

DEVELOPMENT OF AGRICULTURE SECTOR

4.1 Introduction:

District Shahid Bhagat Singh Nagar has 2.4% (5,87,500) of the total population of the state which is around 2,43,59,000. Out of this, 506400 lives in rural area which constitute nearly 86 percent of the total population of the district. There are 57,400 cultivators and 28300 agricultural labourers in the district. The main occupation of the rural people is agriculture and livestock rearing. Paddy and wheat are the dominating crops of the district which occupies about 50,000 and 72,000 ha respectively. The other crops of the district are maize, sugarcane, sunflower, Mentha, pulses, and oilseeds. About 2% of the total sown area comes under fruit and vegetables crops. Pulses and oil seeds occupies a very small areas in the district. Live stock rearing has been and important component of farming system in the district. The main source of dairy products in the district is buffaloes.

4.2 Land use:

Out of the total geographical area of 1,26,148 ha of the district, cultivation is done in an area of 94,000 ha. Out of this cultivated area 82,000 ha area is under irrigation. The percentage of net area sown to total geographical area is 74 %. The area under different agricultural crops during 2007-08 is given in the Table 4.1.

Table: 4.1 Present status of different crops in the district. (Year 2007-08)

S.No	Crop	Area (ha)	Production (tones)	Productivity (quintal/ha)
1	Paddy	49660	198000	39.6
2	Wheat	71974	322000	44.8
3	Maize	16969	79000	46.4
4	Sugarcane	8211	50000	52.7
5	Sunflower	1526	2841	18.6
6	Mentha	2385	238	100 lit oil per hec
6	Pulses	915	1107	12.1
7	Other oilseeds	1525	2257	14.8

4.3 Soil Health:

The continuous cultivation of paddy – wheat cropping system in the district has created an imbalance of nutrients and degradation of soil health. The soil health of the district is of medium fertility. Out of total soil samples analyzed 36 percent in organic, 34 percent available nitrogen and 28 percent in available of the soil is low in organic carbon, available nitrogen and available phosphorus. Surveys/studies conducted by Punjab Agriculture University, Ludhiana in some villages of the district have reported Selenium toxicity. Due to intensive cultivation, micronutrient status of the soils is also depleting and reports of deficiency of iron, manganese and zinc have been reported. Block wise data on different soil indices is given in Tables 4.3 and 4.4

Table 4.2: Soil Testing Laboratories in the District.

(Latest data)

Soil Testing Laboratories Under	No. of Soil Testing Laboratories			Annual Analyzing Capacity	No. of Samples Analyzed	No. of Soil Testing Laboratories having Annual Analyzing System
	Static	Mobile	Total			
Govt. Sector	5	0	5	50000	20924	-
Co-operative & Public U-taking	0	0	0	-	-	-
Private Sector	0	0	0	-	-	-
Total	5	0	5	-	-	-

Table 4.3: Soil Fertility Indices (2008-09)

Block	No. of Soil Samples analyzed	Soil pH			EC (dS/m)			Organic carbon (%)		
		Acidic	Neutral	Alkaline	Low	Medium	High	Low	Medium	High
Nawanshahr	10098	-	10098	-	-	10098	-	3187	5484	1427
Banga	1725	-	-	-	400	1190	135	900	825	-
Aur	5014	14	500	-	-	5014	-	2141	1672	1201
Balachaur	2500	-	2500	-	971	1273	316	911	1273	316
Saroya	1587	-	1587	-	-	1587	-	479	887	221
Total	20924	14	14685	-	1371	19062	451	7618	10141	3165

Table 4.4: Soil Fertility Indices (2008-09)

Name of Block	Available Nitrogen (kg/ha)			Available Phosphorus(kg/ha)			Available Potash (kg/ha)		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
Nawanshahr	3187	5484	1427	2842	5172	2084	-	-	-
Banga	400	1190	135	550	1085	90	-	-	-
Aur	2141	1672	1201	1262	1743	2009	-	-	-
Balachaur	911	1273	316	772	1306	422	-	-	-
Saroya	479	887	221	427	765	695	-	-	-
Total	7118	10506	3300	5853	10071	5300	-	-	-

4.4 Water Resource & Management:

The proper development of land and water resources is pre-condition for raising productivity to the desired level on sustainable basis. As for ground water resources are concerned good quality water is available except near the vicinity of some factories on Nawanshahr – Chandigarh road in Balachaur blocks and in some villages of Nawanshahr and Saroya where Selenium toxicity is observed in irrigation water. The soils are neutral to alkaline. Nearly 87 percent of the cultivable area in the district is under irrigation. The entire unirrigated area falls in Kandi area of the district. Main source of irrigation is through tube wells and little by canal. The area under tube well irrigation is increasing at much faster pace than the increase in area by canals over past years mainly because of installation of deep tube wells in Kandi area of the district. However, there remains problem of irregular and insufficient water supply by canals and erratic power supply to the tube wells even at critical stages of crop growth. The problem affecting the tube well irrigation in all parts of the district is due to depleting water table. The bore wells are becoming dysfunctional due to decreasing water table and compelling the farmers to install submersible pumps which cost much more than bore-wells. The data on percent irrigated area is given in Table 4.5.

Table 4.5: Gross Cropped Area to Gross Irrigated Area in the District.

Year	Gross Cropped Area (ooo, ha)	Gross Irrigated Area (ooo, ha)	% Irrigated area to cropped area
2003-04	177	161	90.9
2004-05	177	161	90.9
2005-06	171	156	91.2
2006-07	175	162	92.6
2007-08	176	163	92.6

Table 4.6: Net Irrigated Area to Net Sown Area in the District.

Year	Net Cropped Area (ooo, ha)	Net Irrigated Area (ooo, ha)	% Net Irrigated area to Net sown area
2003-04	92	79	85.8
2004-05	92	76	82.6
2005-06	94	83	88.2
2006-07	94	82	87.2
2007-08	94	82	87.0

4.5 Major crops and varieties in the district:

Paddy, wheat, maize, sugarcane, sunflower and forage crops (Berseem, Bajra and Sorghum) are the major crops of the district. There is 100 percent area of wheat, rice and sunflower under high yielding varieties. The area under maize hybrid varieties is about 17000 ha and rest is under local cultivars of maize. The details of crops and their varieties cultivated in the district during 2008-09 are given the following Table 4.7.

Table 4.7: Major Crops and Varieties cultivated in the District.

S.No	Crop	Varieties
1	Paddy	Pusa-44, PUSA-47, PR 108, PR-112, PR-113, PR-114, PR-118, HKR-127, PR-119, HKR-47, PUSA-1121, PAU-201, Snow White, Super Basmati, Pioneer 26P26, PHB 71
2	Maize	PAC-712, PAC-740, PAC-781, 30V92, 31Y45, NK 6240, NK 61, NK 21, SUVARNA NMH 589, KAMDHENU NMH 234, AJAY NMH 145, PMH-2JH-3459
	Wheat	PBW 550, PBW-343, PBW 509, PBW502, PBW502, WH-711, HD-2687, HD-2733, WH-147, PBW-373, DW 317, HD 2851, PBW 527
4	Sugarcane	COJ-85, COJ-83, COJ-64, COJ-88, COS-8436, COJ-89, CO-1148,
5	Sunflower	PAC-36, PAC-8699, PAC-1091, 64A57, 64A84, 65A41, Sunbred-275, SRESHTA NSFH-36, SWATHI NSFH-145
6	Mustard	GSL-1, GSL-2, Hyola PAC-401,
7	Berseem	BL-42, BL-10,
8	Sorghum	SL-44
9	Bajra	PHB-47, PCB-164
10	Raya	RLC-1, PBR-97, PBR-91, RLM-619

4.6 Input management:

The production and productivity of crops is greatly affected by the inputs. Due to the rising costs of inputs and reducing farm profitability, emphasis will have to be an efficient and judicious use of improved seeds, fertilizers and pesticides to accelerate agriculture growth. At present, there exists a big gap between the productivity and potential of the crops in the district. The main agricultural inputs are seed, fertilizers and pesticides.

4.6.1 Seed:

One of the most critical inputs is availability of quality seeds. The government agencies (Agriculture Department, Co-operative sector) and private companies through their dealer network assure the supply of quality seeds during each season but the demand for quality seed always remain. The most important crops of the district, paddy and wheat are having 10 - 15 % of Seed Replacement Ratio (SRR) against the recommendation of at least 30 percent per annum. In case of maize SRR is about 75–85 percent due to cultivation of hybrid cultivars. Thus, there is ample scope of SRR with regards to boost the productivity of major crops. The availability of seed and its enhanced replacement can be ensured by involving farmers in seed production process with active help from public and private sectors.

4.6.2 Fertilizers

Fertilizer is another input that directly affects the quality and productivity of crops. The farmers are well aware about the fertilizer use in various crops. There is an effective distribution system of fertilizers in the district. Farmers are mainly concentrating on application of N, P and Zinc fertilizers where as the deficiency of micronutrients are affecting the yield and productivity of crops in most parts of the district. There are five soil testing laboratories in each block of the district where soil samples are tested for major nutrients except at Nawanshahr lab where both major and micro-nutrients are tested. Farmers need awareness regarding balanced fertilizer use, potash use and micronutrients to enhance productivity and quality of the product without depleting soil health.

The adoption pattern of different nutrients (Crop wise for year 2008-09) in major crops based on the survey conducted is given below in Table 4.8.

Table: 4.8 Crop wise NPK Consumption (Year 2008-09)

Block	Major	Fertilizer Consumption (kg/ha)
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	crops	N	P	K	Total
Nawanshahr	Maize	125	62	20	207
	Paddy	125	30	-	155
	Wheat	125	62	20	207
	Sugarcane	180	60	-	240
Banga	Maize	128	62	26	216
	Paddy	135	32	28	195
	Wheat	130	65	25	220
	Sugarcane	155	20	-	175
Aur	Maize	125	60	30	215
	Paddy	125	30	30	185
	Wheat	125	63	30	208
	Sugarcane	225	-	-	225
Balachaur	Maize	125	63	20	208
	Paddy	125	30	-	155
	Wheat	125	63	-	188
	Sugarcane	200	-	-	200
Saroya	Maize	87	30	-	117
	Paddy	125	60	-	185
	Wheat	90	50	-	140
	Sugarcane	125	-	-	125

4.6.3 Pesticides:

Crop disease and insect pests and weeds are other major problems is achieving optimum yield for all major crops. The farmers are blindly dependent on chemical control with high doses for more concentrated form of chemicals and ignoring other management practices and strategies. The improper management of these control measures often results into increased cost of cultivation without corresponding increase in yield and quality. Urgent steps are required to be taken for promoting

integrated measures for control of insect/pest, disease and weeds control which are in tune with sustainability and profitability without enhancing cost.

4.7 Farm Mechanization/Farm Equipment:

The management of agriculture production system essentially involves effective management & timely completion of production operations. The use of mechanical power is thus becoming indispensable for making an optimal use of other resources and timely completion of various farm operations. Farm mechanization has also been helpful in improving productivity of different crops, time saving, timely farm operations, resource conservation and protection from natural calamities. With the introduction of various other farm equipments the number of threshers, rotavators, zero-till machines, straw reaper, harvester, etc. are on the increase in district. In spite of the increased number of farm machinery and implements, there is greater scope of sustainable productivity enhancement of field crops through more extensive use of the existing as well as other machinery like laser leveler, bed planter, power tiller etc. To meet the future demand of agriculture machinery (especially the costly one) these would be substantially cheap and affordable for even small farmers either by purchase by making a society or by making Agro-Service Centre or by custom hiring. There are 225 Zero-till Drills, 162 Rotavators, 22 Laser Land Leveler, 2 Happy Seeders, 5 Power Tillers, 8 Bed Planter, 65 Potato Digger and 121 Potato Planters.