CHAPTER – 1

INTRODUCTION

The Punjab state has 5.03 million hectare Geographical area, out of which 4.20 million hectare is under cultivation. Agriculture is a way of life. More than 65% of its population depends directly on agriculture. It has shaped the thought, outlook, culture and economic life of our people. Therefore, it will continue to control all strategies for planning socio-economic development of the state in future also.

Since the advent of green revolution, the state has made rapid strides in agricultural sector. The cropping intensity increased from 126% to 189% during the period 1965-66 to 2008-09. The area under wheat has increased about 127% and production by 721%, whereas the area under rice has increased about 836% and production by 3667%. The productivity of wheat has increased from 1236kg/hectares to 4462 kg/hectare The productivity of rice has enhanced from 1000 kg/hectare to 4022 kg/hectare 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 chemical fertilizers is 225 kg/hectare The consumption of pesticides is about 1 kg/hectare Due to use of quality and improved seeds of various crops, the state has achieved a seed replacement rate of different crops - Paddy 21%, Maize 91%, Cotton 93%, Kharif Pulses 25%, Barley 26 %, Wheat 26%, Rabi oilseeds 61% and Gram 36% during 2008-09 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 22.85 lac bales in an area of 5.27 lac hectare during 2008-09. New innovative techniques were adopted to reduce the cost of cultivation. Zero-tillage-technology was promoted for wheat sowing amongst farmers. An area of 7.21 lac hectares was sown by Zero-tillage-technology during 2008-09 and Rs 92 crores are saved as input costs. The total food grains production was 273.29 lac MT during 2008-09.

All this, has become possible by implementing various state & centrally sponsored schemes by different sections of the department. The administrative set up of the department is given in chapter-2. The budgetary provisions, expenditure & income are 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 behavior 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" Hectare.

S. No.	Classification	1970-71	1980-81	1990-91	2000-01	2006-07	2007-08
1.	Reporting area for Land use	5033	5033	5033	5033	5033	5033
2.	Forest	138	216	222	280	300	299
3.	Land not available for cultivation	610	532	426	438	522	508
a)	Land put to non-agri. use	416	436	343	410	475	484
b)	Barren & Uncultivable Land	194	96	83	28	27	24
4.	Other Uncultured Land	92	49	57	22	10	10
5.	Fallow Land	133	45	110	43	37	42
6.	Net area Sown	4053	4191	4218	4250	4184	4174
7.	Area sown More than once	1625	2572	3283	3691	3677	3695
8.	Total Cropped area	5678	6763	7501	7941	7861	7869
9.	Net Irrigated area	2888	3382	3909	4038	4078	4077
10.	Gross Irrigated area	4243	5781	7055	7664	7657	7688
11.	Cropping Intensity %	140	161	178	187	188	189

TABLE – II

AREA PRODUCTION AND AVERAGE YIELD OF DIFFERENT CROPS

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

Kharif Crops		2007-08	2008-09	Rabi Crops		2007-08	2008-09
Rice	A	2610	2735	**Wheat**	A	3488	3526
	P	10489	11000		P	15720	15733
	Y	4019	4022		Y	4507	4462
Maize	A	153	151	**Barely**	A	16	16
	P	521	514		P	57	55
	Y	3408	3403		Y	3550	3444
Kharif Pulses	A	21	18	**Gram**	A	3	3
	P	15	15		P	3	4
Kharif Oil Seeds	A	11	11	**Other Rabi Pulses**	A	4	3
	P	5	5		P	5	3
Cotton	A	604	527	**Rabi Oil Seeds**	A	28	27
	P	2355	2285		P	33	33
	Y	663	737				
Sugarcane (Gur)	A	110	81	**Sunflower**	A	20	22
	P	669	467		P	38	38
	Y	6086	5766				
				Total Food Grains	A	6300	6457
					P	26814	27329

CHAPTER – 2
ADMINISTRATIVE SET UP OF AGRICULTURE DEPARTMENT PUNJAB

Director

ADMN. WING	STATISTICAL WING	GEOLOGY WING	ENGINEERING WING
Joint Director Agri. 1. Cane Commissioner 2. Extension & Training 3. High yielding Variety Programs. 4. Cash Crops 5. Inputs 6. Plant protection 7. Innovation and Pulses	**Joint Director Agri.** 1. Statistics 2. Agri. Census	**Joint Director Agri.** Hydro-Geology	**Joint Director Agri.** 1. Engineering
Deputy Director 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	Statistician	Hydro-Geology	Agri. Engineer (Implements) Agri. Engineer (Tube wells)
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. has provided Rs. 3611012 thousand for the year 2008-09. An expenditure of Rs.3404883 thousand has been incurred under various schemes during 2008-09. Budget allotment and expenditure under various allotted heads during 2008-09 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 2008-09.

(Rs. in Thousands)

Major Head	Plan		Centrally Sponsored		Non Plan	
	RBE	**EXP**	**RBE**	**EXP**	**RBE**	**EXP**
2401-Crop. Husbandry	1413563	1398171	188027	89572	732096	650409
2415-Agriculture Research & Education	70000	70000	-	-	1100000	1100000
2435- Other Agriculture Programs 01-(State) Marketing & Quality Control facilities	-	-	-	-	36605	34974
2702-Minor Irrigation	-	-	-	-	50159	46257
2810-Non Conventional Source of energy-01-Bio Energy-001-Direction & Administration	-	-	-	-	7052	5500
4401-Capital Outlay on crop husbandry			-	-	10000	10000
4810-Capital Quality on Non-conventional sources of energy	-	-	3500	-	-	-
6401- Loans for Crop Husbandry	10	-	-	-	-	-
Total	**1483573**	**1468171**	**191527**	**89572**	**1935912**	**1847140**

RBE: Revised Budget Estimates **Exp**: Expenditure

TABLE – II
2401 CROP HUSBANDARY INCOME 01.04.2008 TO 31.03.2009

0401	Head	Income (in Rs.)
103	Seeds	1972257
104	Receipt from agriculture farms	2544165
105	Sale of manure & fertilizer	426470
107	Receipt from plant protection services	415505
108	Receipt from commercial crops	24716320
800	Miscellaneous Receipts	29650096
0435	Other agriculture programs.	45263
102	Fee for Quality control of agri. Products	---
0702	Minor Irrigation	---
103	Receipt from Boring and Tube wells	1000352
85	Miscellaneous receipts	1400488
	TOTAL	**62170916**

CHAPTER – 4
TRANSFER OF TECHNOLOGY

To boost crop production, various crop oriented programs were implemented in the state like production of certified seeds, Cotton Development Program, Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM), Sugarcane Development Program, Support to State Extension Program for Extension Reforms, Plant Protection, Rashtriya Krishi Vikas Yojna (RKVY) and National Food Security Mission. The detail of the progress of these programs are as 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 by increasing the area as well as per unit productivity. At present increase in area is not possible. So increase in production is only possible by increasing the per unit production of these crops in the state.

The timely supply of inputs plays a major role in achieving higher production. The most important inputs are good quality seeds, fertilizers, pesticides etc. Keeping in view the overall objective of increasing the production and productivity in the State, Centrally Sponsored Scheme Macro Management Work Plan (90:10) was implemented during 2008-09. Subsidy @ Rs.500/-per quintal on seed was supplied and 68608 quintals of seed were supplied through PUNSEED.Rs. 343.04 lac were allocated and the same were utilized.

Apart from above centrally sponsored scheme C.S. (AGR.)-11 generally known as "Seed Village Scheme" was also implemented by the Department through PUNSEED during the year 2008-09. Under this scheme Seed Production Program was implemented at farmers fields in some selected villages to ensure the availability of good quality seeds to the farmers. 5874.60 hectare area in selected villages have been covered and 5721.60 quintals of wheat(PBW-343) and 153.00 quintals moong (SML-668) seeds were distributed (on 50% subsidy). Total 419 villages were adopted under scheme and 29396 farmers were covered. 171648 quintals of wheat and 1530 quintals of moong seeds were produced in these villages. Funds to the tune of Rs. 188.30 lac were released to PUNSEED and out of this Rs. 174.68 lac utilized for seed production program in selected villages. An amount of 13.61 lac were remained as unspent balance.

The achievements of Area & Production of rice, maize and wheat during the year 2007-08 and 2008-09 are given as under:-

A = Area '000' Ha.
P = Production '000' MT
A/Y = Average Yield: Kg/Ha.

	2007-08			2008-09		
Crop	**A**	**A/Y**	**P**	**A**	**A/Y**	**P**
Paddy	2610	4019	10489	2735	4022	11000
Maize	153	3408	521	151	3403	514
Wheat	3488	4507	15720	3526	4462	15733

B) Cotton Development Program.

Cotton is a major cash crop in the south western districts of the state. To enhance cotton production the following schemes were in operation in the cotton belt of the state during 2008-09:-

- Integrated Pest Management(IPM) Cotton Technology through Social Mobilization by Sir Ratan Tata Trust (SRTT) scheme is in operation in 10 districts of cotton belt. Scheme is run by state and Sir Rattan Tata Trust in collaboration(50:50)on sharing basis. During 2008-09, 224 villages were adopted/selected (112 by states and 112 by SRTT). During 2008-09 about 10% increase in productivity is achieved in these adopted villages by disseminating production and protection technologies.
- Management of Mealy Bug on Cotton is the 100% centrally sponsored scheme and assistance is provided for control of Mealy bug on cotton crop. Govt of India sanctioned Rs.44.00 lac under the above scheme and out of which, Rs.43.37 lac were utilized. Due to implementation of the above scheme no serious damage of mealy bug on cotton crop was noticed and the insect remained under control during 2008-09. Significant increase in productivity of cotton is also observed due to implementation of this scheme.

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 2007-08 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 2008-09 in the state.

a) Oil Seeds

During 2008-09, a budgetary provision of Rs. 75.20 lakh was made under ISOPOM against administrative approval of Rs 157.98 lakhs. An expenditure of Rs. 48.18 lac was incurred to implement various components of the scheme. During the year 2008-09, to popularize different seed varieties 16000 seed minikits of raya sarson are distributed free of cost. 164 hectares were covered under block demonstration plots of groundnut, soyabean, toria and sunflower. 35 hectares were covered under IPM demonstration plots. To provide training and technical know how to farmers 86 training camps were organized. Financial targets were not fully achieved due to late sanction of funds in last quarter of the year and the subsidy component was not implemented due to code of conduct.

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

Sr. No.	Crop	2007-08		2008-09	
		Achievement		Achievement	
		A	P	A	P
1.	Groundnut	3.1	2.7	3	3
2.	Sesamum	8.2	2.7	8	3
3.	Rapeseed / Mustard	28	33	27	33
4.	Sun Flower	20	38	22	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 amount of Rs. 30 lakh. was allocated to implement various components during 2008-09 against administrative approval of 82.44 lakh. An expenditure of Rs.23.04 lakh. was incurred. During year 2008-09,

50 quintals of pulses seeds were distributed under production of foundation seeds and 169 quintals of certified seeds were distributed . To popularize the improved high yielding varieties of pulse crops 40,000 seed minikits were supplied to farmers free of cost. 40 hectares were covered under block demonstration plots (5 ha. Each) and 10 IPM Pulses demonstration(10 hectare each) were laid for demonstrating production technologies. To provide training and technical know how to farmers and officers 30 farmer training prog. And 5 officer training were also conducted. Sowing of pulses crop with application of Rhizobium Culture was practiced on 1600 hectares. 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	2007-08		2008-09	
		Achievement		Achievement	
		A	P	A	P
1.	Moong	11.7	8.4	9	8
2.	Mash	3.5	1.6	3	1
3.	Arhar	6	5.4	6	6
4.	Gram	3	3	3	4
5.	Lentil	1	1	1	1
6.	Peas	3.4	4.2	2	3

Apart from ISOPOM, with the help of Sir Ratan Tata Project(S.R.T.T.) a scheme was implemented to promote Groundnut Crop variety S.G.99 in the state. Under the above motive seeds distribution programme of above variety was carried out in Hoshiarpur, Sangrur/Barnala and Mansa districts. Efforts were also made to revive groundnut crop in Kapurthala, Shaheed Bhagat Singh Nagar and Bathinda districts by conducting demonstrations. Due to above efforts increase in the average yield of groundnut has been noticed. The average yields of above varieties are increased from 4-5 quintals to 8-10 quintals per acre. District wise Achievement of Scheme during kharif 2008 is given as under:-

S.No	Component	Sangrur	Hoshiarpur	Mansa
1	Area covered by S.G.99(Acre)	560	250	250
2.	Seeds distribution on subsidy(Qtl.)	300	73	
3.	Seed Treatment (Acre)	560	250	250
4.	Groundnut Thresher	2	--	--
5.	1. Training Camp 2.Cluster/Circle	21 07	10 03	5 1

D) 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(Makki di roti) 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 2008-09, an expenditure of Rs.16,13,850 were incurred on various components made under ISOPOM to implement the components of IPM, training camp,minikit, Plant protection 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, 18000 seed minikits of varieties like, PMH-2(5000), Bio 9637(10000) & Bio 9637(3000) were distributed free of cost to the farmers. 50 training camps were organized to disseminate improved crop production technology in 70 selected blocks of the state. IPM techniques were introduced in 17 village to control insect attack through IPM field schools.3950 litres of Endosulphan 35% EC supplied on 50% subsidy as plant protection chemical to control the stem borer of maize 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. 17.12 lac was allocated under this scheme and an expenditure of Rs. 14.95 lac was incurred to implement the scheme. Maize crop is mainly sown in the districts of Hoshiarpur, Ropar, Shaheed Bhagat Singh Nagar, Amritsar, Gurdaspur, Jalandhar, Kapurthala, Patiala, Ludhiana, S A S Nagar and Fatehgarh Sahib in the state. Traditionally maize was grown as kharif crop and now its sowing during rabi season has also started recently in some districts with invention of new varieties. It is now possible to raise spring crop in Hoshiarpur,

Shaheed Bhagat Singh Nagar, Jalandhar and Kapurthala. 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 5.14 lac tonnes of maize from an area of 1.51 lac hectares during 2008-09.

E) Sugarcane Development Programme

There are 23 sugar mills in the State i.e. 16 in the cooperative sector (out of which 7 sugar mills namely Budhlada, Rakhra, Jagraon, Tarantaran, Faridkot, Zira & Malout are under liquidation) and 7 sugar mills are in the private sector. During the crushing season 2008-09, the area under sugarcane was 0.94 lac hectareares from which about 56.40 lac tons of sugarcane was produced out of which 26.03 lac tons of sugarcane was crushed and 2.43 lac tons of sugar was produced by the 16 working sugar mills (9 cooperative & 7 private sector) with cumulative crushing capacity of 48,266,TCD crushing operations during 2008-09.

During 2008-09, the sugar mills working in the state crushed 26.03 lac tonnes of cane. The sugar production was 2.43 lac tonnes. The sugar recovery achieved during 2008-08 was 9.30 The cane crushed, sugar production and recovery of sugar during 2007-08 and 2008-09 is given as under :-

S.No.	**Item**	**Units**	**2007-08**	**2008-09**
1.	Cane Crushed	Lac/Tons	57.60	26.03
2.	Sugar produced	Lac/Tons	5.34	2.43
3.	Recovery of sugar	%	9.31	9.30

Developmental Programmes

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 2007-08 and 2008-09 are given below:-

Targets and Achievements for the year 2007-08 & 2008-09

S.NO.	**PARTICULARS**	**YEAR 2007-08**		**YEAR 2008-09**	
		Targets	**Achievements**	**Targets**	**Achievements**
1.	Area(Hectares.)	1,50,000	1,40,000	1,30,000	94000
2.	Average yield (Ton/ Hectare.)	61.00	57.14	60.00	60.00

3.	Production (Lac Tonnes)	91.50	80.00	72.00	56.40
4.	Distribution of Seed (000 Tonnes)	300.00	364.00	250.00	277.00
5.	**Plant protection Measures (Hectares)**				
i)	Seed treatment	30,000	4,868	20,000	4392
ii)	Soil treatment	30,000	20,825	20,000	17838
iii)	Ground spray	1,00,000	33,850	50,000	23233
iv)	Top borer control	70,000	17,055	20,000	4284
6.	Interface	--	3	--	3

Centrally Sponsored Scheme "Macro Management Centrally Sponsored Work Plan- Programme for the development of Major crops (i.e. Sugarcane)"

During the year 2007-08, Rs.72.00 lac was sanctioned under the scheme to provide incentives to the farmers on components, such as subsidy on ridgers, demonstration of single bud plantation and intercropping and for organizing Farmers Field Schools. As such the scheme was implemented in the State. During the year 2008-09, the State Govt. has given financial sanction for Rs. 30.00 lac for single bud plantation and intercropping out of which only Rs. 8.00 lac have been utilized and rest of amount was not utilized due to delayed sanctions.

The detail of expenditure incurred during the year 2008-09 is given as under:-

(Rs.In lac)

S. No.	**Name of Scheme**	**YEAR 2007-08**		**YEAR 2008-09**	
		Budget allotment	**Expenditure**	**Budget allotment**	**Expenditure**
1.	**Scheme "Direction and Administration"**	50.68	49.27	61.96	55.92
2.	**"Macro- Management Centrally Sponsored work plan-Programme for the development of major crops (i.e . sugarcane)"**	72.00	72.00	30.00	8.00

F) 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 2008-09, Rs. 582.00 lac was released by the GoI. Rs.281.32 lac was balance available as on 1.4.2008. Total funds available under this scheme during 2008-09 were Rs. 919.18 lac, out of which an expenditure of 460.46 lac was incurred. Rs. 458.72 lac were remained as unspent balance during last day of the year.

During 2008-09, 32 District level Kisan Melas were organized, 13 interstate 81 within state and 846 within Distt. trainings were imparted to farmers of the state. 6111 demonstrations related to agriculture and 7123 demonstrations of allied sector were laid out. 79 Interstate, 489 Intrastate state and 525 Intradistrict exposure visits of farmers were also conducted. During the year 17 Farmer-Scientists Interaction, 172 field days/ farmer seminars conducted. 32 Training courses were held during 2008-09 at State Level Extension Training Institute in which 1410 number of extension functionaries were trained.

G) 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 2008-09:-

(Rs. In Lac)

S. No.	Name of the Scheme	2007-08		2008-09	
		Budget allotment	Expenditure	Budget allotment	Expenditure
1.	2401 – crop Husbandry 001 – Direction and Administration – Non Plan	33.80	31.78	36.88	35.09
2.	4401 – Capital Outlay – 107 Plant Protection – Non Plan - Purchase and sale of Pesticides	100.00	86.00	--	--

3.	A(P) Centrally Sponsored Macro Management work plan – scheme for Pest & weed Management (90:10 sharing basis)	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	--	--

The scheme shown at Sr. No.1 is a staff scheme and no physical targets were fixed in it.

Under the scheme shown at Sr. No. 2, an amount of Rs. 100.00 lac was allotted for the purchase of pesticides but the approval was not received from Punjab Govt. for the purchase of pesticides .So the purchase could not be made.

Under sr. no. 3 and 4 no budget allotment received .So the purchase of seed treatment chemicals, Rat control and for strengthening of pesticides Testing Labs could not be made .

H. Rashtriya Krishi Vikas Yojna(RKVY)

RKVY is state plan scheme and is 100% sponsored by Govt. of India. The scheme was in operation in Punjab state during 2008-09. The main objectives of scheme are given below**:-**

- To incentivize the states that increase their investment in Agriculture and allied sectors To provide flexibility and autonomy to the States in planning and executing programs for agriculture
- To ensure the preparation of Agriculture Plans for the districts and states
- To achieve the goal of reducing the yield gaps in important crops
- To maximize returns to the farmers
- To address the agriculture and allied sectors in an integrated manner .

During 2008-09, the project wise achievement of scheme is given below:-

Sr. No.	Project	Achievement
1.	Wheat Seed Replacement	About 1.5 lac quintal of wheat seed was distributed .
2.	Setting up of Residual Testing Lab.	Work is under progress
3.	Setting up of Farmers Training Centre	Farmer training centre has been set up at village Abul Khurana District Mukatsar by utilizing Rs.5.00 crores.
4.	Strengthening of Infrastructure for distribution of quality seeds	For strengthening of infrastructure to handle and store certified seeds, Rs. 20 lac were provided to PUNSEED and utilized on project.

I. NATIONAL FOOD SECURITY MISSION (NFSM)

It is a100% centrally sponsored scheme. 10 districts namely Amritsar, Tarantaran, Sangrur, Barnala, Ropar, Mohali, Gurdaspur, Hoshiarpur, Bathinda and Ferozepur were selected for Wheat besides Amritsar, Tarn-aran, Sangrur, Barnala, Gurdaspur, Ferozepur& Ludhiana were selected for Pulses . An amount of Rs.4109.27 lac were available out of which Rs.3975.70 lac were utilized under different components of Wheat including local initiatives . Subsidy @ 50% was provided for seed, micronutrients and machinery components. The physical achievements of scheme during 2008-09, are as under:-

			2007-08		**2008-09**	
S.No.	**Approved Intervention**	**Unit**	**Target**	**Achieve ment**	**Target**	**Achieveme nt**
1.	Demonstration on improved package of practices (Wheat)	Nos.	37000	37000	5500	5500
2.	Increase in SRR (Seed distribution)	Qtl.	126800	126251.6	300000	295796
3.	Distribution of seed minikits	No.	57200	57168	28600	28600

4.	Incentive for Micro-nutrients	Ha.	146430	60000	120000	120000
5.	Zero-Till Seed Drills	No.	1250	1178	1200	1069
6.	Rotavators	No	2500	2266	3000	2935
7.	Farmers trainings on FFS pattern (one FFS at every one thousand ha.)	No.	220	220	330	330

Under NFSM Pulses , 271 quintals of pulses seed distributed, IPM on 825 hectares & 7 farmer field schools were organized during 2008-09. Budget allocation for the pulses during 2008-09 was 409.60 lac, out of which 197.37 lac were utilized including local initiatives.

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 from 2004-05 to 2008-09 ia as under s:-

CONSUMPTION (NUTRIENT IN '000' TONNES)

Year	N	P	K	Total
2004-05	1202	317	43	1562
2005-06	1255	369	63	1687
2006-07	1299	354	39	1692
2007-08	1316	344	38	1698
2008-09	1332	379	57	1768

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 2008-09 is given below:-

Name of Fertilizers	Sale Rate (Rs. PMT)		Quantity sold on subsidized rate (000 MT)	
	2007-08	2008-09	2007-08	2008-09
DAP (Indigenous & imported)	9350	9350	712	736
NPK 12:32:16	8480	7637	17	19
MOP	4455	4455	57	81
SSP (P)	3550	3400	36	13
SSP (G)	3700	3800	--	--

NP 20:20	7280	5343	11	9
Urea	4830	4830	2570	2582
Ammonium sulphate	8925	10350	5	8

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, 24685 tonnes of Zinc Sulphate (21%) was consumed in the State during the year 2008-09 . Generally, in paddy crop, ferrous sulphate (19%) is applied as foliage spray to make up the deficiency of Iron and 2614 tonnes of ferrous sulphate (19%) was used for this purpose during 2008-09.

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 & 2008-09 is as under:-

Year	Amount of subsidy (Rs.)	Gypsum distributed (MT)	Area reclaimed (Hectare)
2006-07	1,96,01,494	41266	8252
2007-08	2,96,66,515	62456	12491
2008-09	6,30,000,00	51095	10218

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 force 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. 18.90 lac was allotted during 2008-09. The expenditure incurred was Rs. 18.12 lac. The district wise rural compost production is given in Table-I. The physical achievement of this programme during 2008-09 is as under:-

S. No.	Component	Unit	Target	Physical Achievement	Remarks
1	Compost samples taken	Nos.	1200	749	All 749 samples were analyzed by PAU, Ludhiana
	Quantity of rural compost	Lac tones	314	309	
3	Demonstrations held	Nos.	-	2653	
4	Celebration of compost fortnight	Nos.	1	1	
5	Exhibitions Arranged	Nos.	-	2402	

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 manuring on a large scale. During 2008-09, the achievement of area coverage under green manuring was 1,54,852 hectares against the target of 1,75,650 hectare. The district wise targets and achievements of green manuring during 2008-09 are given in Table – I.

TABLE – I

S. No.	District	Production of Rural Compost (in lac tonnes)		Area Coverage under Green Mannuring (Ha.)	
		Target	Achievement	Target	Achievement
1	Amritsar	13	13.15	6200	6120
2	Bathinda	15	15.01	8500	11890
3	Faridkot	15	14.80	10100	9700
4	Fatehgarh Sahib	15	13.14	8100	5000
5	Ferozepur	21	25.07	13600	13400
6	Gurdaspur	21	21.50	9500	9595
7	Hoshiarpur	18	18.43	8800	10156
8	Jalandhar	21	29.16	14500	5210
9	Kapurthala	20	12.12	9200	4115
10	Ludhiana	20	21.24	8000	9010
11	Mansa	15	17.88	9350	9300
12	Moga	15	16.10	8100	8128
13	Mohali	14	14.01	6600	6608
14	Mukatsar	15	13.12	8200	4110
15	S.B.S.Nagar (Nawanshahar)	15	13.11	9400	9192
16	Patiala	15	15.80	10000	9892
17	Ropar	10	10.00	5000	5200
18.	Sangrur	15	15.78	6600	7717
19.	Tarn Taran	10	8.60	7500	8000
20	Barnala	10	11.71	8400	8509
	Total	**314**	**309.73**	**175650**	**154882**

(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	2007-08	2008-09
Paddy	118296	115299
Maize	21318	32718
Cotton	9203	8230
Kharif Pulses	1915	1426
Wheat	450868	917963
Rabi Oilseeds	784	802
Gram	121	1576
Barely	5941	5936

(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. 5760 MT of (technical grade) pesticides were consumed during 2008-09 against 5900 MT of the previous year.

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 2008-09 is as under :-

Kind of seed sample	Target	No. of Samples Taken	Sample analyzed	Sample Found Non Standard
Seed Act (Enforcement)	5000	4253	3869	131
Service sample	4267	4331	4153	704
Bunt	200	177	177	11
Seed certification	5500	7513	7232	123
University farm	500	687	681	96
Grow out Test Sample	600	2054	1358	52
Total	**16067**	**19015**	**17470**	**1117**

b) Quality Control of fertilizers

To ensure the supply of quality fertilizers to the farmers, strict check is kept 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 and take action under different sections of FCO 1980 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 2008-09. Fertilizer samples were drawn and sent to Fertilizer Quality Control Laboratories for analysis. 3146 samples

were analyzed out of which 15 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
2008-09	3000	3146	104.8	15	0.5

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 2008-09, 3.19 lac samples of soil and water were analyzed in the State as compared to 3.58 lac 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

(unit: lac Samples)

Year	Soil	Water	Total
2006-07	3.13	0.34	3.47
2007-08	3.33	0.25	3.58
2008-09	2.95	0.24	3.19

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 2008-09, 1150 villages were adopted for soil testing work.

(d) Quality Control of Pesticides

The Punjab state has highest per hectares consumption of pesticides in the country. To ensure quality pesticides to the farmers, samples of various pesticides were drawn 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. 99 samples were drawn for quality checkup. A total number of 3874 samples of insecticides were analyzed out of which 90 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 highest in 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 land Leveler, 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 2008-09, an area of 7,21,732 hectares under wheat was sown by adopting this technology. Farmers were able to save about Rs. 92 crore. 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 2008-09, an amount of Rs. 365.30 lac 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	
		2007-08	2008-09
1.	Rotavator	393	633
2.	Zero Till Drill	183	138
3.	Raised Bed Planter	1	4
4.	Straw Reaper	448	820
5.	Vertical Conveyer Reaper	18	4
6.	Automatic Potato Planter	120	172
7.	Potato Digger	216	212
8.	Pulverizing Roller	9	5

9.	Self Propelled Reaper Binder	15	11
10.	Self propelled Fodder Harvester	--	10
11.	Tractor operated power sprayer	--	14
12.	Chisel Plough	4	--
13.	Maize Thresher	5	3
14.	Multi Crop Planter	2	1
15.	Happy Seeder	2	4
16.	Forage Chopper cum Loader	12	7
17.	Forage Reaper	13	4
18.	Power Tiller	6	1
19.	Rotary Power Weeder	--	8

1) 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 during 2008-09 under the intensification of farm mechanization program 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	2756
2.	No. of farmers visited to render technical guidance regarding efficient operation of tube wells/diesel engines.	5305	5079
3.	Demonstration of newly developed Agricultural machinery such as ZTD, STD, VCR, SCP etc.	1815	1853
4.	Proper operations and after – take care of	3230	3177

	already set up biogas plants		
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	488
6.	Farmers trained about efficient use & after take care of agricultural machinery/implements	10600	16232
7.	Sowing demonstration plots of different crops using agricultural machinery/ implements	730	962

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 with out 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 during 2008-09 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 2008-09 ,51 deep tubewells were installed against target of 50 . These tubewells will help in irrigating approx. 1020 acres of agricultural land.

2) TO INSTALL STANDARD TUBEWELL USING HAND BORING PLANT

During the year 2008-09 against a target of 150 tube wells , 184 standard tubewells were installed, which will help in irrigating approximatelly1840 acres of land. Some of the tube wells have been installed in the South-Western region of the state for getting upper layer of fresh water above the saline base that could be used for irrigation.

3) DEVELOPMENT OF TUBEWELLS

Different capacities of screw Air Compressors are available with the Department, which are used for development of tube wells and rejuvenating of old tube wells. Because of increased efficiency due to development, discharge of tubewells is increased and a lot of energy is saved during operation of tube well. During the year 2008-09 against a target of development of 200 tube wells, 207 tube wells were developed

4) PROVISION OF EXTENSION SERVICE

Under the scheme, training is imparted to the farmers and staff of private companies and technical staff of department about the latest technology to reduce use of diesel and electricity and proper utilization of irrigation water so that overall efficiency can be improved. The target fixed under this scheme include visits to farmers' fields and guide them about the wrong fittings -800, one day field camps-100, printing of technical bulleteins-8, district level camps for private companies-6,and district level training camps for field staff to apprise them of latest technology-4. Under the scheme visits were made to 887 tubewells to apprise the farmers about wrong fittings, 180 one day field camps were organized, 9 technical bulletins were distributed, 7 district level camps for private companies were organized to train the staff about latest technology, and 6 district level camps for field staff were organized.

Apart from this against the target of 60 standard tubewells 112 tubewells were installed wherein latest technology was used for proper design, length, diameter of filter, right selection of pump so that efficiency can be improved at least cost.

Progress Report of Minor Irrigation/ Tubewell Boring Program for the year 2008-09

S. No.	Components	2007-08		2008-09	
		Target	Achievements	Target	Achievements
1.	Installation of tubewells by power rigs	40	51	50	51
2.	Development of tubewells	250	258	200	207
3.	Installation of shallow tubewells	250	290	150	184
4.	**EXTENSION ACTIVITIES**				
i)	Guidance to the farmers for the proper installation of tubewells	60	94	60	112
ii)	Guidance to the farmers for the rectification of tubewells by visiting the site.	1000	1070	800	887
iii)	Preparation of Engineering Bulletin for onward circulation to the farmers.	8	11	8	9
iv)	District level Training camps for private boring	6	6	6	7
v)	District level training camps for the district level staff to impart training on latest drilling methods	4	6	4	6
vi)	One day training camps to awaken the farmers on the upkeep of tubewells and to avail maximum benefits thereof.	100	166	100	180

C. BIOGAS DEVELOPMENT

To meet the shortage of fuel and fertilizer in the rural areas, a program of setting up of biogas plants was started in a big way during the year 1974-75. Keeping in view the importance of this program, Govt. of India, launched a "National project on Biogas Development" during the 6th Plan period which has been kept continued during 2008-09 also. Central subsidy is provided to the beneficiaries for installation of biogas plants (family size). In Punjab, 55003 biogas plants (family size) have already been installed by the department of agriculture up-to 31.03.2009.

Activities of the Scheme/program:

(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 2007-08 and 2008-09.

S. No.	Item	2007-08		2008-09	
		Tar.	Ach.	Tar.	Ach.
1.	Installation of Family size Biogas Plants	-	245	-	147

CHAPTER – 8

MONITORING OF GROUNDWATER BEHAVIOUR

There are about 12.76 Lac 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 and Fatehgarh Shib, Kheti Bhavan Amritsar &Village Dhanetha in Patiala .
- 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 450 ground water samples and area of fit, marginally fit and unfit ground water quality of district Bathinda, Mansa, Sangrur, Ferozepur, Faridkot, Mukatsar, Patiala and Moga are Calculated. District wise ground water quality maps for the year 2008 were prepared for Sangrur, Ludhiana, Moga, Faridkot and Mukatsar were prepared. .
- Pre-Monsoon and Post monsoon water level of 393 monitoring stations was recorded and analysis reports were prepared. Monthly water level at each district head quarter was recorded twice a month.
- District & State, Pre & Post Monsoon water table depth maps were prepared for districts Amritsar, Gurdaspur, Jalandhar & Shaheed Bhagat Singh Nagar..
- Under census of Electric tubewells for PSEB, data of village wise electric reports will be received after completion of Minor Irrigation Census..
- District wise hydrographs were prepared.
- Tubewell drafts for block Machiwara district Ludhiana, Patra district Patiala, Maur district Bathinda, Dhoori district Sangrur, Dharklan & Narot Jaimal Singh district Gurdaspur, Dhilwan district Kapoorthala and Kot Bhai district Mukatsar have been prepared.

- As per demand of technical sub committee, data of block wise cropped area under paddy and total cropped area, was sent to Directorate of Water Resources and Environment.

CHAPTER – 9

DISSEMINATION OF AGRICULTURAL TECHNOLOGY

With the introduction 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 lac farmers are imparted training every year during Rabi and Kharif seasons and also by holding specialized training course in agriculture & other allied subjects. 5222 training camps were organized to disseminate latest farm technology amongst farmers during 2008-09. 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	4880
TOTAL	**5222**

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 2008-09 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

	Punjabi	20000
Sunflower cultivation		
Lentil	Punjabi	5000

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

c) Publicity through Press

On the basis of Research and Policy Decisions,

News and Advertisements both in English and Punjabi version are regularly issued to the farmers for their guidance and information.

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)

Agriculture based T.V. program including talks on various subjects relating to agriculture and Horticulture for the benefit of the farmers were given by the experts of the Department in "Krishi Darshan" program from time to time and 150 such programs were telecasted on Door Darshan during 2008-09 . Four crop seminars were also arranged and broadcasted through Door Darshan during same period.

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 needs 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 Lac)

Sr. No.	Name of Scheme	2007-08		2008-09	
		Budget Allotment	Expenditure	Budget Allotment	Expenditure
1.	Non-Plan–2435-Other Agricultural Programmes-01 Marketing & Quality Control facilities, Marketing Section (Recurring).	338.96	334.73	366.05	339.34

The Various activities under taken during the year 2008-09 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 analyzed. 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 food grains, 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 "Agricultual 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 2008-09 (1.4.2008to 31.03.2009) are given as under:-

S. No.	Commodity	Quantity Graded (in qtls)		Estimated Value (Rs.in Lac)	
		2007-08	2008-09	2007-08	2008-09
1.	Vegetable Oils	205	235	12.75	15.05
2.	Ground Spices	1070	1736	66.30	163.94
3.	Honey	480	394	47.38	44.53
4.	Desi Ghee	1580	1780	242.30	336.90
5.	Wheat-Atta	40	110	0.48	1.32
6.	Besan	292	255	9.99	14.40
	Total	3667	4510	379.20	576.15

(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 2008-09 is given as under:-

Item	2007-08		2008-09	
	Target	**Achievement**	**Target**	**Achievement**
Weighments	66500	41639	66500	41021
Weights & Measures	56500	38068	56500	37361

CHAPTER – 11
AGRICULTURAL STATISTICS

This is an important ongoing program of the department. The main purpose is to collect and compile statistical information related to agriculture particularly various aspects of land use, 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 2008-09 is given as below:-

Sr. No.	Name of Scheme	Expenditure 1.7.08 to 31.3.09	Expenditure 1.4.08 to 30.6.09	Expenditure 1.7.08 to 30.6.09
1.	2401-Crop Husbandry-001-direction and Administration (Non plan)	77.60	21.12	98.72
2.	"2401-Crop Husbandry-111-Agri. Economics & statistics plan C.S- 2 centrally sponsored Agriculture Census scheme	14.08	0.72	14.80
3.	"2401-Crop Husbandry-111- Agriculture Economics & statistics-plan-C.S.-14 centrally sponsored scheme for Rationalization of Minor Irrigation statistics	17.74	1.40	19.14
4.	"2401-Crop Husbandry-119-Horticulture Vegetable crops & 2401-111-Agriculture Economic & Statistics (plan)	--	--	--

The various activities carried out during the year 2008-09 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 2008-09 were sent to Govt. of Punjab. 6860crop cutting estimates were planned and conducted out of which 6728 were analyzed during the year 2008-09 as under:-

Crop	No. of Experiments 2008-09	
	Planned	Analysed
Kharif		
Paddy	1888	1877
Maize	384	373
Sugarcane	690	612
Cotton	**728**	**728**
Total	**3690**	**3590(97.2%)**
Rabi		
Wheat	2258	2282
Barley	256	258
Gram	140	144
Rabi Oilseed	**516**	**438**
Total	**3170**	**3122(98.4%)**
Grand Total	**6860**	**6712(97.8%)**

2. CROP ESTIMATION SURVEY ON MINOR CROPS

Crop cutting experiments were conducted on Moong, Mash, Arhar, Til, Masar and Sunflower during the year 2008-09 under crop estimation surveys on minor crops. 806experiments were planned and conducted. Out of these 561 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 2008-09 were as under:-

Crop	No. of Experiments 2008-09	
	Planned	Analyzed
Kharif crops		
Moong	206	195
Mash	38	38
Arhar	150	115
Sesamum	**136**	**127**
Total	530	475(89.62%)
Rabi Crops		
Massar	86	86
Sunflower	190	164
Total	**276**	**250(90.5%)**
Grand Total	**806**	**725(89.95%)**

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 2008-09. 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 2008-09 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 were 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 2008-09, 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 2008-09, H.Schedule/detailed survey was carried out in 20% villages through out state and completed schedules of 19 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. H- schedules (19 districts) and input survey 06-07(17 districts) is under scrutiny at HQ.

5. Survey for Methodological Investigation in High Yielding Varieties Programme for the year 2008-09 (01-07-2008 to 30-06-2009)

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 in the year 2008-09 1360 villages are planned during Kharif/Rabi season. The physical progress of 2008-09 is as under:-

No of villages

Year	Season	Planned	Achieved	Progress(%)
2008-09	Kharif	680	403	59.2%
	Rabi	680	0n Progress	

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

6. Timely Reporting Scheme (01.07.2008 to 30.06.2009)

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. 2609 were selected for the collection of jinswar during the year 2008-09 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 :-

Year	Season	No. of Vill. Planned	No. of Vill Received	Percentage
2007-08	Kharif	2607	2577	98.8
	Rabi	2607	2579	98.9
2008-09	Kharif	2609	2589	99.2
	Rabi	2609	2582	99.0

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

(Area in '000' Hectare.)

Crop	Total Area		Irrigated Area	
	2007-08	2008-09	2007-08	2008-09
Paddy	2617	2774	2607	2761
Bajra	7	4	5	3
Maize	159	150	102	96
Cotton	619	484	619	484
S. Cane	114	79	109	76
G. Nut	4	2	1	1
Wheat	3494	3540	3438	3484
Gram	4	2	3	1

Barley	17	15	16	15
Rape & Mustered	28	27	24	23

7. Rationalization of Minor Irrigation Statistics Scheme (1.7.2008 to 30.6.09)

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 31-12-08 were compiled at state level and sent to Ministry of Water Resources, Govt. of India and the quarterly progress of ending 31.3.09 was prepared and will soon sent to the Govt. of India. The district wise, crop-wise, and source-wise irrigated area for Rabi 2006-07 was prepared and sent to GoI and Kharif 2007-2008 is being prepared.

The physical achievements during the year 2008-09 as compared to the last year 2007-08 are given as under:

		Minor Irrigation Potential (Area in "000" hectare)	**2007-08**	**2008-09**
A.				
a.		**Ground Water**		
	i)	Potential Created	5503.6	5566.6
	ii)	Potential utilized	5295.3	5356.3
b.		**Surface water**		
	i)	Potential Created	38.2	40.2
	ii)	Potential utilized	21.15	23.5
c.		**Total**		
	i)	Potential Created	5541.8	5606.8
	ii)	Potential utilized	5316.8	5379.8
B.		**Minor Irrigation Structures (NOS)**		
(a)		**Ground Water**		
	i)	Dugwell	7035	7035
	ii)	Shallow Tubewell	1022674	1034520
	iii)	Deep Tubewell	2949	3024
		Total	**1032658**	**1044579**
b.				
	i)	Surface flow Irrigation	213	242
	ii)	Surface Lift Irrigation	494	537

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	2007-08	50	28
			2008-09	50	Nil
		Rabi	2007-08	50	28
			2008-09	50	Nil
ii.	Yield Estimation	Kharif	2007-08	50	28
			2008-09	50	Nil
		Rabi	2007-08	50	28
			2008-09	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 2008-09

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 2008-09

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)

No. of villages					No. of villages							
Planned					Received				Percentage			
	2007-08		2008-09		2007-08		2008-09		2007-08		2008-09	
Season	State	Central	S	C	S	C	S	C	S	C	S	C
Kharif	200	200	200	200	198	200	198	199	99.0	100.0	99.0	99.5
Rabi	200	200	200	200	200	200	186	200	100.00	100.0	93.0	100.0

Schedule A.S. 1.1 (Area Aggregation)

Kharif	200	200	200	200	199	193	197	143	99.5	96.5	98.5	71.5
Rabi	200	200	200	200	197	198	105	--	98.5	99.0	52.5	84.0

Centre Govt. has stopped filling centre sample of A.S. 1.1

Rabi 2008-09 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**	**2007-08**			**2008-09**		
		State	**Central**	**Pooled**	**State**	**Central**	**Pooled**
Kharif	Paddy	0.999	0.993	0.996	1.000	1.014	1.008
	Cotton	0.971	0.982	0.976	1.000	9.995	0.997
	Sugarcane	1.003	1.070	1.050	1.018	1.009	1.013
	Maize	1.015	1.051	1.025	1.000	1.089	1.061
Rabi	Wheat	1.002	0.984	0.993	Work	In	progress
	Gram	1.000	1.000	1.000			
	Barley	0.880	0.954	0.953			
	Oil Seed	1.006	1.058	1.048			

Schedule A.S. 1.1 (Page Totaling)

Kharif	Paddy	1.000	0.986	0.990	1.000	1.014	1.008
	Maize	0.999	1.056	1.021	1.000	1.089	1.061
	Cotton	0.999	1.000	1.000	1.000	0.995	0.997
	Sugarcane	1.000	0.999	0.999	1.018	1.009	1.013

	Wheat	1.001	1.020	1.011	Work in progress
Rabi	Gram	1.909	0.921	0.917	
	Barley	0.993	0.959	0.981	
	Oil Seed	1.048	1.012	1.032	

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			
	2007-08		2008-09		2007-08		2008-09		2007-08		2008-09	
Season	State	Central	S	C	S	C	S	C	S	C	S	C
Kharif	380	380	380	380	378	378	378	380	99.5	99.5	99.5	100.00
Rabi	320	320	320	320	314	320	302	288	98.2	100.00	99.4	90.0

Rabi 2008-09

Work in Progress

Estimates of Average yield (Kg./hectare.**)**

Season	Crops	2007-08 State	2007-08 Central	2007-08 Pooled	2008-09 State	2008-09 Central	2008-09 Pooled
Kharif	Paddy	3679	3686	3682	3798	3681	3739
	(Rice)	3226	3719	3472	2990	3985	3443
	Maize	678	387	523	573	451	512
	Cotton (lint)	5776	5803	5790	Yet to be finalized		
	S. Cane (Gur)						
Rabi	Wheat	4498	4507	4502	Work in progress		
	Gram	1017	921	969			
	Barley	3336	3469	3400			
	Rabi Oilseed	1303	1268	1285			

CHAPTER – 12

REVIEW OF THE ANNUAL ADMINISTRATIVE REPORT 2008-09

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 corps 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 2008-09 are as under:-

1. Total Foodgrains Production:

Total foodgrains production in the State was 273.29 lac tonnes during 2008-09 as against 268.14 lac tonnes during 2007-08.

2. Area Coverage under major crops

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

Area (in '000' ha.)

Crop	2007-08	2008-09
Paddy	2610	2735
Maize	153	151
Cotton	604	527
Wheat	3488	3526

3. Improved Seeds

Seed is the basic input for increasing per unit productivity. During 2007-08 and 2008-09 ,following quantities of certified seed were distributed to the farmers.

(Qty. in qtls.)

Crop.	2007-08	2008-09
Paddy	118296	115299
Maize	21318	32718
Cotton	9203	8230
Kh. Pulses	1915	1426
Wheat	450868	917963
Rabi Oilseeds	784	802
Gram	121	1576
Barley	5941	5936

4. Fertilizers

During 2007-08 and 2008-09, following quantities of fertilizers were distributed to the farmers:-

	Consumption (Nutrients '000' tonnes)			
Year	**N**	**P**	**K**	**Total**
2007-08	1316	344	38	1698
2008-09	1332	379	57	1768

5. Micro-Nutrients

In order to meet the deficiency of zinc and iron in crops, 24685 MT of zinc sulphate(21%) and 2614 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, 3.19 lac 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 2008-09, 147 biogas plants have been installed, and total no. of biogas plants in State upto 31st March 2009 is 55003.

8. Development of Tubewells

During 2008-09, 51 Tubewells were installed by power rigs. Similarly, 207 old chocked tubewells have been developed. 184 shallow tubewells with hand boring plants were installed.

9. Sugarcane Development Programme

During 2008-09, 23 Sugar mills took up to crushing operations. Progress made is as under:-

	Units	2007-08	2008-09
Cane Crushed	(Lac Tonnes)	57.60	26.03
Sugar Production	(Lac Tonnes)	5.34	2.43
Sugar Recovery	%	9.31	9.30

10. Cotton Development Programme

Achievement of area and production are given as under:-

Item	2007-08	2008-09
Area (000hectare)	604	527
Production (000 bales)	2355	2285

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 2008-09, 394 qtls. of honey, 1780 qts of Desi Ghee, 235 qtls. of vegetable oils and 1736 qtls. of spices were graded under AGMARK.

12. Quality Control

During the year 2008-09, 17470 samples of seeds were tested, out of which 1117 samples were failed. 3146 samples of fertilizers were analyzed out of which 15 samples were found non-standard. 3874 samples of insecticides analysed out of which 90 samples were failed. Legal action has been initiated under the various provisions of Seed Control Order 1983, Fertilizer Control (Order) 1985 and Insecticides Act, 1968 against the defaulters.

CRITIQUE OF THE ANNUAL ADMINISTRATION REPORT 2008-09

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 273.29 lac tonnes during the year 2008-09.

CROPWISE PRODUCTION

1. Cotton

The production was 22.85 lac bales during 2008-09 as against 23.55 lac bale during 2007-08. The production is reduced due to decrease in area under crop. However, yield per acre is increased, as compared to last year.

2. Maize

The production was 5.14 lac tonnes during the year 2008-09 as compared to 5.21 lac tonnes during 2007-08.

3. Oilseeds & Pulses: -

The production of oilseed & pulses was 0.99 lac MT during 2008-09 as compared to 0.99 lac MT during 2007-08

4. Sugarcane:-

The production was 4.67 lac MT (Gur) during 2008-09 as against 6.69 lac MT during of previous year. Sugar recovery was 9.30 % as compared to 9.31 % during the 2007-08.

5. Wheat:-

The production was 157.33 lac MT during 2008-09 as compared to 157.20 lac MT during 2007-08.

OTHER PROGRAMMES

1. Fertilizers:

Fertilizers consumption during 2008-09 as compared to 2007-08 has increased.

(Lac Tonnes)

Year	N	P	K	Total
2007-08	13.16	3.44	0.38	16.98
2008-09	13.32	3.79	0.57	17.68

2. Plant Protection:

There was no shortage of insecticides/pesticides/weedicides, observed in the State during 2008-09.

3. Gobar Gas Plants:

147 Biogas Plants were installed in the state during 2008-09 as compared to 245 during the year 2007-08.

4. Certified Seeds:

For increasing the production of foodgrains in the State under various schemes 11.23 lac qtls. of certified seed of various crops were distributed to the farmers during 2008-09 as against 6.09 lac qtls. of 2007-08.

5. Micro Nutrients:

Micro Nutrients consumption in the state during 2008-09 as compared to 2007-08 is as under:-

(in tonnes)

	2007-08	**2008-09**
Zinc Sulphate(21%)	21371	24685
Ferrous Sulphate(19%)	2200	2614

6. Supply of Gypsum:

To reclaim alkali soils,51095 MT of gypsum was supplied to reclaim 10218 hectare. during 2008-09, as against 62456 MT to reclaim 12491 hectare. of the previous year 2007-08.

COMPARATIVE STATEMENT

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

Sr.No.	Particulars	2007-08	2008-09
1.	**WHEAT**		
	Area	34.88	35.26
	Production	157.20	157.33
2.	**RICE**		
	Area	26.10	27.35
	Production	104.89	110.00
3.	**MAIZE**		
	Area	1.53	1.51
	Production	5.21	5.14
4.	**COTTON**		
	Area	6.04	5.27
	Production	23.55	22.85
5.	**SUGARCANE (GUR)**		
	Area	1.0	0.81
	Production	6.69	4.67
6.	**IMPROVED SEEDS (Qtls)**		
	Wheat	450868	917963
	Paddy	118296	115299
	Cotton	9203	8230
	Maize	21318	32718
	Oil Seeds & Pulses	2820	3804
7.	**FERTILIZERS SUPPLY (Nutrients in Lac Tonnes)**		
	N.	13.16	13.32
	P.	3.44	3.79
	K.	0.38	0.57
	Total	16.98	17.68
8.	**BIOGAS PLANTS**		
	No. of Biogas plants installed (family size)	245	147

9.	**SUGARCANE DEVELOPMENT PROGRAMME**		
	Sugarcane crushed (Lac Tonnes)	57.60	26.03
	Sugar produced (Lac Tonnes)	5.34	2.43
	Sugar Recovery (%)	9.31	9.30
10.	**OILSEEDS & PULSES DEVELOPMENT PROGRAMME**		
	Area (000 Hectare.)	87	84
	Production (000 MT)	99	99
11.	**Quality Control (Samples No's.)**		
	Seeds	21551	17470
	Fertilizers	3524	3146
	Pesticides	4913	3874