DRAFT PLAN

COMPREHENSIVE DISTRICT AGRICULTURE PLAN (C-DAP)

DISTRICT FARIDABAD HARYANA

COMPREHENSIVE DISTRICT AGRICULTURE PLAN (C-DAP) FOR RASHTRIYA KRISHI VIKAS YOJANA OF XITH FIVE YEAR PLAN

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DISTRICT FARIDABAD

HARYANA

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CHAPTER I

INTRODUCTION

The economic reforms commenced in 1991 **have** successfully put the economy in a higher growth orbit with more than 8 percent growth rate in total Gross Domestic Product (GDP) especially during the recent years. However, the agriculture sector which accounted for more than 30 percent of total GDP at the beginning of reforms failed to maintain its pre-reform growth. On the contrary, it witnessed a deceleration in growth after the mid 1990s as the per annum growth in agriculture sector dropped to 1.9 percent during 1996-97 to 2001-2002 from 3.2 percent in the period 1980-81 to 1995-1996. This happened despite the fact that agricultural productivity in most of the states was quite low, as it were, and the potential for the growth of agriculture was high. The 10th five year plan target of growth of 4 percent per annum in agriculture and allied sectors, set to reverse the sharp deceleration of 1996-1997 to 2001-2002, has not been achieved. The approach paper to the 11th plan also emphasized that reversal of the deceleration in agricultural growth witnessed after 1996 is a pre requisite for the success of this plan. A sustained and wide spread agricultural growth is a pre-condition of development in India as more than 50 percent of country's work force still depends upon agriculture for its livelihood. This slow growth in agriculture (including allied sectors) can be of great strain for the economy as agriculture is not only an important driver of macro- economic performance; it also is an essential element of the strategy to make growth more inclusive. Concerned over this pace of growth in agriculture and allied sectors, the National Development Council (NDC), in its meeting held on 29th May, 2007 resolved that a special Additional Central Assistance Scheme i.e. National Agriculture Development Programme/ Rastriya Krishi Vikas Yojana (RKVY) be launched with following main objectives.

- ► To incentivize the States for increasing public investment in agriculture and allied sectors

- ► To ensure that agricultural plans of Districts/States are prepared and are based on agro- climatic conditions, availability of technology and natural resources.

- ► To reduce the yield gap in important crops and increase production and productivity in agriculture and allied sectors through focused and holistic initiatives.

- ► To ensure that local needs/crops/priorities are better reflected in the agricultural plans of the Districts/States.

- ► To provide flexibility and autonomy to States in planning and implementation of agriculture and allied sector schemes.

- ► To maximize income of farmers in agriculture and allied sectors.

The eligibility for assistance from the Centre under the scheme would depend upon the State Government providing amounts in the Plan Budget of the State for agriculture and allied sectors over the baseline expenditure.

As per the NDC resolution, Government of India introduced a new Additional Central Assistance Scheme to incentivize States to draw up plans for their agriculture sector more comprehensively, taking agro-climatic conditions, natural resource issues and technology into account, and integrating livestock, poultry and fisheries as a farming system approach. This involves a new scheme for Additional Central Assistance (ACA) to State Plans, administered by the Union Ministry of Agriculture over and above its existing centrally sponsored schemes, to supplement the state-specific strategies. In order to rejuvenate the agriculture during XIth plan a growth rate of 4 percent per annum has to be achieved (as per NDC commitment) by reorienting development strategies that meet the needs of the farmers. The agriculture growth being essential element of the strategy of making growth more inclusive, the NDC advised the State Governments on preparation of Comprehensive District Agriculture Plans (C-DAP) which includes allied agriculture sectors with full and efficient utilization of available resources.

The concept of integrated local area plans to raise living standard in rural area and overcome food shortage based on specific endowments and needs of each area was initially mooted in 1st Five year plan in 1951,which could not be materialized in true sense as only sporadic efforts and isolated cases of such planning were practically attempted. For success of local area or District level plans, the underlying constraints needed to be identified and required infrastructural investment, extension (and research

system) revamping and market reach with the system's conduct and performance have to be synchronized through a holistic policy approach. The Agriculture in the district can't possibly achieve same growth as in the past without recognizing the role of farmer's participatory approach for formulating strategies and finding solutions to new and emerging problems. Similarly due to globalization, trade in agriculture will expand and the district like Faridabad can hugely benefit when the trade expands and our farmers start making best use of such changes by becoming as secondary producer rather than a primary producer of agriculture commodities. Reforms based on globalization can now pave the way for commercial dairies and subsidiary occupations. The demographic changes due to fast urbanization and slow down in the population will bring greater prosperity in the middle class families. This will lead to some diversification in food habits leading to more animals and requirement of more cereals for animals. Food demand will go up not purely because of population rise but also because of more requirement of cereals as animal feed. Although in district like Faridabad where land used for agriculture will decease but still there is no reason to believe that agriculture productivity has reached its plateau. New science like GM crops, and new approaches like resource conserving technologies will always help us to face new challenges in agriculture development.

Keeping this in view the C-DAP of district Faridabad is prepared on the basis of primary and secondary data of the district for achieving sustainable agricultural growth with improved farmers' income through participatory process involving stakeholders and various organizations. By establishing strong linkages with required institutional support services the plan will ensure optimum utilization of scarce natural, physical and financial resources.

Methodology

The C-DAP was prepared as per the process and methodology suggested by the Planning Commission, Government of India. The approach followed in preparation of the document was necessarily of Participatory Appraisal mode. CCS Haryana Agricultural University, Hisar, Haryana was identified as Technical Support Institute (TSI). The TSI, under the guidance of Director, Extension Education, provided all necessary technical help to planning units and support groups for preparation of this plan through participatory bottom-up process. The TSI trained the Planning Units/ Groups in

Participatory Rural Appraisal techniques, designed formats for data collection, guided in data collection and analysis and conducted regular workshops and meetings and did hand holding where ever needed for plan preparation.

The responsibility of preparing C-DAP of Fariodabad district was given to Krishi Vigyan Kendra, Bhopani, Faridabad. The KVK team, after receiving proper training from TSI held wide consultations with District/ Block/ Village Agriculture Planning Units of the District. The TSI conducted two days orientation workshop-cum-training programme on 30.3.08 and 31.8.08 at CCSHAU, Hisar. The following specific aspects were covered in the programme.

- Issues and challenges in Agriculture sector
- Planning concepts and district Planning
- Basic features and planning process of RKVY
- Vision, methodology and process of preparing C-DAP
- Participatory Rural Appraisal
- Farming system approach
- Farming situation based extension
- Integrated nutrient management(INM),Integrated pest management(IPM), Natural resource management (NRM),Human resource development(HRD), Marketing and other important aspects.

Data collection and consultation: The KVK team, after receiving proper training from TSI, held wide consultations with District/ Block/ Village Agriculture Planning Units of the district (different bodies/institutional arrangements under ATMA Scheme). Formal and informal meetings with Agriculture and line department staff and Panchayati Raj Institution's member were conducted at different levels. Collected secondary data and related statistics needed for planning from different departments and other sources.

Primary Data: For in-depth farm/ village level study covering important aspects of agriculture and allied fields, the district was divided into two distinctively Agro-eco-situations (AESs) as was done for SREP preparation under ATMA Scheme. From each AES one representative village (Kabulpur banger from AES-I and Asawata from AES-II) was selected for collecting required information on modified semi-structured schedules through PRA.

Con-current review and verification of data: The primary as well as secondary data collected was cross-checked through triangulations and verified from information available with different government departments and PRA based exercises (earlier conducted by KVK and other agencies). The District Plan (draft), SREP and PLP of Faridabad district and other related documents/reports of different departments were consulted for preparing the C-DAP.

Holding farmer meetings at villages selected for representing AESs in the district

PRA was conducted covering the whole gamut of activities ranging from pre-sowing to post-harvesting and marketing related to agriculture and allied activities being undertaken by the villagers.

Work plan and activities before the preparation of plan-

- Meeting of resource team of KVK with line departments heads and officers and PRI's representative

- Discussed the farmer participation evaluation, time frame, activities and responsibilities of all involved in the plan.

- Discussed the plan and expected output from five year plan in progress. The stake holders were made clear about subsidies for seed, fertilizer and other inputs. Gaps that exist in achieving the targeted productivity growth across farmers' categories were identified through participatory process. This provided a sound base in developing and recommending Comprehensive District Agriculture Plan (C-DAP).

Following discussion were held-

- The current priorities were discussed with farmers. The promising new practices were identified and agreed upon with them. Responsibilities of all stake holders and surveyors were elaborated with staff.

Before meeting-

- The PRA schedule based on the past experiences and data required regarding the farmers' need was prepared.

- Important points for discussion containing proposed change in the practices (of management, varieties, site specific nutrient management, IPM, seed, soil health and allied activities) were included and the proforma for Gram Panchayat given in C-DAP manual was modified accordingly. The schedule was made simple and easy to understand.

During meeting-

- The meetings were ensured to be informal. The farmers were encouraged to participate, interact and make their own fair appraisals in the meeting. Lecture type meeting was avoided. Farmers were informed about the objective of the meeting. The dialogue was started; the gap analysis and current scenario regarding productivity, profitability and risks associated with different farming systems were discussed.

The possible changes targeted in the management practices were:

- Field preparation-zero tillage, bed planter, laser leveler

- Crop establishment-plant population, seed rate etc.

- Nutrient management-N and P rate, time, source, use of organic manure, basal and top dressing of fertilizer, application of K and micronutrients.

- Important pests based on economic importance including insects, diseases nematodes and weeds.

Measures which improve the efficiency of inputs including water (by improving water productivity), energy (by reducing energy intensity like less fuel and less electricity) and labour(mechanization).It has to be a campaigning tool and also a guide to policy.

To improve both productivity and profits and to generate rural employment, another option might be to reset the system approaches from a commodity approach to cropping system approach (Rice-wheat cropping system rather than rice or wheat as a separate commodity) and from cropping system approach to a farming system approach (Wheat-Buffalo).

- Farmers and scientist came to general agreement on what to do to fill the gap on crops and allied activities.

Discussed about the proposed design, trials, Front line demonstration(FLDs) and other activities in a farming system approach keeping in view the following-

(i) Profitability of cropping system and the rate of return. In order to achieve the rate of return, long term family support is suggested.

(ii) Mmarket infrastructure and marketing opportunities, custom hire services and some of the policy issues related to subsidy.

(iii) Farmers' inability to invest in the productivity improvement as majority of farmers belonged to resource poor category.

(iv) Work plan and activities for landless and resource poor farmers.

(v) Collected and discussed the feed back regarding On-Farm and Off- Farm activities.

(vi) Crop insurance and cyclical assistance were also discussed.

(vii) Action Plan

CHAPTER - II

GENERAL DESCRIPTION OF THE DISTRICT

2.1 Introduction:

District Faridabad is considered to be the Industrial hub of Haryana State and it extends between $27^0$52'-$28^0$23'N latitude and $77^0$06'-$77^0$32' E longitude in the South-East of Haryana State. District Faridabad was carved out of Gurgaon District on 15th August 1979. It is bounded by the National Capital of Delhi in North and district Gurgaon in the west. In east, the district shares boundaries with the state of Uttar Pradesh and in south newly constituted Mewat district. It is located in the southern part of Haryana with a perennial river, Yamuna, on its east.

For administrative purposes, the district is divided into 4 sub-divisions viz. Faridabad, Ballabgarh, Palwal and Hodal and 5 blocks viz. Faridabad, Ballabgarh, Palwal, Hodal and Hassanpur. The district has 347 villages, all of which are electrified.

Topography

Most of the land area of the district is plain (89%), while the rest of the area is undulated. These plains slope towards south-south east.

Climate

The district falls under the semi-arid climatic zone with extremes of temperature (3.5^0C-46^0C) in winter and summer during 2006-07. May and June are the hottest months of the year, while January is the coldest month. Average annual rainfall is 400mm, with an average relative humidity of 53 percent.

Soils Type

The soils of the district are light to medium in texture with pH from 7.6 to 10.0. Sandy loam (70000 ha), loam (45000 ha), sandy (20000 ha), salt affected soils (5000 ha) and water logged (2000 ha) are found in the district. The soils are alluvial and mostly calcareous. The soils are low in nitrogen, whereas status of available phosphorus is low to medium. Majority of the soils are medium to high in available potassium. The light soils

are marginal and deficient in iron and sulphur while zinc deficiency occurring in most of the soils. The major problems of soils are salinity and alkalinity, impeded drainage, water logging, low fertility and brackish underground water.

Water Resources

The average underground water level ranges from 1.4m in Ballabgarh block to 25-65 m in Faridabad block. District Faridabad has 35 per cent good quality water, 10 per cent marginal and 55 per cent poor quality underground water. Tubewells and pump sets are the main source of irrigation catering to about 77 per cent of the total cultivated area. Rest 23 per cent is irrigated by Gurgaon and Agra canals. These canals generally do not run to their capacity. Water of these canals carries effluents and sometime toxic contents of heavy metals in the water is high which is very detrimental to soil health, crops, human beings, animals and birds.

Land Utilization Pattern:

The geographical area of the district is 1, 72,167 ha, out of which the net sown area is 1,21,666 ha, which is 95 per cent of the total cultivable area (128100 ha).

Existing Farming Systems

The predominant farming system at present is agriculture plus animal husbandry. Rice-wheat cropping system (RWCS) is the predominant cropping system. Other cropping systems being followed in the district are; pulses-wheat, sugarcane-wheat, sorghum-wheat, bajra-wheat, vegetable-wheat, All farmers and non-agriculture labour rear animals. Rice and wheat yields have shown intermittent periods of stagnation. **During last two years (2006-07; 2007-08), there has been an improvement in the productivity of RWCS mainly due to better agronomic management**

Agriculture

Area, production and productivity of important crops grown in the district in year 2006-07 is given below:

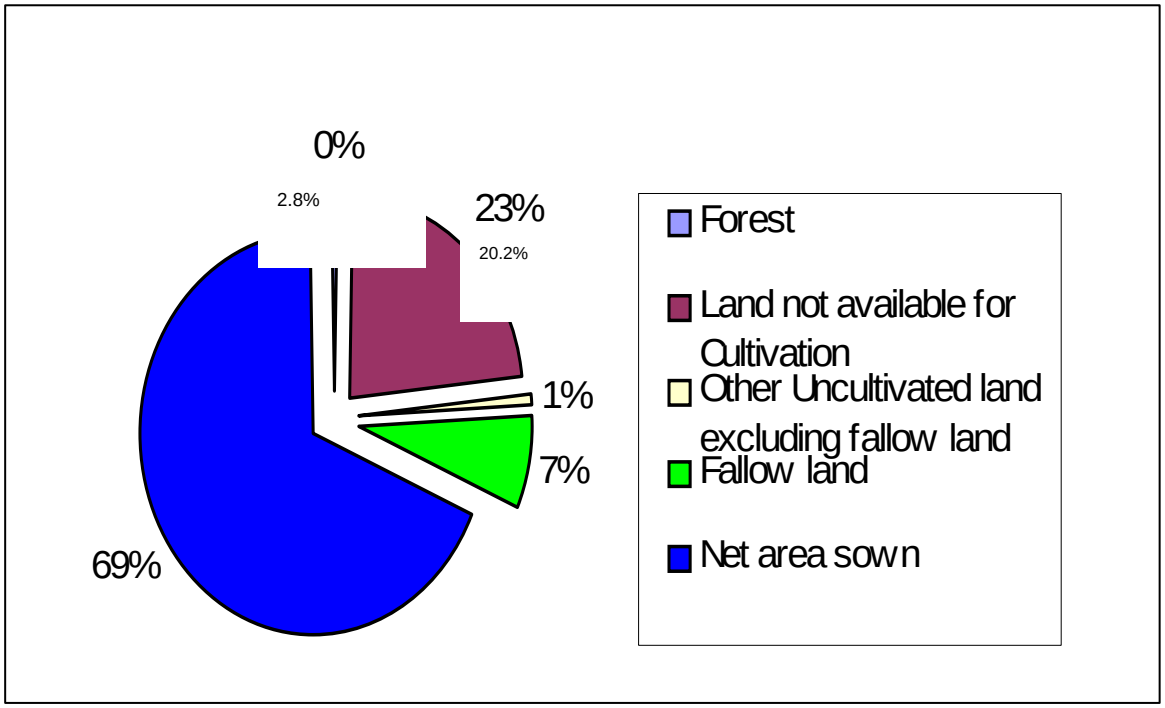
Crop	Area (00’ ha)	Production (00’ ton)	Productivity (kg/ha)
Rice	263	630	2395
Jowar	122	23	188
Bajra	67	79	1179
Wheat	1090	4224	3875
Barley	14	37	2642
Total Pulses	70	27	385
Total Oilseeds	38	43	1131
Sugarcane	59	243	4119

Horticulture

Main vegetable crops grown in the district are potato, cucurbits and cauliflower covering an area of 540 ha, 2793 ha and 900 ha, respectively. The major fruit crops of the district are Guava, Ber, Aonla and Citrus and total area under fruits was 677 ha. (2006-07).

Forestry

The area under State Forests in the district is 50.75 sq. km. which is 2.84 per cent of total geographical area of the district. Due to intensive agriculture in the district the forest area is mainly restricted under Govt. lands including the roadside and canal side plantation.



Agricultural Implements and Machinery

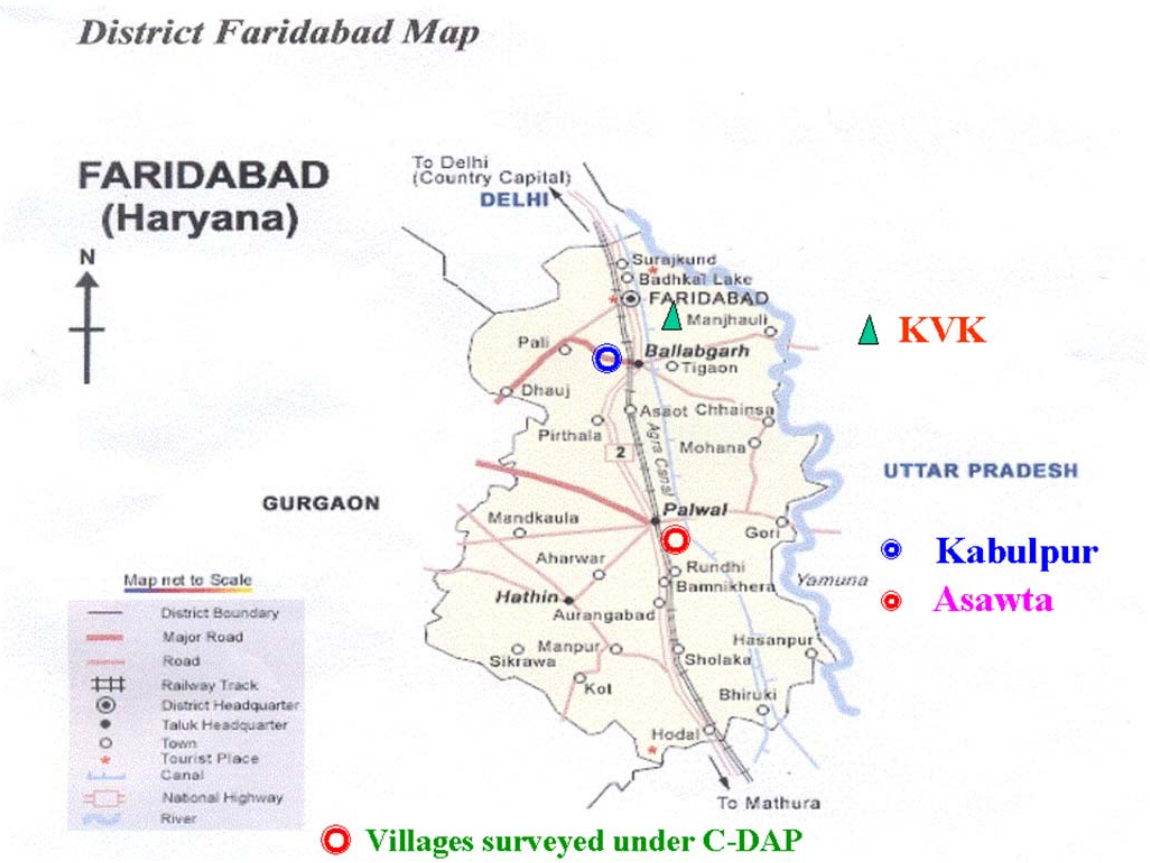
There are 11931 tractors, 11931 harrows, 320 zero till machines, 2024 seed drill, 7641 seed cum fertilizer drills, 1510 threshers, 69 harvesters, 133 straw reapers, 2 laser levelers, 2 potato planters and 10 vegetable washers.

Animal Husbandry

As per 18th livestock census 2007 the number of buffaloes, cows, sheep, goat and poultry are 362216, 69156, 15539, 24363 and 7760, respectively.

Industries

Faridabad is an Industrial town with a total of 4662 small scale industries (SSI) units in 2006-07, providing employment to 36956 man power. There are 2742 engineering, 810 automobile 963 sheet metal, 78 agriculture implements and 69 wooden furniture units.



DEMOGRAPHIC DETAILS

1.		Geographical Area (Sq. Km.)	1721.67
	a)	No. of Blocks	5
	b)	No. of villages (inhabited)	334
	c)	No. of villages (electrified)	334
	d)	No. of villages connected by all weather roads	
2.		Rainfall (mm)	2005 2006 2007 470.5 317.0 522.4
3.		Climate	Extremely hot and dry in summer and very cold in winter
4.		Population (2001)	
	a)	Male	1084138
	b)	Female	906587
	c)	Total	1990725
	d)	Population Density per sq. km.	1156
5.		Classification of workers	
	a)	Cultivators	139785
	b)	Agricultural Labourers	59990
	c)	House hold / cottage Industries	22137
	d)	Other Works	473572
6.		Land Utilization (in Hectares)	
	a)	Geographical area (as per village papers)	172167
	b)	Total cultivable land	128100
	c)	Net Sown Areas	121666
	d)	Forest Land	5075
	e)	Barren Land	1000
	f)	Land not available for cultivation	42000 ha
	g)	Area brought under summer moong	10000 ha
	h)	Cropping intensity	181%
7.		Size of holdings No. (Agriculture Census – 2000-01)	Area
	a)	Less than 1 Ha 30689	215416

	b)	Between 1.0-2.0 Ha	16498	21028
	c)	Between 2.0-4.0 Ha	8028	18121
	d)	Between 4.0-10.0 Ha	4121	14763
	e)	Above 10.0 Ha	6808	46325
		Total	86144	121753
8.		Irrigation (in Hectares)		
	a)	Net Irrigated Area		112491
	b)	By Canals		25630
	c)	By Tube wells		86861
9.		Consumption of Chemical Fertilizers & Pesticides (ton)		
		Nitrogen		33318
		Phosphorus		10058
		Potash		887
		Pesticides		207728 kg.
10		Agriculture Support facilities		
	a)	Seed / Fertilizers / Pesticides Depots		1019
	b)	Rural Markets / Mandies		
		Regulated markets		5
		Sub-yards		2
	c)	Rural Godowns		189
	d)	Cold Storages		3
11		Animal Husbandry 18th Census (2007)		
	a)	Other animals		20398
	b)	Dairy Animals		
	(i)	Cows		69156
	(ii)	Buffaloes		362216
	c)	Sheep		15539
	d)	Poultry Birds		7760
	e)	Goat		24363

The Vision

The advent of Green revolution technology has facilitated substantial shifts in acreage in Faridabad district towards rice and wheat with high level of crop intensification. The significant increases in the productivity (data discussed else where) of rice and wheat crops were brought about by technological improvements backed by effective price support and public stocking policies. These developments put the region's agriculture Faridabad district included) on high growth path resulting into fast increase in the area under rice and wheat crops not only by substituting other crops but also through horizontal and vertical expansion in the cultivated area. **The productivity growth rate in both crops has now slowed down**. There are wide concerns about the depletion of ground water level, degradation in soil fertility, accumulation of salts due to use of brackish water, rising problems of insect-pest and disease complex, decline in bio-diversity, rising costs and diminishing economic returns, decline in total factor productivity, declining and fragmented small holdings and narrow economic base of the farmers.

In many crops, evolution of new varieties by public sector has not kept pace with the speed with which the private sector has evolved hybrids and even GM crops. This is because the investment has not kept pace with the new and emerging problems that face today's agriculture. Proper linkages and synergies will have to be developed to release new varieties, hybrids and GM crops. The first round of green revolution has to be accompanied by a second-round revolution by concentrating on improving the efficiency of whole farming system. The relative productivity growth rates in respect of agriculture and subsidiary occupations have to targeted to make the case for food security on sustainable basis. This concept of multiple land use and/or a diversified farming system can help to improve profits, also to keep a pace with the decrease in the availability of land. Sporadic success was achieved by relatively small number of farmers as the approach of crop enterprise concentration moved towards integration of some other enterprises. Notables are instances of integration of vegetable and mushroom cultivation and up to extent poultry and fish farming where farmers have achieved commendable success. In many situations, majority of the farmer are experiencing problems associated with sustainable productivity and profitability because there is always a component of risk due to lack of knowledge and skill in management and marketing.

The ever increasing cost of production and dependency on purchased inputs can effectively be reined in by adopting this approach through enhanced use efficiency of different critical inputs in crop enterprises (multiple) with judicious combination of one or more allied enterprises complimenting each other through effective recycling of residues, wastes, by products or the products itself. The allied enterprises are important part of the farming systems. Both price and income elasticity's of demand for most of these enterprise's products are high. There is huge unfulfilled demand far these products. There exists high potential for increasing the yield rates of these enterprises as the gap between present productivity (in the district) and the achievable yield and potential yield is quite large..

The productivity of crops showed consistent improvement since the green revolution era, but signs of stagnation in the productivity have started appearing. Farmers depending heavily only on crops based farming are more likely to get into trouble than those farmers who have better spread across farming systems and subsidiary occupation. Due to large scale urbanization around Faridabad, the diversification in favour of vegetables, flowers dairying is a pressing need. Liberalization in agriculture will increase the average price for food and it may remain more volatile. What's needed now are farming methods that use less overall energy and water, and those food items which can be grown closer to the market. There is very little arable land is available, creating new cropland is not possible. The natural resources like land and water have to be rebalanced by introducing new technologies that save water and improve soil health. Proportion of nutrients that plants need will have to be managed through crop residues. The period of growth in some crops like wheat will have to be lengthened to survive the terminal heat.

VISION STATEMENT

To give stimulus to productivity growth in agriculture and allied areas through a more sustainable natural resource use.

Priority Setting

- Soil reclamation by gypsum, FYM, Vermicomposting and green manuring through dhaincha.
- Judicious use of problematic water.

- Popularizing resource conserving technologies(RCT) through seed grading, laser leveling, zero tillage, bed planting summer moong cultivation and water harvesting.
- Use of IPM in paddy, IWM in wheat and INM in all crops.
- Adoption of agro-based vocations.
- Introduction of agro forestry and horticulture in farming system and management of marginal land.
- Dairy management, mineral mixture feeding, breed improvement, de-worming, and fodder production and preservation.
- Food preservation and knowledge up gradation of farm women.

CHAPTER - III

SWOT ANALYSIS OF DISTRICT FARIADBAD

Swot analysis is a modern management tool to analyse the Strengths, Weaknesses ,opportunities and threats of an organization in order to make the organization more productive and efficient.

Strengths

1. District is strategically located near National Capital New Delhi.
2. Well connected by road and rail and villages have metallic roads.
3. Well developed grain and vegetable markets.
4. Availability of inputs viz. seeds fertilizers and pesticides in nearby markets.
5. A cooperative sugar mill at Palwal with daily capacity of 1250 tones.
6. A very good liaison with other line departments.
7. Actively working kisan clubs are in good number in the district.
8. Fodder is available throughout the year due to assured irrigation facilities.
9. Self help groups (SHGs) are available in good number.
10. Two bakery units making bread and rusk.

Weaknesses

1. Sixty-five per cent underground water is of marginal and poor quality.
2. Soils are sandy, light coloured, calcarious and salt affected.
3. Rice-wheat crop rotation may result in over exploitation of underground water in the district in coming years.
4. Less adoption of inter cropping e.g. Onion-Sugarcane, Sugarcane- Potato, Sugarcane – Raya.
5. Non-maintenance of farm records by the farmers.
6. Erratic power supply.
7. Non-availability of hybrid seeds in pulses.
8. Farmers are reluctant to adopt agro-forestry.
9. Farmers are not much interested in fish farming.
10. Poor management of cow dung and crop residues.

11. Shortage of labour during peak period of farm operations.
12. Less adoption of IPM, INM and IWM.
13. Technological gaps in agriculture and allied fields.
14. Lack of water harvesting and management practices.
15. Non-availability of post harvest facilities.
16. Non-availability of Inforation and communication technology i.e. e-chaupal at village level.

Opportunities

1. Agriculture wastes available in abundance which can be recycled to improved soil health and mushroom cultivation.
2. Network of cooperatives.
3. Good marketing infrastructure.
4. Technologies are available for oilseed crops, floriculture and mushroom cultivation.
5. Substantial demand for milk and milk products, vegetables, flowers and mushroom in NCT, Delhi.
6. Management of marginal lands by Neem, Maha Neem and Kikar (acacia) plantation.

Threats

1. Rapid increase in urbanization in the past three years.
2. Insignificant crop diversification due to popularity of rice-wheat crop roration.
3. Presence of affluents and toxic contents of heavy metals in Gurgaon and Agra canals and their not running in full capacity.
4. Decreasing rainy days every year.
5. Inclusion of oilseeds in present crop rotation is not much because of severe problem of 'Neel Gai'.
6. Markets are flooded with spurious inputs viz. seeds, weedicides and insecticides.

CHAPTER – IV

DEVELOPMENT OF AGRICULTURE SECTOR

4.1 Introduction:

Faridabad is the largest populated district of the state, with a total population of 1990719. The majority of the population is engaged in agriculture. The major crops of the district are wheat, rice, sorghum, bajra & sugarcane. Rice-wheat cropping pattern is predominant because of 100% irrigation facilities.

4.2 Land use:

There is 121666 ha area under cultivation of different crops. The percentage of net area sown to total cultivable area is 95 percent. Wheat, rice, ,raya,sorghum,bajra and sugarcane are the major crops grown in the district. The area under different agricultural crops is given in Table.

Table –: Present status of different crops in District Faridabad (Year 2006-07)

Sr. No.	Crop	Area (000 ha)	Production (000 tonne)	Productivity (kg / ha)
1.	Wheat	109	422.4	3875
2.	Rice	26	63	2395
3.	Sorghum	12	2.3	188
4.	Bajra	6.7	7.9	1179
5.	Sugarcane	6.0	24.3	4119

4.3 Soil Health:

The soils are alluvial and mostly calcareous. The soils are low in nitrogen, whereas status of available phosphorus is low to medium. Majority of the soils are medium to high in available potassium. The light soils are marginal and deficient in iron and sulphur while zinc deficiency occin most of the soils. The major problems of soils are salinity and alkalinity, impeded drainage, water logging, low fertility and brackish underground water.The soil fertility status of the district is given in table below:

Table : Soil Fertility Indices

Sl. No.	Block	No of Soil Samples analysed	PH			EC (ds/m)			Organic carbon (%)		
			Acidic	Neutral	Alkaline	Low	Medium	High	Low	Medium	High
1	Faridabad	3597	0	3591	6	3538	40	19	3597	--	--
2	Ballabgarh	4984	--	4977	7	4814	170	--	4989	--	--
3	Palwal	5994	0	5991	3	5950	44	0	5519	475	0
4	Hodal	3488	0	3465	23	3476	12	0	3115	373	0
5	Hassanpur	2030	1	2004	25	1986	41	3	1766	264	0

(Available Nitrogen (kg/ha)			Available Phosparus (kg/ha)			Available Potash (kg/ha)		
Low	Medium	High	Low	Medium	High	Low	Medium	High
3597	--	--	3585	12	--	94	3107	496
4984	--	--	4845	132	7	158	4091	735
5519	475	0	5994	0	0	12	1207	4775
3115	373	0	3488	0	0	0	990	2498
1766	264	0	2030	0	0	0	536	1494

Source : Department of Agriculture, Faridabad

4.4 **Water Resource & Management**

The average underground water level ranges from 1.4m in Ballabgarh block to 25-65 m in Faridabad block. District Faridabad has 35 per cent good quality water, 10 per cent marginal and 55 per cent poor quality underground water. Tubewells and pumpsets are the main source of irrigation catering to about 77 per cent of the total cultivated area. Rest 23 per cent is irrigated by Gurgaon and Agra canals. These canals generally do not run to their capacity. Water of these canals carries affluents and sometime toxic contents of heavy metals in the water is high which is very detrimental to soil health, crops, human beings, animals and birds.

Ground water availability in district Faridabad is given as under:

Table: Ground water availability in District Faridabad.

Sr. No.	Name of Block	Net Ground water (GW) Availability (in Ha.m.)	Alloc ation for Domestic/ Industrial use (in Ha.m)	Existing GW draft for Irrigation (in Ha.m)	GW availability for further Irrigation Dev. (in Ha.m)	Stage of ground water develop ment (Ha.m.)
1	Faridabad	8324	1412	5822	1540	75%
2	Ballabgarh	8640	148	2975	5666	36%
3	Palwal	13260	201	5757	7504	45%
4	Hodal	10038	62	5669	4369	57%
5	Hasanpur	6416	36	2078	4338	55%
	Total	**46678**	**1859**	**22299**	**23416**	**53.6%**

Source: Hydrologist, Gurgaon

The ground water exploitation is reaching at alarming stage with its over- exploitation in unsustainable manner in Faridabad district. The surface water availability in Haryana increased from 9.72 lakh ha in 1971 to 14.33 lakh ha in 2004 where as ground water acreage increased from 5.74 lakh ha to 15.22 lakh ha during this period. There were 25311 tube well (both electric & diesel) in Haryana in the year 1966-67 and in Faridabad district the numbers of tubewells were 27803 in 2005-06. The area under tube well irrigation increased upto 86861 ha in the year 2005-06.

Scope for improvement in respect of irrigation

There is need of awareness among the farmers for adopting water saving techniques as proposed in resource conservation earlier. The water conservation techniques like laser leveling, judicious use of problematic water, lzero tillage technique and pucca water courses etc needs to be popularized.

4.5 Major crops and varieties in the district.

Wheat rice, sugarcane, raya, bajra and sorghum are the major crops grown in the district. However, the efforts were made in introduction and popularization of crops like barley, Arhar, Moong, Lentil, Gram, Poplar, Aonla and Okra. Main vegetable crops grown are potato, cucurbits and cauliflower covering an area of 540 ha, 2793 ha and 900 ha,

respectively. The major fruit crops of the district are Guava, Ber, Aonla and Citrus and total area under fruits was 677 ha. (2006-07). The KVK is contributing towards introduction of new varieties since August 1992. The KVK is also using demonstrations as extension based tools to help in maximizing the accelerated adoption of new varieties.

CROPS	VARIETIES
Wheat	PBW-343, WH-711,WH-283, RAJ-3765, PBW-373,HD-2687, PBW-502and WH-542.
Rice	HKR-46, CSR-30, HBC-19, HKR-47, HKR-127, HKR-126, Pusa-44, PR-103, PR-110, PR-111, PR-112, PR-113, PR-118, PR-119.
Sugarcane	COS 8436, COH-119, COS-767, COJ-64, CO-7717 and COH-99.
Raya	RH-30, RH-8812.
Jowar	HC-136, HC-260, HC-308
Arhar	Manak, Paras, Haryana Kirti.
Lentil	Sapna
Gram	HC-1, HC-3
Moong	Asha, SML-668, Pusa Baisakhi.
Okra	Varsha Uphar
Poplar	G-3, G-48
Aonla	Krishna, Chakaya, Banarsi, Hathi Jhool.

4.6 Input management

The major inputs used in different crops are seed, fertilizers and pesticides.

4.6.1 Seed

The area under rice and wheat constitutes about 85 percent of total cultivable area. At present the seed replacement rate (SRR) of wheat, rice and sugarcane is 40, 70 and 50 percent, respectively. Thus, the scope of SRR is ambient in future to enhance the productivity of rice and wheat in the district.

4.6.2 Fertilizers

The adoption pattern of different nutrients (year 2007) in rice and wheat based on the survey conducted is given below:-

Table : Present status and projections of fertilizers for XI Plan

Fertiliser Grade	Use of fertiliser (tonnes) During 2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Urea	88000	92138	96545	101276	105985	110845
DAP	30320	32083	33794	35316	37310	39145
MOP	1400	1480	1560	1644	1746	1830
SSP	1000	1095	1230	1286	1392	1505
Total complexes	4000	4130	4435	4965	5165	5555
Total Mixtures	–	–	–	–	–	–

Table : Nutrients consumption (kg/ha-1) in district Faridabad during the year 2006-07.

Sr. No.	Block	Major crops	Fertiliser Consumption (kg/ha)			
			N	P	K	Total
1	2	3	4	5	6	7
1	Faridabad	Paddy	6123	1535	294	7952
2	Ballabgarh	Bajra	9010	2506	332	11848
3	Palwal	Sorghum	15876	5512	612	22000
4	Hodal	Kharif Pulses	9624	4055	501	14180
5	Hasanpur	Wheat	7004	2287	216	9507

Source: Agri.Deptt.& Hort.Deptt. Faridabad

4.6.3 Pesticides

The quantity of different pesticides (insecticides, fungicides and herbicides) used by farmers in different crops were 200 tonnes during the year 2006-07.

Table: Present status and projection of pesticides for XI Plan

Sr. No.	Block	Pesticides used in 2006-07	Pesticides Requirement Tech.Matter MT				
			2007-08	2008-09	2009-10	2010-11	2011-12
1.	Faridabad	32	30	29	28	26	25
2.	Ballabgarh	39	38	36	35	33	30
3.	Palwal	50	52	48	45	43	40
4.	Hodal	46	48	46	44	42	40
5.	Hasanpur	33	31	30	28	26	25

4.7 Farm Mechanization:

Farm mechanization has been helpful in improving productivity of different crops, time saving, reducing drudgery, timely farm operations, resource conservation and protection form natural calamities. The timely sowing of wheat due to zero tillage seed cum fertilizer drills has improved the productivity of wheat during the years 2006 to 2008 which is remarkable achievement in wheat production. Placement of fertilizers under drill sowing results in higher nutrient use efficiency and likewise higher irrigation efficiency under bed planting and laser leveling. Use of crop harvesting machines ensures early completion of harvesting and threshing works which escapes the untimely rainfall and storms hazards particularly in wheat, rice and potato crops. Though under govt. of India Macro Management Mode of Agriculture during the year 2006-07, the subsidy was provided for 320 zero drills, 2 potato planters, 133 straw reapers, and 10 vegetable washers in district Faridabad.

Apart from above there is need to create more awareness among farmers in respect of proper use of farm machines for higher efficiency saving human and energy resources.

4.8 Special projects/programmes on going in the district

The following special projects are on going in the district.

a) For boosting oilseed and pulse production, an ICAR project entitled, "Front line demonstration on oilseed and pulses" is being carried out by Krishi Vigyan Kendra, Faridabad.The other important activities of KVK are as follow:

1.	Farmers/ field staff trainings & other extension activities
2.	Conducting FLDs, OFTs & adaptive trails
3.	Testing and revalidation of farm technology
4.	Seed multiplication
5.	Soil testing & diseases diagnostic services
6.	Survey/ studies on different farm related aspects.

b) Agriculture Technology Management Agency (ATMA) programme is being implemented since 2007-08 to strengthen the present extension system.

c) Since 2004-05 the integrated scheme of oilseeds, pulses, oil palm & maize (ISOPOM) is being implemented in the district.

d) Since 2006-07 the Macro management Mode of Agriculture is also being implemented to strengthen the mechanization in agriculture in the district.

e) Vaccination programme for control of Foot and Mouth and HS diseases under assistance to State for cure against diseases and State funding projects, respectively

f) NHM programme for increasing acreage and productivity of Horticultural crops.

4.9 Constraint Analysis:

4.9.1 Yield gap analysis of major crops with reasons.

There are 4.4 to 36.8 % yield gaps in various crops grower in the district. The yield gap for rice and wheat in the district were 18.7 and 7.4 percent, respectively. The main reasons of yield gap in wheat were herbicide resistance, less SRR (40%) delayed sowing, improper water management. Similarly in case of rice the yield gaps were due to low plant population per unit area, decreased water and nutrient use efficiency, less awareness about IPM, INM and IWM, non availability of public sector hybrids leading to confusion among farmers regarding proliferation private sector hybrids.

The major yield gaps in sugarcane were observed due to non-availability of early varieties, poor seed replacement, poor management of ratoon and less adoption of IPM practices. Frost also affected the during the year 2007-08. The major constraint in spreading of pulses in the district is lack of competitiveness with rice and wheat in terms of net returns. Light soils having low organic carbon hinders the pulse production in the district. Though summer moong is gaining impetus in rice-wheat cropping system, there is need of high yielding short duration variety to fit in the rice-wheat system.

4.9.2 Gap Analysis of major crops in the district

	Name of crops/ Commodity	Name of Block					
		Average yield (q/ha)				Yield gap % (with respect to FLD)	Reasons for GAP in yield
		Block	District	State	Frontline Demonstration		
Faridabad	Paddy	31.0	31.2	38.2	38.4	19.3	1. Soil health problem. 2. Lack of quality seed material 3. Lack of awareness
	Wheat	41.2	42.1	39.0	45.5	9.5	-- Do --
Ballabgarh	Paddy	31.1	31.2	38.2	38.4	19.0	-- Do --
	Wheat	43.5	42.1	39.0	45.5	4.4	-- Do --
Palwal	Paddy	30.6	31.2	38.2	38.4	20.3	-- Do --
	Pulses	8.0	8.0	7.7	12.3	34.9	-- Do --
	Wheat	42.0	42.1	39.0	45.5	7.7	-- Do --
	Sugarcane	49.8	53.2	68.4	72.8	36.8	-- Do --
Hodal	Paddy	32.2	31.2	38.2	38.4	16.1	-- Do --
	Wheat	42.3	42.1	39.0	45.5	7.0	-- Do --
	Raya	15.8	15.0	11.7	21.6	26.8	-- Do --
Hasanpur	Paddy	31.2	31.2	38.2	38.4	18.7	-- Do --
	Wheat	41.5	42.1	39.0	45.4	8.6	-- Do --
	Raya	14.2	15.0	11.7	21.6	34.2	-- Do --

Sustainability issues and gap analysis of productivity of different crops and resources						
S.N.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
A.	*Wheat*					
1.	Timely seeding of wheat	Delayed harvesting of rice, pigeonpea, availability of irrigation, untimely rains	Zero tillage, short duration varieties of rice, reduced duration of pigeonpea, regulation of canal irrigation water supply	Research, extension and development agencies should jointly approach in a farmers' participatory approach for each of possible solution. Evaluating and refining the technology for a range of stubbles, developing guidelines for achieving good establishment with residue retention, efficient use of N fertilizer. The technology meet to be further developed for other cropping systems and other crops.	44 thousand ha area under rice, sorghum and bajra to be covered up to 10th Nov., 7000 ha up to 15 Nov. after Kh. Pulses.	Zero tillage will help : Improving soil health including soil biology Improved environment Less water use More productivity Less problem of *P. minor* & decreased use of herbicides Reduced cost of cultivation Facilitates sowing under high soil moisture conditions
2.	Seed treatment	Termites, fungal diseases like loose smut, flag smut and Karnal bunt	Seed treatment with insecticides, fungicides and bio-fertilizers. Seed priming if sowing is delayed	Awareness of farmers regarding importance of seed treatment by the University and the State Department of Agriculture	Whole district with no compromise in termite affected areas	Productivity growth on sustainable basis

S.N.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
3.	Increased multiple nutrient deficiencies	In RWCS, average N ranges from 150-170 kg/ha and average P use is 50 kg/ha. Recommendation is 5:2:1 not 4:2:1	Introduce more organic manures, more residue retention on surface, use of site specific micro-nutrient, use of N in three splits and use of first split before 1st irrigation, integrate conjunctive use of organic and inorganic sources of nutrients generate fertilizer recommendations based on the principle of site specific nutrient management. The optimal use of existing (indigenous) nutrients coming from soil, organic amendments, crop residue and irrigation water. Apply fertilizer to fill the deficit between crop needs and indigenous supply. Management of pest diseases and weed problems through more appropriate nutrient management.	Experimental research in different cropping systems, relook at soil test values, change in the recommendation of practice	Whole rice-wheat cropping system, use of more fertilizers in low productive blocks	The residue retention will help improving soil productivity, improved water permeability, decreased losses of nutrients
4.	Varietal improvement	No variety to tolerate terminal heat, short duration variety produces less yield	Varieties with stay green character near maturity, long duration varieties, varieties which can fit early sowing staring from 15th Oct. to manage terminal heat at maturity	Pre-breeding, work on hybrid wheat. Improvement in the grain size of WH 542	At least 75% area should be covered with varieties which can yield equal or more than WH 542 and PBW 343	More enhanced use of natural resources

S.N.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
5.	Management of alkalinity	Decreased yield in the drought year because of life saving irrigations with brackish water in kharif crops	Avoid irrigation with brackish water in drought years because it leads to alkalinity, wherever available make conjunctive use of water. Tolerance of current and improved varieties to sodicity needs further investigations. Work is also needed to adapt agronomic practices, especially the timing and amount of fertilizer and irrigation in order to increase ecological sustainability, profitability and yield.	Bajra-wheat, guar-wheat, pulses-wheat in Faridabad should be studied for long-term sodicity build-up due to water management in kharif season.	Faridabad	Long-term productivity of wheat will sustain by proper water management in the system as a whole
6.	Weed management	❖ *Phalaris minor* seriously affects wheat yields in rice-wheat cropping system. ❖ Complex wheat flora seriously affects wheat yield in non-rice wheat cropping system. ❖ Phalaris resistance will be come a major problem and needs immediate attention for ecological solution. We must delay or avoid resistance.	❖ Improve the efficiency of existing herbicides. ❖ Introduce new herbicides. ❖ Capacity building for spraying techniques. ❖ Ecological approached including zero-tillage crop rotation. ❖ Monitoring of resistance build up. ❖ Germplasm management for competitive varieties	State level strategic plan for the management of *Phalaris minor* integrated. Capacity building of extension agencies and farmers for appropriate spraying techniques. On farm demonstrations of new herbicides	Faridabad	Anticipated economic benefits are increased profitability, increased yield and increased food security.
B.	*Rice*					
1.	Hybrids	Lodging in coarse rice hybrids	Increase area under hybrids in coarse rice.	Should concentrate on evolving hybrids for Basmati rice	50% area of coarse rice should come under hybrids	Due to fear of lodging farmers use less N which is good for sustainability

S.N.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
2.	Low plant density	Drudgery of transplanting operation, hired labour, non-availability of labour	Introduction of paddy transplanter under zero-tillage and/or under unpuddled situations, direct seeding in unpuddled situation, varieties that can compete with weeds under direct seeding.	Farmers' participatory approach for evolving crop establishment techniques, availability of paddy transplanter, custom hire services for raising nursery	5% growth in area under paddy transplanter in next two years.	Improvement in soil physical conditions, better soil health, less water use, less drudgery of labour, better yield of wheat after rice due to unpuddled situation or improvement in soil physical conditions
3.	Green manuring	Shortage of varieties for summer moong, shortage of quality seed of Sesbania	Introduce summer moong immediately after wheat harvest even under zero tillage situations, evolving varieties for summer moong with synchronized maturity.	Farmers' participatory approach and KVK farmers	Whole rice area	Improvement in soil health, soil organic matter, integrates mechanization, better fertilizer use efficiency, less water use in some situations
4.	Decline in soil organic carbon	Light soils with pH, from 7.5 to 10.0 faster microbial degradation.	Introduction of summer moong, enhanced use of FYM, green manure, promote 50% area under Basmati rice, use of leaf colour charts, slow-release fertilizers	Long-term trials to study soil organic carbon and fractionation of organic matter, INM	Whole Basmati area and maximum area of coarse rice	Improved organic carbon content
5.	Declining water table	Transplanting before the onset of monsoons, continuous flooding, pan formation and puddling reduces percolation of water	Avoid early transplanting, introduction of mechanical transplanter, irrigation at hair line crack formation or use of tensiometers for irrigation scheduling, avoid puddling	Both types of research involving cropping system at research farms and at farmers' fields	The whole RWCS	Improvement in water table
C.	*Diversification*					
1.	Reduced bio-diversity due to large area under monocultures without legumes	High risk associated with legume crops, more insect-pest problems in pulses, availability of high yielding varieties of crops other than pulses	Develop alternate strategy to introduce summer moong in the multiple land use system	Out source varieties of moong bean that fit in the summer cultivation between rice and wheat	50% area of coarse rice and whole area of Basmati rice	Improvement in soil health and savings in water

S.N.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
2.	Intercropping of sugarcane with other crops	Lack of mechanized crop establishment	Use of bed planters for autumn sugarcane based intercropping of rabi crops.	Farmers' participatory approach	Whole sugarcane area planted after wheat harvest can be brought forward for autumn planting and intercropping	More conservation of resources, multiple land use, getting more with less
D.	*Water management*					
1.	Reduced water use efficiency	Poor rain and irrigation water management, poor land levelling, low power supply driven irrigation system.	Shifting transplanting to mid June, intermittent ponding, introduction of zero tillage, bed planting, laser land levelling and green manuring, improvement in percolation rate, introduction of micro-irrigation, water harvesting, introduction of watersheds, improvement I irrigation and canal operation schedules	Demonstrations, development and research	Faridabad	Savings in water, improved water use efficiency, better water-nutrient interactions
2.	Drainage congestion	Low-lying areas, absence of water conservation measures	Introduce surface or sub-surface drainage, devise seeding techniques under relatively wet situations, develop varieties which can tolerate high moisture, bio-drainage	Research in bio-technology for developing varieties, more research on soil and water engineering	Waterlogged areas of Faridabad	Better use of water and other natural resources
3.	Toxicity of canal water	Canals water caries affluents and toxic contents of heavy metals.	Treatment of factories discharge.	Establishments of treatment plant for factories contaminated discharge.	23% canal irrigated area of Faridabad.	Increase in yield and quality of agricultural produces and soil health improvements.
E.	*Integrated pest management*					
1.	Weed management in wheat	Development of resistance in *P. minor*, cross resistance	Accelerated adoption of zero tillage, more competitive varieties, bringing 10% area at each farm level under alternate crops, rotation of herbicides of different chemistries.	Basic research on the mode and genetics of resistance, release of competitive varieties, monitoring of resistance development	Whole RWCS and other cropping systems adjoining RWCS	Sustained productivity of wheat, reduction in herbicide use, better use of natural resources

S.N.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
F.	Bajra					
1.	Major thrust to consolidate the development of bajra hybrids with high yield potential	New hybrids from private sector have been introduced with unknown consequences leading to disease incidence	Main streaming of private sector and developing MOUs with private sector	Pre-breeding research at experimental stations	Whole Faridabad	Will meet the requirement of feed and fodder at the cost of less resources
G.	*Oilseeds*					
1.	Maximizing the economic benefits to farmers	Less use sulphur nutrition, no green manuring	Research on integrated nutrient management specially when farmers are using more nitrogen than recommendation.	Basic research on INM	Whole Faridabad	The leading edge of Haryana can be maintained by proper nutrition and pest management in Indian mustard

CLOSING THE GAP FOR REALIZING THE VISION				
ACTIVITY OUTPUT MATRIX				
Issues	**Programme**	**Activities**	**Collaborators/ Targets**	**Cost**
Seed treatment	Treatment of wheat seed with Bavistin & Chlorpyriphos and paddy seed with Bavistin & Streptocycline	Awareness campaigns and demonstrations	DDA and KVK	**Table-6.3.2.2 656.85 lacs**
Resource conservation Technology (i) Zero-tillage	Environmental (Carbon sequestration, soil fertility gains etc.) and economic benefits (saving in labor, diesel, machinery wear and tear etc) will be catalogued and calculated. Zero till technology will be extended to wheat in other cropping system and other crops including rice, sorghum, maize and pulses. ❖ Assemble district level data and use them for bio-physical and socio - economic characterization using GIS. ❖ Evaluate the concept for ecological intensification of cereal systems. ❖ Improve agronomic efficiency of nutrients. ❖ Improve recovery efficiency of nitrogen ❖ Improve crop water productivity and irrigation water productivity for a system as a whole ❖ Improve biological activity in the soil. ❖ Reduce energy budget for rice-wheat cropping system.	Monitoring of farms where farmers have practiced zero-tillage for more than five years. (10 ha) KVK & Scientist from main campus/research station. KVK & Scientist from main campus/research station. DDAs & KVK	KVK DDA Demonstration and long term trials will be laid out by KVK at farmer's field. DDA will ensure visit of farmers at demonstration sites.	**Table- 6.3.3.2 34.40 lacs**

	The rate of soil organic matter (increase and anticipated environmental benefit including improved soil fertility, soil structure and reduced leaching of N will be targeted)			
(ii) Laser –Leveling	Laser land leveling for water saving, land saving and improving yields in rice, wheat and sugarcane. The improvement in the productivity of crops	DDAs will organize and monitor the distribution of laser leveler especially on custom hire services. Data on water saving and yield will be recorded. The data will be discussed in joint meeting of KVK and DDAs. The presentation of data finalized in the meeting will be made by DDAs. DDAs will also ensure the exposure visit of farmers on sites already demonstrated by KVK. Two way subsidies may be given farmers who are using custom hire services, may be given subsidy on the charges on hour basis. The service provider can be given subsidy if it is passed on to the user farmers.	DDA & KVK	**Table-6.3.3.3** **73.5 lacs**

Issues	Programme	Activities	Collaborators/ Targets	Cost
(iii)Green manuring	Improvement in the soil health.	DDAs will ensure the timely availability of dhaincha seed at 75% subsidy. 50 per cent area will be covered during the plan period of five years.	DDA	**Table-6.3.3.5 442.0 lacs**
Summer moong	Introduction of summer moong in the rice-wheat cropping system to discourage summer rice. To ensure timely transplanting of rice and to sustain the productivity of summer moong, the sowing should be preferred up to 20th April	DDAs will ensure the acceleration of the technology and timely availability of treated seed. The suitability of variety to be ensured through KVK. Seed producing farmers may also be given incentives. Farmers producing summer moong for commercial purpose may be given incentive in the form of MSP and guaranteed procurement	DDA and KVK Ten per cent area will be covered. HSDC/DDAs/HAFED/HLRDC	**Table-6.3.3.7 327.5 lacs**
I. Water management	Rain water harvesting	To overcome the problem of decreasing water level rain water harvesting structures will be made	DDA and ASCO	**Table-6.3.4.2 400 lacs**
II. Management of alkalinity	I. Land leveling II. Leaching with good quality/rain water III. Addition of gypsum IV. Cultivation of paddy crop in alkaline soils	I. Survey of salt affected soil II. Collection of soil and water samples III. Supply of gypsum IV. Organizing trainings, demonstrations, campaigns etc.	KVK will only provide technical support in organizing various activities in management of alkali soils	**Table-6.3.5.1 270 lacs**

4.10 Recommended interventions for the district, with detailed Action Plan with costs

The preceding study of crop husbandry in Faridabad District in relation to the resource utilization, input management & constraints analyses paves the way for recommending interventions for the development of agriculture sector. The suggested interventions will result into increased production, productivity, profitability and income generation on a sustainable basis. The recommendations for the farmers (for whom they ultimately matters) comes down to the specific usage, manner and management of resources, inputs and cultural practices which are being suggested here in. The farmers as well as the staff of agriculture and allied staff needs constant still up gradation and capacity building. The number and nature of training programmes, demonstrations, RCTs, FFSs, group formation all are recommended to be adopted by the farmers on large scale for educating the farmers so that the targets of the 11^{th} plan can be achieved.

Table 4.10.1 : Training Proposed for Capacity Building of Agriculture Staff (at District level)
(Phy- No. of trainees , Fin. – Rs in lacs)

Name of the Department	Year wise no. of staff to be trained											
	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Agriculture	400	2.4	400	2.4	400	2.4	400	2.4	400	2.4	2000	12.0
Cooperative & NGOs	250	1.5	250	1.5	250	1.5	250	1.5	250	1.5	1250	7.5
PRI Staff & Others	100	0.6	100	0.6	100	0.6	100	0.6	100	0.6	500	3.0
Total	750	4.5	750	4.5	750	4.5	750	4.5	750	4.5	3750	22.5

Cost norms – Rs 600/ trainee/day

Table 4.10.2 : Training Proposed for Capacity Building of Farmers at district level on different technologies

Phy- No. , Fin. – Rs in lacs

Name of technology to be transferred	Year wise no. of farmers to be trained											
	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
INM	1000	4.0	1000	4.0	1000	4.0	1000	4.0	1000	4.0	5000	20.0
NRM	600	2.40	600	2.40	600	2.40	600	2.40	600	2.40	3000	12.0
IPM	1000	2.40	1000	2.40	1000	2.40	1000	2.40	1000	2.40	5000	20.0
RCTs	1000	4.0	1000	4.0	1000	4.0	1000	4.0	1000	4.0	5000	20.0
Water management	600	2.40	600	2.40	600	2.40	600	2.40	600	2.40	3000	12.0
Post Harvest Management	350	1.40	350	1.40	350	1.40	350	1.40	350	1.40	1750	7.0
Credit & marketing	600	2.40	600	2.40	600	2.40	600	2.40	600	2.40	3000	12.0
Seed Production	600	2.40	600	2.40	600	2.40	600	2.40	600	2.40	3000	12.0
Farm waste and crop residue management	250	1.0	250	1.0	250	1.0	250	1.0	250	1.0	250	5.0
Vermi-composting	100	0.40	100	0.40	100	0.40	100	0.40	100	0.40	500	2.0
Farm Mechanization	600	2.40	600	2.40	600	2.40	600	2.40	600	2.40	3000	12.0
Renewable energy	100	.40	100	.40	100	.40	100	.40	100	.40	100	0.40
Total	6800	27.2	6800	27.2	6800	27.2	6800	27.2	6800	27.2	34000	136.0

Table4.10.3: Training Proposed for Capacity Building of Farmers at block level

Phy- No. , Fin. – Rs in lacs

Name of the Block	Year wise no. of farmers to be trained											
	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Faridabad	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	2500	5.0
Ballabgarh	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	2500	5.0
Palwal	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	2500	5.0
Hodal	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	2500	5.0
Hasanpur	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	2500	5.0
TOTAL	2500	5.0	2500	5.0	2500	5.0	2500	5.0	2500	5.0	12500	25.0

Table 4.10.4 : Varietal Demonstration in Next Five Year

(Fin – Rs. In lakh)

Name of crop	Average Area per demon-stration (ha.)	Varietal Demonstration Projection (Phy Area covered in ha) Fin – Rs. In lakh)									
		2007-08		2008-09		2009-10		2010-11		2011-12	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Paddy	0.4	700	35.0	700	35.0	700	35.0	700	35.0	700	35.0
Arahr	0.4	180	9.0	180	9.0	180	9.0	180	9.0	180	9.0
Jowar	0.4	130	6.5	130	6.5	130	6.5	130	6.5	130	6.5
Maize	0.4	25	1.25	25	1.25	25	1.25	25	1.25	25	1.25
Cotton	0.4	25	1.25	25	1.25	25	1.25	25	1.25	25	1.25
K. Pulses	0.4	50	2.5	50	2.5	50	2.5	50	2.5	50	2.5
Wheat	0.4	1650	82.5	1650	82.5	1650	82.5	1650	82.5	1650	82.5
Raya	0.4	80	4.00	80	4.00	80	4.00	80	4.00	80	4.00
Gram	0.4	50	2.5	50	2.5	50	2.5	50	2.5	50	2.5
Barseem	0.4	50	2.5	50	2.5	50	2.5	50	2.5	50	2.5
Total		2940	147.0	2940	147.0	2940	147.0	2940	147.0	2940	147.0

Table 4.10.5 : INM Demonstrations in Next Five Years

(Phy Area covered in ha, Fin – Rs. In lacs)

Crop	Area under each demon.	INM Demonstrations Projection											
		2007-08		2008-09		2009-10		2010-11		2011-12		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Paddy	0.4	250	12.5	250	12.5	250	12.5	250	12.5	250	12.5	1250	62.5
Arhar	0.4	100	5.0	100	5.0	100	5.0	100	5.0	100	5.0	500	25.0
Jowar	0.4	100	5.0	100	5.0	100	5.0	100	5.0	100	5.0	500	25.0
Maize	0.4	25	1.25	25	1.25	25	1.25	25	1.25	25	1.25	125	6.25
Cotton	0.4	25	1.25	25	1.25	25	1.25	25	1.25	25	1.25	125	6.25
K.Pulses	0.4	50	2.5	50	2.5	50	2.5	50	2.5	50	2.5	250	12.5
Wheat	0.4	1750	87.5	1750	87.5	1750	87.5	1750	87.5	1750	87.5	8750	437.5
Raya	0.4	250	12.5	250	12.5	250	12.5	250	12.5	250	12.5	1250	62.5
Gram	0.4	35	1.75	35	1.75	35	1.75	35	1.75	35	1.75	175	8.75
Barseem	0.4	35	1.75	35	1.75	35	1.75	35	1.75	35	1.75	175	8.75
Total		2620	131.0	2620	131.0	2620	131.0	2620	131.0	2620	131.0	13100	655.0

Table 4.10.6: Demonsratins on Resource Conservation Technologies

(Phy Area covered in ha) Fin – Rs. In lakh)

Technologies	Area under each demon.	RCTs Demonstrations Projection											
		2007-08		2008-09		2009-10		2010-11		2011-12		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Laser leveling	0.4	300	15.0	300	1.5	300	1.5	300	1.5	300	1.5	1500	75.0
Bed plantig	0.4	100	5.0	100	0.5	100	0.5	100	0.5	100	0.5	500	25.0
Green manuring	0.4	500	25.0	500	2.5	500	2.5	500	2.5	500	2.5	2500	125.0
Direct seeding of paddy	0.4	100	5.0	100	0.5	100	0.5	100	0.5	100	0.5	500	25.0
Summer moong	0.4	250	12.5	250	1.25	250	1.25	250	1.25	250	1.25	1250	62.5
Total		1250	62.5	1250	62.5	1250	62.5	1250	62.5	1250	62.5	6250	312.5

Table 4.10.7 : IPM Demonstrations in Next Five Years

(Phy- Area covered in ha, Fin – Rs. In lacs)

Crop	Area under each demon.	IPM Demonstrations Projection											
		2007-08		2008-09		2009-10		2010-11		2011-12		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Cotton	0.4	15	0.75	15	0.75	15	0.75	15	0.75	30	1.5	90	4.5
Pulses	0.4	100	5.0	200	10.0	300	15.0	350	17.5	400	20.0	1350	67.5
Paddy	0.4	100	5.0	100	5.0	250	12.5	250	12.5	300	15.0	1000	50.0
Sugarcane	0.4	100	5.0	120	6.0	150	7.5	150	7.5	200	10.0	720	36.0
Total		315	15.75	435	21.75	715	35.75	765	38.25	930	46.5	3160	158.0

Table4.10.8 : Farmer Field Schools covering identified critical technologies in Next Five Years

(Phy – No. of field school, Fin – Rs. In lacs)

Crop	Farmer Field Schhols Projection											
	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Wheat	15	3.0	15	3.0	15	3.0	15	3.0	15	3.0	75	15.0
Paddy	15	3.0	15	3.0	15	3.0	15	3.0	15	3.0	75	15.0
K. Pulses	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	50	10.0
Cotton	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	25	5.0
Bajra	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	50	10.0
Jowar	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	50	10.0
S. Cane	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	50	10.0
Gram	2	0.4	2	0.4	2	0.4	2	0.4	2	0.4	10	2.0
Oil Seeds	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	50	10.0
Total	87	17.4	87	17.4	87	17.4	87	17.4	87	17.4	435	87.0

Table4.10.9: Group formation /Commodity interest groups formation for specific activities

Phy – No. of groups to be formed, Fin – Rs. In lacs)

Interest Group(s)	Group Formation Projection Plan											
	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Seed production	20	4.0	20	4.0	20	4.0	20	4.0	20	4.0	100	20.0
Water user	20	4.0	20	4.0	20	4.0	20	4.0	20	4.0	100	20.0
Organic Farming	2	0.4	2	0.4	2	0.4	2	0.4	2	0.4	10	2.0
Value addition	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	25	5.0
Specific Crop group	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	50	10.0
Total	57	11.4	57	11.4	57	11.4	57	11.4	57	11.4	285	57.0

Cost norms- Rs.0.20 lacs/group (for capacity building, input assistance, marketing and for group specific activities)

4.11 Projected outcome and Growth Rate during the Plan Period:

Table:4.11.1:Area,Production and Productivity Trend of Main Crops in the District (Area – ha, Production – q, productivity – q/ha)

Sl. No.	Name of Crop	Normal 2004-05 to 2006-07			2007-08 (Projected)			2008-09 (Projected)			2009-10 (Projected)			2010-11 (Projected)			2011-12 (Projected)		
		Area (A)	Production (P)	Productivity (Y)	A	P	Y	A	P	Y	A	P	Y	A	P	Y	A	P	Y
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.	Wheat	106000	3964400	37.40	106000	4452000	42.0	105000	4620000	44.0	105000	4725000	45	104000	4888000	47	103	5047000	49
2.	Rabi Oil Seed	4670	65473	14.02	4000	62000	15.5	3500	63000	18.0	3600	64800	18	3600	64800	18	3500	63000	18
3.	Paddy	27000	770580	28.54	29000	935830	32.3	31000	961000	34.2	31000	1085000	35	31000	1116000	36	31000	1147000	37
4.	Bajra	9350	137258	14.68	10000	169500	17.0	9000	162000	18.0	9	171000	19	9000	180000	20	9	180000	20
5.	Sugar Cane (Gur)	5670	282706	49.86	6000	306600	51.1	5500	297000	54.0	5500	302500	55	5800	348000	60	6000	360000	60
6.	Kharif Pulses	5270	52489	9.96	6230	62300	10.0	9000	90000	10.0	9000	99000	11	9500	114000	12	9500	123500	13

CHAPTER – V

5. ALLIED AGRICULTURAL SECTORS DEVELOPMENT

5.1 Introduction:

Allied sectors are important and integral part of agriculture sector. The share of allied sector in total agriculture is on the rise. It is the growth in allied agriculture sectors which are pushing the total agricultural growth an upward side. The demand for allied agricultural produces is also increasing at a much faster rate than the demand for agricultural crops or cereals. From the farmer's point of view of Faridabad district these allied sector activities/ enterprises are integral part of this farming system since long. Farmers of the district are actively engaged in cultivation of allied enterprises as per their as well as market's needs. The thrust in the district has been on dairy and horticulture (especially vegetable crops and floriculture). The district is also steadily making progress in other sectors e.g .mushroom production, poultry, fishery, piggery, vermin-composting, social forestry etc. with rising incomes and changing diet patterns the scope for these allied enterprises are widening and the farmers of this district must come forward to seize on this opportunity of raising farm productivity and income.

5.2 HORTICULTURE DEVELOPMERNT

Horticulture is an important sector in agriculture. The agro climatic conditions of the district are congenial for fruit and vegetable crops. The major fruit crops grown in the district comprising guava, ber and aonla produced 6913 tonnes (2006-07) from an area of 417 ha. The major vegetable crops grown in 2685 ha, potato, cauliflower, radish and cucurbits produced 847923 tonnes (2007-08). Floriculture in 513 ha with the production 3945 tonnes of marigold and 30000000 sticks of gladiolus. Mushroom is also an emerging important enterprise. The **National Horticulture Mission** is already providing a great financial aid for horticultural activities in the district. Even then the following proposals are added:

Cultivation of white button mushroom

Mushroom cultivation has a special relevance to Faridabad District. It requires little water and land as compared to crops. It fully meets the various objectives of the activities such as recycling of agricultural wastes, creating new avenues of mushroom cultivation as a labour intensive vocation, a rich source of palatable protein for vegetarian population of the country and potential foreign exchange earner. It is a labour intensive simple technology enterprise with high value added produce. Being cultivated indoors it is relatively free from the vagaries of weather. The basic raw material i.e. wheat, paddy and sarson bhusa / straw is available in abundance with farmer. The spent compost has the same fertilizer value as the FYM and can be directly applied to field crops as it is already decomposed.

In district Faridabad 5-6 small and marginal units of average size are functional. The average production per sq. mtr. is 8-10 kg. obtained in 8-10 weeks of cropping and cost of production works about Rs. 25-28 per kg. The grower sale price of button mushroom at present is about Rs. 40-45 which leaves a handsome profit of Rs. 12-15 per kg. Mushroom growing under natural condition (October – Feb.) in district will ensure greater employment to the rural youth and proper utilization of agro-by product for conversion to useful proteinacious food and ultimately better returns to the grower and it can take the shape of an agro based cottage industry in district.

5.3 SOCIAL FORESTRY DEVELOPMERNT

Forestry play an vital and important role in the maintenance of ecological balance Forests provide the fuel, fodder and timber. Agro forestry has been emerged an important farming system for boosting their financial condition and improving their livelihood. There are 50.75 sq.km forests in the district Faridabad consfituting 2.84% of total geographical area of the district. The state govt. has decided to raise it upto 10% by 2010. The main forestry species available for potential area in the distt. are Poplar, Eucalypts, Kikar, Shisham, Bakain, and Mahaneem. Most of the social forestry is being practiced on govt. and village panchyat lands. The departmental nurseries are producing quality seedlings for supplying to farmers at cheaper rates to boost the forestry in the district.

Scope of Social forestry and Agro forestry in the district :

There is a great scope of social forestry plantation on problematic soil and poplar plantation due to high demand by the plywood industry available in the adjoining district Gurgaon and NCT of Delhi. The farmers can get additional income from poplar plantation in agro forestry system as intercrops like wheat, sugarcane, potato, and other vegetables can be successfully grown during 6-8 years of plantation.

5.4 ANIMAL HUSBANDRY DEVELOPMENT

Livestock is an integral part of farming system in Haryana and it plays a great socio-economic role in the state. Good infrastructural facilities with readily available inputs and good climate, marketing facilities for milk and meat and developing entrepreneurship qualities in farmers particularly dairy farmers are basic key factors for development of animal husbandry in the state and Faridabad in particular. Per capita availability of milk in state is 660 g per day against recommended 250 g per day by ICMR. As per 18th livestock census 2007 the number of buffaloes in Faridabad 412611, cows are 52947, sheep are 19827 and goat 24801, poultry (including boilers and layers) is 11200. At present there are 31 Govt. veterinary hospital and 110 govt. veterinary dispensaries in Faridabad. 143 Gram panchayats are without any veterinary institution in the district.

5.5 FISHERIES DEVELOPMENT

Development of Fisheries water Resources

The fisheries are mainly in the village ponds/community ponds in the district. About 607 hectares water spread area of the community ponds are available in the district, out of which 607 hectares are covered under fish farming.

It is a fact that there are multidisciplinary uses of the community ponds in the villages apart form the fish farming. But unluckily, these ponds are shrinking year by ear because of silting, pollution water-weeds and mainly illegal encroachment etc. So, technically renovation of village ponds is a need based activity which not only promote the fisheries but

also generate the employment, income resources for panchayats, develop a common water resources/infrastructure for domestic uses/welfare for the people, harvest the excess rain water and recharge the water table etc. 25 hectare water area can be renovated every year @ 2.0 lakh per hectare.

2. Strengthening of National Fish and Seed Programme

To meet out the increasing demand of quality fish seed (Fry, fingerlings, advance fingerlings), it is necessary to strengthen the fish seed farm. For this, the hatchery capacity can be improved with latest technology. Apart from the improvement of Hatchery, other main infrastructure of the farm e.i. nursery ponds seed rearing ponds can be improved to increased their productivity. The maintenance of the seed farm and other important inputs infrastructure i.e., machinery, equipments, & tools, of lettest technology is very important part of any seed farm to maintain and to increase the production capacity of the seed farm.

3. Establishment of Fish seed farm/units by Fish Farmers

Some fish, farmers may be motivated to establish their own fish seed Hatchery/fish seed rearing farms to meet out the increasing demand of Fish Seed especially fingerlings/advance fingerlings. So a project can be prepared to make establishment of two fish seed rearing unit/fish seed hatchery every year by the farmers in the district. For this, financial and technical assistance will be provided to the fish seed producers @ 50% portion of the total cost of the project. Training, demonstration/exposer visit etc. will be arranged for fish seed growers as technical assistance.

4. Financial Assistance to the Fish Farmers: Any person who adopt the fish farming for the first time, he should be assisted financially as well as technically. So the fish farmers should be assisted financially for arranging the fishery inputs, (feed & fertilizer) machinery & equipments i.e. aeztors fishing nets, medicines, water pH testing meter etc. All these items should be supplied to the farmers during fish farming of first year once a time.50% portion of total expenditure on all these items can be provided as subsidy to the farmers. Fish seed should be supplied free of cost first year.

5. Fisheries Education, Training & Extension: It has a very important role in technical profession like fisheries on the other hand, fisheries is somehow a new subject being a vegetarian area of the country. Therefore, it need more work in the fied of fisheries extension. So, training at various level, demonstration, exposer visit, Kisan gosthies etc. ill be arranged to popularize the fish farming among the people and to transfer the technology to the fish farmers.

Gap Analysis of Horticultralcrops in the district

Block	Name of crops / Commodity	Name of Block					
		Average yield (q/ha)				Yield gap % (with respect to FLD)	Reasons for GAP in yield
		Block	District	State	Frontline Demonstration		
Faridabad	Guava	210.00	200.0	–	238.0	19%	1. Lack of management practice 2. Poor water quality in some area 3. Lack of IPM & INM.
Ballabgarh		210.00					
Palwal		190.00					
Hodal		190.00					
Hasanpur		–					
Faridabad	Potato	331.9	324.0	–	357.0	10.18%	– Do –
Ballabgarh		331.9					
Palwal		331.9					
Hodal		320.0					
Hasanpur		–					
Faridabad	Cauliflower	227.5	222.2	–	240.4	8.19%	– Do –
Ballabgarh		227.5					
Palwal		227.5					
Hodal		218.2					
Hasanpur		–					

Source: Agriculture Department and Horticulture Deptt, Faridabad

Sustainability issues and gap analysis of productivity of different allied sectors

S.N.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
A.	*Vegetables*					
	New management strategies among small holders vegetable farmers	Availability of hybrid seeds, cost of hybrid seeds, availability of low water requiring vegetable varieties, intercropping of vegetables and multiple land use, vegetable based cropping system with intervening cultivation of flowers, sugarcane based intercropping of vegetables	Supply of quality hybrid seed, marketing enhancement of vegetables, improved germplasm for potato and management of apical virus.	Improved germplasm research, farmers' participatory research on intercropping, technical and market information from different sources to farmers, relaying of production information from farmers to researchers, physical infrastructure for grading, processing and storage, electricity charges on the basis of agriculture for small unorganized food processors and mushroom growers	Special emphasis of vegetable based infrastructure in Ballabgarh and Palwal.	Will help diversifying agriculture for transforming the system into income generating activities through improved productivity and marketing
B.	Fruits					
	Management strategies among orchardist	Availability of good quality seedlings, lack of IPM and INM, pruning of Ber, crop regulation in Guava	Nursery establishment, competitive varieties, rotation of insecticides and pesticides.	Research, extension and development agencies should jointly approach in a farmers participatory approach for each of possible solution, awareness of farmers regarding importance of pruning of Ber and crop regulation in Guava.	Whole district	Improved plant health, more productivity, less insect pest and diseases infection.
C.	Agroforestry trees					

S.N.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
	Management strategies among tree growers	Availability of good planting material, improper distance among trees, pruning of popular, intercropping of different crops	Nursery estabilishment of popular, improved planting material.	Improved germplasm research, farmer participatory research on intercropping, awareness of farmers for proper spacing among trees and intercropping.	Whole district	Improved soil health, improved environment and more productivity on sustainable basis.
D.	Animals					
	Poor conception	Imbalance feeding, lack of mineral mixture in feed, Improper insemination time	Balance feeding, feeding of mineral mixture	Training on balanced feedind and mineral mixture feeding, time of insemination and summer management	Whole District	Improved animal health, good conception and more productivity.

CLOSING THE GAP FOR REALIZING THE VISION				
ACTIVITY OUTPUT MATRIX				
Issues	**Programme**	**Activities**	**Collaborators/Targets**	**Cost**
Fruits and Vegetable Production	I. Increasing acreage of fruit plants by establishing new orchards 2.To popularize hybrid vegetable cultivation	1. Package of practices for establishing new orchards will be told to farmers. 2. Management strategies will be told to farmers. 3. Good quality seedlings fruit crops will be green free of cost. 4. Main fertilizers & insecticides/ pesticides will be given 1. Plantation techniques will be imparted to farmers. 2. Free good quality seed will be given 3.Fertilizer & insecticide/pesticide will be given free of cost	DHO will monitor the programme and will organize training/demonstrations and KVK experts will impart technical know-how.	**Table-6.3.6.1** **335.30 lacs**
	II. Rejuvitation of old orchards	1. Management technology will be imported to farmers. 2. Free of cost demonstrationon rejuvenation.	-do-	**Table-6.3.6.2** **18.0 lacs**
Mushroom Production	To popularize cultivation of white button mushroom	I. Mushroom production trainings. II. Establishment of mushroom units. III. Demonstration at different stages i.e. composting, spawning, casing and harvesting etc. IV. Organizing field day to popularize mushroom cultivation.	DHO/KVK/DRDA/LEAD BANKS DHO will select the trainees and site for mushroom units. KVK will import training and technical help.	**Table-6.3.6.3** **55 lacs**

Issues	Programme	Activities	Collaborators/Targets	Cost
Agro forestry	Social forestry, Agroforestry plantation and nursery establishment	I. Package of practices will be taught to field staff of agriculture and line departments. II. Free of cost seedlings of good variety will be given to farmers	DFO and KVK	**Table- 6.3.7.1** **10.00 lacs**
Animal Husbandry	Establishment of new Govt. Veterinary Hospitals and new Govt. Veterinary Dispensaries	22-GVH 22-GVD	State Deptt. of Animal Husbandry	**Table- 6.3.8.1** **792.0 lacs**
Dairy Farming	Establishment of commercial dairy farming of 20, 50 and 100 milch animals.	AH, lead bank and KVK will initiate action for establishment of dairies by selecting appropriate sites depending on market strategies.	DDAH, Lead Bank. KVK HDDCF	**Table-6.3.8.2** **425 lacs**
Improving milk productivity	1. Feeding of mineral mixture	I. Providing mineral mixture to the farmers	DDAH will identify the villages & farm families for distribution of mineral mixture.	**Table 6.3.8.3** **125.49 lacs**
	2.Deworming in calves	Reduction in calf mortality, better growth, early age at first calving	DDAH and KVK	**Table- 6.3.8.4** **25.11 lacs**
	3. Providing community bulls/A.I.	1. Providing community bulls to the village	DDAH & KVK I. DDAH will procure the pedigery bulls from Govt. buffalo/cattle centres & will hand over to the village. II. KVK will provide the technical support	**Table- 6.3.8.5** **90.75 lacs**

Issues	Programme	Activities	Collaborators/Targets	Cost
	4.Conservation of village ponds	Drinking water facility to animals protection from floods	DDPO and DRDA	**Table- 6.3.8.6 500 lacs**
Fishery	Utilization of village ponds and increasing farmer income	Demonstrations on feeding management and skill improvement	Fishery department	**Table- 6.3.9.1 197.1 lacs**

Table 5.1 : Training Proposed for Capacity Building of Allied sectors Staff on different aspects covered under Plan(at District level)

(Phy- Nos. , Fin. – Rs in lacs)

Name of the Department	Year wise no. of staff to be trained											
	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Horticulture	50	0.30	50	0.30	50	0.30	50	0.30	50	0.30	250	1.5
Animal husbandry	250	1.5	250	1.5	250	1.5	250	1.5	250	1.5	1250	7.5
Fishery	50	0.30	50	0.30	50	0.30	50	0.30	50	0.30	250	1.5
Credit institutions	100	0.60	100	0.60	100	0.60	100	0.60	100	0.60	500	3.0
Total	450	2.7	450	2.7	450	2.7	450	2.7	450	2.7	2250	13.5

Cost norms – Rs 600/ trainee/day

Table5.2 : Planning for Farmers Training for Capacity Building and Skill Upgradation Related to Allied fields (at district level)

(Phy- No. of trainees, Fin- Rs.in lack)

Sr. No.	Name of technology to be transferred	No of farmers to be trained and fund requirement										Total	
		2007-08		2008-09		2009-10		2010-11		2011-12		Phy	Fin
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin		
1	Seed Production	100	0.40	100	0.40	100	0.40	100	0.40	100	0.40	500	2.0
2	Post Harvest management	200	0.80	200	0.80	200	0.80	200	0.80	200	0.80	1000	4.0
3	Green House	50	0.20	50	0.20	50	0.20	50	0.20	50	0.20	250	1.0
4	Exotic Veg. Cultivation	50	0.20	50	0.20	50	0.20	50	0.20	50	0.20	250	1.0
5	Micro Irrigation	100	0.40	100	0.40	100	0.40	100	0.40	100	0.40	500	2.0
6	IPM	200	0.80	200	0.80	200	0.80	200	0.80	200	0.80	1000	4.0
7	Rejuvenation of old orchard	40	0.16	40	0.16	40	0.16	40	0.16	40	0.16	200	0.8
8	Flower cultivation	50	0.20	50	0.20	50	0.20	50	0.20	50	0.20	250	1.0
9	Fish Farming	100	0.40	100	0.40	100	0.40	100	0.40	100	0.40	500	2.0
10	Agro Forestry	100	0.40	100	0.40	100	0.40	100	0.40	100	0.40	500	2.0
11	Credit and marketing management	150	0.60	150	0.60	150	0.60	150	0.60	150	0.6	750	3.0
12	Renewable energy sources	100	0.40	100	0.40	100	0.40	100	0.40	100	0.40	500	2.0
13	INM	200	0.80	200	0.80	200	0.80	200	0.80	200	0.80	1000	4.0

Sr. No.	Name of technology to be transferred	No of farmers to be trained and fund requirement										Total	
		2007-08		2008-09		2009-10		2010-11		2011-12		Phy	Fin
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin		
14	RCTs	200	0.80	200	0.80	200	0.80	200	0.80	200	0.80	1000	4.0
15	Weed management	200	0.80	200	0.80	200	0.80	200	0.80	200	0.80	1000	4.0
16	Mushroom	350	1.40	350	1.40	350	1.40	350	1.40	350	1.40	1750	7.00
17	Bee Keeping	350	1.40	350	1.40	350	1.40	350	1.40	350	1.40	1750	7.00
18	Modern dairy management aspects	1000	4.0	1000	4.0	1000	4.0	1000	4.0	1000	4.0	5000	20.0
19	Poultry management	200	0.80	200	0.80	200	0.80	200	0.80	200	0.80	1000	4.0
20	Sheep, goat and pig rearing	400	1.6	400	1.6	400	1.6	400	1.6	400	1.6	2000	8.0
	Total	4140	16.56	4140	16.56	4140	16.56	4140	16.56	4140	16.56	20700	82.8

Table 5.3 : IPM Demonstrations in Horticultural crops Next Five Years

(Phy Area covered in ha, Fin – Rs. In lacs)

Crop	Area under each demon.(ha)	IPM Demonstrations Projection											
		2007-08		2008-09		2009-10		2010-11		2011-12		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Vegetable crops	0.4	125	0.875	150	1.05	175	1.225	200	1.4	225	1.575	875	6.125
Floriculture	0.4	50	0.75	50	0.75	50	0.75	50	0.75	50	0.75	250	3.75
Total		175	1.1	200	1.4	225	1.6	250	1.7	275	1.9	1125	7.7

Table 5.4 : INM Demonstrations in vegetable crops in Next Five Years

(Phy Area covered in ha, Fin – Rs. In lacs)

Crop	Area under each demon.(ha)	INM Demonstrations Projection											
		2007-08		2008-09		2009-10		2010-11		2011-12		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Bhindi	0.4	20	1.0	25	1.25	30	1.5	35	1.75	40	2.0	120	6.0
Potato	0.4	30	1.50	40	2.0	45	2.25	50	2.5	60	3.0	225	11.25
Cucurbits	0.4	10	0.5	10	0.5	10	0.5	10	0.5	10	0.5	50	2.25
Onion	0.4	30	1.5	35	1.75	40	2.0	45	2.25	50	2.5	200	10.0
Brinjal	0.4	30	1.5	35	1.75	40	2.0	45	2.25	50	2.5	200	10.0
Cole Crops	0.4	30	1.5	35	1.75	40	2.0	45	2.25	50	2.5	200	10.0
Total		150	7.5	180	9.0	205	10.1	230	11.5	260	13.0	975	48.75

Table 5.5 : Varietal Demonstrations to be conducted in vegetable crops in Next Five Years

(Phy Area covered in ha, Fin – Rs. In lacs)

Crop	Area under each demon.(ha)	Varietals Demonstrations Projection											
		2007-08		2008-09		2009-10		2010-11		2011-12		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Bhindi	0.4	20	0.75	25	0.95	30	1.125	35	1.3	40	1.50	150	5.625
Totato	0.4	20	0.75	25	0.95	30	1.125	35	1.3	40	1.50	150	5.625
Brinjal	0.4	20	0.75	25	0.95	30	1.125	35	1.3	40	1.50	150	5.625
Onion	0.4	20	0.75	25	0.95	30	1.125	35	1.3	40	1.50	150	5.625
Cole crops	0.4	20	0.75	25	0.95	30	1.125	35	1.3	40	1.50	150	5.625
Other veg. crops	0.4	50	1.87	50	2.37	50	2.812	50	3.35	50	3.75	250	14.06
otal		150	5.62	175	7.12	200	8.437	225	9.85	250	11.25	1000	42.20

Table 5.6: Demonstrations on important aspects identified in the Plan in allied sectors/ enterprises (Phy – No. of demons., Fin – Rs. In lacs)

Allied Sectors/ enterprise	Demonstrations Projection											
	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Dairy	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	2500	5.0
Poultry (including backyard)	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	2500	5.0
Sheep, goat and Piggery	250	0.5	250	0.5	250	0.5	250	0.5	250	0.5	1250	2.5
Mushroom	50	2.5	50	2.5	50	2.5	50	2.5	50	2.5	250	12.5
Fishery	20	1.0	20	1.0	20	1.0	20	1.0	20	1.0	100	5.0
Agro Forestry	20	1.0	20	1.0	20	1.0	20	1.0	20	1.0	100	5.0
Vermicompost	100	2.0	100	2.0	100	2.0	100	2.0	100	2.0	500	10.0
Total	1440	9.0	1440	9.0	1440	9.0	1440	9.0	1440	9.0	7200	45.0

Table 5.7 : Farmer Field Schools covering identified critical technologies in Next Five Years

(Phy – No. of field school, Fin – Rs. In lacs)

Fields	Farmer Field Schhols Projection											
	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Dairy	20	4.0	20	4.0	20	4.0	20	4.0	20	4.0	100	20.0
Poultry (including back yard)	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	50	10.0
Goatry and Piggery	30	6.0	30	6.0	30	6.0	30	6.0	30	6.0	150	30.0
Fish Farming	20	4.0	20	4.0	20	4.0	20	4.0	20	4.0	100	20.0
Bee Keeping	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	25	5.0
Agro Forestry	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	25	5.0
Mushroom	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	25	5.0
Vegetable crops	50	10.0	50	10.0	50	10.0	50	10.0	50	10.0	250	50.0
Total	145	29.0	145	29.0	145	29.0	145	29.0	145	29.0	725	145.0

Table 5.8: Group formation /Commodity interest groups formation for specific activities

Interest Group(s)	Group Formation Projection Plan											
	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Dairy	20	4.0	20	4.0	20	4.0	20	4.0	20	4.0	100	20.0
Poultry (including back yard)	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	25	5.0
Goatry and Piggery	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	50	10.0
Fish Farming	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	25	5.0
Bee Keeping	2	0.4	2	0.4	2	0.4	2	0.4	2	0.4	10	2.0
Agro Forestry	2	0.4	2	0.4	2	0.4	2	0.4	2	0.4	10	2.0
Mushroom	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	25	5.0
Vegetable crops	50	10.0	50	10.0	50	10.0	50	10.0	50	10.0	250	50.0
Total	99	19.8	99	19.8	99	19.8	99	19.8	99	19.8	495	99.0

Cost norms- Rs.0.20 lacs/group (for capacity building, input assistance, marketing and for group specific activities)

Table 5.5. 1: Proposal for Fisheries Development during XI Plan

Sl.No	Name of the Schemes	Proposed budget					Total
		2007-08	2008-09	2009-10	2010-11	2011-12	
1	Intensive	10.0	11.0	12.0	13.0	14.0	60.0
2	Marhy area	1.50	1.60	1.70	1.80	1.90	8.5
3	National. Fish seed prog.	1.50	1.60	1.70	1.80	2.0	8.6
4	F.F.DA.	20.0	22.0	24.0	26.0	28.0	120.0
	Total Rs.in lac	33.00	36.20	39.40	42.60	45.90	197.1

CHAPTER VI

District Plan

6.1 Introduction

The proposed district plan includes agriculture, horticulture, forestry, animal husbandry, fisheries and innovative as well as miscellaneous schemes as the major activities to be undertaken in the district Faridabad. The existing status of these sectors has been issued in detail in the preceding chapters with the proposed outlays for XI plan.

6.2 Growth drivers

The targets will be achieved using different growth drivers in agriculture and allied sectors as follows:

6.2.1 Agriculture

a) Increasing area under hybrids in rice, improved varieties in wheat and sugarcane

b) Resource conservation technologies for sustaining and improving the productivity levels.

c) Mechanization for increasing water use efficiency.

d) Seed treatment and enhancing seed replacement rate.

e) IPM, INM and IWM.

f) Demonstration and capacity building of field functionary and farmers

g) Human resource development.

6.2.2. Horticulture

a) Increasing area under fruits and vegetable crops.

b) Providing improved planting material of fruit crops.

c) IPM and INM

f) Encouraging income and employment generating vocations through agro based vocations.

g) Demonstrations and trainings including farmers and field official

6.2.3 Forestry:

a) Increasing area under forests through plantation in community lands.

b) Increasing area under agro-forestry.

c) Demonstrations and trainings including farmers and field officials

6.2.4. Animal Husbandry:

a) Mineral mixture feeding

b) Deworming

c) Breed improvement through community bulls and A.I

d) Balanced feeding

e) Improvement of village ponds

f) Demonstration and capacity building of field functionary and farmers

6.2.5 Fisheries:

a) Improvement of village ponds.

b) Making availability of good quality fish seed

d) Balanced feeding in ponds

e) Capacity building of farmers and field functionary.

6.3 Innovative Schemes/ Projects

1. Strengthening of training infrastructure facilities at Krishi Vigyan Kendra (district level) and Farm Information and Advisory Centers (FIACs -at Block Level) .

Trainings are one of the most important extension activities conducted by extension and development institutions/ departments to educate farmers on different aspects of agricultural and allied activities. The changing agri economic scenario , fast technology generation and its applications in complex world of today's agriculture necessitated constant trainings for capacity building and skill up gradation of farmers as well as technical staff. The KVKs and FIACs are established training institutions at district and block level, respectively, to cater to the training needs of different clientele. Infrastructural facilities are needed to be created at both levels for conducting training effectively to raise farm productivity.

Logical framework matrix

Narrative Summary	**Objectively verifiable indicators**
Project goal- Development of human resource for raising farm productivity	Upgadation in knowledge and skills of the farmer and staff.
Purpose- To strengthen facilities at district and block level for conducting effective training programmes for farmers and field staff.	Increase in production , productivity and profitability of crops and allied enterprises.
Output- Well informed, skilled and upgraded farmers and field staff for rationale decision making in agriculture and allied fields.	

A) Cost For Strengthening Infrastructure at KVK (at district level)

Sr. No.	Infrastructure	No.	Cost (in lacs)
1.	Information Technology Lab	1	25.0
2.	Automatic Weather Station	1	10.0
3	Modification of Training Hall	1	10.0
4	Construction of Training Hostel	1	100.0
	Total		**145.0**

B) Cost For Strengthening Infrastructure at FIAC (block level)*

Sr. No.	Infrastructure	No.	Cost (in lacs)/ unit	Total cost (Rs. lacs)
1	Well Equipped Training Hall	5	30.0	150.0
2	E- connected computer lab	5	10.0	50.0
	Total		40.0	200.0

Total Cost of the Project (A+B)= Rs. 45.0+200.0 = Rs.245.0 lacs

** There are five blocks in the district and each block has one FIAC.*

2. Seed Treatment in wheat

Wheat is the main crop sown during Rabi season in an area of 1.09 lac hactare. Seed treatment is one of the major factors/ component which may result into increased yield due to not allowing the pathogens and insect pests to infect and infest the crop. Generally one or more disease appears in high incidence in wheat crop causing substantial reduction in yield. The seed borne and soil borne disease like loose smut, flag smut, and Karnal bunt are difficult to control after they appear on plants. Such disease are however, easy to manage through treatment of seed before sowing, as a prophylactic measure. Most seed treatment products are fungicides or insecticides applied to the seed before planting. Fungicides are used to control diseases of seeds, seedlings and plant while insecticides are used to control insect-pests. Fungicidal seed treatments are done for three reasons

1 To control soil borne fungal pathogens which generally cause seed rot, root rot, stem rot, damping off, seedling blight etc

2 To control fungal pathogens which are surface borne on the seed

3 To control the internally seed borne pathogens such as loose smut in wheat

Insecticidal seed treatments are mainly done for not allowing the soil inhabiting insect pests like termite to damage the seed, seedling and grow up plant in their initial stages of growth. It results into sufficient plant population with vigorous and healthy growth. These protect ants provides sufficient improvement in stand and vigour, protects from insect-pests and diseases resulting in yield increase, seed treatment is a cheap, easy, effective and eco-friendly approach.

Keeping in view the advantages of seed treatment in increasing the yield of wheat crop, it is suggested that the entire district be brought under seed treatment programme in wheat crop for a few years after which the farmers will themselves follow this practice.

Objective

In order to improve the effectiveness of seed treatment, seeds will be treated with the help of seed treatment drum. Keeping in view the necessity of such drums, Punjab mandi board has started providing seed treatment drums to all gram Panchayats of Punjab free of cost in a phased manner. The supply of drums will make the farmers realize the importance of seed treatment. Once the technology in appreciated and adopted by the farmers, it will become an important step in the process of agricultural production.

Seed Treatment in Paddy

Application of chemicals to seed is the safest, cheapest and most effective means of controlling most seed borne pathogens. Fungicidal treatment may kill or inhibit seed borne pathogens and may form protective zone around seeds that can reduce seed decay resulting in healthy and vigorous seedlings.

Seed treatment is invariably essential for the control of disease like foot rot and bakanae in paddy crops. This disease can not be controlled by any chemical in the standing crop and misuse of chemicals have created lot of problems like environmental pollutions, killing of non target organisms, residue in food and feed and changing the physiology of the plant due to which plants become more susceptible.

Table 6.3.2.1 Seed and seed treatment chemical requirement

Crop	Area (Ha)	Seed Requirement (qtls.)	Chemical required for seed treatment (kg/liter)	
Wheat	109000	109000 @ 100 kg/ha	21800	Bavistin
			16350	Chloropyriphos
Paddy	26000	5200 @ 20 kg/ha	520	Bavistin
			52	Streptocycline

Table 6.3.2.2 Proposal for seed treatment (RS.in lacs)

Seed treatment	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Wheat	126	126	126	126	126	630
Paddy	5.37	5.37	5.37	5.37	5.37	26.85
G. Total	**131.37**	**131.37**	**131.37**	**131.37**	**131.37**	**656.85**

3. Resource Conservation

Agriculture is entering a new phase to ensure that past gains of conventional technology can be sustained to further enhance to feed the growing population. Productivity stabilization deteriorating soil health and depleting water resources are the present day concerns of attention. Conservation agriculture has come up to a new paradigm to maintain ecological equilibrium for cost effective regenerative processes like no tillage, water and energy saving, nutrient recycling, soil regeneration and protection of natural enemies of pest and disease. Such resource conservation technologies (RCTs) have proved boon to the farmers practiced in the district through farmers participatory approach.

a) **Use of Zero Tillage Drill:** The evolution of zero tillage in wheat seems an obvious step. The technique shows direct saving of 18-20 per cent of cost of cultivation. Less spending and better environment would undoubtedly help both farmers and policy makers. Farmers in the past were not benefited from the virtual cycle of more input and more output. This technology has become obvious choice because it means less spending and more output.

The status and monetary benefit of wheat sowing with zero till machine is given in table below:

Table 6.3.3.1: The status of zero tillage sowing of wheat and its monetary advantages.

Years	No. of drills	Area (ha)	Yield (q/ha)		Increase in yield (%)	Monetary benefit for farmers (Rs. in lacs)
			CT	ZT		
2003-04	65	1500	39.5	42.5	7.0	25.52
2004-05	155	4200	37.9	40.3	6.4	64.51
2005-06	210	6250	40.3	42.8	6.2	109.38
2006-07	320	7800	37.2	39.5	6.18	134.55
Total	**750**	**19750**				**333.96**

Table 6.3.3.2: Proposal for use of zero till drill during XI Plan

Year	No. of drills required	Unit cost (Rs. in lacs)	Money required (Rs. in lacs) at 50%subsidy
2007-08	75	0.25	9.40
2008-09	50	0.25	6.25
2009-10	50	0.25	6.25
2010-11	50	0.25	6.25
2011-12	50	0.25	6.25
Total	**275**	**1.25**	**34.40**

b) Laser levelers for land leveling:

The farmers participatory researches have indicated that use of laser leveler saves 25-30 per cent water, increases grain yield by 15-20 percent, increase in area by 3-5 percent alongwith others invisible advantages. At present, only two laser leveler are available in the district. Keeping in view the benefits of this technology, the farmers of the operational area should be motivated to use this modern technology to get maximum benefit.

Table 6.3.3.3: Proposal for XI plan for laser leveler

Year	Physical Units	Unit Cost	Total money (Rs. in lacs)
2007-08	3	3.5	10.5
2008-09	4	3.5	14.0
2009-10	4	3.5	14.0
2010-11	5	3.5	17.5
2011-12	5	3.5	17.5
Total	**21**	**17.5**	**73.5**

(c) Green Manuring :

The use of inorganic manures has been accepted by the farmers. In many situations, farmers use even more than the recommended dose of fertilizer. The use of farm yard manure is also recommended but farmers can afford to use FYM in a cycle of one in 12-15 years. In order to have effective use of organic source of nitrogen, green manuring is being promoted. this crop can easily be adjusted in the narrow window of two months between wheat harvesting and rice transplanting. The recycling of biological matter is of utmost importance and green manuring during summer in rice wheat cropping system needs to be popularized.

The status of green manuring is given in table below:

Table 6.3.3.4: Area under green manuring and its monetary benefits

Years	Area (ha)	Yield (q/ha)		Increase in yield %	Monetary benefits for farmers (Rs. in lacs)
		No GM	GM		
2004	4500	54.3	58.3	7.4	100.8
2005	5500	53.3	57.8	8.9	141.1
2006	7568	50.2	55.6	10.8	237.0
2007	8200	51.5	55.1	7.0	186.0

Table 6.3.3.5: Proposals for green manuing during XI plan

Year	Area to be covered ha)	Seed required (qtls)	Cost of seed (Rs. in lacs)
2007-08	12000	3120	62.00
2008-09	15000	3750	75.00
2009-10	18000	4500	90.00
2010-11	20000	5000	100.00
2011-12	23000	5750	115.00
Total			**442.00**

d) Popularization of summer Moongbean cultivation in Rice-Wheat Crop rotation

The ground water resources is continuously depleting due to rice-wheat crop rotation. In order to discourage the summer rice cultivation and to improve soil fertility cultivation of summer moongbean should be encouraged in the district.

Table 6.3.3.6: Status of Summer Moongbean in District Faridabad.

Year	Area (ha)	Average Yield (q/ha)
2004	100	7.00
2005	250	7.20
2006	675	6.50

Table 6.3.3.7: Proposals for Summer Moong-bean cultivation

Year	Area under summer Moongbean (ha)	Seed Required (qtl)	Cost of Seed (in lacs)
2007	4200	1050	52.5
2008	5000	1250	62.5
2009	5500	1375	68.75
2010	5500	1375	68.75
2011	6000	1500	75.00
Total	**26200**	**6550**	**327.5**

4 Project for Rain water Harvesting

Programmes	Activities	Cost
Rain water harvesting	To overcome the problem of decreasing water level rain water harvesting structures will be made	Area for Artificial recharge = 70000ha No. of recharge structures = 400 @ Rs. one lac per structure Total cost = Rs. 400 lacs

Water harvesting refers to collection and storage of rain water and also other activities aimed at harvesting surface and ground water, prevention of losses through evaporation and seepage and all other hydrological studies and engineering interventions, aimed at conservation and efficient utilization of the limited water endowment of a physiologic unit such as a watershed. Rain is the primary source of water for us. Rivers, lakes, and groundwater all are secondary sources of water. In present times, we depend entirely on such secondary sources of water. In the process, it is forgotten that rain is the ultimate source that feeds all these secondary sources and remain ignorant of its value. Water harvesting means to understand the value of rain and to make optimum use of rain water at the places where it falls.

The annual rain fall of the district is nearly 450 mm. However, this rainfall occurs during short spell of high intensity. Because of such intensities and short duration of heavy rain, most of the rain falling on surface tends to flow away rapidly, leaving very little for the recharge of ground water. This highlights the need to implement measure to ensure that the rain falling over a region is tapped as fully as possible through water harvesting, either by recharging it into the groundwater aquifers or storing it for direct use.

Water harvesting potential = Rainfall (mm)x collection efficiency

Ground water availability in district Faridabad is given as under:

Table 6.3.4.1: Ground water availability in District Faridabad.

Sr. No.	Name of Block	Net Ground water (GW) Availability (in Ha.m.)	Alloc ation for Domestic/ Industrial use (in Ha.m)	Existing GW draft for Irrigation (in Ha.m)	GW availability for further Irrigation Dev. (in Ha.m)	Stage of ground water develop ment (Ha.m.)
1	Faridabad	8324	1412	5822	1540	75%
2	Ballabgarh	8640	148	2975	5666	36%
3	Palwal	13260	201	5757	7504	45%
4	Hodal	10038	62	5669	4369	57%
5	Hasanpur	6416	36	2078	4338	55%
	Total	**46678**	**1859**	**22299**	**23416**	**53.6%**

Source: Hydrologist, Gurgaon

The ground water exploitation is reaching at alarming stage with its over- exploitation in unsustainable manner in Faridabad district. The surface water availability in Haryana increased from 9.72 lakh ha in 1971 to 14.33 lakh ha in 2004 where as ground water acreage increased from 5.74 lakh ha to 15.22 lakh ha during this period. There were 25311 tube well (both electric & diesel) in Haryana in the year 1966-67 and in Faridabad district the numbers of tubewells were 27803 in 2005-06. The area under tube well irrigation increased upto 86861 ha in the year 2005-06.

Moreover, increasing number of farmers are installing submersible tube wells at a higher cost which in turn increasing the cost as well as rate of ground water exploitation. There is no proper attention to recharging of underground water. Even the traditional methods of recharge are not followed by the farmers.

It is necessary to take immediate steps for devising methodologies to conserve water as well as its judicious use. It becomes imperative for the farmers not only to adopt techniques for efficient water use but also pay attention towards rain water harvesting and recharging. Water recharging has to be taken up on community level. Out of several methods of water harvesting open well method is more appropriate under the circumstances. This proposed recharge scheme will not only check decline in water level but will result into rise of water level up to 0.50 meter. It will also bring additional land under irrigation.

Project :

Area identified for artificial recharge: 700 sq km

Sub surface storage potential : 147 MCM

Surface water requirement 195 MCM

Proportionate non committed water resource available

(as surplus & kept for future planning): 17.22MCM

Surface water considered for artificial

recharge to ground water : 17.22MCM

Proposed Recharging structures to be made: 400

Cost of one structure: Rs.100000

Total cost: (400.00 lac)

Table 6.3.4.2 Year wise budget required to make recharging structures

Component	2007-08	2008-09	2009-10	2010-11	2011-12	TOTAL
Structures to be made	80	80	80	80	80	400
Budget required (in lakhs)	80	80	80	80	80	400

5 Project for Reclamation of Alkali Soils and Water

The soils which have preponderance of Na Ions in soil extract means Sodium adsorption ratio (SAR) more than 13 and hence on exchangeable Sodium percentage (ESP) exceeding 15 and Electrical Conductivity less than 4.0 m mhos/cm at 26^0C are qualified as alkali soils. The exchangeable Na Hydrolyzes forming NaOH in the soil solution which reacts with dissolved CO_2 to form Na_2CO_3. This raises the soil pH as high as a Alkali Soils are dominated mainly by HCO_3 and CO_3 anions or both. Large amount of

HCO_3 and CO_3 ions indicates the near absence of soluble Ca and Mg, very high SAR and hence ESP and pH. These types of soils generally associated mainly with arid and semi arid areas. The exchangeable Na present in the Alkali Soils may have adverse effect on the physical and chemical properties. As the ESP increases, the soil test to become more dispersed. The alkalinity defiriorate the soil fertility, seed germination is severely affected, plants remain stumped and ultimately load to low yield. In such soil, due to dispersion of the soil, water does not percolate down easily. To improve such soil first we should take samples and get the analysed for their gypsum requirement. The application of the gypsum based on gypsum requirement if the only very for their reclamation. In Faridabad district, presently a total of about 4000 ha area is alkaline in nature.

Table 6.3.5.1: Proposal for Soil Reclamation through Gypsum during XI Plan

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Area to be reclaimed (ha)	500	500	1000	1000	1000	4000
Gypsum Required (MT)	2500	2500	5000	5000	5000	20000
Present Cost @ 1800/MT (Lacs)	45	45	90	90	90	360
Subsidiary Required (Lacs)	33.75	33.75	67.5	67.5	67.5	270

6.Project: Installation of Solar photovoltaic (SPV) pumps for popularising non-conventional energy usage in farming.

The pumping out cost of irrigation water is becoming costlier day by day. The rising cost of diesel and rationalizing of power tariffs will further aggravate this situation for the farmers. Besides adopting water use efficiency measures, the only viable of sun left to the farmers to switch towards non conventional energy usage for pumping out the irrigation water. This could be done by harnessing the solar energy through SPV pumps. The technology is available for converting the abundant sunshine into electricity for farm and home usage. With slight addition/ modification the system can produce and output even during non sunshine hours.

Advantages of SPV water pump

- Save expenditure on diesel and electricity as it operates on freely available in solar energy.
- Negligible operation and maintenance cost.
- Reliable and pollution free long life.
- No fear of power cuts.
- Scarcity of diesel.

Table6.3.6.1: proposals for XI plan for SPV Installation:

2007-08		2008-09		2009-10		2010-11		2011-12		Total	
Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
40	140	55	192.5	55	192.5	97	339.5	100	350	347	1214.5

6 Project for Horticultural Crops

Table 6.3.6.1: Proposed plan for Area Expansion of Horticultural crops during XI plan. (Area in ha) (Rs. In lacs)

Existing Cropping Pattern (2006-07)	2007-08		2008-09		2009-10		2010-11		2011-12	
Crops	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Guava	12	1.8	12	1.8	15	2.25	20	3.0	20	3.00
Ber	8	1.2	8	1.2	10	1.50	12	2.0	15	2.25
Citrus	10	1.5	10	1.5	12	1.80	15	2.50	20	3.00
Potato	100	10.0	100	10.0	110	11.0	125	13.0	150	16.00
Cucurbits	200	20.0	200	20.0	220	22.0	250	26.0	300	32.00
C.Flower	200	20.0	200	20.0	220	22.0	250	26.0	350	37.00
TOTAL	**530**	**54.5**	**530**	**54.5**	**587**	**60.55**	**672**	**72.50**	**855**	**93.25**

Source: Horticulture Department Faridabad.

Table 6.3.6.2 : Proposed plan for Rejuvenation of old orchards during XI plan

(Area in ha) (Rs. In lacs)

Area brought under Rejuvenation (2006-07)			2007-08		2008-09		2009-10		2010-11		2011-12	
Crops	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Ber	15	--	8	1.2	8	1.2	10	1.50	12	1.80	12	2.0
Guava	30	--	8	1.2	8	1.2	10	1.50	12	1.80	12	2.0
Mango	4	--	2	0.3	2	0.3	3	0.50	4	0.70	5	0.80
Total	**64**	**--**	**18**	**2.7**	**18**	**2.7**	**23**	**3.50**	**28**	**4.30**	**29**	**4.80**

Source: Horticulture Department Faridabad.

Table 6.3.6.3 : Proposal for establishment of Mushroom units

Description	**07-08**	**08-09**	**09-10**	**10-11**	**11-12**	**Total**
Number	5	10	10	15	15	55
Financial help @ Rs. 1.0 lac / unit	5.0	10.0	10.0	15.0	15.0	55.0

7 Project for Forest tree Crops

Table 6.3.7.1: proposals for XI plan for Plantation

Activity	Year		)									
	2006-07		2007-08		2008-09		2009-10		2010-11		2011-12	
	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Plantation	–	–	20	2.0	20	2.0	20	2.0	20	2.0	20	2.0
Total	–	–	20	2.0	20	2.0	20	2.0	20	2.0	20	2.0

Total area: 100 ha

Total Cost: 10.00 lacs

8. Project for Animal Husbandry:

Table 6.3.8.1 Proposal for new GVH and GVD

New Institutions	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**total**
GVH No	2	5	5	5	5	22
Cost Rs.lac	42.0	105.0	105.0	105.0	105.0	**462**
GVD No	2	5	5	5	5	22
Cost Rs. Lac	30.0	75.0	75.0	75.0	75.0	**330**
Grand total	**72.0**	**180.0**	**180.0**	**180.0**	**180.0**	**792.0**

Commercial Dairy Farming

Due to close proximity to national capital Delhi, the dairy farmers of district Faridabad are selling thousands liters of milk daily in Delhi and adding a good amount to their family income. Buffalo is the main milch animal in the district. The cost of the good animal has increased more than Rs. 30,000 per animal. Due to the small land holdings high cost of animal, it has become very difficult to maintain dairy animals. The demand for milk is continuously increasing from national capital region. The milk prices also reaches upto Rs. 30/- per liter. Therefore, there is a urgent need to establish commercial dairy units, which can be run on economy of scale. The automation of this enterprise can being down the cost of milk production, thereby making a good scope for commercially viable large sized dairy farms.

Table 6.3.8.2 Proposal for Commercial Dairy Units establishment

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Number	10	15	20	20	20	85
Cost @ 20 l/unit in lac	200	300	400	400	400	1700
Subsidy @ 25%	50.0	75.0	100.0	100.0	100.0	425.0

Table 6.3.8.3 : Proposed Plan of Mineral Mixture Feeding

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
No. of Lactating animals(L)	107843	112844	112844	118750	128750	581031
No. of ani. Covered under MM	3100	3250	3250	3420	3710	16730
MM req. @ 50g/day/animal for 300days	46500	48750	48750	51330	55650	250980
Cost @ Rs. 50/ Kg (Lacs)	**23.25**	**24.38**	**24.38**	**25.66**	**27.82**	**125.49**

Table 6.3.8.4: Proposed Plan of Deworming during XI plan

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
No. of Calves (L)	107843	112844	112844	118750	128750	**581031**
No. of calves Covered under deworming	3100	3250	3250	3420	3710	**16730**
Cost of DW req. @ Rs.150/ calf/ yr (Lacs)	**4.65**	**4.88**	**4.88**	**5.13**	**5.57**	**25.11**

Table 6.3.8.5: Proposal for providing community bulls

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Number	20	25	30	40	50	165
Cost @0.30 lacs/bull	6.0	7.5	9.0	12.0	15.0	**49.5**
Maintenance Cost 0.25/bull/yr	5.0	6.25	7.5	10.0	12.5	**41.25**
G. Total	**11.0**	**13.75**	**16.5**	**22.0**	**27.5**	**90.75**

Conservation of Village ponds

In rural Haryana, the villages were established on higher topographies by using scientific minds by the ancestors. One or more pond was constructed in each village with the objective of harvesting rain water, protection of village from the floods and using the harvested water for drinking of animals throughout the year. With the passing of time and increase in population the condition of village ponds deteriorated beyond repair. The village ponds are important resources for the reasons stated above. Upto now no serious efforts have been made to conserve these ponds on scientific lines for the purpose they were constructed. Extensive use of soaps and detergents, throwing of animal waste in or near the ponds has made these ponds purposeless. With the slight rainfall, flood like situations are created near the ponds and the pollution caused by these ponds have posed a serious threat to human population in these villages due to decreasing water holding capacity of these ponds. There is no valid reason why the matter should not be addressed suitably at the earliest. Therefore, an outlay of Rs. 500 lac is requested for conserving 90 ponds in Faridabad district.

Table 6.3.8.6: Proposal for conservation of village ponds

Description	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**Total**
Number	20	20	20	20	20	100
Funds Req.@ Rs.5 lacs	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**500.0**

9. Project for Fisheries:

Table 6.3.9.1: Proposal for Fisheries Development during XI Plan

Proposed budget(Rs inlacs)					**Total**
2007-08	2008-09	2009-10	2010-11	2011-12	
10.0	11.0	12.0	13.0	14.0	60.0
1.50	1.60	1.70	1.80	1.90	8.5
1.50	1.60	1.70	1.80	2.0	8.6
20.0	22.0	24.0	26.0	28.0	120.0
33.00	**36.20**	**39.40**	**42.60**	**45.90**	**197.1**

Physical and Financial Programme Proposed for development of Agriculture Sector under CDAP during XI plan.

Phy. In Nos/ha **(Rs. In Lacs)**

Sr. No.	Activity/Projects	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
	A. Activity												
1	Trainings												
	In Service	750	4.5	750	4.5	750	4.5	750	4.5	750	4.5	3750	22.5
	Farmers	9300	32.5	9300	32.5	9300	32.5	9300	32.5	9300	32.5	46500	162.5
2.	Demonstrations												
	Varietal	2940	147.0	2940	147.0	2940	147.0	2940	147.0	2940	147.0	14700	735.0
	INM	2620	131.0	2620	131.0	2620	131.0	2620	131.0	2620	131.0	13100	655.0
	IPM	315	15.75	435	21.75	715	35.75	765	38.25	930	46.5	3160	158.0
	RCTs	1250	62.5	1250	62.5	1250	62.5	1250	62.5	1250	62.5	6250	312.5
3.	Other activities												
	FFSs	87.0	17.4	87	17.4	87	17.4	87	17.4	87	17.4	435	87.0
	Group formation	57	11.4	57	11.4	57	11.4	57	11.4	57	11.4	285	57.0
	Total		422.05		428.05		442.05		444.55		452.8		2189.5
4.	B. Special Project												
	Strengthening of Training Centre a) District level (KVK) b) Block level (FIAC0	1 5	145.0 200.0									1 5	145.0 200.0
	Zero-Till machine	75	9.40	50	6.25	50	6.25	50	6.25	50	6.25	275	34.0
	Rain water harvesting	80	80.0	80	80.0	80	80.0	80	80.0	80	80.0	400	400.0
	Reclamation of Alkali soils and water	500	33.75	500	33.75	1000	67.5	1000	67.5	1000	67.5	4000	270
	Improving soil health through	12000	62.0	15000	75.0	18000	90.0	20000	100.0	23000	115.0	88000	442.0

	Green Manuring												
	Introduction of Sumer Moong	4200	52.5	5000	62.5	5500	68.75	5500	68.75	6000	75	26200	327.5
	Laser levelling	3	10.5	4	14.0	4	14.0	5	17.5	5	17.5	21	73.5
	Seed Treatment :-												
	Wheat	-	126.0	-	126.0	-	126.0	-	126.0	-	126.0	-	630.0
	Paddy	-	5.37	-	5.37	-	5.37	-	5.37	-	5.37	-	26.85
	Solar Pumps	40	140	55	192.5	55	192.5	97	339.15	100	350	347	1214.5
	Survey and Monitoring	7	7.0	7	7.0	7	7.0	7	7.0	7	7.0	35	35.0
	Total		526.52		602.37		657.37		817.52		849.62		3453.35
	G.Total (A+B)		948.57		1030.42		1099.42		1262.07		1302.42		5642.95

Physical and Financial Programme Proposed for development of Allied Agricultural Sectors under CDAP during XI plan.

Phy. In Nos/ha (Rs. In Lach)

Sr. No.	Sector/Activity/Projects	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
	All Allied Sectors												
1	Trainings												
	In Service	450	2.7	450	2.7	450	2.7	450	2.7	450	2.7	2250	13.5
	Farmers	4140	16.56	4140	16.56	4140	16.56	41.40	16.56	41.40	16.56	20700	82.8
2.	Demonstrations												
	Horticulture												
	Varietal	150	5.6	175	6.6	200	7.5	225	8.4	250	9.4	1000	37.5
	INM	150	7.5	180	9.0	205	10.1	230	11.5	260	13.0	975	51.1
	IPM	175	1.1	200	1.4	225	1.6	250	1.7	275	1.9	1125	7.7
3.	Demonstration on Allied Sector Activities	1440	9.0	1440	9.0	1440	9.0	1440	9.0	1440	9.0	7200	45.0
	FFSs (All Allied Sectors)	145	29.0	145	29.0	145	29.0	145	29.0	145	29.0	725	145.0
	Group formation	99	19.8	99	19.8	99	19.8	99	19.8	99	19.8	495	99.0
	Total		91.26		94.06		96.26		98.66		101.36		481.6
4.	B. Special Project												

	Horticulture Fruit & vegetable production	530	54.5	530	54.5	587	60.55	672	72.50	855	93.25	3174	335.31
	Rejuvenation of old orchard	18	2.7	18	2.7	23	3.5	28	4.3	29	4.8	116	18.0
	Animal Husbandary New Govt. Vet. Hospital & G.V. Dispensary	4	72.0	10	180.0	10	180.0	10	180.0	10	180.0	44	792.0
	Supplementing Mineral Mixtura	3100	23.25	3250	24.38	3250	24.38	3420	25.66	3710	27.82	16730	125.49
	Deworming	3100	4.65	32.50	4.88	3250	4.88	3420	5.13	3710	5.57	16730	25.11
	Dairy Farming	10	50.0	15	75.0	20	100.0	20	100.0	20	100.0	85	425.0
	Community Bulls	20	11.0	25	13.75	30	16.5	40	22.0	50	27.5	165	90.75
	Conserving village ponds	20	100.0	20	100.0	20	100.0	20	100.0	20	100.0	100	500.0
	Mushroom cultivation	5	5.0	10	10.0	10	10.0	15	15.0	15	15.0	55	55.0
	Agro Forestry	20	2.0	20	2.0	20	2.0	20	2.0	20	2.0	100	10.0
	Fish farming	-	33.0	-	36.20	-	39.40	-	42.60	-	45.90	-	197.1
	Total		358.1		503.41		541.21		569.19		601.84		2573.76
	G. Total (A+B)		449.36		597.47		637.47		667.85		703.2		3055.36

Table : Consolidated financial programme under CDAP during XI plan for Faridabad district (Rs. In lacs)

Name of Work	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Extension Activities												
Agriculture		422.05		428.05		442.05		444.55		452.8		2189.5
Allied sectors		91.26		94.06		96.26		98.66		101.36		481.6
Total		513.31		522.11		538.31		543.21		554.16		2671.1
Special projects Agriculture		526.52		602.37		657.37		817.52		849.62		3453.4
Allied sectors		358.1		503.41		541.21		569.19		601.84		2573.75
Total		884.62		1105.78		1198.58		1386.71		1451.46		6027.15
Grand total		1397.93		1627.89		1736.89		1929.92		2005.62		8698.25

Concluding Remarks

1. Faridabad farmers have become important competitors in all sorts of agricultural produce, from cereals to milk, mushroom, honey, vegetables and even fisheries. It is now transforming its economy by giving increased emphasis on service and manufacturing sectors. The success of Faridabad's economic transformation can be measured by the falling share of agriculture in the gross domestic product which has decreased to almost 20-25%. Industry and services are indeed growing even faster than farming and absorbing its surplus labour. Agriculture is likely to provide less jobs now compared with over two-thirds only ten years ago. Even so, over 60% of the population still lives in the villages, so a successful rural economy will remain the key to maintaining its impressive progress. Knowledge and skills of our farmers and extension agencies help us to understand our farming systems better. It is also a source of creative, innovative and economic strength especially in situations that currently exists in rural Faridabad where its young population does not wish to adopt farming as a profession. The way urbanization is happening in Faridabad also calls creation of culture that helps farmers to adopt subsidiary occupations. The proportion of farmers directly working on farms is likely to decrease steadily. Diversity within the rice-wheat cropping system and across sectors in the form of integrated farming systems is one the important ingredient of success. We are convinced that the different sources of income including crops, dairying, vegetable, flower, mushroom cultivation etc. can help farmers to get daily income. Balancing crop cultures and subsidiary occupations is the focal aspect of diversification in Faridabad district.

2. Demand for labour from states like Bihar which is the biggest source of migrant labour is increasing.The most obvious source of GDP growth is now coming from service and industry sector. It has started engaging more labour. The availability of migrant labour for rice transplanting, harvesting, and other agriculture operations including grading and processing of grains, vegetables and fruits will decrease. This will demand still more mechanization for sowing, harvesting, storage and processing. On the contrary, family labour especially the unskilled labour can not derive their income solely from crop based agriculture. Agriculture now must diversify across commodities and enterprises that promise a secure future to the young boys and girls of farm families. Unless off-farm and on-farm opportunities are not found, it may create social problem. Therefore, there is need to identify farm enterprise like dairying, flower. Vegetable, mushroom cultivation etc.

3. Higher productivity model would require more pesticides or hybrid technologies requiring more inputs or GM crops. The pesticides residues or risks associated with development of resistance in pests or weeds need to be monitored. The district Faridabad has already gone through such crisis. Safer pesticides or ecological based agronomical practices (rotation of crops or pesticides and zero tillage in wheat) must be encouraged to keep a guard against such possibilities. The faridabad district is facing the problem of heavy metal pollution affecting its sizable canal irrigated area due to toxicity of Gurgaon and Agra canal water. It can be overcome by improving the canal water quality through treatment of effluent discharges of heavy metals of Delhi and Faridabad industries.

4. As the computing has become easy and affordable, extension services and/or technologies can be out sourced from any where. As it happened in case of Bt cotton and hybrid vegetables, more and more linkages and synergies need to be developed by outsourcing technologies. More and more infrastructure, facilities need to be put to use with DDA's, DHO, DFO, Animal husbandary officers, Fishry officers which then can be linked to KVK's for a perfect integration of agriculture. Data centers need to be created to increase the computing capacity of extension workers. Data centers for the district may be located at the KVK as part of knowledge centers. The data Centers for the state may be located at main campus of CCS-HAU, HIsar.