

# **Development of Agriculture Sector**

## **Introduction**

Bathinda is predominately an agriculture oriented district and majority of the population depends on agriculture for their livelihood. The soils of the district are suitable for growing different types of food crops, pulses, oilseeds and horticultural crops. There is ample scope for increasing the production and productivity of food crops and oilseeds by adopting new technology and package of new practices. In order to bring change in the farming system and to increase farmer's income, the department is implementing several agricultural development schemes.

The ongoing schemes are proposed to contribute with higher outlay for the next five years. For the ongoing schemes, the requirement of funds is estimated at Rs.2218.80 Lakhs for the next five years is given in the table- Further, Agriculture Department is planning to implement new/innovative schemes with projected outlay of Rs. 7762.95 lakhs in the district in order to create awareness and speedy adoption of new technologies resulting in quantum jump in the production and productivity of agricultural crops and also to increase farmers income by taking care of various issues related to land use, soil health, water resources & management, major crops and varieties in the district, management of various inputs, farm mechanization/farm equipments, special projects/programmers' ongoing, constraint analysis, recommended intervention with detailed action plan and cost, projected outcome & growth rate during the plan period and the researchable issues are discussed in detail.

## Land Use

Out of the cultivated area of 2.81 lakh ha. Wheat is the major crop in Rabi season occupying an area of 2.53 lakh ha. (90%). During Kharif season Cotton is the major cash crop with an area of 1.51 lakh ha. (53.74%) followed by Paddy with an area of 1.07 lakh hectares (38.08%)

### Trend in area under different Major Crops during the last 5 years district is as under

(Area- '000' ha)

Crop	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
<b>Kharif crops</b>						
Cotton	165	153	150	147	155	151
Paddy	86	97	104	107	101	107
<b>Rabi crops</b>						
Wheat	247	249	251	253	252	253
Rapeseed & mustards	2	3	2	2	2	2
Barley	2	2	2	2	2	2
Gram	0.2	0.2	0.3	0.3	0.2	0.2

## Soil Health

The soils of the district vary from sandy to clay loam in texture which makes it suitable for cultivation of a wide range of agriculture and fruit crops. Analysis of 16226 soil samples by three soil testing labs during 2012-13 reveals that the soils are low in organic carbon (75%), medium in phosphorus (69%), medium to high in potassium content (87%), low in Zinc and other Micronutrient cautions.

### Regarding Soil & Water Samples analyzed during 2008-09 to12-13

Year	Target	No of Soil Samples Analyzed	No of Water Samples Analyzed	Total No of Samples Analyzed
2008-09	25000	7588	2661	10249
2009-10	25000	4146	2658	6804
2010-11	25000	4392	1705	6097
2011-12	25000	9449	2016	11465
2012-13	25000	16226	4212	20438

## **Water resources and management**

Although there is no river passing through the district, the percentage of net irrigated area to the net sown area is 99.7% in the district. There are two canals namely Bathinda branch and Kotla branch of Sirhind canal system which irrigates 84.6% of the total irrigated area of the district, remaining 15.4% of the area is irrigated by 62718 Diesel & Electric Tube wells.

The analysis of underground water samples (4212) reveals that 20% samples are fit, 55% are marginal and 25% sample are unfit for irrigation purpose. The underground water in cotton growing blocks Sangat and Talwandi Sabo is of poor quality whereas in paddy growing blocks Rampura, Phul, Nathana water table is moving downward at the rate of about 70 centimeters annually which needs to be checked by involving water conservation techniques.

## Major crops and varieties in the district

Cotton, Paddy and the Wheat are the major crops of the district. The other crops grown in the area are oil seeds, grams etc.. Area covered by cereals is (65%) cash crops (cotton) (27%) pulses ( 0.09%) oilseeds (0.50%). Wheat (2.53 lakh ha.) and paddy (1.07 lakh ha.) are the major cereals grown. Among the oilseeds, rapeseed and mustard is grown on an area of 2000 hectares. Variety wise percentage of area of different crops is given in table

### Major Crops & Variety-wise area during Year 2012-13, in the district

Crop	Variety	% Area
Cotton	RCH-134	2
	6588	13
	6488	18
	M-6304	5
	M-6301	3
	Ankur	11
	Other Bt	46
	Other	2
	<b>Total</b>	<b>151</b>
Paddy	PR-118	60
	PR-116	6
	PR-111	4
	PR-114	3
	Pussa-44	24
	Basmati	3
	Others	7
	<b>Total</b>	<b>107</b>
Wheat	PBW-343	40
	PBW-502	50
	PBW-502	45
	PBW-373	8
	DBW-17	27
	HD-2967	45
	HD-2932	26
	Others &621	12
	<b>Total</b>	<b>253</b>
Oil Seed (Sarson)	RLM-619	1
	PBR-91	0.5
	H-401	0.3
	Others	0.2
	<b>Total</b>	<b>2</b>

## Input Management

The major inputs that are used in agriculture are seed, pesticides and fertilizer. These inputs are made available to the farmers through authorize dealers. In this district there are two Govt. seed farms producing about 800 qtl. Of wheat seed. Apart from this 11 private growers are producing about 85000 qtls. of wheat seed and 3000 qtl of paddy seed. Punseed a Govt. undertaking is also engaged in supply of seed of different crops. The seed is made available to the farmers through 415 registered seed dealers. The pesticides required for plant production measures is made available to the farmers through 594 retail dealers and through co-operative agriculture service societies. Supply of fertilizers is to made available to the farmer through IFFCO, KRIBHCO, Marked, Punjab Agro Food Grain Corporation and registered fertilizer dealers. IFFCO is operating through 2 Kissan Seva Kendra and 113 Co-operative societies. Marked is supplying this input through its 7 branches and 171 Co-Operative agriculture service societies. All of these are operating under the supervision of agriculture enforcement wing. To ensure the quality of the inputs special campaign are launched to draw samples prior to the season so that the quality inputs may be made available to the farmers. The arrangement, supply and distribution of the inputs is reviewed in monthly meetings with district administration. The total consumption of fertilizer in the form of N, P, K. of the district is 152 kg/ ha. The district wise consumption of these nutrients during 2008-09 is presented in table. Three soil testing labs analyzing soil samples for major nutrients and one micro nutrient testing lab are operating in the district to test the fertility status and quality of underground water for irrigation. These soil samples are collected from all the GPs. and the farmers are advised to apply the fertilizers judiciously on soil test basis.

### Year-wise consumption of Fertilizers/Nutrients from 2007 to 2013

Year	N	P	K	Total	Consumption (ha.)
2007-08	70354	18769	965	90088	162
2008-09	81294	28410	1745	111449	200
2009-10	71625	27681	1706	101012	182
2010-11	76068	25912	3480	105460	190
2011-12	59229	22744	2568	84541	152
2012-13	64015	25864	4500	94379	170

## Farm Mechanization/Farm equipment's

In present day agriculture machinery plays an important role in performing different operation right from preparation of land up to harvesting and post harvest handling and storage. A huge amount of money has been invested by the farmers for acquiring different type of machinery such as Tractors, Cultivators, Spray pumps, Thrashers, Fertilizer and Seed drills, combines, laser leveler, rotavator etc. This investment has proven to be a success in the form of savings in labour cost, time and efficiency in various operations. Machinery owned by farmers in the district includes Tractors-38184, Self Propelled harvest Combines -183, Tractor mounted Harvest Combines are 658 Electrical Tube wells -26616 & Diesel Tube wells-44748.

### Block wise information on availability of Farm Machinery up to 2011-12

Block	Tractors	Combines			Pump sets		
		Self propelled	Tractor operated	Total	Electric	Diesel	Total
Bathinda	8644	48	174	222	3002	11546	14548
Nathana	4536	43	157	200	4567	3823	8320
Sangat	5204	16	055	071	1900	4510	6410
T/Sabo	6494	07	024	031	0993	6816	7809
Maur	4435	12	042	054	1700	4866	6566
Rampura	3955	22	079	101	4375	5008	9383
Phul	4916	35	127	162	10079	8179	18258
<b>Total</b>	<b>38184</b>	<b>183</b>	<b>658</b>	<b>841</b>	<b>26616</b>	<b>44748</b>	<b>71364</b>