199
<b>TOTAL</b>	332.445	12.655	37.804	0.68	0.012	0.99	4.199	2.057	271.26	535.06	198

Source: Dy. Economic Advisor & Village level Survey under RKVY

### **Area, Production and Yield of Major Crops in Irrigated/ Rain fed Conditions in District Patiala:**

As Patiala is predominantly Rice – Wheat district and 96% of its area is tubewell irrigated and rest from other sources (canal & lift irrigation), so none of its area is rain fed. Block wise area and its corresponding yield of these two major crops of the district is given below (Fig. 16). Area, Productivity & Yields of other crops of the district under *kharif* & *rabi* season is given in Table 15 & 16 (Annexure VI).

**Figure 16: Area and Yield of Major Crops in District Patiala**



### 4.3 Soil Health

In general, Patiala soils are deficient in nitrogen and phosphorus which has to be supplemented by applying chemical fertilizers during various stages of crop growth. As far as status of micronutrient are concerned, Patiala faces some deficiency of zinc, iron and manganese and recently some parts of the district have also started showing salt accumulation / alkali soils as depicted in figure 17 below:

Figure 17 : Micronutrient Status

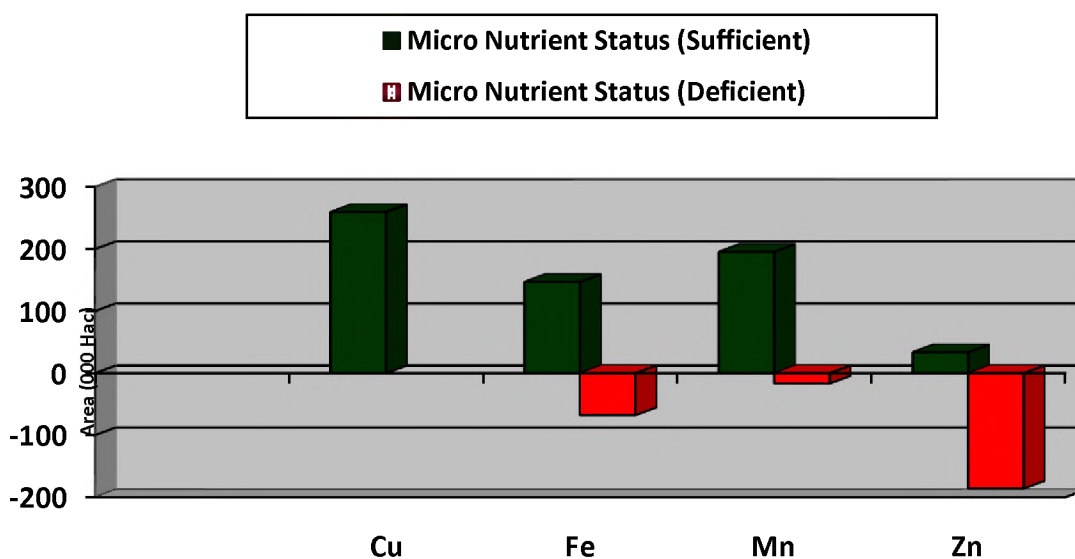


Table: 17

Name of the Block	No of Soil Samples Analyzed	Copper (Cu)		Iron (Fe)		Manganese (Mn)		Zinc (Zn)	
		Sufficient t	Deficient t	Sufficient t	Deficient t	Sufficient t	Deficient t	Sufficient t	Deficient t
<b>Patiala</b>	-	30250	-	24050	5950	28564	1436	2528	27472
<b>Nabha</b>	-	49780	-	-	4978	-	2500	-	9956
<b>Samana</b>	-	34720	-	27776	6944	32984	1736	3472	31248
<b>Patran</b>	-	35220	-	28176	7044	33459	1761	3522	31698
<b>B.heri</b>	-	31260	-	25008	6252	29697	1563	4689	26571

<b>Sanour</b>	-	28020	-	22416	5604	26619	1401	4203	23817
<b>Rajpura</b>	-	26755	-	5351	21404	24080	2675	9364	17390
<b>Ghanou r</b>	-	23726	-	14235	9490	20167	3558	5931	17794

Source: Village level Survey under RKVY

As per land capability classification 60% soil in the district is under class I (very good cultivable land) and 28% soil is under Class II (good cultivable land) and rest under Class III (**Fig. 10/p31**)

### Soil Testing Laboratories in District Patiala

Table: 18

Soil Testing Laboratories Under	No. of Soil Testing Laboratories			Annual Analyzing Capacity	No. of Samples Analyzed	No. of Soil Testing Laboratories having Annual Analyzing System
	Static	Mobile	Total			
Govt. Sector	5	1	6	55000	23619	5
Co-operative & PAU	1	-	1	10000		1
Private Sector	-	-	-	-	-	-
<b>Total</b>	<b>6</b>	<b>1</b>	<b>7</b>	<b>65000</b>	<b>23619</b>	<b>6</b>

### Soil Fertility Indices

The details of Soil pH, EC, organic carbon, available NPK on the basis of total soil samples tested by soil testing laboratories of department of Agriculture throughout the year covering all blocks is given in table 19 attached as Annexure VII where as an overall picture of the district regarding soil fertility indices is shown in Figures 18a to 18 f.

**Figure 18 a**

**Figure 18 b**

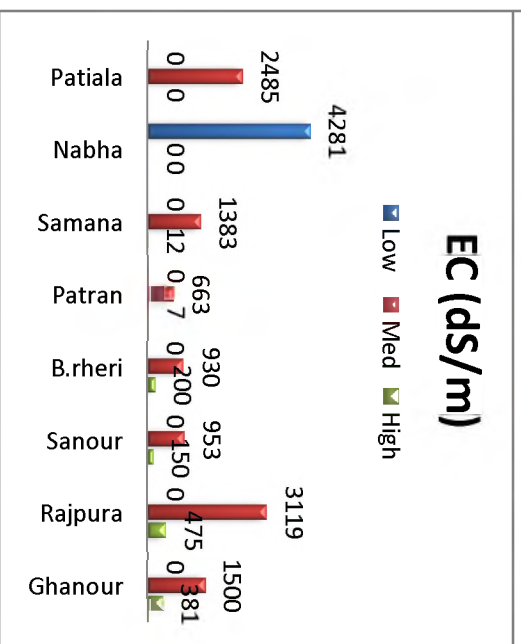
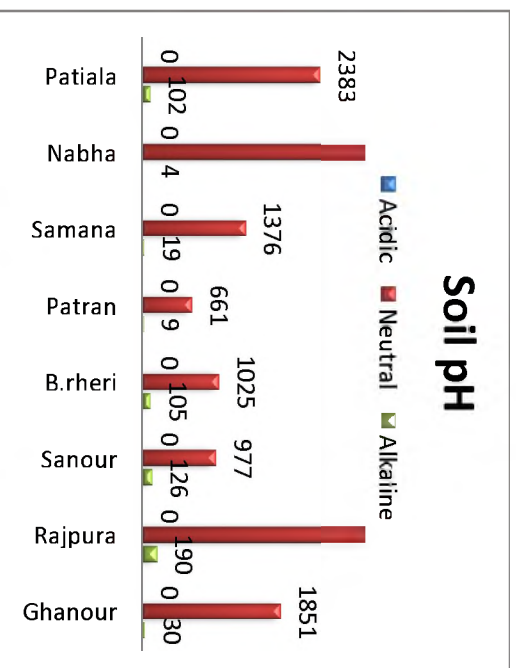


Figure 18 c

Figure 18 d

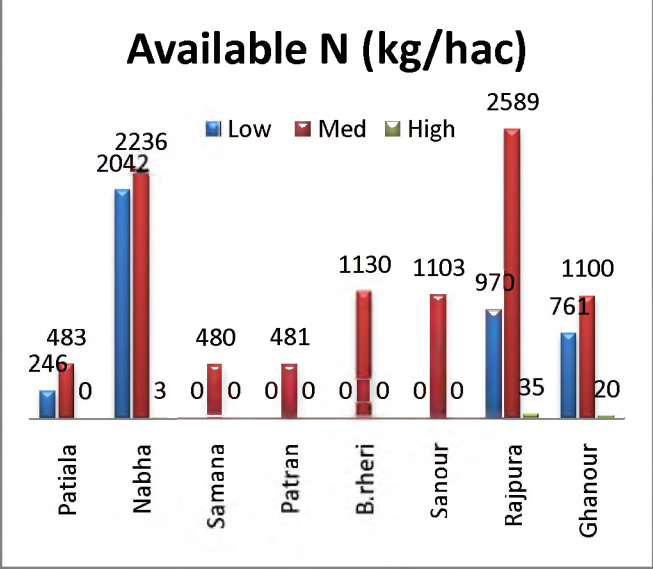
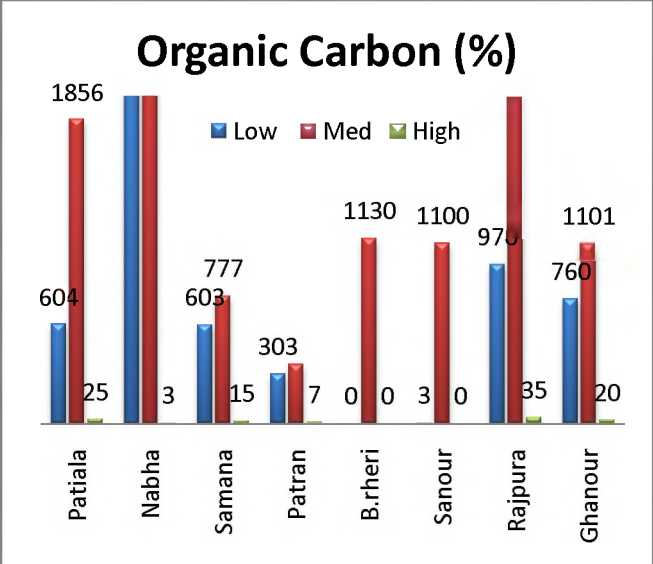
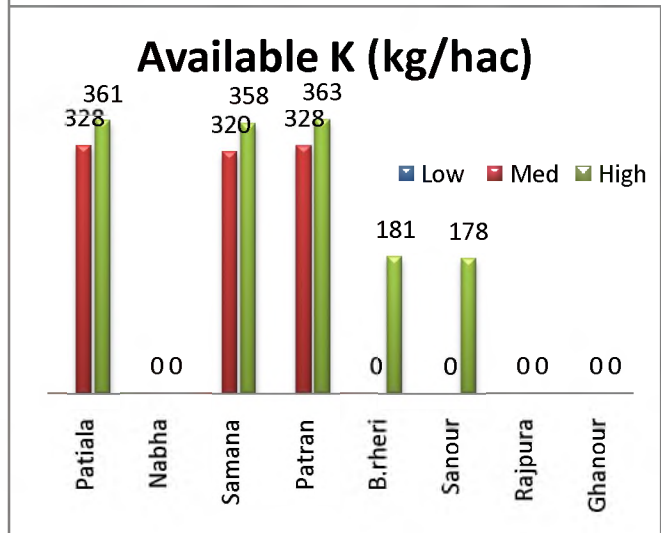
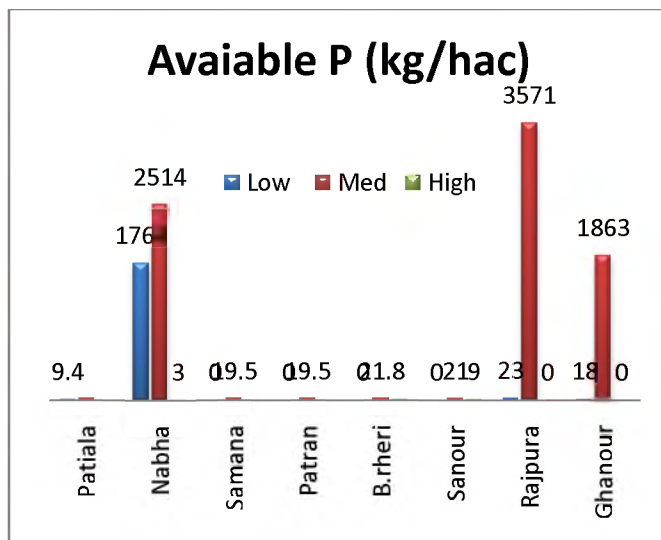


Figure 18 e

Figure 18 f



Source: Soil Testing Labs, Deptt of Agriculture

It is quite clear from the figures above that except availability of Potash (K), the district soils are low to medium as far as availability of Organic carbon, Nitrogen and Phosphorous is concerned. Further the N and P can be supplemented using chemical fertilizers however the content of Organic Carbon in soil can only be increased when we use FYM, Organic manures, mulching of straw residue of previous crop etc. Further poor carbon content of soil may lead to many complex problems such as



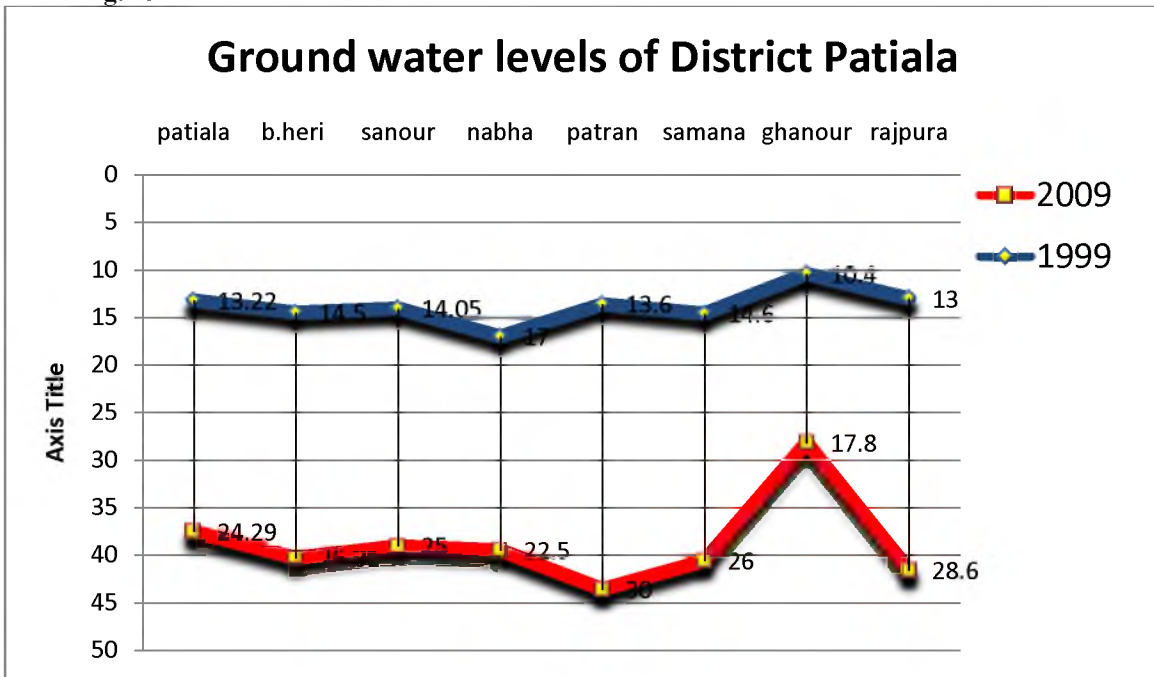
- Non availability of micro nutrients from the soil
- Poor crop growth
- Poor water retention capacity
- Ineffectiveness of weedicides etc

#### **4.4 Water Resources and Management:**

Ground water occurs under unconfined to confined conditions. The area underlain by a multi aquifer system. The thick clay beds separate granular zones ranging in thickness from 4 to 16 cms. The net irrigated area in Patiala district is 269567 hectares which is 99% of the net area sown. The main source of Irrigation is tubewells which is 94% (**Figure 11**) of the total irrigation sources. So it becomes extremely important for the district to take care of its ground water otherwise in absence of this particular source of irrigation the district will fall dry. The source wise are irrigated is given in table 20 (Annexure VIII)

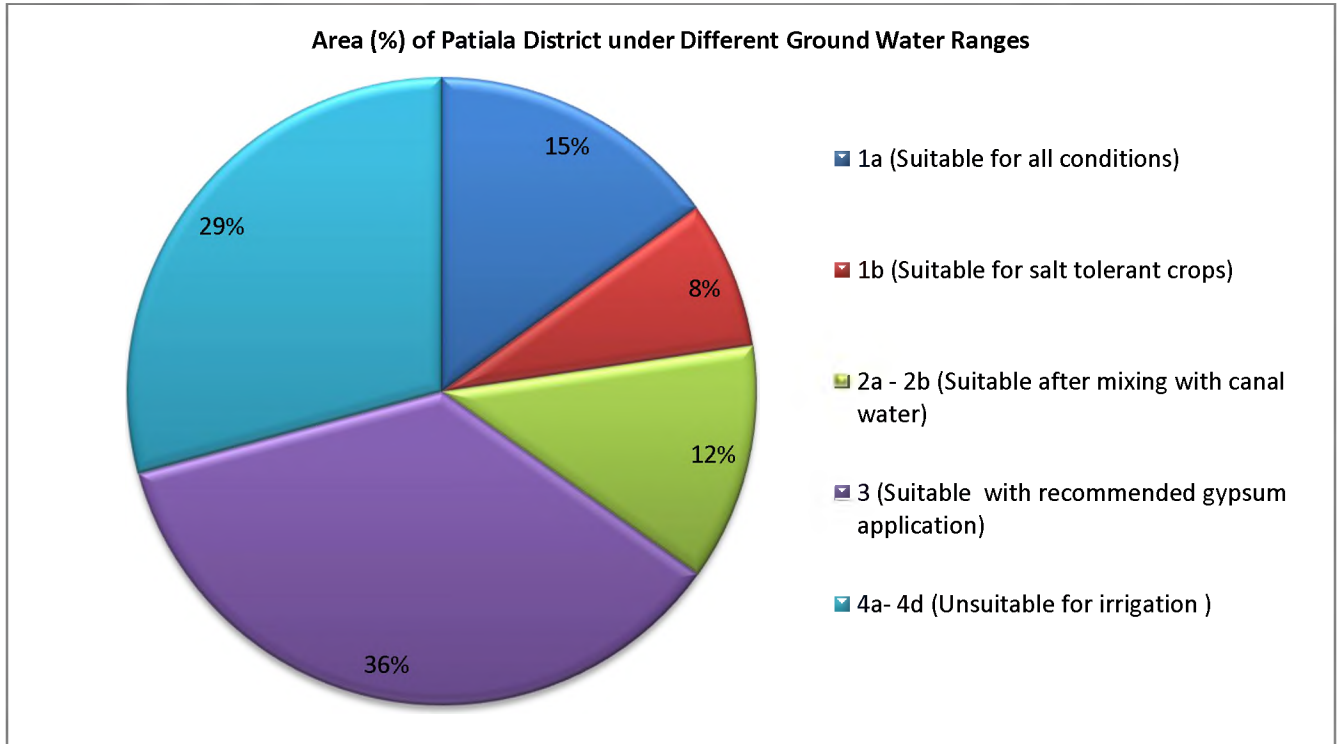
All the eight blocks of district Patiala are over exploited and the stage of ground water development of the district is 166% overexploitation (Patran block is 268%). Due to deficit rains for the last few years the average fall in the ground water level has touched -2.54 m per year. The water of the district has fallen from 17.09 m in 1999 to the level of 28.67 in June 2009 ( **Figure 19** )

Figure 19



Source: Ground Water Cell, Deptt of Agriculture PB, Patiala

Further as discussed earlier the entire ground is not fully fit for irrigation as it is very clear from the following figure:



There are six water testing laboratories including one mobile lab and the detailed progress of all these labs for year 2008-09 is given in **Annexure IX** and depicted in figure 20 below:

**Table: Soil and Water Testing Laboratories in District**

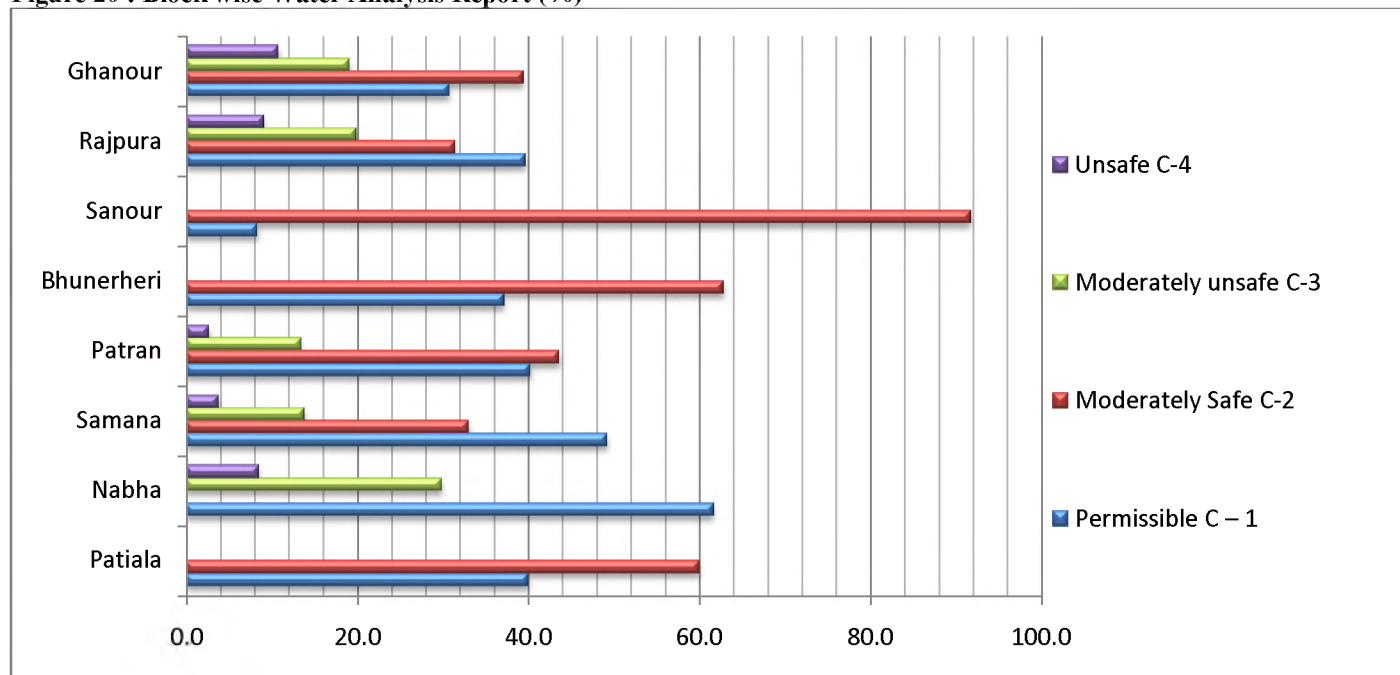
**(Latest data)**

Soil & Water Testing Laboratories Under	No. of Soil & Water Testing Laboratories			Annual Analyzing Capacity	No. of Samples Analyzed (Soil+Water)
	Static	Mobile	Total		
Govt. Sector	5	1	6	55000	23619
KVK, PAU Rauni	1	-	1	10000	-
Private Sector	-	-	-	-	-
<b>Total</b>	<b>6</b>	<b>1</b>	<b>7</b>	<b>65000</b>	<b>23619*</b>

Source: Soil Testing Officer, Deptt Of Agriculture PB, PTA

\* Under achievements of targets due shortage of staff and funds

**Figure 20 : Block wise Water Analysis Report (%)**



Source: Soil Testing Labs, Deptt of Agriculture

#### 4.5 Major Crops and Varieties in the District

Paddy/Rice is the major crop of the *kharif* season as it covers more than 85% of the net sown area and during *rabi*, wheat, accounting for more than 90% (Figure 12) area, is the major crop and the detailed table is given in Annexure VI.

##### Varieties of Major crops grown in Patiala

S.No	Crop	Type	Varieties sown in the district
1	Rice	Paddy	Pusa 44, HKR- 47, PR 113, PR114, 116, 118, PAU 201
		Basmati	Punjab Basmati 1, basmati 370, PB1121
		Hybrids	RH-10, 6444, PHB 71, 72, RH 207
2	Wheat	Hexapod	PBW 343, PBW 502, PBW 550, DBW 17
3	Maize	Hybrid	31Y45, Bio 9637, Swarna,
		Composite	Buland, PARAS
4	Oilseeds		TL 15 (toria), Hyola (sarson), sunflower

#### 4.6 Input Management

The district has wide spread network of input dealers which are well connected to all parts of the district via good roads. Patiala has the distinction of having first rake point at the entry level on the main rail link at Rajpura. Inputs of various kinds are readily available when ever required through the following **Input supply mechanism**

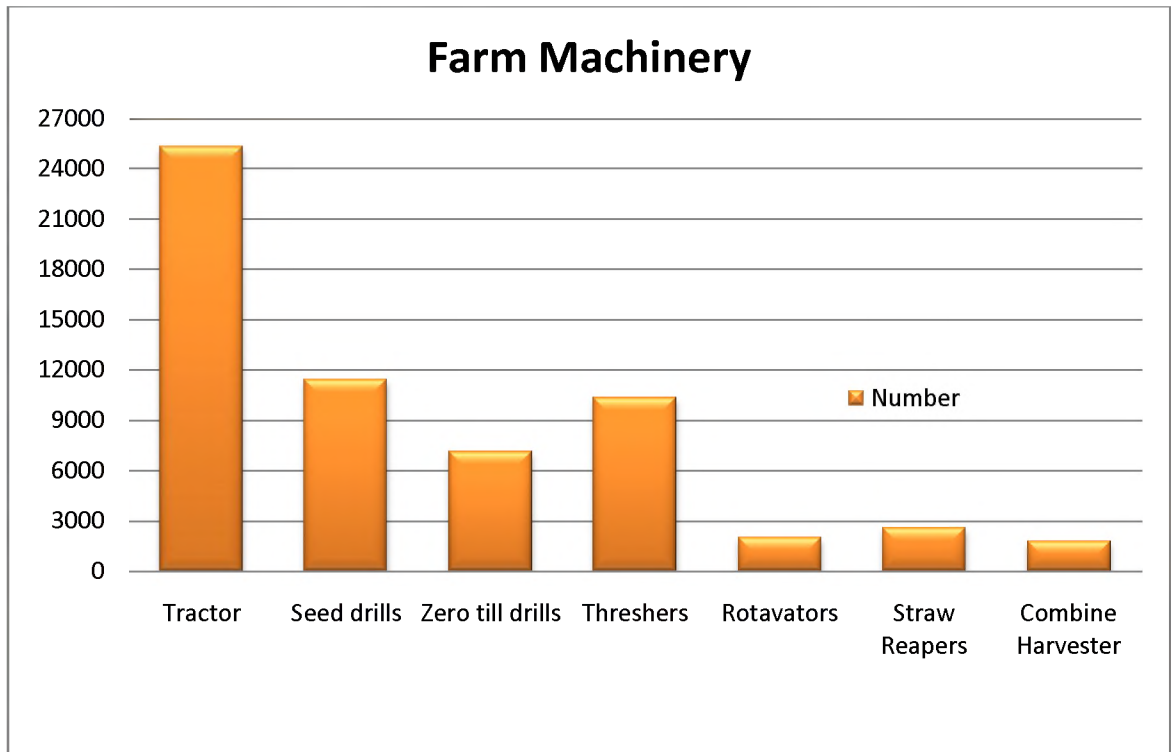
S.No	Sector	Input Supplying agents	No.
1	<b>Public sector</b>	Agriculture Department	7
2	<b>Cooperative sector</b>	<ul style="list-style-type: none"> <li>• IFFCO, Markfed</li> <li>• PUNSEED (seed only)</li> <li>• Coop societies</li> </ul>	5 6 265
3	<b>Private sector</b>	<ul style="list-style-type: none"> <li>• Seed Dealers</li> <li>• Fertilizer Dealers</li> <li>• Pesticide Dealers</li> </ul>	128 384 640

#### 4.7 Farm Mechanization

Agricultural mechanization like any other input is a critical input timely performance of various agricultural operations for increasing the production and productivity. Mechanization is viewed as package of technology to insure timely field operations for increasing productivity, reduce crop losses and to improve quality of agro produce, increase land and other inputs productivity, increase labor saving, drudgery reducing devices being cost effective & eco friendly. To ensure sustainability of agriculture by conservation of natural resources like water, soil health and environment, it is very much essential to popularize the new technological interventions like raised bed planter, zero till drill technology precision leveling of fields manipulation of crop residue into the soil. To promote these interventions it is necessary that farmers be provided some assistance in acquiring newly developed agricultural machinery to carry out these interventions. These agricultural machinery/equipment are generally cost intensive and it is not possible for individual farmer specially the small and marginal farmers to acquire without any financial assistance from the government. It is proposed to provide these machines with the co-op societies by subsidizing to @ 75 % of the cost so that all types of equipment needed can be provided in the co-op societies and member farmers can use these equipment by paying nominal fee necessary for up keep of these machines plus a little extra to

promote the financial help of the co-op societies. This will ensure the greater annual use of the machine thereby reducing the cost of operation and will also eliminate the necessity of individual farmer owning the machine for a very limited annual use. The status of various types of machinery possessed by Patiala farmers is given in table 21 annexed as Annexure X and the major farm power implements of the district are shown in Figure 21

**Figure 21: Status of Major Farm Power Machinery in District Patiala**



There is dire need to create more awareness among the farmers in respect of proper use of farm machineries for high efficiency saving human and energy resources.