

CHAPTER - 1

INTRODUCTION

The Punjab state has 5.03 m hact. geographical area out of which 4.20 m hact. is under cultivation. Agriculture is a way of life. About 70% of its population depends directly in agriculture. It has shaped the thought, outlook, culture and economic life of our people. Therefore, it will continue to control all strategies for planned socio-economic development of the state.

Since the advent of green revolution, the state has made rapid strides in agricultural production. The cropping intensity increased from 126% to 188% during the period 1965-66 to 2007-08. The area under wheat has increased about 126% and production by 721%, whereas the area under rice has increased about 794 % and production by 3493 %. The productivity of wheat has increased from 1236kg/hact to 4507 kg/hact. The productivity of rice has enhanced from 1000 kg/hect to 4019 kg/hact during the same period. The state has played a prominent role in achieving self sufficiency of food grains by contributing 60% wheat and 40% rice to the central pool. The land use pattern of the state is given in table - 1. The area and production under various crops is given in table -2.

The consumption of nutrients is 216 kg/hact. The consumption of pesticides is about 1 kg/hact. Due to use of quality and improved seeds of various crops, the state has achieved a seed replacement rate of Cereals -Paddy 25%, Maize 95%, Cotton 95%, Kharif Pulses 23%, Barley 50%, Wheat 17%, Rabi oilseeds 55% and Gram 80% during 2007-08 against a norm of cereals 25%, cotton & maize hybrids 100%, oil seeds & pulses 35%.

Strenuous efforts were made to sustain cotton production. The state has been able to produce 23.55 lakh bales in an area of 6.04 lakh hact. during 2007-08. New innovative techniques were adopted to reduce the cost of cultivation. Zero-tillage-technology was promoted for wheat sowing amongst farmers. An area of 5.93 lakh hact was sown during 2007-08 and Rs. 88 crores are saved as input costs. The total food grains production was 268.14 lakh MT during 2007-08.

All this, has become possible by implementing various state & centrally sponsored schemes by various sections of the department. The administrative set up of the department is given in chapter-2. The budgetary provisions, expenditure & income is given in chapter-3. Major crop oriented schemes are covered under transfer of technology in chapter-4. The supply of agri-inputs was regularly monitored to boost production. The details are given in chapter-5. Strict quality control measures of agriculture inputs were enforced. The details

are given in chapter-6. The use of farm machinery has accelerated the growth of agriculture and economy of the state. Various types of farm related engineering activities are covered under chapter-7. The monitoring of ground water behaviour is given in chapter-8. The dissemination of agricultural technology is given in chapter-9. The achievements of agricultural marketing are given in chapter-10. Various types of Crop Estimate reports are given in chapter-11. The review of Annual report is given in chapter-12.

TABLE - I
Land Use Pattern of Punjab

Area "000" Hect.

S. No.	Classification	1970-71	1980-81	1990-91	2000-01	2002-03	2003-04
1.	Reporting area for Land use	5033	5033	5033	5033	5033	5033
2.	Forest	138	216	222	280	277	293
3.	Land not available for cultivation	610	532	426	438	454	470
a)	Land put to non- agri. use	416	436	343	410	417	437
b)	Barren & Unculturable Land	194	96	83	28	37	33
4.	Other Uncultured Land	92	49	57	22	16	20
5.	Fallow Land	133	45	110	43	62	49
6.	Net area Sown	4053	4191	4218	4250	4224	4201
7.	Area sown More than once	1625	2572	3283	3691	3602	3704
8.	Total Cropped area	5678	6763	7501	7941	7826	7905
9.	Net Irrigated area	2888	3382	3909	4038	4035	4028
10.	Gross Irrigated area	4243	5781	7055	7664	7598	7687
11.	Cropping Intensity %	140	161	178	187	185	188

TABLE - II

AREA PRODUCTION AND AVERAGE YIELD OF DIFFERENT CROPS

A = Area '000' Ha.
P = Prod. '000' Tonnes/Bales
Y = Yield Kgs/Ha.

Kharif Crops		2006-07	2007-08	Rabi Crops		2006-07	2007-08
Rice	A	2621	2610	Wheat	A	3467	3488
	P	10138	10489		P	14596	15720
	Y	3868	4019		Y	4210	4507
Maize	A	154	153	Barely	A	19	16
	P	481	521		P	64	57
	Y	3123	3408		Y	3394	3550
Kharif Pulses	A	22.9	21	Gram	A	3.8	3
	P	18.9	15		P	3.8	3
Kharif Oil Seeds	A	14	11	Other Rabi Pulses	A	4.2	4
	P	7	5		P	4.4	5
Cotton	A	607	604	Rabi Oil Seeds	A	41	28
	P	2678	2355		P	46	33
	Y	750	663				
Sugarcane (Gur)	A	99	110	Sunflower	A	15.3	20
	P	602	669		P	25.00	38
	Y	6083	6086				
				Total Food Grains	A	6299	6300
					P	25312	26814

CHAPTER - 2

ADMINISTRATIVE SET UP OF AGRICULTURE DEPARTMENT PUNJAB

Director

<u>ADMN. WING</u>	<u>STATISTICAL WING</u>	<u>GEOLOGY WING</u>	<u>ENGINEERING WING</u>
Joint Director Agri.	Joint Director Agri.	Joint Agri.	Director Joint Director Agri.
<ol style="list-style-type: none"> 1. Cane Commissioner 2. Extension & Training 3. High yielding Variety Prog. 4. Cash Crops 5. Inputs 6. Plant protection 7. Innovation and Pulses 	<ol style="list-style-type: none"> 1. Statistics 2. Agri. Census 	Hydro-geology	<ol style="list-style-type: none"> 1. Engineering
Deputy Director	Statistician	Hydro-Geologist	Agri. Engineer (Implements) Agri. Engineer (Tubewells)
<ol style="list-style-type: none"> 1. Deputy Director (H.Q.) 2. Deputy Director (L.C.P.P.) 3. Deputy Director (Cotton) 4. Deputy Director (Oilseeds) 5. Deputy Director (Pulses) 6. Seed Testing Officer 7. Sr. Analyst 8. Analyst 			Engineer
Chief Agricultural Officer/ District Training Officer Project Officer Subject Matter Specialist	Statistical Officer/ Asstt. Statistician/ Field Officer/ Technical Asstt.	Asstt. Hydro-geologist	Agri. Engineer/ Asstt. Agri. Engineer
Block Agri. Officer Soil Testing Officer	Statistical Asstt. Field Asstt.	Section Officer	Asstt. Agri. Engineer-I/ Agri. Inspector (Implement) Mechanic
Agri. Dev. Officer/ Agri. Sub Inspector			

CHAPTER - 3

BUDGETARY PROVISIONS

For the implementation of various plan, Non-plan and centrally sponsored schemes, the State Govt. have provided Rs. 4329194 thousand for the year 2007-08 . An expenditure of Rs.2735264 thousand has been incurred under various schemes during 2007-08. Budget allotment and expenditure under various allotted heads during 2007-08 is given in Table-I. The income generated from various sources is given in Table-II.

TABLE - I
HEADWISE BUDGET ALLOTMENT AND EXPENDITURE FOR THE YEAR
2007-08.

Major Head	(Rs. in Thousands)					
	Plan		Centrally Sponsored		Non Plan	
	RBE	EXP	RBE	EXP	RBE	EXP
2401-Crop. Husbandry	1098529	624500	452576	168200	2414178	621600
2415-Agriculture Research & Education	230000	230000	-	-	1230000	1000000
2435- Other Agriculture Programme 01-(State) Marketing & Quality Control facilities	-	-	-	-	33896	33566
2702-Minor Irrigation	-	-	-	-	45768	43600
2810-Non Conventional Source of energy-01-Bio Energy-001-Direction & Administration	-	-	-	-	6417	5200
4401-Capital Outlay on crop husbandry	-	-	-	-	-	8598
4810-Capital Quality on Non-conventional sources of energy	-	-	3500	-	-	-
6401- Loans for Crop Husbandry	-	-	-	-	-	-
Total	132859	854500	456076	168200	3740259	1712564

RBE: Revised Budget Estimates
Exp: Expenditure

TABLE - II
2401 CROP HUSBANDARY INCOME 01.04.2007 TO
31.03.2008

	Head	Income (in Rs.)
103	Seeds	1134169
104	Receipt from agriculture farms	850636
105	Sale of manure & fertilizer	472615
107	Receipt from plant protection services	616193
108	Receipt from commercial crops	18428464
0435	Other agriculture programmes	246194155
102	Fee for Quality control of agri. Products	----
0702	Minor Irrigation	
103	Receipt from Boring and Tubewells	10,00,884
800	Other receipts	23772916
85	Miscellaneous receipts	
	TOTAL	2924470032

CHAPTER - 4

TRANSFER OF TECHNOLOGY

To boost crop production, various crop oriented programmes were implemented in the state like production of certified seeds, Cotton Development Programme, Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM), Sugarcane Development Programme, Support to State Extension Programme for Extension Reforms, Plant Protection and National Food Security Mission Scheme. The progress of these programmes is given below:-

A) Production of certified seeds

The wheat and paddy are the major crops in the State. To feed the increasing population of the country, it is very essential to increase the production of these crops. The objective can be achieved, either by increasing the area or per unit productivity.

The timely supply of inputs plays a major role in higher production. The most important inputs are good quality seed, fertilizers, pesticides etc. Keeping in view the overall objective of increasing the production in the State, Centrally Sponsored Scheme Macro Management Work Plan "Production of certified seed" was implemented during 2007-08, Funds in the tune of Rs. 270.00 lakhs were allocated. Out of these 70.00 lakh were transferred to Office of JDA(PP) for the Seed Treatment Programme and 200 lakhs to the PUNSEED & KRIBHCO for the promotion of Seed Production Programme(Rs.200/- per quintal) . Other Centrally sponsored scheme C.S.(AGR.)-11 generally known as Seed Village Scheme was also implemented during year 2007-08, under this scheme Seed Production Programme was implemented at farmers field in selected villages to ensure the availability of good quality seeds to the farmers. Budget of Rs. 131.04 lakh was granted directly to PUNSEED and out of this Rs. 50.48 lakhs was incurred for seed production programme in selected 593 villages whereas Rs. 70.56 lakh was incurred for providing training to farmers regarding seed production techniques.

The achievements of Area & Production of rice, maize and wheat during the year 2006-07 and 2007-08 is given as under:-

A = Area '000' Ha.

P = Production '000' MT

A/Y = Average Yield : Kg/Ha.

Crop	2006-07			2007-08		
	A	A/Y	P	A	A/Y	P
Paddy	2621	3868	10138	2610	4019	10489
Maize	154	3123	481	153	3408	521
Wheat	3467	4210	14596	3488	4507	15720

B) Cotton Development Programme

Cotton is a major cash crop in the south western districts of the state. To enhance cotton production, two schemes are in operation in the state i.e. Non

Plan-a staff scheme and Centrally Sponsored ICDP Cotton Scheme under Mini Mission II of Technology Mission on cotton. The department has taken all out efforts for the revival of cotton in the state. The cultivation of BT Cotton was promoted. The farmers were encouraged to use certified seed of recommended Varieties/Hybrids. They were educated for timely sowing, need based sprays to control insect/pests, adoption of IPM techniques etc. Thus, 23.55 lakh bales of cotton were produced during 2007-08. The budget allotment and expenditure of both the schemes is given in Table I.

TABLE - I

(Rs. In lakh.)

Sr.No.	Name of Scheme	2006-07			2007-08		
		Original Budget	Revised Budget	Expnd.	Original Budget	Revised Budget	Expnd.
1.	2401-Crop Husbandry-001-Direction & Administration (Non plan)	26.28	26.48	22.98	28.52	26.68	25.47
2.	Intensive cotton Development Programme Centrally Sponsored 75:25 sharing basis	457.65	0.40	Nil*	457.65	457.65	315.51

Note:- * The expenditure could not be incurred as the state Govt. has not accorded financial sanction

Centrally sponsored ICDP Cotton Scheme - Under Mini Mission II of Technology Mission on cotton:-

The Centrally Sponsored ICDP cotton scheme under Mini Mission II of Technology Mission on cotton is implemented on 75:25 sharing basis between Govt. of India and State Govt. Under this scheme, certified cotton seed is provided to the farmers. The new techniques of cotton cultivation are demonstrated at farmer's fields. The farmers are also trained regarding identification of predators and judicious use of pesticides for the control of pests in the IPM camps organized at village/block/district level. During 2007-08, the total fund allotment was Rs. 457.65 lacs out of which Rs. 315.51 lac has been drawn. 46 farmers training camps were organized in the cotton belt. Surveillance of cotton crop regarding cotton diseases and pests were conducted and information regarding outbreak, if any, was provided. Rs. 81.00 lac were drawn in advance to distribute 20,000 Nos. of plastic tank hand operated spray pumps ,500 Nos. of power operated, 80 Nos. of tractor mounted spray pump. Rs. 90 lac were drawn to distribute pheromones traps & Bio-agents / Bio- pesticides as 50% assistance.

During 2007-08, the cotton crop was severely infested with the attack of mealy bug pest which is a pest of mango crop particularly. It is first incidence of severe infestation on cotton crop. To manage the losses and to aware

the farming community, high level of awareness campaign was initiated by the department of agriculture. Awareness regarding cultural and chemical methods to control the attack of mealy bug was popularized by conducting village/block/district level training camps and seminars. IPM(Integrated Pest Management) is also promoted by conducting weekly farmers field schools . Campaign to rogue out the alternate host plants like congress grass, kanghi booti and gutputna etc. was also initiated for future control measures of mealy bug.

C) Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM)

Oil seeds & Pulses are rich source of proteins and both are a part of our daily human consumption. Our country has to import oilseeds & Pulses to meet its requirements. To boost production, the Govt. of India has earlier implemented an Oil seeds Production Programme (OPP) and National Pulses Development Project (NPDP) under the Technology Mission of Oil Seeds & Pulses (TMOP) on 75:25 sharing basis till 2006-07 in the state. With a view to further lessen the burden of imports, the Govt. of India has launched another ambitious programme of Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM) on 75:25 sharing basis during 2007-08 in the state.

a) OIL SEEDS

During 2007-08, a budgetary provision of Rs. 181.93 lakh was made under ISOPOM. An expenditure of Rs. 112.20 lac was incurred to implement various components of the scheme. The components covered were seed minikits, block demonstrations, purchase of breeder seed, production of foundation seed, production and distribution of certified seed, 1PM, distribution of gypsum, PP chemicals and equipments and training camps. To popularize different varieties, 23350 seed minikits of Soyabean, Sesamum, Castor and Raya and Mustard were distributed to the farmers free of cost. To impart training to the farmers, 94 training camps were organized. Besides, 6206 pp equipment were also distributed to the farmers on 50% subsidy basis. The achievement of area and production of oilseed crops is as under :

A- Area in '000' Ha
P- Production in '000' MT

Sr. No.	Crop	2006-07		2007-08	
		Achievement		Achievement	
		A	P	A	P
1.	Groundnut	4.4	3.8	3.1	2.7
2.	Sesamum	9.5	3.2	8.2	2.7
3.	Rapeseed / Mustard	41	46	28	33
4.	Sun Flower	15.3	25	20	38

(b) PULSES

The main objective of the scheme is to popularize cultivation of pulses through adoption of crop and location specific production technology. An amount of Rs. 52.27 lakh. was allocated to implement various components during 2007-08. An expenditure of Rs.42.00 lakh. was incurred. The major components

covered are purchase of breeder seed, production of foundation seed; distribution of certified seed, minikits, improved farm implements, pp equipments, gypsum, rhizobium culture; seed village scheme, block & IPM demonstrations, training camps and infrastructure development. During 2007-08 , 41749 seed minikits of summer moong, mash, gram, lentil and peas were distributed to the farmers free of cost. An area of 2160 hectares was covered under rhizobium culture treatment. An area of 245 hectare was also covered under block demonstrations. 80 training camps were oragnized to impart training to the farmers on pulse technology. Five (5) training camps were organized for capacity building of extension functionaries. The achievement of area and production of pulse crops is given as under :-

A- Area in '000' Ha.
P- Production in '000'MT

Sr. No.	Crop	2006-07		2007-08	
		Achievement		Achievement	
		A	P	A	P
1.	Moong	12.3	10.7	11.7	8.4
2.	Mash	3.3	1.4	3.5	1.6
3.	Arhar	7.2	6.7	6	5.4
4.	Gram	3.8	3.8	3	3
5.	Lentil	2.1	0.8	1	1
6.	Peas	3.1	3.6	3.4	4.2

C) MAIZE:

Maize can play important role in crop diversification policy of the state. It is used in poultry and animal feed and for the manufacture of starch, glucose, corn flakes. It is also used as a human food in winter season as a special delicious recipe in combination with Sarson ka-sag, Baby corn is eaten as Salad and used for cooking vegetables and preparing pickles, pakoras, soups, etc. Maize is also one of the main fodder crop of the state. During 2007-08, an expenditure of Rs.33.66 lakh was incurred against budget allotment of 48.58 lakh, on various components made under ISOPOM to implement the components of IPM, training camp minikit, PP chemicals and publicity. As the main objective of the scheme is to enhance maize production through field demonstrations, adoption of improved seed and dissemination of technology, 4000 seed minikits of varieties like, PEHM-1(2000), Maharaj Bio 9637(1000) & PMH-1(1000) were distributed free of cost to the farmers. 109 training camps were organised to disseminate improved crop production technology in 70 selected blocks of the state. IPM technique was introduced in 77 village to control insect attack through IPM schools.

Similarly, in order to increase the awareness about the production technology of maize crop among the farmers and in an effort in increase the area of cultivation under hybrid varieties of maize and to get maximum yield, 60 demonstrations were laid-out in 9 districts of State. For the demonstrations, seeds were distributed free of cost among the farmers. Weedicide was also provided free of cost to farmers. In these demonstrations, main stress was given

on maintaining plant populations. Mostly the demonstrations were planned with the help of Maize planters, to maintain plant to plant and row-to-row distance in the Crop.

Apart from it, a permanent maize scheme (staff scheme) is also being implemented to enhance maize production in the state. An amount of Rs. 16.54 lakh was allocated under this scheme and an expenditure of Rs. 16.39 lakh was incurred to implement the scheme. Maize is mainly sown in the districts of Hoshiarpur, Ropar, Nawanshahr, Amritsar, Gurdaspur, Jalandhar, Kapurthala, Patiala, Ludhiana, Mohali and Fatehgarh Sahib in the state. Maize production campaign was launched to boost production. Main emphasis was laid on popularization of high yielding varieties of maize like PMH-I, PMH-2, F-9572-A, Parbhat, Kesari, J.H.-3459, J.H.-1006, , Punjab Sathi I, Punjab Sweet corn Pearl-Popcorn. (all varieties recommended by P.A.U). With these efforts, the state has been able to produce 5.21 lakh tonnes of maize from an area of 1.53 lakh hectares during 2007-08.

D) Sugarcane Development Programme

There are 23 sugar mills in the state out of which 16 are in the cooperative sector and 7 in the private sector. Out of these mills, Budladha, Rakhra, Jagroan, Tarantaran, Fardikot, Zira & Malout Cooperative mill are under liquidation. Thus, 16 sugar mills having crushing capacity of 48266 TCD, took crushing operations during 2007-08.

Due to timely extension activities undertaken by the department , there was about 19% expansion in area under sugarcane during the year 2007-08 .During 2007-08, the sugar mills working in the state crushed 57.60 lakh tonnes of cane. The sugar production was 5.34 lakh tonnes. The sugar recovery achieved during 2007-08 was 9.31 The cane crushed, sugar production and recovery of sugar during 2006-07 and 2007-08 is given below:-

	Item	Unit	2006-07	2007-08
1.	Cane Crushed	Lakh/Tonnes	50.91	57.60
2.	Sugar Produced		4.86	5.34
		Lakh/Tonnes		
3.	Recovery of Sugar	%	9.54	9.31*

* Sugar recovery has reduced due to severe frost in second fortnight of Feb, 2007.

An amount of Rs. 50.68 lakh was allotted under the scheme Direction & Administration. An expenditure of Rs. 49.27 was incurred during 2007-08. Rs. 72.00 lac were allotted under “Macro management Centrally sponsored work plan – programme for the development of major crops. An expenditure of Rs. 49.62 lac was incurred under this scheme during 2007-08.

Under above scheme, different components are covered like, Demonstrations, Intercropping & Farmer Field Schools. 1000 demonstrations, 1000 intercropping and 100 Farmer Field Schools are organized by incurring 20.00 lakh, 20.00lakh and 9.62 lakh respectively.

For maximizing the sugarcane production, farmer training camps are organized for the dissemination of various techniques to the farmers. Field demonstrations and seminars are conducted in mill areas. Besides, to meet the requirement of good quality cane and to increase per unit productivity, an area development programme was chalked out well before the sowing time.. The targets and achievements of various components of development programme during 2006-07 and 2007-08 are given below:-

S. No.	Component	Unit	2006-07		2007-08	
			Target	Achievement	Target	Achievement
1.	Area	'000' Hac	130	118.00	150	140
2.	Average yield	(Tonnes/Hec †)	60	61.96	61.00	57.14
3.	Sugarcane Production	(Lakh Tonnes)	72	73.11	91.50	80.00
4.	Distribution of Seed	(000 Tonnes)	240	442.00	300	364.00
5.	Area Under Intercropping in Sugarcane sown with Trench/Ridge Method	(Hect)	10,000	15,346	10,000	9,762
6.	Plant Protection Measures					
	a) Seed Treatment	Hac	30000	6585.00	30000	4868
	b) Soil Treatment	Hac	30000	38544.00	30000	20825
	c) Ground Spray	Hac	100000	52174.00	10000	33850
					0	
	d) Top Borer Control	Hac	70000	18995.00	70000	17055
7.	Interface	No.	--	--	---	3

E) SUPPORT TO STATE EXTENSION PROGRAMME FOR EXTENSION REFORM

After the successful implementation of ITD-component of National Agriculture Technology Project (NATP), the Govt of India approved the implementation of centrally sponsored Scheme "Support to State Extension Programme for Extension Reform (90:10) during the 10th five year plan. This scheme was implemented on 01.07.2005. The main objective of the scheme is to reform public sector extension, promoting private sector to effectively complement / supplement and wherever possible to substitute public extension, Augmenting Media and Information Technology support for Extension, Main Streaming Gender concern in extension, capacity building / skill upgradation of Farmers and extension functionaries etc.

The scheme is being implemented by the autonomous Agricultural Technology Management Agencies (ATMA's) at district level and Sustainable Agriculture Development Agency (SADA) Punjab at state level. During 2007-08, Rs. 312.60 lac was released by the GoI. Rs.136.21 lakh was standing as balance as per upto 1.4.2007. Total funds available under this scheme during 2007-08 was Rs. 448.81 lacs, out of which an expenditure of 276.79 lakh was incurred.

During 2007-08, 24 District level farmers training camps are organized, 4 interstate 706 inter district and 1481 intrastate training courses are provided to farmers of the state. 6056 demonstrations related to agriculture and 16418 demonstrations of agriculture allied sector were laid out. 45 Interstate, 225 Intrastate state and 59 Intradistrict exposure visits were conducted. During the year 13 research extension interface, 66 field days/ farmer seminars and other activities were conducted. 26 Training courses were held during 2007-08 at State Level Training Institute in which 1410 number of extension staff were trained. Approval for the establishment of Community Radio Station by I.D.W.G. at Sangrur was also granted. Additionally GoI has accorded the approval for State action plan for other 10 remaining districts of the state, for Rs. 255.65 lakh. An amount of Rs. 115.00 lakh was released for 2007-08. However expenditure could not be incurred due to late receipt of funds.

F) PLANT PROTECTION

Due to multiple cropping, the incidence of pests & diseases has cropped up. Various plant protection measures were adopted for judicious use of pesticides. To achieve the objective, the following plant protection schemes were implemented for the benefit of farmers during 2007-08:-

(Rs. In Lakh)					
S. No.	Name of the Scheme	2006-07		2007-08	
		Budget allotment	Expenditure	Budget allotment	Expenditure
1.	2401 - crop Husbandry 001 - Direction and Administration - Non Plan	33.01	31.24	33.80	31.78
2.	4401 - Capital Outlay - 107 Plant Protection - Non Plan - Purchase and sale of Pesticides	100.00	--	100.00	86.00
3.	A(P) Centrally Sponsored Macro Management work plan - scheme for Pest & weed Management (90:10 sharing basis)	116.00	--	51.82	42.37
4.	A(P) Centrally Sponsored Macro Management work plan - scheme for Cereal Development Programme. (90:10 sharing basis)	-	-	66.73	13.28

1. The scheme shown at Sr. No. I, is a staff scheme and no physical targets were fixed in it.
2. In the scheme shown at Sr. No. 2, an amount of Rs. 100.00 lac were allotted for the purchase of pesticides out of which pending liability of an amount of 85,98,987/- for the year 2006-07 was cleared. A case for the purchase of pesticides for the balance amount of Rs. 14.00 was sent to the

Govt. of Punjab for approval .No approval was received from the Govt. hence no purchase could be made.

3. Under the scheme shown at Sr. No. 3, an amount of Rs. 51.82 lac was allotted out of which 42.37 lacs could be utilized (Rs. 4.17 lac for the clearance of pending Liabilities of rodenticides Rs. 35.40 lacs for the purchase of 3Nos. of UPS and 3 Nos. of HPLC and Rs. 2.81 lac was utilized for the purchase of 12 Nos. of Air conditioners). 51000 hectares were covered for Rat Control Campaign under above scheme.
4. Under the scheme shown at Sr. No. 4 amount of Rs. 66.73 lac were allotted to under SOE- Subsidy for the supply of pesticides for the seed treatment on 25% subsidy. Proposal for the purchase of Emisan -6 worth Rs. 396325/- & Streptocycline worth Rs. 932034/- (on 25% subsidy) were put in the front of Pesticide Advisory Committee and will be supplied shortly. Balance amount for the purchase of Propiconazol 25% EC could not be utilized due to non availability of the rate contract.

5. NATIONAL FOOD SECURITY MISSION (NFSM)

It is a 100% centrally sponsored scheme. In the first phase 7 old districts namely Amritsar including Tarantaran, Sangrur including Barnala, Ropar including Mohali, Gurdaspur, Hoshiarpur, Bathinda and Ferozepur were selected for Wheat besides Amritsar including Tarn-aran, Sangrur including Barnala, Gurdaspur, Ferozepur & Ludhiana were selected for Pulses . Later on Tarantaran, Barnala & Mohali were carved out as new districts. An amount of Rs.3288 .33 lakhs were allocated out of which Rs. 2380 lakh were utilized under different components of Wheat & 11.90 lakhs under Pulses. An expenditure of Rs. 7.68 lac was incurred for publicity. Subsidy @ 50% was provided for seed, micronutrients and machinery components. The physical achievements of scheme during 2007-08, are as under:

S.No.	Approved Intervention	Unit	Target	Achievement
1.	Demonstration on improved package of practices (Wheat)	Nos.	37000	37000
2.	Increase in SRR (Seed distribution)	Qtl.	126800	126251.6
3.	Distribution of seed minikits	No.	57200	57168
4.	Incentive for Micro-nutrients	Ha.	146430	60000
5.	Zero-Till Seed Drills	No.	1250	1178

6.	Rotavators	No	2500	2266
7.	Farmers trainings on FFS pattern (one FFS at every one thousand ha.)	No.	220	220

CHAPTER - 5

SUPPLY OF AGRI-INPUTS

Timely and adequate availability of inputs is vital for enhancing crop productivity. Strict vigil was maintained on the supply of seeds, fertilizers and pesticides to the farmers in the state. These inputs were supplied under various schemes. The progress is given as under:-

(A) CHEMICAL FERTILIZERS AND COMPOSTS

i) Consumption of Fertilizers

Balanced and judicious use of fertilizers is essential for increasing the agricultural production. As a result of extensive training and promotion programmes launched by the Department of Agriculture, consumption of fertilizers in the State has increased many folds over the year and now the per unit area consumption in the State is highest in the country. The consumption of fertilizers in the State during the last few years is given below:-

CONSUMPTION (NUTRIENT IN '000' TONNES)

Year	N	P	K	Total
2003-04	1170	335	38	1543
2004-05	1202	317	43	1562
2005-06	1255	369	63	1687
2006-07	1299	354	39	1692
2007-08	1316	344	38	1698

However, to reduce the use of chemical fertilizers, organic farming and bio- fertilizers are being encouraged in the state.

ii) Sale of fertilizers on subsidy basis

As per policy of the Government of India, subsidy on concessional sale of phosphatic and potassic fertilizers was given directly to the manufacturers/Importers by Govt. of India on their sale to the farmers. The detail of the subsidized sale of fertilizers during the year 2007-08 is given below:-

Name of Fertilizers	Sale Rate (Rs. PMT)		Quantity sold on subsidized rate (000 MT)	
	2006-07	2007-08	2006-07	2007-08
DAP (Indigenous & imported)	9350	9350	717	712
NPK 12:32:16	8480	8480	60	17
MOP	4455	4455	48	57
SSP (P)	3550	3550	7	36
SSP (G)	3700	3700	11	
NP 20:20	7280	7280	10	11
Urea	4830	4830	2519	2570
CAN	7575	7575	4	3
Ammonium sulphate	7375	8925	5	5

iii) Supply of micro nutrients

Due to intensive cropping, deficiency of micro-nutrients has appeared in the soils of the State which adversely affect the crops yield. Deficiency of Zinc has appeared especially in the soils having coarse texture, low organic matter and high Ph value. Major crops in which deficiency of Zinc has been noticed are wheat, maize and paddy. In order to meet the deficiency of Zinc, 21371 tonnes of Zinc Sulphate (21%) was consumed in the State during the year 2007-08. Generally, in paddy crop, ferrous sulphate (19%) is applied as foliage spray to make up the deficiency of Iron and 2200 tonnes of ferrous sulphate (19%) was used for this purpose during 2007-08.

iv) Supply of Gypsum for Land Reclamation

Scheme for the reclamation of alkaline soils is implemented on 90:10 with assistance of Govt. of India. Under this scheme, gypsum is given to the farmers on 50% subsidy. Progress made during 2006-07 & 2007-08 is as under:-

Year	Amount of subsidy (Rs.)	Gypsum distributed (MT)	Area reclaimed (Hect)
2006-07	1,96,01,494	41266	8252
2007-08	2,96,66,515	62456	12491

v) Supply of Bio-Fertilizers

To improve soil health, bio-fertilizer villages were adopted in the state. Training camps were also organized to impart training on the use/ benefits of bio-fertilizers to the farmers.

vi) Promotion of vermiculture - (Improvement of soil health-vermiculture scheme)

Due to continuous adoption of paddy-wheat rotation, the soils have been impoverished. Besides, excessive use of chemical fertilizers is creating environmental pollution and health hazards. In order to add organic matter in the soils, the FYM is being used by the farmers. But its scarce availability forces the farmers to use chemical fertilizers. The use of vermicompost can fill the gap to some extent and it can also promote organic farming. So, vermiculture is being popularized by giving demonstrations and organizing farmer training camps.

vii) Production of Rural Compost and Town compost

Extensive use of organic manures improves the soil structure and maintains the fertility level of the soil. Compost is very useful organic manure. In addition to major nutrients, it also supplies vital micro-nutrients to soil. It improves the water holding capacity of the soil. Its use ensures availability of nutrients to the plants over a longer period of time. Temperature fluctuation in

the upper layer of the soil are minimized which help in better root development. All these factors help in increasing the crop production.

However, a large number of farmers still do not adopt recommended methods of preparation and conservation of rural compost resulting in production of manure of poor quality and lesser in quantity. Therefore, in order to educate the farmers about the importance and utility of production and conservation of rural compost on scientific lines and improving its quality & quantity, rural compost work was carried out in the State under Non-plan Scheme during the year under report. There was a provision of one compost Inspector each for 64 blocks of the State under this Scheme. However, with the help of staff provided under other schemes of the Department of Agriculture, rural compost programme was carried out in whole of the State.

Composting of urban waste is a sound system from the point of view of sanitation as well as supply of rich organic matter to the soil. In order to achieve this objective, all the Municipal Committees/Municipal Corporations/Notified Area Committees in the State were advised to conserve urban waste property and supply town compost to the farmers at reasonable rate.

Under the rural compost scheme, Rs. 19.66 lakh was allotted during 2007-08. The expenditure incurred was Rs. 19.41 lakh. The district wise rural compost production is given in Table-I. The physical achievement of this programme during 2007-08 is as under:-

S. No.	Component	Unit	Physical		Remarks	
			Target	Achievement		
1	Compost taken	samples	Nos.	1175	815	All 815 samples were analyzed by PAU, Ludhiana
	Quantity of rural compost	Lakh tonnes		312	306	
3	Demonstrations held	Nos.		-	2645	
4	Celebration of compost fortnight	Nos.		1	1	
5	Exhibitions Arranged	Nos.		-	2346	

viii) **Green Mannuring for maintaining soil fertility**

Green Mannuring is one of the effective way of increasing and maintaining the fertility of the soils at a relatively low cost. Farmers are, therefore, advised to adopt green mannuring on a large scale. During 2007-08, the achievement of area coverage under green mannuring was 130,151 hectares against the target of 1,75,600 hectares. The district wise targets and achievements of green mannuring during 2007-08 are given in Table – I.

TABLE - I

S. No.	District	Production of Rural Compost (in lakh tonnes)		Area Coverage under Green Mannuring (Ha.)	
		Target	Achievement	Target	Achievement
1	Amritsar	12	13.70	6200	4580
2	Bathinda	15	15.08	8500	13372
3	Faridkot	15	12.50	10100	980
4	Fatehgarh Sahib	15	12.20	8100	4500
5	Ferozepur	21	26.00	13600	13900
6	Gurdaspur	21	21.55	9500	9510
7	Hoshiarpur	18	18.93	8800	880
8	Jalandhar	21	20.77	14500	8202
9	Kapurthala	20	8.00	9200	3002
10	Ludhiana	20	23.50	8000	9633
11	Mansa	15	18.98	9300	9345
12	Moga	15	16.00	8100	8200
13	Mohali	14	14.12	6600	6650
14	Mukatsar	15	12.40	8200	2000
15	NawanShahar	15	12.19	9400	8985
16	Patiala	15	16.32	10000	9412
17	Ropar	10	10.50	5000	3100
18.	Sangrur	15	16.50	6600	7800
19.	Tarn Taran	10	6.76	7500	6500
20	Barnala	10	11.00	8400	8600
Total		312	306.80	175600	139151

(B) Supply of Seeds for better Productivity

The use of certified seed as well as quality seed is one of the basic input which increases the production and productivity of the crop. The details of distribution of certified seed is as under:-

Crop	Certified Seed Distributed (Qty. in Qtls.)	
	2006-07	2007-08
Paddy	127700	118296
Maize	21834	21318
Cotton	7571	9203
Kharif Pulses	1933	1915
Wheat	447824	450868
Rabi Oilseeds	1402	784
Gram	1842	121
Barely	3385	5941

(C) Supply of Pesticides

The need based applications of pesticides ensures control of pests & diseases. These are supplied to the farmers by the manufacturers through their dealers network in the state. 5900 MT of (technical grade) pesticides were consumed during 2007-08.

CHAPTER-6

QUALITY CONTROL OF AGRI-INPUTS

To enhance productivity of various crops, agri-inputs viz:- seeds, fertilizers, pesticides and micro-nutrients are supplied to the farmers by the institutional agencies like Markfed , PAIC, Cooperative Societies, KRIBHCO, Seed companies, and manufacturing companies of pesticides & fertilizers through their dealer's net work or their own sale outlets. It is, therefore, essential that these inputs are tested to ensure quality products to the farmers. For this purpose, two seed testing labs, three pesticides testing labs, two fertilizer testing labs are working in the state. Besides, 66 soil testing laboratories are also working to test the fertility status of the soils. The progress of quality testing of various inputs is as under:-

a) Quality control of seeds

Availability of quality seed is essential to ensure maximum returns. Admixture, diseased, insect damaged & poor quality seeds adversely effect productivity of the crops. Sample-wise quality seed testing report during 2007-08 is as under :-

Kind of seed sample	Target	Achievement	Tested	Pass	Fail
Seed Act (Enforcement)	5000	4580	3840	3348	492
Service sample	6700	5734	5719	4518	1201
Bunt	800	740	740	671	69
Seed certification	7000	9856	9887	8326	1561
University farm	1000	758	710	621	89
Grow out Test Sample	-	1247	655	655	--
Total	20500	43415	21551	18139	3412

b) Quality Control of fertilizers

To ensure the supply of quality fertilizers to the farmers, strict check is exercised over the supply of fertilizers in the State under Fertilizers Control Order, 1985. All the Agricultural Development Officers (B.Sc. Agri.) Agricultural Officer, Chief Agricultural Officer, Joint Directors of Agriculture (Administrative wing) have been declared ' Fertilizer Inspectors' under the Fertilizers Control Order, 1985 to check stocks and draw fertilizer samples in their respective jurisdiction. Large number of fertilizer samples are taken every year from the stocks of fertilizer dealers especially of those fertilizers which are more prone to adulteration i.e. DAP, SSP, Complex fertilizers, Zinc Sulphate, Ferrous Sulphate etc. Quality control campaigns were also organized in the State during peak consumption periods of both Kharif and Rabi seasons during 2007-08. Large number of fertilizer samples were drawn and sent to Fertilizer Quality Control Laboratories for analysis. 3524 samples were analysed out of which 90 samples

were found non-standard. The legal as well as administrative action is being taken against the defaulters whose samples were declared non standard. The Target & Achievement of fertilizers sample testing during the last three years is as under:-

Year	Target	Samples Analysed	%age achievement	Samples found non-standard	%age of Non-standard samples
2004-05	3500	3513	100.3	77	2.19
2005-06	3500	3515	100	26	0.74
2006-07	3500	3429	97.9	45	1.3
2007-08	3500	3524	100.6	90	2.57

c) Soil Testing for balanced use of fertilizers

Soil testing helps in balanced and economic use of fertilizers, rotational use of land for cropping, use of soil amendments for redemption and correcting micronutrients deficiency of the soils. To achieve the above goals, there are 66 soil testing laboratories working in the State. During year 2007-08, 3.58 lakh samples of soil and water were analyzed in the State as compared to 3.47 lakh during the last year. The progress of testing of soil and water samples during the last three years is given below:-

Number of Samples Tested			
<small>(unit: lakh Samples)</small>			
Year	Soil	Water	Total
2005-06	2.08	0.20	2.28
2006-07	3.13	0.34	3.47
2007-08	3.33	0.25	3.58

To give fillip to soil testing work in the State and to ensure the use of recommended doses of fertilizers by the farmers, each soil testing Laboratory has adopted soil testing villages .During 2007-08, 1150 villages were adopted for soil testing work.

(d) Quality Control of Pesticides

The Punjab state has highest per hectare consumption 1 Kg of pesticides in the country. To ensure quality pesticides to the farmers, the samples of various pesticides were taken from dealer's premises/ godowns. Besides, to maintain quality of pesticides in the state, various kinds of samples were also drawn from the manufacturing units and godowns of the companies. 136 samples were drawn for quality checkup, 9 for packing & labeling. A total number of 4913 samples of insecticides were analysed out of which 168 samples were failed, for which legal action has been initiated under the provisions of Insecticides Act, 1968 against the defaulters.

CHAPTER - 7

AGRICULTURAL ENGINEERING

A. Farm Mechanization

In Punjab State, agricultural mechanization is the highest compared to the country. Farm mechanization has increased the efficiency of farm workers as well as improved the productivity of land which is evident from the fact that the density of tractors is already more than 70 tractors per thousand hectares which is much more than all India average.

The state is already introducing newly developed machinery such as Rotavator, Strip-till-drill, Zero-till-drill, Laser Leveller, Aero blast sprayers, sugarcane cutter, planter and Paddy transplanter etc. Though most of the agricultural operations are already mechanized, yet some of the operations such as cotton picking, paddy transplanting, fruit and vegetable transplanting, picking and bailing of straw are yet to be mechanized. For dissemination of information regarding minimum/zero tillage technologies amongst the farmers in the state, the department started a mass awareness campaign by organizing farmers training camps at districts, block and village level laying field demonstrations and providing zero till drills on subsidy. Consequently, during Rabi 2007-08, an area of 5,92,053 hectares under wheat was sown by adopting this technology. Farmers were able to save about Rs.88 crores. Retention of rice crop residues has helped in reducing the pollution due to burning of paddy straw and in improving the soil structure and its fertility status.

During 2007-08, an amount of Rs.199.00 lakh was utilized under the Centrally Sponsored Macro-Management Work Plan Scheme. To popularize newly developed machinery, financial assistance was provided to the farmers for the purchase of newly developed farm machinery. The progress made under the scheme is given below:

Sr. No.	Item	No. of Units Distributed On Subsidy
1.	Rotavator	393
2.	Zero Till Drill	183
3.	Raised Bed Planter	1
4.	Straw Reaper	448
5.	Vertical Conveyer Reaper	18
6.	Automatic Potato Planter	120
7.	Potato Digger	216
8.	Pulverizing Roller	9

9.	Self Propelled Reaper Binder	15
10.	Chisel Plough	4
11.	Maize Thresher	5
12.	Multi Crop Planter	2
13.	Happy Seeder	2
14.	Forage Chopper cum Loader	12
15.	Forage Reaper	13
16.	Power Tiller	6

Intensification of Farm Mechanization.

To accelerate the balanced development of mechanization of farm operations, it is necessary to impart technical know how to manufacturers for manufacturing the suitable good quality machinery. On the other hand, farmers are being provided with the knowledge for proper selection, optimum utilization and adoption of new machines. The targets and achievements under the intensification of farm mechanization programme are given in the table below:-

S. No.	Activities	Target	Achievements
1.	No. of Farmers who were given technical guidance regarding efficient use of tractors.	2975	5044
2.	No. of farmers visited to render technical guidance regarding efficient operation of tubewells/diesel engines.	5305	6083
3.	Demonstration of newly developed Agricultural machinery such as ZTD, STD, VCR, SCP etc.	1815	2363
4.	Proper operations and after - take care of already set up biogas plants	3230	3245
5.	Farmers training camps organized at Distt. /Block level to guide farmers about efficient use and after care of various types of farms machinery/implements.	430	777
6.	Farmers trained about efficient use & after take care of agricultural	10600	20414

machinery/implements

7.	Sowing demonstration plots of different crops using agricultural machinery/implements	730	1101
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B. TUBEWELLS

The tubewell section of engineering wing of the Department of Agriculture, Punjab executes the works relating to exploration of ground water, installation of standard tubewells for the farmers and also provides extension services to farmers regarding latest developments in tubewell technology and for better farm irrigation water management. In addition, it also undertakes the following activities:-

1. To install Tubewells in the remote areas where private boring companies do not enter to take up the work.
2. To investigate the natural ground water bearing formation.
3. To advice farmers regarding the selection of strainer according to the available quality of sand in order to have maximum water without causing any damage to the life of Tubewells.
4. To develop old and choked Tubewells of the farmers so as to rehabilitate them and also to develop newly installed Tubewells by Air compressor for having better performance.
5. To extend technical guidance to the farmers for the selection, installation and maintenance of pumping sets to have optimum efficiency.

The achievements under various programmes are as follows:-

1) INSTALLATION OF TUBEWELLS BY POWER RIGS:-

In kandi Areas of the state, comprising of the major parts of the district of Hoshiarpur, Gurdaspur and Ropar and some parts of the Patiala district, the availability of ground water for construction of successful tubewells is uncertain.

Private boring companies operating in the state are reluctant to drill bores of farmers in difficult areas. Tubewell section comes to the rescue of farmers of the difficult areas by drilling the tubewells of farmers.

Also in south western parts of the state, comprising of parts of Sangrur, Faridkot, Mansa, Bathinda and most parts of Ferozepur district, the quality of ground water is in general unsuitable for irrigation. To study the nature of ground water formation and to explore the possibility on sinking of tubewells for irrigation purposes in these areas, bores are drilled and after

ascertaining quality of water by electrical logging of chemical analysis, these are converted to standard tubewells. In central parts of the state where availability of water is certain and also in other difficult areas where exploration has already been undertaken, deep tubewells are installed on customer hiring basis.

During 2007-08 ,51 deep tubewells were installed against target of 40 . These tubewells will help in irrigating approx. 1020 acres of agricultural land.

2) TO INSTALL STANDARD TUBEWELL USING HAND BORING PLANT

During 2007-08 , 290 standard tubewells were installed against a target of 250. These will provide additional irrigation facilities to an area of about 2900 acres. Most of these tubewells have been installed in south-western parts of the State getting the layer of fresh water above the saline base could be used for irrigation.

3) DEVELOPMENT OF TUBEWELLS

Different capacities of screw Air Compressor are available with the Department, which are used for development of tubewells and regeneration of old tubewells. Because of increased efficiency due to development, a lot of energy is saved during the operation of tubewell. During the year 2007-08 against a target of development of 250 tubewells, 258 tubewells were developed.

4) PROVISION OF EXTENSION SERVICE

Under the scheme, training is imparted to the farmer's staff of private companies and technical staff about the latest technology use of diesel & electricity and proper utilization of irrigation water so that overall efficiency can be improved. The target fixed under this scheme are ,visit to farmers field and guide them about the wrong fittings-1000, organization of one day field camps-100,printing of technical bulletins-8,organization of district level camps for private companies -6 and organization of district level camps for shift to apprise them of latest technology-4. Under the scheme visit was made to 1070 tubewells to apprise the farmers about wrong fittings, 166 one day camps were organized,11 technical bulletins were distributed,6 district level camps for private companies were organized to train the staff about the latest technology,6 district level camps were organized to train field staff.

Apart from this, there was a target of installation of 60 standard tubewells & 94 tubewells were installed during year whereas proper technology was used for proper design, length, diameter of filter, right selection of pump so that efficiency can be improved at least cost .

This section also provides technical guidance to farmers for installation of sprinkler irrigation units and helps them in system design and layout. During 2007-08, guidance was provided to the farmer through district level Training Camps and field visits.

Progress Report of Minor Irrigation/ Tubewell Boring Programme for the year 2007-08

S. Components No	2006-07		2007-08	
	Target	Achievements	Target	Achievements
1. Installation of tubewells by power rigs	40	53	40	51
2. Development of tubewells	250	294	250	258
3. Installation of shallow tubewells	250	306	250	290
4. EXTENSION ACTIVITIES				
i) Guidance to the farmers for the proper installation of tubewells	60	79	60	94
ii) Guidance to the farmers for the rectification of tubewells by visiting the site.	1000	1027	1000	1070
iii) Preparation of Engg. Bulleting for onward circulation to the farmers.	8	8	8	11
iv) District level Training camps for private boring	6	6	6	6
v) District level training camps for the district level staff to impart training on latest drilling methods	4	7	4	6
vi) One day training camps to awaken the farmers on the upkeep of tubewells and to avail maximum benefits thereof.	100	143	100	166

C. BIOGAS DEVELOPMENT

To meet the shortage of fuel and fertilizer in the rural areas, a programme of setting up of biogas plants was started in a big way during the year 1974-75. Keeping in view the importance of this programme, Govt. of India, launched a "National project on Biogas Development" during the 6th Plan period which has been kept continued during 2007-08 also. Central subsidy is provided to the beneficiaries for installation of biogas plants (family size). In Punjab, 54856 biogas plants (family size) have already been installed by the department of agriculture upto 31.03.2008 .

Activities of the Scheme/programme:

- (i) Staff provided under the scheme provides technical guidance to the beneficiaries for installation of new biogas plants, after take care of already installed biogas plants.
- (ii) It helps the beneficiaries for obtaining subsidy, loan and cement etc. for installation of biogas plants.
- (iii) It provides training to the beneficiaries/for improving sanitary condition in villages by way of linking latrine/toilet with their biogas plants.
- (iv) It organizes Users Training Courses for village women in respect of installation of new biogas plants and maintenance and proper operation of already installed biogas plants.

Physical Targets and Achievements under Biogas Scheme during the year 2006-07 and 2007-08.

S. No.	Item	2006-07		2007-08	
		Tar.	Ach.	Tar.	Ach.
1.	Installation of Family size Biogas Plants	-	289	-	245

CHAPTER - 8

MONITORING OF GROUNDWATER BEHAVIOUR

There are about 12.32 lakh shallow tubewells in the state of Punjab. About 71% of the total cropped area is being irrigated exclusively through ground water. The groundwater resources of the state are under stress and at present out of 138 blocks, 84 are dark, 16 grey and 38 white. Thus ground water monitoring is an important aspect of the department since its inception. It is equipped with important time series data.

The department monitors pre-monsoon, post monsoon and monthly ground water levels of selected observation wells. Besides, it also monitors groundwater quality of the selected wells in the saline/alkaline areas of the state. It collects micro level groundwater data for the purposes of block wise groundwater balance estimates. In the declining water level areas, it implements artificial recharges groundwater projects with the assistance of Central Ground Water Board. The various activities performed are as under:-

- Under monitoring of completed artificial scheme, recorded water level of Piezometer tube/ recharge wells at village Kalasangha in district Kapurthala, DC Complex in Jalandhar, Village Dhanetha in Patiala and DC Complex Fatehgarh sahib.
- Sites have been selected for the installation of piezometers at district Ludhiana/Patiala and O/o. Chief Agril. Officer, Gurdaspur. Piezometers at these locations will be installed shortly after availability of funds.
- Collected and analyzed around 362 ground water samples of saline/alkaline & groundwater area of the state, and prepared the ground water quality map.
- Examined about 21 cases for Environmental Clearance submitted by competent authority for clearance.
- Pre-Monsoon and Post monsoon water level of 423 monitoring stations was recorded and analysis reports were prepared. Monthly water level at each district head quarter was recorded twice a months.
- District & State , Pre & Post Monsoon water table depth maps were prepared at districts.
- Under census of Electric tubewells for PSEB, data of village wise electric reports is collected and work of compilation is in progress.
- Calculated kharif & Rabi draft for the 10 selected blocks of various district of the state.

Information Technology

i) CS-78 - Agrisnet Project

For the year 2007-08 action plan for the scheme was prepared with the collaboration of E-Governance Mission Team and Department of I.T. Punjab.

Presentations of Projects prepared by the diff states were shown to Hon'ble Financial Commissioner Development, Punjab.

ii) **Punjab Wide Area Network(PAWAN)** : The information was collected from block offices and compiled at head quarter for Punjab Wide Area Network(PAWAN) implemented by Punjab Govt.

iii) **EDUSAT Project:** The EDUSAT project is run by Punjab Govt., under Sarvashiksha Abhiyan. Meeting were attended under the chairmanship of Hon'ble Chief Minister Punjab and Hon'ble Chief Secretary Punjab, for proper implementation of the Project.

In 2007-08, case for administrative and financial approval for Macro management work plan for information technology scheme has been prepared and forwarded to higher authorities . Case is pending for appointment of project consultation.

CHAPTER - 9

DISSEMINATION OF AGRICULTURAL TECHNOLOGY

With the introducing of new technology at a rapid speed, practical training and education to the farmers engaged in agriculture and allied occupations had become necessity of the day. Agricultural Information Wing plays a major role in transmitting the latest farm technology to the farmers through farmers training camps and literature. Various activities under taken are as under:-

a) Farmer's Training

To impart training to the farmers, there are 12 Farmers Training Centers in the State including PAU. Ludhiana & Khalsa College, Amritsar. About three lakh farmers are given training every year during Rabi and Kharif seasons and also by holding specialized training course in agriculture & other allied subjects. 5158 training camps were organized to disseminate latest farm technology amongst farmers during 2007-08. The detail of camps is as under:

Name of Training Camps	Achievements
District level training camps during Rabi and Kharif	38
Block level training camps	304
Vilalge level training camps	4846
TOTAL	5158

b) Bulletins & Books

Various publications on Rabi & Kharif crops were printed and distributed to the farmers free of cost through the field agencies and extension workers for increasing the farm production. Number of publications printed and distributed during the year 2007-08 are given as under:-

Name of Publication	Language	No. of copies printed and distributed free of cost
Kharif Crops		
Paddy cultivation	Punjabi	60000
Maize cultivation	Punjabi	10000
Cotton cultivation	Punjabi	10000
Groundnut cultivation	Punjabi	5000
Kh. pulses (Moong, Mash, Arhar)	Punjabi	5000
Sugarcane cultivation	Punjabi	10000
Rabi Crops		
Wheat cultivation	Punjabi	60000
Gram cultivation	Punjabi	10000
Winter Maize	Punjabi	5000
Sarson, Toria Raya & Taramira	Punjabi	10000
Sunflower cultivation	Punjabi	20000
Lentil	Punjabi	5000

Besides 1100 multicolor folders/hand bills of Strides in Agriculture and 5000 of maize were also distributed to the farmers.

c) Publicity Through Press

English and Punjabi version were issued regularly in the form of news, advertisement etc. giving the farmers practical instruction and information on the basis of research and policy decisions.

d) Agriculture Fair & Exhibitions

Agriculture Information Unit arranged Agricultural Exhibitions at the District level during farmers Training Camps with the help of the field staff. Training was imparted to the farmers for the adoption of latest scientific technology. Practical demonstrations were also arranged at these exhibitions sites for the benefit of the farmers.

e) Publicity Through Doordarshan (T.V. Talks)

T.V. Talks on various subjects relating to agriculture for the benefit of the farmers were given by the experts of the Department in “Krishi Darshan” programme from time to time. 94 T.V. Talks were telecasts through T. V during 2007-08 . Four crop seminars were also arranged.

CHAPTER - 10

AGRICULTURAL MARKETING

Commercial scale production entails creation & establishment of functional network for marketing of produce. The establishment of regulated markets facilitates the selling of agri. commodities. However, these operations need to be monitored regularly so that farmers may get reasonable rates of their produce in the markets and malpractices of the middlemen can be minimized. The department runs a scheme of Marketing & quality control-grading & control facilities. Another Scheme of Grading of Food Grains and oilseeds in the regulated markets was also implemented in the state. The detail of Budget allotment and expenditure under these schemes is given below:

(Amount Rs. In Lakh)					
Sr. No.	Name of Scheme	2006-07		2007-08	
		Budget Allotment	Budget Allotment	Budget Allotment	Expenditure
1.	Non-Plan-2435-Other Agricultural Programmes-01 Marketing & Quality Control facilities, Marketing Section (Recurring).	146.39	146.39	338.96	334.73
2.	Non-Plan - 2435 - Other Agricultural Programmes -01 - Marketing and quality Control - 102 Grading and quality control facilities - scheme for the grading of Foodgrains and oilseeds in the regulated markets in the State.	184.95	184.95	-----	----*
3.	"2401-Crop Husbandary-001 Direction and Management (CSS) C.S. 67 /A(P) 16.17-Centrally Sponsored Macro-Management work plan (Agri.) (90:10) 2006-07 Development of Agriculture Marketing Infrastructure and Information System " (Plan).	36.00	14.0	nil	nil

* For the year 2007-08 budget was allocated under the Scheme "Non-Plan - 2435-Other Agricultural Programmes-01 Marketing & Quality Control facilities, Marketing Section".

The Various activities under taken during the year 2007-08 are as under:-

(1) Weekly and monthly reports on arrivals, prices etc. of various commodities were compiled at the head quarters and supplied to the State Govt. and Govt. of India.

(2) Daily, weekly, fortnightly and monthly returns on market arrivals, prices, stock etc. and other information sought by the Economic and Statistical Advisor, Govt. of India were sent regularly throughout the period.

(3) Information on market arrivals and prices of agricultural commodities in all markets of the State was collected by the field staff, and sent to the headquarters, where it was scrutinized, tabulated, compiled and analysed. This information is used for the information of the price policy for the Rabi and Kharif season to be marketed during the next year. This information is collected for 24 agricultural commodities such as foodgrains, oilseeds, cash crops, fruits and vegetables oils.

(4) News bulletins in respect of important agricultural commodities, its marketing aspects, support prices (if any), and other procurement policies of the Govt. were broadcasted through All India Radio and T.V. for the Information of the producers, traders and consumers.

(5) A campaign was launched by the staff of Marketing Section for the checking of weights and measures and measurements used by the Commission Agents. The details of cases found incorrect weight and measurements etc. were reported to the concerned Secretary, Market committee for necessary compensation to the farmer for excess weight of produce.

(6) "Farmers training camps" to educate the farmers about the latest marketing techniques were organized at village/block level during the Rabi and Kharif seasons. In these "camps" farmers were imparted training regarding the improved marketing techniques such as harvesting, grading and standardization, packing and handling practices, appropriate storage methods etc.

(7) A scheme popularly known as "Agmark" is implemented under the "Agricultural Produce (Grading and Marking) Act of 1937 to provide good and quality agricultural commodities (adulteration free) agricultural products to the consumers and to provide remunerative prices to the producers/packers under Act. Centralized commodities like vegetable oils, ground spices, honey, desi ghee, besan and wheat atta are voluntarily graded and packed under "AGMARK" for domestic market. Similarly, decentralized commodities like table potatoes, grapes, citrus fruits and eggs are graded under 'AGMARK'.

(B) Grading under "Agmark" scheme.

Agricultural Products are graded and marked under "AGMARK" in accordance with Grade-Specifications notified by Govt. of India under the provisions of "Agricultural Produce, Grading & Marketing) Act, 1937". Grading under these specifications is voluntary for domestic consumption. Hence, no targets are fixed. However, the achievements of the scheme during 2006-07 (1.4.2007to 31.03.2008) are given as under:-

S. No.	Commodity	Quantity Graded (in qtls)		Estimated Value (Rs. in Lakhs)	
		2006-07	2007-08	2006-07	2007-08
1.	Vegetable Oils	380	205	13.00	12.75
2.	Ground Spices	742	1070	59.51	66.30
3.	Honey	348	480	36.38	47.38
4.	Desi Ghee	1516	1580	176.42	242.30
5.	Wheat-Atta	40	40	0.48	0.48
6.	Besan	108	292	3.29	9.99

(C) Weights & Measures

To prevent under weighments of agric commodities, the department checks weights and measures in the markets. The achievement of this activity during 2007-08 is given as under:-

Item	2006-07		2007-08	
	Target	Achievement	Target	Achievement
Weighments	66500	46357	66500	41639
Weights & Measures	56500	40465	56500	38068

CHAPTER - 11

AGRICULTURAL STATISTICS

This is an important ongoing programme of the department. The main purpose is to collect and compile statistical information related to agriculture particularly various aspects of land uses, and estimation of area & production of various crops in the state. The data is extremely important for planning development works. The financial progress of various schemes implemented during 2007-08 is given as below:-

Sr. No.	Name of Scheme	Expenditure 1.7.07 to 31.3.08	Expenditure 1.4.07 to 30.6.08	Expenditure 1.7.07 to 30.6.08
1.	2401-Crop Husbandry-001- direction and Administration for 2006-07. (Non plan)	55.24	19.12	74.36
2.	"2401-Crop Husbandry-111-Agri. Economics & statistics plan C.S- 2 centrally sponsored Agriculture Census scheme for the year 2006-07	32.31	1.28	33.59
3.	"2401-Crop Husbandry-111-Agriculture Economics & statistics-plan-C.S.-14 centrally sponsored scheme for Rationalization of Minor Irrigation statistics for the year 2006-07.	6.55	0.70	7.25
4.	"2401-Crop Husbandry-119-Horticulture Vegetable crops & 2401-111-Agriculture Economic & Statistics (plan) for the year 2006-07	--	--	--

The various activities carried out during the year 2007-08 are given below:-

1. CROP ESTIMATION SURVEYS ON PRINCIPAL CROPS

Crop cutting experiments are regularly conducted. In order to obtain fair, precise and accurate estimate of yield of principal crops which include rice, maize, bajra, groundnut, sugarcane, cotton, wheat, barley and rabi oilseeds. These experiments are conducted through stratified random sampling technique taking block as a primary unit of planning. On the basis of these results, production estimate for the year 2007-08 were sent to Govt. of Punjab. 6900 crop cutting estimates were planned and conducted out of which 6814 were analyzed during the year 2007-08 as under:-

Crop	No. of Experiments 2007-08	
	Planned	Analysed
Kharif		
Paddy	1908	1897
Maize	428	425
Sugarcane	664	609

Cotton	736	735
Total	3736	3666
Rabi		
Wheat	2244	2240
Barley	252	250
Gram	142	140
Rabi Oilseed	526	518
Total	3164	3148
Grand Total	6900	6814(98.76%)

2. CROP ESTIMATION SURVEY ON MINOR CROPS

Crop cutting experiments were conducted on Moong, Mash, Arhar, Til, Masar and Sunflower during the year 2007-08 under crop estimation surveys on minor crops. 866 experiments were planned and conducted. Out of these 664 were analysed. The production estimate on the basis of results of these crop cutting experiments were conveyed to Govt. of India, Punjab Govt and other concerned quarters. The crop wise total number of experiments Planned and analysed on minor crops during 2007-08 were as under:-

Crop	No. of Experiments 2007-08	
	Planned	Analyzed
Kharif crops		
Moong	210	210
Mash	76	76
Arhar	124	122
Sesamum	160	156
Total	570	564 (98.94%)
Rabi Crops		
Massar	106	100
Sunflower	190	Under Progress
Total	296	100
Grand Total	866	644

3. Scheme for Strengthening of Land Records Agency

The main objective of the scheme is to bring about improvements in area statistics so as to make them more accurate and reliable during the year 2007-08. Tehsilwise area under various crops has been collected by the field staff. The area statistics received from the Tehsildar through the field staff of Agriculture Department and Director Land Records, Punjab, Jalandhar was reconciled after removing all the discrepancies therein and final area statistics were prepared/released in consultation with Director Land Records Punjab,

Jalandhar. Blockwise area under various crops for Kharif 2007-08 was prepared by the field staff of Agriculture Department and finalized after reconciling the same with Tehsilwise area. The Director Land Records, Punjab, Jalandhar has been informed regularly regarding the problems/ discrepancies and methods of improvement through correspondence and meeting by the staff of this Department.

4. Agriculture census

It is 100% centrally sponsored scheme, For the proper planning of Agriculture in Punjab, the first comprehensive Agricultural Census was carried out during the year 1972-73 taking 1970-71 as the reference year at all India level. Keeping in the view the importance of usefulness of the data of this census, similar censuses were carried out taking 1980-81, 1985-86, 1990-91, 1995-96, 2000-2001, as the reference year. Now again the Agricultural Census 2005-06 is being carried out. Periodic Agricultural Census are important as they are main sources of basic structure of operational holdings and their related structure of operational holding and their related characteristics such as land use and cropping patterns, Irrigation, tenancy status and the terms of basis etc. by different size classis and social groups.

Input survey is the 2nd part of this scheme. The main objectives of this survey is to collect data regarding level of consumption of various inputs namely fertilizers, Hybrid seeds, pesticides, farm yard manure/compost, Agricultural Machinery/ implements and farm credits. Information is collected on the extent change in number of holdings and their fragmentation pattern.

During 2007-08, Agricultural Census survey work was carried out through the state. After scrutiny T-1 table was finalized and got approved by G.o.I.

During 2007-08, H.Schedule/detailed survey was carried out in 20% villages through out state and completed schedules of 12 districts are received from field staff. The process of scrutiny is in progress.

The survey work (field level) of input survey 06-07 was carried out through out the state and 98% work is completed and likely to be finished by Aug.2008. Completed schedules of 5 districts were received in HQ.

H- schedules (12 districts) and input survey 07-08(5 districts) are under scrutiny.

5. Survey for Methodological Investigation in High Yielding Varieties Programme for the year 2007-08 (01-07-2007 to 30-06-2008)

The scheme has been in operation with the ushering of the era of green revolution since 1969. The main objective of this scheme was to know the impact of green revolution in Punjab. The information of various types such as area under high yielding varieties, variety wise average yield, application of inputs, utilization of produce such as sold in the market, kept for home consumption and given to labourers in kind etc. The information is being collected in the stipulated proforma, survey work was taken up in five villages, which were selected randomly in each block of the state. Out of these selected villages, six cultivator were selected randomly. Information was collected from these selected cultivators.

The physical progress of 2007-08 is as under:-

No of villages

<u>Year</u>	<u>Season</u>	<u>Planned</u>	<u>Achieved</u>	<u>Progress(%)</u>
2006-07	Kharif	680	600	88.24
	Rabi	680	340	50.0
2007-08	Kharif	680	433	63.7
	Rabi	680	On Progress	

Scrutiny & tabulation of schedules for the year 2005-06 remain under process.

6. Timely Reporting Scheme (01.07.2007 to 30.06.2008)

The Timely Reporting Scheme was introduced in the state during the year 1975. Keeping in view the usefulness and timeliness of data, since then it is in operation. The main objective of the scheme to obtain advance, precise and accurate data on the basis of random sampling method. 20 percent villages i.e. 2607 were selected for the collection of jinswar during the year 2007-08 for Kharif and Rabi season each. The advance estimates of total area and Irrigated area were prepared for the major crops and sent to govt. of India.

The progress of receipt of Jinswars is given as under :-

<u>Year</u>	<u>Season</u>	<u>No. of Vill. Planned</u>	<u>No. of Vill Received</u>	<u>Percentage</u>
2006-07	Kharif	2595	2533	97.6
	Rabi	2595	2542	98.0
2007-08	Kharif	2607	2577	98.8
	Rabi	2607	2579	98.9

The estimates of total area and Irrigated area are given below:

(Area in '000' Hect.)

<u>Crop</u>	<u>Total Area</u>		<u>Irrigated Area</u>	
	<u>2006-07</u>	<u>2007-08</u>	<u>2006-07</u>	<u>2007-08</u>
Paddy	2597	2617	2584	2607
Bajra	5	7	5	5
Maize	158	159	118	102
Cotton	588	619	587	619
S. Cane	92	114	91	109
G. Nut	4	4	1	1

Wheat	3474	3494	3420	3438
Gram	5	4	3	3
Barley	21	17	21	16
Rape & Mustered	46	28	40	24

7. Rationalization of Minor Irrigation Statistics Scheme (1.7.2007 to 30.6.08)

It is 100% Centrally Sponsored Scheme under the Minor Irrigation development Programme of the Govt. of India. The main objective of the scheme is to bring uniformity in the irrigation statistics.

The quarterly as well as the annual progress reports relating to number of structures installed and irrigation potential created/ utilized on account of these structures were collected from different organizations i.e. Punjab state electricity Board, Soil and water conservation, Chief Engineer (Canals), Chief Engineer (KAD) irrigation Department and Agriculture Development Bank. These reports upto 31-12-07 were compiled at state level and sent to Ministry of Water Resources, Govt. of India and the quarterly progress of ending 31.3.08 was prepared and will soon sent to the Govt. of India. The district wise, crop-wise, and source-wise irrigated area (Kharif and Rabi 2005-06 and Kharif 2006-2007) was prepared and sent to Govt. of India .

The physical achievements during the year 2007-08 as compared to the last year 2006-07 are given as under:

Minor Irrigation Potential		2006-07	2007-08
A.	(Area in "000" hect)		
a.	<u>Ground Water</u>		
	i) Potential Created	5484.0	5503.6
	ii) Potential utilized	5276.3	5295.3
b.	<u>Surface water</u>		
	i) Potential Created	38.2	38.2
	ii) Potential utilized	21.5	21.15
c.	<u>Total</u>		
	i) Potential Created	5522.2	5541.8
	ii) Potential utilized	5297.8	5316.8
B.	Minor Irrigation Structures (NOS)		
(a)	<u>Ground Water</u>		
	i) Dugwell	7035	7035
	ii) Shallow Tubewell	1019576	1022674

iii) Deep Tubewell	2840	2949
Total	1029451	1032658

b.

i) Surface flow Irrigation	213	213
ii) Surface Lift Irrigation	494	494

8. SCHEME FOR SAMPLE SURVEY FOR STUDY OF CONSTRAINTS IN TRANSFER OF NEW AGRICULTURE TECHNOLOGY UNDER FIELD CONDITIONS.

The scheme Sample Survey for study of constraints in transfer of new agricultural technology under field conditions has been implemented in Hoshiarpur district only since 1984-85. The following two types of surveys were conducted in the randomly selected villages in the district. The main purpose of the survey is to study the problem/constraints faced by the farmers as well as extension agencies in the fields while adopting the new agriculture technology.

Under this survey, two types of enquires i.e. Agronomic and Agro economic and field estimation survey are conducted. During the year, under the first enquiry, 400 cultivators were canvassed from 50 randomly selected villages in both seasons i.e. Kharif and Rabi. Under the second enquiry, crop cutting experiments were conducted in 50 villages on maize & wheat crops. The physical progress of the work done during the year as compared to the past year is as under:-

					No. of villages
Name of the survey	Season	Year	No. of villages to be planned	To be Surveyed	
i. Agronomic & Agro-economic survey	Kharif	2005-06	50	21	
		2006-07	50	Nil	
	Rabi	2005-06	50	21	
		2006-07	50	Nil	
ii. Yield Estimation	Kharif	2005-06	50	21	
		2006-07	50	Nil	
	Rabi	2005-06	50	21	
		2006-07	50	nil	

Note: The study is undertaken of the previous season in each season of the year.

9. SCHEME FOR IMPROVEMENT OF CROP STATISTICS FOR THE YEAR 2007-08

To improve the quality and reliability of Area and yield statistics. This scheme was introduced in the state during the year 1974-75 and is in operation since then.

The following surveys were conducted under the scheme in 2007-08

- i. Area Enumeration.
- ii. Area Aggregation.

- iii. Yield estimation on the basis of crop cutting experiments. Under the scheme the work of area enumeration and page totaling was done for 200 villages in each season for state and central samples. The season-wise response is given below:

Schedule A.S. 1.0 (Area Enumeration)

Season	No. of villages						No. of villages					
	Planned				2006-07		Received		Percentage			
	2006-07		2007-08		2006-07		2007-08		2006-07		2007-08	
	State	Central	S	C	S	C	S	C	S	C	S	C
Kharif	200	200	200	200	199	193	198	200	99.7	96.5	99.0	100
Rabi	200	200	200	200	200	200	195	191	100.00	100.0	97.5	95.5

Schedule A.S. 1.1 (Area Aggregation)

Kharif	200	200	200	200	19	183	199	193	99.5	96.5	99.7	91.0
Rabi	200	200	200	200	9	185	120	168	99.5	92.5	60.0	84.0

Rabi 2007-08 work is in progress.

The schedule A.S. 1.0 related to the supervision of area Enumeration and 1.1 (Page totaling) were tabulated both for the State and Central Sample and results are given below:-**Correction factor regarding errors:**

Season	Crop	2006-07			2007-08		
		State	Central	Pooled	State	Central	Pooled
Kharif	Paddy	1.001	0.971	0.983	0.999	0.993	0.983
	Maize	1.000	0.909	0.959	1.015	1.051	1.025
	Cotton	1.000	0.865	0.916	0.971	0.982	0.976
	Sugarcane	1.000	1.183	1.105	1.003	1.070	1.050
Rabi	Wheat	0.991	0.990	0.991	Work	Work	Work
	Gram	1.062	1.000	1.055	in	in	in
	Barley	1.007	0.990	0.971	Progress	Progress	Progress
	Rabi Oil Seed	1.441	1.044	1.079			

Schedule A.S. 1.1 (Page Totaling)

Kharif	Paddy	1.000	1.014	1.007	1.000	0.986	0.990
	Maize	1.002	1.009	1.006	0.999	1.056	1.021
	Cotton	0.997	1.039	1.020	0.999	1.000	1.000
	S. Cane	1.002	0.994	0.999	1.000	0.999	0.999

Rabi	Wheat	1.004	0.985	0.994	Work in progress
	Gram	0.696	0.947	0.964	
	barley	1.001	0.872	0.972	
	Rabi Oilseed	1.006	1.009	1.007	

Crop cutting experiments under Major crops were supervised at the harvest stage and schedule A.S. 2.0 filled up. Targets and achievements during Kharif and Rabi are given below:-

Schedule A.S. 2.0 (No. of experiments)

Total No. of Experiments												
Planned					Received				Percentage			
	2006-07		2007-08		2006-07		2007-08		2006-07		2007-08	
Season	State	Central	S	C	S	C	S	C	S	C	S	C
Kharif	380	380	380	380	380	380	378	378	100.00	100.00	99.5	99.5
Rabi	320	320	320	320	320	319	318	314	100.00	99.7	99.4	98.1
										Work in Progress		

Estimates of Average yield (Kg./hect.)

Season	Crops	State	2006-07		2007-08		
			Central	Pooled	State	Central	Pooled
Kharif	Paddy (Rice)	3837	3903	3870	3679	3686	3682
	Maize	3075	3053	3064	3226	3719	3472
	Cotton (lint)	702	481	593	678	387	523
	S. Cane (Gur)	5839	5354	5587	Yet to be finalized		
Rabi	Wheat	4169	4020	4094	Work in Progress		
	Gram	956	903	942			
	Barley	3476	3274	3375			
	Rabi Oilseed	1350	945	1148			

CHAPTER - 12

REVIEW OF THE ANNUAL ADMINISTRATIVE REPORT 2007-08

Agriculture has played a vital role in building up Punjab's economy. Punjab State with only 1.5% of geographical area of the country, produces about 20% of wheat 12% of rice and 12% of cotton of total produce under these crops in the country. Similarly, Punjab with only 0.03% of geographical area of the world, it produces 3% wheat, 2% rice and 2% cotton of the world.

The achievements made in the field of agriculture during the year 2007-08 are as under:-

1. Total Foodgrains Production:

Total foodgrains production in the State was 268.14 lakh tonnes during 2007-08 as against 253.12 lakh tonnes during 2006-07.

2. Area Coverage under major crops

Area coverage under paddy, maize, cotton and wheat crop is as under:-

Crop	Area (in '000' ha.)	
	2006-07	2007-08
Paddy	2621	2610
Maize	154	153
Cotton	607	604
Wheat	3467	3488

3. Improved Seeds

Seed is the basic input for increasing per unit productivity. During 2006-07 and 2007-08, following quantities of certified seed were distributed to the farmers.

Crop.	(Qty. in qtls.)	
	2006-07	2007-08
Paddy	127700	118296
Maize	21834	21318
Cotton	7571	9203
Kh. Pulses	1933	1915
Wheat	447824	450868
Rabi Oilseeds	1585	784
Gram	856	121
Barley	5005	5941

4. Fertilizers

During 2006-07 and 2007-08, following quantities of fertilizers were distributed to the farmers:-

Year	Consumption (Nutrients '000' tonnes)			
	N	P	K	Total
2006-07	1299	354	39	1692
2007-08	1316	344	38	1698

5. Micro-Nutrients

In order to meet the deficiency of zinc and iron in crops, 21371MT of zinc sulphate(21%) and 2200 Tons of Ferrous sulphate(19%) was supplied to the farmers.

6. Soil & Water Testing

66 soil testing laboratories are functioning in the state. To guide the farmers for the balance use of fertilizers, 3.58lakh samples were analysed.

7. Biogas Development Programme

To meet the shortage of fuel and fertilizer in rural areas, a programme of setting up of biogas plants was started in the year 1974-75. Central subsidy is provided to the beneficiaries for the installation of biogas plants (family size). During the year 2007-08, 245 biogas plants have been installed, and total no. of biogas plants in State upto 31st March 2007 is 54856.

8. Development of Tubewells

During 2007-08, 51 Tubewells were installed by power rigs. Similarly, 258 old choked tubewells have been developed. 290 shallow tubewells with hand boring plants were installed.

9. Sugarcane Development Programme

During 2007-08, 23 Sugar mills took up to crushing operations. Progress made is as under:-

	Units	2006-07	2007-08
Cane Crushed	(Lakh Tonnes)	50.91	57.60
Sugar Production	(Lakh Tonnes)	4.86	5.34
Sugar Recovery	%	9.54	9.31

10. Cotton Development Programme

Achievement of area and production are given as under:-

Item	2006-07	2007-08
Area (000hect)	607	604
Production (000 bales)	2678	2355

11. Marketing

The state Govt. has been approaching Govt. of India for offering remunerative support price for important commodities like wheat, paddy, bajra, cotton, maize, sugarcane and potatoes. In case of wheat and paddy due to the assured marketing and remunerative prices, the production has been increased. However, the production has not been witnessed in case of cotton, sugarcane, pulses and oilseeds due to non assured marketing. There is a wide variation of price in most of the agricultural commodities. The intelligence wing of the marketing section has conveyed market rates and weekly trend to the All India Radio for broadcasting. During 2007-08, 480 qtls. of honey, 1580 qts of Desi Ghee, 205 qtls. of vegetable oils and 1070 qtls. of spices were graded under AGMARK.

12. Quality Control

During the year 2007-08, 21551 samples of seeds were tested, out of which 3412 samples were failed. 3524 samples of fertilizers were analyzed out of which 90 samples were found non-standard. 4913 samples of insecticides analysed out of which 168 samples were failed. Legal action has been initiated under the various provisions of Seed Act, 1966, Fertilizer Control Order, 1986 and Insecticides Act, 1968 against the defaulters.

CRITIQUE OF THE ANNUAL ADMINISTRATION REPORT 2007-08

Punjab a tiny State of India, contributed 40-50% of rice and 50-60% of wheat to the Central 'Pool'. Total foodgrains production in the State was 268.14 lakh tonnes during the year 2007-08.

CROPWISE PRODUCTION

1. Cotton

The production was 23.55 lakh bales during 2007-08 as against 26.78 lakh bale during 2006-07.

2. Maize

The production was 5.21 lakh tonnes during the year 2007-08 as compared to 4.81 lakh tonnes during 2006-07.

3. Oilseeds & Pulses: -

The production of oilseed & pulses was 0.99 lac MT during 2007-08 as compared to 0.80 lac MT during 2006-07

4. Sugarcane:-

The production was 6.69 lac MT (Gur) during 2007-08 as against 5.70 lac MT during of previous year. Sugar recovery was 9.31 % as compared to 9.54 % during the 2006-07.

5. Wheat:-

The production was 157.20 lac MT during 2007-08 as compared to 145.96 lac MT during 2006-07.

OTHER PROGRAMMES

1. Fertilizers:

Fertilizers consumption during 2007-08 as compared to 2006-07 has increased.

	(Lakh Tonnes)			
	N	P	K	Total
2006-07	12.99	3.54	0.39	16.92
2007-08	13.16	3.44	0.38	16.98

2. Plant Protection:

There was no shortage of insecticides/pesticides/weedicides observed in the State during 2007-08.

3. Gobar Gas Plants:

245 Biogas Plants were installed in the state during 2007-08 as compared to 289 during the year 2006-07.

4. Certified Seeds:

For increasing the production of foodgrains in the State, 6.09 lac qtls. of certified seed of various crops were distributed to the farmers during 2007-08 as against 6.14 lac qtls. of 2006-07.

5. Micro Nutrients:

Micro Nutrients consumption in the state during 2007-08 as compared to 2006-07 is as under:-

	(in tonnes)	
	2006-07	2007-08
Zinc Sulphate(21%)	21221	21371
Ferrous Sulphate(19%)	1302	2200

6. Supply of Gypsum:

To reclaim alkali soils, 62456 MT of gypsum was supplied to reclaim 12491 hect. during 2007-08, as against 41266 MT to reclaim 8252 hect. of the previous year 2006-07.

COMPARATIVE STATEMENT

Area " in lac ha."
Production "in lac M.T. / Bales"

Sr.No.	Particulars	2006-07	2007-08
1.	WHEAT		
	Area	34.67	34.88
	Production	145.96	157.20
2.	RICE		
	Area	26.21	26.10
	Production	101.38	104.89
3.	MAIZE		
	Area	1.54	1.53
	Production	4.81	5.21
4.	COTTON		
	Area	6.07	6.04
	Production	26.78	23.55
5.	SUGARCANE (GUR)		
	Area	0.99	1.0
	Production	6.02	6.69
6.	IMPROVED SEEDS (Qtls)		
	Wheat	447824	450868
	Paddy	127700	118296
	Cotton	7571	9203
	Maize	21834	21318
	Oil Seeds & Pulses	4376	2820
7.	FERTILIZERS SUPPLY (Nutrients in Lakh Tonnes)		
	N.	12.99	13.17
	P.	3.54	3.41
	K.	0.39	0.37
	Total	16.92	16.98
8.	BIOGAS PLANTS		
	No. of Biogas plants installed (family size)	289	245

9.	SUGARCANE DEVELOPMENT PROGRAMME		
	Sugarcane crushed (Lakh Tonnes)	50.91	57.60
	Sugar produced (Lakh Tonnes)	4.86	5.34
	Sugar Recovery (%)	9.54	9.31
10.	OILSEEDS & PULSES DEVELOPMENT PROGRAMME		
	Area (000 Hect.)	87	87
	Production (000 MT)	80	99
11.	Quality Control (Samples No's.)		
	Seeds	17551	21551
	Fertilizers	3429	3524
	Pesticides	3881	4913

TABLE – I
Land Use Pattern of Punjab

		Area “000” Hect.					
S. No.	Classification	1970-71	1980-81	1990-91	2004-05(P)	2005-06(P)	2006-07(P)
1.	Reporting area for Land use	5033	5033	5033	5033	5033	5033
2.	Forest	138	216	222	300	288	300
3.	Land not available for cultivation	610	532	426	483	505	502
	a) Land put to non-agri. use	416	436	343	458	479	475
	b) Barren & Unculturable Land	194	96	83	25	26	27
4.	Other Uncultured Land	92	49	57	21	19	10
5.	Fallow Land	133	45	110	33	51	37
6.	Net area Sown	4053	4191	4218	4200	4170	4184
7.	Area sown More than once	1625	2572	3283	3732	3698	3677
8.	Total Cropped area	5678	6763	7501	7932	7868	7861
9.	Net Irrigated area	2888	3382	3909	4032	4068	4078
10.	Gross Irrigated area	4243	5781	7055	7692	7680	7657
11.	Cropping Intensity %	140	161	178	189	189	188

P=PROVISIONAL

